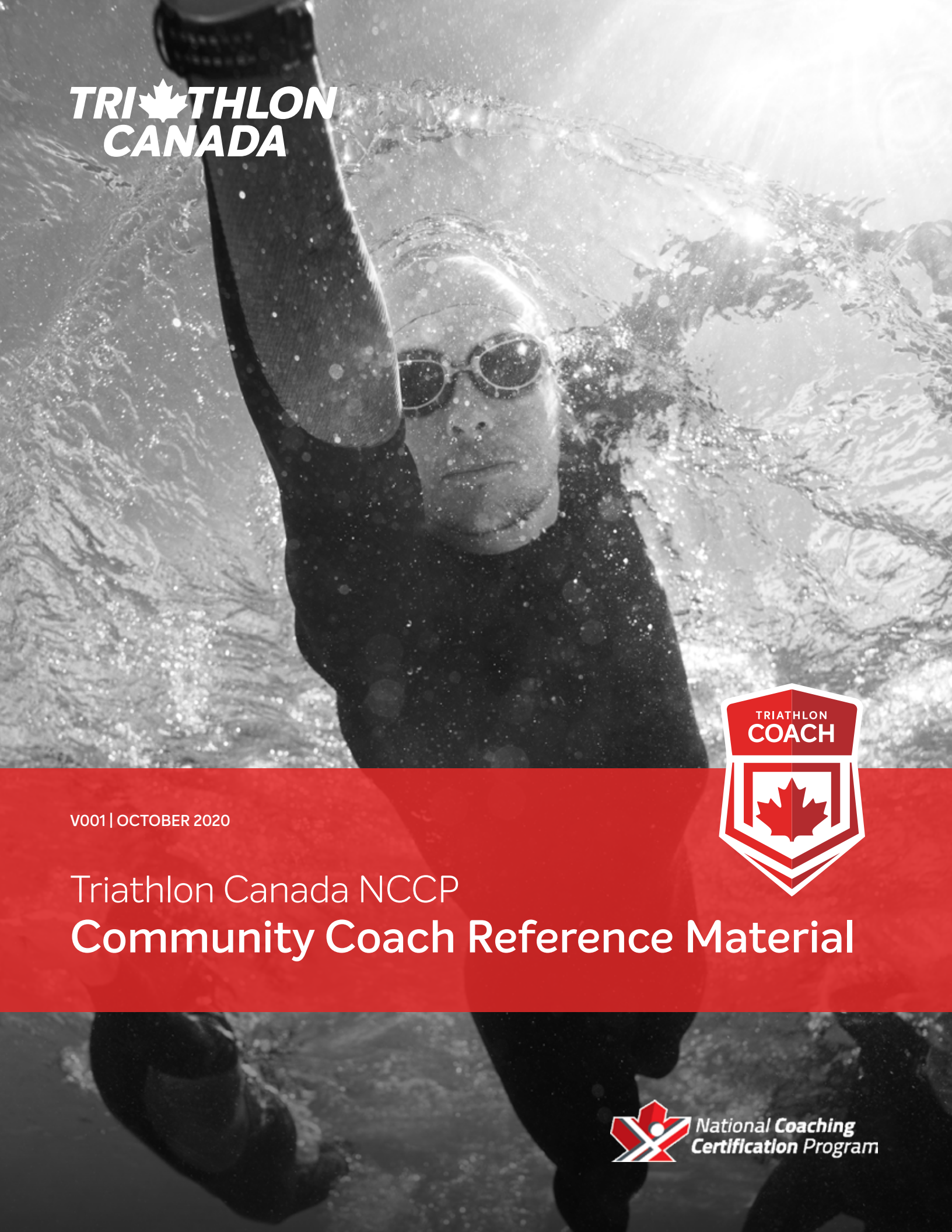

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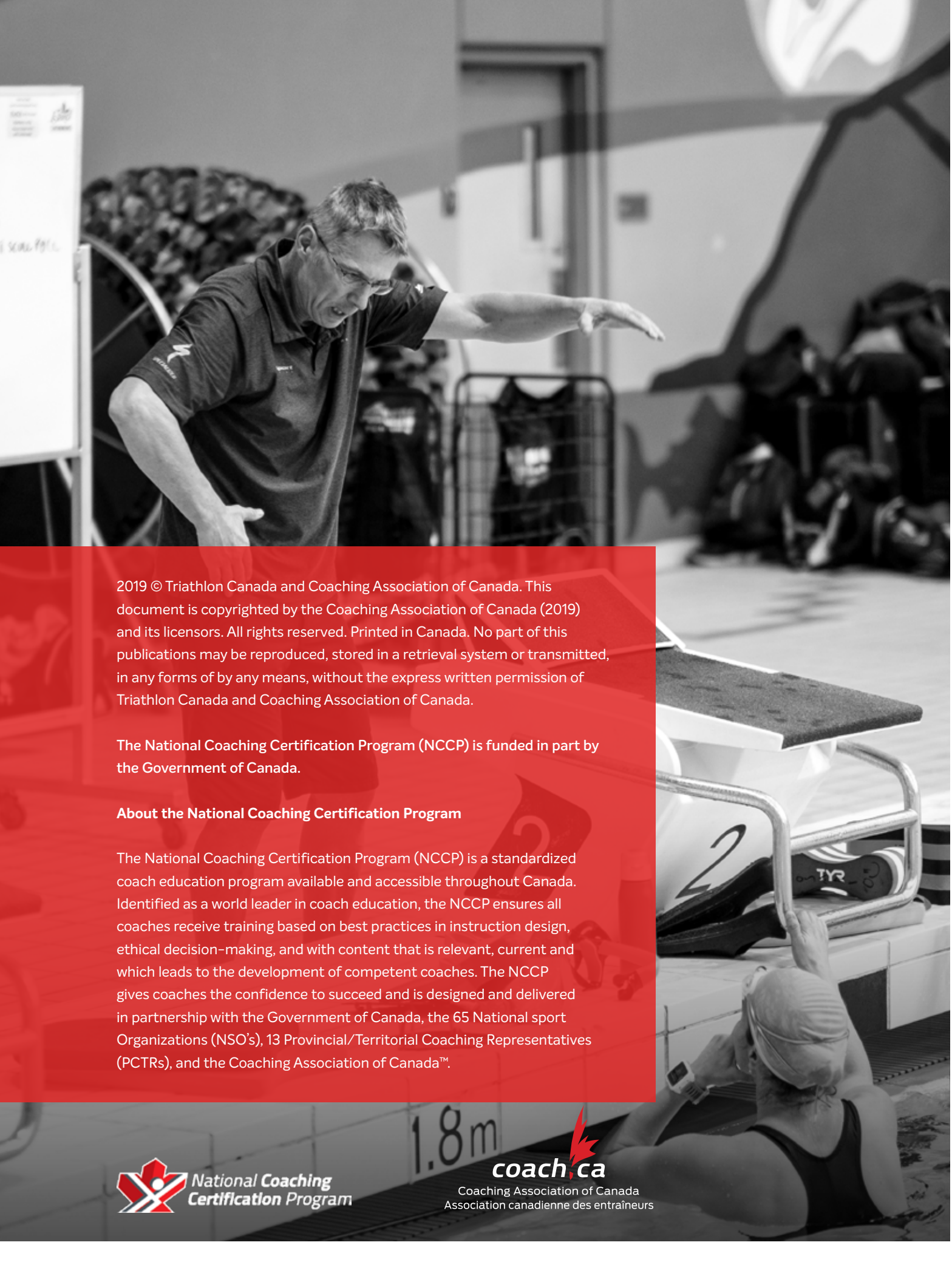
V001 | OCTOBER 2020

Triathlon Canada NCCP
Community Coach Reference Material

National Coaching Certification Program



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The National Coaching Certification Program (NCCP) is funded in part by the Government of Canada.

About the National Coaching Certification Program

The National Coaching Certification Program (NCCP) is a standardized coach education program available and accessible throughout Canada. Identified as a world leader in coach education, the NCCP ensures all coaches receive training based on best practices in instruction design, ethical decision-making, and with content that is relevant, current and which leads to the development of competent coaches. The NCCP gives coaches the confidence to succeed and is designed and delivered in partnership with the Government of Canada, the 65 National sport Organizations (NSO's), 13 Provincial/Territorial Coaching Representatives (PCTRs), and the Coaching Association of Canada™.

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Acknowledgements

Triathlon Canada supports athletes in reaching the Olympic and Paralympic podium. We also hope to inspire all Canadians who want to discover the sport of Triathlon. No matter where that start line is, great coaches are instrumental in helping both our high performance and our age group athletes connect to their passion for the simple acts of swimming, cycling and running.

Triathlon Canada's Adult Community Coaching Manual has been updated from its original publication in 2008 in an effort to continue to provide positive coaching education and practices amongst Canada's triathlon coaching community, during a time of rapid change and growth in our sport.

Triathlon made its Olympic debut at the 2000 Olympic Summer Games and was introduced to the Paralympic program in 2016. The International Olympic Committee included an additional medal event for triathlon in the Games in Tokyo 2020 which is now a focus of Canada's preparation throughout the Olympic quadrennial. More than 25,000 age group athletes across the country are competing in multiple race distances that the sport now offers. All of these athletes deserve great coaches, and it is our hope that this manual serves as a guide to help these athletes and coaches achieve their collective goals.

We would like to acknowledge the work of the many Canadians in the sport who have made this manual a reality. The early work in coaching development was spear headed by Larry McMahon and a team of passionate people who helped create the manual, the workshop, the Learning Facilitator guides, and the evaluation criteria. Recognition must be given to Kristine Chambers, Angie Anderson and Tracey Shelley for doing so much heavy lifting, for the benefit of all coaches, during those early days. Melissa Spooner contributed valuable information on nutrition to that original project. Finally, we would like to acknowledge Lucy Smith for leading the modernization of this document that will guide us into a new era and Marie-Pier Charest at the Coaching Association of Canada for her leadership and guidance on the project.

We hope this manual becomes a valuable resource, not only in your path to becoming a community coach, but also throughout your coaching education.

Triathlon Canada

Credits

The National Coaching Certification Program is a collaborative program of the Government of Canada, the provincial/territorial governments, the national/provincial/territorial sport organizations, and the Coaching Association of Canada.

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Introduction

Triathlon Canada NCCP Community Coaching Program

Coaches are unique and extraordinary people – a great coach is concerned about and genuinely interested in the excellence of others. Coaches embrace their role as leaders, and love knowing that they are making a difference. The more you educate yourself and develop as a coach, the greater your experience will be, while making a positive impact on the lives of others. One of the greatest gifts of coaching is to be a part of someone's growth, learning, improvement and success. To have created the encouraging environment where they find a way to move into that success, is highly rewarding.

Triathlon Canada understands that great coaching is:

Athlete centered and coach driven
Empowering, both physically and emotionally
Safe, both physically and emotionally
Positive
Engaging for all involved

Why become a Triathlon Canada Coach and the NCCP Pathway

In becoming a Triathlon Canada Community Coach, you will be part of a respected system of coaching and coaching development that benefits and strengthens the Canadian triathlon community. Triathlon Canada, the National Coaching Certification Program (NCCP), and the Coaching Association of Canada (CAC) have combined to deliver courses that are the highest standards in the sport of triathlon: this course will make you a better coach, a valuable member of the Triathlon Canada family, and will help you build your club or business through proper skills, education, training and certification.

The Community Coach

Community coaches are key to the success of the Triathlon Canada coaching program, as they have the first contact with almost all athletes who are entering the sport. Coaches are involved in building a positive and solid foundation for athlete experience and skill acquisition in the sport and therefore strengthening our programs in Canada. Triathlon is a late development sport, and our community coaches need to have the knowledge of basic skill development so that young athletes and age group athletes can have a platform for wherever their path takes them: whether age group competition (Active for Life) or a full time high performance career on the National Team. Triathlon Canada has worked closely with the CAC and the NCCP to create a strong community coach workshop that assists coaches in technical skill teaching and assessment, safety, athlete development, and how to coach athletes to events.

This Community Coaching Manual is a comprehensive guide to accompany your CAC Multisport coaching education and NCCP Community Coaching course – it is a resource that covers more than what can be taught in one weekend and acknowledges that all individuals come to coaching with their own set of skills and experience. While its baseline is meeting the criteria and evaluation needed for certification, Triathlon Canada wants to ensure all coaches move forward in a systematic progression of skills and knowledge in this dynamic sport.

Who are you coaching?

In order to be a great coach, you have to understand who you are coaching. At the community level, you will be coaching age group athletes from all backgrounds of sport (including competitive athletes from other sports) and those with no background in sport at all. A typical triathlon club includes a vast variety of experience, skill, personality, and ability. The individuals participate for many reasons and can be generally described according to the Four S's of Sport:

Why do people participate in sport at the community level?

Social
- Meet new friends
- Be active with like-minded people
- Have positive, friendly relationships
- Obtain honour

Sensation
- Enjoy the sights, sounds, sensations (wind, water, the elements) in sport
- Experience emotions, excitement

Success (Achievement)
- Improve performance
- Develop mastery (e.g.: of skills)
- Strive for excellence
- Achieve goals

Self-direction
- Desire for autonomy (personal control)
- Freedom to learn
- Feel in charge
- Sense of control

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Outcomes

Outcomes for the community coaching course

A trained community coach will be able to coach adult age group triathletes. A community coach is able to coach the fundamental skills and techniques necessary to participate safely, and with enjoyment, in both practice and competition. The coach will also be able to support the continued training and improvement of mental, nutritional and physical skills as athletes progress in the sport. The Triathlon Canada community coaching outcomes are aligned with the NCCP standards for community sport. A Certified Community Coach is one who has been evaluated, that is, has shown evidence of meeting the criteria for each outcome.

NCCP outcomes: overall tasks that a coach must be able to perform.

- Make Ethical Decisions
- Provide Support to Athletes in Training
- Plan a Practice
- Analyze Performance
- Support the Competitive Experience
- Design a Sport Program

Each outcome is associated with one or more criteria, and evaluation is based on evidence, or what a coach actually does. This evidence is observable and measurable and is evaluated by a Coach Evaluator.

After attending the community coaching course, you will be a community coach 'In training' and will be able to:

Make safe and ethical decisions:

- Enable safe participation by creating a safe and respectful environment
- Encourage athletes to be active and have fun while maintaining respect for others and the sport
- Create athlete profiles and Emergency Action Plan (EAP) for safety in practice
- Identify risks and demonstrate risk prevention in triathlon

Teach the sport of triathlon and provide support to athletes in training:

- Teach, assess, and analyze basic triathlon skills: swim, bike, run, and transitions
- Support athletes to competition: physically, technically, tactically, and emotionally
- Self-reflect on coaching style and skills and areas for improvement

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Use basic planning skills and plan a practice

- Plan technically sound and safe practices in the sport of triathlon: swim, bike, run and transition practice
- Plan sound weekly training including swimming, cycling, running and transitions
- Recognize phases and periods in a typical triathlon annual season
- Plan for attendance at events

Triathlon Canada NCCP Community Coach Pathway

1. 'In training'

- Complete Basic Registration (Register on NTRS, CRC, Respect in Sport and Introduction to Rules for community coaches)
- Complete the NCCP Community Coaching Workshop

2. 'Trained'

Coaches will complete 5 CAC Multi Sport Modules:

- NCCP Teaching and Learning
- NCCP Nutrition
- NCCP Basic Mental Skills
- NCCP Planning a Practice
- NCCP Design a Basic Sport Program

3. 'Certified'

Certification requires completion of 100 hours of practice, submission of a portfolio and practical observation by a Coach Evaluator. During an evaluation, the Evaluator will observe and measure evidence to confirm that the coach meets the NCCP minimum standard for criteria associated with the outcomes.

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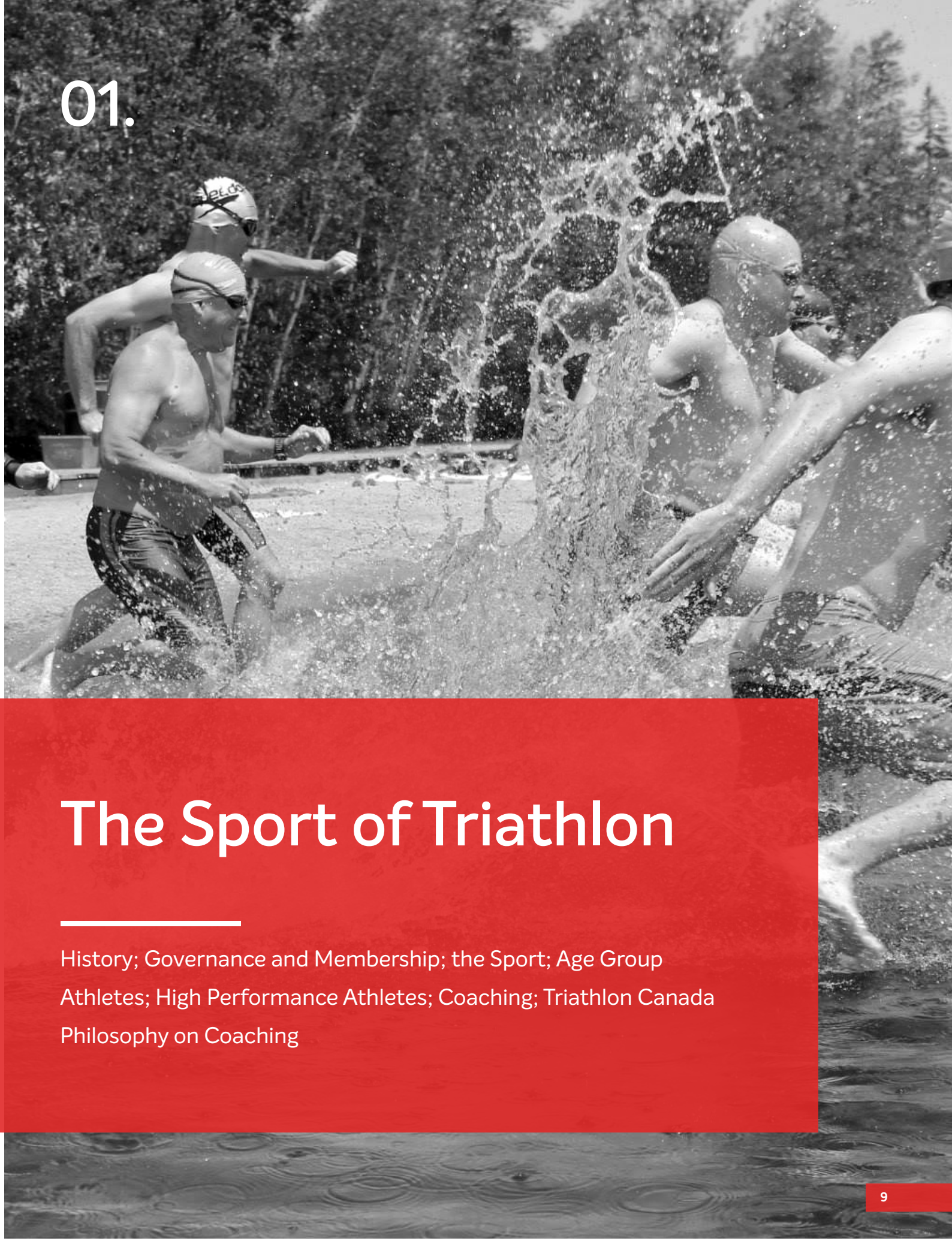

01.

The Sport of Triathlon

History; Governance and Membership; the Sport; Age Group Athletes; High Performance Athletes; Coaching; Triathlon Canada Philosophy on Coaching

The sport of triathlon: the sport for everyone

A triathlon is a continuous multi-sport endurance event encompassing three of the world's most popular sports: swimming, cycling and running. In its most popular form - swim, bike, run – athletes swim in a lake, river, ocean or pool, then bike on the road, and finish with a road run.

History

Triathlon, once a fringe sport practiced by a few hard core endurance-loving athletes from California and Hawaii, is now one of the fastest growing sports in the world. While multisport events have been held in Europe since the early 1900s, the first ever modern triathlon was held in San Diego, California, in 1974. This inaugural event drew 46 participants. In contrast, currently the Ironman–branded World Championships in Kona, Hawaii draws 2500+ super-fit age group and professional athletes each year, all of whom have to qualify through participation in one of 200+ prior Ironman events held worldwide.

Olympics and organization: international, national and provincial sport organization and membership

Under the umbrella of World Triathlon (WT), triathlon is an event at the Olympic, Youth Olympic, Paralympic, Pan Am, World Championships, and Commonwealth Games, and is contested by Age Group, U-23 Elite, and Senior Elite athletes. Triathlon made its Olympic debut at the Sydney Olympics in 2000 with elite men and women participating in their respective fields in the standard Olympic distance event. A second triathlon event called Mixed Team Relay is included for the first time in the 2020 Tokyo Olympics, giving triathlon two Olympic medal winning opportunities.

From the outset, as a modern sport organization, WT created an equitable environment for men and women and has embraced the Paralympic movement, making it one of the worlds' most inclusive sports.
There are WT World Championship events for both elite athletes and age group athletes in triathlon. Triathlon Canada, and the provincial triathlon sport partners operate fully under the umbrella of WT and provide governance, coaching, leadership and team support to over 25, 000 age group triathlete members.

The sport

Most triathlons start with either a mass swim start on the beach or in deep water, or with a rolling start with waves of athletes leaving at set times. The goal is to race in a time trial format (you against the clock) to finish as quickly as possible. The only exception to this is the

WT Elite races, and some Age Group sprint races, where athletes are allowed to draft in traditional cycling packs on the bike. Part of the skill (and fun) involved is learning how to make the transition from swim to bike, and from bike to run, as fast as possible as transition time is also part of your overall time that dictates how you do against yourself and your competitors. The swim to bike transition is called T1, and the bike to run transition is called T2.

Unique nature of triathlon

The sport has changed a great deal since the 1970s and is still growing and changing with respect to distances and events. Drafting rules have also changed, making some sprint races draft legal for age groupers, which has created the need for teaching advanced bike skills. Coaches at the community level need to be aware of all the opportunities for racing and qualifying for World Championships, as events are often a motivating and fun aspect of sport for many age group athletes.

Triathlon is a challenging, yet relatively safe sport, and has found its niche amongst people that relish personal challenges, growth and fitness. The exciting and fast paced sprint and standard triathlons and the gruelling long distance races have become the cornerstones of the sport and with them have risen athlete personalities, national rivalries, and media driven excitement. This popularity and growth has underscored the need for coaching excellence in Canada at all levels.

Distances and multisport disciplines

The most well-known distances are the Standard WT Olympic Distance (1.5km swim, 40km bike, 10km run), the WT Sprint (750m swim, 20k bike, 5k run), Ironman (2.4-mile (3.86 km) swim, a 112-mile (180.25 km) bike and a 26.22-mile (42.2 km) run, and Half Ironman, or 70.3 (1.2-mile (1.9 km) swim, a 56-mile (90 km) bike ride,

and a 13.1-mile (21.1 km) run. Under the WT Multisport umbrella, there is also the Duathlon, Cross Triathlon, Aquathlon, Winter Triathlon, Long Distance Triathlon and the Mixed Relay. For a full description of current multisport distance and events and WT Championships, visit the WT site:

https://www.triathlon.org/multisports

Common multisport disciplines (Within each discipline several distances – super sprint, sprint, standard, long distance and relay – may exist and there is a minimum and maximum range for distance). A comprehensive list of the distances can be found in Appendix A: page 97 of the WT Rule Book.

https://www.triathlon.org/about/downloads/category/competition_rules

- Super Sprint Triathlon: 400m/10km/2.5km
- Sprint Distance Triathlon: 750m/20km/5km
- Standard Distance Triathlon: 1500m/40km/10km
- Middle Distance Triathlon: 2.5km/80km/20k
- Long Distance Triathlon: 4km/120km/30km
- Ironman Distance Triathlon: 3.8km/180km/42km
- Duathlon: 10km/40km/5km
- Cross Triathlon: 1km/30km mountain bike/10km trail run
- Winter Triathlon: Run/mountain bike/cross country ski (approximately
- Mixed Triathlon Relay: 2 men and 2 women consecutively race a super sprint 300m/8k/2k

Coaching pathways

Exceptional coaches are part the backbone of our sport. Athletes of all levels rely on coaching guidance and support throughout the year and on all-important race days. Coaching makes all the difference to age group personal best and high performance results.

Coaching is the foundation of sport development, athlete retention, and high performance. Triathlon in Canada has experienced tremendous growth over the last two decades and is in need of a robust coaching program to support it. Triathlon Canada, in conjunction with the CAC, is committed to evaluating, developing and implementing a coaching education program that reflects the community's needs.

Entry level coaches and age group coaches require at a minimum, Community Coach NCCP training through the Community coaching workshop, in order to coach at the club level. The previous status of Comp Intro Certification is being replaced by the Community Certification status.

Coaches who wish to progress their training to work in the high performance environment with athletes on the podium pathway, will progress to register in the Competition Coach context. Competition coach training is practicum and mentorship focused while the coach learns best practices in the high performance environment.

Coaching in either the age group or high performance streams is influenced by the Long Term Athlete Development (LTAD) model which supports the development of athletic skill through the right stages at the right time. http://sportforlife.ca/qualitysport/long-term-athlete-development/Coaching

Coach development is supported by the CAC and the sport specific NCCP training. The Community Coach is responsible for Age Group athletes – whether they identify as participants or competitors vying for age group championships - while coaches in the Competition context are responsible for our High Performance athletes that are on the podium pathway and aspiring to Olympic and Paralympic Games.

Coaching

As a Community Coach, you will be qualified to coach age group athletes: both novice and competitive/experienced. Our future high performance, Olympian/Paralympian athletes may start under your guidance, which is why Triathlon Canada wants to ensure that our coaches have the knowledge and skills to teach the fundamental skills to beginners. Creating positive, fun and engaging environments and opportunities to athletes is paramount to the competitive experience. Because triathlon is a late development sport, some of our future Olympians may start the sport (after an early start in swimming, for example) late into their teens. For example, future high performance athletes may start in the community coached environment and later progress into the high performance stream.

Age group athletes, whether they are novice and in it for the fun, or experienced and highly competitive, are those athletes competing in age group competition against people in the same age category at the amateur competition. At the highest level, they may qualify for World Championship Age Group competition or Ironman Age Group competition. But many may be practicing the sport of triathlon for the love of the sport, the personal challenge and to follow a healthy lifestyle. Age Group categories run in 5 year increments starting at the 16–19 year Junior category. Under 16 is called Youth Triathlon in Canada.

High performance

High performance coaches are defined as those coaches working with athletes on the podium track. High performance athletes are those athletes who are following a path to, or are already in, the High Performance program, athletes that are identified as high performance through the National Training Centres, and whose mission is to excel in Olympic/Paralympic competition or are at the professional/elite international level in WT Long Distance and Ironman competition. While high performance athletes may start as youth and progress to Junior through the community stream and move into a Podium Pathway, others enter the sport in their late teens, and early twenties from swimming, cycling, athletics or other sports.

Triathlon lifestyle

Outside the top echelon of athletes looking to make a living from sport, triathlon is a lifestyle sport accessible to a wide range of people and abilities. Even with little or no biking or swimming background, athletes can pick up the sport and excel as adults. The implication for coaching is that both conditioning and skill acquisition are necessary for athletes to train safely and competently. Triathlon is a sport where you can be as independent as you want, or need to, but many triathletes like to train with others and, for the novice, finding a club and a coach, so that they can learn the fundamentals, has created the need for well-trained coaches in our provinces.

Triathlon Canada and philosophy of triathlon

Triathlon emphasizes respect for all people.

The goal of triathlon is finishing the event. When athletes finish, they turn around and cheer the next competitor to the line. Although triathlon is competitive, it fosters mutual respect through a lifestyle focus and commitment to training. In multisport events, everyone who makes the effort to reach the finish line is a winner. People from different countries, cultures, and regions compete together and learn to honour all fellow athletes.

It's the people in triathlon that make the sport unique and fun.

There are people from age five to over 80 years old in triathlon events. Participants enjoy the challenge of testing their skills, endurance, and mental toughness. It is a perfect sport for families to participate in together.

Coaching is a foundational component of sport. It influences growth of the sport from the grassroots level to the Olympic/Paralympic and World Championship level. Coaching not only influences podium performances in the most elite arenas but is a sports gateway to participation and athlete retention. For the profession of coaching to be successful at all levels in a sport, a robust education system, systemic quality control and continued professional development are necessary.

Coaching White Paper, Triathlon Canada 2017

Notes

02.

Developing Your Coaching Style

Coaching Age Group Triathletes; Empathy in Coaching; Athletes First; Defining Individual Success; Your Coaching Style

Coaching triathletes

Choosing to be a coach and a leader makes you a part of an energetic community – and you are a role model, a source of inspiration, an organizer and the reason that people will show up week after week to pursue their goals in triathlon. Participants want direction, leadership, guidance, and a great experience in a physically and emotionally safe environment. They enjoy being coached and probably enjoy training in a group environment. A novice triathlete often needs a coach to take the first steps to a new sport and healthy habits.

Embrace your role as coach and know that you are making a difference. The more you understand your role in supporting with mentoring, and teaching the technical aspects of triathlon, the more fun you have and relaxed you are. This, in turn, creates positive experiences in sport. One of the greatest gifts of coaching is to be a part of someone's growth, learning, improvement, and success. To have created the encouraging environment where they find a way to move into that success is highly rewarding.

A good coach runs the show with confidence and compassion – people want and appreciate this. It means expectations for safety and behaviour are laid out up front, are met consistently, and there are no surprises.

In the triathlon environment, where people are often training in groups and in places where there are risks to safety, a coach needs to have very strong safety management skills as a foundation to the learning and training for the sport. A strong triathlon coach develops the ability to:

Think on their feet – is prepared for curveballs and the unexpected. When you can view unexpected events with a calm demeanour, you are much better prepared for taking practical action. When you are non-reactive and a problem solver, you are role modelling proper positive behaviour to your athletes – skills that will help them when something unexpected happens in training and racing. You teach by example that common sense is often the bridge between obstacle and solution.

Coach with confidence – and to develop confidence in their own intuition, knowledge and skill set, while maintaining an open mind to the need to continuously learn and put the athletes first.

Coach all personalities – accepts everyone for who they are. Has boundaries for appropriate behaviour and a set schedule for the training group, as everybody deserves a good experience. As your coaching practice develops, you understand that all athletes have something valuable to teach you.

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Know your stuff and stay human

Everything you need to know about triathlon is now available on the internet and through the vast number of web-based resources for training plans, nutrition, sport psychology and any other topic pertaining to the sport. Research and read with a critical eye to the validity of information. Be prepared for sessions, have a plan for each day and for the overall season, and know what you want to accomplish over the course of the sessions. Be clear on what you want to achieve and how you will achieve it. This makes it very easy to stay on track, focused, and organized.

And, after you know your theory and technical information, translate that into coaching a group of humans!

At this point, it's not just

What you know
It is how you know it
And how you coach it.

The role of empathy in sport

Empathy is the ability to focus on what other people are thinking and feeling and to understand how other people see things. Coaching with empathy is crucial in triathlon at the beginner level, as the amount of information and equipment to learn, understanding how to train, and entering events is all new. This can be stressful to some. Things like riding a bike downhill fast, swimming in open water, swimming close to others, and running off the bike can be both physically and emotionally uncomfortable to new athletes. Having empathy has a calming effect on athletes and the group and can make a huge difference in the emotional well-being of others and whether they continue in the sport. Being able to understand the feelings of parents, and other coaches, and to respond empathically in sport will make you a great coach.

Empathic coaches, who understand where an athlete is at emotionally, can inspire great performance, instill confidence, and help build resilience. It is pretty easy to see that using empathy while coaching a nervous or anxious athlete will have a long lasting positive effect on that athlete's self-confidence whether they go on to become a high performance athlete on the national team or a lifelong age grouper who loves sport.

You can use empathy in coaching to help athletes re-frame problems and help them to start to problem-solve on their own – a skill they will need when training alone and in events or other times they are not training with you.

Putting athletes first

As you think about your coaching philosophy and style, you may want to think about your priorities about success and how this relates to people with their own definition about success. Success can mean performance, enjoyment, and learning, or a combination of all of these things.

Understanding the priorities and values of the people you are coaching and how this may differ from your own personal values is important.

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What is success?

Sport provides an interesting dilemma in coaching, as triathlon is a competitive sport with National and International Age Group and Olympic medals on the line at the highest level and we live in a society that rewards winning and puts a high emphasis on achievement and being 'great'. Yet sport is also a means to personal growth – it helps people develop life skills, builds character and resiliency, and helps coaches to develop leadership skills. Winning events is always fun, however, a coach should be focused primarily on helping people develop physically, psychologically, and socially.

Triathlon is a sport for life. It is available to kids and adults both in the High Performance and Age Group streams. Helping people achieve their own personal success – developing and exceeding their own goals rather than surpassing the performances of others – is a coaching principle worth developing. Your success as a coach lies in how you teach this philosophy of personal excellence to others, while helping them learn the foundational skills of the sport of Triathlon.

Just as well-run organizations have a mission statement, which is a guiding principle for values and behaviour, you can also develop a mission statement for your coaching practice.

This Mission statement can be your own, or you can do it collectively with your group of coaches at the start of each season. Creating a Mission statement can be a great way to build team unity and respect. The goal of the mission statement is to create and underline your intentions and to drive group behaviour around a common goal. Mission statements can be as individual as the coach and the group they are coaching.

Here is an example of a Triathlon Canada Coach Mission statement

My philosophy is rooted in providing a meaningful experience to my athletes while enhancing their skills in the sport of triathlon and supporting their life values through sport. My aim is to use my leadership ability to support opportunities for physical, social and emotional/mental growth that will help them find personal excellence.

To develop your own Mission Statement, you can start by filling out the Coaching Philosophy section in the workbook. Then create 3-4 statements that state what you think is important for you to feel successful as a coach. Change those statements to affirmations and you will have your Mission Statement.

As a coach, your passion for the sport of triathlon and for assisting others can be enhanced by having a clear philosophy and this is valuable role modeling to other athletes, who often need to find direction and focus for their love of the sport.

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03.

Risk Management in Triathlon

Part 1 Briefly covers information presented in the MED Multisport Module: Ethics and Coach Liability

Part 2 Risk and Risk Management specific to triathlon; Environmental Risk (Heat, cold, hydration); Equipment and Facility Risk; Human Risk; Skill Assessment for Safety; Emergency Action Plan (EAP)

Part 1: Ethics & coach liability

Coaches have a high level of responsibility to their athletes, related personnel, and the sport. Coaches affect athletes' lives in many ways. It is imperative that coaches develop a strong guiding philosophy and follow sound ethical principles. Coaches also need to be aware of what constitutes an ethical situation so they can deal with these issues as they arise. Most of the decisions you make in triathlon will be around logistics, safety and athlete training and development. There may come a time, when a situation arises, which involves making the morally right decision about an event. This can be an infringement of the rules, a conflict that can't be resolved easily or an incident of harassment. Knowing what to do in these situations is important. Your first response, as a leader and role model, should be to pause, not react. Pausing gives you a valuable moment to deescalate a situation and then think and act professionally.

Refer to your Making Ethic Decisions material when coaching, always keeping sound judgement at the forefront of your coaching practice.

Coaches should be familiar with the NCCP Coaching Code of Ethics, and the WT Code of Ethics, which governs the sport.

NCCP Code of Ethics
https://thelocker.coach.ca/onlinelearning#MED

WT Code of Ethics
https://www.triathlon.org/uploads/docs/ITU_Code_of_Ethics_20160708.pdf

Ethics are:

- Moral principles used to guide behavior and help people separate right from wrong.
- Principles of conduct governing an individual or group.
- Based on personal values.

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Part 2: Risk management for the triathlon coach

This part of Chapter 2 should be referenced by Community Coaches 'In Training' when completing the CAC Multisport Module Plan a Practice, Section 4: Planning for Safety. You can use your own experience as a coach, learning from the Workshop and this manual to complete the practical sections of the module.

The informed and prudent coach protects himself/herself by implementing a personal risk management plan. This plan helps the coach on two fronts: first, it will promote a safe program and help to prevent injuries from occurring and second, when an injury cannot be prevented, it will help to protect the coach from liability claims.

Coaches can, and should, practice their own personal risk management by following this ten-point plan:

1. Be familiar with, and adhere to, applicable standards, both written and unwritten, as well as internal policies and rules governing the facility, the sport, and your program.

2. Monitor your participants' fitness and skill levels, and teach new skills in a progressive fashion suitable to their age and skills. Never leave young participants unsupervised.

3. If you do not have access to medical personnel or a qualified trainer, keep adequate first aid supplies on hand; ideally, you should be trained in administering first aid.

4. Develop an Emergency Action Plan for the facility or site where you regularly hold practices or competitions. Carry with you, at all times, emergency contact numbers and participants' medical profiles.

5. Inspect facilities and equipment before every practice and competition and take steps to ensure deficiencies are corrected immediately, or adjust your activities accordingly to avoid the risk.

6. Work with your employer or sport organization to use appropriately worded 'assumption of risk' agreements in your programs and, where appropriate, in settings involving adult participants, 'waiver of liability' agreements.

7. You should be covered by the liability insurance policy of your employer (if you are remunerated for your coaching services) or your organization (if you are a volunteer coach). Confirm that this is the case. If it is not, obtain your own insurance.

8. Do not be afraid to stop or withdraw from any activity that poses unreasonable risks, including stopping a practice or removing your team or your participants from a competition.

9. Trust your common sense and intuition!

10. Actively pursue your own training, professional development, and coaching certification.

Safety & risk management in triathlon

By its very nature, physical activity presents some risk of injury.

One of the key responsibilities of the coach is to manage the potential risks that present themselves during practice or competition. Managing risks and thinking through scenarios and lessons with an eye for the risks involved will help you keep your athletes safe.

It is far better to cancel a practice preemptively, if you feel risks outweigh any gains to be made in training, than to be dealing with an emergency or crisis.

The main risk factors can be categorized as follows:

Environmental risk

Factors related to the weather and the physical location where athletes are training or racing. Storms/lightning, rain, trails, heat, humidity, cold are the biggest concerns for coaches.

Environmental risks: heat, humidity, and cold

In Canada, athletes will most likely face extreme heat or cold at some time. Temperature and humidity can pose risks to athletes. The following section reviews information and guidelines for athletes who train in these challenging conditions.

Heat and humidity risk factors: key points

During exercise, the muscles produce heat. This heat must be dissipated, otherwise the body runs the risk of 'overheating.' Overheating can result in serious, potentially life-threatening injuries.

Sweating is one of the heat-dissipating mechanisms of the body. When sweat evaporates, it cools off the body.

Most sport activities lead to heat production and sweating. Evaporation of sweat works best when the air is dry. In moist, damp air, sweat cannot evaporate as easily and cooling off is more difficult.

If the air temperature is high during vigorous activity, participants can lose a significant amount of water through sweating.

High temperatures and high relative humidity make it hard for the body to dissipate heat; heavy sweating occurs, but the water lost does not help to cool off the body. Under these conditions, participants run the risk of overheating.

Water lost as a result of heavy sweating can lead to dehydration. Dehydration can reduce performance, decrease the body's ability to dissipate heat, and endanger health.

During exercise in the heat, adequate hydration is a must. Participants must drink water judiciously and regularly whenever the risk of dehydration is present.

Thirst is not a good indicator of a need for water. In fact, dehydration has already started if a participant feels thirsty.

During most exercise conditions, the rate at which participants lose water exceeds the rate at which they can absorb it by drinking. This is accentuated during exercise in a hot environment. Therefore, participants need to drink fluids before they feel thirsty, hence the need for hydration plans.

If the humidex is above 30°C, in particular if it exceeds 35°C:

- Tell participants to bring extra water or sport drinks; ensure there will be access to water during the practice or the competition, and bring an adequate amount of fluids.
- Tell participants to dress in loosely fitting, lightweight, and light-colored clothes.
- Plan for low-intensity activities.
- Plan for shorter workouts, with frequent and longer pauses.
- Schedule practices early in the morning or during the evening; avoid the hours between 9 a.m. and 6 p.m.
- Consider changing the location of the practice to a shaded area, or ask participants to bring umbrellas to create shade during breaks.
- Consider exercising indoors, in a facility with air conditioning.

Other safety measures to avoid heat injuries

If an athlete is planning to enter an event where heat and humidity may be a risk factor e.g: (Hawaii, Florida), plan for participants to have enough time to get used to the environment they will face in competition. You may schedule heat acclimation protocol if participants cannot train in a similar climate for approximately two weeks beforehand.

Heat acclimation definition:

Heat acclimation is a training process that improves the body's ability to exercise at higher temperatures and is used when an athlete is travelling from a home environment that is cold to one where heat and humidity will be over 30°C. It is both a safety measure and a performance tool. While it can't simulate race day conditions, it can increase blood flow to muscles, heart and skin, improve fluid balance and enhance sweat capacity. Acclimation involves a protocol of timed periods of 'heat' training in simulated hot environments.

UV protection strategies:

- Wear a hat or a cap with a visor.
- Clothes should cover the upper part of the body, the neck, the arms and the legs.
- Sunscreen lotion (protection factor of 30 or more) should be applied on the exposed skin, including the face and the hands. **Note: UV rays permeate cloud cover. Use sunscreen even on cloudy days.**

Focus on hydration

Tell the participants to monitor their hydration level by checking their urine. Urine should be light yellow to clear. If it is dark, there is a low volume, or if it has a strong smell, the participants are most likely dehydrated.

Optimal hydration, as it relates to triathlon training, is covered in this manual in Chapter 7. Educating yourself about nutrition and hydration for training and racing, and teaching athletes how to be proactive about taking care of themselves during training, will go a long way in minimizing the risks and maximizing performance.

More examples of environmental risks in triathlon:

Swim

Open water swimming should never be conducted during a storm when lightning may be present, where wind and waves may cause problems for swimmers, or in ocean swimming where tides and currents can pull swimmers away from the shore.

Be aware of submerged objects (e.g.: rocks, sunken logs) that may be present in open water swimming.

Look for other users on the water: fishing, rowing, motor sports, sail boats, paddle boards.

Jellyfish: stinging jellyfish, such as the red Lion's Mane jellyfish, may present in waters off the west coast. While stings are not particularly harmful, they can be frightening to some swimmers.

Be aware of bare foot risks due to rocks, shells and coral. Indoor pool risks are lower, however, being aware of facility risks, and the safety of your group is still important.

Bike

Cyclists should learn how to ride safely in the rain, and coaches need to be aware of the effects of wet roads on cornering and braking and to make adjustments to the session if needed for the level of ability.

Weather causes most problems when wind chill affects athletes who are poorly dressed. Descending through cool air can create rapid cooling in athletes and hinder their ability to use the brakes and control their bike. Exercise caution when doing long hill climbs in changeable weather conditions.

Black ice in the winter months causes accidents and crashes. Cycling in temperatures less than 0 degrees poses this risk in some parts of the country.

When performing swim to bike workouts (brick sessions) in cooler temperatures, body temperature can also plummet with a wet body/clothing and wind chill.

Cars, trucks, construction zones, and gravel all make road riding more risky. Teach cyclists to be cautious. It is far better to cancel or modify a practice or come up with a safe alternate practice than to risk accidents and injuries with athletes.

Run

Weather and temperature pose the greatest risks to athletes. Make sure that athletes are prepared with proper clothing and hydration for the session.

When running sessions outside, and at night, have a protocol for night safety: make sure athletes are both visible to traffic and practice in a safe manner on the side of the road, out of traffic.

If practicing in bare feet, make sure the ground is safe for participants.

Equipment and facility risk

Factors related to the quality and operating conditions of the equipment and the facilities.

Equipment failures in the swim and on the run generally are uncomfortable and annoying at most, while equipment failure on the bike can be much more hazardous to the individual and the group.

For novice triathletes, a basic bike check is mandatory for every ride: brakes and gears are working, seat and seat post bolts are tight, head set and handlebar bolts are tight, tires are in good condition and pumped to proper pressure, and helmet straps are adjusted properly (helmet straps do shift over time). Athletes are encouraged to have bikes maintained by a bike shop mechanic at regular intervals.

Human risk

Factors may be related to the participants and to the people who are associated with them, including parents, coaches, officials, and event organizers. Human risks may also be related to a participant's individual characteristics (e.g.: height, weight, level of physical preparation, ability) or behaviour (e.g.: carelessness, panic, aggression). Human factors related to coaches include their training and experience, their supervision of the participants, and the decisions they make about situations in which they place participants.

Have very clear expectations for behaviour at practice and hold everybody accountable all the time. This sets the tone for positive practices, including athletes feeling safe and being able to enjoy themselves.

If individuals are not listening to instruction: as a coach, it is imperative that you take charge with respect to making sure the group understands the training and the expected behavior of the group. Communication of rules and expectations is the first rule of safety.

Skill assessment

Assess athletes' skills on the first day, or prior to beginning a training program. Ensure athletes can perform basic swim, bike, and run skills to adequate standards. For example, triathletes should be able to cycle in a straight line while signaling (one hand off the handlebars) before riding on roads with vehicle traffic. These basic standards are covered more in depth in Chapter 5: Skills

Swim

When practicing open water starts with different levels of swimmers, there is the danger of stronger swimmers swimming over top of the weaker swimmers. Be smart when organizing open water swimming with various levels of swimmers.

Gather swimmers together on the beach, or in a close group treading water in deep water, and have their attention before delivering instruction. Talk straight to the group at all times when outside.

Have a common signal, or form of communication, for athletes in need of assistance.

Bike

Before taking group of athletes on the road, every individual needs to know proper signals and how to ride in a pack safely.

Following traffic safety rules is critical for all in the group and there should be a safety briefing before every ride that covers these aspects of riding in a group.

Transitions need to be practiced in training so that athletes can be confident of their skills once they enter an event.

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Run

While other humans are rarely hazardous in running, encourage your athletes to run with awareness and be alert to others and to be predictable when changing course.

Emergency action plan and reducing risk

Despite identifying risks and taking preventative measures to reduce a risk happening, accidents will occur. Gathering key information about participants and facilities will help coaches deal with situations quickly and efficiently when they arise. Below is a list of actions to consider in regards to risk management. Of all the actions, creating an EAP (Emergency Action Plan) is critical for all coaches to develop and keep on hand in case of emergency. An EAP worksheet can be found in the Workbook for Chapter 2.

Important information

Before you head out to the pool or lake, road or trail, you should have all the following information already collected and in your smartphone, or binder, at every practice:

- Phone numbers and addresses of the participants
- Medical conditions of each participant (e.g.: Illnesses, allergies, disabilities, injuries)
- Special procedures to follow in the event of an emergency (e.g.: Intramuscular injection with an EpiPen® for a severe allergic reaction, giving a specific medication)
- Provincial Health Care #
- Emergency contact person for each athlete
- Contact numbers for: Ambulance, Police, Fire Department, Public safety service.

Put all emergency contacts numbers on a spreadsheet, print out, and keep in a waterproof bag or cover for easy transportation to EVERY practice. Find out if 911 services are accessible from your facility or if there is medical support on site.

Summing up: inspecting equipment and facilities

Ensure that you are fully aware of the specific safety standards related to the equipment used in triathlon, particularly, around wet suit rules, use of aerobars, clipless pedals (for youth), helmets, and proper eyewear. (Non-metal, non-glass frames and lenses).

Take an inventory of collective and individual equipment. Teach triathletes (and their parents, if you coach youth) how to care for their equipment so that it is always in good order and ready for training. This includes bike maintenance, how to find a good bike shop, how to change flat tires, when to replace a helmet (after a crash or impact) and the nature and necessity of looking out for each other and their equipment while on the road or in training sessions.

Take an inventory of available first aid equipment. Carry a first aid kit at all times.

Assess the safety of the training ground or facility itself (submerged objects in water, glass, dirt or rocks on roads, uneven terrain) and by completing a facility safety checklist.

Identify environmental, equipment, facilities, and human risk factors, and understand how variables can change in training.

Ensure that the participants wear helmet, glasses, gloves, and proper bike apparel for safety, and that their helmet is adjusted properly for fit. Helmets are mandatory in the sport of triathlon and no athlete is allowed to participate in training or racing without one.

Summing up: informing participants

As a coach, it is important that you inform all participants of the risks inherent to the sport of triathlon. This is not a warning speech, but a chance to educate. When these things are explained at the outset and made to be an inherent part your group culture, risk is minimized as there is a clear expectation for behaviour. For youth, a coach should make sure parents have this information as well.

Properly explain the safety procedures and instructions related to all activities and check that participants understand them.

When giving explanations for an activity during a practice or during competition, highlight potential risks.
Teach participants safe fitting of equipment—for example helmets, bikes, cycling shoes, wetsuits, and running shoes. Encourage athletes to seek expert advice when first buying and setting up triathlon equipment.

Summing up: supervising activities

Ensure the ratio of participants to coaches provides for adequate supervision and safety.

Look for signs of fatigue and emotionality in participants and, if necessary, intervene or stop the activity.
Stop the practice if you have to leave the site for any reason, or delegate responsibility for the group to an assistant coach.

Position yourself so you can see all athletes during an activity. For example, ride at the back of a cycling group rather than at the front and have designated assistant coaches for larger groups. Note: for most groups, it is recommended that there be a coach or designated leader at both the front and the back of groups in all three sports (open water swimming, cycling, and running).

Always make sure everybody is paying attention before delivering instruction and talk straight to the group.
This is especially true when talking outside where other sound can interfere with your instruction. If a plane flies overhead, or a truck goes by, pause, wait for quiet and resume instruction.

Remember that swim caps and wind noise often makes it hard for people to hear while they are swimming or biking. Check for comprehension while coaching these activities and, when in doubt, have an athlete stop.

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Notes

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04.

Teaching and Learning: the Coaching Process in Triathlon

Pedagogy and Triathlon Coaching; Coach Knowledge; The “Art and Science” of Coaching Triathlon; Types of Learners; Feedback; Cues; Coach Self-Awareness

At Triathlon Canada, our aim is help to develop coaches who are proficient at not only training athletes in the fitness and conditioning aspects of the sport, but who can safely teach the fundamental triathlon skills to new and inexperienced triathletes. The reason for this is twofold: teaching skills will help athletes stay safe and injury free long term in the sport and fundamental skills are part of the platform for progressive learning. Learning new skills empowers athletes, keeps them engaged, and promotes competency across their physical, emotional, and mental growth.

This Chapter should be referenced by community coaches 'In Training' when completing the CAC Multisport Module Teaching and Learning. You can use your own experience as a coach, learning from the Workshop and this manual to complete the practical sections of the Module.

Pedagogy and triathlon coaching

Coaching triathlon effectively requires you to apply methods and practices of teaching in order to transfer knowledge, support learning, and promote improvement. Most triathlon coaching will take place in an interactive environment and with a variety of individuals – as opposed to a traditional sit down lecture- type class. This interactive environment, where people are learning through practice, requires coaches to have a strong vision for session outcome, organized learning activities, a clear teaching style, and an understanding of, and empathy for, the way people are learning, all the while keeping everybody safe.

Coach knowledge

Having sound technical knowledge of the swim, bike, run, and transition aspects to the sport of triathlon is crucial and this is covered in Chapter 5. Technical knowledge in sports, especially triathlon, is constantly changing. Keep informed about revisions to equipment, rules, nutrition, and evolving disciplines by educating yourself about the sport through the WT and Ironman sites, your PSO site, other sound triathlon websites, by being a participant (current or past), and by maintaining communication with other coaches and officials.

The 'art and science' of coaching triathlon

Technical knowledge about a sport is only as strong as your ability to transmit that knowledge to athletes in a positive manner. This section contains very important techniques for teaching and instructing athletes at the introductory level. At the Community coaching level, you will often be combining the transfer of information/ application of skill with a training session. That is, there is both intellectual or skills-based learning and physical conditioning happening simultaneously. Having a solid plan will make the sessions run smoothly and safely and create an enjoyable environment.

04.

Coaching will require you to step up and be a leader. Every session will be a combination of all the following aspects to learning:

1. Motivation/inspiration/imitation – how do you set the tone for your athletes, and what role do you play in motivating them, inspiring them, and keeping them engaged?

2. Transmission of information – be well prepared to teach new skills. Engage your athletes to learn new skills in the practice session by describing the goal of the session and what they will do and learn, and how that applies to their program. There will always be a point when you are in front of the athletes, introducing a session, giving a short talk, getting information across. Be engaged, show confidence in yourself, in your athletes, and be prepared. Demonstration can be employed here for clarity and motivation.

3. Activities to learn skills – Have a plan and be prepared to change/modify activities midflight, based on how things are going and at what rate people are learning. At this point, the coach is both a teacher and an observer and needs to find a balance between encouragement and over instructing.

4. Feedback – Coach offers feedback during and after the practice session using techniques and styles that encourage learning. See below for more tips on giving feedback.

5. Assessment – did the skill get taught well? Do the athletes need more work on the skills to be safe and to improve? Do athletes need to ask more questions? A crucial part of assessment is for the coach to reflect on the practice and whether the outcome goals were reached, what the coach learned through the process and what might they do differently next time. Coaching well is an ongoing process of self-reflection with the aim to become a better coach and support others to the best of our ability.

Types of learners

In sports environments, there is a continuum of learning styles. At one end, learners can be eager, competitive, and impatient for knowledge and progress, and at the other end, cautious and even anxious about learning some of the new skills, so a coach needs to be cognizant of the different rate of learning. This can include fear of water and nervousness riding a bike on a road. Being sensitive to the needs of athletes and letting them learn at their own rate, within a safe environment, is a big part of coaching. The over-eager athlete is as much at risk as the nervous athlete, as both personalities have thoughts and emotions getting in the way of attention and awareness. When learning new movement and psychology skills, frustration is also an inhibitor to comprehension and a good coach recognizes when learning is being compromised due to frustration. Sometimes you will need to think on your feet and modify sessions after they have started, due to unforeseen learning behaviors and this flexibility that makes coaching challenging and rewarding.

People learn in different ways, however in sport coaching, you will generally have people high on the movement/kinesthetic orientation for learning. Outside of being able to teach and demonstrate triathlon specific skills for swimming, biking and running, the main quality you need to employ is empathy – knowing if your words are landing in a positive way on the athletes, if comprehension is present, and, if not, how you need to modify your communication so they feel supported and can learn.

Below are a few guidelines for instructing and providing feedback to adult learners in triathlon:

Giving instruction, feedback and the nature of practice

Teaching sport skills is all about the interplay of instruction, observation and ongoing feedback. Teaching movement skills is a process of breaking the skill down into smaller parts, or basic movements, then slowly adding them together and practicing in conjunction with coach feedback. At first, there has to be a great focus on slow and correct form, with consistent feedback. Over time, with hours of practice, the skill becomes more refined and smooth, however there is always the need to practice. Even elite athletes, who have been training for 10+ years, keep practicing perfect movement as they progress through the sport. The practice is essentially part of the enduring quality of sport.

In triathlon, when teaching a new skill, such as clipping in and out of pedals, it is important to first make the athlete safe and at ease. This may mean using a wall to hold while practice, or a stationary trainer, or a grass field to soften a fall. Then to break that skill down and teach it in a standalone activity until it is refined enough to be safe enough to take into training. Other skills, such a riding smooth circles in cycling, can be taught at the beginning of a session and can be practiced throughout the conditioning section of the training session, supported with verbal coaching feedback.

In the sport of triathlon, like many other sports, learning the skill, practicing the skill, and then perfecting the skill is a pre-requisite to mastery of the skill in competition, where the skill is performed at speed and under stress. As a community coach, the former is your mission. You are helping lay a foundation for future success.

Coaches should provide adequate, supportive, encouraging, and specific feedback to an athlete, so that the athlete is motivated to aim for the best possible effort and to gain proficiency.

The more you coach, the better you become at coaching and giving the right feedback, the right amount of feedback, both at the right time.

Feedback

Once you have given instruction or direction for a skill, you observe the athlete and then decide whether to offer feedback. Telling an athlete what you see is called *descriptive* feedback. Telling them what you think they need to do is called *prescriptive* feedback. Prescriptive feedback is the most helpful form of feedback for beginners as it tells them what to do to achieve the desired goal.

For example, if you are teaching cornering skills to triathletes and you notice they didn't change gears before the corner (because they were likely too focused on braking and making the corner), you could say descriptively "You didn't gear down before the corner". This may not help them if they don't understand gearing well yet. You would, in this case, use prescriptive feedback such as "you want to be in a slightly easier gear coming out of the corner because of deceleration. So 50 m before the corner, and before you apply brake pressure to decrease speed, make sure you put your bike into an easier gear". This gives the athlete a 'why and a reason' for the change, and also gives them access to a fundamental skill.

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Cues

Cues are very short verbal reminders or directions consisting of one or two words that focus an athlete's attention on key elements of the movement or skill. Cueing gives athletes a simple, discrete focus rather than overloading them with instructions. Cueing is always specific and affirmative and allows an athlete to instantly tap into the movement and stay on task. Not all athletes respond well to cues and, with some athletes, you may want to come up with cues together. Some coaches have specific words they always use with an athlete – something that consistently provides the desired response. A comprehensive set of specific cues for swim, bike, and run can be found in Chapter 5 with each skill.

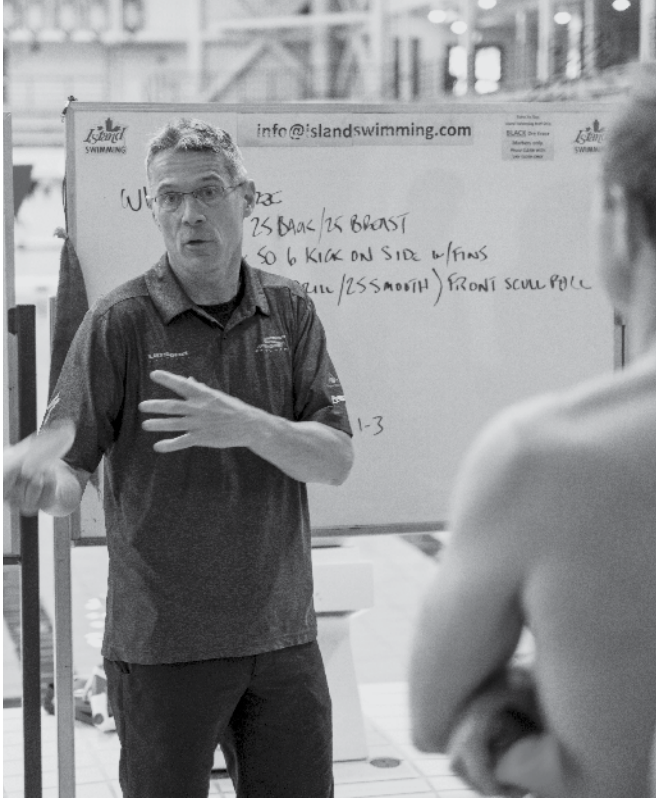
Examples of cues in triathlon:

Swim – "eyes down!" (To keep head down and level with body)
Bike – "smooth circles" (to promote even power through the whole revolution of the stroke)
Run – "quick feet!" (To promote higher efficient turnover and less impact).

External instructions: using descriptive words and visual cues

There are times when focusing on what the athlete is doing with their body, doesn't seem to work as it promotes an overly mechanical and inward focus of attention.

Analogy learning involves chunking relevant cues and directions into an all-encompassing metaphor. For example, "kick the pedal over the top of your stroke" when cycling or "body like a kayak" in the swim. "Floating along" in running. By nature, analogy instruction also elicits a type of external focus of attention. The athlete who is thinking of a metaphor or visualizing something that simulates the movement they are expected to make is focused on something outside their body.



Feedback

When people think of feedback they often focus on corrections. Below are some more innovative methods of providing feedback that will positively affect athlete improvement over the long term.

Types of feedback

There are a number of different types of feedback:

- Positive feedback—recognizes successful areas of performance
- Negative feedback—highlights what an athlete is doing wrong
- Corrective feedback—information related to methods of improving technique or skill
- General feedback—comments made without specific reference; e.g.: "good", "terrible"
- Specific feedback—comments directed toward a particular aspect of technique or skill

To maximize effective communication and instruction, coaches should strive to give positive and specific feedback most often, general and corrective feedback moderately often, and avoid negative feedback altogether.

Giving feedback

Recognize the positive first. Look for what athletes are doing correctly and then move on to what they need to improve.

Ask more questions than you give feedback statements. Involve athletes in their own learning. Discover what they think they are doing, then build from that point. Even if you recognize a strength or weakness in an athlete's technique, guide them to feel and recognize it themselves.

Vary your feedback. At different times, try the following:

- Give positive feedback only, with no corrective information attached.
- Give positive, then corrective, then positive again (sandwich approach)
- Give specific versus general feedback. E.g.: "very steady rhythm in freestyle" vs "good".
- Give feedback in a bandwidth—only on specific skills or technical deviations that you planned before practice – this becomes part of your practice plan.

Giving feedback with empathy

Your tone of voice is important.

Pay attention to how to speak with athletes and focus on having a warm, supportive, or neutral tone of voice. It goes without saying that harsh, judgemental, or critical tones will not create a positive environment for learning or feedback. If you are not sure where you stand with this, have someone listen, or ask athletes for their feedback.

The role of listening in the feedback loop

Being able to listen to your athletes without judging and interrupting them will help you become a better coach. You will learn what works for different athletes and increase the skills in your coaching toolbox. Be aware that we all judge all the time – it is part of human nature – however being aware, and then still being able to listen openly to others, will improve your skills as a coach.

Increasing self-awareness

Start studying how your own language and behaviors affect others in both positive and negative ways and work towards improving them. Recording your behaviors in a journal will better increase your awareness of what is working during your discussions with your athletes and the group.

The WT Coaching Development pathway recognizes that good coaches:

- Are reflective and self-aware;
- Are self-motivated and self-learners;
- Embrace challenges;
- Actively seek knowledge and are open to different ideas;
- Work effectively through sharing and collaboration;
- Develop new approaches to coaching issues;
- Fundamentally have a positive effect as a coach.

05.

Coaching Triathlon Specific Skills

Technical Skill Foundations Overview

Swim: Coaching For Safety; Coaching for Participation in Training; Cues; Coaching for Participation in Events; Fear of Open Water and Coaching

Bike: Coaching For Safety; Coaching for Participation in Training; Cues; Safe Pack Riding: Etiquette and Safety; Cues; Coaching for Participation in Events.

Run: Coaching For Safety; Coaching for Participation in Training; Cues; Coaching for Participation in Events

Transitions: Basics; Short Course; Long Course; Duathlon; Aquabike/ Aquathlon; Sequence of Skills; Agility, Balance; Coordination.

Technical skill foundations

Regardless of what age an athlete begins triathlon, it is critical that fundamental technical elements are learned before increasing the volume or intensity of training. This will help avoid injury, increase the efficiency of performance, and provide a sufficient foundation for longevity in sport. Beginning from a base of safety, this chapter introduces the basic technical skills that athletes in triathlon need to learn and a method of analyzing and assessing technical skill. Using the LTAD model, learning the skill comes first, training with the skill comes next, and finally after hours of practice, the skill is mastered while being performed under the stress and duress of competition.

We will also cover common drills and practice you can use in coaching to help your athletes become better swimmers, riders, and runners as they gain fitness and confidence in their abilities. Drills are compiled at the end of this Manual in the Appendix section. The nature of sport requires that athletes are always working on skill and technique in a connected way to physical and emotional development.

Triathlon consists of learning and putting together four basic groups of skills: swim, bike, run, and transitions. Learning these skills requires athletes to pass through three stages of skill development as they relate to triathlon.

1. Safety **2.** Participation and **3.** Performance (participation in an event)

At a minimum, coaches need to be able to teach athletes to safely perform the four skill groups before they can proceed to training and participating in events. Once they can train and participate safely with the skill groups, they can consider entering events for performance, fun, and experience. Coaching for participation in competition is included in Chapter 10.

A community coach is required to teach, at a minimum, the safety skills required for athletes to both participate in, and eventually attend, competitions. Not only does the coach need to be able to teach these fundamental safety and participation skills, but they need to understand how to create and maintain a safe environment for the athletes.

05.

The Triathlon Canada community coach is responsible for teaching athletes how to safely swim, bike, run and perform transitions in a safe environment.

The practice is a success if the skill is taught, assessed as successful, and no one gets hurt. It is important to note here, that the term 'safety' refers to both the physical and emotional environment of the practice session. The athlete's physical and emotional safety are equally important. Fitness, conditioning, and race performance are secondary in importance to safety and skill acquisition at the Community Coaching level.

For example, in the swim, it is imperative that triathletes understand basic water safety, have basic swim competence, and feel comfortable, before they can move on to swimming and intervals, learning to round a buoy, and before they are introduced to an open water swim start and course in a triathlon. The coach needs to teach these skills, and have the fundamental knowledge of the environment and whether the venue is safe.

For the sake of this manual, and making sure all community coaches have this information, each of the four triathlon skills will be broken into 3 stages. Ongoing analysis and assessment is fluid throughout the learning curve. At a bare minimum, coaches need to understand how to coach for #1. safety, and can then build their knowledge and skillset out using the subsequent 2 stages. Coaching is not a linear or static process: you are always learning and growing, meeting new athletes, and helping athletes to continue learning and growing. Hopefully, this information will provide the basis around some of the fundamental skills you will need to coach. The 3 stages are:

1. Coaching for safety
2. Coaching for participation in training
3. Coaching for participation at triathlon events

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The swim

1. Coaching for safety

Swimming in a pool is relatively safe with some basic skills, however, the deep end and open water can be challenging for some athletes, and coaches need to understand the inherent risk to having people in deep water. Below are some critical safety skills that swimmers need to be able to perform in order to feel safe in a triathlon.
These can all be incorporated in early season practices, and can be a part of your own athlete assessment plan to help you understand the strengths and weaknesses of athletes. Knowing which athletes may present with anxiety or distress with open water, or deep water swimming, will help you coach effectively and plan for safety.

Treading water

Swim in one place (deep water), in a vertical fashion, with head above the surface without distress. Minimum 5 minutes.

Why: treading water requires less energy than swimming and is a lifesaving skill. It is used in triathlon when a coach needs to give instruction to the group during an open water practice (needs all eyes and ears at the ready) during the period of time before a deep water swim start and during racing when an athlete needs to take a break from swimming. Athletes may need to take a break due to panic and breathing issues, to look where they are going, or to relax after contact with another swimmer.

Treading water is a safety requirement of all triathletes in your program and something that you touch on periodically during the season.

Floating and gliding

Float comfortably on front and back AND be able to roll from front float to back (and vice versa) easily.

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*Everyone can float! It is a matter of experimenting with buoyancy, centre of mass, and balance in the water.

Why: the float and glide are the initial position for initiating the swim stroke. Like treading water, floating and gilding are useful skills for taking a rest in open water swimming. Floating and gliding can be used as part of a recovery within a swim set and allow the athletes to relax, tap into breathing, and regroup before continuing on with the session.

Endurance (non lap) swim

Swimmers should have the ability to swim a minimum of 800m continuously in a pool before training in open water. Without walls to turn, novice swimmers will find open water continuous swimming to be more difficult at the beginning.

Why: for basic swimming proficiency and safety, you want athletes to have a bare minimum for endurance – or swimming without having a pool deck or bottom for support.

Coaching safety in open water:

Check weather – and have a bad weather emergency strategy (part of your EAP)

Athletes should never swim alone

Flotation device and first aid should be available

A coach or safety person in a kayak, or on a paddle or rescue board, is recommended

Coaches should know the body of water: submerged logs, rocks or shallow areas and other hazards should be known.

Choose highly visible markers, on land, as directional points, if you don't have buoys

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2. Coaching for participation in training

Swim technical skills

The following section outlines the basic movements of freestyle swimming, the most common stroke used in triathlon. It is very important to note that every swimmer will have a slightly different technique that is most efficient for their body type, mobility, strength, and fitness level. The purpose of this section is to outline key techniques of front crawl that are important to safe, efficient swimming for longer distances. While it is not recommended to focus on the negative, at the end of each section is a 'common errors' point, so as a coach, you can catch these early and instill proper technique.

Core positioning and balance

The body's position in the water, or balance is one of the most critical factors to efficient swimming. Have an athlete relax and balance horizontally in the water without propulsion. With arms beside torso, and again above the head, practice buoyancy so athletes find the balance point around which they can maintain a horizontal position. Neck stays in alignment with the spine, eyes to the bottom of the pool.

Propulsion: kick only, arms at sides, as the body moves forward through the water. The balance of the swimmer can be observed and corrections can be made.

Common errors: legs sinking, acting as drag and throwing off balance; forehead raised.

Correction: get swimmers to push their chest down towards to the bottom of the pool and keep their forehead down as well by looking at the bottom of the pool. Using pull buoys can assist with the high hip feeling for body position.

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Vision (Eyes) and head

As the body moves through the water, vision is directed down or slightly forward. The eyes should remain stable, with little deviation except when rotating to breathe.

The head is neutral and does not move except to breathe. When breathing, the head rotates with the shoulders and trunk in one smooth motion.

As the body moves faster, the eyes can look forward slightly and the head can raise somewhat, but still with alignment in shoulders and trunk – spine and neck remain in same plane.

Common error: high head.

Correction: Have swimmers lower the head and look at the bottom of the pool when swimming, instead of searching for the end of the lane. Teach swimmers to use the line of flags, or other markers, as visual aids indicating the end of the pool.

Trunk position

In front crawl, the trunk is strong, long, and tilts with the rotation of the shoulder girdle. The entire core is streamlined and does not bow, bend, or bounce.

The shoulders rotate slightly more than the hips in front crawl. Think of the shoulders as rolling forward like bike wheels. At full rotation the armpits are opposite each other—facing the ceiling and bottom of the pool respectively. The hips tilt side to side, anchoring the legs and helping to stabilize the body. As the trunk and shoulders rotate, so does the neck and head, and this allows the mouth to come out of the water for the in breath.

Common error: Raising the head first before turning to breathe, causes imbalance in the stroke and the legs to sink as it changes the centre of gravity. It is very important to work on this alignment as soon as possible, as it can set up a series of imbalances.

Correction: Front glide with arms at sides, slight kick for propulsion, and having the swimmer turn the whole body on one plane – trunk, shoulder, neck and head – in order to get the mouth out of the water for a breath.

Coordination and timing of kick, breath and pull

Effective stroke timing can 'force' other aspects of the stroke to fall into place. Overall stroke rhythm is initiated by the shoulder girdle and maintained by the core. Beginning in breathing position (arm extended in front, maximum body rotation), the arm extends forward, armpit down. The back arm begins to recover as the front arm begins the catch. The recovering arm reaches midspan (highest point above the water) just as the underwater arm begins its propulsive phase and the strong core muscles guide the trunk as it follows the rotating shoulder girdle. The back arm finishes its propulsive phase, which pushes the body forward, as the front arm extends in a 'surfing' position. The kick maintains balance throughout. The exhale happens underwater during this process to set up for an inhale as the head rotates through with the trunk.

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Breathing

The head rolls in time with the body roll to breathe. The breath and hand entry of the opposite hand occur simultaneously. The swimmer breathes as the arm extends forward, then rotates the head back underwater as the swimmer begins their 'catch' phase of the underwater pull. As soon as the face enters the water again, the exhale should start and continue gradually until the next inhale. This prevents water going into the mouth and ensures a full exhale, allowing a full inhale on the next breath. Breathing patterns in swimming are either unilateral or bilateral.

In **unilateral breathing**, swimmers are breathing every other stroke and, hence, on the same side. This ensures a high rate of oxygen uptake and can be favorable to new swimmers (who often feel out of breath due to stroke inefficiency), it is also used in sprinting and when a high rate of effort is required, such as swim starts. However, unilateral breathing can cause imbalance in swim stroke and a lopsided style, so swimmers should be coached to practice bilateral breathing in sessions.

In **bilateral breathing** swimmers breathe in every third arm stroke, thereby alternating the breathing side and creating a more symmetrical swim stroke. It is a common pattern for breath rate in open water and long distance swimming, which is more aerobic.

The benefit to bilateral breathing is that, once mastered, it allows swimmers to create their own patterns and will allow coaches to teach balance and symmetry using drills – such as breathing every 5th, 7th or 10th stroke – for teaching feel and position.

Common error: holding breath and not getting in enough air causing fatigue and sometimes a panicky feeling.

Correction: Teach swimmers to exhale fully underwater as soon as the face looks downwards. The cue is to look for bubbles. Practice at low speed. This is an easy one to fix.

Stroke and kick: coordination and skill

The kick and pull are the two primary components of front crawl. The kick stabilizes the body and assists in some minor propulsion. Kick comes into play in sprinting, which isn't a huge focus of the community coach. The arm stroke is responsible for the majority of the propulsion and involves intricate coordination between the back (scapular), chest, and shoulder muscles, plus the position of the hands and forearms as sculling devices and the elbow for recovery.

The stroke

The arm stroke provides the most propulsion in front crawl. The pull is composed of 4 stages: the catch, the pull, the exit or finish, and the recovery.

The catch starts as the tips of the fingers of the front arm enter the water and extend forward. The arm should be long but not rigid, an extension of the shoulder and the core.

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After the entry, catch begins as the elbow bends, coinciding with the fingers dropping to point downwards and the palm facing the feet. This is a gathering of water in preparation for the propulsive phase. Very little pressure is put on the hand during the catch.

Common error: over extending and over reaching, causing tension in shoulders, crossing over the mid-line at the entry, and non-propulsive gliding.

Correction: teach swimmers to be relaxed and focus on initiating catch, not reaching for it.

The pull propulsive phase begins as the arm reaches approximately 90° or the level of the chest. The hand pushes water to the feet during the propulsive phase.

The arms should cycle opposite one another in rhythm, with one recovering out of the water while the other pulls the body through.

Common error: An imbalance in the speed of the arms in the cycle, with the result of a 'catch up' style where there is some dead time, when neither arm is exerting propulsive force.

Correction: Swim drills where breath is taken every 5 – 7 strokes allows swimmers to focus on that smooth rotation, arm cycles without disruption for a breath.

The **finish**, is the final piece of propulsion mustered as the hand leaves the water by the hips, to begin the recovery out of the water.

Common error: pulling the hand out of the water too soon, rushing the stroke.

Correction: have swimmers brush their hips with their thumbs as they finish the stroke, feeling water all the way through.

The kick

The kick counterbalances the arm rotation. Swimmers use different kick and pull rhythms depending on their preference, body type, and swim distance.

The most common kick rhythm is a 6-beat kick (6 kicks for every full arm cycle). It is balanced and consistent, particularly for beginner swimmers. Some long distance swimmers kick less, a 3 –beat kick.

The kick assists more with balance, coordination, and efficiency of the overall stroke than it does with propulsion. Quick, small kicks are most efficient.

Kicking is initiated at the hips (abs, gluts, pelvic area, and back) and involves a slight crossover.

The legs remain elongated, relaxed and have fluid movements. Knee bend occurs only slightly in response to the motion of the legs.

The feet act like flippers and are internally rotated slightly to create some propulsion. Ankle flexibility, which may be fairly set in age group athletes, will have some impact here.

Common error: kicking at the knees or scissor kicking.

Correction: kicking drills, with or without kick board, to demonstrate proper technique and to help swimmers understand how smooth kicking propels faster with less stress and energy cost.

Swimming: common cues used in coaching

Many of the instructions coaches give in sport are related to positioning of the body and descriptions of the technique they want athletes to attempt. Recent research suggests that using metaphors, analogies, and cue words that target different senses (e.g.: visual, auditory, kinesthetic, tactile) are more effective in producing efficient movements. Below is an introductory list for the various components of front crawl.

Body position

- Streamlined or boat-like; be a vessel
- Fish
- Slippery, thin, stretched
- Long and strong
- Swim downhill (pretend the surface is sloping downhill – keeps the legs up)

Head and breathing position

- Be a pirate (only one eye is out of the water on the breath)
- Sneaky breath (sneak the eye / mouth out of the water) to minimize upsetting position
- Head down

Kick

- Floppy feet
- Pretend you are wearing flippers
- Kicking socks off your feet
- Elastic legs (stretched, not rigid)
- Quiet kick (just under the surface)

Pull: catch

- Catching a ping pong ball and pushing it down and back without losing it off the hands
- Watch the fingertips point to the bottom

Pull: propulsion

- Using your hand to pull yourself up a ladder on the bottom of the pool
- Push your body past the water
- Easy, easy, easy, BAM! (Power position = acceleration of arm)
- Brush the fly off your thigh (emphasizes completion of exit)
- Swimming over a medicine ball

Pull: recovery

- Scrape elbow on the ceiling (high elbow recovery)
- Throw the arms (straight arm recovery)
- Be a marionette -puppet (elbow leads, forearm dangles, relaxed)
- Rag doll or Gumby arm

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3. Coaching for participation at triathlon events

Triathlon specific swim skills

One of the unique aspects to triathlon swimming is that athletes must learn how to swim in a pool and in open water. During the warmer months, you may be able to hold swim practices outside and most races will be held in open water environments. There are several open water skills and considerations you need to coach so that your athletes are prepared for events:

Sighting: the practice of looking ahead to where you want to be going. Used in open water swimming, sighting the shortest possible line on the course is the goal. Sight by turning your head slightly forward before taking a breath.

- Lift the head as little as possible, just have the eyes come out of the water.
- The sight and the breath are separate movements, directly after the peek, the head comes down before turning to the side for a breath.
- The head is kept low between sighting to reduce drag.
- Sighting should be done every 10 strokes, not every 3rd; swimmers can take 2–3 peeks in a row, if it's sunny or visibility is otherwise impaired.
- In open water, swimmers can sight using landmarks or non-moving objects on land.

Wetsuits

Because a wetsuit changes buoyancy and can feel restrictive, swimmers need to practice swimming in a wetsuit, for both race pace and duration, especially before a competition.

There are techniques to putting on a wetsuit for optimal fit and function and to prevent damage to the suit.

Step into each leg of the suit and pull the suit up well over the hips to start. Try to use the pads of your fingers

and not your finger nails, in order to prevent tears. Pull the torso on and up as high as possible before putting on the arms. Put your arms in, pulling the suit material towards the shoulders in order to maximize movement and mobility there. Zip up the suit, ensuring it is snug and tight around the neck.

Athletes can work in partners to assist with the pulling of the neoprene up the arms and with the zipper.

Waves

While swimming in waves, take peeks at the crest of the wave, where visibility is highest. Take 2–3 small peeks in a row if there is a lot of splash.

Try to feel like a cork bobbing through the waves, instead of fighting the water.

Breathing to the side away from the waves or wind will help with breathing – hence why it's important to develop proficiency breathing to both sides.

Open water variables

Open water swimming may involve some, or all, of the following:

- Currents, waves, debris, murky or cloudy water.
- Different lengths of segments in a race requiring turning around buoys and swimming in different directions (not just straight).
- Diverse weather (e.g.: rain, sun—practice sighting during a sunrise, heat, cold, wind, etc.).

Coaches need to know the variables that may be present at open water swim practices and how to support athletes in training, so they are prepared for race day variables.

Mass starts and group swimming

In open water swimming, swimmers are close to, and often in contact with, other swimmers. There is no bottom to stand or wall to hang on to, and other swimmers may not swim in a straight line.

Group swimming can feel chaotic, and breathing and space may be inhibited.

A mass start may start with a run in from the beach, in waist deep water, or as treading water in deep water. Coaches can set up sessions and intervals in the session to mimic what may happen at an event. The best way to coach open water starts is to continually practice this with your athletes.

A good warm up period with swimmers focusing on breath and being relaxed is important for open water swimming.

Open water swimming requires practice in maintaining a relaxed and streamlined technique, regular breathing and experiencing body contact.

Coaches can set up practices in a pool before heading out to the open water environment by using the pool without lane ropes, or simply setting athletes up to swim close to one another in a lane.

Drafting

Drafting is the practice of swimming very close to the hips, or behind the feet of another swimmer, in order to benefit from being in their draft. Swimmers can save up to 35% energy by swimming in the draft of another swimmer, however the drafting, or following, swimmer must also make sure the lead swimmer is swimming in the correct direction, otherwise the energy gains are negated by taking the wrong course.

Swim drafting is allowed in triathlon, as long as a competitor does not obstruct or impede the progress of another athlete. Because of the energy savings, all triathletes need to learn this skill and how to do it comfortably.

Drafting feet: where a swimmer follows directly behind another swimmer, keeping their entry right in the bubbles of the front swimmer, while not touching their feet. Tapping the feet of the front swimmer is poor etiquette.

Drafting the hips: this position takes more skill but is the best place to draft. The drafting swimmer aligns their head with the hips of the front swimmer, allowing a ride in the bow wave of the front swimmer. It takes skill to swim in this position without touching the lead swimmer, which, again, is poor etiquette, though sometimes inevitable in swimming open water. The other benefit to this position is that the drafting swimmer does not have to sight to follow as they are beside another swimmer.

Buoys

In triathlon practices and events, swimmers will usually have to round buoys. Occasionally, they will round boats, wharves or piers, floats, or a human on a paddle board. Teach your athletes the skills required to get around buoys unscathed and with minimal upset to their stroke and breathing rate.

- New and or nervous swimmers will want to give themselves lots of space to get around buoys; swim to the outside of a crowd.
- To swim around the buoy, paddling the inside arm to turn, while keeping the outside arm to normal stroke rate is the best method.

Fear of open water

For some athletes, getting out into the open water, even if they can swim proficiently, is stressful – it brings up irrational fears and feelings of anxiety. Open water is an unfamiliar environment, unpredictable and often cold, and our vision and breathing are often reduced. The biggest challenge with open water and fear is learning to deal with the stress and to keep breathing deeply. As we become anxious and stressed, our breathing becomes restricted and inefficient. The lack of oxygen creates further stress, especially if you are being splashed in the face from waves or other competitors. Soon, the focus on external environment and the inability to breathe properly creates panic. There are athletes who report thinking of sharks, even while swimming in lakes, which indicates a high level of external focus. You can help reassure your swimmers by making sure they are

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prepared and have been able to complete the distance in the pool. Teach them to trust that, intuitively, they can complete the open water distance. Learning to swim well outside the pool takes practice and strong internal focus.

- Before jumping in, take some deep breaths and create relaxation and calm in your body. Your first few strokes should be all about the breath and being relaxed.
- Learn to focus on internal cues: breathing, rotation of the body, arm strokes, the kick, your rhythm. Practice deleting non-essential thoughts about the water or your environment. The only environmental thought you need is the direction to the next buoy.
- In races, swim far to the outside of the group to be clear of other swimmers until you are comfortable.
- Practice swimming open water as much as possible to familiarize yourself with the environment.
- Practice open water swims with another swimmer or group; purposely swim close and with contact and make it fun, not stressful.
- Wear dark goggles on sunny days for better visibility.
- Before races, warm up well and be ready for your best internal focus.

A swim analysis and assessment worksheet is in the Workbook and is covered in the Community Coaching course

Drills for Swimming: Appendix A

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The Bike

1. Coaching for safety

It is critical that all athletes are assessed on their ability to perform basic bike safety skills before venturing onto roads with traffic. If athletes are nervous, hesitant, or weak on these skills, practice is required so they can perform them comfortably and consistently. Athletes, who cannot perform these skills, pose a serious risk to themselves and others while riding. On top of basic bike skills, it is your job as a coach to teach and role model basic common sense and road safety. Athletes should, foremost, be deliberate, aware, and conscientious riders. Cyclists, who ride defensively and with awareness of the world around them, are less likely to be in accidents, one of the biggest risks inherent in riding.

- Always wear a helmet
- Follow the rules of the road of your area and obey stop signs and red lights: you are obligated to follow the rules of the motor vehicle act and you are a vehicle just like the cars you are sharing the road with.
- Avoid emotional confrontations with cars and motorists. These are usually pointless and can sometimes lead to accidents. Instead, practice self-control, distraction control and get on with your day.
- Use extreme caution at intersections, looking for cars turning left, and turning right, directly in front of you.

Note: do the following test and drills on a parking lot or closed road, or a firm grass field.

Safe starts

Mount bike without falling. Place one foot on the front pedal and glide in a straight line until other foot reaches the opposite pedal. If athletes are wearing cleats, clip in with one foot, then bring pedal to horizontal (front) position, push down, glide in a straight line, and clip in with the opposite foot. Eyes look FORWARD during a start (not at the front tire). Practice clipping in without looking at the pedal.

Clipping and unclipping can also be done as a drill on a stationary bike

Braking

The back brake is there to reduce speed and the front brake is there to provide stopping power. Generally the back brake is applied first to slow down, then both are used to come to a complete stop. 75% of the stopping power comes from the front brake, with 25% coming from the back.

For sudden stops, both brakes have to be pulled at the same time, resulting in a shift in position for the rider. Stand up with the pedals in horizontal position to balance mass. Shift body back behind the seat and lengthen your arms but maintain a slight bend in the elbows for cushioning. Keep body as low as possible to increase stability.

Stability skills: basic bike handling and control skills athletes need to have

- Ride in a straight line slowly without wobbling.
- Ride in a straight line with shoulder check.
- Ride through an obstacle course under control at various speeds.
- Ride in a straight line with only one hand.
- Signal while riding in a straight line.
- Grab a water bottle, drink, and replace bottle while riding in a straight line.
- Balance on both pedals without moving (track stand).

Bike balance and riding close

Why? Triathlon can be crowded, especially right out of transition. Being able to ride close to someone is essential and, if you should touch another bike, this will give you a sense of balance that may prevent a crash. Balance also comes in useful when you need to avoid something quickly. Skills necessary (should be initiated on flat grass field, in case of fall):

- Ride side by side with another rider, slowly and at the same speed.
- Ride close enough together that elbows touch. Lean into each other and continue to ride.
- Ride behind a partner; get as close to the back wheel as possible

Cornering

Why? There will likely be turns on your route and/or triathlon course and riding well through a turn, means a safer ride and a faster time. Athletes, drifting out of turns or braking unnecessarily hard, create obstacles for other riders.

- Your inside pedal is up, and you are leaning weight on the outside, down pedal.
- Keep your centre of gravity low to the bike, leaning into your frame
- Steer the corner wide, angling to the inside of the turn midway and try not to drift wide out of the turn
- Drop your inside elbow and apply pressure with the outside hand on the bars.
- Look where you want to go, past the turn.

Signaling

Athletes should know common signals for turning, slowing, and stopping (and use them at ALL times). When riding in groups, it is common to use various hand signs to indicate bumps, potholes, gravel, parked cars, or other obstacles. The more comfortable and habitual signaling becomes, the safer the ride for both cyclists and drivers. Teach this group safety right off the bat.

Right turn – point right with right arm (straight) or raise left arm to 90 degrees and "point" up or slightly right
Left turn – point left with left arm (straight)
Slow or stop – raise arm to shoulder level, then drop forearm (elbow at 90 degrees) and point downwards.
Object on the road (hole, gravel) – point with either hand to object or make a sweeping motion with hands to indicate gravel or grass
Obstructed bike lane – sweep your right hand behind your back to indicate you are moving away from something.

Riding with one hand

Why? To be able to signal turns, indicate intention to other riders, and to be able to eat a gel or drink from a water bottle while riding.

- Start by lifting several fingers off the bars, leaving one hand fully gripping, but relaxed.
- Once you are happy riding with a couple of fingers on the bars then you can gently lift your hand off the bar.
- When you're good with this, then you can practice taking your bottle from the cage and drinking from it.
- While all riders have a preferred hand to drink with, practice riding single hand with both hands.

Shoulder checks

Why? Athletes will need to be able to look behind them to check for cars and other riders in a race. Riders have to always shoulder check before making any lateral movement or turn.

- Practice looking behind you, while riding in a straight line.
- Take small checks, shifting your weight subtly on your bike, but not shifting your bike.
- Practice to both sides.

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2. Coaching for participation in training

Cadence and style

Spinning at optimal cadence promotes good technique and efficient riding—something you want to improve in a novice cyclist. 'Gear mashing", just muscling through a ride in the biggest gear possible, expends a lot of energy and uses up too much precious muscle fuel. Riding is all about finesse. Aim for an optimal cadence and smooth circles—pulling up the stroke as much as pushing down with no dead spots of power at the top or the bottom.

Measuring cadence

Cadence is often described as RPM or revolutions per minute. Optimal cadence for triathlon is usually between 80 and 100 rpm, although it can be slightly slower on steeper hills or in heavy winds. Cadence on the bike in triathlon is generally higher than cycling because athletes must still be able to run after the bike leg. Pedaling at a lower cadence and 'pushing' the pedals can lead to knee strain and injury.

To measure cadence, have athletes count the number of times one pedal rotates in 10 seconds. For example—count each time the pedal is at its lowest or highest point. Multiply this by 6 for RPM.

E.g.: if an athlete pedals 15 circles in 10 sec. 15x6 = 90 rpm.

A proper pedal stroke appears natural and fluid with minimal motion in the upper body and no obvious dead spots in the pedal rhythm. Athletes pedal 'in circles', avoiding the stomping motion of an irregular stroke.

Descending

Being able to ride downhill well is an integral and rewarding part of cycling. Descending on a bike is a combination of skills and confidence. Always ride within your skill set, comfort level, and experience, while challenging yourself to be better or to embrace the hills.

- Start with short descents that are manageable. Find a time of day when there is little traffic, or else a road with a good shoulder to ride.
- Feather your brake going into the descent, with pressure to the rear, to achieve a manageable speed.
- Stay on your side of the road, even when taking tangents.
- Following competent cyclists is a great way to learn.

Hill climbing

Change gears (easier) before the hill and as the slope increases before cadence becomes too slow.

Alternate standing and sitting, keeping hips level.

Keep your upper body still, especially when seated climbing hills. Beginners should aim for using a small gear up hills and climbing while staying seated, being as smooth and efficient up the hill—all your energy making the bike go forwards, not in rocking your body side-to-side or up and down.

Gently 'kayak' the handlebars (pull-push), but keep the core steady. Bike can rock side to side; body should not.

Safe pack riding: etiquette and safety

All coaches should go over group ride safety in detail and hold riders accountable at all times for following the rules of the road, the rules of the pack, and ride etiquette.

The basics include:

Never overlap wheels when riding. Follow behind the rider in front of you and make sure your front wheel doesn't overlap the rear wheel of the rider in front. Either be riding right beside someone – where bike lanes and space allow – or behind them. Don't ride in their blind spot, i.e.: behind but overlapped. This is a risky position to be in, as it doesn't allow you room to move to safety.

Ride at a consistent pace and be predictable.

Decide on the drafting, pace line formation, and timing before the group goes out. Discuss and practice at slow speeds, taking turns pulling, moving back, and riding in the front.

Be very aware and communicate clearly. Each group has its own language, but common commands include calling:

"On your left!" when overtaking.

"All Clear" if you are the first through an intersection,

"Car Back" if there is a vehicle stuck behind your group. You can go single file and safely let the car pass.

Respect stop signs and red lights. Stay off sidewalks and stay in your lane, unless directed to ride in the middle of the lane or are turning left. You are a vehicle and must follow the rules of the road. Be a good example for others using the road.

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Use caution when passing parked cars – in case they pull out suddenly or open the door.

Common coaching cues used for cycling

Head and eye position

No tension neck
Looking ahead; look to where you want to go.

Trunk and core (aero position)

Relaxed shoulders
Breathing easy
Still upper body
Arms bent and soft like springs

Leg action

Maintain smooth circles, even power.
Keep your knee in line with your cleat.
Pull up and push down equally –sync your legs.
Pretend your feet are like the wheels of a freight train—push forward, pull back at the top and bottom of the pedal stroke.

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3. Coaching for participation at triathlon events:

Riding a bike in an event requires an athlete to use all the skills learned in practice, but in the intensity of competition, at a higher rate of stress and effort. Therefore, coaching for events requires a coach to set up event-like situations and environments in practice, so athletes can practice good skills.

A good coach will preview an event course and make sure that athletes are prepared mentally and physically for the demands of the specific course – hills, corners, flat sections, and possibly weather conditions. Also to note is making sure athletes are prepared with knowledge of the rules, particularly drafting rules, (covered in Chapter 10 under Rules), and, in the possibility that they will be in a drafting race, on how to draft (drafting is beyond the scope of this manual and requires much practice, however drafting safety basics are covered above in group riding).

Others aspects of event participation to consider:

- Teaching athletes how to ride at a consistent pace and effort for 30-90 minutes (achieved in training)
- How to drink from a bottle on a bike (practiced in training)
- How to pass through a water station (practiced in training)
- How to navigate Transition (see Transitions, below)
- Staying alert and aware while racing – safety, risks of riding on open roads, and other competitors.

Assessment and analysis for improvement

A bike assessment and analysis worksheet is in the Workbook and is covered in the Community Coaching course.

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The Run

1. Coaching for safety

While running is the least risky of the skills required for triathlon, coaches can teach the basic skills required to keep the athletes both safe in their environment and safe from injury.

Environment safety:

- Run facing traffic and on sidewalks, shoulders, paths and otherwise out of vehicular traffic.
- If necessary to train on a road, have athletes run in pairs or single file to the far left of the lane and discourage athletes from running out in the lanes in the path of traffic.
- When running at night, wear reflective clothing, running lights, and be cautious at intersections. Assume a driver has not seen you until you are certain they have. Getting a nod or hand signal from a driver is the most effective way to assure safety.
- Using lights in a group: headlights can blind oncoming runners and walkers as they shine directly at eye level – make sure headlights are titled down towards the ground in front of you and turned off when grouping for instruction.
- Use common sense and caution when running alone, in forests, and at night. Be aware of the inherent risks. (i.e.: predators, uneven ground, getting lost, etc.).
- Be prudent when having athletes run barefoot: make sure the ground is safe and know that it takes time to build barefoot strength.

Biomechanical safety: posture and form

Attention to posture and form is an ongoing process. When training for fitness, coaches can spend time in every training session paying attention to form, teaching and reinforcing proper technique. Teach athletes the process of how to do quick scans for tension – working on being relaxed through neck, shoulders and arms, tall in the trunk, and quick and smooth in the way the legs are moving, and finally thinking about the feet tapping lightly on the ground. In essence, pay attention to, and give feedback for, being their most efficient; doing the best work they can do in that moment.

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2. Coaching for participation

Basics of run form and posture

Stand up tall Imagine that a string (like on a Marionette) is attached to the top of your head and is pulling you upward. This will help you maintain erect, but not tense, posture.

Keep your eyes looking ahead to where you are running and not straight down Trust your peripheral vision to sense obstacles below your feet and avoid looking down. This will help you to run taller and avoid stress on your neck and back.

Bend your arms Have a relaxed and natural feeling bend to your arms, not greater than 90 degrees at the elbow. Try to avoid too much cross-body swinging. Hands should have no tension (you could hold a feather without crushing it), elbows swing straight back with stride.

Breathe with your mouth open. Breathing should be deep, not shallow, and generally, the out breath lines up with one foot landing.

Relax your shoulders Your arms will swing more freely, and you'll avoid upper back and neck tension.
Lean a little – think of your body as being perfectly balanced along a slightly forward-leaning central axis.

A midfoot strike creates less ground time, reducing forces of impact on the body, which helps prevent injuries and increases overall speed. A midfoot strike is quiet and quick. Think 'quiet and quick feet' as you run. Your base runs, while slower, should also be reinforcing this midfoot technique and good posture gained from drills and hill strides.

Cadence

The number of steps per minute (SPM) is called Cadence (also called turnover). Each runner will have an optimal cadence that will create the most efficient running form. An efficient running form is the foundation for building endurance and speed. Most runners fall between 160–180 steps per minute. Elite runners will hit 180–200 SPM. Taller runners over 6′ will have naturally slower cadence and shorter runners under 5′ will have faster cadence.

An optimal cadence sets the body up for forward motion and means that the foot comes off the ground quickly, setting up for the next step.

A too low or slow cadence may mean a runner is over striding – taking long strides, such as a bounding style, which wastes energy and has a higher impact for the body (increasing fatigue and chance for injury)

A too high or fast cadence may mean an athlete is compromising their range of motion, shuffling (at risk for tripping) and limiting their potential to improve. Measure cadence mid-training (not during warm up or cool down). Have runners count one foot strike for 30 seconds. Double this and double it again to have steps per minute. Any one running under 170 SPM, can be encouraged to increase their cadence slightly, over time.

It will feel awkward at first, but will feel more natural the more they train.

Cadence monitoring is also a useful tool to prevent form disintegration during endurance and fatigue. As runners tire, and especially in triathlon during the run portion, it is common for cadence rate to slow, creating a chain reaction of poor form. Getting runners to do cadence checks during the mid to late stages of a training run is a great way to create mindfulness around process and a stronger body.

Cues for running

Head and eye position

Relaxed jaw, neck and shoulders
Invisible string pulling up from top of head

Trunk and core

Stand tall
Upright plank position

Leg action

Ninja feet (quiet)
Light feet
Quick feet
Tapping, dancing
Quick heels

Arm action

Elbows drive straight back
Imagine you are holding a feather or egg shells in your hands—don't break them!
Strong arms (for running fast and uphill)

3. Coaching for participation at triathlon events

All the skills taught under the participation section can be mastered for performance at events; that is, practicing to perform all these skills at speed and under the pressure of competition. More specific information about coaching and performance is included in Chapter 10: **Competition and Performance**

A run assessment and analysis worksheet is in the Workbook and covered in the Community Coaching course

Transitions

Coaching the transition includes all three aspect of a solid practice plan: the technical/tactical, the mental and physical.

1. The technical aspect includes the setting up of the transition zone and equipment, and knowing what to do when you leave the swim, or come in after the bike. Being able to take off a wetsuit, buckle a helmet, get on your bike, or remove shoes quickly and in the heat of competition is purely the result of good drill and lots of practice.

2. The physical training for transitions involves creating adaptation to the demands of changing muscle and body positions midstream and while doing a high rate of work. Training for the physical demands of transitions is often addressed while doing 'Brick' workouts i.e.: stacking one sport after another. Swimming 400m, then hopping on your bike would be a swim – bike Brick and running right off the bike, would be a bike – run Brick. Aspects of training also include being able to assess athletes for individual levels of balance, coordination, and agility and how you will help them train.

3. The mental side of triathlon transitions includes visualizing flow and outcome, and the ability to remain calm, patient, aware, and attentive while travelling

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through transition. Athletes must also be able to deal with inevitable distraction and to change a practiced sequence, which is a valuable sport skill.

The transition is often referred to as the 'fourth leg' in a triathlon. Transitions involve a change from one sport to another and, therefore, include specialized skills related to equipment. In a traditional triathlon, there are two transitions: swim-to-bike and bike-to-run.

The swim-to-bike transition begins when athletes exit the water and may involve running uphill or on varied terrain such as sand, grass, asphalt, and other surfaces for 10 to 500m, sometimes in a wetsuit.

Transition basics

Transitions require an athlete to be calm, methodical, and fluid, while still moving as quickly as possible. Coaches must emphasize awareness and safety to athletes, as the potential for things to go wrong is high in transitions. No two transitions are ever the same; there are many variables in transition so an athlete must be prepared for anything. It is recommended that coaches and athletes practice basic transition skill sequence often in race season, and get to know and study each particular race transition zone in order to be as prepared as possible, for safety, process, and performance.

Short course transition

In short course races, all an athlete's necessities for the bike and run are kept at their bike rack location. Some races have specified 'transition spaces' but most races do not have designated spaces, so athletes put their gear under and beside their racked bike. Making a neat and organized spot for transition equipment is necessary. Preparing for the transition order and having equipment in a logical order is important. Being respectful of other's equipment is part of the code of etiquette for the sport.

Long distance triathlon

In longer distance races, athletes put their bike and run gear into color-coded transition bags that are clearly labeled with the athlete's race number. These bags are picked up in a designated area after the swim exit, where athletes may also enter a tent to change before the bike and before the run portion of the event. The rest of the transition flows as already described, with an added necessity for awareness and safety needed after the long swim and the even longer swim + bike entering T2.

Ironman also provides for individual 'special needs' bags for the bike and run which are generally handed out close to the half way point of the leg. Special needs bags are a great place to put emergency supplies of food or hydration choices or anything else you may need midway through your bike and run.

Duathlon

Somewhat simpler, without the swim gear, duathlon transitions still require attention and focus. Of particular note is that in T1, athletes need to leave their running shoes in a way that will be easy to locate and use again in T2.

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Aquathlon/aquabike

Both the aquathlon (swim-run) and Aquabike (swim-bike) events have only one transition zone, a T1. Set up, flow and execution will be similar to normal triathlon transitions.

The sequence of skills for T1 is as follows:

Swim exit

Exiting pool swims usually involves climbing out of the pool and walking or running out of the pool complex. In open-water swims, athletes use a variety of running 'techniques' to exit the water.

- Depending on depth, dolphin dives may be used for a short stretch of shallow water that is still too deep to run in.
- Wading involves 'running' out of the water, but specifically swinging the lower leg over the surface to avoid resistance.
- If the ground is rough, swimmers many choose to swim further and pull on the bottom with their arms.

If there is a long run to the transition area, it is common to unzip and pull the wetsuit off the torso while running to transition.

T 1 Swim-to-bike transition

Athletes will complete the following sequence of steps:

- Exit water.
- Remove cap and goggles (usually upon exiting or while running to transition).
- Arrive at transition spot where bike is racked.
- Remove wetsuit (if it was a wetsuit swim), place in designated spot.
- Put on bike gear including helmet, cycling shoes, additional clothing if required, and sunglasses (optional).
- Affix number belt and stow any additional gels if needed.
- HELMET must be fastened before touching the bike.
- Unrack bike without disrupting other athletes' equipment.
- Walk or run bike to transition exit and the mount line. It is more efficient to push the bike by the seat with one hand free, rather than the handlebars. Athletes tend to be more stable in their centre of gravity, more maneuverable and are less likely to trip and fall or hit their shins on the pedals.
- Mount the bike. Athletes must be able to safely mount and propel the bike.

Mounting the bike is a skill progression and there are 2 styles: the basic (stopped) mount, and the moving mount, which can be a slow gliding or a flying mount.

The gliding and flying mount are done when an athlete has their bike shoes already affixed to their pedals and is running in bare feet with their bike to the mount line. Most novice athletes will pull their bike shoes on in transition and perform the basic mount, the proposed method in community coaching.

Basic mount: (the same way one would mount their bike at the start of a training ride). Stop bike clear of mount line, straddle bike, clip one shoe into pedal, push down and glide to start bike moving while sitting on saddle, clip in other foot and proceed.

Both the gliding mount and flying mount are faster ways to get on the bike and integral on draft legal course. They take more balance, skill and precision and should be practiced to mastery before attempting in competition.

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Gliding mount: the athlete mounts while bike is in motion, swinging inside leg back and over seat to hop onto bike. Gliding mount technique is described step by step in Appendix A: Triathlon Specific Skills.

Flying mount: Run forward with bike, jump into the air while swinging inside leg over the seat, land on the seat as feet land on the pedals, begin pedaling. Once up to speed, feet are slipped into shoes.

The second transition, after the bike leg, begins when an athlete reaches the dismount line at the end of the bike.

T 2 Bike to run transition:

Athletes will complete the following steps in a typical bike-to-run (T2) transition.

- **Dismount bike. For the purposes of community coaching, a basic dismount is the required skill to be able to coach.**
- **In the basic dismount**, athletes stop their bike before the dismount line and climb off their bike, run into T 2 in bike shoes.
- *The fastest option, and one used in more advanced athletes, is to take feet out of shoes at some distance before the dismount line and ride with feet on top of shoes. Maintain higher speeds and while gliding to line, keep one foot on the pedal while bringing the other leg back and over seat, and then slide off the pedals at running pace at the dismount line.*
- Run or walk bike into transition.
- **Rack bike.** Most triathlons require athletes to return bikes to their starting location. Depending on the racks used, athletes may hang the bike by its handlebars (clip-on) or seat. Other racks require them to place their wheel in a slot. Regardless, athletes should be careful not to disrupt other equipment.
- Remove helmet AFTER the bike is racked.
- Put on running shoes and start run course. Hat, further fuel, or water as required.

Agility, balance & coordination

One of the reasons that coaches need to set up Transition practice for their athletes is so that they can teach and observe agility, balance, and coordination through the instruction of the drills.

Agility is the ability to move the centre of gravity quickly from one location to another. In transition, athletes must navigate alone and while pushing their bike through a crowded area full of equipment, people, and other obstacles. Being agile assists in preventing injury and allows athletes to move more efficiently through the area.

Balance involves maintaining stability while stationary or in motion. Balance is critical to transitions, especially with the change from horizontal to vertical (swim to bike). An athlete requires core stability and balance while putting on shoes in transition and while mounting and dismounting the bike.

Coordination involves performing tasks in the right order with the correct timing or rhythm. In transition, this can involve performing several tasks, several different ways, including:

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Neuro motor coordination, mindfulness

Transitions require a high degree of mind-body connection, specifically in paying attention, being aware of environment, and remaining undistracted. Athletes must be calm, patient, aware, and familiar with a regular sequence of actions to complete a transition.

Agility, balance, and coordination will become a part of everything that you teach your triathletes. Coaching athletes to success in competition requires you to design sessions where they can practice their abilities and skills. The goal to is create a program whereby athletes learn, visualize the skill, practice the skill, and then execute the skill while competing.

06.

Planning a Practice and Planning a Triathlon Program

Planning a Triathlon Practice; Triathlon and LTAD; Planning Overview; Creating a Plan, Athlete Goals and Priorities; Principles of Planning and Periodization; Energy Systems Explained

This Chapter should be referenced by Community Coaches 'In Training' when completing the CAC Multisport Modules 'Planning a Practice', and 'Design a Basic Sport Program'. You can use your own experience as a coach, learning from the workshop and this manual to complete the practical sections of the module.

The workshop will help you with the design and implementation of planning a triathlon practice within the scope of a season. Season planning and periodization can be covered if time permits, however, a complete overview is included here in the manual.

Planning a practice

Within an overall season, or phase of a season, are the individual training sessions, also called workouts, training, or practices. Practices are the cornerstone of any coach's program. Practices are where growth occurs, success and failure is experienced, interpersonal connections are made and where a coach has the greatest possible opportunity to both make a positive impact and learn about how their athletes are doing.

The term workout, while a popular one, has a limiting definition and promotes the idea that performance and 'raw fitness' are the main goals of the session. While fitness is a part of sport, the overwhelming emphasis should not be on the building of the engine, but on the holistic nature of what it means to be an athlete, which is to perform movement well and for intrinsic success.

A lot of people think of training as a series of workouts for fitness. Training in itself is a practice and one that requires certain positive habits. As a coach, your job is to help athletes adopt positive habits that benefit training, and to teach the difference between process and outcome or performance.

In order to be successful, a practice has to satisfy several outcomes: technical/tactical, physical, and emotional.

Encouraging your athletes to focus on 'practice' not 'performance' during practices, will create long lasting positive habits that they build on as training progresses.

Simply put, a practice is where instruction and knowledge is delivered, emotional well-being is considered, and physical, emotional, and technical training takes place.

Regardless of the skill, information, or habit being taught, there are several key things that all coaches can do to ensure that practice sessions run well, are safe and positive, and fitness and learning happens. As you plan every individual session, outcomes should cover three areas:

1. There has to be the practice of a technical skill and, as the athlete progresses through fundamentals, a tactical component as to how that skill applies to competition.

2. There has to be a fitness component – whether speed, endurance, flexibility, mobility, strength, or power.

3. There has to be an emotional component: this can be that there is a pro-social environment, some sport psychology skills are taught, or that the emotional needs of athletes are taken care of (it is simply fun and enjoyable to be there).

Tips: How to run a triathlon training session

1. Have a plan, be on time, and stay on track. Use a planning template, know your goals and desired outcomes, and follow through. This requires discipline and being on task by not allowing for distractions to pull the group away from your goal. Set the expectations for session punctuality and behaviour from day 1. It's a good idea to write out your expectations and communicate to all people in the group. Expectations can cover logistics, behaviour, and coming to workouts mentally prepared.

2. Goal Setting/intention. Acknowledge a group goal at the beginning of the session. This can be as basic as restating the learning outcome or session details, the focus of the week, or something else you feel is important to your group. Be bold with this. When people have an intention and a focus, it gives the session meaning and purpose. They have something concrete to focus on and by which to measure success.

3. Create Cohesiveness and Support. Talk with your group, promote teamwork and support. Warm up, drills, and cool down times are opportunities for people to connect, bond, and share knowledge and encouragement, and is a valuable part of any training.

4. Checking in with Athletes. As much as possible, check in with every single person, every session. It will create trust and connection, and help retain those who have more introverted styles. It is critical that a coach is aware of their athletes' mental, physical and emotional states. This includes having a a finger on the pulse on diet and nutrition, sleep, fatigue, injury, and all things that may affect scheduling.

Positive practice habits

Early in the season, preferably from the first session, teach athletes how to execute a practice with confidence and positivity.

Executing a session

Training as a practice, or for a purpose (goal), requires another level of mindfulness – not one that is more difficult, but one that is more effective. Breaking a workout into parts: the warm up, the main set, and the cool down, will allow a body to be more prepared to exercise and athletes will be able to maximize what they are able to do in that session. Paying attention to movements and executing them correctly has tremendous pay back: stronger athletes that are able to improve and less likely to get injured.

Warm up

- Before performing a session, it is important to warm up. You need your muscles to be warm and loose and your mind to be focused on giving an effort. A well-warmed body is ready for the physiological stress of the workout and a strong mental focus provides the concentration necessary to perform well.

- A warm-up is nothing more than a period of light, specific, physical activity that prepares the body for the activity. It should last 10 to 20 minutes. Give athletes time to warm up and cool down, as rushing through warm ups may leave them feeling stressed and not ready, and failure to warm up or cool down well, over the long term, can leave them at risk of injury.

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- Mentally, the warm up is a time to get 'up' but not so nervous or anxious that tension builds in the body. Deep breathing in the warm up often helps athletes, especially before intense sets and open water swim sessions.

- Warm ups in triathlon training are generally sport specific to help create the neuromuscular connection required for the practice. Examples would be swimming easy and swim drills for swim sessions, and similar for bike and run.

The main set

- The activity or activities that support the main goal of the practice. This can be physiological training, technical development, mental practice or combination.
- Aim for optimal level of activity and engagement with appropriate balance of effort and recovery.
- Clear, concise instruction before the session and planning for how you will support athletes in session. On the pool deck, during a ride or during the run session.
- In triathlon it is often necessary to communicate instruction before a session, to make sure athletes come prepared with the correct equipment, hydration, nutrition and apparel.

Cool down is basically the reverse of the warm up, a 15 minute very easy, gentle period of activity to allow the muscles to relax and flush some of the waste product accumulated during a session. Cool down periods can also involve stretching and some discussion and reflection of the session to enhance learning.

Planning a triathlon program and the LTAD model

Adult age group athletes entering and participating in triathlon fit into 4 general categories:

1. People with little/no sport background, discovering a sport and competition for the first time.

2. People who were active in sports as children, but have had a long break from physical activity.

3. Active adults with some fitness and skill experience in another sport.

4. Adults who were high performance in another sport and have retired and switched to triathlon.

Under the 'Sport for Life' model of Long Term Athlete Development, adult age group triathletes fit into the 'Active for Life/Competitive for Life' phases. However, triathlon embodies a sport that functions under a set of rules, and so planning is also defined by the 'Train to Train', 'Train to Compete' and 'Train to Win' phases. Triathlon is a competitive sport – people train in three areas in order to compete in an event - so there are many aspects to excellence that apply to age group athletes, but the focus is on 'Personal' excellence, as opposed to 'Podium' excellence inherent in the High Performance pathway. Whether athletes are coming with some sport-specific literacy or no sport literacy, the community coach is responsible for teaching both, the foundational technical skills and rules of triathlon, and teaching how to train to ensure the age group athletes not only stay safe, but can enjoy participating and improving.

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This planning model is athlete-centred, coach led, Triathlon Canada and PSO supported

Long Term Athlete Development and planning for Age Group triathlon covers three quantifiable aspects:

1. Making sure that necessary sport skills are taught and refined, including how to train.

2. Developing periodized strength and fitness conditioning across swim, bike, and run.

3. Gaining experience and success in competition.

Holistic planning: Integrated into the planning and development of these factors is the holistic nature of the individual in sport, and their mental, emotional, and cognitive development.

While there can be, at times, a separate focus on each of these aspects, they all overlap and require constant assessment and subsequent periodization to ensure ongoing improvement.

Developing a plan

Planning for a triathlon season can be looked at as tool for time management, organizing training, and skill development. A plan will guide athletes towards their goals and provides an outline for progressive and periodized training, skills development, rest, and racing. The plan is also an outline that is used to guide practice and will allow a coach to stay organized and effective.

Executing a plan

Executing the plan is a larger, longer, and very dynamic task. Putting a plan into action is a process that is always changing. It requires constant monitoring and modification. This part of planning involves the most time and investment from both coach and athlete and gets easier, but not less relevant, with experience.

Factors that influence changes in planning may include how fast an athlete progresses, overtraining and injury, and lifestyle changes.

Below are few key points to note as you begin your planning.

Plans are outlines for success and are only as good as the coaching input

There is no single plan that works for everyone. Every plan must be adapted to match the needs, characteristics, strengths, and weaknesses of each athlete, even when they are training with a group and doing the 'same' workouts. This is where the coach is so important.

Planning is a fluid, ongoing process (not a one-time event).

A plan is neither static nor concrete. Plans are flexible. Plans developed at the start of the season will require many changes and adaptations to ensure athlete success. However, without periodization and planning, there is no outline for success, and momentum will be difficult to achieve.

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Ongoing reflection and communication is critical to optimizing the plan.

The job of the coach is to develop the plan with the needs of the athlete in mind and to help the athlete navigate the plan. Taking into consideration their strengths, weaknesses, how they respond to training, how they deal with stress, and their goals in sport and life is the human-centred part of the coaching process.

Creating a plan

Before creating a plan, you must establish the current physical and emotional state of the athlete, including their goals and life priorities. If you are coaching a group, there still has to be an overall blueprint, with individual needs taken into consideration. Using checklists, questionnaires, and other methods, you can complete an assessment of athlete fitness, technical ability, knowledge of the sport, history of training, and holistic variables. You should have an assessment sheet as part of your coaching toolbox.

Step 1 Athlete assessment

Fitness level and ability
Familiarity with the sport

Step 2 Athlete goals

Goals to match priorities
Performance Goals (extrinsic) Looking for an achievement, a win, a finish line, etc.

Mastery goals (intrinsic) wanting to learn and grow and is more about the process and 'path'.

Athlete goals and priorities

Triathlon is both a time consuming and technically challenging sport to do well. Athletes will bring a combination of performance and process goals to the sport and these goals are also fluid. As a coach, it is also your job to help athletes choose goals that are both within their skills set and that match their life values and priorities. This includes taking into account their family and work commitments, physical ability, and personal goals.

When you have established who you are coaching and the basic start and finish lines, then you can begin the formulation of a plan. The following sections contain detailed information to guide you through this process.

Step 3 Annual training plan: using principles of planning and training with the athlete, create a road map for the athlete.

Principles of planning – periodization and looking at the whole year

The following section introduces common terminology and trends in program planning beginning with the macro, or season, and moving toward the 3-4 weeks blocks called mesocycles, then into micro or weekly and daily practices. The information will provide you with basic principles to apply to individual athlete's and groups' needs. There are many different theories of planning, but the underlying principles of periodization in sport are well established and should be referred to, regardless of what method you adopt in creating training plans.

Generally, the triathlon season is organized around a calendar year, which is then is divided into smaller phases, periods, and cycles. Below is a brief synopsis of these subcomponents from macro to micro.

Annual or yearly plan YTP duration: 12 months +

An overall long term plan for training is called the Yearly Training Plan, or YTP, and is the overall framework for everything you want to accomplish with your athletes. The YTP can be one year in duration and encompass one season, or can be multiyear (common in events where there is a qualifying process such as WT Age Group World Championships and Ironman, and in podium planning in the High Performance Pathway which will operate on the Olympic quadrennial cycle). Community group coaching often works with a single year YTP, as membership changes and fluctuates, along with individual and group goals.

Macrocycles 6–16 weeks

An annual plan spans a whole year and will involve periods, phases, or macrocycles – with each phase being a foundation for, and supporting, the phase that follows.

The typical macrocycles for a triathlon season are:

General preparation (pre-season)

Athletes learn how to train and adapt to training schedules and adopt good practices such as proper warm-up and cool down, nutrition, hydration, and mental skills.

Conditioning focus is on building cardiovascular fitness and strength enabling training to prepare the connective tissue, tendons and muscles for future phases.

May involve some cross training activities (mountain biking, Nordic skiing).

May involve building skill and volume in an area that needs improvement (for example, swimming technique, power on the bike, or running efficiency).

Short durations of intensity are built into this phase for biomechanical and physiological adaptation and preparation for the next phase.

For short distance triathlon, volume peaks in this phase, while in long distance, volume will increase after this phase.

Specific preparation (pre-season)

More specific physiological and skills training for triathlon based on the distance that the athlete will compete, including preparation for a specific set of course conditions.

Training progresses from more general to more specific with respect to energy system requirements, distance, goals, and mental preparation. (Volume decreases/ intensity increases for short course while volume increases/intensity decreases for long distance).

Flexibility, trunk strength, and stability remain critical, though strength conditioning volume may go down.

Aerobic power and capacity become the focus during the end of this phase for shorter distance.

Volume for long distance triathletes will peak at the end of this phase before they taper for a race.

Introduction to, and practice of, mental strategies to support optimal efforts and competition

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Pre competition (in-season)/competition (in-season)

Athletes are tapering and peaking for a race (Ironman) or races (shorter distances).

Volume goes down to promote rest, with short bouts of intensity, as athletes taper into a race or a peak performance.

Psychological intensity as employment of specific mental strategies goes up.

When there are multiple races, recovery and training between races is often modified from the original schedule as coaches and athletes learn how they are adapting to racing load.

Transition/recovery (rest period/off season)

A very crucial part of the season and one that a coach needs to take charge in planning for their athletes.

Recovery is important for regenerative purposes, for both the body and the mind, to prevent break down and burnout, and to enhance improvement and enjoyment in the sport.

Recovery can be a complete break from the sport or much reduced training volume and intensity with cross training.

The off season is a time for reflection and evaluation for both the coach and athlete and a time to set new goals for the rest of the season and future seasons.

Off season can be a sport switch for some athletes – to cross country running or mountain biking – all athletes are a little different.

Good time in the season to focus on supplemental activities that support triathlon training: practicing a skill (flip turns, sighting in swimming, for instance), strength training for core stability, and yoga.

Double periodized annual plan (two competition phases)

For competitive age group triathletes who are pursuing either standard or Ironman length competitions, it is common to have 2 competition periods in the season. There are several reasons for this. Firstly, the triathlon season can be very long, ranging from March to late November (for Ironman athletes). Having an early and late Competition Phase, with a Recovery Phase in the middle, can alleviate the physical and mental stress of a long season and allow athletes to arrive at the late season races ready. The double periodized season can also allow athletes to peak for a qualifying race early in the year in order to reach a second peak for an 'A' goal event that may take place later in the season.

In the Double Periodized Annual Plan, the Specific Preparatory phase is followed by the first Competition Phase. A short 1-2 week Recovery Phase follows this, after which Specific Preparatory begins again with the lead into the second Competition Phase.

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Each of these macrocycles, or parts of the season, is broken into 3–4 week chunks called mesocycles or training periods

There are many ways to 'chunk train' but for the age group athlete, a 3 week training cycle that consists of 2 building weeks, with 1 week recovery, has proven to be very successful in creating strong injury-free athletes.

During the General Preparatory Phase, and with some athletes, when volume is high and intensity is low, having 3 weeks load with one unload week can also work. (Note that high physical intensity is correlated with higher mental stress and athletes need to unload from the pressure of psychologically performing as well.)

A mesocycle training period involves a progression of training intensity, frequency, volume, and recovery that is tailored for the period and the racing goals, followed by one week of unloading. The week of unloading will allow the athletes to come back ready for the next cycle of training.

Triathlon coaches can use these mesocycles to plan a focus on sport-specific skills depending on the time of year. (e.g.: Transitions, open water swimming, running drills)

Microcycle: A 7 day training week

For age group athletes, the easiest way to plan, schedule, and coach is using a 7 day week, with standard daily workouts set.

Having a standard format for weekly training that remains constant year round works well with the life, family, and work schedules for most age group triathletes.

Within the training week, there is allowance for harder and easier sessions (intensity and/or volume) and recovery/rest sessions.

Triathlon annual single periodization chart

General preparation phase	January–March
Specific preparation phase	April–June
Competitive season	July–October
Rest phase	November
Off season	December

In Canada, a typical triathlon season begins with the General Preparation Phase in December or January. Specific Preparation generally begins 6 to 12 weeks later in February or March, followed by the Competitive Season from May or June through to August or September. Late September to November has traditionally been scheduled as 'off season'. Some athletes run cross country or engage in other sports during that time. Athletes completing in early season races out of Canada in March or April begin their General Preparation period earlier in the autumn months.

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Periodized planning for triathlon training: points to consider

While all athletes are different and triathlon consists of short and long course racing (each of which has unique training requirements), there are several aspects of periodization for endurance training that coaches need to take into consideration when planning.

- In an annual plan, training moves from general conditioning to specific preparation to competition. Even when triathletes are training recreationally, a coach can follow the progression of training in order to generate improvement, which enhances motivation due to the perception of success.

- The teaching of triathlon skills and mental training skills also becomes more specific as the macrocyles flow. As athletes get closer to a competition, race skills, both physical (how to dismount fluidly) and mental (how to visualize a positive race day), become more refined to what is needed immediately.

An example of how mental skills flow – during the general preparation phase of training, a coach will teach athletes how to use positive mind set techniques in sessions. (e.g.: Positive self-talk, re framing, mindfulness). As the athlete moves closer to race season, the coach builds on these skills by introducing pre-race visualization, anxiety reduction practice, or whatever the individual athlete needs.

For triathlon technique skills, a coach might focus on smooth circles in cycling, holding a straight line, and riding well in a pack during the general preparation phase when this can be taught in conjunction with building cardiovascular fitness. After the athletes are strong, capable, and close to race season, teaching mount and dismount skills can be taught as part of a speed and race preparation session. In this way, coaching is both an art and science, uses common sense, and takes athletes' needs into consideration.

Periodization and progression

The premise of periodization is to structure training so that an athlete is as prepared as possible for a race and a peak performance. The closer the athlete gets to the race, the more specific their training becomes. Periodization and, within that, the progression of training volume, intensity, and frequency, changes throughout the year and is different for short and long distance triathlon.

For short course athletes, where intensity is a high factor in racing, training focuses more on speed and intensity closer to a race.

For endurance events longer than 4 hours, training for duration is paramount to speed. Some speed training, lower volume, and a single sport focus can be a part of the General Preparatory Phase, and then volume is increased during Specific Preparatory as the athlete gets closer to the event.

In short, in both types of race distance preparation, athletes need a progression of training through periodization in order to get to an event physically and mentally prepared. Periodization takes some work to plan, but will ensure athletes get adequate training and adequate recovery and make improvement over time. This is critical in coaching and developing young athletes. Through reviewing and revising your plans, and talking to your athletes, you will become adept at structuring individual training within an overall plan, whether you coach individuals, groups, or individuals within the group environment.

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Progression as a principle of training

Within the periods and the mesocycles, there will be a progression of training. The elements of training for triathlon, include Volume, Frequency and Intensity.

Volume (V): the duration of activity and minutes spent training each week.

Frequency (F): the number of sessions and the number of repetitions of an activity. Closely related to volume, as increasing frequency can increase overall volume.

Intensity (I): the pace, speed, or resistance of an activity. Generally, this can be described as the amount of time an athlete spends in a high rate of effort.

These components vary substantially based on the distance being trained and the individual athlete. The age, experience, prior conditioning, strength, natural ability, and durability of an athlete are all things that must be considered when creating a training progression. However, two rules generally apply to all training plans:

It is recommended that Volume, Frequency, and Intensity are changed separately and interdependently (don't increase all three at the same time) and only in increments of 5–15% per microcycle.

All progression is essentially overload, or stress, to the body systems: (cardiovascular, muscular–skeletal, cardio–respiratory, and nervous) and need concomitant periods of recovery in order to create adaptation and increased fitness.

General overall volume of training: short vs. long distance triathlon preparation

Short Course Training (Standard distance and below):

Short course athletes will often build to peak aerobic distances of 150 to 200% of race distance components. For example, a peak long run for an Olympic distance athlete might be a maximum of 15 to 20km.

In long course training, novice and intermediate athletes will generally increase long aerobic training up to 70% up to just over 100% of race distance. For example, an athlete doing an Iron distance race might do peak cycle distances of 160–200km.

Energy systems and triathlon training simplified

The aerobic energy system

The aerobic system requires oxygen and this system is used in lower intensity exercise. The Aerobic system is very efficient and does not produce waste product as the heart and lungs are responsible for carrying oxygen to, and waste away from, the working muscles. Training the aerobic system is the cornerstone of triathlon training. It supports heart and lung (cardiovascular) strength, makes your muscles more efficient at using and producing energy and, when well-conditioned, will allow you to race faster, for longer. To train your aerobic system, you have to exercise for longer than 20 minutes.

Anaerobic alactic energy system

The anaerobic alactic system is where the body gets its start-up energy and the energy that a world class sprinter will use to jet down the track. Simply, muscles need a compound called adenosine triphosphate (ATP) in order to contract and fire, but the muscles only store a very little of this compound. The body must constantly replenish ATP in order to continue to work. The stores of energy in the muscle, which are used up in the intense burst of activity, return to normal levels within 2 – 3 minutes of rest.

Anaerobic lactic energy system

For intense work up to 1 minute, the body will use the anaerobic lactic system. This system also operates without oxygen, but produces a waste product called 'Lactic acid' in the muscles as not enough oxygen is available to remove it. Lactic acid accumulation can most often be felt as a 'burn' in the muscles, to the point where discomfort and fatigue cause the athlete to slow down, and fatigue will later be accompanied with soreness. The more intense the rate of activity, the faster the accumulation of lactic acid.

The body gets rid of lactic acid by switching to a slower rate of exercise and by utilizing the aerobic energy system. It can take up to 2 hrs to get lactic to return to pre-exercise levels.

While triathlon is mainly an aerobic sport, there is a range of aerobic intensity that can be performed, from jogging easy and staying aerobic (getting rid of waste product) and going anaerobic while riding fast uphill (accumulating lactic acid because you are working too hard to get rid of waste). Every individual has their own personal "Lactate Threshold" which is the maximal intensity of work that can be sustained using your aerobic system before the body will switch over to the anaerobic lactic system. Put a different way, the Lactate Threshold is the line between aerobic and anaerobic training. Every athlete feels this: the burn in the legs when running or riding, or burn in their arms when they go just faster than they are capable of and the very dramatic decrease in rate of activity within seconds of this switch to the anaerobic system. Training to raise Lactate Threshold, causes as athlete to go faster for longer. After an athlete has developed a strong level of fitness at the aerobic level, coaches can start to incorporate speed work or more intense work into their training. Working on the lactate threshold (or anaerobic threshold) through increased intensity is what will cause an improvement in pace time, for example, from 12min/mile to 8 min/mile.

Speed work builds the anaerobic threshold (simply, the point at which waste from muscle metabolism overrides oxygen delivery efficiency, commonly felt as the 'burn'). Improving threshold performance allows you to race at a faster speed with a lower heart rate, meaning you can go faster for longer than you did before.

Speed training also builds dynamic leg strength by creating an ability to hold a longer stride length (which engages more muscle fibres and requires more work) for a greater length of time.

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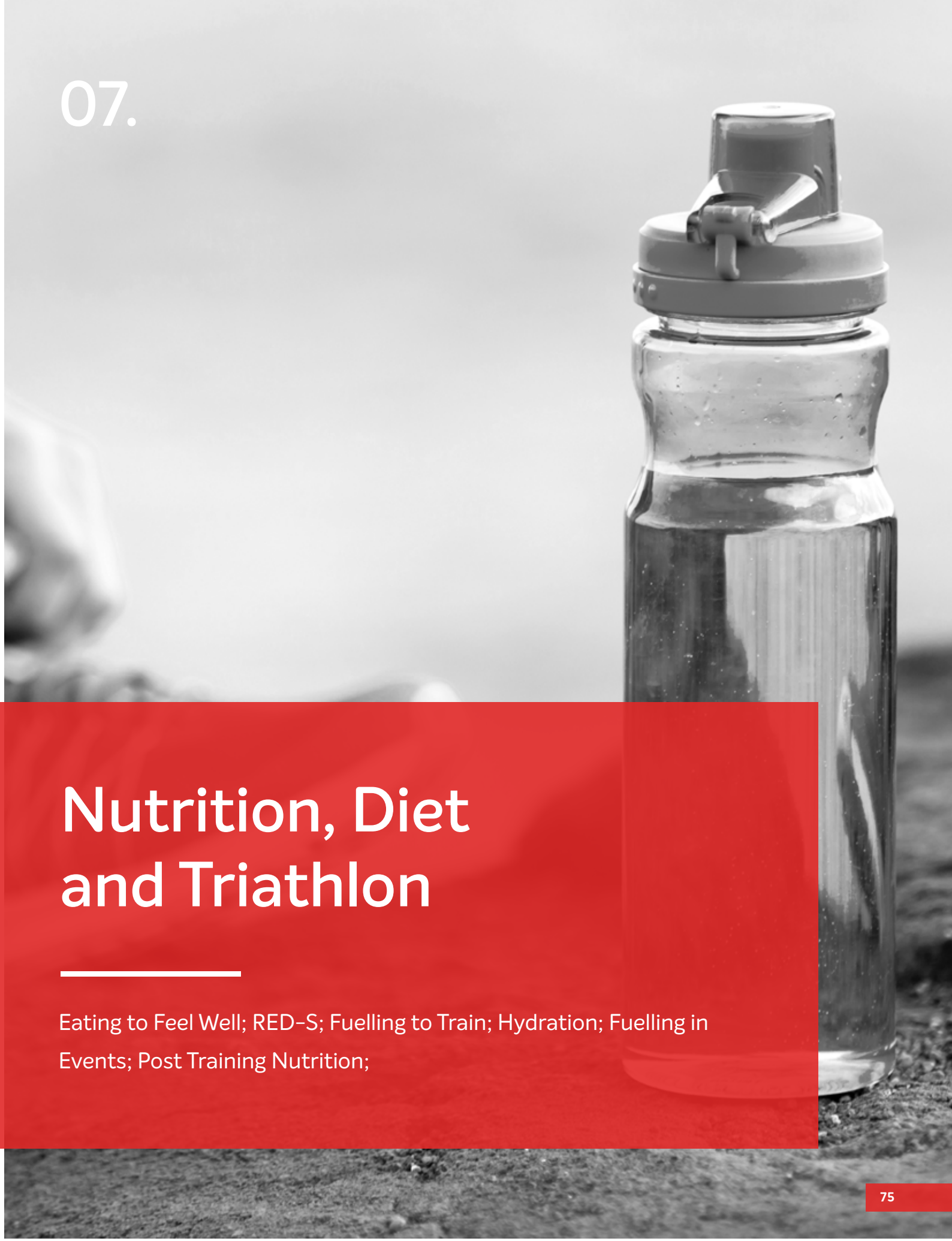

Nutrition, Diet and Triathlon

Eating to Feel Well; RED-S; Fuelling to Train; Hydration; Fuelling in Events; Post Training Nutrition;

This Chapter should be referenced by community coaches 'In Training' when completing the CAC Multisport Module Nutrition. You can use your own experience as a coach, learning from the Workshop and this manual to complete the practical sections of the Module.

Eating to feel well

Looking at food as fuel, athletes want to choose foods that nourish and support their body, and the training they desire to do. Health, wellness, and training can be affected both positively and negatively through nutrition. Eating intelligently gives the individual the power to make healthy, informed choices about what they are putting into their bodies to support the energy required to live and train. Over time, the emphasis on good choices leads to overall feelings of wellbeing whether training or not, and the good habits remain, merely because athletes feel better and their engine runs better.

As a coach, nutritional awareness and support should be a part of the outcome of most practice planning. Good nutrition is a part of supporting training and recovery and is an important foundation for a holistic program.

Relative energy deficiency in sport (RED-S)

When an athlete is not eating well, the deficiency in dietary energy intake relative to energy expenditure required for living and training will cause an overall energy deficiency and negatively impacts health and training. This is most common with younger, developing high performance athletes, but any athlete can suffer from RED-S (relative energy deficiency in sport).

The basics of eating for energy are to follow a diet that is varied in a proportionate amount of macro and micro nutrients and supplies the energy that is expended each day. Sustainability and pleasure should also be considered. Many athletes get pulled into special, and highly specific, diets in an effort to gain an edge in training. Unless an athlete has a food allergy, eating a strict diet that restricts the foods you love and need can negatively impact performance and well-being. A diet should be well planned in conjunction with a nutrition expert, for micro and macronutrients. Most nutritionists suggest eating a varied healthy diet, with moderation across foods, and without obsessing over any one type of food.

All of our energy is derived from three macronutrients: carbohydrates, fats and proteins. From those macronutrients, we satisfy our needs of micronutrients: the vitamins and minerals. The goal is to gain sufficiency, not deficiency, in all these aspects of food. Due to sweating and metabolism, some of the essential minerals to replace are magnesium, potassium, and sodium, while iron deficiency is something that needs to be watched, particularly when increasing sport intensity.

To support daily nutrition, nutritionists recommend

choosing whole foods as much as you can. Eat real food and concentrate on complex carbohydrates (50%), lean protein (20%), and essential fatty acids (30%). Fresh fruit and vegetables, whole grain rice and pastas and bread, eggs, lean unprocessed meat such as steak, chicken breast, pork and turkey. Fats should come from pure olive oil, coconut oil, avocado oil, butter, cheese, meat, nuts, seeds, and eggs. Food that is as close to its natural state as possible is the rule to follow. The less packaging and the fewer ingredients, the better. A grilled fresh chicken breast with fresh steamed broccoli and brown rice is a better choice than a highly processed Pizza Pop. A bagel with peanut butter and banana is a better choice than a packaged cookie, muffin, or granola bar. Along with being nutritionally poor, many commercially packaged baked goods and fast food are made with polyunsaturated fatty acids (PUFAS), the bad fats, which are not as good for you.

Fuelling to train

There are 3 keys to sports nutrition: 1. eating and hydrating before workouts, 2. eating and hydrating during workouts, and 3. eating and hydrating after workouts.

Being nutritionally ready to perform is very important. For the scope of most training under 2 hours and for events of under 90 minutes, hydration is the main concern and nutrition is not as crucial to success as it is in longer endurance events like ultras and Ironman where athletes will run into depletion during the course of the event. Hydrating and fuel for training and events over 2 hours is critical to an athlete's safety and success.

Before training:

- Athletes should start workouts with energy to complete the session, while not feeling full so as to avoid having an upset stomach. This looks like 60–100 grams of carbohydrates between 1 and 3 hours before a session (or one energy bar and a piece of fruit or toast with jam and a piece of fruit). Keep the foods high in carbohydrates and low in protein and fat.

- The goal over time is to find the right foods and timing that work for an athlete, as they will replicate this nutrition on race day.

- Workout timing has to be taken into consideration. Early morning sessions require only an early breakfast taken prior to training, while evening session mean paying attention to nutrition and timing throughout the day. For an evening session, have a pre-training snack (fuel) about an hour before training, especially if lunch was over 4 hrs prior. Timing lunch to fall 3 hrs before afternoon training session is a good practice. Teach athletes to avoid skipping meals, as this sets up fluctuations in energy that are not optimal for training -the caloric shortfall from missed meals will leave you depleted and weak in your training.

- One strategy for age group athletes is to have them count back 1-2 hours from the estimated time they will arrive at their after-work sessions and have a snack ready at the office: a banana, small sandwich with peanut butter and honey.

- Nutrition, like any skill, takes practice. Over time, a strategy that works is found. Stick with that.

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Hydrate before workouts

Dehydration negatively affects performance. Sipping on water will keep hydration levels up and a sports drink containing electrolytes can be better in hot weather when sweat loss high. 250–500ml, 1–2 hours before a session, is a starting point. Drinking too much, too close to a workout, doesn't give the body time enough to absorb fluid. Fluid will either slosh around in your stomach, or create cramps and a full feeling, or will hamper you with bathroom breaks.

Fuelling and hydration during training

For sessions under 2 hours, hydration is the only concern, as the body carries enough energy to operate for that time. Sip on water or sports drink during the course of the session (approximately 500ml/hour).

For sessions over 2 hours, athletes will need to consume calories as well as drink fluids. Start with a baseline schedule and work with athletes to come up with an effective plan to replace fluid loss and caloric burn due to training. Replacing fluid loss and calories should start 15–20 minutes into a training session and continue until the end of the session. The amount of calories an athlete needs varies depending on the individual's age, size, muscle mass, and intensity of session. Generally, people need to consume about 200–300 calories an hour, for optimal energy. Gels work well for this, as energy can be parceled out in 100–150 calorie chunks every 20–30 minutes. The type, amount, and frequency of calorie replacement in long distance endurance training is such an individual process, that a coach has to work very closely with an athlete to devise an optimal plan that works for training and will work for race day, as well. This is not a hard science, but an individual protocol that is unique to each athlete and requires a lot of practice in training and experimentation. However, not eating enough on long training days will certainly have a negative effect on training.

Fuelling in hydration in events

Effective fuelling for events starts in practice and training, as outlined above. The best way to fuel for events is to create a strong protocol in training and replicate this for event day. The technical aspects of event nutrition and hydration is covered in Chapter 10.

Eating post workout

Nutrition after sessions is critical, both for immediate recovery from the energy expenditure stress of the training and to ensure that the body is ready for the next session.

Plan for, and aim to eat, some carbohydrate and protein within 30 minutes of completing a session or race. The food should contain some protein, be high in carbohydrates, and contain 150–400 calories. High carbohydrate foods will replace the glycogen muscles need in order to repair and recover from the stress they were under during training. Refuelling, right after a session, helps the body recover faster from a session.

As a community coach, your main goal is to get athletes to sessions prepared, and developing good nutritional habits is one facet of being prepared as an athlete. Further to that, when athletes are not eating well, or enough, they risk the problems associated with energy deficiency, which is not an optimal state for training and affects their overall vitality as well.

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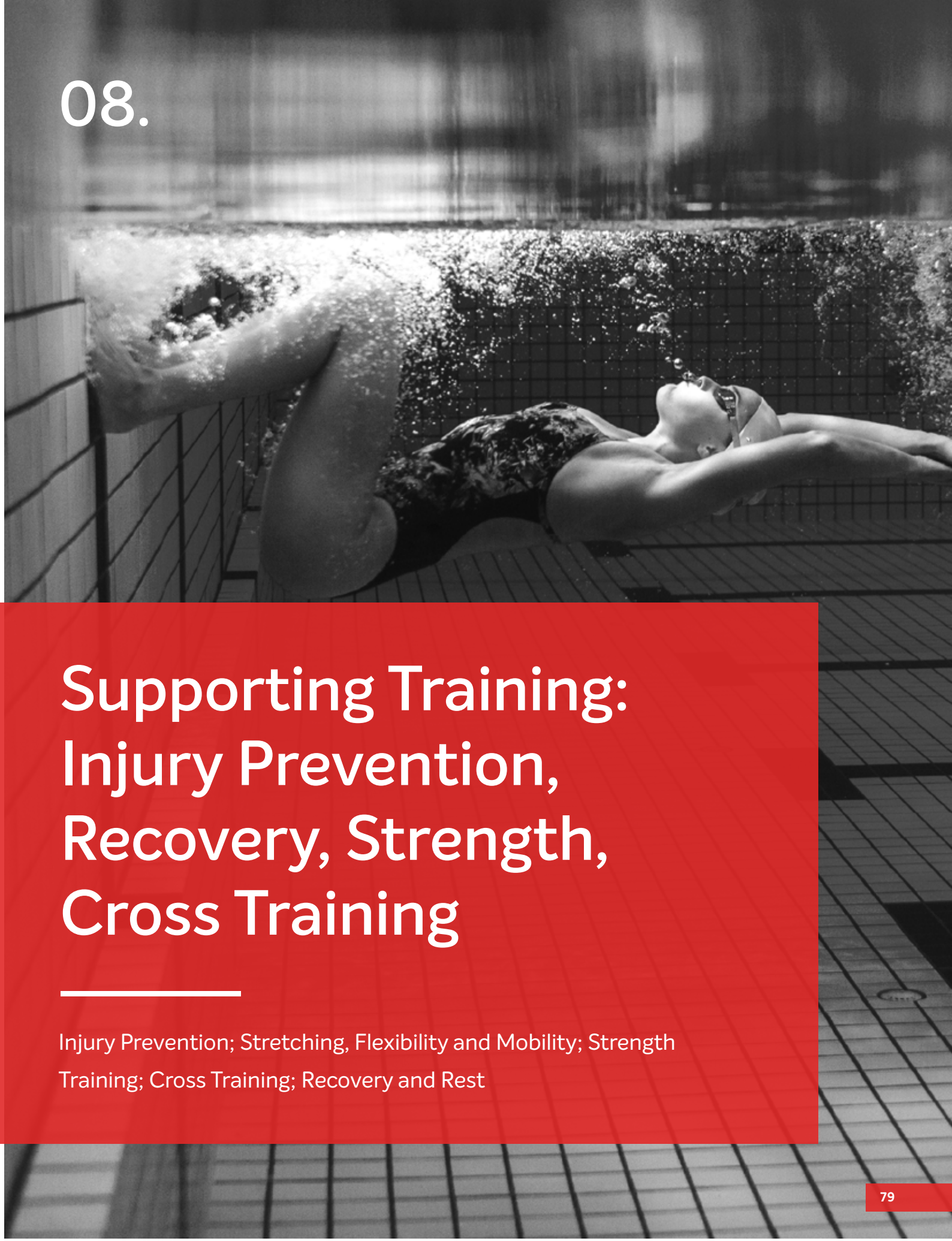

Supporting Training: Injury Prevention, Recovery, Strength, Cross Training

Injury Prevention; Stretching, Flexibility and Mobility; Strength Training; Cross Training; Recovery and Rest

General injury prevention

Coaches can help prevent and reduce acute and overuse injuries from happening through attention to safety, individual athlete progress, and through planning diligence:

- Environmental and technical safety: having a safe place in which to train.
- Basic skills: athletes acquire fundamental movement and technical skills that allow them to train safely. (swim, bike, run, transitions). See Chapter 5: Technical Skills.

Coaches can also help reduce training injuries through good practice:

- Training programs and practices that are individualized to the needs of an athlete and that helps the athlete progress at a rate that allows for improvement.
- Being aware of the propensity for an age group athlete to overtrain volume in triathlon at the expense of strength and recovery.
- Training programs that have daily/weekly or other periodized injury prevention practices built in: recovery/light days, strength and stretching, massage, yoga.

Injury prevention practices in coaching fall into several categories:

Good planning and teaching fundamental skills (Covered in Chapter 5 and 6).

In this Chapter, we cover further prevention strategies including stretching, flexibility, strength, and cross training.

Stretching, flexibility, and mobility

Stretching refers to the elongation of tissue, which can either be muscle, fascia, or nerve tissues. Stretching either helps us maintain flexibility or improve flexibility and can be done in a number of ways.

Stretching is a subject with many opinions and views, from how to stretch, to how much to stretch, to whether you need to stretch at all. Coaching advice on stretching will range from never stretching to creating several specific training sessions in your week, every week.

Sports science has shown that muscles work by stretching –it is the essential action for our muscle to perform. The stretch, and the range of motion (ROM) of each muscles around the bone to which is attached (the joint), dictates our flexibility. Flexibility varies immensely from one individual to the next. Flexibility decreases with age.

Each individual has an optimal flexibility and range of motion that promotes a healthy pain-free body. Issues with inflexibility are generally a feeling of tightness in the muscles and joints, pain, and injury. Tight muscles do not function to their full range of motion, which means that speed and power are compromised, as will be the natural efficiency for movement. Working on maintaining flexibility will allow for better performance and faster recovery, can reduce chronic pain and may reduce the risk of injury.

We stretch to

- Increase flexibility and to get the muscles back to their pre-workout length
- Increase performance
- Improve posture
- Relax our muscles, which leads to increased blood flow and faster recovery

How to stretch

Some people prefer to stretch before and after workouts, or only before, or only after. Generally, it is easier to stretch muscles when they are warmed up a little, after about 10 minutes of light exercise. There are two types of stretching we will consider here, static and dynamic.

Static (or held) stretches are the most effective for triathletes. Holding a stretch for 1–2 minute helps muscles return to their normal state.

Posture and technique are very important while stretching. Having poor posture in stretching will usually cause muscles in a different group to be overstretched.

Dynamic Stretching is a fluid movement to activate the muscles before a main set. Leg swings and arm swings fall into this category.

The main muscles groups in triathlon:
Quadriceps and hip flexors: these are the large muscles in your thighs and at your hips, responsible of the dynamic movement of running and cycling.

Glutes, hamstrings and piriformis: the muscles in your buttocks, hips, and the back of your thighs react to the contractions of your front leg muscles. Working on improved flexibility in these areas can help prevent the lower back pain often associated with running and cycling.

Soleus/gastrocs (calf): the muscles on your lower legs affect the function of your knees, feet and ankles, which is important to the impact of running and cycling

Pecs and deltoids: muscles in the upper body, torso, and shoulders, necessary for fluid movement in swimming and also for being relaxed on the bike and while running.

Strength training for triathlon

Developing mobility and strength creates improved training and performance when incorporated into a triathlete's schedule and will decrease the chance of injury.

The right type of strength training can improve endurance economy (how much oxygen is used to move), lactate threshold, and anaerobic capacity, while leaving energy available for endurance training. A stronger body breaks down less easily and holds posture when fatigued.

Triathletes, especially age group athletes new to sport and those past age 45 should be doing specific strength that targets the mobility of joints (the strength and flexibility of a joint) and trunk stability (the ability to hold a strong posture through the spine while moving). Mobility and good trunk stability will help in performing all the movements well across swim, bike and run, including skills like navigating transitions and removing your wetsuit. Good mobility in joints reduces chronic

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stiffness and good trunk stability gives an athlete a stable and balanced point from which to initiate and sustain safe movement. Maintaining optimal alignment through the spine will prevent excessive stress during movement and will allow an athlete to perform the correct skill movement for longer and may help prevent injury.

Because strength training requires certification beyond the scope of Triathlon Canada Community Coaching, it is suggested that coaches work with a certified strength training specialist in their region to develop a plan for their athlete or their group and build it into weekly or, at the very least, seasonal training plans.

Athletes can also connect with kinesiologists, strength and conditioning experts, physiotherapists, and other health care professionals in order to develop remedial strength and conditioning individualized to their body and abilities. This will create optimal strength and stability for triathlon training.

Cross training

By nature, the sport of triathlon is a cross training activity. Athletes swim, bike, and run and proficiency of movement, fitness, and strength gained in one sport benefits the others.

Cross training can be viewed in several ways. It is either an alternative to a primary activity when an athlete can't do that due to injury or pregnancy (pool running during recovery from plantar fasciitis, for instance), is a supplement to the primary activity to reduce the chances of burnout and overuse injuries (cycling can help reduce running injuries in some athletes), or closely linked to this supplementary aspect, cross training is a way to improve overall performance in sport by utilizing other movements and energy systems.

During a recovery or rest phase of the season, cross training can give athletes a break from the focus and demands of triathlon and provide enjoyment from the adventure, challenge, and fun of doing something different.

There are many activities that can be used for cross training and that support cardiovascular fitness, muscular strength and endurance, coordination, and enjoyment. Cross training activities for triathletes can include elliptical trainers, rowing (both dryland and water based), pool (water) running, hiking, mountain biking, cross country skiing, in line skating, and strength training.

Pool running

Because of its specificity to running, deep water running, or pool running, is one of the best ways to maintain run fitness and feel while recovering from running injuries. Pool running is also ideal for pregnant athletes, who want to reduce and eliminate impact to the body.

Pool running mimics the style and action of your form, but is non-pounding, and is good for most injuries – such as sprained ankles or knees, Achilles tendonitis, and plantar problems. Pool running is a favourite of runners because it replicates the action of running without the pounding, is safe, and you can transfer land training intervals and workouts into the water setting. Most runners come back from pool running to land running very strong and find the extra resistance of the water helps them maintain fitness and strength.

Pool running is very good training for athletes who break down easily with run mileage (who may be injury prone in running), and these runners can substitute some of their land based volume for time in the pool.

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How to:

A note about form in pool running. Start with a pool running belt to ensure strong upright posture and focus on driving the knees up and down piston style, as opposed to slowly pulling them through the water. A lot of public pools have pool running belts for public use: they are essentially a band of flotation foam worn around the waist, cinched with a belt to keep it close to the body. Arms are used as for land running and hands are held in loose fists (not cupping or pulling the water, as in swimming).

Keeping the head and neck out of the water, run on the spot, driving the knees up and down, and using the arms as you would for running. A quicker turnover creates more resistance and needs more effort, which increases the heart rate and training effect. Do not try to travel forward very fast while pool running but, in a confined area, an athlete can tether themselves to the pool deck using a resistance band if the deep end space is small: this will halt forward movement and allow for a sustained training session.

Elliptical

These low impact trainers are found at the gym and, after a period of adaptation, can be used to easily replicate run training. Athletes may need 3–6 shorter sessions on the elliptical in order to feel comfortable and adapted to the movement.

Recovery and rest

Triathletes often get super focused on goals and training sessions and, in their impatience for improvement, forget about the importance of recovery. Without recovery, the body can't heal stronger. First, let's clarify recovery: recovery is not ice baths, compression socks, or protein drinks. These are all things that may aid in recovery. Recovery is the time the body needs to repair damage from exercise that is caused by training and racing. Most of this recovery has to happen at the cellular level and also includes your endocrine and immune systems.

Planning recovery is important for several reasons. First, it gives distinct parameters for days following hard sessions or a race, allowing the body to repair and strengthen after the extreme effort, even when athletes are mentally ready to train hard. Recovery allows athletes to come back stronger and make consistent improvements. Second, when planning out a racing season, taking recovery into consideration will allow you to create peaks for your athletes at the right time. Finally, recovery is important emotionally: all athletes need down time from pursuit of goals and being psychologically engaged.

Build in recovery

Don't wait until your athletes are exhausted, sore, or worse, injured to take a rest. Planning for recovery is as important as planning sessions. Without recovery, the body cannot absorb the training load or adapt by getting stronger. Conversely, training without recovery is like training along the law of diminishing returns: the sessions get progressively slower and slower as athletes tire over time; form breaks down as they compensate

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for tired muscles, the runs get slower as they run less efficiently, and on and on. Hard and/or long workouts also reduce hamstring strength and power in triathletes and, if recovery is not complete, they must perform their next workout with diminished hamstring strength and therefore cannot perform to full potential.

Generally, every third week should be a lighter week, or a recovery week, when the volume and intensity are reduced, allowing the body to regenerate and recover. During the recovery week, volume may be reduced by 25% or more, there is a focus on cross training, getting a massage, seeing a physiotherapist, stretching more, and eating well. Many athletes who have plateaued, or are chronically injured as the result of classic overtraining without recovery, can be called 'winging it'. It can take up to a year to iron out the building weeks with the recovery weeks, bringing athletes to a sense of balance and enlightenment about how recovery aids in stronger training over time with a consistent and smart training plan.

At the weekly level, recovery days almost always naturally follow 1–2 days of intense training, depending on the type and age of athlete, distance trained for, fitness, and time of year. The key here is fatigue and soreness from training. A well balanced week for a healthy athlete is generally made up of three–four build workouts days and either three or four recovery days.

Unplanned recovery and rest days:

When athletes are challenging themselves to new distances and events, they are taking their body and mind into new discomfort territory. While planning in recovery weeks should be a priority, sometimes the mystery of the body takes over and athletes need to take an unplanned recovery day. Training fatigue is a natural consequence of higher volume and intensity, but it has to also be differentiated from burn out and over training. This can often be hard to distinguish—and there is a continuum of athlete mentalities from the overly conservative (pulling the plug in training whenever they feel the slightest niggle pain or the slightest feeling of a cold coming on) to the obsessive (training through fatigue, injury, illness at all costs). Both extreme mentalities lead to the same road of compromised performance.

Only an athlete can tell you when they feel it's time to stop a workout, but as a coach, you can learn to be a good observer of each individual. Do they want to stop because they are honestly worried about getting sick or injured, or is it just an excuse as they are frustrated that the day isn't going the way they expected it, and are disappointed?

A more proactive approach is to understand and explain that the body isn't always going to feel 100% for every workout; it is a bit mysterious at times and some days are just going to be a slog. Teach athletes to be aware of their self-talk and to tune into their physical body; try to keep perspective that each day is another step in the foundation of training and sometimes just completing a workout is the goal to take pride in. Every now and again, the goals and expectations of the practice have to be adjusted to take into account the 'mystery fatigue days'; the days where athletes are just too fatigued to get a positive training effect. Sometimes, as a coach, you have to take charge and have the athlete take an unplanned recovery day or do a gentle base run or an aerobic spin on the bike.

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Tips for recovery sessions:

Run on soft surfaces, run in the woods, and run easy. Focus on form and posture, instead of speed and pace. If an athlete habitually builds speed through recovery sessions, have them follow a set heart rate or easy pace and point out that training at too high an effort on recovery days hinders their ability to recover and train optimally over time.

Train solo. Too many people sabotage recovery by joining others who are not on a recovery session, or training with people who are faster.

During recovery weeks, you can still touch on speed and pace, but doing shorter maintenance intervals. Doing 6 x 1 min fast with 1 min recovery in a 45 minute run, provides the muscle memory and maintenance to carry an athlete through to the next build phase.

Finally, for athletes who really have trouble with going easy on easy days or with the idea of recovery, reframe it. Recovery training sessions are as important as build sessions. They are crucial, they are smart and necessary. Schedule massage in a recovery period and fill some of the spare time with stretching sessions. Concentrate on good nutrition and hydration; these are favours you do to a body that is trying hard to repair.

A recovery period is also a mental refresher. Just like the off season gives athletes a much needed break in their yearly training, the recovery weeks and days are short time outs in the microcycle. Recovery allows athletes to reset emotionally and simply to take a break from thinking so hard about their training and goals.

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Notes

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Coaching Master's and Aging Athletes

Guidelines for Coaching Masters Athletes; Women and Changes due to Perimenopause and Menopause; CAC Summary on Master's Athletes

Guidelines for coaching masters' athletes

Because the field of masters athletes and their participation in sports (in particular, competing in sports) into their 70s is relatively new, we still don't have conclusive sport science to guide exactly how we coach athletes over the age of 40–50. The idea that older athletes lose muscle mass, or cardiovascular power, may be due to chronic inactivity and may not be applicable to the active aging adults that you coach.

When coaching masters triathletes, there are a few guidelines you can follow.

As people age, their reaction times get slower. This is due to central nervous system process slowing down. So you may notice that your older athletes may react a little slower than others, and the main impact here is regarding safety. Make sure athletes are safe when riding on the road and in packs and have proper training for transitions and other parts of triathlon where reaction time may be of issue.

Athletes over the age of 45 may need more recovery time between hard efforts and competitions. These needs will have to be individually assessed and based on the level of intensity the athlete works at in practices and in races. In general, the harder an athlete is willing to work, the more recovery they will need, and they will notice recovery needs will go up as they age. For instance, they can no longer race every weekend, or have to space speed work sessions 10 days apart. The only way to determine this is to listen to the athlete and watch them closely for fatigue. It doesn't mean they have to reduce intensity of training – only that they may need more recovery.

The implication for training is to develop a progression and training schedule where intensity is spaced with endurance and recovery sessions.

Athletes over the age of 45 may need less run volume in order to keep running well. Too much running volume (and impact) may not increase running economy, fitness, or speed, but can operate under the law of diminishing returns as athletes are chronically tired or on the verge of injury. Less volume, more frequency, speed, and using swimming, pool running, or cycling to build and maintain volume may be a better training principle for older athletes. Again, listening, observing, and assessing the athlete frequently is key here.

People over the age of 45 may benefit greatly from a strength and conditioning program and may be able to reduce the wear and tear of run and bike volume by substituting strength.

People over the age of 40 may need more sleep and more protein in their diet.

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Women and energy changes due to perimenopause and menopause

Perimenopause is the period of time before menopause, when a woman gradually produces less estrogen. Menopause happens when the decline in estrogen causes the ovaries to stop releasing eggs. The decline in estrogen causes a variety of symptoms in women.

Women, from the age of 40 and up to 55 may experience symptoms of perimenopause and menopause that will create change that affects their ability to train.

The most common symptoms of perimenopause and menopause that affect women are sleeplessness and insomnia (which lead to fatigue and exhaustion), low energy, and moodiness.

None of this should prevent a woman from training, competing, or being involved in sport. In fact, being physically active, social, and having good nutrition (which are integral to triathlon) likely help athletes at this time of their lives. However, coaches should be aware of, and sensitive to, the changing needs of women, especially the need for rest and adjustments to training intensity at times. This is one of the subtle areas of coaching within which training decisions may have to be made. For the age group coach, empathy and support in the training environment, can really enhance an athlete's enjoyment of the sport and her desire to continue.

Like other masters athlete needs, there is not enough research to offer any science-based guidelines here, but listening to the athlete and observing and assessing progression is key.

To sum up, from the CAC paper on masters athletes:

Masters sport is booming. And while coaching masters athletes is probably not that different from coaching other athletes, there are some things you need to do, or take into account, when coaching masters athletes:

- Always have athletes, especially older athletes and those who are currently inactive, get medical clearance to participate before agreeing to coach them.
- Designing programs for older athletes is essentially a partnership between athlete and coach. If the athlete has an underlying health condition, the athlete's doctor may be involved in the partnership.
- They have different physical characteristics than younger athletes and they may need to train some of these characteristics differently than younger athletes.
- They are more likely than younger athletes to have certain health conditions, such as osteoarthritis, and their training may need to be adjusted accordingly.
- Always tailor your coaching to your masters athlete's background. For instance, focus on motivation and current physical condition with those who've always been active, develop a return to activity protocol for those returning to activity, and follow the guidance in the section 'Health Conditions' when athletes have health conditions. Coaching masters athletes is an exciting opportunity, a new frontier in Canadian sport and society.

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10.

Coaching to Events

Coaching for The Competitive Arena, Preparation and How to Race; Pre Event Coaching; Race Day Event Support – How to Support Athletes on Race Day; Rules; Post Event Support; Post Event Recovery and Reflection

Coaching for the competitive arena, preparation and how to race

Most triathletes will want to participate in an organized triathlon at some point. Triathlon events are fun, engaging, and great opportunities to test out what has been learned through training. Racing is also a more intense environment that requires strong focus, builds resilience, and gives athletes the chance to raise the bar on what they expect from themselves. Racing generally infuses athletes with a strong sense of well-being as they accomplish goals and push through discomfort and overcome self-defeating beliefs.

Supporting athletes to competition means helping them prepare for the race experience so they get to the race site prepared and ready to execute. This preparation covers logistics, technical /tactical skills, training preparation (including nutrition), and mental preparation.

Your support must put the athlete first, and that means knowing and understanding their reasons for wanting to enter a triathlon and how to best support that experience. While the technical and tactical coaching is common for all to have a safe experience and to be able to perform to their potential, remember that all athletes will get something personal out of the experience, based on their individual motivation for being in sport, which is often a combination of these four reasons:

Social: being around like-minded people, making friendships and connections.
Success: performance orientation, striving for excellence, achievement, and mastery.
Self-direction: learning new things, being in charge of their direction, and in control.
Sensation: connected to the movement and feelings of being in sport, including the sensory and emotional. (feeling the water and air, and the excitement).

The goals in community coaching are to support a positive and safe experience for triathletes and help them execute the skills they have learned in training, in a more intense environment.

The following sections provides a brief breakdown of how coaches support their athletes before a competition, during a competition, and after a competition. It is up to you to know your athletes, work with their personalities and goals, and provide the best support.

Pre-event coaching (race week, day before)

Logistical support:

1. Make sure athletes understand the registration process and are entered in the right events correctly and on time.

2. Supply athletes with triathlon checklists for gear to ensure nothing is forgotten.

3. Help them take care of major details pertaining to travel to the event and what race weekend will look like such as:

- Sport expo (conserving physical and mental energy by monitoring visit time)
- Bike check and mechanical help if needed
- Package pick up (ID, license, etc.)
- Pre-race meetings - mandatory
- Pre-race course viewing
- Safe swim course preparation
- Race weekend nutrition
- Race weekend mental preparation

Pre event technical support and on site preparation

Typically, triathletes pick up registration material prior to race day, at the event site, and close to the transition zone. This is a really valuable opportunity to walk through the transition zone with athletes and to see the environment before the race. When an athlete can see the race site, the transition area, the swim course, and even the start of the bike and run course, they will feel more prepared.

How to support athletes at the race site before a race:

- Take a look at transition zone, where the bike racks are in relation to the swim exit, and the bike and run exits. Note the flow in and out of the transition zone. Note the mount line.
- Go to the swim start and look at the course, noting any landmarks that swimmers might be able to use on race day. If possible, do a short swim session, as there is an excellent opportunity to practice sighting for the race. This can reduce the incidence of panic attacks in the swim.
- Drive, or ride, the bike course (for short course) if you can, noting hills, corners, technical features, and anywhere extra caution should be taken. Really take note of course directions; the onus is on the athlete (not the course marshals) to follow the proper course on race day.
- Ride, or run, the run course, noting the same things as above.
- Take note of where half way is and one mile to go. Knowing these markers can be incredibly motivating on race day.
- Athletes, who preview courses, report feeling more prepared to race well and less anxious on race morning. Knowing what to expect helps create a more concrete plan about what race day is going to look like.

Pre event training support:

Support athletes in their taper. The last 5–7 days is typically called the taper, when volume and intensity is reduced in order to rest and prepare for a big effort. Some points to consider.

- Training through the taper week is specific and meant to activate the range of motion for race day. Do very short periods of work at race pace (25–50% of normal volume). Be prepared to coach athletes to NOT train too much.
- Schedule a day or two off during the taper, but keep up some frequency of training for specificity.
- Encourage athletes to use extra time to check equipment, organize for race day, and to stretch.
- Athletes can feel antsy during the taper, this is normal. Teach athletes how to stay calm through meditation and breathing, instead of adding training. Testing out rested legs on race week is one of the most common performance mistakes that athletes make.
- Encourage them to continue to eat nutritiously and to hydrate. Don't try anything new.

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Mental support before events

Visualization and imagery

"If you can imagine it you can achieve it. If you can dream it you can become it." William Arthur Ward

One of the most powerful sport psychology tools an athlete can use is that of imagery. Mental rehearsal, imagery, mental imaging, and visualization are all terms that describe the exercise of creating a picture of an experience in your own mind. It is possible to create events in your mind and get the body to physically respond to those events even though they are not really happening.

In the world of sport, the ability of an athlete to imagine great things happening, to imagine themselves performing well in a given environment, is often what decides the outcome of the day. For people who have trouble believing that they can do well, using imagery has often created amazing change.

Being able to imagine exactly what you want to have happen on race day increases the chances of those events happening. The trick to imagery and visualization is to be able to clearly see what you want to have happen and the environment where it will take place. One of the reasons it is so good to have athletes preview a race course is that, when they are visualizing success there, they can actually see themselves right there on the course. There are no surprises, only plans.

When getting athletes to visualize a performance they need to be very clear on their goals: whether they are performance or process goals. They need to see themselves executing goals every step of the way, including their environment, the people, and even the sounds and smells of the event. The more detail that matches their desired outcome and reason for competing, the more real the image is and the more effective the visualization is as a tool.

An example of specific imagery is having athletes visualize transition, which enhances their success in race day transition. Before race day, try this exercise with athletes, adding detail as necessary.

a) Mentally take note of where your bike is positioned in relation to the transition area. Think about running from the swim to T1 and finding your bike. See the path, the footing, and the route to your bike.

b) Visualize being calm and quick in transition. Run through the steps in your mind: slipping into your shoes and putting your helmet on your head and doing up the buckle. Mentally grab your bike and run to the mount line. See yourself getting on your bike smoothly and calmly and see yourself get up to speed. Envision a confident, happy state, and being competent with skills.

c) Visualize the end of the ride, thinking ahead to transition. Being smooth and relaxed at the end, being calm as you get off the bike and run to your spot. Racking, unbuckle and take off helmet, putting on your shoes running out of T2.

Race day event support – how to support athletes on race day

Logistics

Most of the logistics will be taken care of from the day before – knowing when Transition opens, where the bathrooms are, and where the Race start is, are all crucial.

- Be early. Plan to arrive at the race site 2 hours before the start. This will allow time for traffic, parking and registration; time to set up bike and run equipment, and time to memorize flow in and out of the transition zone. This also includes finding the bathroom and changing.

As a coach, have a plan for where you will be on race day and how you will get around and navigate while coaching.

Emotional support on race morning

It is typical for athletes to wake on race morning feeling nervous and full of anticipation. This is a good thing which shows signs of activation. However, you want to make sure athletes are at an optimal state of arousal, and not depleting themselves before the race starts.

- Do a quick check with them. If they are too keyed up, the tension can play against them, so work on trying to find ways to help them relax. Often being reminded, how well prepared they are and that they fully deserve to be taking part, is enough to put the whole thing in perspective.
- Encourage athletes to focus on process, not outcome. They control the process (what they do) but they don't control the outcome (what happens).
- A few nerves, while annoying to some athletes, means that they care about the upcoming event and how they do.

Emotional support in race

- Have a good grasp of the cues that your athletes respond well to and use these during the race at key areas. From the course map, you can find key places to position yourself, in order to support your athletes and give them vital feedback and encouragement during the race. For most age group athletes, the best form of support is basic, but specific, process oriented encouragement and cues. Be prepared to help athletes re-frame and re-focus in race as well, using positive comments to pull distracted athletes back on task.
- Novice triathletes most commonly lose focus in races due to discomfort and feelings of fatigue, which cause anxiousness. Cue: relax, quick feet, look ahead,
- External Distractions: other competitors or spectators doing unexpected things. Cue: focus on self, what you are doing, don't waste valuable energy on things you can't control.

Training support on race morning

- The main thing on race morning is to do what has been practiced. Eat the foods, do the warm up and wear the clothes that have been tested in training. Do not do anything NEW race morning or race day.
- Fuel: for most events, about two hours before the event, eat a low-fat, low-fiber breakfast that has been already tested in training sessions. Shoot

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for a quality carbohydrate that provides a slow to moderate release of glucose, such as old fashioned oatmeal, cereals that aren't too high in fibre, and low fat yogurt. Toast or bagels with jam is a proven favourite. Also, be sure to drink 16 to 24 mL of fluid one to two hours prior to exercise, to avoid dehydration and indigestion. Do not eat anything new on race morning.

- Warm up. It is recommended doing a short run warm up, especially if it is a cold morning and a cold water swim. The run warm up is a great way to raise heart rate and muscle temperature slightly and has the benefit of activating the leg muscles, which will be used on the bike and run portions of the race.
- Do a 10-minute easy jog about 30 to 40 minutes before the start of the race and follow it with gentle stretching. At this point, the wetsuit can be put on if needed.
- If possible, about 15 minutes before the start, jump in the water and do some easy swimming, concentrating on breathing well, relaxing, and practicing sighting to the first buoy. Every race is different, so make sure athletes know if they can do a swim warm up or not.
- Back on the beach, before the start, visually locate the course buoys. Look at the first buoy and visualize swimming the first leg and the course. Visualize the start and how it is going to feel. Breathe and stay relaxed.

Once the athlete is warmed up, your job is to support them through the event without providing any outside assistance.

Rules

As a coach, it is imperative that you know the rules of triathlon and that you ensure your athletes are also familiar with the rules prior to the event.

Attend the pre-race meeting and be prepared to help your athletes with any concerns they have pre-race. There are many rules in triathlon that cover aspects of equipment, transition etiquette and course conduct and, depending on the event, the penalty ranges from Disqualification to a time penalty. Most errors are completely preventable with a combination of knowledge, mindfulness, and common sense.

Common infractions in triathlon:

1. Helmets: Helmet has to be approved and must be buckled at all times while on and while athlete is touching the bike.

2. Transitions: not putting equipment in the proper spot, interfering with another's equipment, or impeding the progress of another competitor.

3. Drafting and blocking: Drafting—keep at least three bike lengths of clear space between you and the cyclist in front. If you move into the zone, you must pass within 15 seconds (NOTE: race organizer may have different draft zone lengths). Position—keep to the right hand side of the lane of travel unless passing. Blocking—riding on the left side of the lane without passing anyone and interfering with other cyclists attempting to pass. Overtaken—once passed, you must immediately exit the draft zone from the rear, before attempting to pass again.

4. Unsportsmanlike conduct: Abusive language or other unsportsmanlike conduct directed at race officials, volunteers, spectators, or fellow athletes.

5. Race numbers: All athletes are required to wear race numbers at all times during the run. Numbers must face

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the front and be clearly visible at all times. Numbers may not be cut or folded or altered in any way. Transferring your number is not allowed.

6. Abandonment: Throwing or discarding of any personal belongings. This includes throwing away food wrappers or bottles and clothing onto the course.

In-event technical support

Athletes are on their own during an event so any technical coaching comes from prior coaching in training - you need to provide athletes with skills for executing a race from a technical perspective.

Swim start

Whether it is deep water or beach starts or off a structure (rare in age group racing) and wave or rolling start, make sure you have set up training to practice these different ways of starting.

Wave starts will group athletes according to age group, sex, or predicted swim time. Some events now employ a **rolling** start, where athletes self-seed and are timed only when they cross the timing mat at the start of the race. This is an excellent way for anxious swimmers to participate.

Washing machine

Open water swim starts can be frenetic and involve body contact and jostling. It is only a brief period of the race and athletes can work through it by staying calm and having visualized staying calm in their mental preparation. Starting to the outside of the pack, or behind, will alleviate the effect. Confident swimmers, who don't mind the fray, can set their sights on swimming the shortest line to the first buoy and gaining a beneficial draft.

Buoy rounding: cautious swimmers will want to stay out of trouble at buoys by swimming wide.
Know the buoys: some buoys are aids for course direction only and can be swum right or left. Other buoys have to be rounded in the correct course direction.

What do to do in case of panic in water

Panic attacks can come along unexpectedly and without warning and are frequently caused by the stress of competition and the washing machine nature of swim starts. Be pre-emptive with your athletes and coach them to breathe and relax in the swim – staying wide if they are anxious, and having a plan in case one hits.

1. Move out of the way, if possible.

2. Tread water, do gentle breast stroke with face out of water, or float on back to ease breathing.

3. Focus only on breathing, good inhale, and good exhale. Allow the panic attack to pass, trusting that it will, instead of fighting it.

4. Gradually start swimming again or, if unable, wave/call to a swim marshal for help.

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Sunlight, waves and sighting

Early morning sunny swims can cause glare and sight restrictions. Tinted goggles help, as does breathing away from the sun side in the case of blinding sunlight. Waves can cause athletes to have trouble breathing, and breathing away from the wavy side helps.

T1 Leaving T1 is a critical time for triathletes. Avoiding accidents is paramount to speed.

Be aware and be focused: get to the bike mount line and safely on your bike. Athletes can run past the mount line if it is crowded but, in this case, must stay to the side and clear of others so as not to obstruct others. Once on the bike, focus only on pedalling smoothly, holding a straight line, and clearing the transition area to get on course. For safety, do not try to eat, fiddle with equipment, or get bottles. Breathing rate is often high after swimming and transition, so the focus is on getting settled, relaxed, and into the bike rhythm.

Bike

Know the course, ride hills and corners with sustained power and in a fair manner. Aside from being a rule, riding to the right hand side and keeping a straight line are critical for safety in triathlon. Never stop paying attention: look for cars, competitors, and other hazards, despite marshals or the closure state of the course.

Aid stations Depending on the event, athletes may need to stop and replenish fluids. This the only place on course they can discard garbage or empty bottles. Safety, in and out of the station, is a much higher priority than speed due to the risk of collision with others or volunteers.

T2 As in leaving T1, safety, focus, and getting through efficiently is the goal. As athletes tire, there is more margin for error, so good coaching prior to the event is crucial.

Run

Know the course, run tangents, and keep turnover high. Hold posture and stay relaxed.

Be aware in aid stations and make eye contact with the volunteer handing drinks to you.

Finish line

Encourage your athletes to be gracious to other competitors who finish around them and to the volunteers at the end. This is the area where manners are most often neglected due to fatigue, but are also most important and appreciated.

At large events, prearrange a meeting area for your athletes so you can touch base, as soon as possible, at the finish of the event. This enables you to ensure they are physically ok (not in need of medical aid), and gives you a chance to check in – which every athlete likes.

Post competition support

No matter how many athletes you have in the event, make sure you check in with every one, as closely as possible, to their finish. This sends the message that you care about their experience and makes them feel supported.

Be very careful of the type of feedback you give athletes

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right after a competition. Most athletes are very vulnerable and sensitive after competitions, so this is not the time to give specific constructive criticism, specific race feedback, or lessons. Do not give negative feedback of any kind. Listen to the athlete, let them talk about their experience and focus on what went well or what they did right that day. You can mentally note points you want to review at a later time.

Make sure athletes are hydrated, are able to get some nutrition, and are otherwise doing ok, before leaving them. Encourage athletes to stay at the event and support the awards ceremony, especially if they are going to receive an award. This is good etiquette, allows the race committee to thank very important sponsors and supporters and is all a part of the sport.

Post event recovery and reflection

Depending on the length and intensity of the event, athletes will need some recovery time. Have this recovery scheduled (even if it needs to change) so there is a post-event plan in place.

Debrief with your athletes within 48 hours of an event, if possible, when events are fresh in their mind. Encourage honest reflection of what went well, what can be improved, and any mistakes that may have been made. Mistakes aren't bad or negative, and are often the most valuable learning tools.

Have an honest coaching reflection with yourself too. How well did you do? Was the athlete as prepared as possible, were there things you would plan differently, and what did you learn about the athlete, and about yourself as a coach.

How did you carry yourself at the competition? Were you calm, professional, and level headed? Were you a good role model? Did you communicate with peers, officials, volunteers, and other athletes in a positive way that enhances the value and culture of coaching and that adds to the triathlon world?

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Appendix A,B,& C

Appendix A

Drills for swim, bike, and run and triathlon specific practice

Drills are specific elements of a skill or movement, practiced deliberately in order to exaggerate and improve the technique of an athlete's performance. Drills are performed by all levels of athletes, during all phases of development. For beginner athletes, drills will help break the skill down into smaller parts that make it easier for the coach to teach. At the beginner level, a coach needs to observe an athlete performing the drill to ensure correct technique. As athletes progress, they can do drills more independently and drills become a core part of their training routine.

Drills should always be performed with attention and precision, with the focus on perfect form, as opposed to performance or getting anywhere. In swimming, drills need to be performed slower than usual swimming speed and swimmers need to feel comfortable at their own speed, not rushed to keep up. Moving with deliberation, not speed, enables an athlete to get a better 'feel' for the stroke and the motions – position of the hands, head, hips, and feet. Once the 'feel' for each drill has been recognised and near perfected, the coach can then focus on increasing the speed at which they're performed. The goal is to reach a better sense of efficiency when the full stroke is performed.

Drills in cycling can be performed on a flat, grassy field or parking lot, somewhere free of cars and obstacles (unless the drill is to practice riding around obstacles). Grass fields are good as they slow the speed down, but care has to be taken that riders still feel stable and safe.

Running drills can be performed on trail, grass, or pavement that is free of debris and relatively flat. Runners should not travel too far in drills, as the focus is on form and not speed, therefore, run drills can be performed in a fairly confined space if necessary.

In this section is an introductory list of common swim, bike, run, and triathlon drills used for teaching technique in triathlon. It is not exhaustive and coaches can always be adding to their knowledge of each sport by learning from, and observing, expert coaches, reading online, and talking with peers.

Swim drills

Safety and water awareness: helps the swimmer feel more at ease in the water, breathing, and being underwater

Use movements to promote awareness of different directions, depths, and conditions.

- Sculling (see below)
- Contact: swimming, floating close to others and having contact
- Bobbing: exhaling underwater, inhaling above water while moving up and down
- Spins and inversions: somersaults, spinning, handstands

Body position drills

Body position drills teach horizontal position and principles of buoyancy. Using exaggeration of various body positions, swimmers develop a feel for horizontal position as a starting point for movement.

1. Sculling: To promote water safety as it uses minimal energy to stay afloat. Helps develop underwater feel and technique across all strokes. Moving the body through the water by sweeping with the forearms and hands in a figure eight pattern back and forth. There are different types of sculling:

- Front scull – face down, arms in front of head
- Mid scull – face down, elbows at 90 degrees, forearms directly under torso
- Hip scull – face down, arms at side, and hands sculls at hips

- Back scull – moving head first or feet first, hand scull at sides.

2. Gliding and kicking on front, hands at sides.
Swimmers only use kick for slow propulsion, face down, neck is aligned with spine, and body is relaxed not tense.
- Push chest and forehead down toward bottom of pool
- Lift chest and head up to or just above surface.

3. Gliding and kicking on side, one arm extended
- Look down at bottom, push armpit and chest down
- Push hip down and/or lift head up
- Kick out in front of midline, or kick hard behind midline
- Change head and eye position – looking up, down, forward and closed eyes.

4. Trunk rotation: promote smooth roll of upper body with alignment, to help teach rotation, and how head alignment promotes smooth breathing patterns.
- Arms at side, face looking down at bottom of pool, horizontal and balanced body
- Swimmer begins to kick gently for propulsion
- Swimmer rotates one shoulder until it points down to bottom and begins a roll through to the other side so that opposite shoulder faces bottom. When one shoulder is pointing at the bottom underwater, the opposite shoulder will be out of the water.
- Chin and face stay pointed to bottom of the pool during the rotation.

Breathing and trunk rotation: every 3rd or 5th rotation, swimmer can rotate head on neck to bring chin to surface of pool in alignment with the shoulder that is emerging from the water. The mouth will now be out of the water and a breath can be taken before the head rotates back to looking at the bottom of the pool.

Kicking drills

5. Kicking: to promote leg movements for front crawl. Kicking is a part of the balance, coordination, and efficiency for the freestyle stroke. Kick drills promote strength and flexibility and help swimmers connect kick with forward movement. Different kick drills include:
- Vertical kicking: with hands sculling and hands out of the water
- Kicking with flippers
- Kicking on back

For the purpose of drills, swimmers do not need to use a kick board for these drills – body position without a board is optimal.

6. Side kick – Switch emphasizes coordination of the kick and arm extension in trunk rotation while balancing in the horizontal body position.
- Kick on one side, arm extended, and face down. After 3-5 kicks, take one arm stroke and rotate strongly to the other side and finish with a strong propulsive phase.
- Breathing in the kick: the breath in this drill should happen just before the rotation and switch to other side or just after the rotation. The neck rotates enough for the mouth to come out of the water for a breath of air, then smoothly re-enters the water to keep the alignment.

Coordination and components drills

Entry, Pull and Recovery Drills These drills should be performed slowly, making sure swimmers do not feel rushed.

1. Single arm free this drill trains the timing of the breath with the pull pattern of the arm and allows swimmers to focus solely on the mechanics of one arm at a time. The breath coincides with the entry of the moving hand but is to the opposite side (the side where the arm is at the side).
- Eyes focus down to the bottom of the pool
- Core is strong and kick consistent
- Shoulders are relaxed and one arms stays at the side (not stiff or tense)

- The other arm performs the stroke and breaths are taken to the non-moving arm side
- The chin follows the rotation of the shoulder and a breath is taken during entry of the hand

2. Finger trip drag swimmers drag fingertips through water for recovery with the primary aim of having a high elbow, to enhance a relaxed recovery, and to set the arm up for a good entry. The drill, slowed down also emphasizes good body roll.

- As the arm begins recovery, the elbow leads the arm and hand and the fingers do not come out of the water, but rather drag throughout the whole recovery movement.
- Can also do wrist drag, or zipper, where the thumb drags up the whole side of the body to the armpit and then to extension.

3. Fist swimming using a closed fist to enhance the feel of the water on the forearm and to develop pull technique

- Swim freestyle with hands closed in fists. Swim relaxed and slowly, focus on the pull of the forearms in the water.
- Variations include: thumb pressed on one finger, one fist closed and one open, and thumbs out.

4. Long arm dog paddle The swimmers do regular freestyle stroke but with recovery underwater, emphasizing the feel for the water and the underwater pull phase.

- Regular freestyle underwater pull, but arms slide up the stomach for recovery instead of over the water.
- Breathing normal
- Swimmers focus on full extension of hand out front and all the way to the back during this drill.

5. Reverse catch up drill isolates single arm pull and allows swimmers to exaggerate the roll in front crawl. Helps rotation and timing.

- Kick on front with fins or no fins (fins can help a novice swimmer with forward movement).
- With arms at the sides, one arms starts the high elbow recovery with roll, completes the catch and propulsion and ends at the side
- Repeat with other arm
- Much like an alternating single arm drill, but builds in emphasis on roll, not just the arm stroke.

6. Quiet water scull emphasizes the feel for the water and also the extension of the stroke by forcing a pause before the catch is initiated.

- arm enters extended in front of head
- scull very slightly back and forth while pausing for an instant
- initiate the catch maintaining good feel

Cycling drills

Cycling drills address two factors in riding. They make cyclists more competent and safe riders, which is a prerequisite for being able to train on open roads. Proper skills will also help them to become more efficient athletes. As a coach, you will need to assess athletes to find a starting point for where skills and technique need to be taught, however, it should be noted that not all experienced cyclists ride safely and even conditioned riders often need work with technique. Technique is something that can be practiced ongoing, no matter what the level of athlete.

Basic skills for safety: for all the basic bike skills listed below, the coach can set up practice areas in a parking lot or grassy field. Off hours roadways in industrial parks are often excellent places to learn how to ride as there will be roadways with traffic signs, free of vehicles, for practicing the basic bike safety skills. Drills using these skills are straightforward – set up an area where each skill can be practiced repetitively until smooth and comfortable. It is common sense to teach new skills – especially cornering and descending - in a place free of vehicles and pedestrians.

Mounting – safely getting on bike and setting up pedals to start cycling
Pedalling – smooth circles, minimizing dead spots, low heel
Turning/cornering – using body to turn bike, looking to where you want to go
Braking – using both hands, using front and back brake to slow bike, stopping at speed
Gearing – using front and rear cogs, not cross chaining, ease up on pedals to change gears
Signalling – proper hand and arm signals for slow, Left, and Right turns
Shoulder checks – both ways
Riding with one hand – switching hands

Once these are practiced, further technique and bike handling skills can be introduced

Cycling drills to build bike handling, technique, confidence and to correct errors

1. Smooth circles/spin – to control the tendency to bounce while riding. Bouncing throws energy away from the drive train and forward momentum. This drill builds feel for pedal stroke and continuous smooth riding.

- Spin as fast as possible in a low gear, either along a straight roadway, or in a designated circle in a traffic free area.
- Hold the drill for 10-15 seconds, increasing RPM (cadence) until athlete starts to lose technique and bounces, then back off.
- Can be performed as a single leg drill (other foot is slack in the pedal)
- Can be performed well on the stationary trainer

2. Obstacle course – promotes smooth riding and bike handling as various speeds.
Coach sets up obstacle course using cones or other obstacles and athletes navigate the course smoothly, with good technique, spin, gearing and braking.

3. Elbow riding – good drill to teach bike position for side by side pack riding, balance, and safety, especially if triathletes are doing group rides or entering events.

- Riders start in pairs slowly across a grassy field or parking lot, riding gradually closer until their elbows touch, while keeping control of their bike.
- Advanced drill is to have cyclists riding in pairs and practicing holding hands or one rider putting hand on the back of the partner, while staying balanced and in control of their own bike. Great drill for teaching bike handling and balance on bike.

4. Pick up – to train weight transfer, balance and confidence of handling bike, athletes attempt to pick objects up off the ground while riding at slow speeds.

- Start with taller objects like bike bottles and cones. The athlete rides beside the cone and picks up the object on the same side as their 'down leg' (the leg with foot at 6 o clock). The lower the object, the more the rider will have to move centre of gravity lower and shift weight to the other side of the frame to touch or pick up object. Best attempted on grass.

5. One legged cycling – this drill targets a smooth pedal stroke with a focus on holding power throughout the revolution. The goal is to pedal without having a 'dead spot', which can be noted when the coach hears a 'clunk' over the top of the revolution.

- Keeping RPM at 80+ will build technique in smooth pedalling
- The non-moving leg is held out to the side, towards the back, or can rest on the frame when doing this drill on stationary trainer. Also, if it isn't safe to unclip from the pedal, one leg can just 'rest' and let the other leg do all the work.

6. Low Cadence (RPM) cycling – pedalling in a big gear at 50-70 RPM allows athletes to focus on the full pedal stroke, and feel power and even push throughout.

- Create set intervals or distances for big gear drills, with recovery periods, as this requires more strength than higher cadence riding.
- Can be done flat or on slight rises. The point is for the rider to stay seated while building technique

Running Drills

Run Drills A, B and C

Posture and efficient motion are key components to running well. Drills will help refine basic run movements and also strengthen the body for running. Drills before a run session also switch the mind and body 'ON' for more intensity or focus. A period of drills, after a short run warm up, is also a great way to have a group train together in one spot, for a period of time in a practice. This satisfies both the technical and emotional outcome of a run practice. Novice runners should be doing drills as training – they are a part of every session. Running volume with poor biomechanics may set runners up for injury, which hampers the ability to improve and enjoy the sport. The drills included here are the most common drills to introduce to runners. They should be performed slowly, with deliberate and mindful focus.

'A' Drill

Marching 'A's' focus on firing your hip flexors (the muscles at the front of the hips) in a rhythmical, dynamic manner in order to raise the knee. This drill focuses on the knee drive of the run stride, which precedes and initiates the turnover. Promoting tall form through this drill sets up good alignment through the hips, knees, and feet and promotes a balanced arm swing.

To perform the drill, while standing tall, and with weight leaning slightly to the front of the foot, think of driving your knee upwards as if you were going to knee a soccer ball straight into the air. The hip joint compresses just past 90 degrees. Quickly accelerate your knee up, isolating your hip flexor to do so. The heel of the standing leg raises as the knee of the opposite leg reaches its height. Arms follow with natural running coordination. After the knee raise, drop the foot to the ground, alternate to other leg.

To coach this drill:

Start with runners standing tall with feet pointed forward and lined up under their hips. Weight is more to the ball of the foot. Repeat the action 10 times with one knee at a time, while standing on the spot. Once that looks smooth with tall posture and no side to side motion, you can bring in alternating each leg. Start with marching, and then 'skipping A's' which allows for a split-second rest phase with both feet briefly on the ground before driving the opposite leg upward. When skipping, there should be a crisp movement through the driving of the knee upwards and the hopping off the opposite foot. There can be travel forward, but only slowly, or not at all. Make sure the knees and feet travel straight up and down and don't angle outward. A common mistake is to drop the chest slightly during knee lift or to rotate the torso, both of which shorten the length of the contraction for the hip flexor and throw energy to the side.

You will find that some athletes are more coordinated than others at this movement. For less coordinated runners, the marching 'A' works just as well, and it is better to remain there, than reinforce poor movement.

Common errors:

Leaning over: lowering chest to knee in order to shorten the amount of knee drive.

Correction: check that athlete is standing tall and spine remains upright and still, while only the knee drives upwards.

Moving too fast, rushing: athlete focuses on getting somewhere, instead of remaining on the spot.

Correction: Give the athlete a 2 metre distance over which to travel.

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'B' Drill

The B drill combines the knee drive/hip flexor contraction of the 'A' movement with the recovery motion of the foot leaving the ground in the running stride. It enhances and strengthens the whipping action of a fast foot strike. A fast foot strike allows for a high cadence and efficient running.

To perform this drill, start in the tall posture position, drive the knee upwards as in the 'A' drill but, as the knee reaches its max height, you straighten the leg and have the heel flick out front, foot flexed with toes to the sky, and then drop with a pawing motion to the ground underneath.

To coach this drill:

Start with runners standing tall with feet pointed forward and lined up under their hips. Repeat the action 10 reps with one knee at a time, while standing on the spot. Once that looks smooth with tall posture and no side to side motion, you can bring in alternating legs. Start with marching, and then 'skipping B's' which allows for a split-second rest phase with both feet briefly on the ground before driving the opposite leg upward. When skipping, there should be a crisp movement through the driving of the knee upwards and the hopping off the opposite foot. The leading leg should flick (not kick) straight out and, as it falls, should look and sound like they are scraping something off the bottom of their shoe. There can be some travel forward, but only slowly, or not at all. Make sure knees, legs and feet travel straight up and down and don't angle outward. A common mistake is to drop the chest slightly during knee lift or to rotate the torso, both of which shorten the length of the contraction for the hip flexor.

Note: You may find that some novice runners cannot coordinate their movements for this drill as it is the most technical one to teach. It is best to just go with 'A' and 'C' drills in this case until athletes are more adapted.

Common errors:

Leaning and rushing are also prevalent in this drill, correct as for 'A' Drill.

Kick boxing: instead of a knee drive and flick movement, athletes simply kick forward, or even sideways.

Correction: slow the drill right down and isolate each movement for each leg, practicing this until proficient.

'C' Drill

Running 'C's' are great for heel-lift, hamstring engagement, and building run cadence and are sometimes called 'butt kickers'. Run on the spot, with a slight forward movement and a very high cadence, lift your heels to your butt or as close to it as you can. Make sure to stand tall, and be wary of bouncing from side to side. Focus on your heels lifting straight, and don't allow your toes and feet to rotate outward. Your feet should stay in line with your shin and knee. As well, note if one heel lifts easier than the other. This would indicate a flexibility imbalance between your quadriceps (thigh) muscles.

To coach this drill:

Start with runners in the standing tall posture and feet pointing forward below their hips. Have them start by performing it slowly with one leg at a time. Watch that the trunk stays tall and the knee stays pointing to the earth, during the heel lift, as opposed to the torso leaning forward and knees coming up in front.

You may find that this drill presents pain through the knee joint in some runners. In this case, eliminate the drill or have them raise their heel only to the point where they feel no discomfort.

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Common errors:

Leaning and rushing are also prevalent in this drill, correct as for 'A' Drill.

Driving knee upwards out in front of the body to cheat the heel lift.

Correction**:** reinforce tall posture and isolate the movement of the lower leg flicking back, to raise heel to bum. Knee remains pointing down to the ground and beside the standing leg throughout the movement.

Putting it all together:

Start by teaching the drills after a short warm up, before your main session.

Week 1: Perform 2 x 10 seconds of 'A' (10 seconds rest); 2 x 10 seconds of 'B' (10 seconds rest); 2 x 10 seconds of 'C' (10 seconds rest)

Week 3: Increase sets to 3 x 10 seconds (10 seconds rest)

Week 4: Increase duration to 2 x 15 (15 seconds rest)

Week 5: Settle into a routine of 3 x 15 seconds of 'A', then 'B', then 'C' (with 15 seconds rest)

Repeat these drills 2–3 times a week in a base phase, at the beginning of the run session while athletes are fresh and focus in on learning good form. In preparatory phase, they can be performed at the end of the session to reinforce good habits.

Triathlon specific skills

Triathlon specific skills can be learned and practiced through a variety of drills, many of which can be incorporated directly into a training session. It is necessary to teach the skill and have athletes practice the skill in isolation first. Have athletes perform the skill for a short duration of time or repetitions, until the skill is learned, not necessarily perfected. The point of drills is to teach the proper technique up front, so that good habits are learned. By breaking the skill down into its basic movements, the coach can observe the skill and then analyze and provide feedback to the athlete for improvement. Once the skill has been learned and can be performed safely, the coach can set up longer drills in training, or set up training that practices the skill. As a coach, you are looking to reinforce good technique and correct poor practice.

Open water swimming drills

Sighting: this will enable triathletes to swim in a straight line when there is no black pool line to follow, to navigate a course in the correct manner, and to give them confidence in their ability to swim and see where they are going at the same time.

Sighting technique

- Strong kick to maintain body position
- Straight pull to keep a straight line
- Good rhythm swimming with efficient breathing
- Small peeks with breathing rhythm

Teaching tips for drills

- Do sighting practice in a pool – watching objects at the end of the pool
- Swim with no goggles/eyes closed underwater (in open water swimming, you don't use underwater vision to swim straight)
- In open water, have athletes swim towards points on land

Rounding buoys technique

- Maintaining composure/relaxed style into buoys when in a pack
- Breathing through turn

- Swimming to inside or outside of buoy
- Turning and maintaining speed in new direction

Teaching tips for drills

- Can use double wide lanes to set up buoy rounding practice (a fluorescent orange painted 4L milk bottle with a rope and weight can be placed in the pool)
- Can ask facility to take lane ropes out for practicing buoys and mass starts/drafting swimming
- Can have first swimmer be the 'buoy'. They tread water and other swimmers go around. After last swimmer turns, the 'buoy' jumps on the draft.
- Swimmers practice in pairs, being the inside person and the outside person when rounding

Mass starts technique

- Front crawl with not much space/ finding space
- Strong kicking
- Breathing
- Bumping

Teaching tips for drills

- Have swimmers start in close groups and practice swimming while touching
- Practice deep water starts from stopped to acceleration from deep end of pool or beach
- Reinforce breathing and option of breathing every 2nd to maintain composure at start (breathing well during the open water swim start is a strong factor in reducing open water anxiety)

Group swimming/drafting technique

- Swimming in a straight line behind someone
- Swimming with reduced visibility – looking at bubbles, turbulence, splashes above water when sighting
- Acceleration or deceleration to hold draft/changing rhythms and speed
- Avoiding touching the swimmer in front

Teaching tips for drills

- Swimming side by side in lane close enough to bump
- Pace line swimming (can be done in conjunction with buoy rounding drills

Exit technique

- Horizontal to vertical technique and adaptation
- Getting out of pool, pulling up with upper body
- Exiting shallow water by standing up and running with a hurdling motion of one knee up, foot out to the side to clear water.

Teaching tips for drills

- Practice exits at end of swim repeats or intervals
- Set up games for sprints that end in an exit from pool or water
- Have swimmers run in shallow water to try out hurdling technique
- Can add the run to transition and removing wetsuits into this drill

Cycling

Triathlon will require athletes to use all their cycling skills and it is imperative that triathletes are comfortable performing all the skills, at speed and with intensity, before entering competition. The transitions zone will require a few added skills. Some of the challenges of the transition zone require athletes to transition from gross motor skills (swim and run) to fine motor skills (removing legs from wetsuit, buckling a strap), often with elevated heart rate and possible cold fingers (or feeling dizzy and disoriented).

Triathlon transition cycling techniques

- Buckling helmet (can be surprisingly difficult for novice triathletes while in events)
- Racking and unracking bikes – balance and coordination

- Running with bike in transition (straight line and around obstacle)
- Mounting the bike at the bike line (balance and coordination)

Teaching tips for drills

- Teach and practice as stand alone skills, then incorporate the technical elements into transition drills (running into and out of transition, first from the run, then from the swim exit).
- Practice the elements while performing Brick workouts (swim to bike, and bike to run). For instance, having athletes rack and unrack bikes and put on helmets for each interval.

The gliding mount technique

For some, one of the more difficult techniques, it is worthwhile to spend time every bike training day practicing a smooth mount. It will make transitions more safe and enjoyable.

- Walk beside the bike (increase to jog and then run as proficiency develops), holding the seat
- Grab the handlebars at the brake hoods
- Take a large step, with the outside foot, to beside the front wheel
- Lean down and forward, look forward to where you want to go
- Lift the inside leg straight back and then over the rear of the bike, which will hitch the body onto the seat.
- Simultaneously, push bike toward the front of the front foot as you sit onto the saddle (both feet will momentarily be off your pedals but you are balanced and gliding and looking forward.
- Put feet onto the pedals, clip in, and start riding. If shoes are on the pedals, place bare feet on to the tops of the bike shoes, pedal to get up to speed, then put one foot, then the other, into shoes. Make sure the bike has momentum before tightening the straps.

Running technique for transitions

- Adapting from horizontal to vertical
- Breathing to control heart rate and dizziness
- Running with rhythm while barefoot
- Barefoot running
- Adapting to discomfort of running off the bike

Teaching tips for drills

- Run from a swim – 50–200m in bare feet (ensure the area is free from anything that may cause injury to the feet)
- Run from a swim and remove wetsuit calmly
- Perform brick workouts to create adaptation to the feeling of running after cycling. This will also create practice in changing into running shoes.
- Do barefoot running, in moderation, on grass. Keep the intervals short and in moderation, strength is gained in their feet. Coaches have to be prudent with barefoot running if athletes are not used to running without shoes.

Appendix B

Parts of the bike diagram

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Appendix C

Triathlon: Equipment basics

As a coach, it is imperative that you stay abreast of equipment development and innovation, as well as rules used in triathlon around the use of equipment. There are rules in place for what types of equipment can be used in triathlon and when that equipment can be used, and these rules are updated as both the sport and the innovations in equipment change. There are rules around wetsuits and water temperature, the use of race wheels, the use of aerobars (depending on drafting), and what apparel an athlete is required to wear. If your athletes are going to race, familiarize yourself with these rules.

The Swim

Goggles: essential for comfort and visibility, goggles come in two basic styles: ones with foam seals for the eye sockets and ones with rubber. Goggles should suction to your face briefly without the strap on and should not dig into your eye sockets. The strap should be set higher on your head, around the biggest part of your skull, not level with your ears where it is likely to slip down and off. For open water swimming, darker goggles can assist with sighting.

Swim cap: keeps hair out of your eyes, out of the pool filter system and, in races, provides visual markers for race officials. Choose a bright one for open water swimming so other swimmers and water users can see you. Swim caps are also used for warmth and are available in different thicknesses, for warmer and colder water swimming. For cold water, a neoprene 3mm skull cap worn under your swim cap is an option.

Wetsuit: for cooler open water swimming, a neoprene triathlon wetsuit is worn. There are 2 types of suits: a Farmer John suit which is sleeveless and a Full suit with sleeves.

Rule: Wetsuits cans be worn anytime in training, however in racing Ironman and WT events, age groupers can only wear suits when the water temperature is below 24.5 C.

Wetsuits have to fit well: if they are too big, water enters the suit and creates more drag in the water. They have to fit your unique torso so that you have sufficient shoulder mobility. Just like with running shoes, you need to find a brand of suit that fits you well and works in the water for you. A good store will have staff that can help with fit, and events often have helpful onsite retailers.

Bike

Biking is the most technical and gear dense of the three sport. For safety, comfort, and efficiency, a coach should have basic bike knowledge about bike fit: particularly bike size and seat height. (so athletes can safely reach the ground with their feet and use the brakes) and should send athletes to a shop for a proper bike fit. If you are holding group rides, all athletes should have a road bike with drop bars for safety and it is recommended that people have fenders for group riding in winter or rainy months.

Basic bike fit

Bike fit is an extremely important, yet often overlooked, issue for athletes of all experience levels. A properly fit bike will prevent injuries, make the bike easier to handle, allow the athlete to progress more quickly in skill learning, and increase their comfort while riding. It is recommended that all athletes consult a professional to fit them on a new bike. Each athlete's unique skeletal structure will require slightly different variations in bike set up. Below are some general guidelines for bike fitting.

1. When the front pedal is parallel to the ground (horizontal), a plum bob should fall in line with the pedal and ball of the foot.

2. Arms should be comfortable, with a slight bend. In aero position, a bend of roughly 90 degrees tends to be most comfortable and efficient.

3. When their hands are on the brake hoods, an athlete's back angle should be approximately 35 degrees from the ground. (When their hands are on the top of the handlebars next to the stem, the back angle increases to about 45 degrees.)

4.When the pedals are vertical (12 o'clock and 6 o'clock), the lower leg should have a slight bend of 20 to 30 degrees.

5. The athlete's hips should not rock when cycling (watch them from behind). If the hips rock, the seat is too high.

6. Their head should be as neutral as possible (avoid hyperextension or bending the neck backwards).

Bike lights

Bikes operate under the Motor Vehicle Act across the provinces and are required to have lights from ½ hour after sunset to ½ hour before sunrise. A steady white light at the front and a red reflector, or steady, or flashing red light are the safest options.

Road bike

The road bike looks like a classic racing bike, like you might see in a bike race like the Tour de France, with drop handle bars. This bike can be adapted for winter riding easily with the addition of fenders that keep road water from soaking a rider. Triathletes will use the road bike for offseason or winter miles and when they are group riding in a pack, where being on the top of the bars with their hands close to the brake levers is crucial for safety. Road bikes are also the style of bike that is used in WT draft legal triathlon racing, as the riding is done in draft packs and often on very technical courses that require the bike handling capability of the road frame.

Time trial bike

The time trial, or TT bike, is the most technical and costly piece of equipment in all of triathlon and the development of newer, lighter, and more aerodynamic racing bikes is changing all the time. The TT bike is the triathlon racing bike of choice for long distance and non-drafting events. It is equipped with aerobars, which are handlebar extensions that allow the rider to move into a low 'aero' position by resting their forearms on special arm pads and gripping the ends of the extensions. TT bikes are often made of strong, lightweight carbon, with a very narrow aerodynamic profile that creates as little wind drag as possible. For triathletes racing solo over the Olympic, half, and full Ironman distance having a light, aerodynamic bike saves energy, which turns into a faster bike split, and fresher legs for the run. The seat tube (the tube that runs somewhat vertical below the seat) on the TT bikes is at a steeper angle than a road bike, since the rider is in a tilted forward position while resting on the aerobars.

Clip on aerobars

For athletes without a TT bike, many people choose to put aero bars on their road bikes, particularly for longer distance riding. Aero bars improve aerodynamic position and can increase efficiency. They also allow athletes to relax more in the shoulders and upper body by 'resting' on the bars. Using the bars shifts a rider forward, changing their position and the combination of muscles they use to pedal. If cyclists are going to use aero bars in events, they should be fitted with them on their bike and train in aero position for adaptation purposes.

All coaches should be familiar with the parts of the bike, so that information about fit and safety can be properly communicated to an athlete and to a mechanic or fit specialist. See Appendix B for a Bike diagram.

Helmet

Helmets are mandatory in triathlon when training and while racing. The helmet protects the brain and skull in a fall or accident. A helmet must be approved and fit properly: you can tell if a helmet fits properly if it follows the criteria below:

1. Snug on—does not slide sideways or tip back and forth.

2. Only two fingers fit (vertically) between chin strap and chin.

3. Triangular side straps meet just beneath the ear.

Any impact to a helmet can cause invisible damage as the internal protective material compacts. The materials also break down over time, rendering helmets less effective in the event of a crash. It is recommended that helmets be replaced every 10 to 18 months, and definitely right after a crash

Rule: In triathlon events helmets must be securely fastened before touching the bike and must remain fastened until after the bike is racked

Shoes/pedals

There are two options for attaching your feet to your bike. There are platform pedals with toe clips or cages: plastic or metal cages with straps for holding your foot so it doesn't move around as much on the pedal. And there are racing pedal/shoe combination pedals, called 'clipless pedals' where you have a plate on your specialized bicycle racing shoe that clips into a specialized pedal receptor on your bike. Clipless systems have been totally adopted in bicycle and triathlon racing for their comfort and efficacy. With your foot clipped to your pedals, there is no extra movement in your lower leg and the power transfer from your body to the bike is as stable as possible. Racing shoes and pedals are definitely the faster, more comfortable option for long rides and racing and only require a few practice sessions to learn to clip in and out when getting going and coming to a stop.

Glasses and gloves

Sport glasses and riding gloves should be worn for safety. Glasses prevent objects from entering the eyes and also protect against the sun. Never wear metal rimmed or glass lenses, as these can be dangerous if you fall. Riding gloves are fingerless and padded for comfort and protect your hands in case of a fall.

The Run

Running shoes

Running shoes are designed to absorb some impact of landing, control some lateral foot movement (pronation—outwards, supination—inwards), and protect the feet from the ground and elements.

A sport specific retailer is your best bet for getting the right pair of running shoes for you. All makes of shoes fit

a little different so trying on various models to find the best one for your feet is important. Once you have your model that works resist the urge to try different brands or new fads. Stick with what works.

How long to run in a pair of shoes

This is a hard one to answer definitively because running shoes are so different from each other and each runner is individual in weight, running style, where they train, and just how hard they are on their shoes. Wearing worn out shoes almost always leads to pain and discomfort in the knees or feet and can lead to other overuse injuries. Because of the durability of the rubber outsoles these days, don't check for wear on the bottom of the shoe, but for the 'dead' feel in the midsole, the blown rubber part that provides cushioning. It becomes unresponsive after a time and also can pack out unevenly. Generally, shoes last about 500-600km.

Run apparel

For cool weather, layering is the best option, with a wicking shirt on the bottom layer to avoid getting wet and cold from the inside. A zippered top layer of either a shell or warm long sleeves allows both wind/rain protection and ventilation.

Staying warm while warming up, training, and cooling down is the optimal way to train.

Cap/visor/sunglasses

For hot days, a cap and glasses can protect the head and eyes from the sun and help delay heat fatigue.

Triathlon competition gear and other helpful items. There are some things that have been developed just for the endurance sports like triathlon to make life easier, safer and more comfortable for competitors:

- **Elastic number belt.** A comfortable elasticized belt that you attach your race number to. It eliminates the needs for pinning numbers on and you can clip this on after the swim.
- **Water bottle belts:** meant for longer training runs and competitions, water belts consist of a wide elastic waist band with carriers for 1-4 bottles. 4 smaller water bottles enables an athlete to carry water distributed evenly around the torso.
- **Elastic run shoe laces.** Allow athletes to get shoes on easily and fast, while still having them fit properly.
- **Hydration systems**: these are fluid-carrying bike bottles with straws that allow eliminate the need to grasp and hold a water bottle from the frame of your bike. Mounted under the front handlebars, or in the frame, these are popular in long distance races.
- **Chamois butter/lube.** There are creams developed especially for endurance, to help assuage discomfort from wet suit chafing (especially at the neck), saddle sores, and sore nipples from running and sweating for long distances.
- **Racing apparel:** Triathlon suits are light, tight, bathing suit-like garments that can be worn for all three sports, eliminating the need to change in transitions. They are sleeveless and have long zippers at the front or back for ventilation during the run. Small pockets at the back make it easy to pack along gels. The bottoms can have a small chamois that provides comfort for the ride but is not bulky for the run. One piece suits are preferred by people who like the comfort of no waistband, but 2 piece suits are definitely easier for bathroom pit stops.

Coaching equipment for triathlon

Basics

Safety equipment: cell phone, basic first aid kit, Cryopak instant cold packs

Stop watch for timing sessions and intervals

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Extra Support

Depending on the level of support you are planning, you may also want to consider other equipment. For instance, if you are coaching long rides with a duration over 2 hours, or are at a remote venue, a race site or training camp, you should be prepared for unforeseen circumstances and to assist athletes.

- Extra water, bottles, gels, bars, food
- Multi tool and allen key set
- Extra tubes and spare tire kit
- Floor pump
- Blanket or space blanket

Optional coaching tools that will make you a better coach

- Video equipment for filming and analyzing athletes: this can simply be your phone or a device for filming underwater swim stroke. You can also video yourself in action and use this for analysis, reflection and to improve your own coaching skills.

- Online training software like Training Peaks.

Online training software can help you organize and streamline athlete management, including training and racing schedules, plans, and keeping track of how your athletes are doing physically and emotionally. Triathlon coaches use online coaching platforms more and more to monitor athlete's well-being, training and performance. The ability to communicate and collaborate using online platforms helps build trust between athletes and coaches.

Triathlon Canada uses **Training Peaks**, as do many professional coaches across the country.

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Websites and Additional Coaching Resources

These links were active at the time of writing, and are subject to change.

World Triathlon: position of coaching development
https://www.triathlon.org/development/coach/coach_education_objectives

Respect in Sport: The movement to eliminate bullying, abuse, harassment and discrimination in sport.
http://respectgroupinc.com/respect-in-sport/

Sport For Life: Long Term Athlete Development and increasing enjoyment and success in sport
http://sportforlife.ca/

Training Peaks: online coaching software to help make planning easier and more effective. TP University offers courses on using the program effectively.
https://www.trainingpeaks.com/coach-features/
Training Peaks Blog: Practical advice with scientific knowledge. Training, racing, nutrition and coaching insight articles from the leading experts in the field.
https://www.trainingpeaks.com/blog

Sport Specific Sites

Go Swim: video to improve your knowledge of swimming including technical analysis
https://www.goswim.tv/

Mr Smooth – free stroke visualization app for swimming.
http://www.swimsmooth.com/

MySportScience: Articles about nutrition, trends and supplementation
http://www.mysportscience.com/

Joe Friel's Blog: popular and long-time expert on training, author of the 'Training Bible' books, this blog is a good reference to the science and art of training for sport.
http://www.joefrielsblog.com/

Cool Running: an extensive site with articles about every aspect of running.
http://www.coolrunning.com/

DC Rainmaker: for lots of information and review about products and gadgets
https://www.dcrainmaker.com/

McMillan Running: in depth library for articles about running, training for endurance, and a free pace calculator.
https://www.mcmillanrunning.com/

Slowtwitch: triathlon specific site for training, news and lots of gear and product information
https://www.slowtwitch.com/

Triathlon Canada NCCP Pathways for Coaching

Developing age group athletes and high performance champions

1 | Basic registration

1	2	3	4	
Create a Triathlon Canada Coaching Account / Obtain an NCCP Number	Complete Criminal Background Check / Respect in Sport	Complete CAC Module Making Ethical Decisions (MED)	Complete Introduction to Triathlon Rules for Community Coaches	TRIATHLON CANADA **Registered Coach**

2 | Community coaching pathway

The Community Coach (youth or adult) wants to help new athletes and support age group club athletes by teaching basic triathlon skills and introduction to events. The Community Coach is focussed on safe participation, teaching skills and technique, and fun. This context is designed for coaches of athletes moving from FUNdamentals to Learn to Train and Train to Train stages of long term athlete development (LTAD).

1	2	3	4	
Complete the Basic Registration Requirements	Complete the Triathlon Canada NCCP Community Coaching Course	Complete 5 CAC Multi-sport Modules	Complete Portfolio and Observation	TRIATHLON CANADA **Certified Community Coach**

Triathlon Canada Registered Coach	Community Coach In-Training	Community Coach Trained

5

Maintenance of Certification

TRIATHLON COMMUNITY COACH

TRIATHLON CANADA

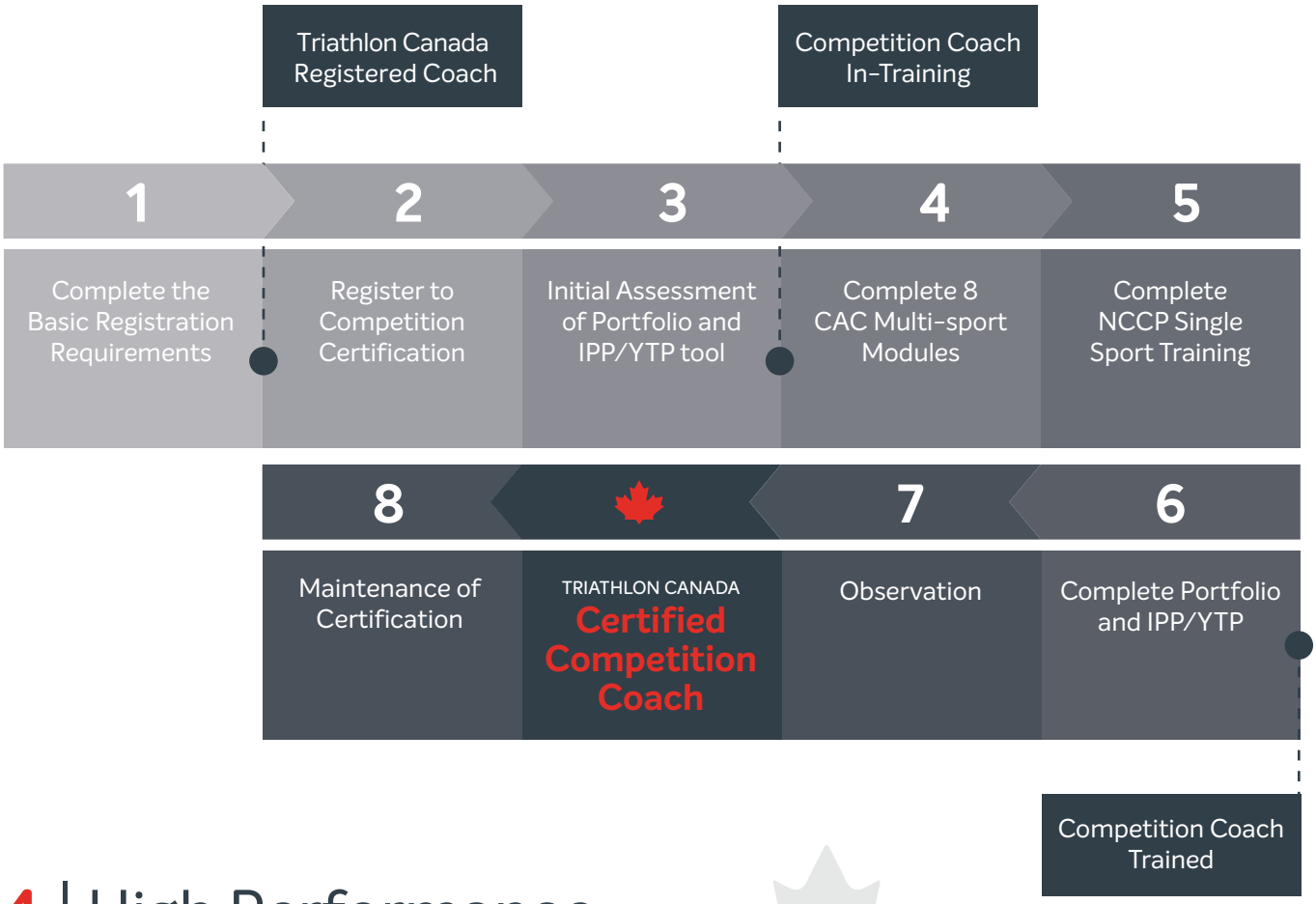
National Coaching Certification Program

coach.ca

TriathlonCanada.com

3 | Competition coaching pathway

A Competition Coach wants to train and support athletes who are interested in moving into the High Performance pathway. The Competition Coach focusses on refining skills and technique, physical training, sport psychology and all aspects of the daily training environment in order to develop strong practices and competition skills. This context is designed for coaches of athletes in the Train to Train, Train to Compete and Train to Win stags of LTAD.



4 | High Performance competition coach (to be developed)

The High Performance Coach wants to work with Provincial and National level athletes who are on the podium pathway. This context is for coaches of athletes in the Train to Win stages of long term athlete development.