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## 2017 YEAR IN REVIEW





Photo: Wheelchair Basketball Canada

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# 5 Reasons Coaches Should Use Video

By Craig Johnson, Territory Manager - Canada, Hudl

We know the value of video at [Hudl](#).

Video is the connective tissue in the modern sports landscape. It helps communication with players, gives visuals to stats, gets athletes recruited, and helps you find the holes in your upcoming opponent's strategy. Video is the present and future of athletics.

The power of video is nearly limitless, and we've heard the proof. Coaches have told us it saved their season or played a key role in an upset.

**Here are five reasons why you should use it.**

## 1. Develop Your Players

Video has become the ultimate teaching tool for coaches to relate to their athletes. It's one thing to tell a player what to fix or what's happening during the action. But the ability to show them what's happening and how to adjust allows for a whole new level of learning.

For Hugh Dunlop, the head coach at Ontario Hockey Academy, video is an essential part of his coaching practice. "A few years back, we sat one of our better forwards for the last 10 minutes of a game. Needless to say, during the game and immediately following it, the player did not agree.

"Following a team video session, we asked that specific player to stay behind and we showed him only one of his final shifts. It gave him a chance to see exactly what us as coaches, and everyone else in the building were watching. We had another game that night and he scored in the first period and was our best forward for the entire game."

Coaches across all sports have recognized that athletes tend to be visual learners. While they respond to verbal lessons and can

improve from instructions, adding the visual element to what a coach says helps them make a stronger connection.

"The key for us is to keep it short and concise by focusing on one or two specific topics while using a couple clips for each," adds Dunlop. "Generally, it seems to be most effective when we can show players a couple clips of what needs improvement, followed by a clip that shows what happens when the play is executed properly."

## 2. Stay Objective

One of the hardest things for a coach to do is completely eliminate biases from their assessment—**in fact, the human mind is incapable of doing it**. Hard as we fight it, our emotions are always going to affect the way we recall an event.

Rewatching a game or practice can provide the clarity that's lost in the heat of the battle. In the moment, our brains create theories and opinions that may or may not be accurate based on our emotions.

Video eliminates emotion from the equation. Upon second review, coaches can clearly see what really occurred and eliminate the subjectivity the brain is prone to.

## 3. Find the Right Stats

**Statistics are an integral part** of any evaluation process. Diving into the numbers can reveal tendencies that are easy to miss during game action. Video makes the numbers come to life.

"We look to track shot attempts for and against as well as shots that hit the net," says Dunlop. "The key here is defensively we are looking to keep shots on the outside and conversely are looking to get quality shots ourselves."



“Collecting this simple data allows us to narrow down what areas we are watching for in the video. For example, if we are getting a lot of shot attempts from good areas, but not many shots, we aren’t hitting the net. If we are giving up a lot of quality shot attempts, maybe we are too passive in giving up zone entries, etc.”

While the data can provide useful information, linking it to video provides much greater context. With Hudl, one click is all that separates a coach from a statistic, and a corresponding playlist of the video clips tied to that stat.

#### 4. Scout Your Opponents

It’s key to address your own team’s needs, but dissecting your rival’s game plan can be just as critical. Coach Dunlop and the Ontario Hockey Academy put an inherent emphasis on scouting as they prepare for games.

“Primarily we are looking at their special teams,” said Dunlop. “We try to figure out what they are comfortable with and try to eliminate that. If we limit their comfort level, we feel as though we have an advantage. In addition we may track certain players from time to time to find tendencies or weaknesses in their game and try to exploit them.”

Finding a key tactical edge in your scouting can be the crucial component that gives you a leg up on the competition.

#### 5. Get Athletes Recruited

These days, the email inboxes and Twitter feeds of college coaches and recruiters are littered with messages from high school athletes hoping to get their attention.

The best way to catch coaches’ eyes is with a killer highlight video. Showcase your best moments into a short clip to get a player on a school’s radar. Flash some talent with highlights and coaches [will watch full games](#) to complete their evaluation.

“We create 10 to 15 minute recruiting videos for all of our graduating athletes. In addition, if a team is interested in drafting a player, we will do the same thing. This video is generally made up of shifts and shows a player’s entire game – no one wants to see a highlight reel.

“It is about getting an accurate depiction of the player so recruiters can make an informed decision.” ■



# Truth, Reconciliation, and Sport

*Jason Peters is the Chief Executive Officer of Aboriginal Sport and Recreation New Brunswick. He was also Chef de Mission of Team NB at the 2017 North America Indigenous Games.*

K'we Coaches,

Two major happenings have changed the Indigenous landscape within Canada: 1) the Truth and Reconciliation Commission and 2) the overall demographics within the context of Indigenous peoples. These same two happenings have also had an effect on sport and Indigenous peoples.

Are you a coach that's starting a sport program within an Indigenous community? Do you coach Indigenous athletes? Here are for tips to help with your coaching journey.

## Tip #1 – Sports and Reconciliation

On June 2nd, 2015, the Truth and Reconciliation Commission (TRC) introduced the terms "truth" and "reconciliation" to Canadians. Canada and the world took notice of the residential school issue that plagued many First Nation, Inuit and Metis peoples for nearly one hundred years. The TRC listed 94 calls to action to, among others, child welfare, language and culture, health, justice, and reconciliation. The TRC also made the following recommendations pertaining to sport; I'd like to particularly single out call to action 90(iii).

- 87. We call upon all levels of government, in collaboration with Aboriginal peoples, sports halls of fame, and other relevant organizations, to provide public education that tells the national story of Aboriginal athletes in history.
- 88. We call upon all levels of government to take action to ensure long-term Aboriginal athlete development and growth, and continued support for the North American Indigenous Games, including funding to host the games and for provincial and territorial team preparation and travel.

- 89. We call upon the federal government to amend the Physical Activity and Sport Act to support reconciliation by ensuring that policies to promote physical activity as a fundamental element of health and well-being, reduce barriers to sports participation, increase the pursuit of excellence in sport, and build capacity in the Canadian sport system, are inclusive of Aboriginal peoples.
- 90. We call upon the federal government to ensure that national sports policies, programs, and initiatives are inclusive of Aboriginal peoples, including, but not limited to, establishing:
  - i. In collaboration with provincial and territorial governments, stable funding for, and access to, community sports programs that reflect the diverse cultures and traditional sporting activities of Aboriginal peoples.
  - ii. An elite athlete development program for Aboriginal athletes.
  - iii. Programs for coaches, trainers, and sports officials that are culturally relevant for Aboriginal peoples.
  - iv. Anti-racism awareness and training programs.

## Tip #2 – Engage Young Aboriginals

Did you know the Aboriginal population is the fastest growing demographic within Canada? The majority of the Aboriginal population is under 25 years of age, and with the decrease in population in some regions of Canada, it is vitally important to engage with the Indigenous community earlier rather than later. The benefits of this engagement can and will assist in boosting the number of youth participating in sport or recreation programs.



### Tip #3 – Relationship Building

Relationship building is a big part of working with Indigenous communities and their youth. This takes time; after all, there is a 500-year old relationship that hasn't been the most positive. As a coach, you need to be present within the community by getting to know community members (Elders, Chief, and Council). In addition to playing the role of a coach within Indigenous communities, your job description may also include trainer, manager, fundraiser, bus driver, team physician, cheerleader, and mentor for our youth. Just like any other coaching opportunity, you will find it extremely rewarding!

### Tip #4 – Keep Learning

Don't get overwhelmed, there is help out there! The Coaching Association of Canada and the Provincial or Territorial Coaching Aboriginal Sport Bodies offer a National Coaching Certification Program (NCCP) workshop that assists coaches who working in Indigenous communities. The Aboriginal Coaching Module is a professional development training tool for Aboriginal and non-Aboriginal coaches who coach Aboriginal athletes, as they become certified through the NCCP. The CAC also offers other valuable resources as part of its Aboriginal Coaching Program.

Wela'lin! ■



# Probiotic Praise

*By Angela Dufour RD, IOC Sports Diploma, Certified Specialist  
in Sports Dietetics & Landon Brown, BKin and Dietetic intern*

There is still some debate about the optimal duration of supplementation and the potential benefits of selecting and mixing specific bacterial strains with or without prebiotics, which are essentially the “food” for the probiotics, found in: bananas, inulin found in grains, chicory root, onions artichokes, and leeks.

There is modest scientific evidence suggesting supplementing with at least 100 million colonized forming units (cfu)/day is needed in order to achieve some of the health benefits. However, the dose can vary depending on the health conditions. Some of these may include:

Improving gut health, reducing upper respiratory tract infections, and more recently noted; for potentially improving recovery after strength training.<sup>1,2,3</sup> Probiotics can be of particular benefit for athletes who have weakened immune systems due to heavy or prolonged training, traveling, or training in cold climates or at altitude, and for those who experience gastrointestinal discomfort.<sup>1</sup> A Canadian research team found that 17% of developing athletes between the ages of 14-18 are already occasionally supplementing with probiotics.<sup>4</sup>

## Gut Health

The most common and well documented benefit of probiotics is improving overall gut health. Including probiotics as part of an athlete’s diet can increase the amount of beneficial bacteria colonies found in their intestines, thus reducing gastrointestinal discomfort caused by disturbances to diet while travelling or restrictive diets. In other words more friendly bacteria in the gut means less occupancy for pathogenic (bad) bacteria, preventing any unwanted bugs in the intestine. These friendly bacteria not only eliminate unwanted bacteria in the intestine, but also help digest food and produce vitamins that were not available to us without their help. Probiotics can also improve gut health via various mechanisms, which boost the immune system by breaking down dietary fat into smaller chains that act as messengers in our body, signalling our immune system to boost its defenses in our gut as well as other areas of the body.<sup>1</sup>

## Upper Respiratory Tract Infections

The second well documented benefit of probiotics is the reduction in the duration and severity of upper respiratory tract infections (URTI). Many athletes are annually burdened with the common cold or other viral infections that have negative impact on their training or competitions. Allergies or cold weather during the winter months combined with increased ventilation rates while exercising can cause irritation and inflammation to the upper respiratory tract. Respiratory problems can disrupt training, or cause an athlete to miss competitions. The same mechanism with which probiotics boost the immune system in our gut by breaking down dietary fat into smaller chains, signalling a stronger immune system response, happens with the respiratory tract as well. The respiratory tract has a protective mucus lining that protects our body from pathogenic invaders. When the immune system is functioning well, this mucus lining has antibodies and white-blood cells that can destroy pathogens, preventing unexpected downtime.<sup>1</sup>

## Improved Recovery from Strength Training

A third and more recent area of research is the potential benefit that probiotics may have on recovery after strength training sessions. A research team has been investigating the effect of adding specific probiotics to protein during recovery. Adding the probiotic, *Bacillus coagulans*, to protein during recovery can increase the amount of protein digested and absorbed. This probiotic is able to help digest the protein, increasing the amount the body is able to absorb. Athletes have reported a reduction in perceived muscle soreness after heavy strength-training and the ability to perform better during a second workout after a rest period than if protein was taken alone. Although the reduction in perceived soreness has been validated by measuring specific markers in the blood, indicating a reduced amount of muscle damage, there is minimal research in this area and it needs to be explored further before it can be recommended for this purpose.<sup>3</sup>



## Suggested Use

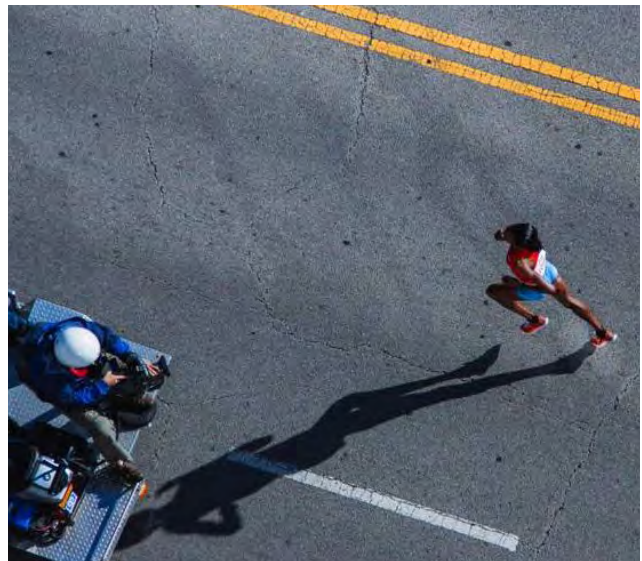
Athletes can see benefits in as little as seven days of supplementation, although there does not seem to be any concerns with regular probiotic use, with as little as a week to start seeing results.<sup>1</sup> Choosing a regular time to take a probiotic will help increase successful adherence. When starting probiotics, an athlete may feel a little gastrointestinal discomfort from gas, this is normal and should pass in a few days. It takes time for the body to adjust to its new bacterial friends, so try it during a training period first. Store in a cool dry place. To determine which strains of probiotics are beneficial for which athletic condition, refer to Figure 1.

Probiotics may play an important role in the common goal to maintain and/or improve an athlete's immune system during heavy or prolonged training cycles, during travel, or during the winter months, but it does not replace an adequate diet that meets all of an athlete's nutritional requirements. For an athlete's immune system to be functioning at its peak, it needs to have sufficient energy, carbohydrate, protein, and micronutrients for cell repair and synthesis.<sup>2</sup>

## The Bottom-line

Probiotics are a low-risk supplement that can be of benefit to keep athletes healthy, boost immunity, and maintain and/or improve training adaptations. Aim for a multi-strain culture supplement and try to enjoy naturally fermented foods every day.

There is still some debate about the optimal duration of supplementation and the potential benefits of selecting and mixing specific bacterial strains with or without prebiotics, which are essentially the "food" for the probiotics, found in: bananas, inulin found in grains, chicory root, onions artichokes, and leeks.



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Figure 1. List of probiotic strains and their benefits for athletes.

	Common Infectious Disease	URTI	Gastrointestinal Health	Recovery	Product Supplements
<i>Bacillus coagulans</i>				x	
<i>Lactobacillus fermentum</i>		x			
<i>Lactobacillus casei</i>		x	x		Visbiome, VSL#3
<i>Lactobacillus acidophilus</i>	x	x	x		Visbiome, VSL#3, HMF Fit for School
<i>Lactobacillus rhamnosus</i>	x	x	x		Culturelle, Digestive Care Diarrhea Relief
<i>Lactobacillus plantarum</i>	x		x		Digestive Care Diarrhea Relief
<i>Bifidobacterium lactis</i>	x		x		HMF Fit for School
<i>Bifidobacterium bifidum</i>	x		x		HMF Fit for School
<i>Lactobacillus bulgaricus</i>			x		Visbiome, VSL#3
<i>Bifidobacterium longus</i>			x		Visbiome, VSL#3
<i>Bifidobacterium infantis</i>			x		Visbiome, VSL#3
<i>Bifidobacterium breve</i>			x		Visbiome, VSL#3
<i>Streptococcus thermophilus</i>			x		Visbiome, VSL#3

\*Adapted from the referenced research and the "Clinical Guide to Probiotic Supplements" - Dragana Skokovic-Sunjic, 2016.

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# On the Field or in the Courts?

The growing trend of judges reviewing sporting decisions

By Justin Safayeni

*Justin is a lawyer at Stockwoods LLP, a litigation boutique in Toronto.*

*He practices mainly in the areas of administrative law (including judicial reviews) and civil/commercial litigation, with a particular interest in law as it relates to sport.*

Prior to October 2014, few people – coaches, lawyers or otherwise – would have thought that a court would interfere with the results of the semi-final soccer game of the Under 16 Boys Tier 1 Division of the Ontario Cup.

Yet that is exactly what happened in *West Toronto United Football Club v. Ontario Soccer Association*.<sup>1</sup>

That case involved a decision by the Ontario Soccer Association (OSA) to award the semi-final match of the Ontario Cup to the Strikers, even though the Cobras (West Toronto United) won the match on the field. The OSA had received a complaint that the Cobras were using a “call-up” player who was not properly registered on the team. Eventually, it emerged that the player had been accidentally removed from the roster due to an administrative error by the Toronto Soccer Association (TSA). The TSA advised the OSA that it was going to immediately fix the error and register the player, which should have been done in the first place.

Nevertheless, the OSA’s Protest Committee determined that the player was used ineligibly by the Cobras during the semi-final game. On that basis, the OSA awarded the match to the Strikers. The Protest Committee did not explain why the TSA’s evidence on the player’s accidental removal from the roster was insufficient, nor did it give the Cobras a chance to address the matter.

The Court found this to be problematic for two key reasons. Substantively, the Protest Committee’s decision was “fundamentally flawed” because it “reached a conclusion that finds no foundation in the evidence that was before it”. Procedurally, the Protest Committee acted “without giving the Cobras a fair opportunity to be heard.”

In the end, the Court overturned the OSA’s decision, restored the Cobras’ semi-final victory, and ordered that the final match of the Ontario Cup be re-played, if possible.

*West United* is not the first case where a judge has interfered with the decision of a sports organization. But it reflects a growing trend among courts to get more actively involved in examining all kinds of decisions made by all kinds of volunteer associations, including those related to sport.

Case in point: just two years after *West United*, an Ontario court overturned a decision made by an organization of basketball officials that effectively prevented certain high school basketball coaches from engaging in coaching for several months. The coaches were found to have had an inappropriate confrontation with referees following a high school basketball game.

Unlike *West United*, that case – *Gymnopoulos v. Ontario Association of Basketball Officials*<sup>2</sup> – did not turn on substantive flaws in the decision by the Ontario Association of Basketball Officials (OABO). Instead, it focused solely on the procedural defects in the OABO’s process leading to the final decision. Those flaws included not giving the affected coaches proper notice of the severe consequences they potentially faced; conducting a hearing on the coaches’ conduct without key witnesses being present; not providing the coaches with the full official’s report from the game in question; and relying on one of the coach’s Twitter comments without giving him any notice that those might be used against him.

To be sure, not every decision by every sport organization will be subject to judicial review. For example, an Ontario court



recently refused to examine OSA policies concerning the ability of players to choose their own soccer teams.<sup>3</sup> Courts consider a number of factors when deciding whether to get involved in these kinds of disputes, including the nature of the decision, the extent to which it is governed by law, and the extent to which it has a public impact.

Still, given the increased risk that courts will judicially review their decisions, administrators of sports organizations would be well advised to keep the following in mind:

#### **Follow a fair process.**

Courts are most likely to intervene if they are convinced that the process leading to a final decision was unfair. The hallmarks of a fair process are ensuring the affected individuals are given a chance to present their case to impartial decision-makers – and that they first understand the case against them (including what penalties they face and what evidence might be used against them). Both *West United* and *Gymnopoulos* fell short in this critical respect.

#### **Choose (or train) your decision-makers wisely.**

The judgment of committees responsible for decisions relating to game protests or member discipline may come under close scrutiny if a matter goes to court. Committee members should be selected with this in mind. If a particularly sensitive matter is coming before a committee, members could benefit from even rudimentary pre-hearing training on assessing evidence, articulating reasons and conducting a fair hearing.

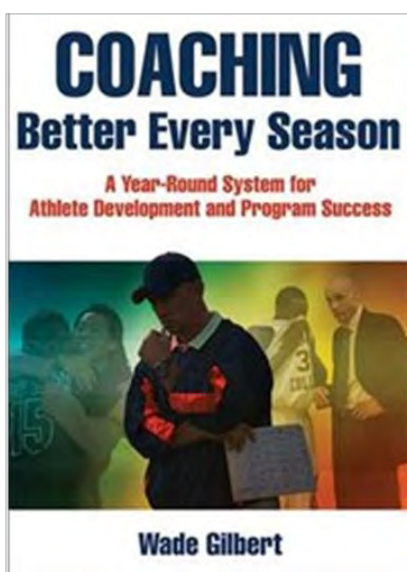
#### **Be ready for judicial review, but don't automatically assume a court will interfere.**

If a sports organization's decision is challenged in court by an aggrieved party, remember that there remains room for argument as to whether a court should ultimately intervene. *West United* and *Gymnopoulos* indicate a trend, not a rule. The law of judicial review is fluid and complicated, but there are certainly limits to when courts will get involved. It should not automatically be assumed that the courts are an appropriate venue for examining internal decisions made by sport organizations. ■

<sup>1</sup> 2014 ONSC 5881 – <sup>2</sup> 2016 ONSC 1525 – <sup>3</sup> 2016 ONSC 7718

# 4 Must-Read Books for Coaches

By Jason Reindl, ChPC



Jason Reindl is currently Head Coach of the University of Saskatchewan Huskies' Cross Country/Track & Field program. A Chartered Professional Coach (ChPC), Jason was previously Head Coach of the University of New Brunswick's Track & Field team and is a member of the Board of directors for Coach New Brunswick. Enrolled in the Masters in High Performance Coaching and Technical Leadership at the University of British Columbia, he was also named Atlantic University Sport Coach of the Year earlier in 2017.

In this Coaches **plan** article, Coach Reindl offers his take on 4 must-read books on coaching, which he says will benefit coaches at all levels of play.

## **Coaching Better Every Season** by Wade Gilbert

*Coaching Better Every Season: A Year-Round System for Athlete Development and Program Success* provides a detailed blueprint for coaches, including proven methods and best practices in the preseason, in-season, postseason, and off-season. Research supported and field tested prescriptions and protocols will produce more positive results and a more professional approach to coaching.

### **Coach Reindl's Take:**

This was one of the best books on coaching I have read in a long time and I recommend it to every coach no matter the sport, age, or level they are coaching at. The stories and experiences from world leading, expert coaches provide insights that can relate to even the most unique

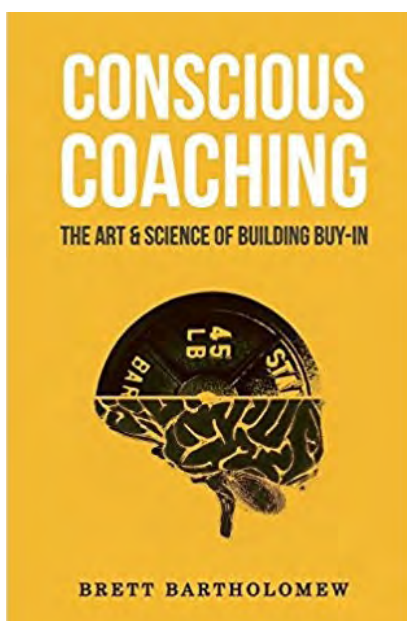
coaching situations. Whether I was reflecting on my coaching practice in regards to the performance athletes that I work with, or developmental ones, this book had a tip, worksheet, or suggestion that had a positive impact. The addition of practical worksheets provides coaches with the tools to move their coaching to the next level. I took many of the sheets and easily adapted them for my coaching situation. This is a book that I will be looking back on as a reference for many years to come.

## **Conscious Coaching** by Brett Bartholomew

Readers learn the foundational principles of improving relationships, enhancing engagement, and gaining the trust of the athletes they work with through targeted communication. Readers also learn concrete strategies to apply these principles in day-to-day coaching situations. A book that sets the stage for coaches to create a culture of success not only within sport, but also beyond.

### **Coach Reindl's Take:**

The longer I coach, the more I realize the importance of relationships, communication, and buy-in. This text zooms in on these areas. It encourages self-reflection in how one communicates with athletes and builds positive relationships based on trust and open dialogue. I found myself laughing as I related to stories from the book and types of athletes the author has interacted with. The art and science of these topics are discussed



as part of four themes of what makes a conscious coach: 1) buy in (trust), 2) relationships, 3) social intelligence, and 4) time. No shortcuts exist and this text will benefit any coach in the areas of relationship and trust building. This text reiterates, in all areas of my life, that relationships are the foundation to success and while many failures stem from a lack thereof.

### Peak performance by Brad Stulberg and Steve Magness

Common principles exist that drive performance. Regardless of the field many of the practices that led to great success are the same. With the latest scientific insights and a challenge to re-evaluate our traditional way of thinking, *Peak performance* uncovers the secrets of success and guides readers on how to use them to take their performance to the next level.

#### Coach Reindl's Take:

As a coach, I am continually looking for ways to improve the performance of the athletes that I work with. I am also on a personal and professional development mission to improve my performance as a coach. This book provides practical applications to both areas with reference to cutting edge research and thought provoking reflections on previous breakthroughs. I have had the privilege to hear and speak with one of the authors, Steve Magness (author of *The Science of Running*), and am continually impressed at how he evaluates the world around him as a coach, scientist, researcher, and author. I found this text so enjoyable that I am now hoping that Steve and the other half of the writing team, Brad Stulberg, pair up for future works. *Peak Performance* helped me identify key areas of my lifestyle that I can refine and improve upon to aid in my performance and the performance of the athletes that I work with. It challenged me to reflect on the pursuit of performance within my training group and daily training environment starting with simple, easy to implement areas that had been previously overlooked. A can't miss book for any coach.

### The Energy Bus by Jon Gordon

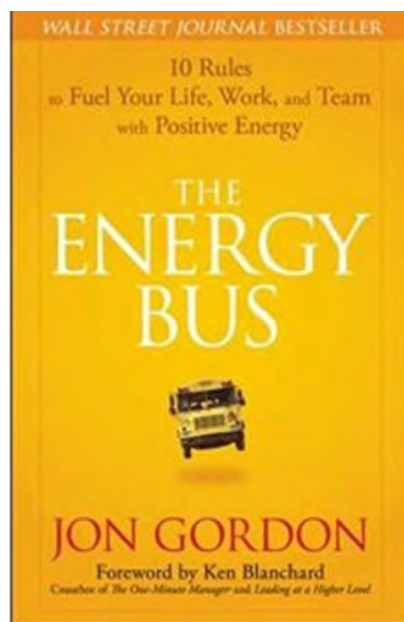
An enlightening and inspiring ride that reveals ten secrets for approaching life and work with the kind of positive, forward thinking attitude that leads to true accomplishment – at work and at home. A tale that leads the reader on a journey to overcome negativity and adversity to define themselves and create their success.

#### Coach Reindl's Take:

My coaching philosophy is built on simplicity and this book hits on one of the simplest and foundational principles within that philosophy, a positive attitude. No matter how many books I read I always come back and recommend this one as a staple for any coach/team leader. I have referenced it in presentations from New Brunswick, to Saskatchewan, and all the way to Bahrain with every group consistently nodding their heads in agreement as we discussed the importance of positive energy, making positive choices, and being a supportive teammate. We will all face challenges and adversity in our lives, but it is our attitude and how we approach them that dictate how we persevere and grow from them. The last rule of the Energy Bus is to Have Fun and Enjoy the Ride. A rule I would encourage all to remember.

#### FINAL TAKE:

As I reflect on all of the texts together, I come to the conclusion that books, no matter the topic, can provide us with information that we can turn into knowledge, and then through further reflection, into wisdom. The books listed above have led me to the conclusion that if we, as coaches, have prepared accordingly and planned appropriately, have a solid relationship built on trust, honest, and open communication, we can then pursue performance. We can make adjustments and adjust to maximize our results. If we do all of this with a positive attitude and positive energy, then everything will ultimately take care of itself. Sure, there will be bumps along the road, but with it all planned and prepared for built on a solid foundation, all we need to do is remember to have fun and enjoy the ride. ■





# The Low FODMAP Diet: A Benefit for Athletes?

By Angela Dufour, MED, RD, CSSD, IOC Dip Sports Nutr, CFE & Melissa Allan, Dietetic Intern, MSVU

Beets, apples, garlic, onions, sourdough, rye, dairy, bananas, almonds, coconut water, and orange juice. You just read a great list of healthy, nutritious foods which every athlete should incorporate into their daily training diet, but what is the common denominator in these foods that may cause some athletes to be avoiding them? FODMAPs. Foods that (See Table 2) contain poorly absorbed, rapidly fermentable carbohydrate molecules are known as FODMAPS, and they may cause gastrointestinal (GI) pain and discomfort after eating for some athletes.

## What are FODMAPs?

FODMAPs stand for the types of sugars in foods that contain small-chain carbohydrate (sugar) molecules, which are poorly digested and absorbed in the small intestine of most people with Irritable Bowel Syndrome (IBS).

These poorly digested sugars are then fermented by bacteria, producing gas<sup>3</sup>. The term FODMAP is the acronym that represents the five different groups of fermentable carbohydrates:

Globally, around 11% of the population are affected by these symptoms, meaning that there are athletes who may experience disrupted training, decreased performance, added stress, and a lowered quality of life<sup>1</sup>. The symptoms are the result of a poor functioning GI tract, a disorder called Irritable Bowel Syndrome (IBS).

## IBS

IBS is a chronic and reoccurring GI disorder that typically includes symptoms like abdominal pain, bloating, extreme flatulence, distention, and altered bowel movements, i.e diarrhea and constipation. Diagnosis is dependent



on the athlete's history of symptoms and a certain set of criteria<sup>3</sup>. The cause is still unknown but there is evidence to support that there are multiple factors involving changes to the gut<sup>4</sup>, such as; abnormalities in motility, infections, exaggerated stress affecting the brain-gut interaction, and gut hypersensitivity<sup>5</sup>.

There is currently no known cure for IBS, thus it is important to try to adjust an athletes' diet to control or reduced the symptoms.

## The low FODMAP diet

STAGE 1: The first stage involves the removal of all high FODMAP foods from the diet for eight to ten weeks. All high FODMAP foods should be replaced by low FODMAP foods.

STAGE 2: After eight to ten weeks of TOTAL elimination of high FODMAPs, the reintroduction of some high FODMAP foods can begin one at a time in gradual

F	<b>Fermentable:</b> sugars that are broken down and digested by bacteria in our intestine, producing gas and other by-products
O	<b>Oligosaccharides:</b> short chain carbohydrates: <ul style="list-style-type: none"> <li>Such as fructans and galacto-oligosaccharides</li> </ul>
D	<b>Disaccharides:</b> chains of two carbohydrates: <ul style="list-style-type: none"> <li>Such as lactose, the sugar found in milk and other dairy products, is a disaccharide composed of glucose and galactose.</li> </ul>
M	<b>Monosaccharides:</b> single carbohydrate chains: <ul style="list-style-type: none"> <li>Such as fructose in many fruits and vegetables,</li> </ul>
A	<b>And</b>
P	<b>Polyols:</b> sugar alcohols, are a type of carbohydrate that humans can only partially digest and absorb in the small intestine: <ul style="list-style-type: none"> <li>Such as low-calorie sweeteners, like sorbitol, mannitol, xylitol, maltitol, and isomalt,</li> </ul>

Adapted from [www.CDHF.ca](http://www.CDHF.ca): Understanding FODMAPs

amounts until symptoms return or a proper portion size is reached<sup>7</sup>. Start by introducing a food that the athlete has really been missing or that is an important food providing nutrients that help benefit their training, performance or recovery.

### Does the low FODMAPs diet work?

A systematic review done in 2015 on 22 different studies showed that scientific evidence supports the theory that adherence to a low FODMAP diet can improve the overall symptoms of IBS<sup>8</sup> and improve quality of life<sup>8</sup>. Athletes need adequate nutrients in adequate amounts and timing for available energy and to limit fatigue and promote recovery. With the careful implementation of a low FODMAP diet an athlete with IBS can be assured that performance with limited or no GI symptoms can be obtained while still being able to meet their high energy and nutrient needs.

### The Bottom-line

Talk to a registered dietitian and/or other healthcare professional to provide guidance on a low FODMAP diet and other methods that can help with IBS symptoms. Your athlete may want to keep a food and symptom journal for at least 3 days before starting the low FODMAP diet allows for the comparison of changes in symptoms once the diet is started<sup>7</sup>. Gastrointestinal issues and diseases play a major part in the lives of many athletes. With the help of a low FODMAP diet, the symptoms that plague their lives and performance can be vastly improved, helping them to compete to the best of their ability. ■

Table 2: List of High vs Low FODMAP foods

	High FODMAP Foods	Low FODMAP Foods
<b>Fruits</b>	Apples, pears, mango, watermelon, nectarines, peaches, plums, pear, apricots, cherries, blackberries, figs, grapefruit	Blueberries, cantaloupe, grapes, kiwi, lemon, limes, mandarins, honeydew melon, pineapple, raspberry, rhubarb, strawberries
<b>Vegetables</b>	Asparagus, beetroot, garlic, onions, leeks, mushrooms, peas, celery, sweet corn, broccoli stalks, cauliflower, shallots, sweet potatoes	Arugula, green beans, bell peppers, broccoli heads, Brussel sprouts, cabbage, carrots, chives, cucumber, eggplant, ginger, lettuce, potato (peeled), pumpkin, spaghetti squash, spinach, swiss chard, tomatoes, zucchini
<b>Milk &amp; Alternatives</b>	Buttermilk, custard, kefir, milk, evaporated milk, cream, full fat goat milk, sweetened condensed milk, yogurt, coconut milk, soy milk	Cheddar cheese, cottage cheese, feta, goat cheese, mozzarella, soft cheese, whipped cream, lactose free milk, goat yogurt, lactose free yogurt, soy cheese, almond milk, canned coconut milk, hemp milk, quinoa milk, rice milk, soy milk,
<b>Legumes</b>	Baked beans, red kidney beans, black beans, broad beans, chickpeas, fava beans, navy beans, soya beans, split peas	Lentils (canned), sprouted mung beans
<b>Nuts and Seeds</b>	Almonds, cashews, pistachios	Macadamia, brazil nuts, peanuts, pecans, pinenuts, chia seeds, poppy seeds, pumpkin seeds, sesame seeds, sunflower seeds, walnuts.
<b>Grains</b>	Gluten-free multi-grain & whole-wheat bread, multi-grain sprouted bread, naan, roti, rye bread, sourdough bread, spelt bread, whole-wheat (multi-grain, white and wholegrain) bread, raisin toast, granola, rice crisps, corn flakes, muesli, fine oatmeal, wheat bran, almond meal, coconut flour, spelt flour, wheat flour, pearl barley bran wheat, couscous, pasta, wheat germ	gluten-free sourdough (white & wholemeal) bread, millet bread, spelt bread, white sourdough bread, amaranth puffed grain, corn flakes, quinoa flakes, rice flakes, coarse oatmeal, rolled oats, buckwheat flour, corn flour, corn starch, quinoa flour, rice flour, potato starch, tapioca starch, oat bran, rice bran, buckwheat, millet, rice noodles, nutritional yeast flakes, quinoa, rice

Adapted from: The Monash University Low-FODMAP diet App <https://itunes.apple.com/au/app/monash-university-low-fodmap/id586149216?mt=8&ign-mpt=uo%3D4>  
\*Please note that these lists are exhaustive. \*

Table 3: List of High vs Low FODMAP Sports Foods

High FODMAP Sport Foods	Low FODMAP Sport Foods
<b>All sport drinks or gels made with fructose, honey, high FODMAP fruits, or high fructose corn syrup.</b> GU energy gels, Kind bars, Vega energy gel, Lara bars, Honey Stinger products, Power Gels, GU Electrolyte drink mix, dates, Clif bars, Luna Bars	Maple sugar candy, bananas, Gatorade made with sugar, GU chomps, dried pineapple, baked potatoes, rice, lactose free milk and yogurt, oatmeal, cane sugar, coconut sugar, Hammer Gel, Jelly Belly Sport Beans, Clif Shots, Clif Shot Bloks, Simply Protein, Epic Bars, Q'ia Bars

\*Please note that these lists are not exhaustive. \*

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# Social Media 101 for Coaches

*This article was originally published by [viaSport British Columbia](#) and has been slightly modified for *Coaches plan*.*

It's no secret that many coaches view social media as an unwelcome distraction. In a world where a single thoughtless tweet could spill a training secret or expose the team to negative media attention, is it possible to use social media to help your coaching career? Absolutely!

With a little planning and thought, social media can become another tool in your coaching arsenal. In this article, we'll discuss how to avoid social media pitfalls and harness social media's power to help you improve team chemistry, interact with other coaches, athletes and more.

## How do I establish online boundaries with my athletes?

You're checking your email when suddenly, a Facebook friend request from an athlete pops up in your inbox. On one hand, you've friended a few other athletes to make it easier to coordinate travel to competition. On the other hand, however, this athlete is a minor. Do you friend the athlete or leave him or her in your friend queue and make up some excuse about how you don't go on Facebook anymore? Or maybe you throw your computer out the window and never look back?

Setting boundaries with your athletes on social media can be awkward, but it doesn't have to be. To avoid hurt feelings, it's important to address the issue head on long before that first friend request reaches your inbox. The decision of whether to interact with your athletes on social media is a personal one, but is contingent upon the following factors:

**How old are your athletes?** Most experts in risk management recommend that coaches do not interact with minor athletes on social media. If you do, make sure to keep all communication public and only use group chats (rather than one-on-one messages).

**What is your coaching pedagogy?** Do you want to be seen as your athletes' friend? How does social media impact your ability to be seen as an authority figure? Is it important to you to keep your coaching persona active in all interactions with your athletes?



**What are your reasons for interacting with the athlete via social media?** Do you want to check up on your athletes or coordinate logistics through Facebook messenger?

You have four options when it comes to interacting with athletes online:

Of the four options, the least-used one is creating distinct social media profiles for your professional career. Doing so, however, is often an elegant solution, since it allows you to extend your coaching persona to the virtual space and creates a strong distinction between your private and personal life. Which option you choose is entirely a personal choice. As long as you are consistent and communicate your choice in advance to your athletes, you will avoid hurt feelings or accusations to favouritism.

## How do I encourage my athletes to use social media appropriately?

It's no secret that growing up under the 24-7 spotlight of social media is challenging for any young adult. Young high-performance athletes carry an additional burden because they are expected to represent their team/sport/club and may be subject to media attention. Ironically, the best way to help your athletes successfully navigate the online world is to take the conversation offline.

-  **Do not friend or follow athletes (or current athletes) on social media.**
-  **Create distinct social media profiles for your professional career.**
-  **Friend athletes on your personal accounts with very restricted settings.**
-  **Friend all athletes on personal accounts.**





Often, when coaches talk to their teams about social media, they treat it as a new entity requiring a distinct set of rules. Studies show, however, that this approach can actually worsen online behaviour, since it encourages your athletes to see social media as a being fundamentally different than real-world communication. One of the reasons online bullying is so prevalent is that people don't see the person they're interacting with online as "real" and may feel that they're "playing a game where the rules of the real world don't apply." This dissociation can be problematic.

Instead, have a conversation with your athletes about proper team conduct that encompasses all forms of communication, including social media. By involving your athletes in creating the team conduct policy, you will help them feel ownership over the rules, increasing the likelihood that they'll follow them.

Talking directly to your athletes will also give you a better idea of what online communications issues your athletes actually face. Chances are high that your athletes are more social media savvy than you are, and they may be using social media platforms that you're unfamiliar with. Until you ask your athletes what conflicts they've encountered online, you may not know

that an athlete is feeling left out because her teammates are not including her in their Snapchats.

Here are some questions to get the conversation started:

- How should we treat each other as teammates?
- What principles should our team be guided by? (Fairness, respect, etc).
- How will we deal with conflict within our team?
- How will we deal with winning and losing?
- How do we want outsiders to see our team?
- What communication problems have you encountered? What could prevent these problems from happening?
- Is there information that we would like to keep private as a team? (Injuries, new training techniques, etc).

Use your athletes' answers to draft a team conduct policy that all athletes must sign. When issues do occur, you will have a reference point for enforcing proper behaviour. It's up to you whether you want to include disciplinary actions for those who break the rules, or if you want to deal with infractions on a case-by-case basis.

# Social Media 101 for Coaches

(continued)

## Should I monitor my athletes' social media profiles?

The National Collegiate Athletic Association (NCAA) coaches and administrators made the news for requesting that student athletes offer up their social media passwords so that their accounts could be monitored. Some universities even ban their student-athletes from using social media.

The question of whether an employer or coach should be able to monitor their employee/athlete's social media presence is a hot-button issue...and a legal grey area. In the USA, many legal experts believe that this practice violates the athlete's right to free speech and could be unconstitutional.

Instead of monitoring your athletes' social media use, it's probably better to take a proactive approach and educate them on proper social media conduct. If a problem does occur, deal with it in the context of your larger team policy. After all, experts like media lawyer and former Ohio University hockey player Jonathan Peters say that social media problems usually have their root in real-world frustrations. For example, that athlete complaining about his training partner on Twitter is probably also exhibiting negative behaviours in his training environment.

## Can you use social media to further your coaching career?

When done well, social media can help you connect with other coaches, learn about advancements in sports science, and discover grants, coaching clinics, seminars and more. How invested you want to be in social media depends on a number of factors, including:

- How much time do I have to devote to social media?
- What are my social media goals?
- What sites will help me achieve those goals?
- Do I want to create professional social media accounts?

Remember: social media works best as a conversation, not a monologue, so make sure that you follow the 80/20 rule. Only 20% of your content should be self-promoting, while 80% should be meaningful interactions with other people.

To help you get the most out of your social media efforts, we've assembled best practices for coaches broken down by social media site:

### LinkedIn

Many LinkedIn users report that the site has lots of "noise" and self-promotion, making meaningful conversations difficult. To cut through the chatter, make sure to:

- Interact with other coaches by connecting with them. Remember: only send connection requests to coaches you already know.
- Join groups to meet other coaches around the world. When joining groups, look for those with active, thoughtful comments.
- Find groups by investigating what groups your colleagues have joined.
- Help your fellow coaches by recommending and endorsing them. They'll probably return the favour and endorse you back.
- Fill out your profile thoroughly but succinctly. If you're looking for employment, make sure to research popular keywords for your industry.

### Twitter

Many coaches who use Twitter claim that it's the best site to connect with people outside of your sphere of influence. Make sure to:

- Follow other coaches, National sport organizations (NSO), Multi-sport organizations (MSO), provincial/territorial sport organizations (P/TSO), coaching institutes, sports science organizations, etc. for interesting conversations and articles.
- Use Twitter lists to create lists of your favourite coaching accounts and check them to make sure you don't miss out on an interesting tweet.
- Respond promptly to all interactions.

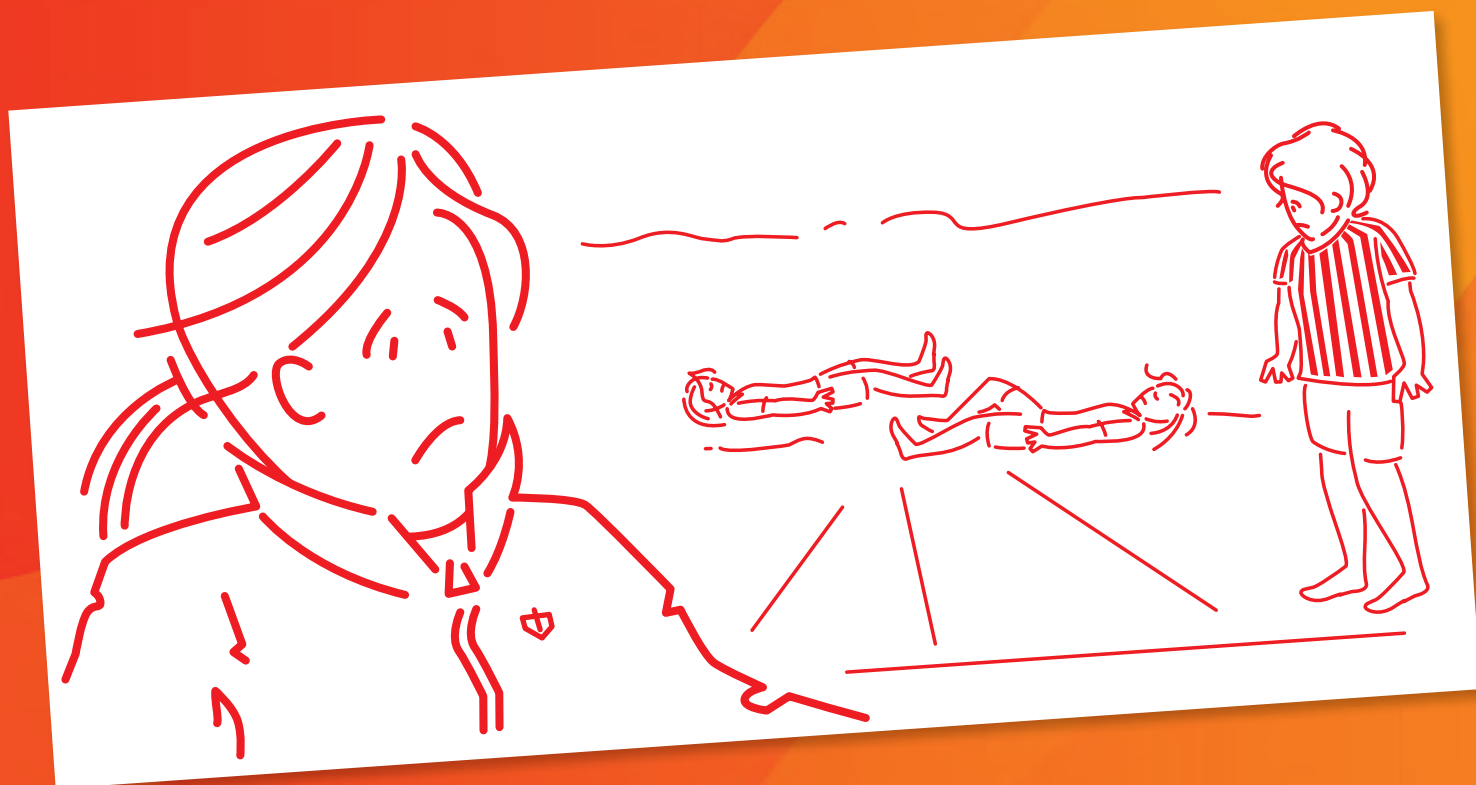
### Blogging

Blogging is an excellent way to establish yourself as an expert in your field and even get media attention, since members of the media will often do a Google search to find experts to appear on talk shows and news programs.

- If you have strong writing skills, try a traditional blog. If you're not confident in your writing skills, try a video blog or podcast.
- You can set up your own blog through platforms like Blogger, or you can blog through your NSO or P/TSO. Choosing to blog through another organization increases your audience, since you can draw on that organization's social media presence.
- Remember to promote your blog through your social media channels. ■

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# Coach Better Every Season

By Dr. Wade Gilbert



Though it might be overused, the sports adage “You either get better or get worse” is one experienced coaches know to be true. The best coaches employ new, effective methods to develop their athletes through the four phases of the seasonal coaching cycle. Each phase requires a different focus, what I call the 4E’s: Envision, Enact, Examine, and Enhance (see Figure 1). Although the length of each phase varies across sports and levels of competition, there are common principles and methods for each phase that will improve your chances for success

Figure 1. Four seasons of the annual coaching cycle: The 4E’s (reprinted from *Coaching Better Every Season*, p. xi)



## Envision During Preseason

Preseason is the time to lay the foundation for success and to prepare athletes – as well as you and your coaching staff – for the journey ahead. That foundation will be solid only if built upon four pillars.

1. A defined coaching purpose and core values
2. Connection of purpose and values to a guiding coaching philosophy
3. Target outcomes (goals) determined with athletes
4. Trust and team cohesion

Across a season you will be faced with many challenges and dilemmas. A clear purpose and core values provide the compass to make sound choices and successfully guide you through adversity. How you approach the way you will coach, what you will teach, and the strategies you will employ is referred to as your coaching philosophy. Although elements of a coaching philosophy may vary each season depending on the profile of that season’s group of athletes, the philosophy should always align with your purpose and core values.

With a clear sense of purpose and a guiding philosophy, meaningful and realistic goals can be set for the season. Goal setting is common practice, but athletes must be active partners in the process to increase their commitment to the goals. Coaches and athletes should first independently write down goals for the season, and then jointly review and revise the goals.

The final pillar of preseason coaching success is building trust and team cohesion. Successful coaches establish team standards and behavior expectations as opposed to a rigid set of team rules. Standards and expectations provide a blueprint for ‘how we operate here.’ Coach and athlete behaviors that align with team standards and expectations build trust and cohesion; behaviors that don’t will erode trust and cohesion.

## Enact In-Season

In-season is the heart of a coaching cycle. This is the time when coaches are most focused on teaching and supporting athletes. We know that athletes develop best when coaching methods are adapted to meet an athlete's unique needs and stage of readiness. How you coach a 6-year old beginner athlete should be very different from how you coach an 18-year old high performance athlete. Regardless of the athlete's stage of development though, quality coaches always consider basic principles of learning when designing practices (see Table 1).

For example, athletes improve most when they engage in practice activities that stretch them just beyond what they are currently capable of doing. This approach – commonly referred to as deliberate practice – requires intense focus and effort, and therefore must be balanced with less strenuous playful practice activities.

Table 1. Principles of Athlete Learning and Sample Coaching Strategies (reprinted from Coaching Better Every Season, p. 127)

Learning Principle	Sample coaching strategy
<b>Prior knowledge can help or hinder athlete learning.</b>	Have athletes explain or demonstrate a skill before attempting to teach it to gauge readiness to learn the skill.
<b>Athlete motivation directly influences the learning process.</b>	Ask athletes for feedback on the difficulty of learning activities to help find the right challenge-skill balance.
<b>Skill mastery requires athletes to learn component skills.</b>	Try describing and then walking through the steps needed to perform a skill before teaching it to your athletes.
<b>Combine deliberate practice with targeted specific feedback.</b>	Identify in advance feedback cues and feedback bandwidths to help athletes meet learning and performance standards.

The benefits athletes gain from quality training will be wasted unless they are concurrently prepared to perform at their peak in competition. Effective athlete precompetition preparation includes proper rest and routines to get them into their unique, preferred physical, mental and emotional states. Once the competition begins, effective coaching measures include (a) close examination of performance, (b) praise and encouragement of athletes, and (c) use of teachable moments to strengthen athlete skills (see Table 2). Post-competition routines should also be prepared to help athletes recover and get ready for the next training sessions and competition.

Table 2. Components of Effective Competition Coaching (reprinted from Coaching Better Every Season, p. 201)

	Description
<b>Examine</b>	Silently observe the performance of the athlete and opponent. Look for (a) opportunities to make strategic adjustments or explicit opponent tendencies, (b) praiseworthy athlete behaviour, and (c) potential signs of athlete fatigue.
<b>Encourage</b>	Regularly give praise and support, both for successful performance outcomes (e.g., goal, score) and quality of performance (i.e., correct skill execution, effort).
<b>Educate</b>	Use athlete performances as teachable moments by providing quick feedback and reminders of important technical and tactical actions during natural breaks (time-outs, intermissions, when athletes are on the bench).

## Examine at the End of Season

After a long season, it is normal to want to get away from coaching to rest and recover. While a brief pause in schedule can be healthy, the best coaches quickly regroup and carefully assess what went well and what can be improved. End of season evaluation should always start with a rigorous self-analysis involving four basic questions:

1. How well did I model my purpose and core values?
2. How well did I build a culture of trust and cohesion?
3. How well did I develop athletes through quality training sessions?
4. How well did I prepare athletes to perform at their peak in competitions?

Although self-evaluation provides an important basis for making decisions about how to improve, end-of-season feedback from a wide range of people is just as essential (see Figure 2). Without feedback from others, particularly athletes, it is easy to miss important clues about how to improve. In addition to asking others to share their observations, many questionnaires and evaluation tools are readily available for coaches to use or adapt (see Chapter 10 in Coaching Better Every Season).

Figure 2. Potential Sources of End of Season Evaluation Feedback (reprinted from Coaching Better Every Season, p. 233)



End of season is also the time to recognize and build on strengths. End of season ceremonies such as team banquets, senior recognitions and last practice rituals, are used to celebrate the journey and reinforce team culture. Finally, coaches should make time at the end of season to recognize their own achievements, sometimes referred to as 'strengths-spotting.' Answering this simple question at the end of the season will help you identify your coaching strengths: What was my best day of coaching this past season, and why was this my best day?

# Coach Better Every Season

(continued)

## Enhance Through Off-Season

Quality coaches use their off-season to invest in getting better. Improvement as a coach comes from closing performance gaps, building learning networks, and recharging your health and wellness. Select one or two items each off-season to study in-depth. This manageable, steady approach to learning over a coaching career is much more effective than trying to cram new ideas or make wholesale changes to your coaching all at once.

Improvement as a coach is enhanced when you have mentors and access to other coaches who are willing to guide off season learning efforts. The list of 12 characteristics for identifying ideal candidates to join your network in Figure 3 will help you build the right team to accelerate your development.

Figure 3. Checklist for Identifying Candidates for a Coach Network (reprinted from *Coaching Better Every Season*, p. 359)

- Exude positive energy and enthusiasm
- Display uncommon drive
- Work with a clear sense of purpose
- Are service and other-oriented
- Hold others accountable
- Are trustworthy
- Known for their relationship skills
- Offer frequent and genuine praise
- Show humility and gratitude
- Are good listeners
- Open to learning from others
- Show positive body language

Equally important during the off-season, you must make time to re-energize. Failing to set aside time to reconnect with family and friends, and maintain personal health and wellness, will short-circuit your coaching career and your personal life will suffer. The off-season presents an opportune time to revisit, or learn new, strategies for refilling your physical and emotional tank. A good place to start is to watch some of the free self-care videos compiled as part of the popular TED Talk series (see Figure 4).

Figure 4. Important of Self-Care TED Talk Playlist for Coaches (reprinted from *Coaching Better Every Season*, p. 363)

Title	Speaker	Length of Talk
Why We All Need to Practice Emotional First Aid	Guy Winch	17:24
The Power of Vulnerability	Brené Brown	20:19
All It Takes is 10 Mindful Minutes	Andy Puddicombe	9:24
Want to be Happy? Be Grateful	David Steindl-Rast	14:30
How to Make Stress Your Friend	Kelly McGonigal	14:28
In Praise of Slowness	Carl Honore	19:15
Got a Meeting? Take a Walk	Nilofer Merchant	3:28
Own Your Body's Data	Talithia Williams	17:03
Why Dieting Doesn't Usually Work	Sandra Aamodt	12:42

## Repeating Success

Remembering to stay focused on the topics most important during each of the four phases of a coaching cycle will help you coach at your best. Quality coaches use strategies and principles shared in this article to stay in a constant learn and adapt mode. These underlying principles provide the compass for a rewarding and long-lasting coaching experience across every season of your coaching career.

To learn more about *Coaching Better Every Season*, please [click here](#). ■

*Author Bio: Dr. Wade Gilbert is an award-winning professor and internationally renowned coaching scientist in the Department of Kinesiology at California State University, Fresno. Born and raised in Canada, he has 25 years of experience conducting applied research with coaches around the world spanning all sports and competitive levels, from youth leagues to the FIFA World Cup and the Olympic Games. He is widely published, including his recent book *Coaching Better Every Season (Human Kinetics)* and is frequently invited to speak at national and international events. Gilbert is Editor-in-Chief of the *International Sport Coaching Journal* and is a regular contributor to coaching seminars for Olympic and national team coaches.*



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# Predictive Genetic Testing

A hit or miss for athletes?

*By Angela Dufour, MEd, RD, CSSD, IOC Dip Sports Nutr, CFE  
Landon Brown, Dietetic Intern, Mount Saint Vincent University*



Predictive genetic testing is a trending scientific advancement that could assist coaches and supporting sport science staff in the development of training plans and goals for their athletes. Learning more about an athlete's genome (their genetic map) could optimize an athlete's ability to achieve peak performance by understanding more about how they may respond to specific training and nutrition interventions. This approach may not only impact performance outcomes, but can help identify if an athlete is at higher risk for injury or if they exhibit other traits that may impact training or nutrition adaptations.<sup>1</sup> There are many different (sport) genetic testing companies now popping up in the marketplace who offer easily accessible, consumer direct genetic testing, but is their information credible and are there any risks associated with genetic testing? We will review some of the current evidenced-based literature so that you can make the most educated decision on whether this is the right choice for you and your athlete.

## How they work?

Genetic tests can predict an athlete's traits by determining specific and scientifically identified genes that may impact athletic performance, nutrition, risk of injury, or other behaviours.<sup>1</sup> The weight, or value, of each gene is assessed for importance, as some genes have a larger contribution to athletic performance than others.<sup>1</sup> Some of the most common physiological traits that are related to sport performance and can be predicted by genetic testing include; muscular endurance, muscular power, strength training, risk of injury, and metabolism.<sup>1</sup> Thus, by understanding more about an athlete's genome, we can potentially improve training results by tailoring training plans that can target an athlete's area of genetic weakness/sensitivities. The same can be done with tailoring nutrition interventions. If an athlete's genome reveals certain metabolic sensitivities or physiological traits, sports dietitians can adapt their nutrition plans to meet their specific needs, necessary for achieving desired training and performance outcomes. For example, if an athlete requires improvement in muscular endurance and thus relies on the body's ability to supply oxygen to the muscles via red blood cells, it would be beneficial to have supporting information as to HOW that athlete may produce red blood cells since we know that essential vitamins (folate, Vitamin B12) and minerals (iron) are needed for red blood cell production and growth.

Many digestive and metabolic functions rely on the body's pool of certain enzymes. Genetic tests can help identify if they have the correct and enough of these enzymes required for metabolizing vitamins or minerals. This is particularly important when trying to optimize an athlete's training adaptations, as we know that having certain sufficient nutrients supports many training interventions.<sup>1</sup>



## Potential Advantages of Genetic Tests

Here are two examples that demonstrate the advantages to knowing an athlete's genome in order to tailor their nutrition plan are:

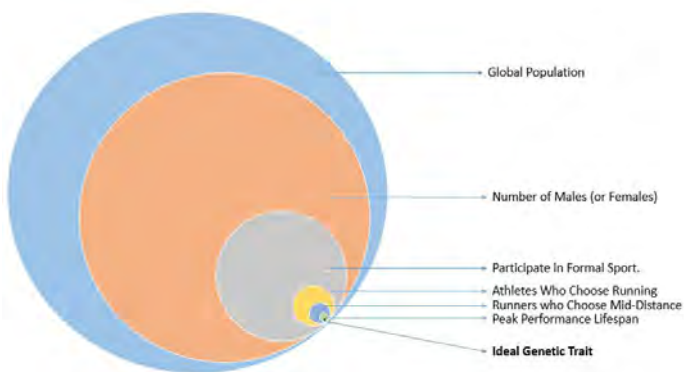
1. Athletes who rely on power for their sport have a higher concentration of fast twitch muscle fibre types that are dictated by an athlete's genetics. This can infer that they may require an increased need for dietary protein for proper recovery.<sup>1</sup> Coaches and athletes that are at risk for soft tissue injuries may want to incorporate gelatin and Vitamin C into the athlete's diet to help with soft tissue repair.<sup>2</sup>
2. Genetic testing can also assist in designing more personalized weight or body composition management nutrition approaches by identifying if they may be more susceptible to weight gain, or loss, due to their genetic ability to metabolize different types of nutrients such as fat.<sup>1</sup>

## Potential Risks of Genetic Tests

To date, some potential risks with predictive genetic testing have been identified, and we will discuss two as they may relate to athletes.

1. Many countries have laws that protect individuals from genetic discrimination, unfortunately to date, Canada does not. 3 Bill S-201 (Genetic Non-Discrimination Act) is in the development phases in parliament now and is to protect Canadians from genetic discrimination.<sup>3</sup> Without a non-discrimination act, predictive genetic testing could be abused and used as a form of talent identification.<sup>4</sup>
2. Since genetic testing is still in its infancy, there are a lot of unknowns about what other factors may impact genes and their effect on future health outcomes.<sup>4</sup> For example, scientists have previously identified genes that are associated with improved athletic performance to later discover that the same gene has an increased risk for Alzheimer's disease which may affect the athlete who was tested.<sup>4</sup>

It may be prudent to recommend genetic counselling before deciding whether or not genetic testing is right for your athlete in that particular situation, so that a more informed choice can be made.<sup>4</sup>



## Recommendations for Use

Predictive genetic tests are advised to be used only to identify an athlete's strengths and weaknesses for the purpose to help them improve training adaptations and to achieve peak performance.<sup>4</sup> Genetic testing is not meant to be used as a means of talent identification, or to have any athlete discriminated against due to their genome. To date, research supports that some genetic combinations are beneficial for sport performance, but it must be noted that not all of the potential genes have been discovered, and furthermore, future polymorphisms, or mutations, may have larger contributions to sport performance.<sup>4</sup> Finally, genetics are only one piece of the puzzle. There are many other factors that are involved with developing an athlete's potential which include, but not limited to: anthropometrics, biochemical measurements, technical skill, social, and environmental factors. Clearly there is still much more research in this innovative area of genetic testing for the purpose of tailoring athletes training programs for the enhancement of performance and recovery.

## The Potential of Being an Elite Athlete (Mid-Long Distance Running Example)

The total number of elite male or female mid-long distance runners at any given time due to environmental, social, and genetic factors is approximately 13 males and 14 females. Genetics account for only a portion of elite athletes' potential, but are only a small piece of the puzzle.<sup>5</sup> Coaching and training are required for athletes to achieve their genetic potential. The above infographic is adapted from "Olympic Genes on the Podium?" that represents the proportion of the population for each identified factor.<sup>5</sup>

## The Bottom-Line

Genetic testing remains in its infancy, with a limited, but growing body of research to support and connect genetic contributions to athletic performance. Learning more about an athlete's genome could no doubt help tailor training programs by giving coaches valuable insight and a competitive training edge, but it is important to review the current body of evidence and make an informed choice whether genetic testing is right for you and/or your athlete in a given situation, before you invest. ■

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# Psychological Literacy - A new term or old concept?

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In sport psychology circles, consultants often come across very talented young athletes who show a great deal of potential in sport. The problem is that once a failure or challenge is presented, some of these talented young people do not know how to cope. As researchers, we wondered why this was happening. Then it hit us – sport skills are being developed, taught, and refined but the effort to teach psychological skills has been thrown by the wayside. Which skills are developmentally appropriate to teach through the Long Term Athlete Development (LTAD) model and how?

## **LTAD & Psychological Literacy**

The LTAD framework, created by Canadian Sport for Life (CS4L), outlines the development of physical skill and activity levels over the lifespan. The model is used to assist everyone from young children learning to use their bodies, to athletes at the highest level training for international competition, to older adults looking to maintain active lifestyles. The 'FUNdamentals' stage of the LTAD model refers to male athletes ages 6-9 and female athletes ages 6-8. The focus during this stage is on general movement patterns and overall development as well as the introduction to concepts such as fair play, while ensuring activities remains fun and enjoyable. The 'Learn to Train' stage targets male athletes ages 6-12 and female athletes ages 8-11. This stage is centered on general sports skill development through the introduction of sport specific training and periodization. All basic sport skills should be learned prior to or

during this phase. One thing seems to be missing though - the LTAD framework places an emphasis on physical development but what about psychological development? How is this developed through the LTAD phases? Sport organizations have placed a huge emphasis on how physical skills are developed but what coaches and administrators have failed to realize is that psychological skills (i.e., psychological literacy) also need to be developed for children to be able to perform and cope with disappointments that are experienced in sport.

We used theories from classical psychology to try to help us understand more about children and youth and then did a study with kids in the 'FUNdamentals' stage and the 'Learn to Train' stage of sport to see what they are experiencing. In total, 18 sport participants (between the ages of 7-11 years), 13 parents, four coaches, and four sport administrators participated in the study. They represented four sports: basketball, hockey, diving, and gymnastics. The parents and sport participants were engaged in focus groups and the coaches and administrators completed interviews.

How can sport help young children develop psychological literacy?

Based on our results, there are some suggestions that we have to help develop psychological literacy through the LTAD model. The process is a long one but we feel that the skills must be infused in sport much sooner than it is currently happening. Simple steps can help to make a big difference.



### 1. Let's remember that children are not mini-adults.

The children in the 'FUNdamentals' stage are not quite ready to put losses in perspective or learn life lessons. Coaches should simply start to encourage the use of mental skills, particularly imagery, at this stage. Coaches and parents should provide simple debrief techniques to focus on a specific experience in sport. For example, if there is a failure, the adults should ask the child or participant how they feel, acknowledge that feeling, and then help them to think of a positive event that happened as well. There is no need yet to 'put things in perspective'. Administrators need to provide workshops to coaches and parents about how to help children cope with failures and how to move forward in a positive and healthy fashion.

### 2. Psychological literacy skills need to be practiced and encouraged throughout development.

Once children are in the 'Learning to Train' phase, they are developing coping skills and starting to understand perspective with joys and disappointments. They need to continue to develop their mental skills. Coaches can continue to teach imagery skills but also need to build the participants' 'mental tool box' including self-talk awareness in practice and competition. Coaches and parents can continue to learn debriefing techniques that could include links to life skills development. Finally, sport administrators should hold yearly meetings with coaches to provide information about mental skills and coping as well as support.

### 3. There is no need to "re-invent the wheel".

The classical theorists, like Piaget and Vygotsky, have already done the work years ago. The information about child and youth development is there but it is up to us to apply it to sport development. We need to know more about what children and youth are going through at various stages so that we can help. Coaches have a number of resources available to them. There are a couple web-based, free resources developed by Canadian researchers that could help coaches teach mental skills ([www.sportpsychologyforcoaches.ca](http://www.sportpsychologyforcoaches.ca)) and youth development ([www.projectsore.ca](http://www.projectsore.ca)). Learning the appropriate time to introduce psychological concepts in sport is a crucial piece to athlete development and coaching education. Understanding what children and youth are ready to learn at each stage can help develop specific strategies within sport and a more holistic and healthy approach to sport development.

Given the increased realization of the importance of mental wellness in sport, psychological literacy is essential for both peak performance, but also long-term mental health. Our hope is that discussion of this concept will help coaches, parents and administrators engage in processes to assist athletes with the development of psychological literacy; an essential skill for both sport and life. Although the concepts might be old, a new and fresh approach is needed so that sport participation can truly be a vehicle for teaching positive life skills. ■