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Preventing doping in sports



English translation of *Je performe sans drogue – Guide de l'entraîneur*

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INTRODUCTION	

Yesterday and today

Whether by mere survival instinct or for social recognition, humans have always tried to assert their superiority over fellow humans. Physical, athletic, and sporting performance is a way of reaching that goal. With the Ancient Greeks, sporting competitions held during religious festivals showed how important appearance and physical and athletic performance were for staying healthy, protecting society, and earning social recognition.

Today the celebration of sporting performance by the media helps build up sporting figures as symbols of social success. Increasingly large, strong, fast, and muscled athletes dot our sporting landscape, and the best are virtually guaranteed that their exploits will bring them wealth. The beauty of the male and female body is also front and center in the media, which bombards us with images of models or artists with bodies sculpted in living flesh. Imitating these athletes and stars becomes for many a test of their social worth.

From magic potions to natural or animal-based products that bottle immortality, humans have a naive faith in whatever gives them strength, power, intelligence, beauty, health, and eternal life. Using ergogenic substances—even those prohibited—to improve appearance or performance is therefore a natural aspect of most people's behavior.

Doping and the image of sport

The standards by which athletes measure themselves are so high that only a select few can ever attain them. Blinded by the desire to win, many turn to prohibited products to achieve their goals. The money or recognition at stake, the prestige of the event, and the need to win are increasing factors in high level competition. Athletes can gradually lose sight of their original objectives, such as enjoying themselves, and give in to an all-encompassing desire to win. This increases the likelihood that they will resort to prohibited products. Few sports have escaped this plague.

Athletes found guilty of doping regularly make the headlines. Nagging doubt seems to have arisen that all high-level athletes dope and that no one

can win without drugs, a perception that can destroy the image we have of sport as a socially and personally beneficial activity worth of encouragement. It is up to the sporting world to change this perception.

Doping: a question of choices and values

A number of reasons—curiosity, peer pressure, or the belief that they cannot win without artificial help—can explain why athletes try or regularly use doping substances. The fact remains, however, that doping is a personal choice. Even with awareness or prevention programs in place, the athlete may still dope out of sight.

Values influence personal choices. From birth, children acquire values they constantly compare with those of society. It is through this dynamic that young athletes take their place in the world of sports and encounter its values. The interaction is thus threefold with personal, sporting, and social values crisscrossing and intermingling to change or strengthen the personal values that help the athletes define their vision of sports or society.

The choice: respecting the values of sport

Though the fundamental values of sport (education, socialization, respect, ethics, health, etc.) remain unchanged for the public, the sporting environment causes athletes to continually revisit these values. Athletes' original beliefs are sometimes distorted by new situations or special circumstances over which they have no control. Thus it is that in a system that advocates winning at all cost, violence, cheating, and doping sometimes seem justified.

Doping undermines social integration through sport and helps destroy the values we attach to it. Athletes need help saying no to doping at all stages in their development. Resisting doping requires the concerted effort of a variety of people, those who guide the athlete's development and value sportsmanship.

A guide for coaches

Coaches are the common denominators in athletes' lives, the people who are there from their

first forays into sport until the attainment of the highest summits. Whatever their level of involvement, coaches can use their considerable influence to make major contributions to doping prevention. It is important that they keep up their efforts, because the very foundations of sport are at stake. This guide is mainly intended for coaches, but is also for all people wishing to get involved in doping prevention. The target audience is young athletes in general, not just elite Québec and international athletes. From a prevention perspective, athletes must be introduced early to the importance of good sportsmanship.

The guide provides information on problems associated with the use of performance-enhancing products. It also discusses physical appearance and so-called social drugs. Coaches will find information on both, as well as on products, their effects, and factors leading to their use.

The guide is also a tool for examining the foundations of sport, the values we attach to it, and how sport fills a social role. It also describes the side effects of various products and the stakes in the fight against doping, namely the protection of the institution of sport.

Lastly, the guide is a support tool for coaches wishing to help athletes. Through the advice given, coaches can learn how to interact better with young athletes under their care.

It is therefore important that people involved in sport take this guide to heart. A real solution to doping requires sporting models built around true sporting values. All stakeholders have a responsibility to protect these values so that sport can continue to fully serve its social role.

THE PHENOMENON OF DOPING

Doping and its causes

The International Olympic Committee (IOC) has recognized doping as the number one enemy of sport and has vowed to wage all-out war on the problem. The international sporting community has also undertaken to combat this plague. For its part, the Government of Québec has lent its support to the Déclaration de Libreville in which the minister members of the Conférence des ministres de la jeunesse et des sports des pays d'expression française (CONFEJES) made the fight against doping a priority in the French-speaking world.

Doping can be defined as the use prior to or during sporting competitions of a substance or method prohibited by sporting officials and intended to artificially enhance athletic performance. The World Anti-Doping Agency (WADA) and the IOC have drawn up a list of banned substances and methods.

Borne out of the athlete's excessive will to win at all costs and be seen as the best, doping has become more widespread because of a number of factors. Over the last few decades, society has undergone profound changes that have made doping more and more prevalent in contemporary sport. This phenomenon is very complex as it involves a number of causes and factors that do not originate solely in the sporting world. Parallels are sometimes drawn between the problem of doping in sports and the use of medications and food supplements or the consumption of alcohol and social drugs.

DOPING IN HIGH-LEVEL SPORT

Advances in science have led to the development of new medications to treat diverse health conditions. Some medications, however, are not used as intended but rather to improve various aspects of an athlete's performance. Science also makes it seem as though the creation of new antidoping tests constantly lags behind the creation of new doping methods.

Political propaganda in many countries that use sport as a tool for exalting the merits of their system has encouraged doping to spread. This situation has led to aberrations such as those

brought to light following the fall of the Berlin Wall, revealing that doping was a state-run system in East Germany.

The expansion of sport has entailed an astronomical increase in the prize money and salaries awarded to athletes. In the increasingly mercantile world of sport, wealth is no longer the exclusive preserve of professional athletes. The idea of amateurism has evolved to the point that Olympic athletes can also turn their performances into cash.

The demands of high level sport increase constantly. Over the last few decades, remarkable progress in training methods and sporting equipment has pushed back the limits of performance ever further, increasing the effort required to attain or continue at such a high level. With records constantly being smashed (with or without the help of prohibited products), the bar of performance is constantly being raised. The public, the media, the athlete's circle, as well as those with financial interests all exert enormous pressure. To maintain such a high level of performance, athletes must contend with the following:

- > The need to win
- > A competition schedule and training load (frequency, duration, intensity, etc.) leaving little room for recuperation
- > An increased risk of injury due to overtraining
- > The need to compete despite injuries

DOPING IN YOUNG ATHLETES

The influence of high level sport can be felt at lower levels. Viewed from a winning and profit-making perspective, sport is less of a funtime activity and less educational and formative than we presume it to be. Organizers, coaches, parents, or the athletes can themselves reproduce the same conditions that lead to doping in high level sport. Young athletes are also very influenced by their idols, whose sporting feats they want to imitate, and sometimes adopt their attitudes and behaviors toward products that improve performance.

Peer pressure is also an element to consider as the social group is of primary importance during adolescence. Often, friends are poorly informed

about doping products or nutritional supplements, or have never questioned their medium or long term effects. The social circle also makes it easier to come into contact with substances like alcohol or cannabis. Adolescent curiosity and a desire to fit in can encourage the use of these products.

Physical appearance is very important to young people. Even among athletes, a number use products such as creatine or steroids solely to improve their physical appearance. The use of these products—especially creatine, which is not prohibited—raises no ethical questions in youth since most of them do not have to submit to antidoping tests at their level of competition.

Contemporary consumer habits often desensitize us to all the products and medications we use to nourish or care for ourselves, lose weight, stay awake, etc. We often place a lot of faith in the claims of these products. The ease with which we can freely purchase certain food products or medications even though they may contain substances prohibited in competition encourages poor consumption habits. Many people do not use products as they are intended. The same thing goes for the recommended dose—they think that if a product is good, its effect will be even stronger or more beneficial if they increase the dosage.

The marketing of products to improve performance or physical appearance encourages young people to use doping substances. The information conveyed by the media, including on the Internet, is often lacking in terms of real side effects, user safety, and product makeup.

Doping is not just for the elite!

It is wrong to associate doping in sports exclusively with high level athletes. The phenomenon of using products to improve athletic performance also occurs at lower levels. To document the situation in Québec, the Secrétariat au loisir et au sport (SLS) conducted a vast study from October 2000 to April 2001 of 3,573 athletes competing at different levels, entitled *Étude de l'éthique, du dopage et de certaines habitudes de vie chez des sportifs québécois*.² Among the respondents, whose average age was 15.5 years, 37% were on the Québec Team in their sporting discipline (in the Excellence, Elite, New Talent,

and Hopeful categories). The other subjects participated in civic or school organizations.

Tables 1 and 2 contain the study results on the use of certain products. Subjects were asked the following question on the products, substances, and methods being studied: Have you used the following substances, methods, or products over the last twelve months to improve your athletic performance? Subjects had a choice of answers: 1) No, 2) Yes, but I no longer use it, 3) Yes, but I rarely use it, 4) Yes, I use it occasionally, and 5) Yes, I use it regularly. To be considered a user of a particular product, the subject must have chosen 2, 3, 4, or 5, which would indicate that he or she had used the product in question at least once over the twelve months preceding the study.

Table 1. Percentage of users of prohibited products— IOC list	
Alcohol	11.5 %
Narcotic analgesics	1.1 %
Amphetamines	1.5 %
Beta-blockers	1.3 %
Cocaine	2.2 %
Diuretics	1.0 %
Ephedrine (Sudafed)	6.4 %
Erythropoietin (EPO)	0.8 %
Growth hormones	1.2 %
Marijuana	7.7 %
Anabolic steroids	1.0 %

Source: *Étude de l'éthique, du dopage et de certaines habitudes de vie chez des sportifs québécois*² (no. = 3,573)

The study confirmed that certain Québec athletes were using prohibited substances. Amphetamines, anabolic steroids, growth hormones, erythropoietin, diuretics, and beta-blockers, which are more often associated with elite athletes, seem to have found takers among athletes of lesser caliber. To these substances can be added ephedrine—found amongst others in the product Sudafed—whose popularity is linked to the revelations of NHL players that they regularly take it before their games. It is reasonable to conclude that professional athletes have a big influence on young athletes. Significantly, the most popular products—alcohol, marijuana, and even cocaine—are considered social drugs. Even if one can assume that the first contact with these products occurred in a context other than sports, the fact

remains that their users seem to believe that they can help them improve their performance.

Table 2. Percentage of users of food products	
Coffee, chocolate, and cola (caffeine)	40.0 %
Protein supplements (creatine)	11.5 %
Vitamin supplements	26.6 %

Source: *Étude de l'éthique, du dopage et de certaines habitudes de vie chez des sportifs québécois*² (no. = 3,573)

Among the most popular products used by respondents to improve their athletic performance are food products containing caffeine as well as nutritional supplements. Caffeine is considered a stimulant and its use is subject to restrictions. The substance can be found in products such as coffee, chocolate, and cola-type soft drinks. It would, however, require massive consumption of these products to cause a positive antidoping test. It would appear nevertheless that many athletes, counting on the stimulative effect of caffeine, boost their consumption level during competitions. Nutritional supplements are also quite popular. Even though their use is not prohibited in sport, they still pose a number of ethical and health questions for sporting officials. The use of creatine to improve physical appearance is also discussed in this guide.

Factors leading to doping and preventive measures

The SLS study² analyzed a number of variables that could have significantly influenced the reasons for doping and the behavior of young Québec athletes. Three factors were found to be the most influential: positive attitudes towards

doping, positive social norms with regard to doping, and athletes' perceptions of having little control over their behavior. The measures that can fight doping require the involvement of sports figures at all levels.

MAIN FACTORS INFLUENCING DOPING IN QUÉBEC ATHLETES AND PREVENTIVE MEASURES TO CONSIDER

<p>Positive attitude to doping</p> <p>The more athletes feel that doping has more benefits than drawbacks, the more likely they are to dope. Athletes consider the effects of a product on their health, whether it will improve their performance, and whether this will increase their chances of winning, of becoming a member of the Olympic team, or making a living as a professional athlete.</p>	<p>Changing the athlete's attitudes</p> <p>The athlete must be encouraged to develop a positive attitude so that he or she realizes that the benefits of not doping outweigh the disadvantages. Athletes must be made aware of the importance of respecting the values of sport and good sportsmanship, as well as the harm caused by doping.</p>
<p>Social norms conducive to doping</p> <p>If athletes notice that the most important people in their lives—their coaches, teammates, friends, family members and, in some cases, team doctors—believe that they should resort to doping, they will be more inclined to do so. Sports stars can also have a big influence on young people.</p>	<p>Cooperation from the athlete's circle</p> <p>Changing athlete attitudes can work if all parties directly or indirectly involved with the athlete take a negative view of doping. The coach and other influential people in the athlete's circle must help create an environment where doping has no place. Sports stars who take a stance against doping are another way to foster positive attitudes in athletes.</p>

The feeling they have little control over their behavior	Improving the athlete's environment
<p>Athletes may not want to dope, but may be in a setting that is conducive to doping. They may feel that they have little control over the decision to dope.</p> <p>A number of internal factors influence athletes: a) their abilities, like the perception that they are not as skilled as the best in their discipline or that they have reached the limit of their capabilities, and b) their emotions, like the all-encompassing desire to be among the best in their sport.</p> <p>The negative image of high-level sport increasingly gives the impression that a) performance and records are largely the result of doping, and b) antidoping controls do very little, so doping is a way of getting results. The risk of doping increases if athletes feel that their performance does not depend solely on their abilities and that doping will help them participate on an equal footing with opponents who dope.</p>	<p>Certain measures can be put in place in athletes' immediate environments to give them the sense that they can improve without resorting to doping. If athletes' immediate environments offer proper training aimed at improving each aspect of their athletic performance (training plan, physiological aspects, diet, psychology, medical followup, etc.), they will have the confidence they need to succeed without doping.</p> <p>Certain measures are up to the heads of sporting organizations (federations, major leagues, Olympic committees, etc.). They have a responsibility to change the unhealthy perception that doping is a way for athletes to get results and compete on an equal footing. If athletes sense that their ability is no guarantee of performance, they will feel that they have no control over doping. Other athletes and the decisions they make about using doping substances influence their perception, as do sports officials who fail to take action against athletes who dope and who encourage winning at all cost.</p>

COACHES AND DOPING

The coach's role in the fight against doping

THE COACH: AN INFLUENTIAL PERSON

Many studies have demonstrated the big influence coaches can have on young athletes. Even though their main role is to develop the athlete's abilities, coaches are also teachers, role models, and counselors—teachers because they instill values in young athletes; role models because their behavior is worth imitating and their sporting abilities worth admiring, and counselors because they serve as confidants for the athletes under their care.

THE RESPONSIBILITIES OF THOSE INVOLVED IN THE FIGHT AGAINST DOPING

International sporting organizations develop and implement doping regulations, which national sporting organizations enforce at all levels in their respective countries. Sporting organizations must also provide stakeholders and athletes with information about antidoping policies as well as the support they need to prevent doping, intervening as required.

Though athletes are the people affected by it, the Canadian Policy on Doping in Sport³ also targets sports organizations and stakeholders. The policy lays out Doping-related infractions (Section 3 h) by individuals or sport governing bodies whose actions condone doping. A number of behaviors are subject to sanctions, notably condoning the use of banned substances, counseling or advising others to use banned substances, as well as securing, supplying, administering, or selling them. Sports organizations and coaches are therefore responsible under the terms of the policy.

COACHES MUST GET INVOLVED

Whatever the level of competition, coaches can play a prominent role in doping prevention and make their positive influence felt in a number of ways.

- Coaches can take a stance by
- > Promoting good sportsmanship
 - > Speaking out against doping

- > Informing others about the risks of doping and the stakes involved

Coaches can prevent doping by

- > Respecting the rules of good sportsmanship
- > Encouraging athletes to have fun while still improving their abilities
- > Setting realistic individual and team goals that do not focus solely on winning
- > Involving the athlete's circle
- > Offering proper training

Coaches can help athletes by

- > Teaching them to show good sportsmanship
- > Banning the use of doping substances or drugs
- > Watching for problems and taking action as needed
- > Getting help from qualified specialists when necessary

THE COACH: NOT JUST A SPORTS TECHNICIAN!

Coaches must take a negative view of doping and share that view with their athletes. By being well-informed, coaches can provide valuable information on doping and explain to athletes why they are against it and will not tolerate it. By creating a healthy environment based on good sportsmanship, providing training conditions that respect individual abilities, and setting realistic goals, coaches can fight the "win at all cost" attitude that leads to doping. Through their ties to other specialists (nutrition, physical fitness, drug addiction, etc.), coaches will be able to keep their athletes informed while having access to a network of useful contacts as needed.

Even if doping ultimately remains the athlete's choice, coaches can play an important role in preventing it. A coach who places little importance on safeguarding the values of sport is not someone working for the athlete's best interests—he or she is just a sports technician. Coaches can help citizens become better athletes. They can also help athletes become better citizens.

Tools for coaches

This section of the guide is to give coaches the knowledge and tools they need to help their

athletes. It contains information on the various aspects of doping and suggests ways of bringing the subject up for discussion with players. When coaches know how to broach the issue, athletes have a better chance of knowing why and how to say no to doping.

MODES OF INTERVENTION

Awareness and information

From a prevention perspective, it is important that athletes be well informed about the problem of doping and aware of its social, sporting, and health effects. Often, the information young people get is distorted by those who profit from doping. A number of harmful myths therefore continue to circulate among youth. This is why proper information and promoting drug-free sport are so essential.

The development of decision-making abilities

Doping ultimately remains the athlete's choice. However, coaches can help athletes develop capacities to make smart choices in tough situations. Athletes also have an obligation to protect the institution of sport and their own health.

Intervention in case of doping

Coaches can get involved if they suspect an athlete of doping. Their job is to educate athletes about sport's moral values and the importance of respecting antidoping rules and protecting the institution of sport. Coaches can seek help from their federation whenever they feel they need it.

GENERAL ADVICE ON DISCUSSING DOPING

Communication is the coach's main tool in the fight against doping. Even though athletes may have very busy competition and training schedules, the coach should set aside a few moments to discuss doping with them. Downtime after training sessions and trips may prove very useful.

Preseason meetings with players or parents are also good opportunities to hand out information and discuss doping. The following guidelines can help coaches during doping-related meetings:

- > Be convinced, convincing, and methodical
- > Prepare in advance and bring the resources needed
- > Get sports associations, administrators, and parents involved

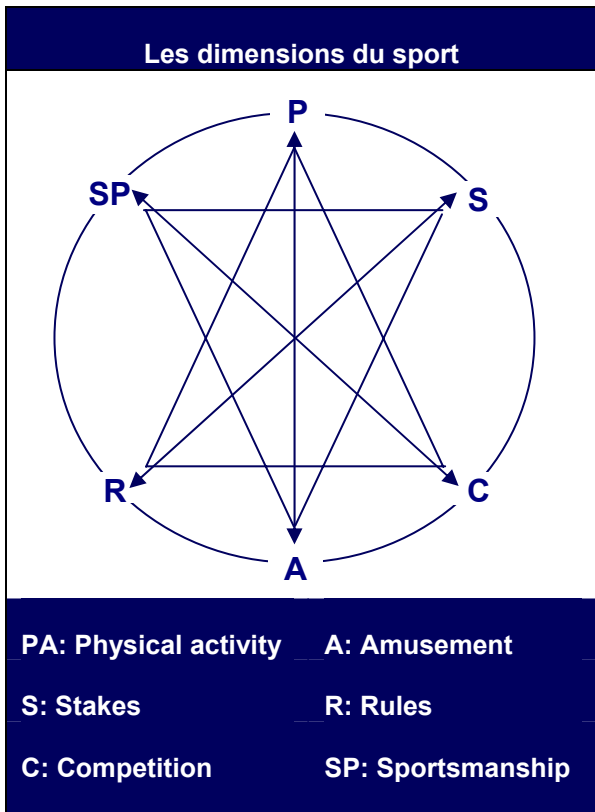
- > Consider inviting resource people (see the "Resources and Organizations" section). The participation of a renowned athlete to explain what sport represents to him or her and why he or she doesn't dope sends a powerful message.
- > Choose the best spot for getting everyone's attention
- > Encourage everyone to participate
- > Speak frankly without hiding the truth
- > Be attentive and sensitive to the athlete's situation
- > Get everyone on board by showing them that they all have a role to play in making sport a vehicle for positive values

SPORT AND ITS VALUES

Sport: What is it?

Sport is a complex social and cultural phenomenon that many authors have tried to define. Historian Donald Guay managed to conceptualize it using an empirical method. By setting aside athletes' motives and intentions, he uncovered the endogenous (something arising from an internal cause) properties to which sport owes its existence and uniqueness. He thus defines sport as

“A competitive, amusing physical activity that is played for stakes according to given rules and in a particular spirit known as good sportsmanship, which balances the desire to win with the idea of fair play.” (D. Guay 29, p. 100)



PHYSICAL ACTIVITY

“Whatever the sport, one always observes gestures, i.e., voluntary and standardized movements of the body or its parts in time and space that are specific to each sport.”²⁹

COMPETITION

“Physical activity is essentially competitive. Those who participate want to take the measure of their abilities to judge their respective value and thus know who is the best. All competition requires a winner and a loser. The very reason competition exists is to determine a winner.”²⁹

STAKES

“Competition is borne out of rival claims on the same stakes. Each competitor is determined to win, to take home the honor, prestige, satisfaction, money, etc. that come with victory. Without stakes, competition would lose all meaning, its reason for being.”²⁹

AMUSEMENT

“The fact that sports are competitive does not mean there is real conflict between the competitors. Sports are a playfight, a simulated combat in which adversaries battle for reasons other than personal animosity. Even though there may be a strong rivalry between opponents, competition is not tragic; on the contrary, it is looked forward to as it is only a game.”²⁹

RULES

“Since sport is a competition motivated by stakes, it is essential that adversaries be bound by the same rules to keep variables that could favor one side to a minimum. Only the players' talent must determine the winner.”²⁹

GOOD SPORTSMANSHIP

“Good sportsmanship is a sporting mentality with values to orient and guide the attitudes and conduct of athletes. It is a code of ethics based on equity, the desire to win, and fair play. Good sportsmanship is the desire to triumph, but to do so fairly so over a worthy adversary.”²⁹

The values of sport

Sport holds an important place in contemporary society. Indeed, a large part of the population plays at least one sport. Parents generally want their children to take up sports. The various levels

of government invest in programs and facilities to encourage sports participation at all levels. Sports organizations and officials expend a great deal of effort to support and train athletes.

It is therefore important to consider the reasons for society's interest in sports, specifically what causes people to play sports, and why playing them is encouraged.

REASONS FOR PLAYING SPORTS

People who take up sports do so mainly for one or more of the following reasons:

- > **Pleasure:** For many people, pleasure is the chief reason for playing sports. As participation is voluntary, a lack of pleasure will inevitably lead to the activity being dropped.
- > **Fitness:** Many people know about the benefits of regular physical activity on their health and play sports to stay in shape.
- > **Social aspect:** For some, sports help make it easier to meet other people and share rewarding experiences.
- > **Competitive aspect:** For people who like to test their abilities, sport motivates them to train and improve.
- > **Personal achievement:** Sport allows committed athletes to meet objectives they have set for themselves and reach the limit of their capabilities.
- > **Risk-taking:** Over the last few years, there has been a notable trend towards so-called extreme or high-risk sports, or playing other sports in a more risky, less structured way.

REASONS FOR ENCOURAGING SPORTS PARTICIPATION

Sport has an important social role. Currently, two main values stand out when we talk about what sport offers society: health and education. To these values can also be added feelings of pride and admiration for the exploits of elite athletes.

Health

Contemporary society values the positive effects of sport and regular physical activity on people's health. Staying active reduces illnesses caused by a sedentary lifestyle and improves one's physical and psychological wellbeing. With an aging population, youth who are less active, and new technologies that place very few physical demands on us, sport becomes an important

weapon in the fight against sedentary lifestyles and disease.

Education

Sport serves an important educational function for developing and maintaining attitudes and behaviors that prepare youth for life in society. Sport is a socialization tool to help youth build character, improve self-esteem, and form ideas of respect, discipline, teamwork, effort, and perseverance that will serve them well for the rest of their lives.

Is sport still relevant?

Whatever the reasons people have for playing sports or promoting them, they feel sport has multiple purposes and can play a positive social role in their lives. On the other hand, sport itself is neither good nor bad. The role sport fills depends on what athletes and sports officials do with it. We must therefore examine the factors that could change our positive opinion of sport.

Historian Donald Guay²⁹ describes sport as a balanced star made up of six inseparable dimensions that set the tone for sport in general and give each sporting discipline its unique character. As a system, sport also comes into contact with the outside world and is inevitably influenced by the social, cultural, economic, political, and technological factors at work in it. Sport's dimensions, however, are harmoniously interdependent, meaning they self-regulate to prevent one from reaching a critical mass. The system can be knocked out of sync or even blown apart if too much focus is placed on a given dimension.

For those for whom amateur sports or the Olympic spirit is a reference point, sport no longer fills a positive role when it leads to situations where its essential dimensions are flouted by—

- > Deficient or partisan application of the rules and regulations
- > Low morale that negatively impacts respect for the rules and the notions of fairness and fair play
- > Not respecting one's opponent and treating him or her in an unsportsmanlike way
- > An exaggerated focus on winning as the only acceptable outcome

Resorting to doping, cheating, violence, and intimidation thus negates the values of sport and

the spirit in which it should be played. It is important that all players and sports officials be aware that sport fills a social role and that it is their responsibility to ensure that it can continue to do so.

ADVICE TO COACHES

Focus on the positive values of sport

Ask your players (and their parents) why they are interested in sports. Discuss the values of sport, those they wish to achieve, and those you want to promote. You may talk about the following points:

- > Is winning the only acceptable result?
- > What reasons could make an athlete quit or cause a parent to pull his or her child out of sports?

Discuss the importance of rules

Ask your athletes to imagine sports without rules and then explain why it is important to respect them.

Discuss the importance of ethics

Ask your players to define good sportsmanship and compare their responses with the Charter of Good Sportsmanship. Talk about the need to show sportsmanship.

Define the objectives

Set realistic individual and team objectives with your athletes that embrace sporting values and are not based solely on winning.

CHARTER OF GOOD SPORTSMANSHIP *

Showing good sportsmanship means

- 1 > Obeying the rules
- 2 > Respecting your opponent
- 3 > Respecting the officials
- 4 > Caring about fair play
- 5 > Maintaining your dignity
- 6 > Working hard and persevering

* The detailed chart is included in the Appendix.

WHY WE SHOULD FIGHT DOPING

Doping can be defined as the use prior to or during sporting competitions of a substance or method prohibited by sporting officials and intended to artificially enhance athletic performance.

Sport is the sum of its components, and playing sports has meaning to the extent that it allows people to achieve individual and collective objectives. By definition, doping and doping-related attitudes are incompatible with sport and its values. The fight against doping is therefore based on two principles:

- > Doping goes against the spirit of sport
- > Doping undermines the benefits of sports

Doping goes against the spirit of sport

DOPING BREAKS THE RULES AND ETHICS OF SPORT

Rules are an essential part of sports. Each sport has a body of rules that dictate how the game is played (scoring, equipment, playing field, etc.) and spell out participation criteria (age, category, weight, etc.). These rules protect athletes by making sure everyone participates on an equal footing. For example, for reasons of fair play (and safety), a heavyweight boxer or judoka cannot fight a featherweight opponent, just as two opposing soccer teams must have identically sized goals. Doping is above all a breach of sporting rules and ethics. It is prohibited because it gives athletes an unfair advantage over the other competitors.

Without rules, there would be no sport!

DOPING IS A BREACH OF CONTRACT

Playing sports means accepting certain rules, like in a contract. No one is forced to play, but all who do must obey the rules. Doping violates that contract and betrays the athlete's commitment to his or her sport and fellow competitors.

An athlete has responsibilities!

DOPING IS NO WAY TO BE THE BEST

Sport is full of challenges and playing sports helps us explore and test our personal limits and capabilities. Through competition, we measure

and celebrate sporting excellence and what is best in all of us. This cannot be achieved through illegal methods. Victory is more than just beating one's opponent, and the champions who earn our admiration never cheat by doping.

Excellence means winning by the rules!

Doping undermines the benefits of sports

DOPING THREATENS PERSONAL DEVELOPMENT

Sport is also considered a tool for personal development, a learning experience that teaches valuable lessons and helps develop values—including honesty, respect for the rules and others, teamwork, perseverance, and self-esteem—that prepare us for life in society. To benefit from this enormous formative and educational potential, sport should be played, taught, supervised, and encouraged in the true spirit of good sportsmanship.

Doping goes against the very values of sports!

DOPING THREATENS YOUR HEALTH

Sport is a tool in the fight against sedentary lifestyles and the illnesses associated with them. The fight against doping also aims to protect the health of athletes and preserve the benefits gained by playing sports. The dangers associated with the use and overconsumption of certain doping products are sufficiently well documented to dissuade athletes from using them. The side effects of doping can range from minor discomfort to permanent, irreversible damage, and, in some extreme cases, death.

Many people campaign for the legalization of doping in sports in the name of free choice. But if doping were legal, it would be like asking athletes to place their health at risk just to compete at the same level as those already doping. If you dope, you put your health at risk!

The conclusion : doping is a threat to sport

In society, sport is mainly a way of meeting personal objectives (physical fitness, pleasure,

personal achievement, etc.) and social objectives (health, education, etc.). The social contributions of sport justify its existence. The positive role it plays is the reason why so many people play sports, why parents encourage their children to take them up, and why governments support sports organizations and promote participation.

On the other hand, sport is what we allow it to be. It can sometimes give rise to negative behaviors of cheating, violence, or even political partisanship that tarnish its image. Each time an athlete is caught doping, it discredits sport and the values we attach to it. Doping undermines the trust people place in sport as a tool for health and training. Doping threatens the very institutions of sport. Accepting doping can only destroy the image we have of sport and lead inevitably to its demise.

Each person involved in sport has a responsibility to protect its image and values. It is up to all of us—athletes of all levels, coaches, officials, medical personnel, and parents—to fight doping. Everybody must play a role to foster a sporting environment based on positive values to help athletes develop not only at an athletic level, but also at a personal and social level.

Doping: There's nothing sporting about it!

ADVICE FOR COACHES

Make your athletes aware of sporting values

Go over the principles that underpin the fight against doping.

Instill a sense of responsibility

Attune your athletes to the fact that each of them has a role to play in upholding the institution of sport. Have them draw up a contract they agree to sign and respect. Compare it to the suggested *Athlete's Contract* in the Appendix.

DOPING PRODUCTS

Doping substances and methods

Doping can be defined as *the use prior to or during sporting competitions of a substance or method prohibited by sporting officials and intended to artificially enhance athletic performance*. The World Anti-Doping Agency (WADA) and the IOC have drawn up a list of banned substances and methods.

Doping is largely the improper use of certain medications in order to improve athletic performance. Doping substances tend to be medications that are used to treat various illnesses or ailments and can normally only be obtained with a doctor's prescription. Other substances, however, can be found in over-the-counter medications or even in food products.

There are five classes of illicit substances:

- > Stimulants
- > Narcotic analgesics
- > Anabolic agents
- > Diuretics
- > Peptide hormones, mimetic & analogues

There are also prohibited doping methods:

- > Blood doping, which consists of a blood or red blood cell transfusion to increase an athlete's aerobic capacity
- > Pharmacological, chemical, or physical manipulation of urine (substances or methods that can affect the integrity of a urine sample and compromise its validity)
- > The administration of artificial oxygen transporters or blood plasma substitutes

Other classes of drugs are subject to certain restrictions:

- > Alcohol
- > Cannabinoids
- > Local anesthetics
- > Glucocorticosteroids
- > Beta-blockers
- > Medications for asthma and respiratory ailments

Categories of prohibited substances

STIMULANTS

Stimulants are substances that affect the central nervous and cardiovascular system. Athletes use them for increasing alertness, reducing fatigue, speeding up breathing, and heightening aggression. The best known stimulants are amphetamines, ephedrine, caffeine*, and cocaine.

* The normal consumption of products containing caffeine (coffee, chocolate, cola) raises no problems. A screening test will be considered positive if the level of caffeine in the urine is over 12 mg/ml.

NARCOTIC ANALGESICS

These substances are used to fight pain. They help athletes get over their pain to continue competing or training. Morphine and related substances are found in this category.

ANABOLIC AGENTS

Anabolic agents—notorious since the 1988 Olympic Games—are chemical derivatives related to testosterone, a hormone produced in the body and whose effects mimic those of natural steroids. They are used to increase muscle mass and strength.

DIURETICS

Diuretics are substances that work on the kidneys to increase the volume of urine produced, which leads to the excretion of large quantities of water. They are used for rapid weight loss and to mask the presence of other doping substances in the body.

PEPTIDE HORMONES AND MIMETIC SUBSTANCES & ANALOGUES

Peptide hormones are the body's messengers. They stimulate growth and the production of other hormones like testosterone. Among them, Human Growth Hormone (HGH) and Human Chorionic Gonadotropin (HCG) are used by athletes for their anabolic effects (increased muscle mass). Erythropoietin is a hormone produced by the kidneys that stimulates the production of red blood cells, which improves the blood's ability to

transport oxygen. This benefit is much desired by athletes in endurance disciplines.

Categories of drugs subject to restrictions

- > *The use of drugs in this group is subject to certain restrictions. It is therefore a good idea to check with CCES about their conditions of use.*

The CCES produces and regularly updates the *Drug Classification⁴ booklet*, which provides information on prohibited substances, medications that can contain these substances, as well as medications that can be used for treatment without risking a positive antidoping test. For more information on prohibited substances and methods, visit the CCES Website at www.cces.ca.

BETA-BLOCKERS

These drugs are used to treat heart disease by reducing blood pressure and heart rate. They are also used for migraines and trembling. Athletes take them for sports like archery, where it is important to be steady.

ALCOHOL AND CANNABINOIDS

These drugs are used to reduce competition-related stress.

LOCAL ANESTHETICS

These drugs are used to reduce or mask pain that can limit exertion.

GLUCOCORTICOSTEROIDS

These drugs are mainly used as anti-inflammatories. They also alleviate pain and produce euphoria.

MEDICATIONS FOR ASTHMA AND RESPIRATORY PROBLEMS

These medications may contain prohibited stimulants.

SUBSTANCES AND EFFECTS

CLASSES/PRODUCTS/METHODS	DESIRED EFFECTS	SIGNS OF USE/HEALTH RISKS
Stimulants (amphetamine, ephedrine, caffeine, cocaine, etc.)	Increases alertness Reduces fatigue Speeds up breathing Causes weight loss	Nervous agitation – Euphoria – Aggression – Loss of coordination or judgment – Weight loss – Insomnia – Muscular pains – Dehydration – Problems with heart rate – High blood pressure – Cerebral hemorrhages – Psychosis – Lung disease – Addiction
Narcotic analgesics	Reduces or masks pain that can limit exertion	Nausea and vomiting – Loss of balance or coordination – Depression – Danger of aggravating an injury – Respiratory depression – Physical or psychological dependency
Anabolic agents (steroids such as nandrolone, stanozolol, testosterone, etc.)	Increases muscle mass	Acne – Facial edema – Aggression – Oily skin – Hormonal dysfunction – Liver disease – High blood pressure – Cardiovascular problems – Transmission of infectious diseases such as hepatitis or AIDS through needle sharing – Tendon tears <u>IN WOMEN</u> Masculinization (deep voice) – Excessive hair growth on the face and body – Cessation of ovarian function and menstruation – Growth of clitoris <u>IN MEN</u> Hair loss – Breast growth – Shrinkage of testicles – Decreased sperm production – Impotence – Enlargement of prostate <u>IN ADOLESCENTS</u> Severe acne on the body and face – Premature stopping of long bone growth
Diuretics	Causes weight loss Masks the use of doping substances	Easily tired – Vertigo – Muscular cramps – Severe dehydration – Problems with heart rate – Kidney failure – Low blood pressure – Electrolyte imbalance
Peptide hormones and mimetic substances & analogues Human Growth Hormone (HGH) Erythropoietin (EPO)	Increases muscle mass Increases aerobic capacity	Breast growth in men – Enlargement and thickening of the fingers, toes, ears, and skin – Excessive growth of internal organs – Bone deformities – Diabetes – Heart problems – Thyroid problems Blood clots – Heart problems – Heart disease – High blood pressure – Cancer – Sudden death
Blood doping	Increases aerobic performance	Allergic reactions – Jaundice – Blood clots – Metabolic shock
Beta-blockers	Reduce the effects of competition-related stress Reduces heart rate	Depression – Reduced endurance – Asthma – Sleep disorders – Cardiac arrhythmia – High blood pressure – Hypoglycemic coma in insulin-dependent diabetics
Local anesthetics	Reduces or masks pain that can limit exertion	Allergic reactions – Respiratory difficulties – Cardiovascular failure – Danger of aggravating an injury
Glucocorticosteroids (cortisone, etc.)	Treats inflammation Reduces or masks pain that can limit exertion	Euphoria – High blood pressure – Cardiac arrhythmia – Danger of aggravating an injury
Cannabinoids (marijuana, hashish, etc.)	Reduces competition-related stress	Euphoria – Coordination problems – Bronchial infections
Alcohol	Reduces competition-related stress	Euphoria – Coordination problems – Addiction – Tachycardia

ADVICE FOR COACHES

Remind your athletes that doping is no way to be the best

Help your athletes learn about the ethics of doping. The rules present each player with the same obstacles, which keeps the play fair. Being the best in a sport means overcoming these obstacles while following the rules. Doping is no way to be the best. Winning is not just beating the opponent, but also developing one's full potential as a human being and athlete.

Remind your athletes about the harmful effects of doping

The fight against doping is also to protect the health of athletes. What's the point of athletes' working on their physical abilities if using a doping product harms their health? The "Substances and Effects" table can help you discuss these harmful effects with your athletes. The substances and methods listed may improve performance, but their use also entails risks. Just because a product can be bought over-the-counter does not mean it poses no threat to one's health. It is important to respect the intended use as well as the recommended dosage.

Be ready to respond to questions and arguments

A coach must have an opinion! Make sure you're up to speed on the subject of doping and how it affects your athletes. The "Questions and Answers About Doping" section can help you with your answers.

BEWARE OF ILLEGAL PRODUCTS

The distribution and—in certain cases—the use of various prohibited substances (e.g., anabolic agents and cocaine) for non-medicinal purposes constitute criminal acts in Canada and a number of other countries. Since the sale of these products is prohibited or subject to restrictions, users buy them on the black market. Most products bought on the black market are of dubious quality. They are sometimes cut with products that are toxic, which poses an additional threat to the health of users.

WHAT TO DO IF YOU SUSPECT DOPING

What are some of the signs?

Detecting an athlete who dopes is not an easy task. If it were, sports organizations would not have to continually increase the number and sophistication of their antidoping tests. In addition, most coaches in Québec are at a competition level where there are no antidoping controls.

Unless an athlete admits to doping, the coach may only suspect it based on third party information and the observation of two warning signs: side effects or a sudden improvement in performance.

SIDE EFFECTS

As illustrated in the “Substances and Effects” table, certain signs of doping show up as changes in behavior and physical appearance. For example, weight and muscle gain, severe acne, facial edema, and hair loss in men, combined with aggressive behavior, are all signs that an athlete may be using steroids.

SUDDEN IMPROVEMENT IN PERFORMANCE

It is obviously a pleasure for a coach to help an athlete develop in leaps and bounds, and to take credit for doing so. However, the coach must watch that the athlete is not using doping substances. Coaches’ experience and understanding of their discipline should help them decide whether it is reasonable to suspect an athlete of doping or whether his or her sudden improvement is instead tied to factors like a growth spurt or the improvement of his or her tactical and technical abilities.

The role of the coach

The *Canadian Policy on Doping in Sport*³ lays out behaviors for individuals (including coaches) that constitute doping-related infractions, notably condoning the use of banned substances or practices. The policy suggests that the coach has at least a moral duty to take action if he or she suspects an athlete under his or her care is doping.

Sports organizations are responsible for ensuring that athletes who will likely be tested know about prohibited substances as well as sanctions and the appeal process. An athlete who returns a positive test falls under the *Canadian Policy on Doping in Sport*³. A different approach is taken if there is no proof of doping. If the athlete has neither returned a positive test (antidoping tests may not exist at his or her level of competition) nor confessed to doping, he or she can’t be found guilty of doping and treated as such.

The coach’s main role, therefore, is to gather information on the case. He or she should find out why a third party suspects an athlete of doping, and form an opinion from his or her own observations. The coach can also check with the athlete’s circle. The next step is to talk directly with the athlete, which will help the coach determine if the athlete has used prohibited substances, intentionally or not. It will also help him or her understand the factors that may have played a part and choose appropriate measures to solve the problem. The coach must draw a distinction between the bond of trust he or she has with the athlete and the best interests and rules of sport, which may lead to inner conflict. SLS, CCES, and the coach’s sporting federation can provide advice in this regard.

ADVICE FOR COACHES

Talk to your athlete

Make sure your athlete knows that using certain substances is prohibited. Let him or her know where you stand on the issue. If your athlete is subject to testing, remind him or her that no one is safe from a positive result.

Reinforce the positive values of sport

Reread the "Advice for Coaches" section and talk with your athlete about his or her reasons for playing sports and the values of sport. Restate your reasons for opposing doping. The "Questions and Answers About Doping" section can help you turn your responses into convincing arguments.

Discuss the factors that lead to doping

Stress that sport is intrinsically beneficial. Your athlete must not give in to pressure or be afraid to fail. Tell him or her that there are many ways to improve performance without resorting to doping (see the "An Alternative to Doping" section). Place your athlete's chances of reaching high-level sport in perspective.

Make your athlete promise to do his or her part

Ask your athlete to agree to commit to respecting the Athlete's Contract. Make him or her understand that, as a coach, you cannot tolerate doping in a single athlete under your care without also risking sanctions.

Seek help from your sporting federation

If all your arguments come to nothing and you believe a doping case should be looked into, get help from your federation, which can in turn obtain advice from SLS and CCES. A coach should not take radical steps if he or she has only suspicions.

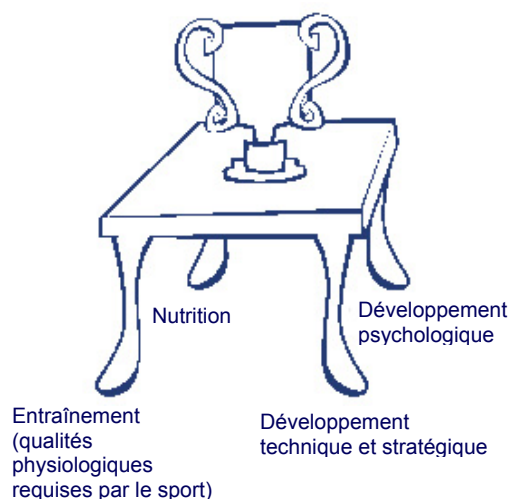
AN ALTERNATIVE TO DOPING

There's no miracle solution!

In a highly competitive environment, athletes will be inclined to ask about alternatives to doping. Obviously, there is no miracle substance approved by sports officials. It is certainly not by replacing doping products with other ones that athletes will solve the problem. Searching for so-called alternative products is psychologically the same as doping, and could eventually lead to the use of prohibited products. The coach must therefore combat this psychological dependence that can afflict athletes.

A solid table = a solid foundation for sporting and personal achievement

Four key elements underpin top athletic performance: technical and strategic development, physical training, psychological development, and nutrition. Each element is like the leg of a table on which reposes an athlete's full sporting potential. These vectors are the true alternative to doping as each one is capable of improving performance.



FINDING THE RIGHT BALANCE

The four elements in the table are indispensable for achieving high-level performance. Sometimes, certain aspects are neglected. Faced with a slump or dry spell, athletes will thus feel that they can no longer improve and may be inclined to look elsewhere to fix what's wrong. Doping behaviors frequently show up during slumps caused by overtraining or injuries.

It is therefore important to make the athlete realize that his or her performance depends on a group of factors working together. The model of a table is an easy way to get this point across. By feeling that they can improve a number of aspects of their performance, athletes gain confidence in their abilities and feel a greater sense of satisfaction. Understanding and mastering the aspects of his or her training enables the athlete to acquire the autonomy that comes from sport.

ADVICE FOR COACHES

Combat psychological dependence

Explain the four elements of performance to your athletes and the need to maximize the contribution from each. They must understand that there is no real alternative to effort, talent, and proper training.

Set objectives

Set realistic objectives with your athletes that do not focus solely on winning, but also on improving aspects of their performance. A training logbook is a concrete way for athletes to trace how they are progressing with regard to the objectives they have set. Don't forget to stress aspects where you have noted improvement.

Show your athletes what responsibility means

Emphasize that their daily habits—like nutrition, sleeping patterns, smoking, and use of cannabis or alcohol—also have a big impact on their performance.

Offer your athletes real solutions

If you only have a few hours for training per week, have your athletes continue to train with other methods, i.e., individual bodybuilding programs. Having a network of specialists in nutrition or physical conditioning (kinesiologists) to whom you can refer them may help you make up for a lack of time or knowledge in certain areas. Make sure to not ask your athletes to gain weight or muscle mass, for example, without giving them the means to do so.

BODYBUILDING PROGRAMS: PROCEED WITH CAUTION

Coaches should pay particular attention to athletes on bodybuilding programs and their training conditions. The study by SLS revealed that athletes who trained with weights, dumbbells, and bodybuilding machines were the main users of steroids and creatine.

Coaches who would like their athletes to follow a bodybuilding program should find out about training conditions and whether the supervisory personnel are qualified. They should also make sure that these people do not encourage the use of products to improve athletic abilities.

DIET AND SUPPLEMENTS

Nutritional supplements seem to be very popular with young athletes. The study² by SLS revealed that 26.6% and 11.5% of respondents had used vitamin or protein/creatine supplements to improve their performance. For some people, using them fills deficiencies caused by the great energy expenditure required during training and competition. For others, their use is linked to the ergogenic (increased capacity for bodily or mental labor) properties associated with these products. Whatever the hoped-for results, these products should be used with caution.

The dietary needs of athletes

Supplements are not a substitute for a healthy diet. Athletes who train twice a week in addition to participating in a competition can meet all their nutritional requirements with a balanced diet that follows the recommendations of the *Canadian Food Guide*⁴⁶. The additional energy requirements of athletes with strenuous training loads can be met by increasing portions from each food group. Before taking supplements, athletes should first ask a nutrition specialist whether their diet is adequate and whether their training load justifies it.

To be used with caution

Vitamins and minerals are already present in sufficient quantities in a healthy diet. Though certain vitamins obtained from supplements can be stored in the body, those that are taken in excess may prove ineffective (e.g., eliminated in urine) or even harmful if the dose is too high. When excess protein supplements are consumed, the surplus is transformed into adipose (fatty) tissue. Too many people do not respect the recommended dose, thinking that if a product gives results, taking twice as much will give even better results. This is one of the dangers that confront young athletes who take supplements.

With creatine, a number of side effects have been reported, including weight gain without a noticeable increase in muscle mass, joint stiffness, abdominal cramps, and, in the long term—depending on the dosage and a person's health and physical condition—metabolic imbalances and kidney problems. For these reasons, **the use of**

creatine is not recommended for children and teenagers who are still growing.

The nutritional supplements market targets young athletes in particular. Numerous studies have raised doubts about the purity of certain nutritional supplements available in stores or over the Internet. Illegal substances and anabolic agents have been found, as well as stimulants and diuretics evidently not listed on the labels. Many athletes have returned positive antidoping tests after using creatine.

Legal and ethical issues

The use of nutritional supplements* is not prohibited in sport, but it nevertheless raises a number of ethical questions. Many officials believe that the non-justified use of such products to artificially improve performance goes against the Olympic spirit. Even though product ingredients are naturally found in the body, many people believe that using them at levels exceeding individual needs constitutes doping.

Certain athletes are continually looking for miracle products, shortcuts that would help them reach the highest summits. They think that they can be successful only by resorting to artificial aids. Many officials believe that this mentality eventually leads to the use of prohibited products, as the basic mindframes are the same.

The nutritional supplement market in North America records annual sales in the billions of dollars. Since athletes can satisfy their energy requirements with a healthy diet and since the cost of supplements can be high, it is wise to question the ethics of people who suggest using these products without a good reason.

* For more detailed information on nutritional supplements, please see the "Doping, Diet, and Supplements" Appendix. It was obtained through the cooperation of Marielle Ledoux, Ph.D., a renowned specialist in nutrition. Ms Ledoux is Associate Professor at the Faculty of Medicine of the University of Montréal and President of the Sport Nutrition Advisory Committee (SNAC) for the Coaching Association of Canada (CAC).

ADVICE FOR COACHES

Don't suggest the use of supplements

A balanced diet can meet the needs of most athletes. You should not suggest that they use supplements. Just because a product can be bought over-the-counter does not mean it poses no threat to their health. The use of supplements should be justified by a deficiency and recommended by a nutritional specialist or doctor. If athletes wish to take them, refer them to a specialist.

Combat psychological dependence

Searching for so-called alternative solutions is a psychological crutch. Explain to your athletes about the four elements of performance listed in the “An Alternative to Doping” section—which include a healthy diet—and how they should be striving to maximize the contribution from each.

Show your athletes what responsibility means

Emphasize the importance of eating well as laid out in the Canadian Food Guide⁴⁶. As an exercise, you can also suggest that they evaluate a product like creatine with the help of the “Decision-making model” Appendix.

PHYSICAL APPEARANCE

Physical appearance, like athletic performance, may be a pretext for taking doping products. Artificial aids are not just for athletes; people who wish to improve their physical appearance also sometimes use them. Both behaviors raise the same questions of health and ethics.

Adolescence... A perfect opportunity

During this period of upheaval, teenagers are emotionally fragile. In terms of physical changes (cracking voice, acne, breasts in young girls, etc.) or clothing, how they compare to others is of primary importance. In their search for social recognition and acceptance, teenagers focus on their physical appearance to fit in or earn the admiration of their peers.

The media and the cult of the perfect body

The media today promote the image of the perfect body, not just to adults but to adolescents, too. Many artists and movie stars—the main role models for teenagers—use physical beauty as a promotional tool. Their bodies set standards for adolescents, who will try to live up to them and get noticed by improving their own physical appearance.

Physical appearance is an industry

Profiting from the cult of the perfect body, the so-called *health* product industry in North America records annual sales in the billions. We are no longer surprised to be inundated with ads that often lie about products, weight-loss programs, or newfangled devices that promise a perfect body with minimum effort. The focus placed on physical beauty—a concept that resonates strongly in teenagers—lays the groundwork for the consumption of supplements (e.g., creatine) for the sole purpose of gaining a physical appearance that will be noticed and admired. Sports have nothing to do with it.

Athletes, too!

The study² by SLS revealed that, among subjects who admitted to using creatine and steroids, 16.6% and 24.5% respectively used these products solely to improve their physical appearance. In addition, 33.3% and 31.1% of creatine and steroid users respectively admitted to using these products to improve both their performance and appearance.

Breakdown of creatine and steroid users according to reasons

	Proteins supplements, creatine (no. = 487)	Anabolic steroids (no. = 45)
Performance only	50.1%	44.4%
Appearance only	16.6%	24.5%
Performance and appearance	33.3%	31.1%

Source: *Étude de l'éthique, du dopage et de certaines habitudes de vie chez des sportifs québécois*²

Athletes, like other young people, may also wish to make sure their clothing or physical appearance matches social norms. What's more, the athletic scene has no shortage of examples of physical beauty. Many sports stars promote products by praising their benefits. Social pressure, the influence of sports idols, as well as frequenting places like certain fitness centers where doping products are available are all factors that can encourage the use of artificial aids.

Among athletes for whom improving their physical appearance is the main reason for using artificial aids, not obeying the rules is of little importance, especially considering most of them are at a competitive level where they do not have to undergo antidoping tests. Prevention must therefore focus on more than just sporting ethics.

ADVICE FOR COACHES

Be attentive to problems youth face

Be aware of young athletes' situations and the importance they place on their physical appearance and the opinion of their peers. Let them know that what they are going through is only temporary. Do not tolerate any negative remarks they may make about a teammate's physical appearance.

Talk about doping in sports

Remind your athletes that, whatever their level of competition, using certain products is prohibited by the rules. For athletes who would likely be subject to antidoping controls, using some products could cause a positive test.

Offer them solutions

If they wish, suggest specific exercises to help your athletes gain muscle mass or lose weight. You can also refer them to specialists in physical conditioning (kinesiologists) who will help them achieve their goals without resorting to artificial means. Stress the need for a healthy, balanced diet, and send them to nutritional specialists if they wish.

Help your athletes take charge of their consumer habits

Teach your athletes about making smart choices so that they avoid blindly trusting certain people or information sources. The "Decision-making model" Appendix can help them with certain aspects like the quality and effectiveness of products, whether they are legal in sports or society, as well as their effects on health.

SOCIAL DRUGS

It is important to discuss so-called social drugs. Those that are legal, like alcohol, and those that are illegal, like cannabis and cocaine, may appear on the WADA and IOC list of prohibited or restricted substances. Social drugs are broken down into three categories according to their effects: hallucinogens, depressants, and stimulants (see the “Social Drugs” Appendix). Cannabis and other hallucinogens influence perception, emotions, and thought processes. Alcohol and sedatives like heroin are depressants that slow the central nervous system and, in small doses, cause feelings of calm, sleepiness, or wellbeing. Stimulants like cocaine increase endurance, reduce appetite, or cause feelings of wellbeing and euphoria.

In the sporting world, using certain social drugs is an infraction of the rules. However, the harmful effects of alcohol and other social drugs go beyond sports. According to the Ministère de la Santé et des Services sociaux, the inappropriate use of psychotropic substances can *lead to physical, psychological, economic, or social problems. In short, using them constitutes a danger to the health, safety, and wellbeing of individuals, their loved ones, and society as a whole.* (MSSS³⁷, p. 10). These problems affect athletes as much as they do ordinary citizens.

Drugs: a social phenomenon

Young people are around social drugs from an early age. They are generally exposed to alcohol in their families and to illicit drugs when they enter high school. Adolescence is a difficult period in which young people undergo a number of physical, psychological, and social upheavals and may become vulnerable to various influences.

Social pressures (fashion, social circle, the desire to belong to a group, etc.) or psychological pressures (anxiety, insecurity, disappointment) are factors that can lead to a first contact with drugs or possibly even regular use. The main reasons

young people give for trying drugs are curiosity, pleasure, self-affirmation, imitation of adults or peers, and relaxation. The bulk of Quebecers over 15 years old (80%) consume alcohol, and marijuana is the illicit drug of choice. Even though most adolescents are occasional users or have only tried drugs a few times, between 6% and 10% of them can be described as drug abusers or problem users.³⁶

Sport and social drugs

Sport is seen as a way to stay out of trouble and avoid drugs, which does not stop athletes from using them. Sport can sometimes even encourage the use of alcohol, like when athletes celebrate a win or a reunion. Many people may also turn to drugs after something bad happens. The same applies to athletes who may be under great pressure or dealing with defeat or a slump.

The results of the SLS study² revealed that many young athletes thought alcohol and certain drugs could have a beneficial effect on their performance. Respectively 11.5%, 7.7%, and 2.2% of respondents admitted to using alcohol, marijuana, and cocaine to improve their athletic performance. Even though athletes' drug use varied from occasional to regular, the phenomenon remains no less troubling as it raises the issue of sporting ethics and turns the spotlight on misconceptions about the real side effects of these drugs on performance and health.

The use of social drugs is a hard subject to bring up with youth as it touches on their private lives away from sports. The coach has no control over young peoples' home environment, who they hang around with, and how often they're around drugs. However, the presence of a significant adult can be an important factor in preventing them from using or abusing social drugs. There a number of ways in which coaches can exert a positive influence on the athletes under their care.

ADVICE FOR COACHES

Set an example

Let your athletes know that you're totally opposed to drugs. Do not make using drugs that are popular with young people seem like acceptable behavior. On occasions where alcohol is present, know when to draw the line.

Don't give them opportunities to take alcohol

By not tying alcohol to sports celebrations, you will do your part to discourage its use in youth.

Keep your athletes informed

Create occasions to share information and discuss the following points:

- > Which substances are on the WADA and IOC list
- > The fact that their beneficial effects on performance have not been demonstrated
- > The many dangers and misconceptions regarding their use (use the "Social Drugs" Appendix)

If you feel the need, ask one of your contacts to come and talk about the various aspects (health, drug addiction, social and legal problems) of using alcohol and other drugs (see the "Resources and Organizations" section).

Help your athletes take charge of their consumer habits

Start a discussion on drugs. The "Decision-making model" Appendix can help your athletes form their own opinions on certain aspects of drugs, like their legal status, their effects on health, as well as their effects on the people around them.

Stay on guard and get involved as needed

Be on the outlook for signs (drowsiness, euphoria, etc.) or behavioral changes (mood swings, irritability, lack of interest in the activity, etc.) that could point to drug use. If you think there is a problem, discuss your concerns with the athlete and, if need be, get help from experienced specialists.

QUESTIONS AND ANSWERS ABOUT DOPING

How to respond to trick questions and statements?

Youth are quick to quote “facts” and arguments from dubious sources. Don’t let them believe them or use them as reasons to change their own values about sporting ethics. The following answers can help coaches keep their athletes on the right track.

Doping, is it so bad?

Sports rules were created to give all players an equal chance to win. The rules spell out how a game should be played, the equipment, as well as age and weight categories. They protect athletes by making sure everyone participates on an equal footing. Doping goes against this idea of equality and can also place athletes’ health in danger. Fundamentally, sport challenges athletes to match their abilities against those of their opponents. Athletes test their abilities, set objectives, and train to improve and reach their goals. For athletes to come out of this experience as better athletes and people, they must win or lose while obeying the rules, showing good sportsmanship, and relying only on their own efforts. Real athletes are not satisfied with a win obtained through cheating—they know they do not deserve it. No one forces athletes to play sports, but those who do of their own free will must agree to follow the rules.

If there were a magic pill to make sure you always win, why would sport be necessary? Imagine a competition in which you already knew the winner. What satisfaction would you get from beating your opponents knowing you didn’t have to try as hard as them? How would you know just how far your talent and efforts could have taken you?

Why not legalize doping?

Legalizing doping would obviously mean substantial savings in terms of the money and energy invested in antidoping controls and the fight against doping. But how could a responsible organization agree to place athletes’ health at risk by allowing them to dope? The harmful effects of many substances on athletes’ health are sufficiently well documented to bar them from being used—some substances are so toxic that their sale is banned or controlled. Legalizing doping would be equivalent to asking athletes to use dangerous products just to compete on an equal footing.

Think about the image of sport. What responsible parent would want their children to play sports knowing they would have to use products that are harmful to their health? At what age would athletes start using such products, knowing the big influence top athletes have on younger ones? We know that the effects of certain substances are even more harmful to those still growing.

If doping were legal and everybody could do it, what advantage would doping give you? It is true that some athletes are better equipped in terms of the human, material, and financial resources at their disposal. Considerable disparities also exist between certain countries that compete at an international level. But these disparities have arisen under rules all countries have agreed to. Legalizing doping wouldn’t change much as the most developed countries are leaders in medicine and would therefore become leaders in doping. In addition, each athlete would have to cover the cost of products or medical followup, which athletes in certain countries could not do. Disadvantaged athletes would thus become even more so. The winners would still be the suppliers of doping products, those who benefit from their sale.

Doping: is it so risky?

In fact, we don’t know about all the medium to long term effects of doping products. They can vary from one product to the next. When we talk about effects, we’re not just talking about those you feel right away, but also those that could show up in the future. Few studies can conclude without a doubt that doping poses no threat to your health.

Many doping products can only be obtained illegally on the black market. Studies have shown that a large number of these products are impure and are sometimes cut with substances that are dangerous to your health. Would you use a product to improve your performance without knowing if it could damage your health in the long term?

What about people who say I should try it?

You should ask yourself whether these people are believable and have your best intentions at heart. Friends will often suggest ideas that are irresponsible or poorly thought out. Are they knowledgeable or qualified enough to assure you that the product will have positive effects on your performance without endangering your health? Do their suggestions conflict with your sporting values?

If the people are adults, ask yourself whether they're scientifically qualified. Just because someone has big muscles doesn't mean he is automatically an expert in medicine, nutrition, or pharmacology. Ask to see studies that prove beyond a doubt that the products will benefit your performance and not harm your health—it's unlikely you'll get an answer. You may also try to find out why they're interested in seeing you dope. Often, they only care about the profits they will get from selling you products.

Don't I have the right to decide what's good for me?

Are you fully aware of the consequences of using certain products? They often show up after you've stopped training and practicing. The fact remains that doping breaks the rules you agreed to respect. *Doping is cheating!*

I know some of my opponents dope. Why shouldn't I?

Our attitude towards doping should not be dictated by situations, but rather should be built on a rock-solid foundation. Values and attitudes towards sporting ethics should not change on a whim. Should you change your moral values to please others or keep the ones you believe in and accepted when you joined your sports organization? Should you break the rules because others are doing it? Do you cheat when the referee's back is turned? Also remember that athletes who are caught have to suffer the consequences.

Turning to doping is often a sign that athletes feel they cannot reach their goals under their own power. If you're already used to using artificial

aids, why would you stop if you compete at a higher level at some later date? If you start to believe that you can't count solely on your own abilities to turn in good performances, how will you change that attitude when competition becomes even fiercer? This psychological dependence will always follow you. Excellence is not only beating one's opponent, but also developing one's potential as an athlete and human being!

Some professional athletes dope. Why shouldn't I?

It's a fact that certain professional leagues are more permissive when it comes to using products banned by international sporting organizations. However, you should realize that professional sport promotes values that are different from those of amateur sport. The main goal is to turn a profit and not protect the health of athletes. The strongest prevail, often to the detriment of good sportsmanship. Commercialized sport with its overriding need to win can harm the moral values of amateur sport. When, for example, professional players resort to physical, verbal, or psychological violence to gain an advantage, they sacrifice moral values. Even though this is not the case in amateur sports, their influence must still be recognized.

WADA, IOC, international federations, as well as the sports organizations you belong to have sporting standards to make competition fair for everybody and protect the health of athletes. You agreed to follow their rules when you first signed up.

You should think seriously about the objectives you set for yourself as well as your chances of one day playing in a professional league. Think hard and consider whether it's worth it to sacrifice your moral values and put your health at risk just to be like professional athletes or chase after an unrealistic dream.

Is it so bad to just try it?

We live in a society where people turn to all sorts of products as part of daily life. We don't think anything about using them, saying there's no harm in trying them. Are you 100% sure that these products won't have unwanted effects on your health? Have you looked at scientific studies that prove this beyond a doubt?

In addition, would it really be you who is playing? Do you really need stimulants to stay focused during competition? Is it normal to weigh a few kilograms more with the help of products? If you take painkillers, do you know that you can aggravate your injuries? Don't forget that if it's already your habit to use artificial aids, it will be hard to stop if you later compete at a higher level. Using banned or controlled substances touches on a number of issues. Think about a few by reading the "Decision-making model" Appendix.

Is it really doping if I only take small doses?

This kind of statement is popular with athletes who use products containing caffeine, such as coffee, chocolate, and cola-type soft drinks. It's also true that there's no harm in consuming these products in a normal way. But doping is not only a question of quantity—it's a question of mentality! There are rules, but there is also good sportsmanship! The quest for excellence never involves artificial aids. If it did, how would you measure your real performance?

The limits on the use of certain products are there to protect athletes and remove all doubt about what constitutes doping. Using a product up to the tolerated limit, but not enough to be caught doping, is itself a doping behavior—athletes only do so to improve their performance. If you start to believe that you can't count solely on your own abilities to turn in a good performance, how will you change that attitude when competition becomes even fiercer? This psychological dependence will always follow you.

How can I legally use medication?

If you are at level of competition where there are no antidoping tests, you shouldn't worry if you really need to take a medication. However, for high level athletes who can be tested for doping, the question is a valid one. Many medications for treating certain ailments contain banned substances. Without intending to cheat, many athletes return positive antidoping tests after having used drugs legitimately. It is false to say that you can't treat ailments without using prohibited products. Products that do not contain prohibited substances are available for most cases. In urgent health matters, athletes can get an exemption for a restricted medication.

To be sure you don't take prohibited substances, you may refer to the *Drug Classification*⁴ Booklet produced by the CCES. It lists current medications that may contain prohibited substances as well as those you may use without fear. When you see your doctor or pharmacist, bring the booklet along as a helpful reference tool.

APPENDICES

- > CHARTER OF GOOD SPORTSMANSHIP
- > ATHLETE'S CONTRACT
- > DECISION-MAKING MODEL
- > DOPING, DIET, AND SUPPLEMENTS
- > SOCIAL DRUGS

CHARTER OF GOOD SPORTSMANSHIP

Respect for the rules

Good sportsmanship means strictly obeying all rules and refusing to win by illegal methods or cheating. For officials, it means knowing all the rules and applying them impartially.

Respect for the opponent

Good sportsmanship means respecting the opponent and recognizing that his or her participation is an essential part of true competition. It also means accepting victory with humility and without putting down the opponent.

Respect for the official

Good sportsmanship means respecting officials and accepting their decisions without questioning their integrity. Officials have a tough role to play and deserve our respect.

Commitment to fair play

Good sportsmanship means competing in the spirit of fair play. It means counting on sheer talent and ability to win.

A cool head

Good sportsmanship means remaining cool and showing self-control at all times. It means refusing to let physical or verbal violence get the better of us. It also means graciously acknowledging the better opponent in defeat.

Effort and perseverance

Good sportsmanship means giving your all, never letting up, and showing a healthy competitive streak. You want to win, but only by respecting the rules, your opponent, and yourself.

ATHLETE'S CONTRACT

As an athlete, I agree to the following:

- I will treat each competition as special and always do my best, whatever the stakes may be.
- I will obey the rules and show my sport the respect it deserves.
- I will respect my opponents.
- I will not question officials' decisions and will accept that they may make mistakes.
- I will harbor no ill will nor foster violence in my words or deeds.
- I will refuse to win by illegal methods or cheating.
- I will keep a cool head in victory and defeat.
- I will be an example to others through my experience and knowledge.
- I will be an ambassador for sport by putting the above principles into practice.

Signed: _____

DECISION-MAKING MODEL

The following checklist* is to get you thinking about doping products and aspects of their use. Use it to have all the facts at your disposal before you make a decision.

- Code of Conduct:** Does the product contain a banned or restricted substance? Is taking the substance considered ethical behaviour? Does this behaviour go against any rules of conduct? Am I showing respect for the rules and values of sport? Would using this product give me an undue advantage over my opponents and go against the values of sport?
- Legal:** Is this substance legal?
- Performance:** Will this substance enhance or harm your performance? Is there solid scientific proof from reliable sources that the product will help my performance? Am I currently using proven and effective methods of performance enhancement such as year round, sport specific training, proper nutrition, and appropriate rest and recovery?
- Health:** Can this product benefit my health? Am I using this product at the appropriate dosage for health benefits and following the directions for use on the label? Is this product regulated by Health Canada and has it been shown to have proven health benefits for humans? The quality of black market products is not guaranteed; they can also be cut with substances harmful to one's health.
- Medical:** Does this substance cause any medical side effects? Is there solid scientific proof from reliable sources that the product will not harm me in the short, medium, or long term? Am I using the product for what it is intended? What could happen if I take too much? (It's not necessarily the product that is dangerous—it's how you use it!)
- Safety:** Can taking this substance impact on personal safety or the safety of others? Certain substances affect behavior, emotional control, memory and reasoning . For example, alcohol is involved in many road accidents and antisocial behaviors. Steroids are linked to aggression ('roid rage) and violence)
- Financial:** How much does this product cost? Who profits from selling the product? Is this the best way to spend my money? How will this substance affect your personal financial situation?

* *This checklist has been adapted from the decision-making model (Taking it) created by the Centre for Substance Use in Sport and Health (SUSH). For more information, go to the Web site: www.substanceuse.com*

DOPING, DIET, AND SUPPLEMENTS

Basic needs and the role of supplements

All athletes seek to perform their very best. Many try anything and everything to succeed and are often tempted by various products available over the counter or over the Internet. It is not always easy for athletes and coaches to get a handle on whether a product is needed or effective, and whether there are side effects and risks associated with using it. The purpose of this section is to give an overall view of the relation between nutrition and competitive sport to determine how useful certain products are in replacing a normal diet.

On December 1, 2002, the American College of Sport Medicine, the Dietitians of Canada, and the American Dietetic Association published a joint position paper approved by the Coaching Association of Canada that took a fresh look at knowledge and recommendations regarding nutrition and athletic performance¹. The position statement is also available in French on the CAC Website at www.coach.ca. Let's review its key points about the basic nutritional needs of growing and adult athletes, as well as their special needs during training or competition.

Nutrients: Basic needs

We rarely need supplements when we eat a variety of foods from each of the following food groups: grain products, dairy products, meat and alternatives, and fruits and vegetables. A balanced diet normally provides everything a person needs. Variety, however, may not be enough. It is also important to make sure that your energy intake matches the energy you burn in a day. The best way to determine if you are eating enough is by looking at your body weight. If you do not eat enough, you lose weight, which may affect growth in young athletes. Not eating enough can also lead to a loss of motivation to train or compete, inconsistent performance, chronic fatigue, and an inability to gain weight through a training program specifically designed for that purpose. On the other hand, eating too much causes rapid weight gain—in fat and not muscle—that you can't chalk up to your training program.

The average athlete (two training sessions and one meet/week or one competition/two weeks) has slightly greater energy requirements than a sedentary person. Supplements are not necessary to meet his or her needs. If athletes eat a varied diet, it is better to increase the size or number of portions from each food group. For example, young people who are not active require five servings of grain products, most average athletes require eight servings, and athletes in endurance sports like cycling, cross-country running, or triathlon require fifteen or more servings (Source: SNAC).

¹ Position of Dietitians of Canada, the American Dietetic Association, and the American College of Sports Medicine. Winter 2000. "Nutrition and Athletic Performance". *Canadian Journal of Dietetic Practice and Research*, vol. 61, no 4: 176–192.

Proteins and amino acids

Athletes need slightly more protein to help optimize muscle gain and repair tissues. Their diet must therefore fit with their training regime.

Facts to consider:

- > Consuming excess protein will not necessarily cause muscle gain and may even be converted into fat if the excess energy is not “spent” through exercise.
- > The more protein you eat, the more water you need, and the harder your kidneys—the body’s natural filter—work. For this reason, eating extra protein is not recommended, even for growing children. Diabetics and those with kidney problems should also avoid excessive protein intake. Excess protein and its byproducts are eliminated in urine, which may place undue stress on the kidneys.
- > Protein’s main role in the body is to create and repair tissues, but it will be used as a source of energy instead if you don’t get enough to eat.
- > Complete supplements that include all amino acids or those based on proteins like casein or albumin are sometimes suggested to fill so-called dietary deficiencies. Before taking them, calculate their daily value and compare it with actual energy needs (a normal diet is often enough!).
- > If you nevertheless choose to take supplements, remember that their contribution is minimal, varying from 7 g to 10 g/portion or tablet. What’s more, they are often recommended to be taken with a large glass of milk, which itself adds around 12 g of protein!
- > Your best bet remains products that contain both protein and carbohydrates in a 1:3 ratio to stimulate the anabolic effect of insulin. Even though certain products on the market meet these criteria, foods such as chocolate milk and strawberry or banana milkshakes can produce the same anabolic effects with a much better taste.

Ads for many products promise muscle gain...but don’t say a thing about gaining fat! These products can be grouped into protein supplements, weight gain supplements or meal substitutes, and amino acid supplements including all amino acids, individual amino acids, or groups of two or more.

- > It is important to remember that protein synthesis works best with all essential amino acids present in the right proportions, and with adequate energy intake. For example, taking 20 g of a branched-chain amino acid (BCAA) supplement would have little real effect on one’s performance in a treadmill endurance test. On the other hand, taking large doses of the supplement could have negative effects by leaching away essential compounds for energy metabolism.
- > Glutamine, the most abundant amino acid in the human body, is very popular with bodybuilders and athletes who wish to increase their muscle mass. However, glutamine is not easily absorbed by the intestines, is unstable in a water solution, and is sensitive to heat sterilization. This probably explains why glutamine supplements have no real effect on muscle mass gain.
- > Arginine and ornithine, which aid the secretion of growth hormone, do not seem to have any real effect when taken orally. A positive effect, however, was observed when 32 g of arginine were given intravenously. It is important to note that exercising for 20 minutes at over 60% intensity, like fasting or sleeping, significantly raises the concentration of growth hormone. A bit of exercise therefore has more of an effect than a costly supplement does. In addition, we know that the concentration of arginine in a number of supplements varies from 120 mg to 1,200 mg/portion, whereas there are 300 mg in 250 ml of skim milk, 780 mg in two eggs, and around 2,100 mg in 120 g of chicken.
- > Foods have the advantage of providing all amino acids as well as a wide array of minerals and vitamins.

Creatine

Creatine is made by the liver from an amino acid and released into the blood. From there, part of it enters the muscles, where it is transformed into phosphocreatine, a high energy molecule that serves as “fuel” for muscle contractions. Creatine is found in certain foods like herring, salmon, tuna, beef, and pork. Even though it plays many roles—like facilitating the transport of adenosine triphosphate (ATP) and thus promoting quick recovery and the gain of muscle mass and strength—its benefits are not clear-cut. Certain studies have shown that taking high doses of creatine increases the amount found in muscles;

by encouraging ATP transport, creatine shortens recovery times and thus increases the capacity to train. This enhanced capacity is largely responsible for the increase in lean mass (mainly water in the short term). Creatine's effects on short-duration exercises of 30 seconds or less, or on a series of short, repetitive exercises have been proven. Nevertheless, it does have certain limitations:

- > Most of the creatine ingested is not absorbed and is eliminated in the stools.
- > Creatine's effect varies according to how it is consumed and is more pronounced in vegetarians.
- > Certain side effects have been noted: weight gain without a noticeable increase in muscle mass, joint pains, stomach cramps, and, in the long term (according to the dosage and the fitness and health of the athlete), metabolic imbalances or kidney problems.
- > Considering the side effects noted above, **the use of creatine is not recommended for children or adolescents who are still growing.**
- > The purity of protein supplements is far from guaranteed and may often contain illegal substances.
- > Optimal doses and training overload needs must be evaluated carefully in light of the various limitations listed above.

Basic needs... Lipids are an essential part of a balanced diet

We often hear about cutting fat from our diets to stay healthy. Athletes are no exception to the rule. To maintain good body weight and a diet rich in protein and carbohydrates, which respectively preserve muscle mass and ensure optimal glycogen reserves, they must reduce their fat intake. However, reducing fat intake does not mean eliminating it altogether or even cutting it drastically. Diets in which 20% to 25% of energy comes from fat were generally recommended to help people consume enough carbohydrates and regulate their weight as needed. Recommendations for each energy component are therefore more useful when tied in with a person's stature, weight, body makeup, sport, and sex.

Hydration, sport drinks, or other carbohydrate sources

New sport drinks for athletes regularly appear on the market. Most of them are 4% to 8% carbohydrates to meet the consumption guidelines for people who exercise intensely for over one hour. Water is normally enough for training sessions under an hour. Sport drinks may still be fine for such shorter sessions or for when athletes "forget" or refuse to only drink water. They may be easily replaced with slightly diluted juice with a bit of added salt to improve taste and balance electrolytes—thus avoiding hyponatremia, a lack of sodium in the blood—after heavy sweating and prolonged exercise. Juice works just as well and is less expensive. However, many athletes prefer the "high performance" image of sport drinks to homemade drinks! Gels are also very popular during exercise, but they require large quantities of water to be absorbed properly.

Carbohydrate-rich foods can be used to increase glycogen reserves, which are key performance factors in endurance sports. Foods or drinks that are high in carbohydrates should be consumed as soon as possible after exercise to speed up recovery. About 7 g to 10 g of carbohydrates/kilogram of body weight or at least 50 g is the normal recommendation.

Vitamins and minerals

Vitamins and minerals are essential for the body to work properly. Micronutrients play an important role in producing energy, synthesizing hemoglobin, maintaining bone health, keeping the immune system strong, and protecting tissues against oxidation. They are also needed to build and repair muscles after exercise. Exercise can increase or change the need for vitamins and minerals in a number of ways. Taking more micronutrients may be necessary to repair and maintain lean mass.

The athletes the most at risk of a micronutrient deficiency are those who limit their energy intake or adopt drastic weight loss measures, cut one or more food groups from their diet, or follow a diet that is rich in carbohydrates but low in micronutrients. Athletes who do so may need multivitamin or mineral supplements to make sure they are getting enough micronutrients.

There are limits placed on the use of multivitamins and minerals:

- > An overall evaluation of the diet and signs of deficiency must be done before recommending a particular supplement.
- > Taking individual micronutrient supplements is not encouraged except for medical, nutritional, or health reasons. The general health of athletes and their normal diet should be evaluated before they turn to individual supplements. For example, iron supplements will be recommended to treat anemia and folic acid supplements to prevent birth defects. Taking an iron supplement for no real reason may throw other microelements, such as calcium and zinc, out of balance.
- > If athletes will be traveling for an extended period of time and unable to eat properly, a daily multivitamin or mineral supplement may be a good idea.

Using supplements: key questions

In general, most ergogenic products can be grouped into one of the following categories:

- 1 > Those that produce the desired effect
- 2 > Those that may produce the desired effect, but for which not enough proof currently exists regarding their effectiveness
- 3 > Those that do not produce the desired effect
- 4 > Those that are dangerous, prohibited, or illegal, and should therefore not be used

In the United States, if a supplement label lists all ingredients, including the active ones, the manufacturer can claim—whether true or not—that the product improves performance (Dietary Supplement Health and Education Act, 1994). In Canada, the Food and Drugs Act contains the same provisions and tends to follow the American legislation in this regard. What's more, many products for which no reliable information exists as to their quality or harmful effects are no regularly bought or sold over the Internet.

When evaluating nutritional products, you should pay particular attention to whether their claims about nutrition and exercise are valid, whether reliable proof exists (scientific studies with placebos or mere testimonials), and whether they have health or legal consequences. The SNAC committee of the Coaching Association of Canada has put together a number of documents that look at the claims of tablets, drinks, bars, and other nutritional products. More recently, the committee drew up five key questions athletes should answer before taking a nutritional supplement.

Five basic questions for athletes

- 1 > Are you familiar with all the product ingredients?
- 2 > Are you sure that the product is safe? All-natural does not necessarily mean risk-free.
- 3 > Did you check first with a qualified professional?
- 4 > Does the product contain banned substances, or is its use restricted?
- 5 > Is your training plan optimized to ensure proper physical and mental preparation, nutrition, and recovery time?

Supplements are not always necessary; a balanced diet adapted to your needs and training schedule may often prove equally effective. Athletes must therefore carefully evaluate the vitamin and mineral supplements, herbal preparations, and ergogenic products they wish to take to improve their performance. These products must be used with caution and only after their legality and ingredients have been thoroughly investigated. They should not be taken before first checking athletes' health, diet, nutritional and energy needs, and use of other supplements or medications.

The Secrétariat au loisir et au sport (SLS) wishes to thank Marielle Ledoux, Ph.D., a specialist in nutrition, for writing this section. Ms Ledoux is Associate Professor at the Faculty of Medicine of the University of Montréal and President of the SNAC committee of the Coaching Association of Canada.

ADVICE FOR COACHES

Considering the risks associated with their use, supplements should only be used in isolated cases after an in-depth evaluation of athletes' health and their specific needs. The first step is to ask them the five questions listed above. As neither coaches nor athletes are nutritionists, they both need advice from a qualified professional. He or she can describe the athlete's nutritional status and whether supplements are needed, recommend appropriate product(s) based on the athlete's sport and training regimen, or refer the athlete to another specialist (doctor, psychologist, etc.) if needed.

It is also important to recognize that supplements cannot replace a varied, balanced diet and proper training adapted to the athlete's abilities. Athletes may see supplements as the only way to improve their performance when their efforts should in fact focus on their diet and training. Coaches should therefore concentrate on making sure athletes have the best training plan for their needs, get help from recognized and credible specialists, and see a sports nutritionist for any nutrition-related matters.

Evaluate the scientific validity of ergogenic claims

- > Does the quantity of the active ingredient and its makeup correspond to scientific studies on the product?
- > Does the manufacturer's claim fit with scientific data on nutrition and exercise you are familiar with? Does it apply to your sport?

Evaluate the proof of a product's effectiveness

- > What solid proof of the product's effectiveness does the manufacturer provide (testimonials or actual scientific studies)?
- > Is the study well done? What is the reputation of the author and of the journal in which the research was published? Was it sponsored by the manufacturer?
- > Does the experimental design meet the following criteria?
 - based on a hypothesis
 - double-blind with a control group
 - sufficient checks and balances
 - proper dosage for ergogenic substance or placebo
- > What research methods were used? Do they answer the questions? Are they clearly presented so that the findings can be reproduced?
- > Are the results presented in a clear, unbiased way, with mention of statistical methods, limits, and unwanted side effects? Are they physiologically attainable? Do the conclusions match the findings?

Evaluate the safety and legality of the product

- > Is the product safe? Is using it dangerous to your health? Does it contain harmful or mystery substances or substances that could affect nutrient metabolism? Is it not recommended for people with particular health problems?
- > Will using the product lead to neglecting other important aspects of performance? For example, is the product supposed to replace foods or good training habits?
- > Is the product illegal or prohibited by a sporting organization?

SOCIAL DRUGS

PRODUCTS/	NAME, FORM OR APPEARANCE	EFFECTS	POSSIBLE EFFECTS WITH FREQUENT USE OR ABUSE
STIMULANTS			
Caffeine	Coffee Chocolate Tea Cola	- Excitement - Alertness - Nervousness	- Heart problems - Sleep loss - Difficulty concentrating
Nicotine	Cigarettes Cigars Pipe tobacco Chewing tobacco	- Faster heart rate - Diminished taste and smell - Sense of relaxation	- Heart and arterial disease - Throat and bronchial disease (cancer)
Cocaine	Coke, snow, coca, white powder, crack, white crystals	- Excitement, insomnia - Euphoria - Diminished appetite - Feeling of power	- Convulsions - Irritation and perforation of nostrils - Nose bleeds
Stimulant medications	Decongestant syrup Weightloss pill	- Excitement, alertness - Diminished appetite	- Physical and psychological addiction
DEPRESSANTS			
Alcohol	Beer Wine Liquor Coolers	- Sense of relaxation - Dizziness - Lack of inhibition - Poor reflexes	- Diminished appetite - Liver dysfunction - Coma (overdose)
Calming medications	Sleeping or anxiety pills Cough syrup	- Drowsiness - Slower reflexes - Relaxation	- Reduced willpower - Depression, insomnia, or weight loss
Opiates	Codeine Heroin Morphine	- Feeling of wellbeing - Lack of inhibition - Pain reduction - Nausea, vomiting	- Heart or breathing problems - Coordination problems - Mood swings - Death (overdose)
HALLUCINOGENS			
Cannabis	Marijuana Pot, grass, dope, joint Hashish Hash, cube Hash oil Hash resin or liquid	- Euphoria - Relaxation - Disorientation - Mood swings (laughing, crying) - Hallucinations (in high doses)	- Passivity - Memory and concentration problems - Confusion and anxiety - Damage to lungs and throat
Hallucinogens	PCP Crystals, angel dust LSD Acid, tabs, dots, blotter Ecstasy, E*	- Disorientation - Euphoria - Hallucinations - Pleasant (trip) or frightening (bad trip) sensations	- Uncontrollable fear - Flashbacks - Death (overdose)
Solvents and glues**	Paint remover Gas Varnish Solvent Aerosol	- Vertigo, numbness - Irritation of nose, throat, and eyes - Hallucinations - Headaches, nausea, and loss of consciousness	- Damage to nose, throat, lungs, heart, liver, and kidneys - Fatigue, incoherence - Brain lesions - Death (overdose)

The list of products in the table is not exhaustive.

* This product may sometimes be grouped with the stimulants.

** These products may sometimes be grouped with the depressants.

Stimulant: Stimulates the nervous system, reduces hunger and fatigue, and increases energy.

Depressant: Depresses the nervous system, relaxes and slows movements, and causes sleepiness.

Hallucinogen: Disrupts the nervous system, skews perceptions, and causes hallucinations.

Psychological addiction (dependence): The person needs the drug more and more often to relax, have fun, feel better about him or herself, gain courage, and overcome problems. The use of most drugs can lead to psychological dependence.

Physical addiction: The body is used to the effects of the drug and has trouble doing without it. Strong or milder physical symptoms may occur if the body is in withdrawal. Many drugs may be physically addictive.

RESOURCES AND ORGANIZATIONS

Sporting organizations

SECRÉTARIAT AU LOISIR ET AU SPORT DIRECTION DE LA PROMOTION DE LA SÉCURITÉ

100 rue Laviolette, bureau 306
Trois-Rivières, Québec G9A 5S9
Telephone: (819) 371-6033
1-800-567-7902 (toll free)
Fax: (819) 371-6992
Email: sls@sls.gouv.qc.ca
Website: www.sls.gouv.qc.ca

The mission of the Secrétariat au loisir et au sport is to encourage the development of leisure and sport in a healthy and safe manner and promote a physically active lifestyle for all Quebecers. The Safety Branch is mandated to ensure the safety and wellbeing of people who take part in sports or leisure activities. Specific measures seek to promote good sportsmanship and the prevention of doping, violence, abuse, and sexual harassment in sporting activities.

CANADIAN CENTRE FOR ETHICS IN SPORT

2197 Riverside Drive, Suite 300
Ottawa, Ontario K1H 7X3
Telephone: (613) 521-3340
1-800-672-7775 (toll free)
Fax: (613) 521-3134
Email: info@cces.ca
Website: www.cces.ca

The Canadian Centre for Ethics in Sport (CCES) is the Canadian organization responsible for promoting good sportsmanship and drug-free sport, as well as applying the Canadian Policy on Doping in Sport. CCES has published numerous papers, studies, and promotional tools on the topic of good sportsmanship and doping. CCES also provides precise, up-to-date information on prohibited and permitted substances.

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Fax: (514) 252-9621
Website: www.sportsquebec.com

Sports-Québec comprises Québec sporting federations and regional leisure and sport units. It organizes the Awards Gala for Québec athletes and the Québec Games. Sports-Québec is the Québec authority for training coaches (National Coach Certification Program) and providing training sessions to update their knowledge and abilities.

FÉDÉRATION QUÉBÉCOISE DU SPORT ÉTUDIANT

4545, avenue Pierre-de Coubertin
C.P. 1000, succursale M
Montréal, Québec H1V 3R2
Telephone: (514) 252-3300
Fax: (514) 254-3292
Website: www.fqse.qc.ca

The Fédération québécoise du sport étudiant (FQSE) brings together sports officials working at the elementary, high school, college, and university levels. It supports competitive, beginner, and house leagues, certain elite leagues, as well as a variety of physical activities. FQSE also provides training to sports officials.

Physical fitness

FÉDÉRATION DES KINÉSIOLOGUES DU QUÉBEC (FKQ)

Campus Université de Montréal
Département de kinésiologie
C.P. 6128 succursale Centre-ville
Montréal, Québec H3C 3J7
Telephone: (514) 343-2471
Fax: (514) 343-2181
Website: www.kinesiologue.com

FKQ is a federation of university-trained professionals in kinesiology and human kinetics. Its mission is to ensure the safety and quality of physical activity to protect the public and maintain or improve individuals' health. FKQ kinesiologists evaluate physical fitness, prescribe exercises, manage fitness programs, supervise athletes, and organize conferences.

Drug addiction

MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX

Direction générale des services à la population
1075, chemin Sainte-Foy, 4e étage
Québec, Québec G1S 2M1
Telephone: (418) 266-6830
Website: www.msss.gouv.qc.ca

The Ministère de la Santé et des Services sociaux sets government orientations for preventing and treating drug addiction. It ensures that the public has access to addiction services through a network of regional bodies and the organizations it supports. Valuable information is available on the MSSS Website.

ASSOCIATION DES INTERVENANTS EN TOXICOMANIE DU QUÉBEC (AITQ)

Telephone: (450) 646-3271
Website: www.aitq.com

AITQ is an association of addiction counselors. It maintains a directory of drug addiction resources in Québec.

FÉDÉRATION DES ORGANISMES COMMUNAUTAIRES ET BÉNÉVOLES D'AIDE ET DE SOUTIEN AUX TOXICOMANES DU QUÉBEC (FOBAST)

Telephone: (418) 682-5515
Website: www.com.org/fobast

FOBAST is a grouping of community organizations active in drug addiction from a prevention, support, readaptation, and social reintegration perspective. Its Website contains the addresses and contact information for members by region.

ACTION TOXICOMANIE BOIS-FRANCS

59, rue Monfette, local 004
Victoriaville, Québec G6P 1J8
Telephone: (819) 758-6574
Website: www.actiontoxicomanie.qc.ca
Email: act.tox@cdcqb.qc.ca

Action Toxicomanie Bois-Francs is an addiction prevention organization offering services to sports organizations and schools. It publishes Actions tox, a monthly magazine, which includes a section on sports.

Police bodies

SÛRETÉ DU QUÉBEC

The Sûreté du Québec runs information and awareness programs for drug prevention. Its representatives are available to discuss the impact of trafficking and using prohibited drugs. Interested sporting organizations may contact the Sûreté du Québec division in their area.

ROYAL CANADIAN MOUNTED POLICE

Drug Awareness Service
5000, chemin de l'Aéroport
Saint-Hubert, Québec J3Y 5K2
Telephone: (514) 939-8400, ext. 2371
Website: www.grcquebecrcmp.com

The RCMP has been involved for a number of years in preventing doping in sports through its information, awareness, and research initiatives. The Drug Awareness Service officers are available to staff a variety of activities such as information booths and sessions.

Nutrition

THE CANADIAN FOOD GUIDE (CFG)

This document is produced by Health Canada. For information, call (613) 954-5995 or visit their Website at www.hc-sc.gc.ca.

WORKBOOK FOR ATHLETES (SNAC)

This document is produced by the Coaching Association of Canada. For information, call (613) 235-5000 or visit their Website at www.coach.ca.

BIBLIOGRAPHY

1. AYOTTE, C. (1999). "Nutritional supplements and doping controls," *New Studies in Athletics*, 14 (3), 37 pp.
2. BUIST, A., C. GOULET, P. VALOIS and M. CÔTÉ (2002). *Étude de l'éthique, du dopage et de certaines habitudes de vie chez des sportifs québécois*, Québec, Secrétariat au loisir et au sport.
3. CANADIAN CENTRE FOR ETHICS IN SPORT (2002). *Canadian Policy on Doping in Sport*, Gloucester, CCES, 42 pp.
4. CANADIAN CENTRE FOR ETHICS IN SPORT (2000). *Drug Classification Booklet*, rev. ed., Gloucester, CCES, 41 pp.
5. CANADIAN CENTRE FOR DRUG-FREE SPORT (1992). *The Body Image Study: A qualitative study of the use of performance-enhancing drugs by non-athletes*, Gloucester, CCDS, 32 pp..
6. CANADIAN CENTRE FOR DRUG-FREE SPORT (1993). *Ethical Rationale for Drug-Free Sport*, Gloucester, CCDS, 11 pp.
7. CANADIAN CENTRE FOR DRUG-FREE SPORT (1994). *Guide to Drug-Free Sport: Spirit of Sport*, Gloucester, CCDS, 39 pp.
8. CANADIAN CENTRE FOR DRUG-FREE SPORT and PRICE WATERHOUSE (1993). *National School Survey on Drugs in Sport: Final Report*, Gloucester, CCDS, 42 pp.
9. INTERNATIONAL OLYMPIC COMMITTEE. *Olympic Charter Against Drug Use in Sport*, Lausanne, IOC, 2 pp.
10. INTERNATIONAL OLYMPIC COMMITTEE (2001). *Olympic Movement Anti-Doping Code*, Lausanne, IOC, 53 pp.
11. INTERNATIONAL OLYMPIC COMMITTEE (1999). *Lausanne Declaration on Doping and Sport*, Adopted by the World Anti-Doping Agency, February 4, 1999, in Lausanne, Switzerland, Lausanne, IOC, 2 pp.
12. INTERNATIONAL OLYMPIC COMMITTEE (1999). *Doping: An IOC White Paper*, Lausanne, IOC, 46 pp.
13. INTERNATIONAL OLYMPIC COMMITTEE (1999). *IOC's Fight Against Doping: A Brief History*, Lausanne, IOC, 5 pp.
14. COMITÉ NATIONAL OLYMPIQUE ET SPORTIF FRANÇAIS et MINISTÈRE DE LA JEUNESSE ET DES SPORTS (1998). *Prévention sportive et lutte contre le dopage: guide: Sport Net*, Paris, CNOSF, MJS, 1 mallette.
15. COMITÉ PERMANENT DE LA LUTTE À LA TOXICOMANIE (2000). *Drogues: savoir plus, risquer moins*, Montréal, Stanké, 157 pp.
16. COMITÉ SUR LE DOPAGE, TABLE PROVINCIALE D'HARMONISATION EN SPORT (1989). *Utilisation, par des athlètes, de substances et de méthodes défendues, présumées ergogéniques ou déloyales: état de la situation au Québec et recommandations*, Québec, Ministère du Loisir, de la Chasse et de la Pêche, 40 pp.
17. COMMISSION DE LA JEUNESSE ET DES SPORTS DE L'OcéAN INDIEN (s. d.). *Pour un sport propre et loyal*, CJSOI, 12 pp.
18. COMMISSION DES COMMUNAUTÉS EUROPÉENNES (1999). *Communication de la Commission au Conseil et au Parlement Européen concernant un Plan d'action de l'Union Européenne en matière de lutte contre la drogue 2000-2004*, B, COM, May 26, 65 pp.
19. COMMISSION DES COMMUNAUTÉS EUROPÉENNES (1999). *Plan d'appui communautaire à la lutte contre le dopage dans le sport*. Brussels, COM, December 1, 48 pp.
20. COMMISSION EUROPÉENNE (1999). *Avis du Groupe européen d'éthique des sciences et des nouvelles technologies auprès de la Commission Européenne: Les aspects éthiques du dopage dans le sport*, no. 14, November 11, 19 pp.
21. COMMISSION EUROPÉENNE (2001). *Tous unis contre le dopage: Qu'est-ce que le dopage?* 6 pp.
22. CONSEIL DE L'EUROPE, SPORT POUR TOUS (1975). *Charte Européenne du sport pour tous*, Defined by the Conference of European Ministers Responsible for Sport, Brussels, Strasbourg, Council of Europe, 2 pp.

23. DUBIN, C.L., and COMMISSION OF INQUIRY INTO THE USE OF DRUGS AND BANNED PRACTICES INTENDED TO INCREASE ATHLETIC PERFORMANCE (1990). *Commission of Inquiry into the Use of Drugs and Banned Practices Intended to Increase Athletic Performance (Dubin Inquiry)*, Ottawa, Supply and Services Canada, 714 pp.
24. EAST, J. (1995). *Sport, éthique et culture au Québec de 1960 à 1995*, Master's thesis, Université Laval, 156 pp.
25. FÉDÉRATION QUÉBÉCOISE DU SPORT ÉTUDIANT (2001). "Dopage sportif," In *Guide pédagogique primaire: MÉPSE*, Montréal, FQSE, pp. 13–18.
26. ROYAL CANADIAN MOUNTED POLICE (2001). *Drugs and Sport: The Score*, Ottawa, RCMP, 32 pp.
27. ROYAL CANADIAN MOUNTED POLICE, DRUG AWARENESS SERVICE, AND N. LLORENS (1998). *Étude scolaire provinciale sur l'usage de substances dans les sports: rapport final*, Ottawa, RCMP, 31 pp.
28. GROUPE DE TRAVAIL SUR LES ASPECTS JURIDIQUES ET POLITIQUES DU DOPAGE (1999). *La lutte contre le dopage dans le monde: rapport relatif à la lutte contre le dopage dans le monde*, World Conference on Doping, Lausanne, February 2–3, 1999, 33 pp.
29. GUAY, D. (1993). *La culture sportive*, Paris, Presses universitaires de France, 124 pp.
30. CANADIAN FITNESS AND LIFESTYLE RESEARCH INSTITUTE. *Canadians still not active enough*, Ottawa, The Institute, May 12, 2000 press release (Backgrounder 2).
31. INSTITUT DE LA STATISTIQUE DU QUÉBEC (2000). *Enquête sociale et de santé 1998*, Québec, Les publications du Québec, 642 pp.
32. LABERGE, S., and MINISTÈRE DU LOISIR, DE LA CHASSE ET DE LA PÊCHE, DIRECTION DES SPORTS (1989). *Sondage sur le dopage effectué auprès des jeunes athlètes de la Finale des jeux du Québec, Winter 1989*, Québec, MLCP, 25 pp.
33. LABERGE, S., et G. THIBAUT (1993). "Dopage sportif: attitudes de jeunes athlètes québécois et significations dans le contexte d'une éthique postmoderne," *Loisir et société*, 16 (2), pp. 263–388.
34. METZL, J.D., E. SMALL, S.R. LEVINE et J. C. GERSHEL (2001). "Creatine use among young athletes", *Pediatrics*, 108 (2), August, pp. 421–425.
35. MINISTÈRE DE LA COMMUNAUTÉ FRANÇAISE, HEALTH DIVISION (1999). *Pour l'amour du sport: brochure d'information et de sensibilisation sur le dopage*, Brussels, Health Division, MCF, 48 pp.
36. MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX (1998). *Plan d'action en toxicomanie 1999-2001*, Québec, MSSS, 43 pp.
37. MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX (1998). *Pour une approche pragmatique de prévention en toxicomanie: orientations et stratégie: document de consultation*, Québec, MSSS, 47 pp.
38. MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX, COMITÉ PERMANENT DE LUTTE À LA TOXICOMANIE (s. d.). *La famille, un trésor à préserver*, Québec, MSSS, 24 pp.
39. MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX, COMMISSION SCOLAIRE DES PREMIÈRES-SEIGNEURIES (1999). *La drogue...si on s'en parlait?*, Québec, MSSS, 14 pp.
40. MINISTÈRE DES AFFAIRES MUNICIPALES, DIRECTION DES SPORTS (1994). *Le sport comme on l'aime, au naturel : lutte au dopage et à la consommation de drogues : document à l'intention des entraîneurs*, Québec, MAM, 20 pp.
41. NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, RESEARCH STAFF (2001). *NCAA study of substance use habits of college student-athletes*, Indianapolis, IN, NCAA, 48 pp.
42. NATIONAL INSTITUTE ON DRUG ABUSE (2000). *Anabolic steroid abuse*, Bethesda, MD, NIDA, 8 pp. (Research report series).
43. CANADIAN HERITAGE, CANADIAN CENTRE FOR ETHICS IN SPORT and CANADIAN OLYMPIC COMMITTEE (1999). *Canada's Reaction to the Lausanne Declaration on Doping in Sport*, 5 pp.

44. RÉGIE DE LA SÉCURITÉ DANS LES SPORTS DU QUÉBEC (1994). *L'Esprit sportif, ça compte!*, 6 ed., rev. and corr., Trois-Rivières, RSSQ, 29 pp.
45. HEALTH CANADA (2000). *Straight Facts about Drugs & Drug Abuse*, Ottawa, Health Canada, 66 pp.
46. HEALTH CANADA. (1997). *Canada's Food Guide to Healthy Eating*, Ottawa, Public Works and Government Services Canada, 1 sheet.
47. HEALTH CANADA. (1997). *Using the Food Guide*, Ottawa, Public Works and Government Services Canada, 11 pp.
48. SPORT MEDICINE COUNCIL OF CANADA, C.A. CAULFIELD and P. SCARLETT (1991). *Sport nutrition for the athletes of Canada: workbook for athletes* (SNAC), Gloucester, SMCC, 1 binder.
49. UNESCO (1998). *Position contre le dopage*, Paris, UNESCO, 26 pp.
50. UNESCO, CONFÉRENCE GÉNÉRALE (1978). *Charte internationale de l'éducation physique et du sport*. Paris, UNESCO, 5 pp.
51. ZOCCOLILLO, M.F. VITARO and R.E. TREMBLAY (1999). "Problem drug and alcohol use in a community sample of adolescents," *Journal of the American Academy of Child and Adolescent Psychiatry*, 38 (7), July, pp. 900–907.