COACHING
FEMALE ATHLETES

"What I get out of it is the satisfaction of helping these great women achieve their goals. It's not just athletic goals; it's seeing them grow as people. The biggest reward is when you can make a difference to the whole person."

Sheilagh Croxon – CAC Women in Coaching Program and Olympic Coach

www.coachesbc.ca/coachingfemaleathletes

CoachesBC

FACT Only 4% of girls aged 6-19yrs meet the daily physical activity recommendations in Canada's Physical Activity Guide (Statistics Canada, 2011).

FACT Adolescent girls who participate in sport are less likely than non-athletic peers to participate in sexual activity and/or report a pregnancy (Canadian Centre for Ethics in Sport, 2008).

FACT Adolescent girls report more barriers to participation than boys do, including time, money, resources and a concern for safety. Lack of active, older role models has also been cited as a contributing factor to lower participation rates among girls. (BCCEWH, 2000).

FACT If a girl does not participate in sport by the age of 10, there is only a 10% chance she will be physically active when she is 25 (Bunker, 1988).

Girls participate across wide continuums of physical activity opportunities. Currently three important trends in girls' participation patterns within physical activity are evident. First, girls are participating in sports in record numbers at all levels, from organized youth sports, to interscholastic sports and extreme sports like skateboarding, up through Olympic competition. Second, girls' participation in moderate-to-vigorous physical activity outside of organized sports is declining, especially as they move from childhood into adolescence. Finally, girls' participation rates in all types of physical activities consistently lag behind those of boys, and girls' sport dropout rates are higher. So while some girls are physically active, many girls fail to meet minimal standards of physical activity needed to accrue developmental and health benefits, or worse, they are completely sedentary. (Tucker Institute, 2007).

Contents

Introduction

This publication is designed as a reference for coaches of female athletes. The publication provides information about the needs, interests and experiences of female athletes to support coaches in fostering their physical, mental, emotional and social potential. Regardless of the gender of the coach, he or she must recognize the specific needs of their athletes and understand the unique characteristics of female athletes.

This publication was originally developed in 2001 by the Coaches Association of British Columbia in partnership with ProMOTIONPlus. It was based on discussions about coaching female athletes with eight coaches and three female athletes with experience spanning several years, ages, and levels, from grassroots to international competition.

Recognizing the strong demand for this resource and the updated research in the field of coaching female athletes, Coaches BC began the review process in 2010. Coaches BC is excited to launch the revised publication along with a complementary workshop and website resources in 2011. Visit www.coachesbc.ca/coachingfemaleathletes for more information.

Coaches BC would like to thank the following individuals for their generous contribution to the update of this publication, as it would not have been possible without their expertise and valuable insights.

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Penny Werthner - *University of Ottawa*

Project Leader
Laura Watson - *Coaches Association of BC*

> “My biggest lesson is to never underestimate the impact you can have, especially for women in sport. Sometimes we can feel discouraged, and think nothing is happening, but this is not the case. Every single day you can make a difference for one person.”
>
> *Guylaine Demers*
> *Professor (Université Laval),*
> *CAAWS board member*

Canadian Sport for Life (CS4L) – Long Term Athlete Development (LTAD)

The Canadian Sport for Life (CS4L) model encourages the establishment of an early and positive relationship with physical activity that can be sustained for life. A 7-stage Long Term Athlete Development (LTAD) pathway is described as a training, competition, and recovery program based on developmental age — the maturation level of an individual — rather than chronological age. The focus of the first 3 stages (Active Start, FUNdamentals and Learn to Train) is to develop physical literacy. Physical literacy provides the foundation for both high performance sport and lifelong participation in activity. Too often early sport experiences limit or restrict the young athlete's ability to explore and participate in other activities. The development of fundamental movement skills and fundamental sport skills performed in a wide range of environments (on the ground, in the air, in or on the water, on snow or ice, in the outdoors) are the basis of physical literacy. For girls in particular, the benefits of physical literacy are vital for developing their athletic and personal potential.

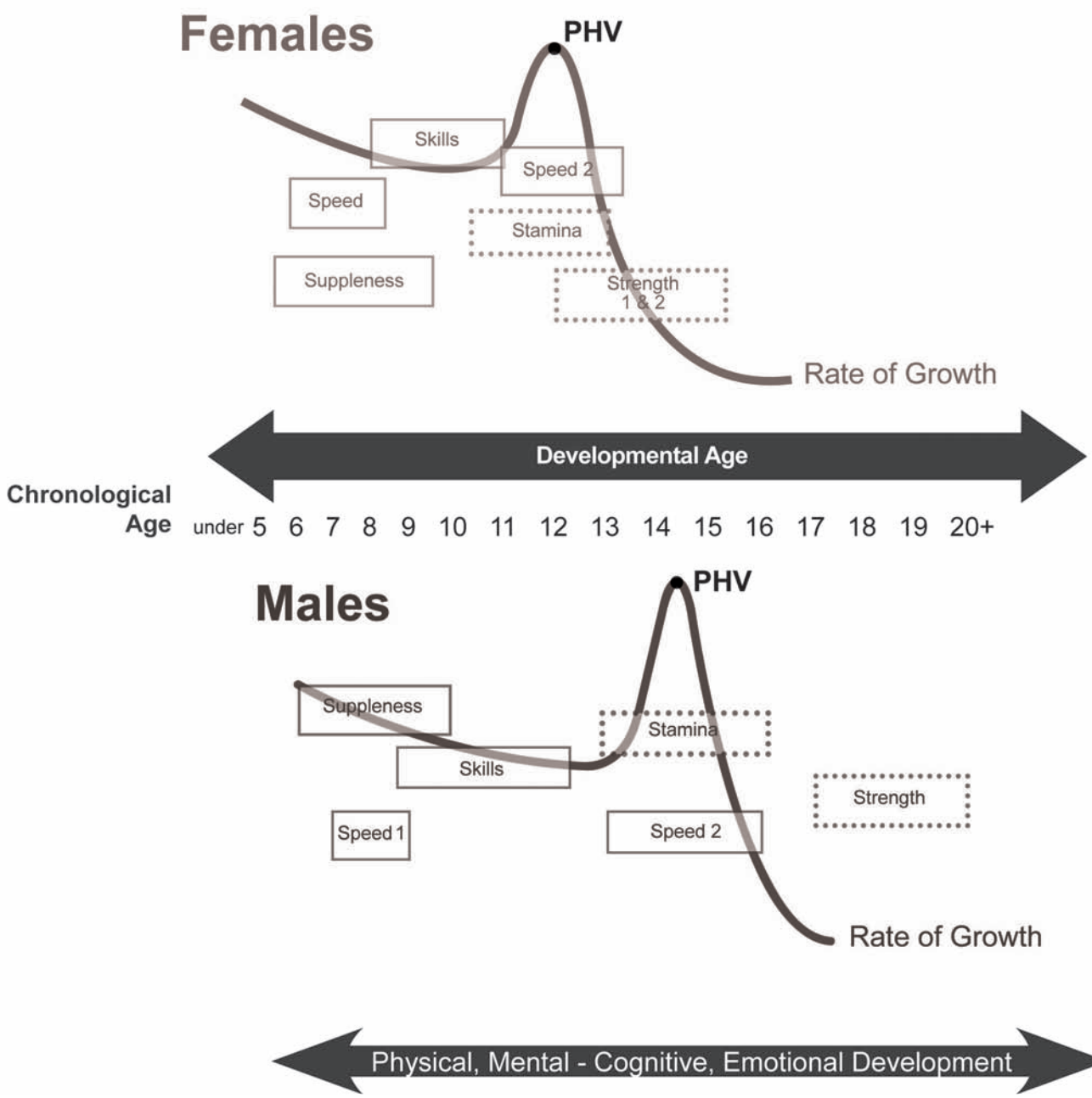
The Windows of Optimal Trainability for Females and Males

CS4L and LTAD require the identification of early, average, and late maturers, in order to design appropriate training and competition programs in relation to optimal trainability and readiness. The beginning and peak of the athletes' growth spurt very significantly in LTAD applications, providing important landmarks for training and competition program design. As shown in the image, stamina and strength are based on the moving scales of developmental age, the beginning of the growth spurt, and peak height velocity (PHV in girls occurs at about 12 years of age, compared to boys at age 14). Speed, skill, and suppleness are based on chronological age. The sequence of developmental events may normally occur two or even more years earlier or later than average.

Although growth and development is a natural process, the tempo of the maturation process can vary greatly. A child with a chronological age of 12 years may possess a biological age of between 9 and 15 years, but these athletes are often trained the same way and participate in age group competitions. This may give early maturers a significant advantage in performance and in the selection process. For these reasons, the developmental age of athletes should be identified and monitored by coaches. LTAD provides a monitoring and measuring program designed to help coaches develop and deliver training, competition and recovery programs that are specific to the developmental level of the individual(s) they are coaching (Balyi, 2009).

Coach Recommendations

- Understand that performance does not happen instantly, and once achieved does not stay consistent. Performance has a tendency to plateau, drop, and peak due to many factors including emotional, psychological, and physical issues.
- Design and implement a developmentally appropriate training program that considers the physical, physiological, and psycho-social aspects of an athlete's development.
- Consider the benefits of knowing an athlete's sport history, including injuries, health, academics, competition and training programs, etc.
- Collect and monitor relevant information to an athlete's growth and development to assist in program planning.
- Establish a monitoring program that provides and reports critical information throughout an athlete's career (within one season and throughout multiple seasons).


Females
PHV
Skills
Speed 2
Speed
Stamina
Suppleness
Strength
1 & 2
Rate of Growth
Developmental Age
Chronological
Age
under 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20+
Males
PHV
Suppleness
Stamina
Skills
Strength
Speed 1
Speed 2
Rate of Growth
Physical, Mental - Cognitive, Emotional Development

Physical Differences in Male and Female Athletes

There are obvious physical differences between elite male and female athletes, but at the community level the disparity can be minimal. More significant differences can often be found within the sexes rather than between.

Although men's and women's bodies respond similarly to exercise, it is the extent of the responses that is different. When it comes to physical measurements in the general adult population, the average male tends to have increased muscle mass, heart and lung capacity, and aerobic capacity (increased strength, power, and speed); the average female has increased flexibility and buoyancy (due to less muscle mass and a higher percentage of body fat).

Coach Recommendations

- Develop training programs for female athletes that reflect the physiological differences between males and females.
- Know that weight gain is a normal part of puberty and adolescence and female athletes may feel self-conscious about their bodies.
- The number of overweight and obese girls is on the rise. Recent statistics show nearly half of girls aged 12 to 19 fall into this classification. The social discrimination (i.e., taunting, ridicule, isolation) confronted by overweight and obese girls, and the psychological, social and physical health costs, are too high for anyone, much less a child or adolescent, to have to pay (Tucker Center, 2007).

Blood and Circulation	• The average woman is smaller than the average man, and therefore has a smaller heart muscle and consequently lower VO2 (oxygen consumption) maximum. • Women have 30% lower concentration of hemoglobin, the primary mechanism that transports oxygen through the body. Because of this, a woman's cardiovascular system may be up to 30% less proportional to a man's. • Maintaining adequate iron levels in female athletes is an ongoing concern. When the women's menstrual cycle begins, 25% of women become iron deficient. Iron deficiency is higher in menstruating women; 0-19% for iron deficiency anemia and 20-62% for non-anemic iron deficiency. • A woman's body temperature fluctuates during the course of the menstrual cycle.
Muscles and Fat	• Muscle growth is regulated by hormones such as testosterone, which is 10 times more prevalent in men than women. Generally, women have 20% less muscle mass; however, when strength is measured in terms of lean body mass this difference is reduced. • Estrogen is produced in much greater amounts in women and results in wider hips and increased amounts of fatty tissue. Women generally have 20-26% fat tissue and men have 15-20%. The extent to which one retains fat is influenced by diet and exercise. Women's fat tissue is preferentially distributed around the buttocks and breasts.
Bones	• Women generally have smaller, less dense bones and begin growing two years earlier than men because of female hormones. • Women are more prone to osteoarthritis (common "wear and tear" arthritis) and osteopenia (low bone mineral density) due to factors identified in the Female Athlete Triad. • Many athletes do not consume sufficient levels of calcium, particularly those who restrict caloric intake or eliminate dairy products from their dietary intake. • 80% of variance in bone mass density is attributed to genetic factors. Lean body mass, estrogen, and exercise are other important influences.
Sweat	• Men produce more sweat and start sweating earlier during activity than women. This may be an advantage for men in a hot, dry environment (as sweat cools the body), however dehydration is a potential problem. • Sweat electrolyte losses differ between children, adolescents, and adults, as the ability to sweat and regulate temperature is dependent more on maturation than gender. Dehydration is more detrimental to children than to adults. • Children's energy requirements during walking and running can be as much as 30% higher than in adults per kilogram of body mass.

Physiological Considerations

When considering the development and implementation of a training regiment for female athletes, coaches must first have an understanding of the female's physiological processes and appreciate how they differ from a male. Emerging research in prevention and training practices show that gender-conscious approaches to physical training and conditioning for female athletes help to reduce the likelihood of anterior cruciate ligament (ACL) injuries. The occurrence of a high proportion of ACL injuries through non-contact (forces applied to the knee at the time of injury were a result of the athlete's movements, not contact with another athlete) mechanisms is significant. This points to features of the athlete's movement, not the circumstances of the sport activity, as the precipitating event for the injury (Women's Sports Foundation, 2009).

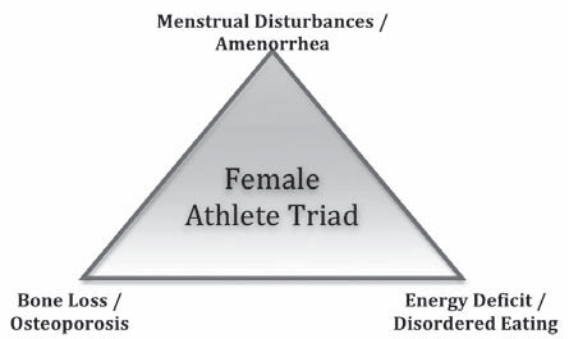
The "Female Athlete Triad" is a medical condition unique to females that is a combination of three interrelated conditions that can be associated with athletic training: disordered eating, amenorrhea, and osteoporosis (Hobart & Smucker, 2000). While each of these conditions has potential damaging effects, together the risks are far greater.

1. Disordered eating occurs along a wide spectrum ranging from calorie, carbohydrate, protein and/or fat restriction to the more extreme eating disorders such as anorexia nervosa and bulimia nervosa. Disordered eating can cause decreased bone mineral density, gastrointestinal problems, cardiovascular abnormalities and psychiatric problems such as depression, anxiety and even suicide. Female athletes who have a negative energy balance (consume less calories than they expend) inhibit their body's potential for optimal growth and reduce their capacity to reach maximum peak performance.
2. Amenorrhea is a type of menstrual dysfunction defined as the absence of a menstrual period in a woman of reproductive age. Menarche (the onset of the menstrual cycle) occurs at the later stages of puberty in girls. The average age of menarche is 12 years, but occurs anywhere between ages 8 and 16 years of age. A "normal" menstrual period usually occurs every 28 days, from the first day of a period to the first day of the next (this can vary from 22 to 36 days). Each period usually lasts from 3 to 7 days, with the average being 5. Irregular periods are common in early adolescence and it may take several years

from the start of menstruation for periods to settle into a pattern. Even after adolescence, many factors can affect the timing of menstruation.

Lack of caloric intake, training intensity (including overtraining in younger athletes) and previous menstrual functioning can all affect the menstrual cycle. While low energy availability is the primary factor leading to reproductive irregularities, associative factors include low body weight and/or low body fat. It is important for coaches and athletes to understand the negative consequences of amenorrhea, including lower bone mineral density, higher incidence of stress fractures and infertility, and lower levels of the hormones estrogen and/or progesterone leading to lifelong health consequences that can potentially be fatal.

3. Disordered eating and menstrual dysfunction are common risk factors for osteopenia (condition) and osteoporosis (disease), whereby bone mineral density is lower than normal, leading to increased risk of fracture. The integrity of bone formation, growth and maintenance can be negatively affected by limited calcium intake as a result of disordered eating habits, and low estrogen levels due to menstrual dysfunction. This can result in a greater risk of premature osteoporosis, and can make athletes more susceptible to stress fractures which may inevitably force an athlete to discontinue all training for a significant amount of time.



Coach Recommendations

- Know about the risk factors for female athletes and educate athletes, parents and administrators.
- Educate yourself and your athletes about ACL-injury prevention methods, such as stretching, strength-training, balance and plyometrics training (Harber, 2010).
- Implement a screening program for risk factors as a prevention method, including information to dispel misconceptions about body weight, body composition, and athletic performance.
- Know that critical years for maximizing bone mass density start with the pre-pubertal and pubertal stages, and extend into the early 20's. Energy deficits during this time can lead to impaired bone mineral density acquisition and increased risk of stress fractures.
- Communicate to athletes that optimal health is vital to prevent lost training or competition time due to injury resulting from unhealthy behaviours.
- Know that female athletes participating in endurance sports (e.g. middle or long distance running, cross-country skiing), aesthetic sports (figure skating, synchronized swimming, gymnastics), and weight classification sports (wrestling, boxing, rowing) can feel pressured to try and reach an unrealistic body weight in the hopes of achieving greater success.
- Become familiar with signs and symptoms of an athlete struggling with disordered eating; often team-mates know before a coach does.
- Understand that disordered eating behaviours can result from psychological factors, such as low self esteem, poor coping skills, perfectionism, obsessive compulsive traits, depression, anxiety and perceived loss of control.
- Understand that during menstruation female athletes may avoid disclosing why they are not feeling well.

Encouraging Females to Get Involved and Stay Involved in Sport

To promote and maintain females' participation in sport and physical activity, coaches need to understand what motivates female athletes to participate and provide an environment that addresses those needs.

Research indicates that girls and women become involved in physical activity and sport for many reasons. Most commonly, females are attracted to sport for the elements of affiliation, skill development, personal improvement, a nurturing environment and a social network. Women who have positive sporting experiences may benefit from enhanced health and well being, fostered self esteem and empowerment, enhanced social inclusion and integration, and being provided with leadership opportunities (Mulholland, 2008).

Common barriers to females' involvement in physical activity and sport are a lack of encouragement, a lack of opportunity, lack of basic skills, conflict with other activities, low self esteem and low self efficacy, and parents, coaches and peers who perpetuate stereotypes of femininity by associating sport with masculinity.

> "There is evidence that positive sport experiences can contribute to the full inclusion of girls and women by enhancing their health and well-being; fostering their self-esteem and empowerment; facilitating their social inclusion and integration; changing gender norms; and providing opportunities for female leadership and achievement."
>
> *-Mulholland, 2008*

Coach Recommendations

- Create a fun environment by incorporating social time and a variety of team and individual challenges.
- Encourage females' involvement through friends and social networks.
- Invest time to develop positive social relations amongst team mates.
- Run positive programs where girls and women experience success through skill development and goal accomplishment.
- Give athletes responsibility for certain aspects of the program, such as running warm-up or planning social events; provide leadership opportunities for ALL team members.
- Create physical challenges that allow females to positively experience their athletic capabilities.
- Inform parents of team philosophy, emphasizing that their commitment and encouragement are important.
- Introduce athletes to female athletes as positive role models (e.g. involve high school athletes as "junior" coaches for younger children, have college/university athletes participate in a team practice, or watch professional elite games as a team).

Creating an Optimal Performance Atmosphere

Optimal performance is dependent on multiple factors of preparedness; therefore, it is important for coaches to facilitate an athlete's physical, mental, emotional and social development. Coaches must understand that each athlete has a unique set of conditions under which she can learn and perform at her best. Examples for creating an optimal environment are: involving them in the program design, ensuring mental and physical safety in team situations and reducing emphasis on anxiety-producing situations such as structured fitness testing.

Coach Recommendations

- When errors occur, state what the mistake was and clearly explain how to correct it, rather than simply saying "you did it wrong" - use positive, specific feedback.
- Maintain a positive attitude and communicate in a respectful demeanor (verbal and non-verbal).
- Challenge athletes on all levels and help them strive to reach their true potential.
- Help athletes learn new skills, contributing to more confidence on the field, court, ice, etc.
- Show professionalism: be on time, dress appropriately, and always listen to feedback from athletes.
- Understand that athletes have different personalities - tactics that motivate some will negatively affect others.
- Make goal setting a collaborative effort between the athlete(s) and coaching staff.
- Athletes are going to make mistakes; use them as opportunities to foster self-teaching.
- Provide tools and support to help athletes learn to manage pressure.
- Avoid formation of "cliques" by mixing groups and pairing athletes up differently.
- Make a conscious effort to respect and spend equal time with each athlete in order to avoid charges of favouritism.

Self Confidence, Self Esteem and Body Image

Self esteem is the degree of worth and competence that we attribute to ourselves. Through sport, we may enhance our self esteem by having a positive image of our bodies and the physical skills and abilities that we develop. We feel positive self worth through the recognition that we receive from family and friends and the social relationships that develop as a result of our involvement in sport and physical activity.

Yet, we may be vulnerable to low self esteem in sport and physical activity if we perceive our body to be inadequate, unfit or inappropriate for our selected activity. We may feel that our self worth is judged on our losses and wins versus our abilities and intentions. The intensive participation in sport may lead to social isolation and lack of family support. All of these negative emotions need to be refocused in order to build positive self esteem (Alleyne, 2003).

Coaches can be an important influence on the development of females' self confidence, self esteem and healthy body image. Among girls and women, there is significant research supporting the positive role sport participation can play in their feelings of empowerment. Females involved in sport tend to develop a greater sense of ownership of their bodies, a stronger sense of identity and a greater sense of self direction (Mulholland, 2008).

Coach Recommendations

- Invite professionals to lead workshops on self esteem, sport nutrition and mental training.
- Focus more on the process of becoming physically fit rather than on the outcome.
- Use encouraging words and honest comments. Use clear, positive, specific, performance-based feedback (instead of "good effort" try "good leg movement, try this with your arms").
- Help athletes develop fitness programs and promote healthy nutritional habits.
- Recognize that athletes develop skills at their own pace and everyone has different strengths and weaknesses. Communicate your reasons for placing athletes in certain role(s) and allotting 'x' amount of playing time.
- Understand that females often internalize comments about their bodies, taking them as reflections on their personalities or self-worth (female athletes are more likely to internalize emotional issues than to voice their opinions).
- Build self confidence by providing opportunities for athletes to progressively develop and master skills. Help your athletes set attainable and measureable goals.

> "Favouritism is a huge concern for female athletes. If one girl has a lot of talent and the coach spends a lot of time with her, the others will think this athlete is getting too much attention. Conversely, sometimes athletes who are doing well don't seem to require as much help and get neglected. It's really important to balance your time between athletes so they perceive equity and fairness."
>
> *Dee Dee Haight, Coach, Alpine Skiing*

Psychosocial Considerations: Social Interaction and Team Dynamics

Team members spend a lot of time together over the course of a season. It is this camaraderie and social networking that attracts many females to participation in sport. Team cohesion enhances the enjoyment athletes experience through participation, as well as their performance. Therefore, it is important for coaches to encourage the development of positive and energy-enhancing team dynamics, even in sports where athletes compete individually.

> "This year our teacher respects us and treats us better than anyone ever did. She doesn't treat us like we are lazy and not good at stuff. She has respect for us, she teaches us so many things, and she is so friendly and everything. You know what it is? She acts like she is excited about what we are doing… and we are not on a team or anything - for the first time I feel like I belong here."
>
> *Beliveau and Humbert, 2009*

Recommendations for Best Practices, Programs, and Approaches

The Tucker Center Research Report on Developing Physically Active Girls developed the following evidence-based multi-disciplinary approach. For girls, physical activity is not an "add-on"—it is essential. Not only does physical activity promote health, but it also facilitates accrual of developmental assets such as: social, emotional, cognitive, behavioral, physical, and moral competencies; resilience, self-efficacy, and identity; and develops connection and civic engagement in ways that extend far beyond physical activity contexts.

However, the positive youth development that can occur in and through sports is largely dependent on the quality and expertise of the adults who manage and deliver programs and their ability to create and foster a positive/supportive environment. These adults must be able to work within a social and organizational environment that provides the circumstances in which these girls can develop a strong relationship with physical activity or their sport.

The figure illustrates an evidence-based, multidisciplinary model for developing physically active girls, starting with five antecedent social groups who can help create optimal physical activity contexts into which the girls themselves enter and engage. Experiences in these optimal physical activity contexts result in interrelated clusters of health outcomes.

Coach Recommendations

- Take responsibility for managing the social dynamics of the team - hold social events outside of training, such as team hikes or meals, attending athletic events, movies or taking part in a charity event.
- Allow unstructured social time at the beginning of practice (e.g. chatting while running to warm up or playing a fun modified pick-up game) and occasionally incorporate modified games into practices.
- Allow athletes to joke and feel relaxed during training and know when is appropriate to use humour.
- Respect the spectrum of abilities of all of your athletes.
- Welcome newcomers; avoid 'rookie' events that emphasize disparity between team members.
- Know that cliques have the power to destroy a team.

An evidence-based multidisciplinary model for developing physically active girls

For more information about Coaching Female Athletes, please contact:

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Canadian Sport for Life
www.canadiansportforlife.ca

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All specific articles, website, and organizations referenced in this publication can be found at www.coachesbc.ca/coachingfemaleathletes.

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Glossary of Important Terms

Amenorrhea: The absence of a menstrual period in a woman of reproductive age. Primary amenorrhea is a failure to start menstruating, secondary amenorrhea is the absence of menses for three or more months after regular menses has been established, and oligomenorrhea is defined as only experiencing six to nine cycles per year with the cycle length being greater than 35 days or less than 3 months.

Body Image: The picture of our physical selves that we hold in our mind's eye. Often this image does not resemble the way we actually look and competes with unrealistic weight or fitness expectations. Our emotions also affect our perceptions of our bodies. (Association for Anorexia and Associated Disorders [ANAD], 1999)

Chronological Age: The number of years and days elapsed since birth, as growth, development, and maturation operate in a time framework.

Developmental Age: The interrelationship between growth and maturation, which also includes social, emotional, intellectual, and motor realms of the child.

Female Athlete Triad: A collection of three interrelated conditions: disordered eating, amenorrhea, and osteoporosis.

Long-Term Athlete Development (LTAD): An integrated, systematic, and coordinated approach that looks at the needs of the individual and enables them to maximize their sporting potential from childhood to adulthood. The LTAD framework aims to define optimal training, competition and recovery throughout an athlete's career to enable her/him to reach her/his full potential in sport.

Osteopenia: A condition where bone mineral density is lower than normal.

Osteoporosis: A bone disease that leads to an increased risk of fracture, whereby the bone mineral density (BMD) is reduced, bone micro-architecture is disrupted, and the amount and variety of non-collagenous proteins in bone is altered.

Peak Height Velocity (PHV): The maximum rate of growth in stature during growth spurt.

Puberty: The point at which an individual becomes sexually mature and able to reproduce. The phase of growth that begins with onset of hormonal changes in the reproductive system and ends with sexual maturity.