

SPORTS PERFORMANCE IN THE FEMALE ATHLETE

Shaylon Rettig, MD, MBA
Children's Hospital of San Antonio
Baylor College of Medicine



OBJECTIVES

- Describe various training regimens to enhance sports performance
- Review the effects of overtraining and define overtraining syndrome

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- Discuss the role of nutrition and supplements in sports performance

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SPORTS NUTRITION

- Only exercise, in conjunction with good nutrition, can increase muscle mass and strength

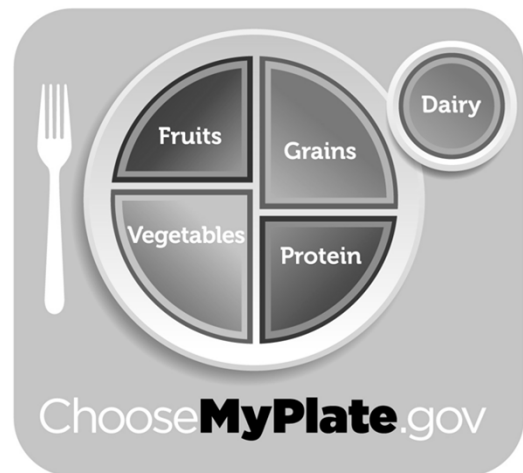


SPORTS NUTRITION

- The most effective way to provide optimal nutrition for achieving top physical performance is by following a well-balanced diet that provides sufficient nutrients and calories to meet the metabolic demands of the body and promote maximum growth

SPORTS NUTRITION

- In most persons, intense physical activity probably does not increase the need for specific nutrients, except calories and water, to compensate for the increased energy expenditure and water loss caused by exercise



SPORTS NUTRITION

- Athletic adolescents, if given sound information, are more likely to eat properly than are nonathletic adolescents

SPORTS NUTRITION

- Calories
- The nutritional demands and requirements for both aerobic and anaerobic athletic activities can usually be met by simply increasing the quantity of a balanced diet
- The energy requirements during adolescence are extremely variable (activity levels, variation in size, body composition, sexual maturation, and rate of growth)

SPORTS NUTRITION

- Protein
- So added dietary protein is not needed but a small increase in the daily protein intake may be justified to meet the need for building muscle mass and blood volume during training
- The ingestion of a high-protein diet does not seem to improve performance



SPORTS NUTRITION

- Water and electrolytes
- The most essential and neglected nutrient requirement in an athlete's diet is water
- Water regulates body temperature, serves as an essential component of the biomechanical reactions involved in energy production, and transports waste products and nutrients

SPORTS NUTRITION

- Water and electrolytes
- A fluid deficit of as little as 3% of body weight stresses the circulatory system and can substantially impair thermoregulation and endurance capacity
- Once dehydrated, it takes 24-72 hours to adequately rehydrate

SPORTS NUTRITION

- Water and electrolytes
- For non-endurance sports, carbohydrate ingestion does not enhance performance, so the main emphasis should be on maintenance of hydration

Describe various training regimens to enhance sports performance

STRENGTH TRAINING

- Multiple studies have shown that strength training, with proper technique and strict supervision, can increase strength in preadolescents and adolescents

STRENGTH TRAINING

- In preadolescents such gains can be attributed to a neurologic mechanism where the number of motor neurons are 'recruited'



STRENGTH TRAINING

- Results are inconsistent regarding the translation of increased strength to enhanced youth athletic performance
- Strength training combined with plyometric exercises suggest a possible reduction in ACL injuries in adolescent girls

STRENGTH TRAINING

- No apparent adverse effect on linear growth, growth plates or the cardiovascular system,
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VISION TRAINING

- Before an athlete can process input to initiate an action, their eyes must first quickly and accurately capture information. This is a skill that can be improved through training.
- The first step to having a sound visual system involves the ability of the eyes to work together to quickly transmit high quality detailed data for processing.
- Strong visual skills will enhance an athlete's ability to interpret and understand the visual information that is available.

VISION TRAINING

- For purposes of development of an athlete's visual system, there are three important objectives sought from most sports vision training programs:
 1. Improvement of eye muscle control and endurance
 2. Enhancement of peripheral and spatial awareness
 3. Increase in visual and brain processing speed

VISION TRAINING



Review the effects of overtraining and define overtraining syndrome

OVERTRAINING

- A process of excessive exercise training in (high-performance) athletes that may lead to overtraining syndrome (and overuse injuries)

OVERTRAINING

- How much training is too much?- No scientifically determined guidelines
- Injuries tend to be more common during peak growth velocity and more likely to occur if underlying biomechanical problems are present

OVERTRAINING SYNDROME (OTS)

- A series of psychological, physiological, and/or hormonal changes that result in 'decreased sports performance'

OVERTRAINING SYNDROME (OTS)

- Staleness
- Nonfunctional overreaching (NFOR-early OTS)
- Burnout (serious sequela of OTS)

PHYSICAL SYMPTOMS

- Chronic muscle or joint pain
- Fatigue
- Sleep problems
- Decrease in appetite
- Elevated resting heart rate(?)
- Decreased sports performance*

PSYCHOLOGICAL SYMPTOMS

- Lack of enthusiasm about practice or games
- Difficulty with successfully completing usual routines
- Mood variability during periods of hard training



PSYCHOLOGICAL SYMPTOMS

- Feeling intimidated by their opponents
- Lack of confidence in their future as athletes
- Excessive signs of anxiety and emotional stress

IMMUNOLOGICAL CHANGES

- Upper respiratory tract infections
- Both OTS and URIs result from a common cause: excessive training with insufficient rest and variety of training

IMMUNOLOGICAL CHANGES

- Serum IgA lower in athletes who train for long durations but response to antigenic challenge is normal
- Some overtrained athletes have lower salivary IgA and is predictive of appearance of URI short and long term
- IgA concentration is the only immune parameter to be directly associated with the appearance of URIs

CONTRIBUTING FACTORS

- Sudden increase in training volume and/or intensity*
- Heavy competition schedule
- Lack of periodization or programmed recovery in training schedule

CONTRIBUTING FACTORS

- Monotonous training program
- High self-reported stress levels, regardless of whether they are directly related to training

GUIDANCE

(ADOPTED FROM AAP)

- Encourage athletes to strive to have at least 1 to 2 days off per week from competitive athletics, sport-specific training, and competitive practice (scrimmage) to allow them to recover both physically and psychologically

GUIDANCE

(ADOPTED FROM AAP)

- Encourage the athlete to take at least 2 to 3 months away from a specific sport during the year.*
- Emphasize that the focus of sports participation should be on fun, skill acquisition, safety, and sportsmanship.

GUIDANCE

(ADOPTED FROM AAP)

- Encourage the athlete to participate on only “One” team during a season. If the athlete is also a member of a traveling or select team, then that participation time should be incorporated into the aforementioned guidelines.

GUIDANCE

(ADOPTED FROM AAP)

- If the athlete complains of nonspecific muscle or joint problems, fatigue, or poor academic performance, be alert for possible burnout. Questions pertaining to sport motivation may be appropriate.

SUMMARY

- Balanced diet. Caloric needs to meet physical demands.
- Performance training should be supervised and age appropriate
- Rest and variation is the important to avoid overtraining
- Delaying sports specialization can be beneficial

THANK YOU