

A photograph of a baseball player in a white pinstriped uniform sliding into a base. The player is wearing a red helmet and a brown glove. The background is a blurred green field.

Concepts of Athletic Training

**FIFTH
EDITION**

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Chapter 6

Nutritional Considerations

Nutrition

Diet influences every aspect of sports participation.

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- Coaches and athletes often lack adequate nutrition information and incorporate

Carbohydrates

Carbohydrates (CHO) provide energy for _____.

- Experts recommend ____% to ____% of calories be supplied by CHO.
- Each gram of CHO provides ___ kilocalories.
- _____ is the body's storage form of CHO.
- Carbohydrate loading can benefit athletes involved in aerobic sports, especially activities lasting _____.

Lipids

Fats (lipids) are needed for _____

- Fatty acids and _____ make up simple fats.
- Fatty acids can be _____
- Experts recommend that fats compose _____% or less of total calories.
- Each gram of fat supplies _____ kilocalories.

Proteins

Proteins are composed of amino acids; _____

Muscle protein is an energy source for muscles during prolonged exercise (up to ___% to ___% of energy needs).

There are _____ amino acids, which cannot be synthesized by the body.

Essential amino acids must be ingested in the diet through eggs, meats, dairy products, legumes, or grains.

Protein Supplementation

Protein supplementation is not recommended because the excess can:

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-
- **NO** scientific evidence that protein supplements enhance muscles.
- During _____, 1.2 to 1.8 grams of protein/kg body weight are recommended.
- Normal diet provides _____ consumption for intense training.

Vitamins

Vitamins have various functions; _____

- Some vitamins are _____ that protect cell structures.
- There are _____ types of vitamins.
- A balanced diet supplies RDA for all necessary vitamins.

Minerals

Minerals are elements needed for various body functions.

- _____ is most prevalent mineral in body.
- There is no scientific evidence to support taking minerals in excess of RDA for performance.
- Athletes who do not eat a balanced diet should be advised to include a _____

- *Megadoses* of vitamins/minerals should be _____.
- Females may be at risk of calcium deficiency, which can lead to osteoporosis.

Water (H₂O)

Water is _____
_____.

- Adult water requirement at rest is approx. 2.5 liters daily, but it can increase to _____ liters during heavy exercise, especially in high temperature and humidity.
- Water lost during exercise needs to be replaced to maintain body's fluid balance.

Dietary Habits of Athletes

- Eck's study of 43 university football players indicated their diets were 34.7% CHO, 17% protein, and 42% fat.
- Recommended proportions are 45%–70% CHO, 12%–15% protein, and 20% fat.

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Dietary Habits of Athletes

Conclusions

- Many athletes do not consume proper proportions of protein, CHO, and fat.
- Many tackle football players consume diets high in protein and fat.
- Athletes in sports that require lean bodies tend to eat diets with insufficient calories.
- Athletes eat too much “_____”.
- Most athletes’ diets are deficient in important minerals, i.e., calcium, iron, & zinc.

Diet and Wrestling

Wrestlers often follow unhealthy weight loss procedures to compete in lighter category.

- _____
_____.
- Dehydration occurs through the use of

Wrestling (cont.)

Short-term effects of repeated bouts of extreme weight loss include:

-
-
-
-

Long-term effects may include interference with normal growth and development.

Wrestling Minimum Weight Project (WMWP)

Wisconsin instituted WMWP in 1989.

- Weight loss must be no more than 3 lbs. of weight loss/week.
- A minimum 7% body fat level was established.
- Testing of athletes, along with nutrition education for coaches, was done by trained volunteers.

WMWP (continued)

The NFSA has developed a national wrestling rule #1-3-1 that states:

“A medical professional should...establish a minimum (wrestling) weight through... checking body fat and hydration. The recommended minimum body fat should not be lower than **7%**.”

What Can the Coach Do?

Coaches are an important source of nutrition information.

- _____

- Attend in-service meetings, professional conferences, or community education programs in sports nutrition.
- Subscribe to professional journals that include nutrition articles.

What Can the Coach Do? (cont.)

- Locate nutrition experts, including dietitians, university nutrition faculty, or sports medicine staff.
- _____

_____.
- When working with children, discuss nutritional needs of the athlete with parents.

General Dietary Guidelines for Athletes

Three Goals

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-
-

Nutrition During Training

Recommendations include:

- ___% to ___% of calories from protein, ___% from fat, and the remainder from CHO.
- ___ to ___grams of protein/kg of body weight/day.
- Little need for vitamin/mineral supplements if diet is well balanced.
- Using simple terms when educating young athletes about nutrition.



MyPyramid, www.MyPyramid.gov

Pre-competition Diets

- Avoid eating meals _____.
- Eat low-fat, easy-to-digest foods _____ hours before competition.
- Liquid meals increase hydration and are less likely to cause bloating or “heavy” feeling than solid meals.
- Foods should provide _____ grams of CHO or 3 to 5 grams/kg of body weight.

Nutrition During Competition

- CHO consumption during long-duration exercise (_____) allows muscle cells to rely on blood glucose for energy.
- Recommended source of CHO is _____ oz. of a _____% CHO solution consumed every _____ min.

Weight vs. Fat Management

- Body weight consists of _____

- Per unit volume, muscle is denser than fat.
- When athlete fails to consume enough calories to meet needs, fat is metabolized for energy.
- _____

Minimal Competitive Weight

- Athletes should only weigh themselves _____ at the same time of day and after going to the bathroom.
- Males should have at least _____% of their total body composition in the form of fat.
- Females should have a minimum of _____% of their total body composition as fat.

Minimal Competitive Weight (MCW)

Sample Equation:

A 135 lb athlete with 14% body fat has LBW =
 $135 \times .14 = 18.9$ lb fat

$135 \text{ lb} - 18.9 \text{ (fat weight)} = 116.10 \text{ lb (LBW)}$

$\text{MCW} = 116.10 / 0.95 = 122.21 \text{ lb}$

Nutrition and Injury Recovery

Weight gain can occur with forced inactivity due to injury.

- Recommend cross training during recovery.

- _____

- Maintains aerobic fitness while burning excess calories.

- _____

Supplements and Ergogenic Aids

- _____ have become very popular with athletes of all calibers.
- Supplements can be divided into two categories: _____.
- _____ supplements: caffeine, creatine, amino acids, and herbal supplements.
- _____ supplements: anabolic steroids, androstenedione, EPO, GHB, human growth hormone.

Creatine

- Creatine _____

_____.
- Produces an increase in energy at the cellular level which allows the athlete to train for longer periods of time.
- There are many published studies on creatine use that report conflicting results.