

Sports Nutrition

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Abstract – Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Exercise interventions also help manage diabetes by stabilizing blood sugar levels, preventing osteoporosis and improving bone health Osteoporosis.

Nutrition includes mainly Carbohydrates, Proteins and Vitamins .Carbohydrates are the primary energy sources of physical activities. Carbohydrate loading is the process during pre-competition training, during competition and after competition trainings.

Carbohydrates provides Glucose, Sucrose, Fructose, Lactose and Galactose, etc. which is needed in the daily Diet of athletes, skaters, skiers and different players for their different events. Some sports nutritionist's uses particular calories of food with certain calorific values for particular sport events. So sports nutrition is the very important for all sports activities.



INTRODUCTION

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Healthy human development is a necessary foundation for all development progress.

EXPLANATION:-

Cardiovascular health benefits occur at moderate levels of physical activity and increase at higher levels of physical activity and fitness. People who participate in regular physical activity are at much less risk of suffering a major coronary event such as a heart attack.

Preventing and managing diabetes Worldwide, over 180 million people live with diabetes. Current research indicates that both aerobic and resistance (strength) exercise are associated with a decreased risk of type 2 diabetes . Exercise helps to reduce the likelihood of developing the disease among populations at high risk due to being overweight.

- Exercise interventions also help manage diabetes by stabilizing blood sugar levels, however this protective effect is more pronounced for those with type 1 diabetes. While both aerobic and resistance training help to control diabetes, resistance training provides greater benefits for blood sugar control than aerobic training. Appropriate physical exercise, combined with diet or drug

therapy, can be the most effective means of controlling type 2 diabetes in persons who have a mild form of the disease.

- Involvement in sport and physical activity can remain healthy and enjoyable.66 Preventing cancer.
- There is strong evidence that excessive weight increases the relative risk of several chronic diseases. Obesity and inactivity have similar links with health risk indicators such as elevated blood pressure, fasting plasma glucose levels, and inflammatory markers.
- Preventing osteoporosis and improving bone health Osteoporosis is the deterioration of bone tissue leading to loss of bone mass and a higher risk of bone fractures. Women are at higher risk for osteoporosis than men. Physical activity, in combination with calcium and vitamin D, helps build bone mass.

PROCEDURE:-

Pre-competition Meal

Pre-workout meal goal: maximize muscle & liver glycogen stores providing glucose for intestinal absorption during exercise & enhance hydration.

Be consumed within 3-4 hours before exercising sufficient time to digest & absorb.

Reasons precompetition meal high in CHO:

Foods high in lipid & protein digest slowly

Low CHO meal can hinder performance

Contain 150 – 300 g CHO in solid or liquid

Benefits of precomp liquid meal: contribute to fluid needs, absorb rapidly leaving no residue .

Nutrient Consumption: Fit

Active people do not require additional nutrients beyond those obtained in a nutritionally well balanced diet.

What physically fit actually eat.

Small differences in energy intake (low v high)

Higher dietary fiber & lower cholesterol intakes

Diets more closely approach recommendations

Sound human nutrition represents sound nutrition for athletes.

Carbohydrate Needs*

- Carbohydrate is the optimal fuel for exercise
- Prolonged and intermittent, intense training depletes carbohydrate (glycogen) stores resulting in poor performance and fatigue.
- Consume carbohydrate with every meal.
- In general, carbohydrates (CHO) should always provide at least 55% of total daily calorie (TDC) intake. Ideally 60-70% of TDC.

OBSERVATIONS:-

- A. Before exercise:** pre-exercise fructose absorbs more slowly, but GI distress consuming rapidly absorbed, CHO w/i 1 hr before exercising accelerates glycogen depletion by causing insulin overshoot & rebound hypoglycemia. Consuming CHO immediately (< 30 min) allows for relatively slow absorption.
- B. During exercise:** 30-60 grams per hour, 5-10 oz of 5-8% CHO electrolyte drink every 15-20 min or 2 gels per hour; drink contributes to temperature regulation

- C. After exercise:** To speed up glycogen replenishment, consume 50-75 g moderate to high glycemic index w/i 15 minutes.

Under optimal CHO intake, takes to replenish glycogen stores at rate of 5% per hour.

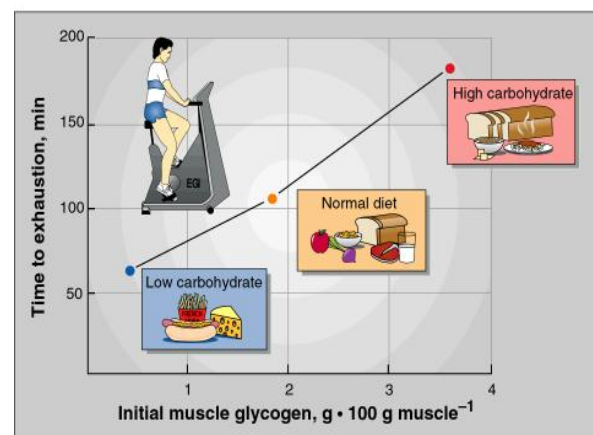
The BEST sports diet contains

ADEQUATE, but not excess protein to build and repair muscle tissue grow hair and fingernails produce hormones boost your immune system replace red blood cells

Carbohydrate Needs in Intense Exercise*

Successive days of intense training gradually deplete glycogen reserves even with typical CHO intakes: staleness. High CHO diet (80% of caloric intake) for 3 days increased muscle and endurance time.

9.9. Classic experiment on the effects of a low carbohydrate diet.



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Carbohydrates are the primary energy source during exercise

- High intensity, short duration (sprint)
- > 70% VO₂max
- Anaerobic pathway produces ATP
- Muscle glycogen breaks down into glucose for fuel .



Recommended Training Diet

CHO-rich diet + rest days

60-70% CHO

Choose complex over simple CHOs (unless recovery diet)



Nutritional Value of Sugar

	Calories (per Tbsp)	Calcium (mg)	Iron (mg)	Riboflavin (mg)
White	48	-	-	-
Brown	52	12	0.3	Trace
Honey	64	-	0.1	-
Molasses	53	40	0.6	Trace
RDI		1,000	18	1.7

RECOMMENDATIONS:-

Carbo Loading for Endurance Exercise

Daily Diet

Target: 4 g of CHO/lb/day

60-70% CHO

Low in fat

Balanced w/ adequate PRO

Include Adequate Protein .Along With Carbohydrates

The body needs 0.6-0.9g or PRO/ lb of body weight every day. Endurance athletes may burn some protein for energy

Choose Wholesome, Fiber-Rich Carbohydrates

Promote regular bowel movements. Keep systems running smoothly

Examples: Bran muffins ,Whole-wheat bread,Bran cereal,Fruits and vegetables .

RESULT :-

- 1) Basic nutrition is important for growth, achieving good health and scholastic achievement, and providing energy.
- 2) Sports nutrition enhances athletic performance by decreasing fatigue and the risk of disease and injury; it also enables athletes to optimize training and recover faster.
- 3) Balancing energy intake with energy expenditure is crucial to prevent an energy deficit or excess.
- 4) Energy deficits can cause short stature, delayed puberty, menstrual dysfunction, loss of muscle mass and increased susceptibility for fatigue, injury or illness.
- 5) Energy excess can result in overweight and obesity.

USEFUL WEBSITES:-

- American Society for Nutrition: www.nutrition.org

- Australian Sport Institute: www.ausport.gov.au/ais/nutrition
- The Canadian Nutrient File is a searchable database containing average values for nutrients in foods: www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/user_guide_d_utilisation01-eng.php
- Coaching Association of Canada: <http://coach.ca/fueling-the-young-athlete-p140142>; <http://coach.ca/sport-nutrition-tips-s13426>
- Dietitians of Canada has a table of iron-rich foods: www.dietitians.ca/Nutrition-Resources-A-Z/Factsheets/Minerals/Food-Sources-of-Iron.aspx
- Gatorade Sport Science Institute: <http://gssiweb.com>
- KidsHealth (Nemours), Feeding your child athlete: www.kidshealth.org/parent/nutrition_center/dietary_needs/feed_child_athlete.html

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