

Course description:

This course expands upon basic nutrition concepts on the nutritional needs of sports person. Course topics include energy requirements, metabolism of nutrients in the human body, principles of a balanced diet, diet planning, ergogenic supplements, vitamins and minerals, ergogenic aids, hydration and unique needs for various sports groups, and Management of Nutritional Problems among Sports person.

Objective of Course / Course Outcome

1. To determine energy needs for specific types of physical activity
2. To understand the relationships between diet and training for optimum performance.
3. To impart knowledge on the Nutritional basis for enhanced: exercise and sports performance, Nutritional requirements Weight Management and Holistic Health
4. To help students understand the role of ergogenic aids/ dietary supplements, their dose, safety and efficacy to enhance sports performance.
5. The need for dietary supplements for sports persons of various categories
6. To enable students, understand the Symptoms and Principles of nutritional management of various therapeutic conditions observed in sports persons

Unit I: Introduction to sports Nutrition:

Sports Nutrition, Nutritional Needs for Sports men (Athletes, Team sports, Power sports) - Carbohydrate, protein, Fat, Micronutrients, antioxidants, Enriched and fortified foods, Dietary Reference Intake, Fluid replacement and rehydration, Nutrition guidelines, Factors to be considered in sports nutrition, practical applications, Nutritional physiology - body composition, fluid balance)

Unit II: Overview of metabolism:

Co-enzymes involved in metabolism, Carbohydrate metabolism, Regulation of Glucose concentration, Lipids -Triglyceride metabolism, Catabolism of fatty acids, Protein Metabolism- Digestion of proteins, catabolism of amino acids, transaminase, Oxidative deamination. Interaction between nutrients.

Unit III: Diet Nutrition Summary for Sports men:

Principles of good nutrition, Food groups, Nutrients- Carbohydrates, fats, proteins, Vitamins and Minerals, Diet planning for sports men (Athletes, Team sports, Power sports), Healthy body lifestyle, suggested food choices, Challenges with food availability, eating before competition, Challenges with hydration, weight control measures.

Unit IV: Nutritional Supplements and ergogenic Aids:

Energy supplements, recovery supplements, Performance enhancing supplements, Selected ingredients as dietary supplements, Ingredients banned from dietary supplements, Regulations of dietary supplements, Safety considerations, Sensible approach to enhance performance. Current trends in sports supplements, Functional foods as supplements.

Unit V: Management of Nutritional Problems among Sports person:

Eating disorders among sports person, Nutrition for Injuries, Osteoporosis, Anemia, Mental health needs of sports person, psychosocial needs of sports men.

Clinical conditions - Diabetes, Hypertension and heart disease, and Gastro Intestinal Disorders- Etiology, Pathophysiology, Metabolic alterations, Complications, Assessment and Dietary Management.

TEXT BOOKS/ REFERENCES:

1. Browns, Fred and Caustan, Cargill (2002) Essentials of Sports Nutrition – 2nd edition John Wiley and Son
2. Maughan, R. J., & Burke, L. M. (2012). Practical nutritional recommendations for the athlete. In *Sports Nutrition: More Than Just Calories-Triggers for Adaptation* (Vol. 69, pp. 131-150). Karger Publishers.
3. Gibson, GR and William, CM. 2000. Functional foods - Concept to Product. Wood head publishing.
4. Slater, G., & Phillips, S. M. (2011). Nutrition guidelines for strength sports: sprinting, weightlifting, throwing events, and bodybuilding. *Journal of sports sciences*, 29(sup1), S67-S77.
5. Ambika Shanmugam, (2006). Fundamentals of Biochemistry