

DEPARTMENT OF HOME SCIENCE
SEMESTER – V

B.A (Prog) with Nutrition and Health Education (NHE)
B.A (Prog) with Nutrition and Health Education (NHE) as Major
Category-II

DISCIPLINE SPECIFIC CORE COURSE
DSC-9-NHE: Sports Nutrition

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title and Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical / Practice		
Sports Nutrition	4	3	0	1	XII Pass	NIL

Learning Objectives

- To impart knowledge and skills to students about Sports Nutrition
- To familiarise students with concepts of components of fitness and skills required for assessment and improvement of physical fitness
- To equip students with the concept and application skills with respect to nutrition for high performance sports through the life cycle and diet of sports persons

Learning Outcomes

After completion of the course students will be able to:

- Exhibit knowledge of the components of fitness and its assessment
- Successfully plan sport-specific diets
- Function effectively as a sports nutrition counsellor with knowledge and skills to support recreational and competitive sports.

SYLLABUS OF DSC-NHE-9

THEORY
(Credits 3; Hours 45)

UNIT I: Physical Fitness and Sports Nutrition

7 Hours

This unit will introduce the student to physical fitness and sports nutrition.

- Definition and components of physical fitness
- Methods of assessing physical fitness
- Introduction to sports nutrition (Definition, importance, types of sports and introduction to terms like endurance, strength and power sports)
- Role of major nutrients in sports

UNIT II: Energy Systems and Fuel for Exercise and Sports **14 Hours**

This unit will introduce the students with the energy systems, temperature regulation and fluid balance, symptoms and implications of dehydration in sports.

- Energy systems for physical activity and sports
- Fuel utilization for different sports
- Temperature regulation, fluid balance, fluid requirements of athletes and rehydration strategies for athletes

UNIT III: Nutritional Recommendations and Guidelines for Different Sports **14 Hours**

This unit will introduce the students with Nutritional recommendations for athletes and sports.

- Nutritional recommendations and guidelines for different sports
- Nutrition for pre-competition, competition and post competition phase
- Supplements in sports-performance enhancing substances, drugs, ergogenic aids and herbs in sports
- Ethics and regulatory standards (doping and FSSAI regulation)

UNIT IV: Management of Nutrition Related Disorders in Sports **10 Hours**

This unit will deal with weight management and eating disorders in sports.

- Approaches to weight management and body composition in sports
- Sports anaemia
- Management of eating disorders in sports persons
- Relative Energy Deficiency in sports (RED-S)

PRACTICAL **(Credit 1; Hours 30)**

1. Planning a day's diet for an individual high-performance athlete (any one sport).
2. Planning a pre and post competition meal for endurance, ultra endurance, strength events, team events and sports drinks during and after an event.
3. Meal planning for Strength/Power sports activities.
4. Meal planning for Endurance sports activities.
5. Survey of sports nutritional supplements and study their labels (whey protein isolates).

ESSENTIAL/RECOMMENDED READINGS

- International Life Sciences Institute-India, National Institute of Nutrition, & Sports Authority of India. (2007). *Nutrition and hydration guidelines for excellence in sports performance*.
http://ilsi-india.org/PDF/Nutrition_&_Hyd_Guidelines_for_Athletes_Final_report.pdf
- Wasuja, M. (2017). *Health education and sports nutrition*. Friend's Publication.
- Burke, L. M. & Deakin, V. (2002). *Clinical sports nutrition*. (2nd edn.). McGraw Hill Education.
- Chadha, R., & Mathur, P. (2015). *Nutrition: A lifecycle approach*. Elite Publishing House Pvt Ltd.
- Fink, H.H., Mikesky, A. E. & Burgoon, L.A. (2012). *Practical applications in sports Nutrition*. (3rd ed.). Jones and Bartlett Learning.

- Food Safety and Standards Authority of India (FSSAI), Government of India. <http://www.fssai.gov.in/home/fss-legislation/food-safety-and-standards-act.html>. (Accessed on 10 March 2023).
- National Anti-Doping Agency, Ministry of Youth Affairs and Sports, Government of India. <https://www.nadaindia.org/>. (Accessed on 10 March 2023).

SUGGESTED READINGS

- Mahan, L.K., & Escott-Stump, S. (2016). *Krause's food and nutrition therapy*. (14th edn.). Saunders-Elsevier.
- Agarwal, A., & Udipi, S. A. (2014). *Text book of human nutrition*. Jaypee Brothers Medical Publisher Ltd.
- Hickson, J. F., & Wolinsky, I. (1997). *Nutrition for exercise and sport*. (2nd edn.). CRC Press.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE DSC-NHE-10: Nutritional Approaches to Wellness and Longevity

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title and Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Nutritional Approaches to Wellness and Longevity	4	3	1	0	XII Pass	NIL

Learning Objectives

- To familiarize students with the concept of wellness and various diet related approaches for longevity
- To explain the significance of approaches other than diet for wellness and longevity
- To make students aware about various addictions and their relation to longevity

Learning Outcomes

After completion of the course, the students will be able to:

- Understand the several elements of health and wellness
- Describe approaches other than diet for wellness and longevity
- Gain knowledge about the linkage of longevity and wellness with different addictions

SYLLABUS OF DSC-NHE-10

THEORY
(Credits 3; Hours 45)

UNIT I: Relation between Disease, Health and Wellness

15 Hours

This unit will familiarize the students with the concept of wellness, health, their determinants and interaction.

- Definitions – longevity, wellness / wellbeing, standard of living, level of living, quality of life, physical quality of life index (PQLI), Human Development Index, Happiness Index
- Dimensions of wellness and health
- Determinants of health
- Epidemiologic concept of interactions of agent, host and environment
- Concept of prevention of illness
- Modes of intervention for combating illness

UNIT II: Diet Related Approaches for Longevity and Wellness

15 Hours

This unit will introduce the concept of various approaches related to diet for longevity and wellness in life.

- Nutritional screening
- Probiotics
- Prebiotics
- Antioxidants
- Immuno-nutrition
- Calorie restricted diets
- Chrono –nutrition
- Nutrigenomics
- Nutrigenetics

UNIT III: Adjuncts to Diet Therapy

8 Hours

This unit will introduce the approaches other than diet for wellness and longevity.

- Physical activity – types, benefits, tracking devices
- Yoga – benefits
- Circadian rhythm
- Psycho-social and mental health
- Stress management – meditation, pranayama, mind training

UNIT IV: Addictions and Longevity

7 Hours

This unit will acquaint the students with relation of addictions and longevity.

- Substance addiction
 - Smoking /Tobacco
 - Alcoholism
 - Drug abuse
- Non substance addiction
 - Overeating
 - Screen

TUTORIALS (Credits 1; Hours 15)

Tutorial classes will involve:

1. Q&A sessions/ Group Discussions/ Problem Solving exercises with the Students
2. Presentation of project/ research activity by students
3. Any other scholastic work related to application of conceptual understanding of the subject
4. Evaluation and feedback by the teacher

ESSENTIAL/RECOMMENDED READINGS

- Park, K. (2021). *Park's textbook of preventive and social medicine* (26th ed.). Banarsidas Bhanot Publishers.
- Uppal, A.K., & Ranganathan, P.P. (2020). *Fitness, wellness and nutrition* (1st ed.). Friends Publication.
- Caterina, R.D., Martinez, J.A., & Kohlmeier, M. (Eds.). (2020). *Principles of nutrigenetics and nutrigenomics – fundamentals for individualized nutrition*. Academic Press.
- Zou, Z., Wang, H., Uquillas, F., Wang, X., Ding, J., & Chen H. (2017). Definition of substance and non-substance addiction. *Experimental Medicine and Biology*. 1010, DOI 10.1007/978-981-10-5562-1_2
- Chadha, R., & Mathur, P. (Eds.). (2015). *Nutrition: A life cycle approach*. Orient Blackswan Private Limited.
- Swarbrick, P., & Yudof, J. (2015). *Wellness in eight dimensions*. Collaborative support programs of NJ.
- Joshi, Y.K. (Ed.). (2009). *Basics of Clinical Nutrition*. (2nd ed.). Jaypee Brothers Medical Publishers (P) Ltd.
- Harvard T.H. Chan School of Public Health. *The nutrition resource: healthy living guide 2022/2023*. <https://www.hsph.harvard.edu/nutritionsource/2023/01/04/healthy-living-guide-2022-2023/> (Accessed on 10 March 2023).
- Harvard T.H. Chan School of Public Health. *The nutrition resource – stress and health*. <https://www.hsph.harvard.edu/nutritionsource/stress-and-health/> (Accessed on 10 March 2023).

SUGGESTED READINGS

- Meiliana, A. & Wijaya, A. (2020). Nutrigenetics, nutrigenomics and precise nutrition. *Indonesian Biomedical Journal*, 12(3), 189–200.
- Savini, I., Gasperi, V., & Catani, V.M. (2016). *Nutrigenetics*. John Wiley & Sons Ltd. 10.1002/9780470015902.a0021028.
- Reen, J.K., Yadav, A.K., & Singh, J. (2015). Nutrigenomics: concepts, advances and applications. *Asian Journal of Dairy & Food Research*, 34(3), 205–212.
- Harvard T.H. Chan School of Public Health. *The nutrition resource: nutrition and immunity*. <https://www.hsph.harvard.edu/nutritionsource/nutrition-and-immunity/> (Accessed on 10 March 2023).
- Harvard T.H. Chan School of Public Health. *The nutrition resource – sleep*.

- <https://www.hsph.harvard.edu/nutritionsource/sleep/> (Accessed on 10 March 2023).
- Harvard T.H. Chan School of Public Health. *The nutrition resource – staying active*. <https://www.hsph.harvard.edu/nutritionsource/staying-active/> (Accessed on 10 March 2023).
 - Harvard T.H. Chan School of Public Health. (2011). *The nutrition resource – happiness and health*. <https://www.hsph.harvard.edu/news/magazine/happiness-stress-heart-disease/> (Accessed on 10 March 2023).
 - Harvard T.H. Chan School of Public Health. *The nutrition resource – healthy longevity*. <https://www.hsph.harvard.edu/nutritionsource/healthy-longevity/> (Accessed on 10 March 2023).

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