

Unit title: Human Health and Nutrition

Unit code: **F/601/0234**

Level: **5**

Credit value: **15**

Aim

This unit provides an understanding of the fundamental role of nutrients in maintaining health in relation to the biological functioning of the body and relates nutrient function to specific individual requirements.

Unit abstract

This unit will enable learners to develop an understanding of how nutrients are structured and the function that each one has in the human body. It allows learners to investigate how each nutrient fulfils its own specific role within the human body.

Learners will explore the nutritional value of foods and their components, and the role of diet in providing the essential elements for the body to function. Different dietary needs will be investigated and 'good nutrition' emphasised. Current recommended daily intake information from specialist organisations will be applied to the dietary requirements of different individuals with regard to life cycle, lifestyle and health.

The source, role, digestion and assimilation of nutrients will be studied and current research, controversial and topical aspects investigated.

Learning outcomes

On successful completion of this unit a learner will:

- 1 Understand the sources, functions and uses of macro and micro-nutrients in the diet
- 2 Understand the fate of nutrients after consumption
- 3 Understand the nutritional requirements of individuals in relation to food choice, lifestyle, life cycle and health
- 4 Understand the role of nutrition in health and diet-related diseases.

Unit content

1 Understand the sources, functions and uses of macro and micro-nutrients in the diet

Sources and types of carbohydrates: simple and complex sugars; glycogen; starches; non-starch polysaccharides; food sources

Use and function of carbohydrates: as a source of energy; role of dietary fibre

Use and types of protein: nitrogen balance; growth and maintenance; enzymes; hormones; antibodies; as a source of energy

Source and types of lipids: fats; oils; phospholipids and steroids; triglycerides; omega 3 and 6 trans-fats; saturated, monounsaturated and polyunsaturated; food source

Use and function of lipids: as a source of energy; source of fat-soluble vitamins; role of cholesterol and phospholipids; essential fatty acids

Sources of water: food; metabolism

Uses and functions of water: temperature regulation; excretion; hydration and water balance

Vitamins and their sources: water soluble and fat-soluble food sources; losses and destruction; fortification and enhancement

Uses and functions of vitamins: physiological roles; antioxidants

Sources of minerals: mineral elements and trace elements; food sources; fortification and enhancements

Uses and functions of minerals: role in energy production; physiological role; antioxidants

Diet analysis: how to analyse nutritional content of diets; use of food tables

2 Understand the fate of nutrients after consumption

Digestion: mechanical and chemical digestion; the role of enzymes in the breakdown of foods

Absorption: absorption and transportation of digested nutrients

Metabolism: catabolism; enzymic production of co-enzymes; co-factors; excretion; role of hormones

Assimilation: anabolism; storage of nutrients

3 Understand the nutritional requirements of individuals in relation to food choice, lifestyle, life cycle and health

Recommended intakes: recommended dietary allowance (RDA); recommended daily intake (RDI); dietary reference values (DRVs); nutrition and guidelines; healthy eating suggestions (COMA, NACNE, WHO); government policy on nutrition

Factors affecting food choice: stages of life eg childhood, adolescence, pregnancy, old age; factors affecting requirements of individuals; requirements of communities; bioavailability of nutrients; assessing nutritional status; tools and techniques for interpreting nutritional status; work of nutritionists and dieticians

Nutritional labelling: uses; regulations and format

4 **Understand the role of nutrition in health and diet-related diseases**

Deficiencies: malnutrition; symptoms of deficiencies; causes of deficiencies eg poor intakes, poor bioavailability, presence of anti-nutrients

Diet-related disease: health factors interacting with nutrition eg stress, exercise; cause, effect and prevention of common diseases related to nutrition (coronary heart disease, osteoporosis, over nutrition, allergies)

Weight management: weight gain and loss; use of fat replacers; artificial sweeteners

Achieving optimal nutrition: how to use guidelines to modify and adapt diets to improve health; use of supplements

Study current related areas: topics eg role of phytochemicals and future foods

Learning outcomes and assessment criteria

Learning outcomes On successful completion of this unit a learner will:	Assessment criteria for pass The learner can:
LO1 Understand the sources, functions and uses of macro and micro-nutrients in the diet	1.1 explain the difference between macro and micro-nutrients 1.2 evaluate the sources of nutrients from the diet, foods and other sources 1.3 explain the uses and functions of nutrients in the body 1.4 compare the nutritional content of foods and diets using food tables for nutritional data
LO2 Understand the fate of nutrients after consumption	2.1 explain the digestion, absorption, metabolic and assimilation processes 2.2 discuss how the body uses nutrients once digested 2.3 examine the factors which affect each process
LO3 Understand the nutritional requirements of individuals in relation to food choice, lifestyle, life cycle and health	3.1 compare RDAs, RDI's and DRVs in setting nutritional requirements 3.2 review codes of practice, legislation and EU regulations with regard to nutritional requirements 3.3 explain the different lifestyle, life choice and health factors affecting food choice of individuals and selected groups 3.4 explain the use and control of nutritional labelling with reference to legal requirements and the provision of information to consumers
LO4 Understand the role of nutrition in health and diet-related diseases	4.1 explain the relationship between diet and health 4.2 discuss factors affecting incidences of diet-related disease 4.3 review current nutritional research relating to weight management and optimal nutrition 4.4 discuss selected health and diet topics currently under controversy.

Guidance

Links

This unit has particular links with the following units within this qualification:

- *Unit reference number T/601/0215: Cell Biology*
- *Unit reference number F/601/0217: Biochemistry of Macromolecules and Metabolic Pathways*
- *Unit reference number Y/601/0224: Neurophysiology and Homeostatic Control of the Human Body*

Essential requirements

Delivery

Throughout delivery emphasis must be placed on the evaluation of controversial areas, using up-to-date research material, encompassing related lifestyle issues and addressing bioavailability of nutrients, together with how to obtain nutritional information from a variety of sources. The role of nutritionists and dietitians is an integral part of the unit and a visiting speaker or visit to a dietetic department would be beneficial.

Wherever possible, practical investigations must be used to confirm theoretical concepts.

Assessment

Learners must demonstrate a clear understanding of the sources of nutrients from the diet and their role in human health. Fundamental to this is a thorough knowledge of the functions of nutrients within the body and how they relate to the nutritional requirements of an individual.

The consequences of poor nutrition must be appreciated, together with an awareness of the information available to help prevent diet-related disease.

Resources

Learners require access to laboratory facilities, standard food tables and diet analysis computer software.

Employer engagement and vocational contexts

Learners would benefit from visits to dietetic specialist departments and also from visiting speakers who deal with dietetics within industry, for example a nutritional coach/adviser, food manufacturer or health practitioner.