

# Teaching Nutrition in Medical Schools

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Nutrition is the science of food, the nutrients and substances therein, their action, interaction and balance in relation to health and disease and the process by which the organism ingests, digests, absorbs, transports, utilizes and excretes food substances. It is also concerned with certain social, economic, cultural and psychological implications of food and eating as well as some aspects of food production, processing marketing and distribution (Council on Food and Nutrition Report 1963). The teaching of Nutrition in schools of Medicine, Dentistry and Nursing is most inadequate at the present time and is almost non-existent in many schools. The number of specialists in Nutrition among physicians, dentists and nurses is very limited and even in the United States, a few hundred persons would be an optimistic estimate. It might be interesting to note that in Pakistan most of the nutrition posts at present are being occupied by biochemists and others which is not desirable in this age of specialization. The number of properly qualified Nutritionists working with various government and private organizations is about eight, out of which four are Ph.D. from foreign universities and are located one each at Agriculture University, Faisalabad, Planning Commission, Islamabad, Jinnah Postgraduate Medical Centre, Karachi and education department of Sind Government. The remaining four hold an M.S. in Nutrition from abroad. In addition there are two Nutritionists who have retired from government service. The dietitians working in hospitals are simple matriculates with no training in dietetics although in Western countries the dietitians must possess a postgraduate diploma in dietetics and be registered as a state dietitian. This, certainly is not a happy position in a country of 83 million people who are said to be determined to achieve a respectable place in the community of Nations.

Currently in most medical schools, the student learns something about Nutrition in courses in several departments but there is little or no correlation of Nutrition teaching. A fragmentary selection of various aspects of Nutrition that has relevance to particular clinical subjects is offered but there are appreciable gaps in Nutrition education. A few American schools offer elective courses in Nutrition, experience in a Nutrition clinic or opportunity for nutritional investigation. Many medical students learn only about florid malnutrition i.e., the deficiency diseases and little objective assessment of nutritional knowledge acquired by medical students has been made. The physicians are not attracted to a career in Nutrition due to part to a lack of sub-speciality status for clinical Nutrition (Int. Union of Nutr. Sciences Comm., Report, 1967).

Thus there is an urgent need to include the teaching of Nutrition in the education of medical undergraduates and postgraduates in schools of medicine all over the world. Certain medical schools are already moving in this direction. Thus for instance more recently, the Nutrition division of the department of community medicine, Mount Sinai School of Medicine, New-York, has a comprehensive programme of Nutrition Teaching of Medical students. Cambridge University is introducing a Nutritional teaching-programme in their new curriculum, a pre-graduate clinical course lasting two years. At Cambridge, there is also a postgraduate diploma course in Nutrition run by a Committee representing the faculties of medicine, biology A and B, including the departments of medicine, veterinary medicine, agriculture, biochemistry, physiology and a number of research institutes. Furthermore, it has been announced that in the Federal Republic of Germany, a regulation of medical examination has been introduced in 1970 by the Federal Ministry of Health in which Nutrition is an item on the list of obligatory examination questions for examination in certain disciplines. This new development will obviously increase the amount of attention given to Nutrition teaching both by the teaching staff and by the student. Furthermore, a full fledged institute of Human Nutrition is

functioning under the auspices of the College of Physicians and Surgeons of Columbia University, New York. Many Ph.D. scientists who are not medical graduates are being appointed Professors of medicine and Professors of Paediatrics in the American Medical schools in recognition of the fact that properly qualified nonmedical graduates can be of immense use in their line of specialization. Herman Baker, Ph.D. is working as Professor of Medicine and Preventive Medicine and Director, Vitamin Laboratories in the College of Medicine and Dentistry, New Jersey, while Oscar Frank, Ph.D. is Associate Professor of Medicine and Co-director, Vitamin Laboratories in the same medical school. Here it might be interesting to note for comparison's sake that in 1946, Oxford University was offered large funds to create a new institute of Human Nutrition. The University refused the fund on the ground that knowledge of Human Nutrition was essentially complete and that the proposed institute would soon run out of meaningful research projects. (WHO Seminar Nutr. Teach. Med. Schools, 1970; Proc. Nutr. Soc, 1971; Goodhart and Shils, 1973).

The subject of Nutrition should be taught during the first two preclinical years and a part of it should be taught during the clinical years. The time devoted to it should be 200 hours out of which 125 hours should be devoted to the theory of Nutrition and Dietetics and 75 hours to practicals.

Brief description of the syllabus is as follows:

**Theory-125 Hours:**

**(a) General Nutrition**

Factors affecting man's selection of food-social and psychological.

Energy, carbohydrates, proteins, fats, alcohol, water and electrolytes, minerals and trace elements.

Vitamins-fat soluble and water soluble.

Recommended intake of nutrients, food tables.

**(b) Foods:**

Cereals, starches, starchy roots, sugars and syrups, pulses, nuts and seeds, vegetables and fruits. Meat, fish and eggs, novel proteins, Milk and milk products, oils and fats. Beverages, herbs and spices.

Cooking and wastage.

Infective agents in foods.

Food technology, chemical and radiation hazards.

Natural food toxins.

**(c) Primary Nutritional Diseases**

Starvation, obesity.

Protein energy malnutrition.

Rickets and osteomalacia.

Scurvey, Beri Beri and Wernicke-Korsakoff syndrome, other nutritional disorders of the nervous system.

Pellagra, Xerophthalmia, Keratomalacia and blindness.

Lesser nutritional disorders.

**(d) Conditional Nutritional Disorders**

Nutritional aspects and dietetic treatment of general diseases.

Inborn errors of metabolism.

Hyperlipidemias, diet and plasma lipids.

Diabetes mellitus.

Gout and hyperuricemia.

Diseases of the kidneys and urinary tract.

Diseases of liver, biliary tract, pancreas The anaemias.

Diseases of the nervous, locomotor and respiratory system and skin.

Diet and allergy.

Injury, surgery and fever.

Specific feeding methods and foods in hospitals.

**(e) Public Health**

Aetiology of nutritional disorders. Assessment of nutritional status. Prevention of nutritional disorders. The population problem. Diet and dental diseases. Endemic goitre. Nutrition and infection. Nutrition and cancer.

**(f) Diet and Physiological Stress**

Pregnancy, lactation, infancy, childhood and adolescence.

Adult man and the aged. Athletics.

Effects of climate, diet for expeditions. Survival rations.

Nutritional problems of Pakistan.

**Practicals-75 Hours**

(a) Diet formulation and evaluation, cooking and service of special diets.

(b) Assessment of nutritional status-clinical, dietary and anthropometric.

(c) Laboratory aids in the diagnosis of malnutrition.

(d) Biochemical assessment of malnutrition on animal models.

As recommended by the subcommittee of International Union of Nutritional Sciences on Nutrition education in medical schools, the medical schools should place authority in an individual or a committee or preferably establish a chair of Nutrition with responsibility to propose an integrated and full teaching programme in nutrition which would cover the efforts of various departments. At the postgraduate level, separate departments of nutrition, should be created at Jinnah Postgraduate Medical Centre, Karachi and Postgraduate Medical Institute, Lahore which should accept students, for M.Phil./Ph.D. degrees in nutrition and also run postgraduate diploma courses in dietetics to produce properly qualified dietitians for our hospitals.

**References**

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