PACIFIC JOURNAL OF MEDICAL SCIENCES

{Formerly: Medical Sciences Bulletin}

ISSN: 2072 – 1625

Pac. J. Med. Sci. (PJMS)

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EDITORIAL

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According to the World Health Organization (WHO), the general concept of adequate nutrition refers to the intake of essential micronutrients (vitamins and trace elements) and macronutrients (carbohydrate, protein and fat) in the appropriate quantities required to sustain metabolic and physiological processes and prevent disease. This concept is context dependent, because what is adequate for a group of individuals may be insufficient or excessive for another group.

In the present context, the concept of preventive medicine encompasses interventions designed to avert disease before its onset with the aim of reducing morbidity and mortality. Ultimately, these interventions increase economic productivity and have a positive impact on public health care. In a wider context, preventive medicine focuses on the health of individuals, communities, and specific populations to promote the health and well-being of individuals by preventing disease, disability and untimely death.

The idea that nutrition and preventive medicine are closely interrelated is widely attributed to the "father of modern medicine" Hippocrates of Cos (5th to 4th century BC) who is known for saying: "*Let food be your best medicine and your best medicine be your food*." This idea directly linked the concept of nutrition and health, based on closely observing the environmental causes of illness, including more general aspects of patient's life and their influence on their health and convalescence.

Current scientific evidence supports Hippocrates' ideas. According to the Americal College of Preventive Medicine, three levels of prevention can be identified:

Primary level – Preventing disease before it occurs. The patient is at risk for a disease but not yet affected. This level identifies behavioral, environmental, genetic and other factors that increase the chance of contracting the disease. Some of the risk factors, excluding genetic factors, can be changed. This level requires good health promotion, such as health

education, immunization, and correction of poor habits.

Secondary level – Detecting disease early to halt progression (e.g., through screenings). Risk factors can combine to cause a disease. It is usually unmanifested, clinically undetectable, but becoming detectable once specific pathological changes occur. For example, large amounts of blood in the stool are a warning sign of colorectal cancer. During pathogenesis, secondary prevention may be achieved by early diagnosis and prompt treatment.

Tertiary level – Managing established disease to prevent complications, when disease signs and symptoms appear. The clinical horizon is the point at which the condition can be scientifically detected. Most preventive health care focuses on this level. This level is the most expensive, in terms of the cost of health care.

Of these three levels, nutrition primarily falls under primary level, though it also influences secondary and tertiary levels by improving recovery and reducing complications. It is important to note that adequate nutrition offers a holistic approach compared to vaccinations and screenings that target specific diseases. Adequate nutrition also influences multiple systems simultaneously, such as cardiovascular system, metabolic system, immune system, and the nervous system, including mental health.

Current scientific evidence clearly indicates that adequate nutrition as a preventive measure is important across the entire lifespan of an individual:

During prenatal and early childhood: Fetal development, birth outcomes, and long-term health and risk of disease are influenced by the nutritional status of the mother. Breastfeeding and early dietary patterns shape the immune system and metabolic status of the infant. For example, maternal deficiency of iodine, folate, iron, and B12 severely affects the neurodevelopment and immunity of both foetus and the neonate.

Adolescence: At this stage of development, adequate nutrition, rich in both micronutrients and macronutrients, is required to ensure normal growth, hormonal regulation, and functions of the nervous system, including mental health.

Adulthood: Adequate nutrition is required to reduce the risks of hypertension, insulin resistance, and dyslipidemia among others.

Elderly: Adequate amounts of nutrients, such as B complex vitamins, antioxidants, calcium, vitamin D, among others, are essential to reduce incidence of osteoporosis, cognitive decline, frailty and sarcopenia.

Widely available global scientific health data and reliable practical considerations indicate that adequate nutrition is one of the most powerful and accessible preventive measures against poor health. However, adequate nutrition is not panacea. It cannot prevent all diseases. For example, infectious or congenital disorders, genetic predispositions, environmental exposures, poor lifestyle habits may require medical intervention. Adequate nutrition is effective when in synergy with other health promoting measures and conditions.

Despite the positive and widely acceptable impact of adequate nutrition, it remains elusive to many, especially in the resource limited countries. According to the WHO, food insecurity is a major obstacle because globally many people lack access to sufficient amounts of quality food. In addition, dietary choices are influenced by tradition, taste preferences, cultural and behavioral factors. Lack of nutrition counselling in communities is a major issue that needs attention.

Several researchers have proposed various methods to elevate adequate nutrition as a preventive tool. Some of the methods include:

- Increasing the nutrition-related components in the academic programs in medical training.
- Ensuring the empowerment of the people by educating them, through advocacy and campaign, about the importance of adequate nutrition and the benefits of consuming adequate diets. Include the people in decision-making regarding personalized dietary plans to enhance adherence.
- Reform existing policies by increasing subsidies and reducing costs for healthy foods, restricting labeling regulations, and introducing free lunches in schools, especially in the primary and elementary schools.

In conclusion:

Is adequate nutrition the best form of preventive medicine? It is not a panacea, but it is a powerful, evidence-based, biologically significant and universally accessible form of preventive medicine. It transcends age, geography, and socioeconomic status. Currently, the world is grappling with chronic disease epidemics, climate change, and healthcare inequities. Adequate nutrition is directly related to safer pregnancy and childbirth, improved infant, child and maternal health, to functional and robust immune system, and to lower risk of non-communicable diseases. People consuming adequate nutrition are more productive and can create opportunities to gradually break the cycles of poverty and hunger. Thus, adequate nutrition may be one of our most potent prescriptions for survival.

The emerging research in nutrigenomics demonstrates that dietary components interact and modulate gene expression, influencing disease susceptibility paving the way for personalized nutrition in the future, thus making preventive nutrition more accessible.

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