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Dietary Tradition, Nutritional Theories and Science

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INTRODUCTION

Since the inception of life, nutrition has dictated the growth and survival of our species. Almost all of the body processes, from meager to vital, have a strong dependence on the diet. The nutritional status serves as an outlook on the past, present, and future of one's health.

The presence of health does not only mean the absence of disease or infirmity, rather, it is a quality of life emphasizing physical, mental and social well-being [1]. In other words, nutrition, both in terms of amount and the kind, serves to act as the cornerstone of optimum health and the cutting edge for disease prevention [2].

How the Theory of Nutrition Has Evolved Over Time

Since ancient times, philosophers and researchers have deemed nutrition as one of the fundamental components of life. Therefore, it is no surprise that all the universal medical science concepts included nutrition as one of their integral components.

The ancient theory of nutrition dates back to the time of Aristotle and Galen. They considered nutrition as a vital part of health, disease, performance, and healing. The power in each part of the body is believed to be dependent on the blood flowing to that part. The blood is formed by the nutrients absorbed from the consumed foods [3, 4]. This nutrition and human physiology theory in ancient Europe is mirrored by the concepts described in an ancient Chinese medicine text, Huangdi Neijing (Yellow Emperor's Classic of Medicine) - a Chinese counterpart of the Hippocratic Corpus [5]. According to the Greek, Roman, and Chinese classical literature, the diet should consist largely of cereal grains, legumes, fruits, honey, fish, and milk. Foods like meat, wine, and confectionary should be consumed in moderation [6-8]. It is intriguing how those ancient doctors and philosophers were able to predict a gross dietary map without having a clear understanding of how the human body works.

The modern theory of nutrition has taken one step ahead. Starting with a series of discoveries of vitamins and minerals between 1910 and 1930, nutritional science has evolved alongside modern food production methods [9].

Although serious malnourishment problems still exist in parts of the world such as Africa and South East Asia, food distribution improved following WWII in many countries [10, 11]. Prior to the 1940s, nutrition-related diseases resulted primarily from undernourishment i.e., lack of variety, inadequate calories or a combination of both.

Increasingly, nutrition and lifestyle related conditions such as obesity, heart disease, diabetes, and metabolic syndrome have become prevalent in many modern cities and countries. Now, foods are not just considered a source of energy for survival, instead it is an experience for instant pleasure and gratification. According to researchers, the modern food industry has learned the weaknesses in our fundamental biology. For instance, the human body has a natural liking for sweetness and fatty foods [12-15]. This weakness has been exploited by the mass production of sweetened beverages and excessively processed food items. Similarly, the human fatty food preference has been fueled by the easy accessibility to fast foods on every block. This convenience for instant gratification has fostered changes in our body composition, an increase of obesity, and deterioration of overall health [16, 17]. Obesity is growing into a global pandemic and is considered one of the most urgent health care issues today [18, 19].

The Way Forward: The Role of Research in Advancement of Nutrition Science

As nutrition is becoming increasingly recognized for its importance as a major modifying factor in human development, disease prevention and disease management, many modern dietary theories and healthy eating guidelines have been proposed. For instance, such diets as high-protein diets, low-carbohydrate diets, or combined high-protein and low-carbo-

hydrate diets are highly popularized. Based on the diets, or the so called "Atkins diet", the mantra of 'a calorie is a calorie no matter the source' may no longer be applicable [20]. The human body may process different sources of calories differently, so the sources of nutrition matter as well. Some experts also suggest that a diet would be considered optimal if it provided an ideal balance of macro and micro nutrients needed to maintain ideal health [21].

Nutrition research spans the interface between genetics and environmental influences on health. It helps inform medical professionals in setting standards for medical care for specific diseases and stages of life. Laboratory and clinical research is vital for identifying the role of nutrition in the pathogenesis of many of the major 21st century chronic diseases including cardiovascular disease and cancer, as well as neurodegenerative diseases such as Alzheimer's and Parkinson's disease. In future nutrition research, more emphasis is expected to be made on the investigation of the influence of food components on the whole body physiology and health status at the molecular and cellular levels [22]. With the concepts of nutrigenomics, the genome-wide influence of nutrition and the subsequent time-dependent response in transcriptomics, proteomics, and metabolomics are addressed to describe the phenotype of a biological system [23, 24]. On a global level, nutrition research influences public health policy and food production. The emerging nutrition research substantiates the economic sustainability and benefits of traditional dietary practices.

Over the past few decades, there has been a significant advancement in the field of nutrition science. While I hope we have a much better understanding of "healthy" and "unhealthy" diets, there are many unequivocal research outcomes and widespread unproven dietary theories. Further studies are needed for more evidence based dietary guidelines and recommendations. Better understanding of the science of nutrition would not only benefit individual health status, but also has the potential for preventing disease and fostering well-being for future generations.

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