



14. HEALTHY GUT AS WELLNESS FACTOR FOR HUMAN

Microbiology

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ABSTRACT

Human wellness is the ultimate goal of our efforts in improving the human life. Special foods are undoubtedly important in achieving human wellness. These chronic diseases will in turn affect the human wellness. In addition, the hypothesis that “hunger sensation comes from gut flora brings new light to the research on the biological motivation for humans to eat food. The response to food-needing signals from the gut flora to these foods demonstrates the importance of the gut flora in improving human wellness. The gut flora is probably an essential factor for translating the food – eating signals and converting the nutrition to our body. The 16S rRNA sequencing and mass spectrometric techniques can be used to identify the gut flora, which may guide us to a new era of human wellness based on gut flora wellness. Molecular technologies have greatly advanced our understanding of the complexity and diversity of the gut microbial communities within and between individuals. Both short- and long-term dietary change can influence the microbial profiles, and infant nutrition may have life-long consequences through microbial modulation of the immune system. The impact of environmental factors, including aspects of lifestyle, on the microbiota is particularly poorly understood but some of these factors are described. We also discuss the use and potential benefits of prebiotics and probiotics to modify microbial populations. Novel therapies derived from microbiome studies such as fecal microbiota transplantation, probiotic and prebiotics to target associated diseases have been reviewed to introduce the idea of how certain disease symptoms can be ameliorated through dysbiosis correction, thus revealing a new scientific approach toward disease treatment. Toward the end of this review, several research gaps and limitations have been described along with suggested future studies to overcome the current research lacunae. Gut microbiota and their unique metabolites in conferring host protection against invading pathogen, regulation of diverse host physiological functions including metabolism, development and homeostasis of immunity and the nervous system.

KEYWORDS