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Editorial

Nutrigenomics: A Modern Era in Nutrition Integrated with Artificial Intelligence and Microbiome

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Nutrigenomics is an emerging research domain in nutrition science. It reveals the association between food and gene interaction, and explains the mechanism how a specific gene translated into a protein in response of a particular nutrient. Nutrigenomics arises the concept of personalized nutrition, in which a diet selection completely depends on a person`s genetic profile. It also helped in understanding the onset of disease mechanism. However, nutrigenomics integrated with artificial intelligence could be a promising approach to understand the disease and diet association in better way. Integration of artificial intelligence by advanced machine learning and deep learning approaches researchers can be able to understand the gene nutrient interaction in diseased condition and could device a more suitable and personalized diet recommendations for human being. It will also help to understand the complex metabolic pathways of disease onset and their recovery mechanisms. Nutrigenomics is not only important to just understand the gene diet interaction but also for revealing the new approaches of nutrition research to tackle the non-communicable diseases such as diabetes, obesity, malnutrition, cardiovascular disease and cancer.[1] Nutrigenomics integrated with artificial intelligence will help to understand next generation genome sequencing, single nucleotide polymorphisms (SNPs) and related diseases, physiological outcomes in response to SNPs. Furthermore, it will also help to select the diet as per genotype based dietary choices either for treating an ailment or maintaining a normal health.[2] Nutrigenomic guided personalized dietary recommendations can be formulated as per genome, physiological markers and lifestyle parameters. Artificial intelligence such as machine learning and big data set along with microbiome could also be an emerging approach to further strengthen the existing research methods and techniques to tackle the health burden of obesity, cardiovascular diseases, diabetes and many other diseases.[3] Focusing on the metabolic disease pathway for the non-communicable diseases can be treated by the integration of nutrigenomics, genetics, epigenetics, big data technique, machine learning and microbiota along with genome wide association studies can also be best utilized to tackle the future challenges in nutrition and health sectors.[4]

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