NUTRIGENOMICS – A NEW FRONTIER OF ENVIRONMENTAL HEALTH RESEARCH

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Abstract: Environment gene interactions play an important role in human disease etiology. So-called bad environmental agents, such as carcinogens or teratogens, interact with human genomes to cause disease. The most heavily studied agents cause mutations and have been linked with cancers of various kinds. Other harmful agents interact with genomes by altering methylation states (epigenomic) or through receptors, which regulate DNA expression. So-called “good” environmental agents, such as vitamins, minerals or metabolites of various kinds, interact with the human genome to regulate homeostasis. Nutrigenomics is a new area of environmental health research that focuses on environment-gene interactions important in regulating homeostasis in humans, and actions by environmental agents that disrupt those interactions. Nutrigenomics is an integrative science that focuses on how polymorphisms in the human genome affect the actions of nutrient chemicals. Environmental agents can affect the actions of nutrient-genome interaction resulting in human illness. We will discuss examples of nutrigenomic studies and importance in understanding environmental illness from a genomic view.