World Academy of Science, Engineering and Technology
International Journal of Nutrition and Food Engineering
Vol:16, No:10, 2022

Diet-Induced Epigenetic Transgenerational Inheritance

Authors : Gaby Fahmy

Abstract : The last decades have seen a rise in metabolic disorders like diabetes, obesity, and fatty liver disease around the world. Environmental factors, especially nutrition, have contributed to this increase. Additionally, pre-conceptional parental nutritional choices have been shown to result in epigenetic modifications affecting gene expression during the developmental process in-utero. These epigenetic modifications have also been seen to extend to the following offspring in a trans-generational effect. This further highlights the significance and relevance of epigenetics and epigenetic tags, which were previously thought to be stripped in newly formed embryos. Suitable prenatal nutrition may partially counteract adverse outcomes caused by exposures to environmental contaminants, ultimately resulting in improved metabolic profiles like body weight and glucose homeostasis. This was seen in patients who were given dietary interventions like restrictive caloric intake, intermittent fasting, and time-restricted feeding. Changes in nutrition are pivotal in the regulation of epigenetic modifications that are transgenerational. For example, dietary choices such as fatty foods vs. vegetables and nuts in fathers were shown to significantly affect sperm motility and volume. This was pivotal in understanding the importance of paternal inheritance. Further research in the field is needed as it remains unclear how many generations are affected by these changes.

Keywords : epigenetics, transgenerational, diet, fasting
Conference Title : ICHNB 2022 : International Conference on Human Nutrition and Biology
Conference Location : New York, United States
Conference Dates : October 06-07, 2022