

Human microbiome and personalised nutrition

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Personalised nutrition is modern challenge since our new knowledge about human microbiome and its importance in initiation of chronic inflammation finally leading to developing of noncommunicable diseases (NCD). Commensal microorganisms and their metabolites are modulating local immune response and their composition altered by nutrition as one of the major epigenetic factor. The problem of implementation of personalised diets is limited data about individual needs of nutrients, depending of gender, age, physical and professional activity, physiology, etc. and its understanding.

Personalised nutrition could be defined as formulation of individual diets by algorithm developed on analytical data of food content, evidence based impact of its components on human health (via maintaining of commensal microbiota' balance and local immune response in particular) and meeting the only required individual consumption needs.

The Ukrainian Food Composition Data Base was initiated within Capnutra and EuroFIR networks. Prioritised Ukrainian traditional foods were analytically investigated for the content of protein, lipids, carbohydrates, folates, fibers, minerals, vitamins, etc. within BaSeFood project. Major edible plants (extracts) were tested by using in vitro and in vivo models on their ability to regulate oxidative stress, commensal microbiota, systemic and local immune responses. National database of edible plants rich on biological active compounds with detected influence on human health had been created. Set of biomarkers for earlier detection of targeted NCD were clinically identified and patented.

Individual commensal microbiota ratio, biochemical status and immune parameters of patients with diabetes type 2 disease were analysed and used in order to formulate specifically personal diets based on ethnical and fermented foods products with sequenced microbial starters. Algorithm for personilased nutrition is created.

The efficacy of personilased nutrition approach for the treatment of chronical inflammation in patients with NCD like diabetes type 2, obesity and cardiovascular diseases had been proven in limited diets clinical study.

KEY WORDS

commensal microbiota, personalysed nutrition, algorithm

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