

July 05-07, 2018
Vienna, AustriaAlencar L et al., Insights Allergy Asthma Bronchitis 2018, Volume: 4
DOI: 10.21767/2471-304X-C1-003

THE ROLE OF WESTERN DIET ON LOW-GRADE INFLAMMATION

Alencar L¹, Bitencourt J B² and Mendes P²¹Centro universitário de Brasília-UniCEUB, Brazil²Universidade Cruzeiro do Sul, Centro de Nutrição Funcional Vitalidade Positiva, Brazil

In the last decade, a food pattern known as Western diet, heavily based on ultra-processed foods with high levels of fats and refined sugar, thus very palatable and easy to adhere, has been presenting an exponential growth. However, a number of negative effects to those who adopt said diet have been identified, such as excess of energy, lack of fibres, phenolic compounds and micronutrients, apart from the high presence of xenobiotics, compounds that may initiate or worsen a process of low-grade inflammation. Evidence shows that this type of diet promotes endotoxin translocation to the bloodstream, stimulating innate immune cells and leading to a transient postprandial inflammatory response. Binding of LPS-protein complexes to the toll-like receptor 4 (TLR4) activates cellular nuclear factor kappa B (NF-κB) signalling pathway which in turn leads to production of diverse proinflammatory cytokines and chemokines (IL-1β and TNF). Moreover, a low fiber diet and the lack of phenolic compounds may affect the gut microbiota, leading off dysbiosis and a reduction of probiotic strains capable of converting phenolic compounds, such as *Lactobacillus plantarum* and *L. brevis*. These strains contain an enzyme called phenolic acid decarboxylase (e.g. caffeic acid to 4-vinyl catechol), responsible for converting phenolic compounds into metabolites which, in turn, can activate nuclear factor 2-related factor 2 (NRF2), responsible for the synthesis of phase 2 enzymes who have the ability to neutralising reactive oxygen species (ROS). In addition, once micronutrients are essential co-factors in the synthesis of enzymes that play an important role on the conversion of hydrophobic xenobiotic into hydrophilic xenobiotic (e.g. selenoproteins), a lack of those essential elements can impair physiologic detoxifying pathways. Therefore, aiming to reduce the risks that a low-grade inflammation can present, it is recommended a fiber rich diet, based on whole foods, with a variety of vegetables, fruits, roots and minimally-processed foods.

Biography

Lucas Salgado de Alencar has completed his Bachelor's degree from Centro Universitário de Brasília – UniCEUB.

lucasalencarnutri@gmail.com