

Obesity & Diet: More than a Tale of Sugars and Fats

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Abstract

The modern Western diet, with its excessive amount of free sugars and quick-burning starches (which constitute a high glycemic load) as well as excess saturated fat, stimulates excessive storage of (visceral) fat around the waist. This fat depot is metabolically active and constantly produces pro-inflammatory signals (pro-inflammatory cytokine hormones). These signals also trigger system-wide production of oxidants (reactive oxygen species, ROS) that further activate the immune system. Continuous production of excessive amounts of ROS contributes to chronic inflammation, which increases the risk of chronic diseases and disorders, diminishes the ability to fight infectious disease, and also interferes with normal organ function. Neuroinflammation of the brain, for example, is a risk factor for dementia, Parkinson's & Alzheimer's and also impairs normal mental function (memory, attention, and processing speed) in young healthy adults. It is essential to keep oxidants (ROS) in check with antioxidants. Ancestral human diets presumably contained very high levels of antioxidants and omega-3 oils and may thus have been excessively immunosuppressive. The modern Western diet has gone too far in the other direction and now actively promotes chronic inflammation and disease. Whole food diets, including the Mediterranean diet and MIND diet (Mediterranean-DASH Intervention for Neurodegenerative Delay diet, where DASH stands for Dietary Approaches to Stop Hypertension) have anti-inflammatory properties and lower the risk of chronic-inflammation-associated diseases and disorders. Key features of these diets include a (i) balanced ratio of

dietary (pro-inflammatory) omega-6 oils to (anti-inflammatory) omega-3 oils and (ii) a balanced supply of dietary antioxidants/anti-inflammatory micronutrients from fresh vegetable and fruit (plus berries, herbs, spices, nuts & seeds). High-dose supplements, on the other hand, may do more harm than good. The benefits of an anti-inflammatory diet are enhanced by regular, moderate physical activity (that triggers internal production of antioxidant enzymes) and stress management (that reduces production of ROS and other pro-inflammatory signals). Examples of interventions that combine both of these latter lifestyle factors include yoga and gardening. In conclusion, to break the cycle between obesity and disease, attention should be given not only to a reduction of visceral fat accumulation but also to restoration of the balance between oxidants and antioxidants through diet in combination with other lifestyle factors.

Biography

I am a recent graduate from the University of Colorado Boulder with a concurrent Bachelors/Masters in Ecology and Evolutionary Biology

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