

EFFECTS OF CRANBERRY EXTRACT ON GUT PERMEABILITY, ECOLOGY, AND INFLAMMATION

Obesity and obesity-related comorbidities are collectively known as metabolic syndrome and are estimated to cause a \$44-68 billion/year increase in medical costs in the US by 2030. Consumption of a high-fat diet has been shown to alter gut microbiota and increase intestinal permeability. Circulating endotoxins such as lipopolysaccharide (LPS), a Gram-negative membrane component, have been implicated in perpetuating the low-grade inflammation associated with obesity. Researchers have proposed that increased circulating LPS could be due to increased gut permeability caused by a decrease in tight junction proteins, prolonged chylomicronemia, and/or inflammation.

Polyphenols, such as those found in cranberries, have been shown to have anti-viral, anti-carcinogenic, antioxidant, and anti-inflammatory properties. Due to the prevalence of obesity in America and the financial toll this condition is taking on the country, it is imperative to investigate the therapeutic effects of whole food and food components on detrimental health concerns. The anti-inflammatory properties of cranberries and their components make them ideal candidates to investigate their effect on the chronic, low-grade inflammatory state of the obese. In the proposed study, the effect of cranberry extract on tight junction proteins, inflammation, and gut microbiota will be investigated *in vivo* and *in vitro*.