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Polyphenolic rich foods on oxidative stress and inflammatory-mediated insulin resistance (IR) in humans

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Insulin resistance (IR) is a critical metabolic abnormality requiring attention. In addition to type 2 diabetes mellitus (T2D), its roots are found in cardiovascular diseases, stroke, Alzheimer disease and longevity. The association of obesity with T2D has been recognized for decades, and the major basis for this link is the ability of obesity to engender IR. The growing obesity epidemic in the United States continues to escalate the number of individuals at risk for developing IR. In the United States, an estimated ~78 million individuals are affected by IR. Both genetic and environmental factors are involved; however, only 5–10% of patients exhibit specific genetic mutations responsible for IR. Therefore, an outstanding percentage is due to environmental factors, many of which are modifiable, such as the diet. Although the exact mechanisms of IR have not been described fully, cellular events sensitive to oxidative stress and inflammation have been described and suggested as causative factors of IR. Fruits and vegetables, and particularly those with higher polyphenolic content are suggested to have favorable effects on human health due to their ability to modulate oxidative and/or inflammatory stress in peripheral and central tissues. Therefore, this presentation will be focus on the studies that has demonstrated the effects of polyphenolic compounds on oxidative-inflammatory- stress and further, the relationship of these responses to insulin action in humans.

Biography

Indika Edirisinghe is an Assistant Professor at IIT and Senior Scientist at Center for Nutrition Science Institute for Food Safety and Health. He has 15 years experiences in the area of nutritional science, biochemistry and molecular biology. He is an expert in the design and conduct of human clinical studies relevant to bioavailability and investigating markers of biological activity, specifically alterations to metabolic- oxidative and immune- homeostasis. He has published nearly 30 papers related to oxidative stress, endothelial function and insulin resistance.

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