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GLP-1 AS PREVENTION FOR DIABETES

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Obesity and diabetes impairs almost all aspects of health and is a global challenge to our healthcare system as the prevalence reaches up to 1 billion humans. Therefore, there is an acute need for better prevention and treatment strategies. Glucagon-like-peptide-1 (GLP-1), secreted from endocrine cells in the intestine upon meal intake, reduces food intake and increase insulin secretion. We have previously shown that: 1)prediabetic and obese people have low endogenous GLP-1 response; 2) weight loss induces a marked increase in GLP-1 response, and 3) treatment with GLP-1 analogues facilitates long term weight loss maintenance (12 kg) accompanied by substantial improvement in metabolic health, compared to diet-induced weight loss maintenance. Chronic inflammation is an established part of the pathogenesis of obesity, and activation of macrophages and T cells in the expanded adipose tissue is coupled to the development of a pro-inflammatory state and insulin resistance. Interestingly, emerging evidence identifies GLP-1 as a potentially important immuno-modulator. GLP-1 decreases inflammation-associated gene and protein expression in macrophages and exerts anti-inflammatory actions in adipocytes and endothelial cells as well as potent anti-inflammatory effects in humans.