Healthy Outcomes
MEDICAL WEIGHT LOSS

OBESITY TREATMENT: TESTS USED TO ASSESS METABOLISM, APPETITE AND ENERGY CONTROL

ADIPOSE TISSUE FUNCTION

Tests	Significance	Treatment
Leptin	Leptin is a hormone produced in adipose tissue that modulates appetite, food reward system and metabolism. Leptin resistance is typically seen in obesity, which can lead to further food intake. Leptin resistance can be caused by high levels of insulin, high triglycerides, systemic inflammation (high CRP), high levels of TNFalpha, high fat diet, and high sugar (fructose) diets.	Healthy weight loss, target interventions to lower insulin levels, triglycerides, inflammation, TNFalpha levels. Lower intake of high fat/high fructose meals.
Adiponectin	Adiponectin levels drop in setting of weight excess/obesity and this can lead to insulin resistance, impaired fat metabolism (fatty acid oxidation), increased hepatic production/release of glucose (gluconeogenesis), vascular/endothelial dysfunction, and atherosclerosis. Adiponectin has direct insulin-sensitizing, anti-inflammatory, and anti-atherogenic properties. Healthy weight loss has shown to restore normal adiponectin levels.	Healthy weight loss.
Tumor Necrosis Factor Alpha (TNFalpha)	An acute phase pro-inflammatory cytokine. Elevated levels are often due to increased body fat, specifically, visceral fat, and can induce insulin resistance, leptin resistance and vascular/endothelial dysfunction, therefore, increasing risk of obesity, overeating and CV disease. Lowering TNFalpha can help insulin sensitivity, central nervous system response to leptin, and favor better vascular/endithelial function. Helathy weight loss, use of statins and omega-3 supplemments have shown to lower levels of TNFalpha.	Healthy weight loss, Mediterranean-style diets, omega-3 supplements.
Interleukin-6 (IL-6)	A pro-inflammatory cytokine. High levels have been associated with increased platelet aggregation, increased synthesis of CRP (inflammation), cardiovascular disease and insulin resistance. IL-6 is involved in the pathogenesis of atherosclerosis, as elevated IL-6 concentrations are found in atheromatous arterial plaques. There is a strong independent association between elevated IL-6 levels and the presence of clinical and subclinical cardiovascular disease. High levels have also been associated with increased risk of diabetes.	Healthy weight loss, Mediterranean-style diets, omega-3 supplements.