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Leptin is a 16KDA plasma peptide hormone expressed and secreted by adipocytes, the concentration in normal humans plasma is proportional to adiposity. This protein is involved in body weight regulation, energy balance, satiety control. It would seem interesting that leptin has a universal role such as general regulator of metabolism with influence on reproduction, puberty initiation, lactation, regulation of hypothalamo-pituitary, adrenal and thyroid axes, haemopoiesis and renal function as currently being speculated. For these speculation to be true leptin must interact with metabolic regulators such as insulin, thyroid, Cortisol etc. Leptin suppresses Neuropeptide Y (NPY) to activate the sympathetic nervous system and to increase energy expenditures = via the B3 adrenergic receptor in adipose tissues. As a cytokine leptin exerts its effect through cell surface receptors to stimulate the Janis Kinase-Signal transducers and activator transcription (James-Kinase - STAT) factor pathways. Thyroid hormone T3, T4, and TSH influence the growth and maturation of tissues, cell respiration and energy expenditure.

Thyrotoxicosis increases energy expenditures with subsequent weight loss. Using EIA assays assessed the possible correlation between circulating levels of thyroid hormones, T3, T4 and TSH with leptin by measuring the serum levels of thyroid hormones in non-obese volunteers of childbearing age and Graves' disease patients attending the medical Hospital, Ikajia. These women were within 20 to 45 years of age. The BMI of Euthyroid (control group) was less than of hyperthyroid  $25 \pm 2$ ,  $23 \pm 2$  respectively P

$<0.025$ ; Leptin in control ( $10.8 \pm 3.5$  ng/ml) was higher than those of the Graves' ( $7.54 \pm 4.8$ ),  $P < 0.09$ ; Serum T4 of the controls and study group were  $8.34 \pm 2$  and  $16.98 \pm 2.3$  ng/ml respectively,  $p > 0.05$ ; T3  $1.29 \pm 0.2$ ,  $3.87 \pm 1.4$  ng/ml respectively while TSH of Euthyroid and the Graves' were  $2.12 \pm 0.64$  and  $0.29 \pm 0.04$  mIU/ml,  $P < 0.05$  respectively. Circulating Leptin of Euthyroid Nigerians is only moderately but not significantly higher than those of Graves' patients. Leptin is positively correlated with BMI and body fat.