Body Composition and Weight Control

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The human body composition mainly consists of fat mass and lean mass (LBM). The LBM includes muscles and bones. Fat mass consists of essential and storage (visceral and subcutaneous tissues) fats. The ideal fat percent range from 10-18 % for male and 15-23 % for female. Fat % exceeding 25 % in male and 32 % in female indicate obesity. Thus, obesity is defined as a surplus of fat mass, while overweight is merely an excess body mass (Fat/lean). Body composition assessment is very important for a variety of reasons in health, disease, exercise performance and weight control and intervention. It is especially so important now days for the periodic monitoring of obesity epidemic worldwide. Currently, there are four common theoretical models for body composition. They include the 2-compartment model, the chemical model, the metabolic model, and the anatomical model. Methods of assessing fat and lean mass vary widely depending on their cost, time required for assessment, and underlying assumptions. They include body density determination (using either underwater weighing or air displacement techniques) bioelectrical impedance analysis, anthropometric estimation, skinfold thickness measurements, infrared reactance, ultrasound procedure, DEXA, CT scan, and MRI. Further, exercise is considered an integral part of weight control and maintenance programs. Its role is to increase fat oxidation, prevent lean body mass loss, and boost basal metabolic rate during dieting. Exercise was also shown to produce better long-term weight loss and maintenance when combined with diet as opposed to diet alone. Finally, recent research indicate that the amount of physical activity needed for long-term weight control is equivalent of one hour of jogging per week, or walking 4 hours per week, and a like. This can be translated for an average man into an energy burning activity equivalent of 1200 k. calories or higher per week.