

*NSA***Disease-Related Malnutrition****The biology of malnutrition-related weight loss:
differences between lean and obese adult subjects**

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The recent obesity epidemic has revived interest on the effects of body weight and composition on the metabolic response to starvation and semi-starvation. Some of the descriptions of starvation in standard texts do not apply equally to lean and obese subjects. After 3 days of total starvation (water only) the rise in circulating ketone body concentration is up to two-fold greater in lean subjects, whilst their contribution to oxidative metabolism of muscle is up to two-fold greater in the obese. The obese survive longer, lose a smaller proportion of body weight as lean tissue (although they have more lean tissue than thinner individuals), and during prolonged starvation, derive a smaller proportion of energy from protein oxidation. The obese also excrete a smaller proportion of urinary nitrogen as urea (less than half of total N), a greater proportion as ammonia and the kidney contributes to a greater proportion of glucose production (up to about half of total glucose production in the obese). These differences are consistent with a model of survival, in which initial body composition determines metabolic and physiological outcomes. The observations cross species barrier lines, and extend from individuals in good health to those with chronic diseases, such as HIV infection.