Disease associated behavior

- Chronic disease often results in altered lifestyle factors.
- Malnutrition, inactivity and polypharmacy are associated with decreased muscle mass.
- Disease led alterations in habitual behavior further propagate muscle loss.

Malnutrition

Inactivity

Polypharmacy

Chronic disease

- Many diseases are associated with skeletal muscle wasting; collectively known as "cachexia" syndromes

Cancers

Metabolic disease

Auto-immune

Organ failure

Shared metabolic abnormalities

- Disease states frequently share similar underlying metabolic abnormalities i.e. inflammation, increased REE and insulin

Inflammation

↑REE

Insulin resistance

Protein Kinetics

- Muscle loss occurs through an imbalance between PS and PB.
- Protein kinetics have shown to be unchanged, increased or decreased- generally favoring catabolic states.
- Anabolic resistance is present in many disease states, likely underlying many of the irreversible effects of cachexia

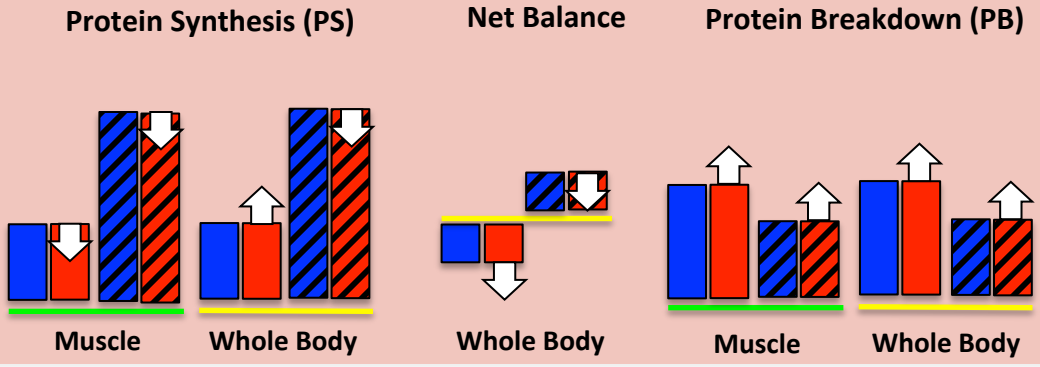
Unchanged or increased ⇧

Unchanged or decreased ⇩

Unchanged or both Increased/decreased ⇕

Healthy - Fasted - Fed

Disease - Fasted - Fed



Nutritional modulation

- Nutritional modulation has been shown to promote anabolism and attenuate catabolism.
- EAA in particular show benefits on MPS and body mass
- Many nutraceuticals have inconsistent findings and further research is required