

Aging and lifestyle

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AGEING & LIFESTYLE

IMPACT ON SKELETAL MUSCLE FUNCTION



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Preventing age-related muscle loss:

The loss of muscle mass and strength with age (**sarcopenia**), is a risk factor for cardiovascular and metabolic diseases, it increases the risk of falls, of developing frailty and disabilities, and results in an impairment in the quality of life and autonomy of an individual.

An active lifestyle is the most immediate and accessible treatment to prevent sarcopenia, with a considerable impact on the ageing process.

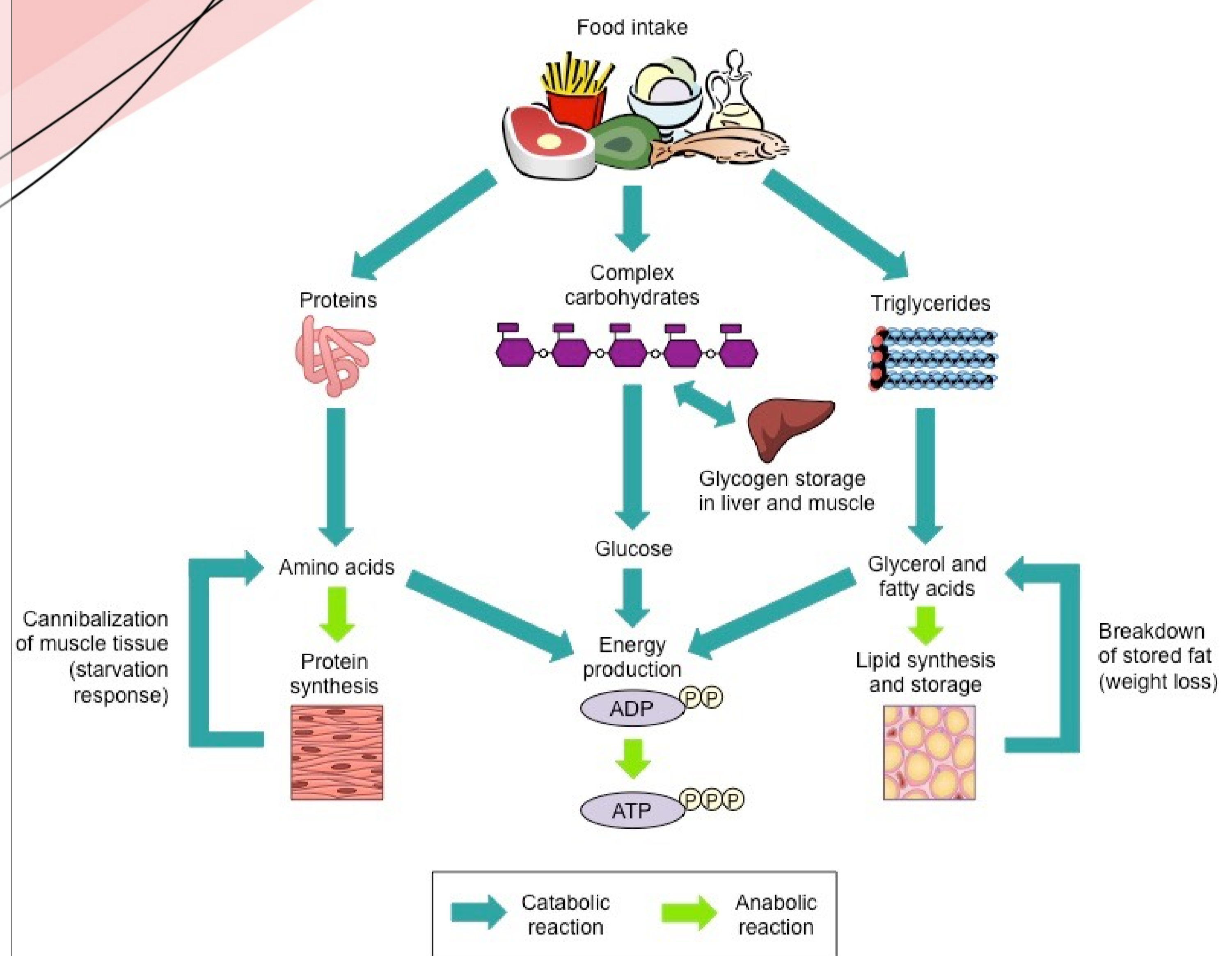
An age-specific genome-scale metabolic model:

A reconstruction of the biochemical reactions network of the ageing skeletal muscle, built from gene expression data gathered from older adults' muscle tissue biopsies.

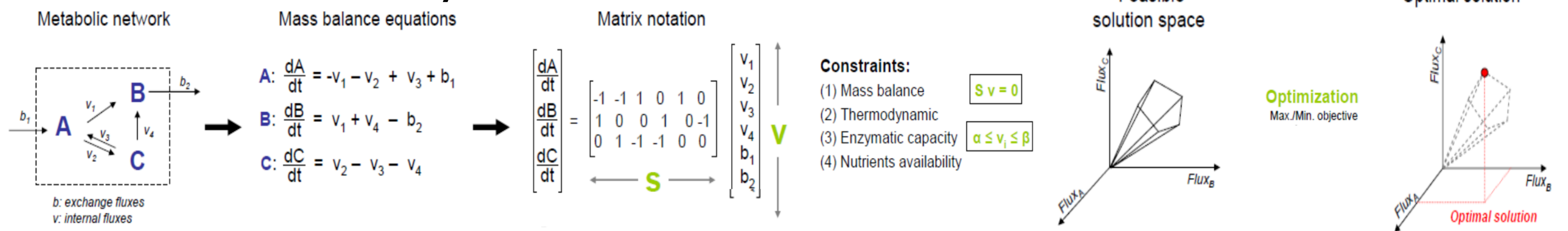
This modelling framework allows us to simulate arbitrary nutritional inputs (diets) and energy demands (exercises), and how they impact on muscle synthesis/degradation ratio.

The model is being used to investigate the effectiveness of different nutritional and physical exercise regimes in stimulating post-exercise protein synthesis, which is often impaired in the elderly.

The aim is to identify an optimal personalized lifestyle change intervention able to offset the effects of sarcopenia.



Methods: Flux Balance Analysis



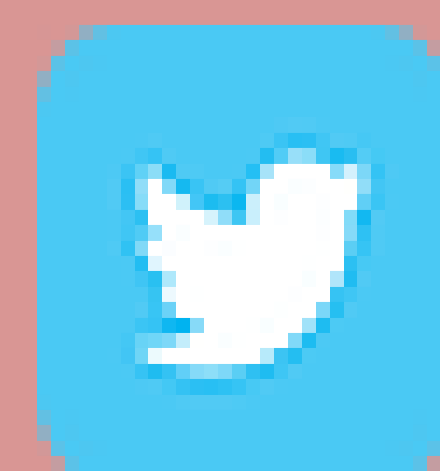
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