Sarcopenia Factsheet

What is sarcopenia?
Muscle mass and strength declines by around 0.5 - 1% per year from the age of 30. Sarcopenia occurs when this process becomes debilitating. Sarcopenia affects quality of life, making getting out of bed or walking up stairs difficult, reducing independence and increasing the risk of falls, often leading to institutionalisation in nursing homes. The condition is estimated to affect 5-20% of elderly people aged 65 and over, with direct healthcare costs of over $20 billion/year in the USA. As life expectancy increases, the challenges associated with sarcopenia represent an important healthcare and health-economics issue.

How does sarcopenia happen?
Sarcopenia slowly progresses over decades and affects both men and women. Complex genetic cues are believed to govern our susceptibility to sarcopenia, though no specific genetic markers have so far been identified. Age is the strongest risk factor, although inactivity, malnutrition and low protein intake, endocrine deficiencies (growth hormone, testosterone etc), and decreased protein synthesis and anabolic resistance to amino acids, among others, are also believed to play a role.

How is it diagnosed?
Sarcopenia is a syndrome and currently not officially recognised as a disease by GPs and regulatory agencies, so it is only very rarely diagnosed in the general population. In clinical studies, sarcopenia is diagnosed by measuring muscle strength and/or walking speed. If these measurements are below a certain threshold, muscle mass is measured by non-invasive imaging such as DXA or MRI. Questionnaire-based screening is being trialed in the general population, as diagnosis is likely to be a 2-step process, with rapid screening of people at risk by GPs, who would then refer patients to a geriatrician for full screening, where appropriate.

Does a treatment exist?
There is currently no drug to reverse sarcopenia, although several approaches to enhance muscle mass in the elderly are currently in clinical trials. Management of sarcopenia will likely require integrated management of lifestyle (exercise) and nutrition alone or in combination with drugs in high-risk patients.

How is it managed?
Malnutrition in the elderly is a widespread problem, with low intake of protein (which acts as an anabolic stimulus and builds skeletal muscle fibres) and vitamin D. Resistance and endurance training can also benefit sarcopenic elderly patients. Protein, anti-oxidant and multi-vitamin supplements are recommended for malnourished elderly people at risk of sarcopenia.

What is NIHS/Nestlé doing to address sarcopenia?
NIHS is working to understand how genes, diet and lifestyle interact with skeletal muscle during ageing to identify novel mechanisms, biomarkers and nutritional deficiencies of sarcopenia that can then be translated into proof-of-concept studies. As part of this work, NIHS scientists collaborate with NRC colleagues working on physical function and mobility, and NHS, which is developing Nestlé’s pipeline of medical nutrition targeting frail elderly patients.

Did you know...?
Low walking speed is associated with higher risk of mortality in the elderly.