New clues to muscle wasting in elderly people

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Permanent disconnection between nerves and muscles may be the reason behind progressive loss of muscle mass and function in elderly people, Perth-based researchers have found.

Their findings open up opportunities for new interventions to slow down muscle loss and improve health and quality of life.

"If your nerves are letting go of muscles, then that is a one-way trip to loss of muscle function," the researchers explained, based on their published observations in aged mice in the medical and science journal PLoS One.

Compromised muscle function and loss of muscle mass in older age is known as sarcopenia, an increasing health problem with an expanding aged population.

"It is not a disease but part of life," said Associate Professor Tea Shavlakadze and Professor Miranda Grounds from the School of Anatomy, Physiology and Human Biology at The University of Western Australia. Everyone over 60 is affected by this progressive ageing condition to some degree.

They said mice aged 29 months (roughly equivalent to 80-year-old humans) showed an alarming absence of healthy connections between nerves and muscles at the contact points for nerve stimulation on muscles. A loss of connections at these contact points was linked to a lack of cross-talk between nerves and muscles. Muscle activity

decreased, leading to loss of function.

Further studies by Professors Shavlakadze and Grounds are currently underway to understand why nerves let go of muscles in older age. Their observations identify a new target for reducing sarcopenia and strengthen the argument for regular exercise to slow down muscle wasting.

The UWA researchers aim to develop new therapeutic approaches to combat sarcopenia and maintain a high quality of life with ageing.

Provided by University of Western Australia