A stronger future for the elderly

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Experts at The University of Nottingham are to investigate the effect of nutrients on muscle maintenance in the hope of determining better ways of keeping up our strength as we get old.

The researchers, based at the School of Graduate Entry Medicine and Health in Derby, want to know what sort of exercise we can take and what food we should eat to slow down the natural loss of skeletal muscle with ageing.

The team from the Department of Clinical Physiology, which has over 20 years experience in carrying out this type of metabolic study, need to recruit 16 healthy male volunteers in two specific age groups to help in it's research.

Skeletal muscles make up about half of our body weight and are responsible for controlling movement and maintaining posture. However, at around 50 years of age our muscles begin to waste at approximately 0.5 per cent to one per cent a year. It means that an 80 year old may only have 70 per cent of the muscle of a 50 year old.

Since the strength of skeletal muscle is proportional to muscle size, such wasting makes it harder to carry out daily activities requiring strength, such as climbing stairs and leads to a loss of independence and an increased risk of falls and fractures.

In order for skeletal muscles to maintain their size, the large reservoirs of muscle protein require constant replenishment in the way of amino

acids from protein contained within the food we eat. In fact, amino acids from our food act not only as the building blocks of muscle proteins but also actually 'tell' our muscle cells to build proteins.

Recent research from the clinical physiology team has shown that the cause of muscle wasting with ageing appears to be an attenuation of muscle building in response to protein feeding. In other words, as we age we lose the ability to covert the protein in the food we eat in to muscle tissue. The proposed research will investigate the mechanisms responsible for this deficit.

Dr Philip Atherton, who is currently recruiting volunteers, said: "I am really excited to be involved in this project because if we can determine ways to better maintain muscle mass as we age it will greatly benefit us all."

The researchers are looking for 16 healthy, non-smoking, male volunteers aged 18 to 25 and 65 to 75.

Initially, the volunteers will undergo a health screening and then on a different day, under the supervision of a doctor, will be infused with an amino acid mixture to simulate feeding along with a 'tagged' amino acid that allows them to assess muscle building. To make these measures, blood samples will be taken from the arm and muscle biopsies from the thigh muscle under local anaesthesia. Volunteers will receive an honorarium to cover their expenses.

Source: University of Nottingham