New toolkit to assess musculoskeletal health in older people

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A new way to assess the impact of normal ageing on bones, joints and muscles has been proposed that could provide a benchmark for how well older people are able to keep moving.

The composition of the body changes as we get older, as muscle strength and bone density decline. But the challenge to date has been distinguishing between the normal effects of ageing and the first signs of disease.

As a result there has been limited consensus on appropriate biomarkers of normal ageing. This has led to an unreliable picture of musculoskeletal health in older people as bone, joints and muscle have been looked at in isolation, not as a complete system.

Assessment toolkit

To address this, experts at the Medical Research Council-Arthritis UK Centre for Integrated Research into Musculoskeletal Ageing (CIMA) – a collaboration between Newcastle, Liverpool and Sheffield universities – have now proposed a set of

measurements that can be used as a toolkit to assess bone, joint and muscle health.

Publishing in the journal *Age and Ageing*, the CIMA team say that the new toolkit will provide a consistent and holistic way to measure the gradual loss of function that everyone experiences as we get older.

In particular, they recommend the use of two biomarkers to assess bone condition – PINP and CTX, both well-established indicators of bone turnover. High levels of these biomarkers are often associated with greater fracture risk and faster rates of bone loss, particularly in older women.

The toolkit also proposes reliable indicators of cartilage damage, muscle mass, body composition and assessment of functional capability.

Professor John Mathers, from Newcastle University's Institute for Ageing, said: "We know that when older people have limited mobility or stop being active altogether it can have a significant, negative impact on their cardio-vascular health, their neurological health and their quality of life overall, increasing the risk of disease.

"This new toolkit will help us better understand how well the whole musculoskeletal system functions as we age so that we can help people stay physically active and healthy for longer."

First step

The toolkit is a first step towards a comprehensive framework that could be used by researchers and clinicians – both with individuals as needed and, potentially, as part of a public health screening programme for older people.

Over time, this could identify parameters for normal musculoskeletal ageing according to gender and age. To aid this, the CIMA team say that the toolkit

could be used earlier—when people are in their 50s and early 60s, before age-related disease or disability can occur – in order to get a better picture of how the musculoskeletal system ages.

Professor Eugene McCloskey, Professor in Adult Bone Disease, University of Sheffield, said: "The burden of musculoskeletal diseases on individuals and society is huge and increasing.

"The ability to measure the impact of ageing and, equally importantly, of lifestyle and therapeutic interventions, on all of the tissues comprising the musculoskeletal system is an absolute necessity to make progress in this important area.

"The publication of the CIMA Toolkit provides a strong base from which this research can be developed."

Professor Graham Kemp, Institute of Ageing and Chronic Disease, University of Liverpool, added: "This toolkit is the first systematic effort to evaluate methods for assessing the effects of ageing in the bone, muscle, tendons and cartilage, and to make recommendations for practical use."