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Title: **A new public health, tiered approach to reducing arthritis pain through physical activity**

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The massive, growing problem of arthritis

The burden of arthritis is simply immense. In the UK, there are 8.75 million people who have sought treatment for arthritis, with osteoarthritis affecting one in three people aged over 45 years.[1] In any given year, an estimated one in six adults aged over 25 years has back pain lasting more than three months.[2] The personal impact of living with long-term pain and disability is great, including on mental health, wellbeing and the ability to remain independent. In terms of burden on the NHS, one in eight (12%) general practice consultations includes a musculoskeletal component.[3] The National Joint Registry recorded over 200,000 hip and knee replacements in 2015, over 90% of which were for osteoarthritis[4]. Collectively, musculoskeletal conditions account for the largest number of years lived with disability in this country,[5] and comprise the third largest England NHS programme budget £4.7 billion annual spend.[6] Musculoskeletal conditions accounted for 30.8 million days lost working days lost in the UK in 2016, second only to minor illnesses as a cause[7]. People with musculoskeletal conditions are less likely to be in paid work than those with other long-term conditions, and tend to retire early[8].

An ageing, increasingly overweight/obese population means this burden will continue to increase. Critically, musculoskeletal conditions are major contributors to multi-morbidity because of their prevalence, impact on quality of life, and because they deprive people of their mobility and independence, interfering with management of other conditions.

Is there a feasible solution?

This enormous problem of arthritis and multi-morbidities comes at a time of unprecedented need for and demand upon NHS services, coupled with a historic financial challenge. Care for people with long-term conditions needs to move towards personalised, integrated systems of care, with emphasis on supported self-management for example through care and support planning, and shared decision-making[9]. The NHS Five Year Forward View articulated the challenges to the NHS in supporting the increasingly complex health needs of

an ageing society.[10] This led to multiple initiatives linking health, social care and public health approaches including local devolution experiments, and the creation of the sustainability and transformation partnerships.

There are limited treatment options for the GP supporting a patient with arthritis and back pain. While pharmacotherapies are commonly used, their toxicities are considerable, especially in the context of multimorbidit.However there is increasing doubt about their efficacy[11 12] and overmedicalisation is an important barrier to self-management[13]. However muscle-strengthening and activity-related exercises are very effective in reducing osteoarthritis and back pain, and improve everyday functioning and mobility; there are few adverse side effects and many potential additional benefits e.g. cardiovascular, mental health and overall wellbeing[14]; this approach is supported by systematic literature reviews and NICE recommendations.[15 16] Although physical activity programmes are widely available, these often do not meet the needs of people with painful musculoskeletal problems. As well, such programmes have often not been part of a coordinated local approach, building on community assets.

Given their prevalence, impact and the underpinning risk factors amenable to relatively simple activity interventions, a comprehensive public health approach to painful musculoskeletal conditions is therefore warranted.

A new public health, tiered approach

Providing physical activity interventions for people with musculoskeletal conditions is a new report to support local commissioners and providers of health and wellbeing services, including NHS and local authorities, in taking action to improve musculoskeletal health locally.[17] It was co-produced by Arthritis Research UK, the Department of Health, Public Health England and NHS England; it has been endorsed by the Royal College of General Practitioners the Chartered Society of Physiotherapy and the Local Government Association.

It provides information and practical solutions for local physical activity provision, includes a focused checklist to enable local decision-makers to map, and highlight any gaps in, current levels of physical activity provision. The report reviews the extensive and well-established benefits of physical activity both for people with musculoskeletal conditions and wider society. At the heart of the report is a tiered approach (see Figure 1) providing a framework to support people with these conditions to benefit from physical activity.

Many people with reasonable mobility can benefit from self-directed physical activity using accessible community facilities, so long as staff are aware of, and facilities equipped for, the needs of people with musculoskeletal conditions. Others will benefit from supervised physical activity, including land- and water-based exercise groups, such as T'ai Chi, Pilates, walking groups or aqua aerobics.

There are a number of principles underpinning the higher-tiered interventions. Improving muscle strength is a basic construct: if someone can't undo a jar or get out of a chair easily, they have significant muscle weakness and it will be fruitless expecting them to join a walking group. They will need a much more structured approach, akin to cardiac or pulmonary rehabilitation. One such approach for lower limb joint pain is the ESCAPE-pain programme, a 6 week 12 visit intervention which provides both self-management principles and supervised instruction in appropriate leg-strengthening exercises. It has been demonstrated to be effective in terms of pain and functioning outcomes in clinical trials, but also to be cost-effective in the UK setting. Of course, some people will need individualised supervised support with prescribed exercises from physiotherapists.

Which tier is appropriate for a given individual? This needs to be a shared decision between the person with arthritis or back pain and those supporting them who can be any care provider including GPs, allied health professionals, health trainers, fitness professionals, or peers. People's personal preferences are important and their physical activity provision

needs vary over time as their health changes. All this must be supported by local systems for behaviour change.

A prescription for better musculoskeletal health

Conceptually the idea of increasing physical activity is not new, but this joined-up approach is. This is not about a whole new programme of work, but it is about making sure that local physical activity provision meets the needs of people with arthritis and back pain. This will take time, but here are some things we can all do now:

- Produce and maintain up-to-date lists of local physical activity opportunities and contacts for each tier that can be shared with colleagues and patients
- When seeing people with arthritis and back pain, promote physical activity as a way to improve symptoms
- Develop local services, such as health trainers[18], or care and support planning, which can signpost people to local physical activity services in the tier that meets their needs and personal preferences
- Engage local authority and clinical commissioners to adopt a public health approach[19], undertaking local review of musculoskeletal health need and ensuring physical activity provision in line with this report, particularly ensuring access to ESCAPE-pain

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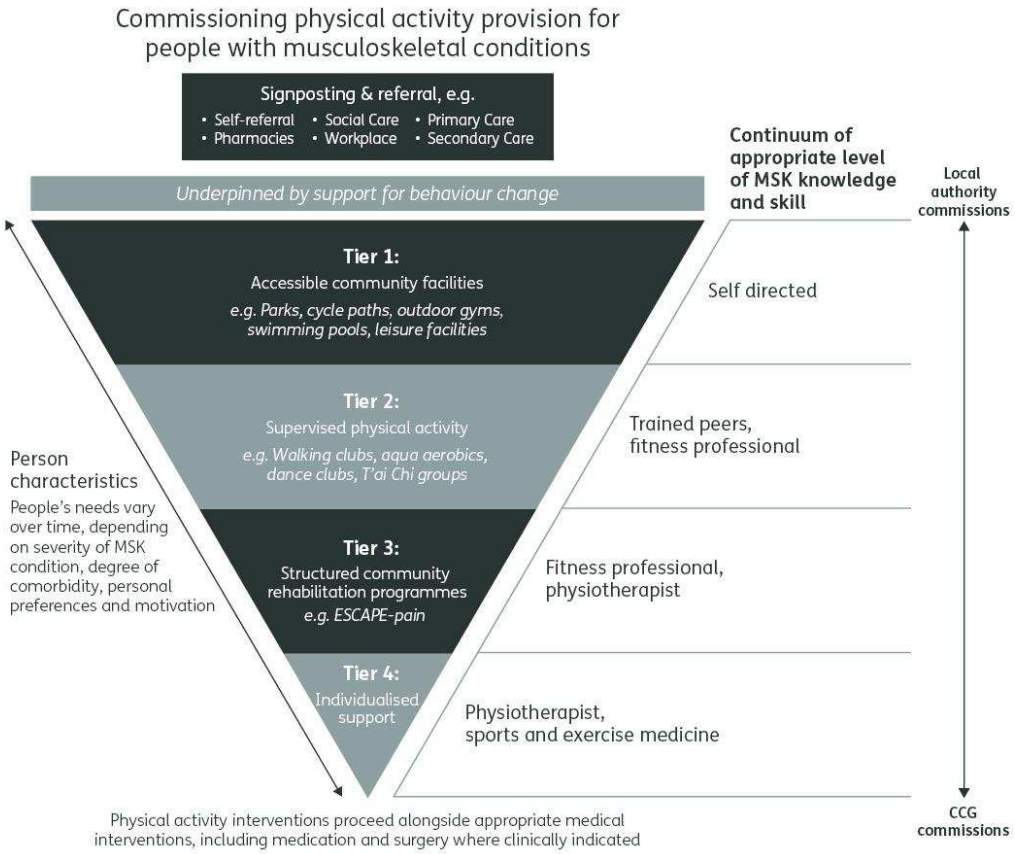
Figure 1. Commissioning physical activity provision for people with musculoskeletal conditions



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