

Physical activity: policy statement

Purpose: This policy statement is intended to give a wide overview of what physical activity is, the role it plays in the management and treatment of musculoskeletal conditions and what can be done to increase access and participation in physical activity.

A wide range of physical activities have been shown to be beneficial in reducing the overall risk of developing musculoskeletal conditions and disability. For people who have already developed a painful musculoskeletal condition, engaging in appropriate physical activity reduces pain intensity, improves quality of life and prevents further disability.

National and local stakeholders including Public Health England, NHS England, NHS Digital, Health Education England and local authorities should be involved in coordinated action across the whole health and care system on physical activity, supported by advice and information from third sector partners such as Arthritis Research UK.

Arthritis Research UK recommends:

1. Public Health England should **promote the benefits of physical activity** to prevent and manage musculoskeletal conditions and tackle barriers to participation through channels such as its health and wellbeing platform, One You.
2. Public Health England and NHS England should work closely with local authorities to **support the nationwide provision of cost-effective physical activity interventions** for people with musculoskeletal conditions such as ESCAPE-pain.
3. Clinical Commissioning Groups and local authorities should **map their current provision of local physical activity services** that are appropriate for people with musculoskeletal conditions, and address gaps to increase uptake using tools such as the Arthritis Research UK physical activity commissioning pyramid.

For a full list of recommendations please see page 10

For further information, please see:

Arthritis Research UK (June 2014). **Musculoskeletal conditions: A Public Health Approach.**

Arthritis Research UK (December 2016). **Musculoskeletal conditions and physical activity in Scotland: policy statement.**

Arthritis Research UK (March 2017). **Providing physical activity interventions for people with musculoskeletal conditions.**

1. What is physical activity?

Physical activity can include 'all forms of activity, such as everyday walking or cycling, ... active play, work-related activity, active recreation such as working out in a gym, dancing, gardening or playing active games, as well as organised and competitive sport'.¹ It can be classified into intensity levels defined as the ratio of work metabolic rate to a standard resting metabolic rate

(MET).²

Most activities which include an aerobic or cardiovascular component are classified into a higher intensity level, such as moderate or vigorous.³ These activities typically increase heart rate and breathing, as well as induce sweating in the case of vigorous activity. In addition, physical activity can be quantified in terms of frequency (the number of times an individual engages in activity over a given time period, such as a week) and duration (the amount of time spent in any given activity per episode, such as 10 or 30 minutes).⁴

Activities that improve strength and balance are an important part of physical activity particularly for bone health, to protect against osteoporosis, falls and fractures. Weight bearing exercise 'can increase bone mineral density in adolescents, maintain it in young adults, and slow its decline in old age'.⁵ High impact activities including jumping and running increase bone density much more than moderate and low impact activities such as walking.⁶

2. What is sedentary behaviour?

Sedentary behaviour is defined as 'any waking behaviour characterised by an energy expenditure ≤ 1.5 metabolic equivalents (METs), while in a sitting, reclining or lying posture. In general this means that any time a person is sitting or lying down, they are engaging in sedentary behaviour'.⁷ The average adult spends 60-80% of their waking day sedentary.⁸ Sedentary behaviours are particularly high in working adults engaged in office based occupations where 70-85% of waking hours are spent sitting.⁹ There is evidence that engaging in everyday physical activity can reduce the risks of sedentary behaviour.¹⁰ It is also important that people do not just undertake structured bouts of physical activity, but incorporate it into everyday life, such as standing more at work.

3. The cost and impact of physical inactivity

Physical inactivity is a leading risk factor for morbidity and accounts for 5% of disability adjusted life years (DALYs) in the UK.¹¹ Much of the UK population is at increased risk of developing a long-term musculoskeletal condition (e.g. osteoarthritis) due to their physical inactivity.¹² Around one in two women and a third of men in England are damaging their health through a lack of physical activity,¹³ and physical inactivity is estimated to cost the NHS between £455 million¹⁴ and £0.9 billion per year.¹⁵ The wider costs to society and the economy (for example due to absenteeism and lost productivity) are estimated to be much higher, up to £7.4 billion a year.¹⁶

Inactive people are at increased risk of damaging their physical and mental health and well-being, which includes their musculoskeletal health. For example, research shows that:

- Physical inactivity is strongly linked to obesity, which in turn is a risk factor for developing a painful musculoskeletal condition, in particular osteoarthritis of the knee.¹⁷
- Physical inactivity is closely linked to depression.¹⁸
- People who are physically active are less likely to report chronic musculoskeletal pain.¹⁹
- Low bone density can lead to a higher risk of osteoporosis and result in fractures – up to 50% of hip fractures could be avoided with regular physical activity.²⁰

4. Physical activity and primary prevention

Regular physical activity that meets national guidelines (see next section) has considerable general health advantages for the individual, for families, communities and society – in addition to the physical health benefits of activity, it improves sleep, boost mental well-being and can help manage stress. It also reduces the chances of developing a range of conditions ranging from Type II diabetes (by 40%), colon and breast cancer (by 20%) and joint and back pain (by



25%).²¹ Taking steps to reduce the risk of developing a painful musculoskeletal condition in later life is known as primary prevention.

Keeping physically active is especially important for musculoskeletal health because it can help strengthen muscles, keep bones healthy and prolong the life of joints, as well as help to maintain a healthy body weight. The positive effects of physical activity on bone development in childhood and adolescence can reduce fracture risk much later in life. In addition, a healthy weight throughout childhood and adolescence which is maintained in adulthood can reduce the risk of knee osteoarthritis.²² High impact physical activity in early life is important because it promotes healthy development of the adult skeleton. Over 90% of adult bone mass is accumulated during childhood and adolescence.²³ Bone strength is one of the most important factors in determining whether a minor injury, such as a fall from a standing height, will lead to a fragility fracture.

5. Physical activity and secondary prevention

For people who have already developed a painful musculoskeletal condition, engaging in appropriate physical activity can help reduce musculoskeletal pain, as well as improve the range of movement and joint mobility, increase muscle strength, reduce stiffness and boost energy.²⁴ This can be as a core treatment (for example in osteoarthritis or back pain), or as an adjunct to drug treatments (for example in rheumatoid arthritis)^a. Depending on clinical and individual need, physical activity can comprise a spectrum of approaches from general, self-determined activities (such as walking or swimming) to therapeutic exercises prescribed by a health professional such as a physiotherapist.

Benefits by musculoskeletal condition:

Osteoarthritis and back pain

Physical activity is one of the most important treatments for conditions such as osteoarthritis and back pain, ideally combining strengthening exercises for muscles, to support joints, as well as for general fitness.²⁵ Appropriate exercise can reduce symptoms of osteoarthritis of the hip and knee²⁶ and reduce the risk of recurrence of back pain by at least 25%.²⁷ Walking is recommended as an effective form of exercise or activity for individuals with long-term musculoskeletal pain.²⁸ Many different types of exercise have been shown to be beneficial for people with musculoskeletal conditions including swimming, walking, cycling and running.²⁹ Arthritis Research UK has developed a model, the 'musculoskeletal physical activity commissioning pyramid'. This presents a tiered, public health approach towards musculoskeletal health and details differing levels of interventions depending on the severity of musculoskeletal conditions (see Annex A for more information).

Inflammatory conditions

Exercise has been shown to improve physical function, reduce disease activity and improve cardiovascular health in people with rheumatoid arthritis.³⁰ Multiple studies have now shown the benefits of high-intensity aerobic and resistance exercise to people with rheumatoid arthritis.³¹

a See section on NICE Guidance in Annex C



For people with ankylosing spondylitis, physical activity interventions focusing on flexibility improve physical function and disease activity as well as addressing pain, stiffness and spinal mobility.³²

Falls and fractures

Fractures as a result of falls are more likely in those with poor musculoskeletal health, with weak muscles, stiff joints and reduced coordination. As in early life, high impact physical activity promotes strengthening of the bones.³³ People who are physically active reach a higher peak bone strength in mid-adult life and reduce the subsequent speed of decline in bone strength, reducing risk of fragility fractures in later life. Public Health England's Falls Consensus Statement (2017) recognises physical activity as a key health-related behaviour for healthy ageing and reducing the risk of falls.³⁴

Certain exercise programmes, in particular those focusing on individualised and progressive gait, strength and balance retraining, have been shown to reduce the rate of falls. For example, the Falls Management Exercise (FaME) programme, a 36 week individualised and tailored group and home exercise intervention showed a 31% reduction in the number of falls against a control group.³⁵

Multimorbidities

Physical activity has benefits for many long-term health conditions, including depression and anxiety. It may therefore be of particular value to people living with multiple long-term conditions, including where one of these conditions is a painful musculoskeletal condition.

Barriers

People with long-term conditions, including musculoskeletal conditions face both internal and external barriers to being physically active.³⁶ Some of the **internal** barriers to physical activity which relate to the symptoms experienced by people with musculoskeletal conditions include:

- Pain;
- Limited mobility/dexterity;
- Fatigue;
- Lack of motivation;
- Mood and mental health.

In addition, there are also '**external**' barriers such as:

- Lack of time;
- Lack of accessibility;
- Practicality (lack of suitable facilities-see Annex D);
- Lack of information about appropriate activity;
- Cost.

People with musculoskeletal conditions may also have differing levels of 'patient activation'. Patient activation is a measure of a person's skills, confidence and knowledge to manage and cope with their health including the motivation to be physically active.³⁷ People who mistakenly avoid physical activity for fear it will exacerbate their musculoskeletal condition may be at increased risk of long-term pain and disability. Intervention programmes are an opportunity to dispel these myths by providing a supportive environment where people with musculoskeletal conditions can exercise safely and appropriately for their condition and build their confidence to be independently physically active (see Annex B).



6. Policy and Guidance

There are no specific guidelines on the frequency and intensity of physical activity by disease type. However, both the Chief Medical Officers and the National Institute for Health and Care Excellence (NICE) have produced physical activity guidelines which apply generically, including for people with musculoskeletal conditions.

Chief Medical Officers' Guidelines

Adults and older adults

To maintain good physical and mental health, the UK Chief Medical Officers' Guidelines (2011)³⁸ recommend that adults aged 19-64 should aim to be active daily and should undertake 75 minutes per week of vigorous intensity activity or 150 minutes per week of moderate intensity activity, or a combination of both. To keep muscles, bones and joints strong, undertaking strength and balancing exercises twice a week is also recommended.

Older adults aged 65 plus should undertake exercise that adds up to at least 150 minutes (2½ hours) of moderate intensity activity per week or 75 minutes of vigorous activity. Older adults should also undertake physical activity to improve muscle strength on at least two days a week and those at risk of falls should incorporate physical activity to improve balance and co-ordination on at least two days a week.³⁹

Children

Children aged 5-18 should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day.⁴⁰ Vigorous intensity activities, including those that strengthen muscle and bone, should be incorporated at least three days a week.

People of all ages should minimise the amount of time spent being sedentary (sitting) for extended periods.

NICE Clinical guidance

NICE recommends physical activity as part of the prevention and treatment pathway for chronic conditions including back pain, osteoarthritis and prevention of falls. All healthcare practitioners should identify opportunities to initiate discussions around physical activity as part of the assessment and treatment of a patient, forming a routine part of clinical care. For a full list of relevant NICE guidance see Annex C.

National Strategies

*Sporting Future: A New Strategy for an Active Future*⁴¹ (December 2015) has a particular focus on getting disabled people active and *the Cycling and Walking Investment Strategy*⁴² (April 2017) seeks to target groups that are under-represented in cycling and walking, such as people with disabilities and health conditions



7. Measuring impact

We would welcome data captured both nationally and locally on levels of physical activity and physical inactivity amongst those with musculoskeletal conditions in order to better understand how we can support these people to be more active.

Outcomes

Public Health Outcomes Framework (PHOF)

Public Health England's PHOF sets out its vision for desired outcomes and indicators to understand how improvements in public health can be made, including addressing health inequalities. For physical activity there are two indicators that are used within Domain 2: Health improvement- 2.13 'Proportion of physically active and inactive adults.'⁴³

- PHOF 2.13i Proportion of adults achieving at least 150 minutes of physical activity per week in accordance with UK CMO recommended guidelines on physical activity.

Defined as: Number of adults (16+) doing at least 150 'equivalent' minutes of at least moderate intensity physical activity per week in bouts of 10 minutes or more.

- PHOF 2.13ii Proportion of adults classified as 'inactive'

Defined as: Number of adults (16+) who do less than 30 'equivalent' minutes of moderate intensity physical activity per week in bouts of 10 minutes or more.

Musculoskeletal Health Questionnaire (MSK-HQ)

Arthritis Research UK's MSK-HQ developed in partnership with Keele University and the University of Oxford is a validated Patient Reported Outcome Measure (PROM) tool⁴⁴ that includes two questions on physical activity. If used widely it would generate important data about physical activity participation among people with musculoskeletal conditions (See section 7 for more information).

- Q5. Physical activity levels 'How much has it been a problem for you to do physical activities to the level you want because of your joint or muscle symptoms in the past two weeks?' (scored completely > not at all).
- Q15. Physical activity levels 'In the past week, on how many days have you done a total of 30 minutes or more of physical activity, which was enough to raise your heart rate?' (scored none > 7 days).

Data

There are two main data sources for measuring physical activity, the Health Survey for England (HSE) and the Active Lives Survey (ALS). The HSE is a more general survey about health and health behaviours and physical activity questions are not asked every year (the most recent are 2016 and 2012). The ALS is specifically about physical activity and was created to greater understand and provide metrics on people's physical activity behavior.

Adults

Data from the latest HSE⁴⁵ (published December 2017) details self-reported participation in physical activities for adults. In 2016, 66% of men and 58% of women aged 16 and over met



the aerobic guidelines of at least 150 minutes of moderate activity or 75 minutes of vigorous activity per week or an equivalent combination of both, in bouts of 10 minutes or more.

However, there are a number of factors that determine levels of activity including age, gender, region, and socio-economic group:

- 19% of women and 13% of men aged 16 to 24 were classed as inactive compared with 58% of women and 47% of men aged 75 and over.
- More men than women met both the aerobic and muscle-strengthening guidelines (31% and 23% respectively).
- Only 50% of those in the most deprived quintile met the guidelines compared with 68% in the least deprived.
- The proportion of adults meeting the aerobic activity guidelines was lowest in the West Midlands (53%) and highest in London (65%).

The Active Lives Survey 2016/17⁴⁶ details that inactivity is more common among people with a disability (43%) than those without (21%). Furthermore, it increases sharply as the number of impairments an individual has increases – 51% of those with three or more impairments are inactive. From our analysis of the previous Health Survey for England (2015) 44.6% of adults (16+) with musculoskeletal conditions in England are physically inactive (defined as undertaking 30 mins or less of activity per week) compared to 22.9% with no musculoskeletal condition.⁴⁷

Children (aged 5 to 15)

Detailed data on children's physical activity is not collected the HSE every year, and so the latest dataset is from 2015. Excluding activities during school lessons, in 2015 22% of children aged 5 to 15 met the guidelines of at least 60 minutes of activity each day of the week. 40% of children were classified in the 'low activity' group, meaning that they did fewer than 30 minutes of moderate to vigorous intensity physical activity (MVPA) on each day, or MVPA of 60 minutes or more on fewer than three days in the last week.⁴⁸

8. What needs to change?

Behavioural change

There is strong evidence to suggest that changing people's health-related behaviour can have a major impact on some of the largest causes of morbidity, including arthritis and other musculoskeletal conditions. Inactive children become inactive adults and these behavioural patterns are set in early life.⁴⁹ It is therefore crucial to encourage physical activity at the earliest opportunity and ensure participation in physical activity continues through adolescence into adult life. Sport England's five-year strategy has pledged to 'invest more in children and young people from the age of five to build positive attitudes to sport and activity as the foundations of an active life.'⁵⁰ The Government's 'Childhood Obesity Strategy' also pledges to support schools in ensuring that children are active for an hour each day.⁵¹ The Daily Mile initiative has been a great success in encouraging children at nursery and primary schools to be active and around 2000 schools in the UK are now participating.⁵²

It is also important to target resources at those in harder to reach groups and attract them to physical activity programmes. Sport England recognises that its work needs to be tailored to the needs of these groups 'including women and girls, people from lower socio-economic groups, older people, disabled people, people from particular ethnic groups'.⁵³ Research conducted by Britain Thinks revealed that 'people with long term conditions often have the attitude that both exercise and physical activity are seen as 'not for people like me'.⁵⁴ It is therefore important that



physical activity messaging is positive, encouraging and inclusive. Finally, behavioural change is not just about providing structured programmes but also encouraging people to self-motivate and take ownership of their health.

'One You'

Public Health's England 'One You'⁵⁵ initiative provides lifestyle advice to encourage behavioural change, including practical information on being more physically active. Importantly, it proposes achievable and accessible activities such as Active 10, an app that encourages 10 minutes brisk walking per day.⁵⁶ It also includes advice on muscle strengthening exercises and Arthritis Research UK is working with PHE to include physical activity advice for people with musculoskeletal conditions. Local authorities have adopted the 'One You' brand for local public health services such as weight loss and physical activity programmes.

Making Every Contact Count

The NHS has developed an initiative called 'Making Every Contact Count'⁵⁷ to encourage organisations responsible for the health, wellbeing, care and safety of the public to implement and deliver healthy messages systematically to each person they interact with. Every day millions of conversations take place between health and care professionals and their patients and each of these is an opportunity to talk about physical activity.

Previous national physical activity campaigns with a focus on supporting behavioural change include *This Girl Can* and *Change4Life*.

Incorporating physical activity into everyday life

Physical activity in the workplace

Physical activity programmes at work have been found to reduce absenteeism by up to 20%: physically active workers take 27% fewer sick days.⁵⁸ The Workplace Wellbeing Charter provides guidance for employers on how to encourage physical activity in the workplace.⁵⁹ PHE in partnership with the Arthritis and Musculoskeletal Alliance and Business in the Community have also produced a Musculoskeletal Health Toolkit for employers to support good musculoskeletal health in the workplace.⁶⁰

Active travel

Active travel means using non-motorised transport to complete a significant part or all of a journey for example from home to work or to school. Evidence suggests that switching motor vehicle trips for active travel can improve both health outcomes for individuals and reduce costs to the NHS.⁶¹

Built environment

The built environment can be an important enabler but also barrier to physical activity, particularly in terms of ensuring accessibility for people with musculoskeletal conditions. Research has shown that designing urban environments to be activity-supportive could have large effects on physical activity and help people to achieve meeting guidelines more easily.⁶²

The role of local authorities

Local authorities have a range of responsibilities relating to public health and physical activity, including the provision of leisure facilities, parks and recreational facilities and the planning of the built environment. There is therefore an opportunity to upskill those who work within local authorities in the sport and leisure industry or even in community and voluntary groups. This could involve training to recognising the benefits to people with painful musculoskeletal



conditions, and addressing the barriers to physical activity from pain, muscle weakness or poor balance.

Local authorities also carry out Joint Strategic Needs Assessments (JSNAs) to evaluate the health and wellbeing of their local populations and to target interventions in order to reduce health inequalities. All JSNAs should include local levels of participation in physical activity and what interventions can increase uptake. Ideally, all JSNAs would also include the needs of people with musculoskeletal conditions so that appropriate support could be provided to enable this group of people to be physically active.

However, in 2015 Arthritis Research UK reported that 1 in 4 local authorities had not included the needs of people with arthritis, musculoskeletal conditions or osteoarthritis in their JSNA. In addition, 64% of local authorities had not included osteoarthritis in their JSNA, even though at least 15% of over 45s in every area have osteoarthritis of the knee.⁶³ We would therefore like all local authorities to include musculoskeletal conditions in future JSNAs.

Funding and future funding arrangements

Local authorities' public health responsibilities are divided into two categories: prescribed functions which must be provided and non-prescribed functions which do not, but should be considered with regard to the Public Health Outcomes Framework. Physical activity and weight management services for both adults and children are non-prescribed functions. Both prescribed and non-prescribed functions are currently funded by the Public Health Grant which is transferred from the Department of Health to local authorities, who must report their spending on prescribed functions.⁶⁴

However, the Government is currently considering whether to change funding arrangements so that local authorities raise 100% of their revenue through local business rate retention (currently they retain 50% and rely on central Government grants for the other 50% of their budget).⁶⁵ We are concerned that combined with the Government's plan for £200 million of in-year savings from the local authority public health grant⁶⁶ this transition could lead some local authorities reducing provision of physical activity services, which would in turn impact negatively on people with musculoskeletal conditions. We set out our views on this in a consultation response to the Department for Communities and Local Government in September 2016.⁶⁷

9. How is Arthritis Research UK involved?

Cross-sector work

Arthritis Research UK's 2017 report, produced in partnership with the Department of Health, Public Health England and NHS England '**Providing physical activity interventions for people with musculoskeletal conditions**' reviews the benefits of physical activity for people with musculoskeletal conditions and signposts local commissioners of physical activity to appropriate programmes. At the heart of the report is a musculoskeletal physical activity commissioning pyramid which proposes a tiered approach to the provision of local physical activity programmes for people with musculoskeletal conditions and details case studies for each tier.

For more information, see Annexes A and B and for the full report please visit:

<http://www.arthritisresearchuk.org/policy-and-public-affairs/policy-reports/physical-activity-report.aspx>



Data tools

In addition to the MSK-HQ (see section 7) Arthritis Research UK has a prevalence modelling tool in partnership with Imperial College for musculoskeletal conditions, called the **Musculoskeletal Calculator**. For the first time, this tool provides estimates of the burden of musculoskeletal conditions to local areas. Estimates are available for osteoarthritis of the hip and knee, back pain and rheumatoid arthritis for England and Scotland and enables users to compare prevalence in their local area to national averages. For more information, please visit:

<https://www.arthritisresearchuk.org/arthritis-information/data-and-statistics/musculoskeletal-calculator.aspx>

Research and funding of programmes

Arthritis Research UK funds research on sports and exercise medicine. We have pioneering national research centres of excellence: the Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis, which leads in investigating the development of osteoarthritis following sports and exercise injuries⁶⁸; and the MRC-Arthritis Research UK Centre for Musculoskeletal Ageing Research which aims to identify both nutritional and physical activity interventions that can reduce age-related disease.⁶⁹

Arthritis Research UK has also funded the following physical activity programmes:

- ESCAPE-pain (Enabling self-management and coping with arthritic pain through exercise).⁷⁰
- Walk with Ease.⁷¹

For more information, see Annex B.

10. Recommendations

For national bodies including PHE, NHS England, NHS Digital and Health Education England

Health promotion

- 1. Promoting the benefits of physical activity:** Public Health England should promote the benefits of physical activity to prevent and manage musculoskeletal conditions and tackle barriers to participation such as through its health and wellbeing platform, One You.
- 2. Making Every Contact Count (MECC):** Health and care professionals throughout the health and social care system should initiate conversations about physical activity with people with musculoskeletal conditions. Public Health England and NHS England should promote such conversations through the MECC programme.
- 3. Best practice and training:** Health Education England should use its Public Health Group and associated stakeholders to share best practice on training staff to support people with musculoskeletal conditions to be physically active.
- 4. Chief Medical Officer's guidelines:** any update to the 2011 physical activity guidelines should include messaging that takes into account the barriers that people with musculoskeletal conditions face in meeting the guidelines.



Interventions

- 5. Supporting physical activity intervention programmes:** Public Health England and NHS England should work closely with local authorities to support the nationwide provision of cost-effective physical activity interventions for people with musculoskeletal conditions such as ESCAPE-pain.

Data

- 6. Better data collaboration:** Public Health England should work closely with NHS England, NHS Digital and others to ensure data is collected on physical activity participation and levels of physical inactivity among those with musculoskeletal conditions.^b

For local authorities (including oversight of sport and leisure provision)

Local planning and provision of services

- 7. Joint Strategic Needs Assessment:** Local authorities should recognise the impact and prevalence of musculoskeletal conditions on the health of the local population in their JSNAs and actions to address these should be included in Joint Health and Wellbeing Strategies to promote physical activity such as active travel and community based services.
- 8. Local physical activity provision:** Clinical Commissioning Groups and local authorities should map their current provision of local physical activity services that are appropriate for people with musculoskeletal conditions, and address gaps to increase uptake using tools such as the Arthritis Research UK physical activity commissioning pyramid.
- 9. Sports and leisure facilities:** Local authorities should work with sports and leisure providers to ensure people with musculoskeletal conditions are encouraged and able to access and use their local facilities and staff have the appropriate knowledge to enable this.

Funding of services

- 10. Local funding of public health services:** Local authorities should ensure that any changes to the funding of public health provision (such as the proposed move to 100% retention of local business rates) do not impact negatively on the provision of local physical activity services.

For third sector partners

- 11. Sharing best practice:** Arthritis Research UK and the musculoskeletal sector should work collaboratively with Public Health England, NHS England and other national and local stakeholders to share best practice and patient experience of physical activity interventions for people with musculoskeletal conditions.
- 12. Cross-sector collaboration:** Charities and other third sector organisations; should work together where action can be taken to promote physical activity benefits beyond disease specific approach such as through the Richmond Group and Sport England.

^b Following the recent commitment in the NHS Mandate for regular collection of data about incidence, prevalence, clinical activity and outcomes of musculoskeletal patients and services in England-*NHS Mandate 2017-18*
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/601188/NHS_Mandate_2017-18_A.pdf



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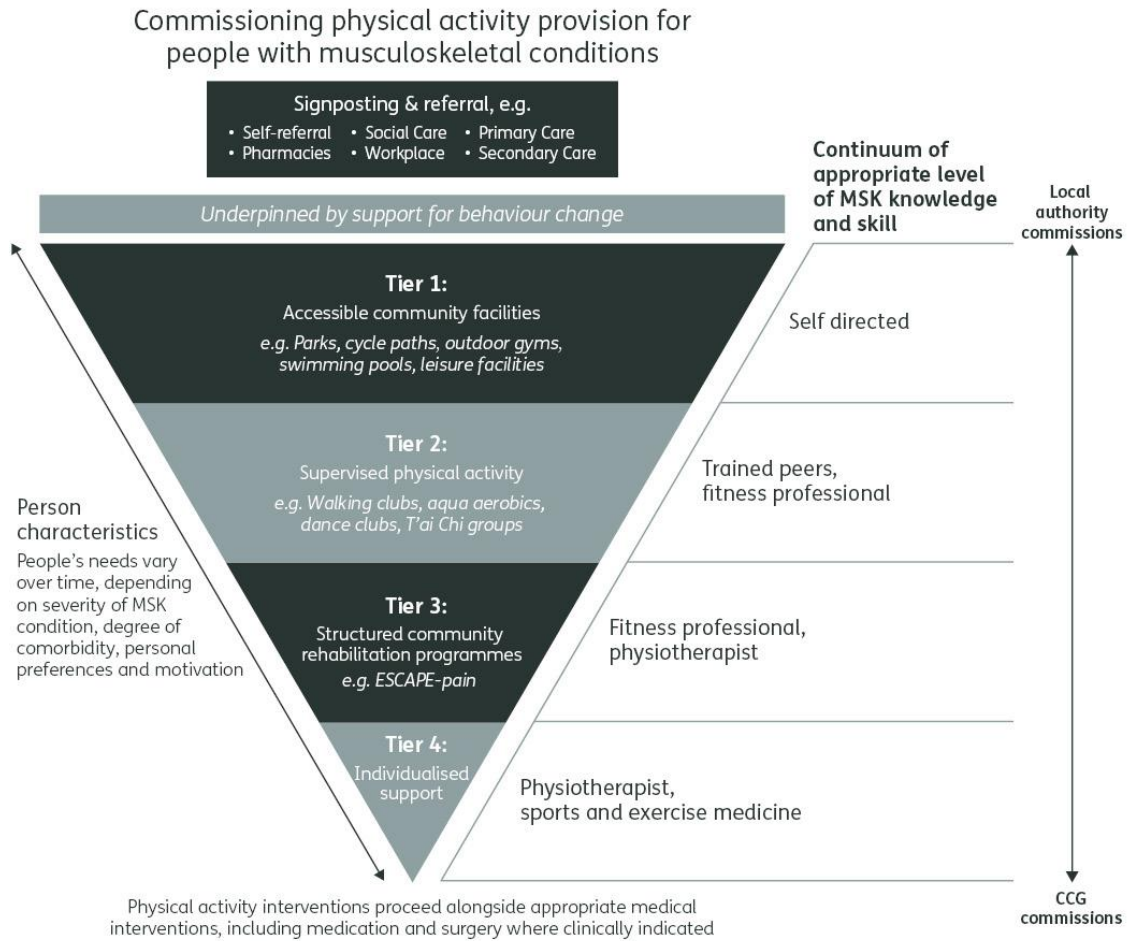
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Annex A - Musculoskeletal physical activity commissioning pyramid

To support the commissioning of physical activity interventions of people with musculoskeletal conditions, Arthritis Research UK has developed a model – the musculoskeletal physical activity commissioning pyramid – which sets out the four tiers of provision that could be provided locally:



Annex B - Arthritis Research UK funded physical activity interventions

Walk with Ease Tier 2 intervention

Walk with Ease is a walking intervention (developed in the United States) specifically designed for people with arthritis and musculoskeletal conditions. The Oregon Health Authority chose the programme from the Centers for Disease Control and Prevention's approved evidence-based programme list for its low cost and simplicity.⁷² It has been shown to be effective in reducing arthritis-related symptoms and improving physical function when delivered in either a group or self-directed format.

Arthritis Research UK is funding a UK-based programme at the University of Aberdeen and will be closely following potential publications, breakthroughs or work that has direct patient benefits as a result of the programme. If successful, the programme has the potential for future implementation by the NHS as a treatment for arthritis/musculoskeletal conditions.

<http://www.arthritis.org/living-with-arthritis/tools-resources/walk-with-ease/>

ESCAPE-pain (Enabling self-management and coping with arthritic pain through exercise) Tier 3 intervention

ESCAPE-pain is a six-week rehabilitation programme designed for people with knee and/or hip osteoarthritis. In the twice-weekly group sessions people learn about their arthritis and undertake an exercise programme. By taking part, people can reduce their pain and improve their mobility, and the benefits have been shown to last for months and even years.

ESCAPE-pain was originated by Professor Mike Hurley with the support of an Arthritis Research UK Fellowship. Since 2013 the Health Innovation Network has led the implementation and development of the programme. Now the Health Innovation Network and Arthritis Research UK are working together to scale up the ESCAPE-pain programme so that more people with arthritis can benefit from taking part. <http://www.escape-pain.org/about-escape/overview>

Individualised physiotherapy (STarT Back) Tier 4 intervention

It is important that physiotherapy interventions are targeted appropriately according to individualised need and the STarT Back tool, developed at Keele University, provides stratified care for people with low back pain. It is an innovative tool to screen patients according to their risk of persistent low back pain disability, reducing over-treatment of low risk groups by ensuring their management is supported in primary care, and offering more effective and efficient targeted physiotherapy treatment for those who can most benefit (medium and high- risk groups).

It has shown to be clinically and cost effective, reducing healthcare use e.g. GP visits, magnetic resonance imaging scans, medication and absence from work.^{73, 74, 75} Innovations such as the e-STarT Back tool integrated in EMIS and SystemOne and high quality patient information for use in GP consultations (accessible via patient.info) means that implementation of this approach has been adopted across the West Midlands Academic Health Science Network and beyond.



Annex C - National Institute for Health and Care Excellence guidance

Physical activity and behavioural change

- PH6 (2007) Behaviour change: the principles for effective interventions
- PH8 (2018) Physical activity and the environment
- PH13 (2008) Promoting physical activity in the workplace
- PH17 (2009) Promoting physical activity for children and young people
- PH41 (2012) Physical activity, walking and cycling
- PH44 (2013) Physical activity: brief advice for adults in primary care
- PH49 (2014) Behaviour change; individual approaches
- PH54 (2014) Exercise referral schemes to promote physical activity

Musculoskeletal conditions

- CG146 (2012) Osteoporosis: assessing the risk of fragility fracture
- CG161 (2013) Falls in older people: assessing risk and prevention
- CG177 (2014) Osteoarthritis: care and management in adults
- CG79 (2015) Rheumatoid arthritis in adults: management
- NG59 (2016) Low back pain and sciatica in over 16s: assessment and management



Annex D - Case Study

Christine is retired and lives in Leeds. Here she describes some of the challenges that people with musculoskeletal conditions face in being able to engage in physical activity.

"I had an accident at work aged 18 which led to removal of cartilage in my knee, and a diagnosis of osteoarthritis aged 30. Despite leading a very active life, the severity and regularity of flares gradually increased. The arthritis spread to other joints, culminating in both hips and both knees being replaced when I was in my early seventies. There are many challenges that people with arthritis might face; stiffness, depression and unremitting pain. I was prescribed strong painkillers, but these had side effects. Sometimes I felt like a zombie, with no wish to do anything apart from sit, and feel miserable. The thought of being active in any way wasn't at the forefront of my mind. I hated feeling like that, so I decided to manage my condition with paracetamol, and just accept I would always be in some degree of pain.

One form of exercise that really works for me, and allows me to exercise in a relatively pain-free way, is going to a swimming pool and walking in the water. Sadly, access can be difficult. It takes a lot of courage to put a swimsuit on in the first place when you are unfit and overweight. Then once you're out of the changing room, there are more challenges to overcome.

For example, in my local swimming pool there are signs saying people can't jump or dive in. If that's the case, I don't really understand why there needs to be a deep end at all? If I was able to walk from the start to the end of the pool, rather than having to stay in the shallow end, that would hugely increase my fitness. Another change, which would make a big difference to me, would be to replace ladders with steps. I'm sure people don't realise how difficult it can be for someone with arthritis to use a ladder, but steps would provide a good alternative.

In my opinion there's a general lack of gentle exercise classes, such as aquaerobics, Tai'Chi, chair-based exercise, and Yoga. For example, I've found it really frustrating that my local swimming pool only run aquaerobic classes for people with healthy joints, I'd love to take part but often the exercises just aren't things I can do, and I'm told to just 'do the best I can'. These classes would be great for anyone with arthritis, and empathetic instructors can make all the difference to our self-esteem, and lead to an improvement in our symptoms.

If you set people up to fail, they will, so why not make small changes instead which can result in a positive difference. I'd happily share my views and suggestions with anyone who could help improve the situation, and enable me to exercise more regularly.



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