

# State of Musculoskeletal Health 2017

Arthritis & other musculoskeletal  
conditions in numbers



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**Musculoskeletal conditions are extremely common**, however many are still not receiving the recognition they deserve and support they need. Millions of people across the UK are limited by the pain, stiffness and fatigue caused by musculoskeletal conditions, such as arthritis or back pain.

These conditions affect all aspects of everyday life, by limiting what people can do and their ability to be independent. This in turn can have a **devastating impact on a person's overall quality of life**. In fact, musculoskeletal conditions are the leading cause of years lived with disability (YLDs) and the third largest cause of disability adjusted life years (DALYs) in the UK today.<sup>1</sup>

**Musculoskeletal conditions are a costly and growing problem.**

The prevalence of musculoskeletal conditions is expected to continue to increase both due to our ageing population and rising levels of obesity and physical inactivity. These are two major modifiable risk factors in the development of a musculoskeletal condition.

## What is the state of musculoskeletal health?

This compendium of musculoskeletal health data is an important resource providing the best picture of the burden and impact of seven<sup>a</sup> of the most prevalent musculoskeletal conditions in the UK. Where available, data refers to the whole of the UK, however due to gaps in coverage some findings are restricted to England.

The burden of musculoskeletal illness can be defined by the number of people affected by a condition and at risk of developing the disease, but also by its wider impact.

Musculoskeletal conditions can have a significant impact both on a personal and societal level. An individual's home life, relationships and work can all be affected, causing repercussions for society and the wider economy, for example through the cost of treatment or lost productivity.

## What methodology was used?

Evidence used in this report was gathered from the best available qualitative and quantitative data. Research articles were selected through systematic literature reviews and where possible restricted to UK population cohorts or comprehensive meta-analyses.

This compendium presents data from sound data sources, including but not limited to:

1. national datasets, surveys and audits;
2. findings from observational, surveillance and modelling studies;
3. musculoskeletal sector charity reports.

## Who is it for?

The State of Musculoskeletal Health 2017 is a resource for health professionals, policy makers, public health leads and anyone interested in musculoskeletal health. We believe that with the best information you can build awareness, make more informed decisions, feel more confident and ultimately help more people with musculoskeletal conditions.

<sup>a</sup> Axial spondyloarthritis (incl. ankylosing spondylitis), gout, juvenile idiopathic arthritis, rheumatoid arthritis, back pain, osteoarthritis, osteoporosis/fragility fractures.

**Arthritis** – a general term that most people use to mean painful joints. Medically, it refers to a number of different conditions leading to inflamed or damaged joints.

**Comorbidity** – any additional health conditions that people may have, beyond the main condition being addressed.<sup>2</sup>

**Disabled** – someone with a long-term condition who reports it reduces their ability to carry out day to day activities, as defined by the Equality Act 2010.<sup>3</sup>

**Disability adjusted life-year (DALY)** – A single metric of overall disease burden combining years of life lost (YLLs) due to mortality and years lived with disability (YLDs). One DALY can be thought of as one lost year of healthy life.<sup>4</sup>

**Finished consultant episodes (FCEs)** – one episode of care within an inpatient stay under one responsible consultant.

**Incidence** – the rate of new (or newly diagnosed) cases of disease, generally reported as the number of new cases occurring within a period of time (e.g. per month, per year).

**Literature review** – a review of information found in the literature related to a selected area or topic of research.

**Meta-analysis** – a study design that systematically combines and assess previous qualitative and quantitative studies about a particular topic or research area in order to develop a single conclusion.

**Mortality** – a term used to describe the number of people who died within a population. A mortality rate is the number of deaths due to a specific cause divided by the total population over a given period.

**Multimorbidity** – a person living with multimorbidity has two or more long term chronic conditions.<sup>5</sup>

**Musculoskeletal conditions** – a broad range of health conditions affecting bones, joints and muscles, pain syndromes and rarer conditions of the immune system.

**Prevalence** – the percentage of a population that is affected with a particular disease at a given time.

**Risk factor** – any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease or disorder. Some risk factors are modifiable, because you can change them (e.g. smoking, obesity, diet). Other risk factors are non-modifiable, because you can't directly change them (e.g. age, sex, family history).

**Work days lost** – the number of work days lost for all people in employment aged over 16 years due to sickness absence.

**Work related musculoskeletal disorders (WRMSDs)** – a self-reported musculoskeletal condition which a person thinks has been caused or made worse by their current or past work.

**Years lived with disability (YLD)** – years of life lived with any short-term or long-term health loss.<sup>6</sup>

Millions are affected by musculoskeletal conditions in the UK.		57% of people living with arthritis say they experience pain every day.			Over 30 million working days are lost due to musculoskeletal conditions, each year.	
Ankylosing spondylitis	Gout	Juvenile idiopathic arthritis	Rheumatoid arthritis	Osteoarthritis	Back pain	Osteoporosis/ fragility fractures
200,000 people in the UK have ankylosing spondylitis.	1 in 40 people in the UK have gout. That's around 1.5 million people.	12,000 children in the UK have juvenile idiopathic arthritis.	Over 400,000 people in the UK have rheumatoid arthritis.	8.75 million people aged 45 and over in the UK have sought treatment or osteoarthritis.	Around 10 million people in England and Scotland alone have persistent back pain.	3 million people in the UK have osteoporosis. Over 300,000 fragility fractures occur in the UK each year.
Withdrawal from work is 3 times more common in people with ankylosing spondylitis than in the general population.	23% of working-age people with gout say they had to give up work because of their condition.	30 – 56% of children with juvenile idiopathic arthritis will have severe limitations in dexterity and mobility in adulthood.	1/3 of people with rheumatoid arthritis will have stopped working within 2 years of onset.	Nearly 3/4 of people with osteoarthritis report constant pain.	Lower back pain is the leading cause of years lived with disability (YLDs) worldwide and in the UK.	1 in 3 people who have long-term pain from fractures describe it as severe or unbearable.
The cost of ankylosing spondylitis to the UK economy is estimated at £3.8 billion.	30% increase in the incidence (new cases) of gout in the UK between 1997 and 2012.	1/3 of children with juvenile idiopathic arthritis will have ongoing active disease in adulthood.	The cost of rheumatoid arthritis to the UK economy is estimated at £3.8 – 4.8 billion.	1/3 of people with osteoarthritis retire early, give up work or reduce the hours they work because of their condition.	People who are obese are 4 times more likely to develop back pain than those with a healthy body weight. 6 out of 10 adults over 16 years in England today are overweight or obese.	£1.9 billion in hospital costs per year in the UK for hip fracture alone.

<sup>b</sup> All references for the statistics in this graphic can be found on the condition specific pages.



# What are musculoskeletal conditions?

The term ‘musculoskeletal conditions’ is often used to include a broad range of health conditions affecting the bones, joints, muscles and spine, as well as rarer autoimmune conditions such as lupus. In fact, musculoskeletal conditions comprise over 100 different diseases and

syndromes that interfere with people’s ability to carry out their normal daily activities. Common symptoms include pain, stiffness and a loss of mobility and dexterity. Broadly speaking there are three groups of musculoskeletal conditions:<sup>7</sup>

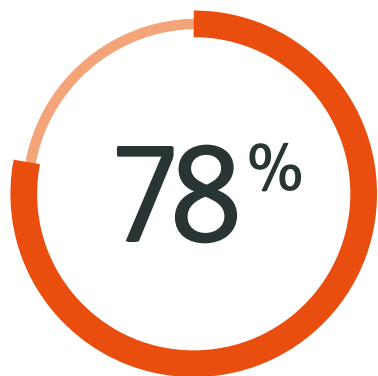
Group	<b>1</b> Inflammatory conditions (e.g. rheumatoid arthritis)	<b>2</b> Conditions of musculoskeletal pain (e.g. osteoarthritis, back pain)	<b>3</b> Osteoporosis and fragility fractures (e.g. fracture after fall from standing height)
<b>Age</b>	Affects any age.	More common with rising age.	Affects mainly older people.
<b>Progression</b>	Often rapid onset.	Gradual onset.	Osteoporosis is a gradual weakening of bone. Fragility fractures are sudden discrete events.
<b>Prevalence</b>	Common. (e.g. over 400,000 adults in the UK have rheumatoid arthritis).	Very common. (e.g. 8.75 million people in the UK have sought treatment for osteoarthritis).	Common. (e.g. 300,000 fragility fractures occur in the UK each year).
<b>Impact</b>	Can affect any part of the body including skin, eye and internal organs.	Affects the joints, spine and pain system.	Hip, wrist and spinal bones are most common sites of fractures.
<b>Main treatment</b>	Treated by suppressing the immune system.	Treated with physical activity and pain management, and in severe cases joint replacements.	Medication to strengthen bones, falls prevention fracture treatment.
<b>Location of main treatment</b>	Urgent specialist treatment needed usually provided in hospital outpatients.	Treatment based in primary care.	Prevention is based in primary and ambulatory care; fractures may require surgery.
<b>Risk factors</b>	Genetic factors, sex, smoking, obesity, and diet.	Age (late 40’s onwards), sex, genetic factors, physical injury, obesity, and previous joint illness or injury.	Age, genetic factors, smoking, alcohol, inflammatory disorders, poor nutrition and low physical activity.

**What is the impact?**

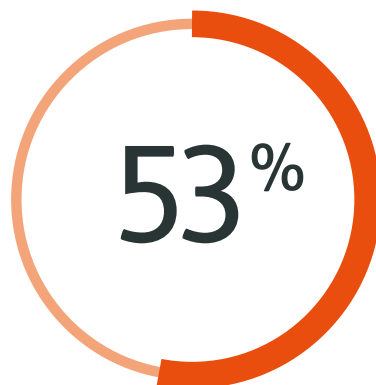
## Impact on individuals and society

The pain and disability caused by arthritis and other musculoskeletal conditions result in a substantial loss in quality of life.

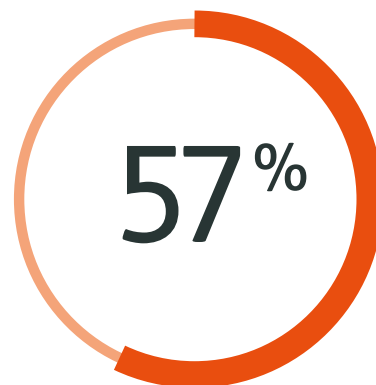
Depression is **four times** more common among people in persistent pain compared to those without pain.<sup>12</sup>



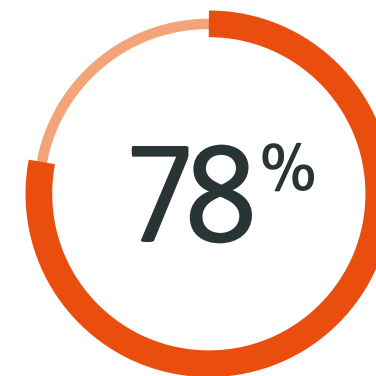
Eight out of ten people living with arthritis report experiencing pain most days.<sup>8</sup>



Five out of ten people living with arthritis felt they were a nuisance to their family, which rose to eight out of ten (81%) amongst those with the most severe arthritis.<sup>9</sup>



Nearly six out of ten people living with arthritis report experiencing pain every day.<sup>10</sup>



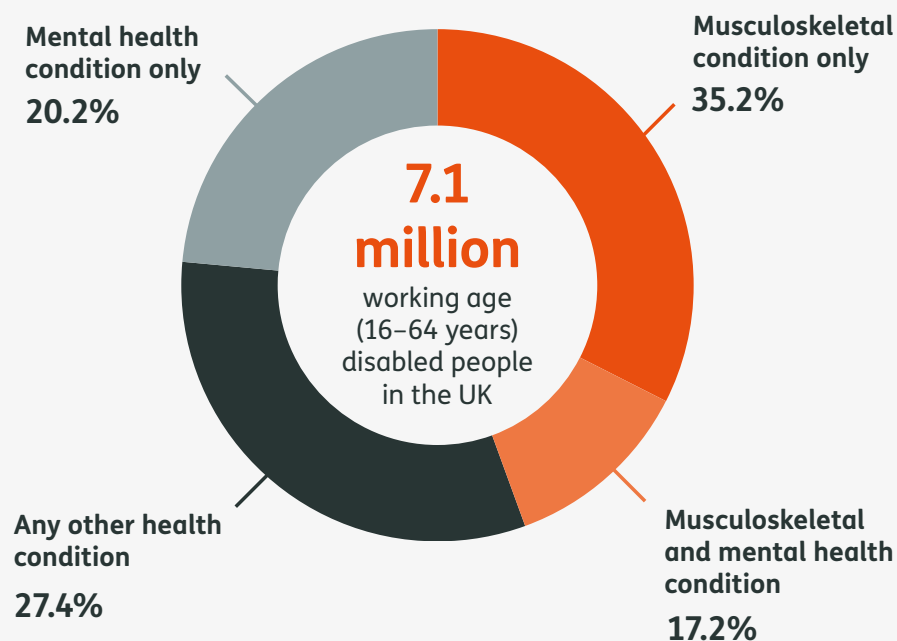
Eight out of ten people living with arthritis agreed that society does not understand their condition because it 'doesn't look' like they have a serious condition.<sup>11</sup>



## Impact on individuals and society

Arthritis and other musculoskeletal conditions are the most common cause of disability in adults in the UK.

**52.4%** of all working age (16–64 years) disabled people in the UK experience musculoskeletal conditions.<sup>13</sup>



Source: Labour Force Survey April to June 2016

**30.5%** of all years lived with disability (YLDs) are attributable to musculoskeletal conditions in the UK in 2010.<sup>14</sup>

Musculoskeletal conditions remain the leading cause of YLDs in the UK in both 2010 and 2015 with a 5% increase over this time.<sup>15</sup>



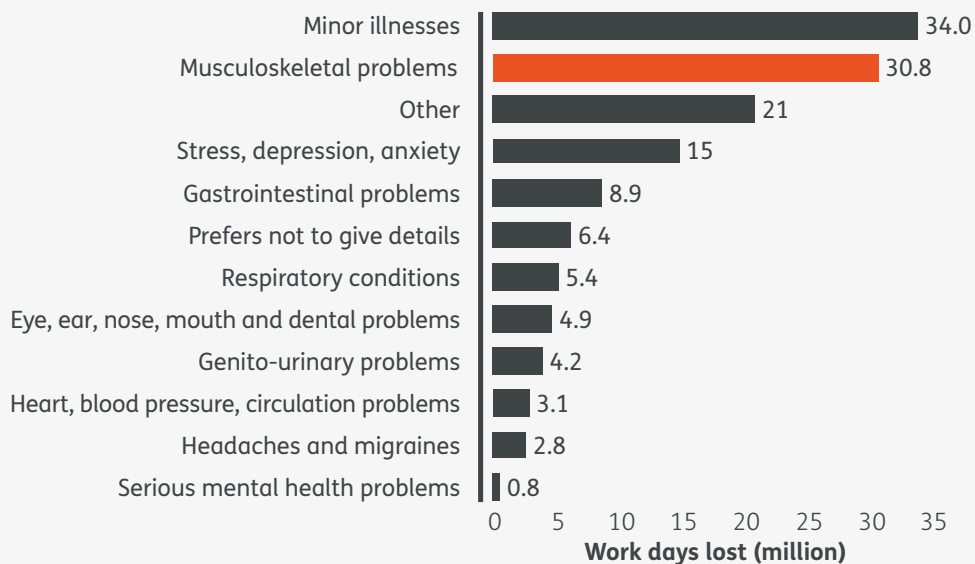
■ Non-communicable diseases
 ■ Injuries
 ■ Communicable, material, neonatal and nutritional diseases

Source: Global Burden of Disease Study 2015

# Impact on work life

Musculoskeletal conditions are a leading cause of work limitations and working days lost.

**30.8m** working days were lost in the UK in 2016 due to musculoskeletal problems.<sup>16</sup>

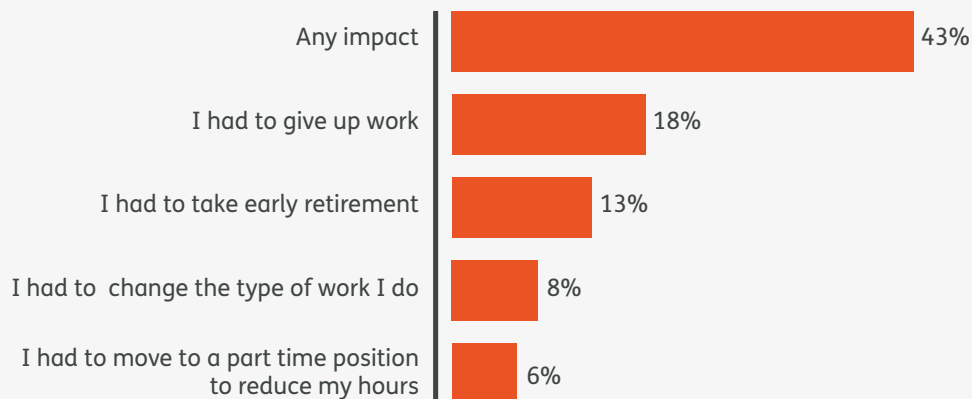


Source: Labour Force Survey

## Impact on work life

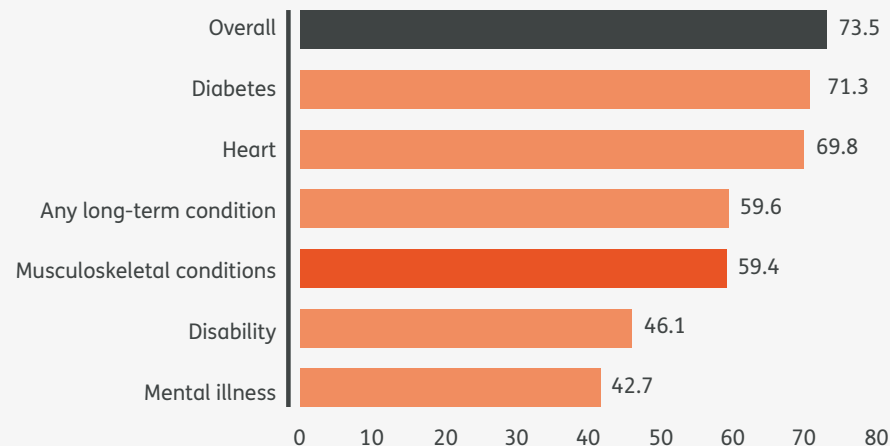
People with musculoskeletal conditions are less likely to be employed than people in good health and more likely to retire early.<sup>17</sup>

**43%** of working-age people diagnosed with arthritis<sup>c</sup> said their condition impacted on their own working life, or on their partner's working life where their partner assumed a caring role for them.<sup>18</sup>



Source: Responses from the Arthritis Nation (2014) Survey

**59.4%** of working age (16–64) people with a musculoskeletal condition are in work, compared to **73.5%** of working age people overall.<sup>19</sup>



Source: Labour Force Survey October–December 2014

<sup>c</sup> Includes responses from 925 participants with arthritis (osteoarthritis [608], rheumatoid arthritis [157] and gout [66]) asked if their arthritis affected their working life or their partner's life.

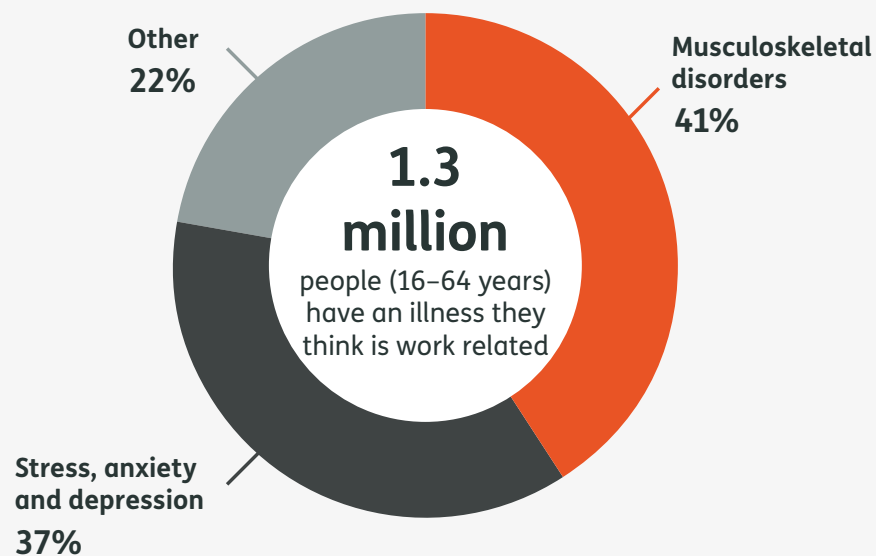
## Impact on work life

Musculoskeletal conditions can be caused or made worse by work.

**41%** (539,000) of all work-related illness cases in Great Britain in 2015/16 are due to work related musculoskeletal disorders (WRMSDs).<sup>20</sup>

**8.8m**

working days were lost due to WRMSDs, an average of 16 days lost for each case, accounting for **34%** of all days lost due to work related ill health in Great Britain in 2015/16.<sup>21</sup>



Source: Labour Force Survey 2015 - 16

The highest rates of WRMSDs are found in:<sup>22</sup>

1. Agriculture, forestry & fishing.
2. Construction.
3. Transportation & storage.
4. Human health & social work activities.

The majority of patients presenting to their GP's with WRMSDs have back pain or disorders with the hand, wrist or arm.<sup>23</sup>

# Impact on the health and social care services

Musculoskeletal conditions are largely managed in primary and community based care, however services are accessed across all levels of care including secondary care (e.g. specialist consultations) and social care services.

## Primary and community care

One in five people **20%** consult a GP about a musculoskeletal problem each year.<sup>24</sup>

Treatment and support for people with chronic pain (such as back pain or osteoarthritis) in primary care in the UK has been estimated to account for 4.6 million appointments per year, comparable to 793 whole time GPs.<sup>25</sup>

Only **12%** of people with musculoskeletal conditions say they have been given a care plan compared to **13.8%** of people with long term conditions.<sup>26,27</sup> 18% of people with osteoarthritis have a care plan.<sup>28</sup>

## Secondary care

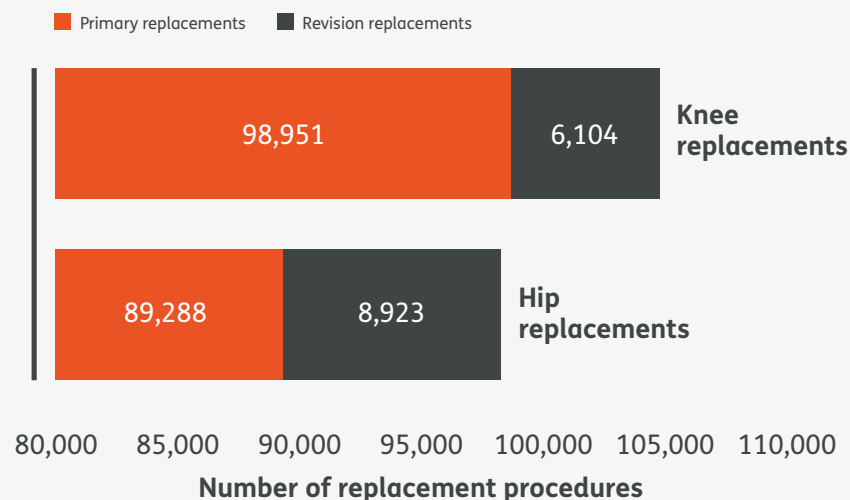
1.4 million admissions to consultant care were due to musculoskeletal conditions in England in 2014/15, resulting in 2.16 million bed days. That's 7.5% of all admissions to consultant care.<sup>29</sup>

The mean average wait times for hip and knee replacements in 2015 in England were reported as 105.2 days (103.2 days in 2014, +1.4% change) and 105.4 days (107.0 days in 2014, -1.5% change) respectively.<sup>30</sup>

Fracture Liaison Services (FLS) reduce the risk of subsequent fractures by up to 50% in people with fragility fractures. Only **42%** of healthcare organisations in the UK provide an FLS to routinely assess people who have broken a bone for osteoporosis.<sup>31,32</sup>

## What is care planning?

During care planning people discuss the full range of their needs with health professionals, their family and carers to identify and set out goals. A care plan can help enable people to self-manage their long-term condition and identify actions they can take to improve their own health.



Source: National Joint Registry for England, Wales, Northern Ireland, and Isle of Man. 13th Annual Report (2016)

## Impact on the wider economy

Joint related ill-health results in significant costs that fall on individuals, employers, the health service and the wider economy.

Musculoskeletal conditions account for the 3rd largest area of NHS programme spending at **£4.7 billion** in 2013/14.<sup>33</sup>

In 2007, the total annual costs to the UK economy of working-age ill health, including direct health costs and indirect (lost productivity, sickness absence, informal care) costs were estimated to be **£103–129 billion**.<sup>34</sup>

Rheumatoid arthritis has been estimated to cost the UK economy between **£3.8–4.8 billion** in direct and indirect costs<sup>d</sup> in 2009.<sup>35</sup> If we add osteoarthritis to this, the figures rises total total cost of **£21.6 billion** direct and indirect costs<sup>e</sup> in 2010.<sup>36</sup>

Back pain cost the UK economy an estimated **£1.6 billion** direct and **£10 billion** indirect costs<sup>f</sup> in 2000.<sup>37</sup>

The hospital costs of hip fractures alone are estimated at **£1.9 billion** per year in the UK.<sup>38</sup>

The cost of ankylosing spondylitis in the UK is estimated at roughly £19,016 per person per year in direct and indirect costs<sup>g</sup> in 2010. That's an estimated total cost of **£3.8 billion**.<sup>39</sup>

Conditions such as back pain account for around 40% of all sickness absence in the NHS and costs around **£400 million** per year.<sup>40</sup>

Approximately 33.6 million prescriptions were dispensed for musculoskeletal and joint diseases in England in 2015, costing approximately **£223.6 million**.<sup>41</sup>

The total spending outturn for 2015/16 on personal independence payment and attendance allowance claims in England, Scotland and Wales was **£8.61 billion**.<sup>42</sup>

d This includes costs around NHS healthcare, carers, nursing homes, private expenditure, sick leave and work related disability.

e This includes direct costs (NHS healthcare and other health costs) and indirect costs (work loss, absenteeism, reduced productivity and informal care).

f This includes direct costs (NHS healthcare, community care and private services) and indirect costs (work loss, absenteeism, reduced productivity and informal care).

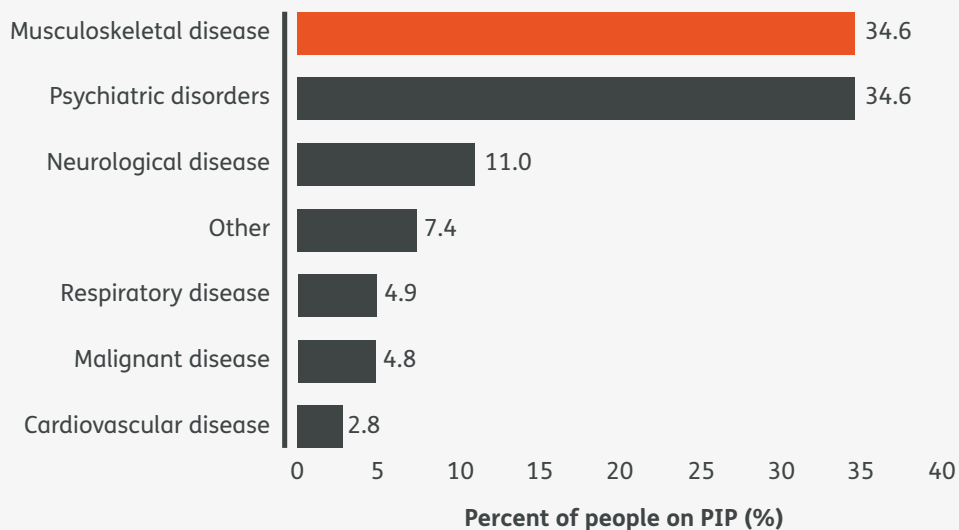
g This includes direct costs (NHS healthcare and other health costs) and indirect costs (work loss, absenteeism, presenteeism, early retirement and informal care).



## Impact on the wider economy

Many people with musculoskeletal conditions rely on welfare benefits to cover the extra costs resulting from their condition.

**34.6%** of people on personal independence payment (PIP) were recorded with musculoskeletal disease as their primary disability condition in Great Britain.<sup>45</sup>



Source: Personal Independence Payment October 2016

**42.3%** of people (612,630) in 'receipt of' or 'entitled to' attendance allowance were recorded with a musculoskeletal condition as their primary disability condition (May 2016).<sup>46</sup>

People with musculoskeletal conditions are not always aware of the welfare benefits they are entitled to:

**42%** Around four out of ten people with arthritis believed they do not have welfare entitlements.<sup>47</sup>

Less than two out of ten people with arthritis believed they were claiming all the benefits they are entitled to.<sup>48</sup> **17%**

**27%** Nearly three out of ten people are not aware of their potential entitlements.<sup>49</sup>

# Life course approach to musculoskeletal health

# Life course approach to musculoskeletal health

Certain risk factors of musculoskeletal conditions cannot be modified, such as old age, female sex, or your genetic susceptibility (family history of disease). However, other risk factors known as modifiable risk

factors can be managed. By managing these risk factors throughout the life course, one can reduce the risk of developing a musculoskeletal condition, but also manage disease progression and prevent further complications.

## Avoidable threats to musculoskeletal health throughout the life course:<sup>50</sup>

Stage of life	Risk factors	Ankylosing spondylitis	Gout	Rheumatoid arthritis	Musculoskeletal pain (e.g. Back pain)	Osteoarthritis	Osteoporosis	Reduced muscle strength	Increased fall risk
Maternal health	Low birth weight								
	High levels of vigorous activity during pregnancy								
	Maternal nutrition								
	Maternal smoking								
Childhood and adolescence	Hip dysplasia								
	Poor early childhood growth and adolescent eating disorders								
	Obesity								
	Physical inactivity								
Adulthood	Musculoskeletal injury								
	Obesity								
	Smoking								
	Physical inactivity								
	Alcohol use								
Older life	Obesity								
	Poor nutrition								
	Alcohol use								
	Physical inactivity								

# Condition specific statistics

Prevalence, risk factors, comorbidities  
and impact

## Inflammatory conditions

# Axial spondyloarthritis (incl. ankylosing spondylitis)

Ankylosing spondylitis is the most common of a group of conditions called ‘spondyloarthritis’ or ‘spondylitis’. It is a long-term (chronic) inflammatory condition that primarily affects the joints in the spine. Axial spondyloarthritis is a term used to describe people with the symptoms of ankylosing spondylitis, but without the classic changes seen on ordinary X-rays.

Over a 10-year period, more than half of these people will progress to ankylosing spondylitis.<sup>51</sup>

Inflammation of the spinal joints and surrounding structures causes pain, stiffness and limitation in the flexibility of the back and causes new bone to grow at the sides of the vertebrae. Eventually the individual bones of the spine may link up fuse.



To understand more about the causes, diagnosis and treatment of ankylosing spondylitis download our information booklet.

[Read more](#)

# Axial spondyloarthritis (incl. ankylosing spondylitis)

## Who is affected?

### Prevalence

Approximately 200,000 people in the UK have ankylosing spondylitis.<sup>52</sup>

0.1–0.3% of the adult (18–80 years) UK primary care population has axial spondylarthrosis.<sup>53</sup> That means one to three adults per 1,000 are at risk of developing ankylosing spondylitis.

Around 5% of people presenting with persistent chronic back pain have ankylosing spondylitis or axial spondyloarthritis.<sup>54</sup>

## Common risk factors

### Age

Ankylosing spondylitis usually occurs between 20–30 years of age, the average age of onset is 24 years.<sup>55</sup> 90–95% of people are aged less than 45 years at disease onset.<sup>56</sup>

### Sex

Axial spondyloarthritis is as common in females as males<sup>57</sup> however, males are more likely to progress to develop the structural changes of ankylosing spondylitis compared to females.<sup>58</sup>

### Genetics

Ankylosing spondylitis is more common in people with the human leukocyte antigen HLA–B27 gene.

A person who is HLA–B27 positive has a 5–6% chance of developing ankylosing spondylitis and this risk is increased if a first degree relative has the disease.<sup>59,60</sup>

### Smoking

Smoking is associated with higher disease activity, increased structural damage on MRI and as a result lower physical functioning in people with ankylosing spondylitis.<sup>61,62</sup>

## Common comorbidities

### Osteoporosis & fragility fractures

People with ankylosing spondylitis are at increased risk of experiencing loss in bone mineral density (BMD) and osteoporosis, which can lead to spinal fractures.

1–9% of people with ankylosing spondylitis experience spinal fractures, thus increasing the need for surgery.<sup>63</sup>

19–62% of people with ankylosing spondylitis have decreased BMD. High rates have even been reported in patients with <10-year disease duration.<sup>64</sup>

Up to 25% of people with ankylosing spondylitis eventually develop complete fusion of the spine which leads to substantial disability and restriction,<sup>65</sup> increasing risk of fractures.<sup>66,67</sup>

### Depression

People with ankylosing spondylitis experience high rates of self-reported depressive symptoms often in response to the pain and functional limitations caused by their condition.<sup>68</sup>

10% of people with ankylosing spondylitis have doctor-diagnosed depression compared to 6% of the general population seeking healthcare during a 13-year observation period.<sup>69</sup>

## Impact on quality of life and work capacity

### Disability

The most prevalent quality of life concerns in people with ankylosing spondylitis include stiffness, pain, fatigue and poor sleep.<sup>70</sup>

### Work

Withdrawal from work is three times more common in people with ankylosing spondylitis than in the general population, increasing from 5% during the first year of diagnosis to over 20% at 10 years and 30% at 20 years.<sup>71,72</sup>



## Inflammatory conditions

# Gout

Gout is a painful inflammatory condition, caused by the build-up of uric acid in the bloodstream. This is partly inherited, but lifestyle factors such as alcohol consumption, diet and obesity are major risk factors. High uric acid levels lead to crystals forming in the joints.

These crystals can trigger sudden painful episodes of severe joint inflammation ('attack'). If untreated these attacks get more common, spread to involve new joints and can cause long-term cartilage and bone damage.



To understand more about the causes, diagnosis and treatment of gout, download our information booklet.

[Read more](#)

# Gout

## Who is affected?

### Prevalence

Around 1 in 40 people (2.49%) in the UK have gout. That's equivalent to around 1.5 million people.<sup>73</sup>

Between 1997–2012, both the prevalence and incidence (new cases) of gout increased significantly in the UK by 64% and 30% increases respectively.<sup>74</sup>

The prevalence of gout is highest in the North East 3.11% and Wales 2.98% and lowest in Scotland 2.02% and Northern Ireland 2.15%.<sup>74</sup>

## Common risk factors

### Age

3–6% of people with gout experience disease onset before 25 years of age.<sup>75</sup> Men can develop gout as early as their mid-20s and it becomes more common in women after menopause.<sup>76</sup>

### Sex

Gout is generally three to four times more common in men than women.<sup>77</sup>

### Obesity

Obese people are twice as likely to develop gout and tend to develop it at a younger age.<sup>78</sup>

### Alcohol

Regular consumption of alcohol (predominantly beer but also spirits) has been associated with a threefold higher risk of new cases of gout among women and twofold higher risk in men, compared to those with no alcohol intake or ≤1 ounce/week.<sup>79,80</sup> Moderate wine consumption has not been linked to an increased risk.

## Common comorbidities

54% of people with gout are expected to have one or more comorbidities within five years of first being diagnosed.<sup>81</sup>

### Cardiovascular diseases

People with gout are 50% more likely to develop high blood pressure than people without gout putting them at higher risk of stroke.<sup>81</sup>

The incidence of heart failure and reduced ability of the heart's ventricles to contract is two to three times higher in people with gout compared to people without gout.<sup>82</sup>

### Kidney disease

People with gout are three times more likely to develop kidney disease than people without gout.<sup>83</sup>

### Type 2 diabetes

There are almost 3.6 million people who have been diagnosed with type 2 diabetes in the UK.<sup>84</sup> Women and men with gout are 71% and 22% more likely to develop type 2 diabetes.<sup>85,86</sup>

### Liver disease

People with gout are almost two times more likely to develop liver disease than people without gout.<sup>87</sup>

### Depression

People with gout are 19% more likely to have diagnosed depression than people without gout.<sup>88</sup>

## Impact on quality of life and work capacity

### Work

23% of working-age people with gout say they had to give up work and 18% had taken early retirement.<sup>89</sup>

### Quality of life

Gout is significantly associated with poor overall quality of life, even after adjusting for comorbidities.<sup>90</sup>

## Inflammatory conditions

# Juvenile idiopathic arthritis

Juvenile idiopathic arthritis affects children under the age of 16 and is an autoimmune disease that causes inflammation in the joints. It's one of the most common rheumatic diseases of childhood. There are six different types of juvenile idiopathic arthritis and symptoms vary between the different types.



To understand more about the causes, diagnosis and treatment of juvenile idiopathic arthritis visit our website.

[Read more](#)

# Juvenile idiopathic arthritis

## Who is affected?

### Prevalence

An estimated 12,000 children (1 in 1,000) under the age of 16 have juvenile idiopathic arthritis in the UK.<sup>91</sup>

### Incidence

1 in 10,000 children are being diagnosed with juvenile idiopathic arthritis in the UK each year. That's around 1,000–1,500 children.<sup>92</sup>

## Common risk factors

### Genetics

Risk factors for juvenile idiopathic arthritis are not clear, however studies have shown strong evidence for genetic susceptibility.

The probability that identical twins will both have the same genetic component fundamental to the susceptibility of juvenile idiopathic arthritis ranges between 25–40%.<sup>93</sup>

## Common comorbidities

### Eye inflammation

10–20% of children with juvenile idiopathic arthritis will develop an inflammatory eye condition called uveitis, which can cause reduced vision and blinding if not treated.<sup>94,95,96,97</sup>

### Fragility fractures

41% and 34% of children with juvenile idiopathic arthritis have low bone mineral content and low bone mineral density respectively, putting them at increased fracture risk.<sup>98</sup>

## Impact on quality of life

### Quality of life

Children with juvenile idiopathic arthritis have significantly lower physical well-being and psychosocial health (mental, emotional, social and spiritual well-being) compared to those without. Intensity of pain has the greatest influence on their psychosocial health.<sup>99</sup>

## Adulthood

At least one third of children with juvenile idiopathic arthritis will have ongoing active disease in adulthood.<sup>100</sup>

Between 30% and 56% of people with juvenile idiopathic arthritis will experience severe limitations in dexterity and mobility in adulthood because of their arthritis<sup>101</sup> such as finding it very difficult or not possible to grasp small objects or walk 400 meters.

## Inflammatory conditions

# Rheumatoid arthritis

Rheumatoid arthritis is an autoimmune disease that causes inflammation in the joints. As a result, the joint becomes painful, stiff and swollen, this inflammatory activity can ultimately cause irreversible damage. The sooner one starts treatment for rheumatoid arthritis, the more effective it's likely to be, so early diagnosis and intensive treatment is important.



To understand more about the causes, diagnosis and treatment of rheumatoid arthritis, download our information booklet.

[Read more](#)

# Rheumatoid arthritis

## Who is affected?

### Prevalence

Around 0.80% of the UK population aged over 16 years has rheumatoid arthritis. That's over 400,000 people.<sup>102,103</sup>

The MSK Calculator estimates:<sup>104</sup>

[Read more](#)

England		Scotland	
<b>0.84%</b>	of adults aged over 16 years in England live with rheumatoid arthritis. That's approximately 380,000 people.	<b>0.78%</b>	of adults aged over 18 years in Scotland live with rheumatoid arthritis. That's approximately 37,000 people.

The MSK Calculator is a local estimates prevalence model developed by Imperial College London in partnership with Arthritis Research UK. MSK Calculator data for osteoarthritis is available via an online tool, which will be re-launched in Spring 2017 with access to additional prevalence estimates. Prevalence estimates for Wales and Northern Ireland are currently not available.

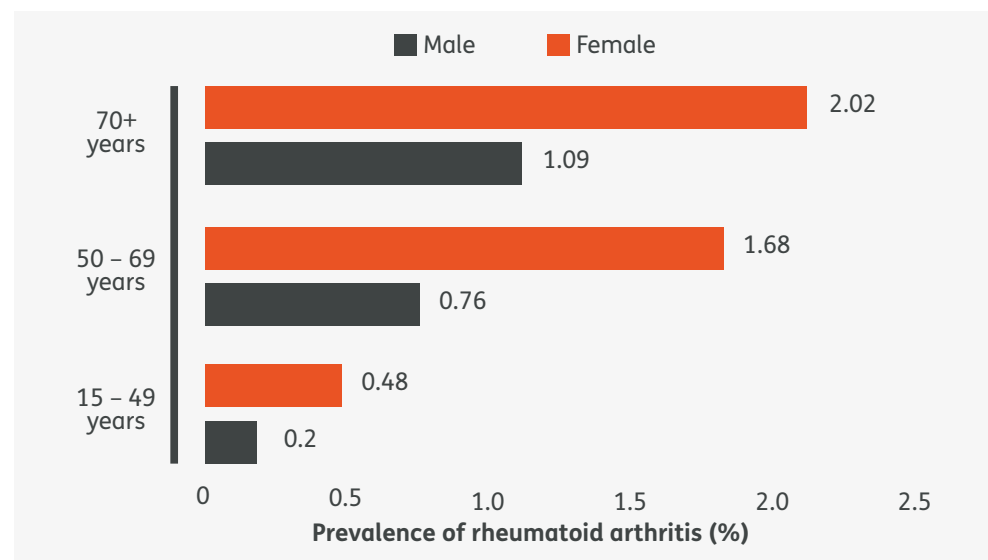
## Common risk factors

### Age

Rheumatoid arthritis affects adults of any age yet prevalence increases with age, with peak age of onset between 40–60 years and is highest at age 70 years and over.<sup>106</sup> Around three quarters of people with rheumatoid arthritis are of working age when they are first diagnosed.<sup>107</sup>

### Sex

Rheumatoid arthritis is two to three times more common among women than men.<sup>108,109,110</sup>



Source: Global Burden of Disease Study 2015



# Rheumatoid arthritis

## Genetics

Rheumatoid arthritis develops as a result of a combination of genetic and environmental factors.

The main genetic risk factor for rheumatoid arthritis is the HLA-DRB1 gene, however this gene accounts for only around one-third of the genetic susceptibility to the disease.<sup>111</sup>

## Obesity

Being overweight or obese significantly increases the risk of developing rheumatoid arthritis.<sup>112,113</sup>

### International BMI classification (WHO)

Classification	BMI (kg/m <sup>2</sup> )
Underweight	<18.50
Normal range	18.50 – 24.99
Overweight	≥25.00
Obese	≥30.00

Studies have shown that:

- BMI ≥25 kg/m<sup>2</sup> (overweight/obese) significantly increased the risk of developing rheumatoid arthritis by 15%, compared to BMI <25 kg/m<sup>2</sup> (normal range/underweight).
- BMI ≥30 kg/m<sup>2</sup> (obese) significantly increased the risk of developing rheumatoid arthritis by 21% to 31% compared to having a BMI of 18.5–24.9 kg/ m<sup>2</sup> (normal range).

## Smoking

Cigarette smoking significantly increases the risk of developing rheumatoid arthritis.<sup>114,115</sup> The risk of developing rheumatoid arthritis is approximately 2 times greater for male smokers than for non-smokers and 1.3 times greater for female smokers than for non-smokers.<sup>116</sup>

## Common comorbidities

### Cardiovascular disease

Cardiovascular disease is the main cause of premature mortality and sudden death in patients with rheumatoid arthritis.<sup>117</sup>

- Around 1 in 20 people (6%) with rheumatoid arthritis have cardiovascular disease.<sup>118,119</sup>
- The risk of heart attack is doubled for people with rheumatoid arthritis compared to the general population.<sup>120</sup>
- The risk of stroke is 30% higher for people with rheumatoid arthritis than the general population.<sup>121</sup>

### Lung disease

Lung disease is a major contributor to morbidity and mortality in rheumatoid arthritis. Evidence suggests 1 in 10 people with rheumatoid arthritis will be diagnosed with interstitial lung disease over the lifetime of their disease, putting them at increased risk of death.<sup>122,123</sup>

# Rheumatoid arthritis

## Osteoporosis & fragility fractures

Rheumatoid arthritis itself, along with reduced mobility and steroids used to treat rheumatoid arthritis increase the risk of developing osteoporosis and falls.<sup>124</sup>

The rate of osteoporosis can be up to twice as high amongst rheumatoid arthritis patients compared to the general population.<sup>125</sup>

Around 36% of people with rheumatoid arthritis aged over 18 years' report falling at least once annually.<sup>126</sup>

People with rheumatoid arthritis have 2 times the risk of hip fracture and 2.4 times the risk of vertebral fracture, compared to those without a history of rheumatoid arthritis.<sup>127</sup>

## Impact on quality of life and work capacity

### Mortality

People with rheumatoid arthritis have a 47% increased risk of death compared to the general population.<sup>128</sup>

31% of early death from rheumatoid arthritis is due to cardiovascular disease, followed by pulmonary problems (including respiratory infection and lung cancer) responsible for 29% of all deaths.<sup>129</sup>

## Depression

Around 1 in 6 people (16.8%) with rheumatoid arthritis have major depressive disorder<sup>130</sup> compared to the UK average of 2.9%.<sup>131</sup>

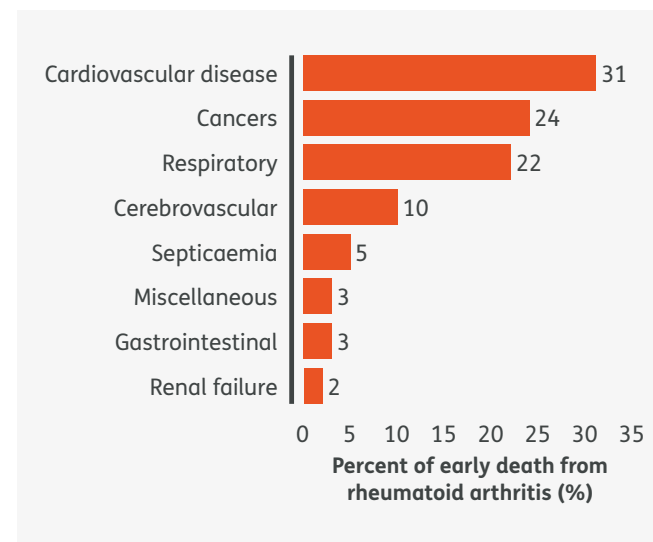
Depression in rheumatoid arthritis patients is associated with increased levels of pain<sup>132</sup> and functional disability. A 10% reduction in the ability to perform activities important to an individual with rheumatoid arthritis may be followed by a sevenfold increase in depression over the subsequent year.<sup>133</sup>

## Work

A third of people with rheumatoid arthritis will have stopped working within two years of onset and half are unable to work within ten years.<sup>134,135</sup>

## Physical inactivity

Approximately 68% of rheumatoid arthritis patients in the UK are physically inactive. Low physical activity in patients with rheumatoid arthritis becomes a vicious cycle of disease progression and increased pain, thus affecting both physical and mental health.<sup>136</sup>



Source: Early Rheumatoid Arthritis Study Group (ERAS) UK 2007

## Musculoskeletal pain

# Osteoarthritis

Osteoarthritis is a condition in which the joints of the body become damaged, stop moving freely and become painful. Osteoarthritis results from a combination of the breakdown of the joint and the body's attempted repair processes. Pain is the main symptom of osteoarthritis and can have a devastating impact on people's lives.

The knee is the most common site in the body for osteoarthritis, followed by the hip and hands/wrists.



To understand more about the causes, diagnosis and treatment of osteoarthritis download our information booklet.

[Read more](#)

# Osteoarthritis

## Who is affected?

### Prevalence

An estimated 8.75 million people aged 45 years and over (33%) in the UK have sought treatment<sup>h</sup> for osteoarthritis. 60% were female and 40% were male.<sup>137</sup>

### The MSK Calculator estimates:<sup>105</sup>

[Read more](#)

England		Scotland	
18.2%	10.9%	16.6%	10.1%
of adults aged over 45 years in England have osteoarthritis of the knee. That's 4.11 million people, 6.1% of which are affected by the severe form of the condition.	of adults aged over 45 years in England have osteoarthritis of the hip. That's 2.46 million people, 3.2% of which are affected by the severe form of the condition.	of adults aged over 45 years in Scotland have osteoarthritis of the knee. That's 420,000 people, 4.1% of which are affected by the severe form of the condition.	of adults aged over 45 years (10.1%) in Scotland have osteoarthritis of the hip. That's 256,000 people, 2.5% of which are affected by the severe form of the condition.

The MSK Calculator is a local estimates prevalence model developed by Imperial College London in partnership with Arthritis Research UK. MSK Calculator data for osteoarthritis is available via an online tool, which will be re-launched in Spring 2017 with access to additional prevalence estimates. Prevalence estimates for Wales and Northern Ireland are currently not available.

## Common risk factors

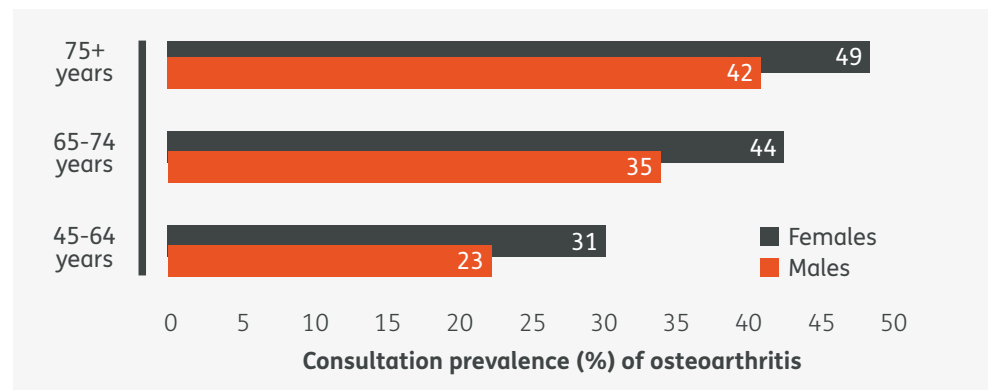
### Age

Risk of developing osteoarthritis increases with age. A third of women and almost a quarter of men between 45 and 64 have sought treatment for osteoarthritis, this rises to almost half of people aged 75 and over.<sup>137</sup>

### Sex

The prevalence of osteoarthritis is generally higher in women than men. The difference is most apparent for hand and knee osteoarthritis and over 50 years of age. Women accounted for around 60% of hip and knee replacement operations the majority of which are due to osteoarthritis.<sup>138</sup>

### Consultation prevalence of osteoarthritis by age and sex, UK (2015)



Source: Arthritis Research UK-Osteoporosis in General Practice (2013)

<sup>h</sup> Based on 7-year consultation (2004–2010) prevalence in general practice

# Osteoarthritis

## Obesity

The risk of developing osteoarthritis throughout life increases with rising BMI.<sup>139</sup>

People who are overweight or obese are approximately 2.5 and 4.6 more likely to develop knee osteoarthritis than those of normal body weight.<sup>140,141</sup>

The average BMI of hip and knee replacement patients in 2015 was 28.7 (overweight) and 30.9 (obese) respectively.<sup>142</sup>

## Occupation

Knee osteoarthritis is more frequently observed in people with occupations that require squatting and kneeling, hip osteoarthritis is associated with prolonged lifting and standing and hand osteoarthritis is more frequent in people with occupations requiring increased manual dexterity.<sup>143</sup>

## Joint abnormalities

People with abnormal hip shape caused by developmental problems, have greatly increased risk of developing osteoarthritis. Abnormal hip shape accounts for nearly 1 in 10 primary hip replacements in adults, rising to nearly 1 in 3 hip replacements in people under the age of 60 years.<sup>144</sup>

## Genetic factors

Genetic factors account for 60% of hand and hip osteoarthritis and 40% of knee osteoarthritis.<sup>145</sup>

## Common comorbidities

### Cardiovascular disease

Women and men over 65 years of age who have osteoarthritis are at 17% and 15% increased risk of hospitalization for cardiovascular disease.<sup>146</sup>

### Metabolic syndrome

Metabolic syndrome is prevalent in 59% of people with osteoarthritis compared to 23% of people without osteoarthritis, putting them at increased risk of developing cardiovascular disease and diabetes.<sup>147</sup>

### Depression

Around 20% of people with osteoarthritis experience symptoms of depression and anxiety.<sup>148</sup>

## Impact on quality of life and work capacity

### Pain

Nearly three quarters of people with osteoarthritis report some form of constant pain, with 1 in 8 describing their pain as often unbearable.<sup>149</sup>

### Joint replacement

Osteoarthritis was recorded as the main indication for surgery in 90% of primary hip and 98% of primary knee replacement patients in 2015.<sup>150</sup>

# Osteoarthritis

After joint replacement surgery only 22.3% of knee replacement and 17.8% of hip replacement patients reported moderate or severe pain in the past four weeks, compared to 94.1% and 92.9% of patients before they received surgery.<sup>151</sup>

## Work

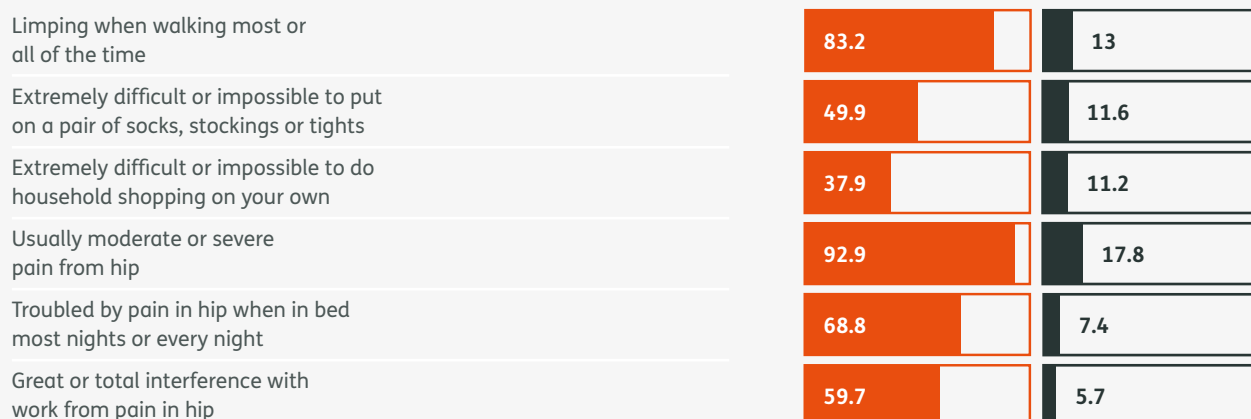
A third of people with osteoarthritis retire early, give up work or reduce the hours they work because of their condition.<sup>137</sup>

Walking 6,000 steps per day protects against disability in people with or at risk of knee osteoarthritis.<sup>152</sup>

## Knee Self-care, mobility and pain in the past four weeks



## Hip Self-care, mobility and pain in the past four weeks



Source: NHS Digital Patient Reported Outcome Measures (PROMS) 2014/15



## Musculoskeletal pain

# Back pain

Back pain is a common condition often caused by a simple muscle, tendon or ligament strain and not usually by a serious problem. Back pain can be acute, where the pain starts quickly but then reduces after a few days or weeks, or chronic (severe), where pain might last on and off for several weeks or even months and years.



To understand more about the causes, diagnosis and treatment of back pain download our information booklet.

[Read more](#)

# Back pain

## Who is affected?

### Prevalence

Back pain affects around a third of the UK adult population each year.<sup>153,154</sup>

20% of all musculoskeletal consultations are related to the back (14% for the lower back specifically).<sup>154</sup>

Between 1 in 4 and 1 in 7 young people have long-term low back pain.<sup>155,156</sup>

**The MSK Calculator estimates:**<sup>104</sup> Read more

England	Scotland
16.9%	19.1%
of people have back pain in England. That's 9.1 million people of all ages, 5.5 million of which are affected by the severe <sup>i</sup> form of the condition.	of people aged over 18 years in Scotland have back pain. That's 910,000 people, 564,000 of which have severe* back pain.

The MSK Calculator is a local estimates prevalence model developed by Imperial College London in partnership with Arthritis Research UK. MSK Calculator data for osteoarthritis is available via an online tool, which will be re-launched in Spring 2017 with access to additional prevalence estimates. Prevalence estimates for Northern Ireland and Wales are currently not available.

## Common risk factors

### Obesity

People who are obese are four times more likely to develop back pain than those with a healthy body weight.<sup>157,158</sup>

### Depression

The odds of back pain in people with symptoms of depression have been shown to be 50% higher than in those without symptoms of depression.<sup>159</sup>

### Smoking

The prevalence of low back pain is approximately 50% higher in daily smokers compared to non-smokers.<sup>160,161</sup>

### Deprivation

People aged 45–64 years of age (working age) in the most deprived areas are almost twice as likely to report back pain (17.7%) as those from the least deprived areas (9.1%).<sup>162</sup>

## Common comorbidities

### Musculoskeletal and mental health conditions

People with chronic low back pain have been shown to have a significantly higher frequency of musculoskeletal and neuropathic pain

conditions and common sequelae of pain such as depression (13.0% vs. 6.1%), anxiety (8.0% vs. 3.4%) and sleep disorders (10.0% vs. 3.4%), compared to people without low back pain.<sup>163</sup>

## Impact on quality of life and work capacity

### Disability

Low back pain is the top cause of years lived with disability (YLDs) in the UK in both 1990 and 2015 with a 17% increase over this time.<sup>164</sup>

Low back pain patients generally stop seeking medical attention within three months, however 60% to 80% of people still report pain or disability a year later and up to 40% of those who have taken time off work will have future episodes of work absence.<sup>165,166</sup>

### Work limitation

Back pain is the second most common cause of short-term absences after minor illnesses (such as colds, flu and sickness).<sup>167</sup>

68.3% of people return to work one month after an episode of back pain, rising to 85.6% at one to six months and 93.3% at more than six months.<sup>168</sup>

<sup>i</sup> People were defined as having severe back pain if they reported experiencing either: a high intensity of pain or a severe limitation as a result of their pain.

## Osteoporosis & fragility fractures

# Osteoporosis & fragility fractures

Osteoporosis means spongy (porous) bone. Everyone has some degree of bone loss as we get older, but the term osteoporosis is used only when the bones become quite fragile. When bone is affected by osteoporosis, the holes in the honeycomb structure become larger and the overall density is lower, which is why the bone is more likely to fracture.



To understand more about the causes, diagnosis and treatment of osteoporosis & fragility fractures download our information booklet.

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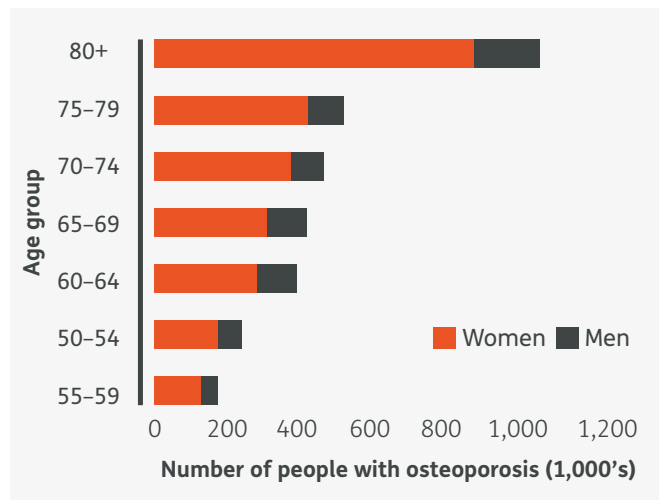
# Osteoporosis & fragility fractures

## Who is affected?

### Prevalence

Around 3 million people in the UK have osteoporosis.<sup>169</sup> An estimated 300,000 fragility fractures occur each year in the UK.<sup>170</sup> In England and Wales, around 180,000 of the fractures presenting each year are the result of osteoporosis.<sup>171</sup>

Over 65,000<sup>j</sup> people presented with a hip fracture in England, Wales and Northern Ireland in 2015,<sup>172</sup> most likely due to falls from standing height.



Source: Svedbom, A. et al. (2013)

## Common risk factors

### Age

After the third decade of life, bone naturally begins to decline at the rate of 0.3% of bone per year.<sup>173</sup>

Prevalence of osteoporosis increases markedly with age, from 5% at 50 years to over 30% at 80 years.<sup>174</sup>

### Sex

One in two women and one in five men over the age of 50 are expected to break a bone during their lifetime.<sup>175</sup>

### Genetics

Parental history of fracture is associated with an increased risk of fracture, independent of bone mineral density.<sup>176</sup>

### Menopause

After the onset of menopause, women can lose an average of 2.5% of their bone per year for the first five years, due to the decrease in oestrogen production, putting them at increased risk of developing osteoporosis.<sup>177</sup>

## Smoking

Smoking is associated with low bone mineral density osteoporotic fractures.<sup>178</sup> People who smoke are at 25% increased fracture risk compared to those who had never smoked.<sup>179</sup>

## Low vitamin D and calcium levels

Elderly patients that consume adequate vitamin D and Calcium supplements are at decreased fracture risk.<sup>180</sup>

## Previous fracture

People who have had one fracture remain at greater risk of sustaining a secondary fracture. After a first fracture the risk of fracturing again is increased by two to threefold.<sup>181,182</sup>

## Alcohol

People who consume more than two drinks per day are associated with higher risk of hip fracture compared with those who don't drink.<sup>183</sup>

## Low BMI

People with a BMI of less than 18.5 kg/m<sup>2</sup> are at increased fracture risk.<sup>184,185</sup>

<sup>j</sup> 64,864 people, which represents 95% of all cases reported to the National Hip Fracture Database

# Osteoporosis & fragility fractures

## Common comorbidities

### Diabetes

People with type 1 diabetes are at six times greater risk of hip fracture compared to those without.<sup>186,187</sup>

### Chronic inflammatory bowel disease

Chronic inflammatory bowel disease (IBD) has been shown to be associated with an increased risk of fractures, most notably at the hip. People with IBD have a relative risk for hip fractures of.<sup>188</sup>

### Coeliac disease

Patients with coeliac disease are at a higher risk of fractures compared to the general population.<sup>189</sup>

### Hyperthyroidism

Mild (subclinical) hyperthyroidism is associated with an increased risk of hip and other fractures, especially among those with thyroid-stimulating hormone (TSH) levels of less than 0.10 mIU/L.<sup>190</sup>

### Rheumatoid arthritis

The rate of osteoporosis can be up to twice as high amongst rheumatoid arthritis patients compared to the general population.

Around 36% of people with rheumatoid arthritis aged over 18 years' report falling at least once annually.<sup>191</sup>

People with rheumatoid arthritis have 2 times the risk of hip fracture and 2.4 times the risk of vertebral fracture, compared to people without rheumatoid arthritis.<sup>192</sup>

## Impact on quality of life and work capacity

### Mortality

A month after suffering a hip fracture, 1 in 14 people (7.1%) will have died<sup>193</sup> and around half (46.2%) will have returned home.

One in four people (28.7%) die within a year of suffering a hip fracture.<sup>194</sup>

### Pain

One in three people who have long-term pain from fractures describe it as severe or unbearable.<sup>195</sup>

### Disability

Research has found that 43% of people who were previously independent are unable to walk independently in the year after a hip fracture.<sup>196</sup>

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Arthritis Research UK is the charity dedicated to stopping the devastating impact that arthritis has on people's lives.

Everything that we do is focused on taking the pain away and keeping people active. Our remit covers all conditions which affect the joints, bones and muscles including osteoarthritis, rheumatoid arthritis, back pain and osteoporosis. Together, these conditions affect millions of people across the UK and account for the third largest NHS programme budget spend of £4.7 billion in England in 2013/14. We fund research into the cause, treatment and cure of arthritis and we provide information on how to maintain healthy joints and bones and how to live well with arthritis. We also champion the cause, influence policy change and work in partnership with others to achieve our aims. We depend on public support and the generosity of our donors to keep doing this vital work.

#### **Nature of partnership work**

Arthritis Research UK has worked with Imperial College London to develop the Musculoskeletal Calculator modelled prevalence data.

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