



Herefordshire 2024 Falls Prevention Needs Assessment

Epidemiological

May 2024

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1. Introduction

Context

The National Falls Prevention Coordination Group's *fall and Fracture Consensus Statement* advocates a whole system approach to falls prevention, to take place at the population, community and individual level. Such a programme should include:

- Risk factor reduction across the life-course
- Case finding and risk assessment
- Strength and balance exercise programmes
- Healthy homes
- Management of falls and falls prevention in high-risk care environments
- Mitigation against the impact of a fall

A Herefordshire Older Peoples Integrated Needs Assessment was published in 2018 and included falls. In the intervening years there has been the COVID-19 pandemic and a major reorganisation of the NHS resulting in a change in how partner organisations work together, engage and serve their local communities.

The Herefordshire Health and Wellbeing Board Joint Health and Wellbeing Strategy, has two core priorities '*Good Mental Health for All*' and '*Best Start in Life*', each with key supporting priorities, one of which is to enable people to live and age well.

A Herefordshire Falls Prevention Task and Finish Group was established in 2022 in order to bring together individuals working either at strategic or provider level to better understand what falls prevention was being undertaken in Herefordshire and the services that were available for those that had fallen.

In addition to a work stream on falls prevention, a frailty strategy has been published by the Herefordshire and Worcestershire ICB in 2023.

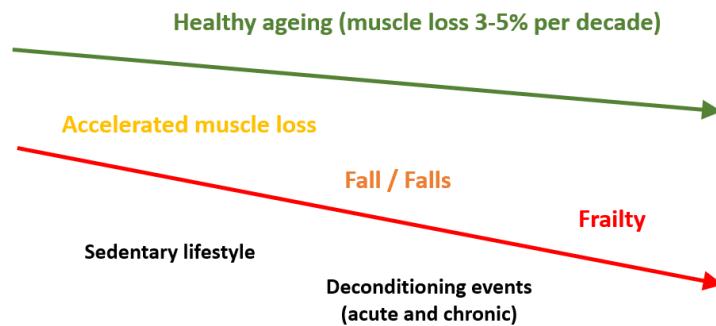
This document is a refresh of the 2018 Integrated Older Peoples Integrated Needs Assessment. It presents only epidemiological information. The mapping work is collated in a separate document.

Reframing falls prevention

The major contributor to falling and frailty is the loss of functional ability that comes with accelerated loss of muscle mass. Falls prevention strategies are commonly targeted at those that have either had a fall or are deemed at higher risk of falling as a result of illness. This focuses attention and resources late in the course of an individuals' loss of muscle strength and function.

Falls prevention should be seen in the context of a longer course of decline in fitness and condition which may start as early as the age of 40. The implication is, if we are to have any impact on the incidence of falls and frailty in the decades to come, systems need to implement both population and individual level interventions much further upstream.

Figure 1: The continuum of declining function



In addition, when considering falls prevention interventions, a distinction needs to be made between those activities that reduce falls but do not alter a person's functioning state and those that reduce falls through improving an individual's strength and power. For example, home adaptations are highly cost-effective at reducing falls but making these adaptions alone will not address reconditioning. Similarly, hospitals may put structures and processes in place to increase the safety and quality of nursing with the view to avoid falls taking place in hospital, but again this will not address the underlying problem. Both strategies need to be deployed in a comprehensive falls prevention programme strategy but ultimately only exercise can impact on the long-term incidence of falls and prevalence of frailty. Reducing functional loss will have a major impact on the individual's quality of life and sense of independence as they age.

2. Useful definitions and concepts

Healthy ageing is the process of developing and maintaining functional ability that enables wellbeing in older age.¹ It does not mean an absence of disease but the ability to maintain performance over the life course.

The individual at risk of a fall. There is no single definition of who is at risk of a fall but NICE targets its falls risk assessment and prevention guidance on:²

- People aged 65 or older who fall or are at risk of falling in the community, and their families and carers
- All hospital inpatients aged 65 or older
- Hospital inpatients aged 50 to 64 who have been identified as being at higher risk of falling

Primary falls prevention involves population level interventions to support and enable people to age well. As a result, they are fitter and in better health when they enter older age. This reduces the potential number of deconditioning events an individual is exposed to and gives them the functional reserve to deal with illness when it arises.

Secondary prevention involves managing risk factors linked to the risk of falling and developing frailty either at a subpopulation or individual level. This means identifying those that are at risk of, or have actually become acutely or chronically, deconditioned. The aim of secondary prevention is to reverse or reduce the rate of decline through delivering a reconditioning programme.

¹ [WHO World report on ageing and health 2015](#)

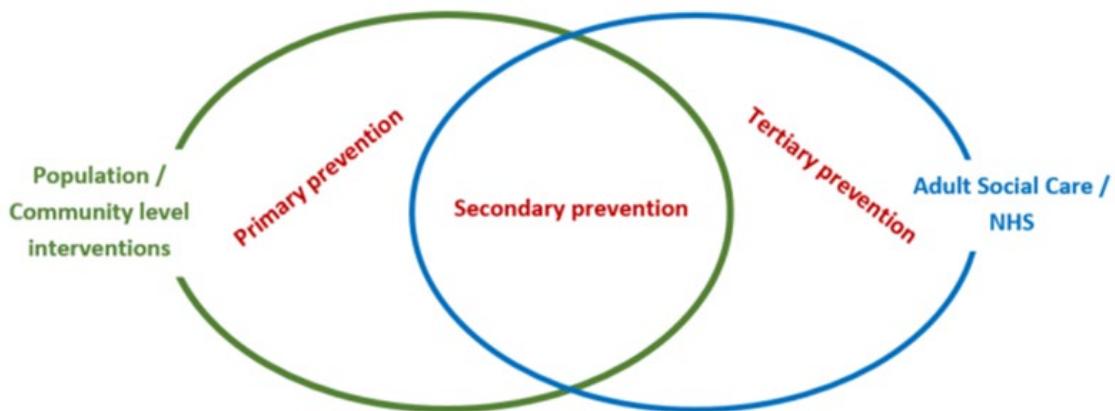
² [The National Institute for Health and Care Excellence Clinical Guidance, CG161: Falls in older people: assessing risk and prevention, 2013](#)

Primary and secondary prevention require attention to a wider range of factors than just exercise and nutrition and includes interventions such as addressing social isolation, exercise opportunities, access to those opportunities and ageism (including low expectations of what older people are able to do). Secondary prevention includes the prevention and treatment of osteoporosis.

Tertiary prevention is targeted at those who functioning loss has resulted in functional decline or frailty to some degree. While reconditioning and re-ablement remain valid goals of a tertiary prevention programme (as frailty can be reversed in a significant minority of individuals) a larger proportion of tertiary prevention is about mitigation of the impact of falls on both the individual and health and social care system. For example, reducing the risk of falls, having dedicated care pathways for those that have fallen, optimally managing injuries related to a fall to prevent further decline in functional loss.

Unlike primary and secondary prevention, not all tertiary prevention will necessarily alter an individual's level of functioning.

Figure 2: Relationship between population and health and social care interventions



Deconditioning. Deconditioning is the syndrome of physical, psychological and functional decline that occurs as a result of prolonged inactivity and associated loss of muscle strength. Deconditioning can occur at any age, but amongst older adults it can occur more rapidly, and the effects can be more severe. Deconditioning can also arise as the result of a hospital stay in which case it is called **hospital associated decondition**. Table 1 lists some causes of deconditioning.

Table 1: Examples of deconditioning events

<u>Situations that reduce the chances of people being able to commit to regular exercise</u>	<u>Injuries to our muscular skeletal system</u>
<ul style="list-style-type: none"> • Demanding lives (middle-aged women looking after both children and parents, parents with very young children, jobs with long hours or commutes) • Social isolation • Mental health problems • Fear of falling or concerns about not having access to a toilet • Concerns about getting back to exercise after an illness or injury because of fears of worsening the condition • Anxiety about going into the community (lack of toilets, places to stop etc) • Lack of access to groups / facilities 	<ul style="list-style-type: none"> • Fall • Back injury • Shoulder injury from a fall • A fractured neck of femur <p><u>Acute illness - bed rest or fatigue</u></p> <ul style="list-style-type: none"> • Severe chest infection • Hospital stays in particular sustained periods in intensive care <p><u>Chronic illness</u></p> <ul style="list-style-type: none"> • Any

Anabolic resistance. Anabolic resistance describes a state where there is reduced stimulation of muscle protein synthesis to a given dose of protein/amino acids which then results in accelerated decline in skeletal muscle mass. In this state, the body is not able to rebuild muscle mass despite optimum exercise and nutrition. Obesity and sedentary lifestyles are thought to contribute to anabolic resistance. Anabolic resistance is thought to play a part in loss of strength and power at the more extremes of older age.

Sarcopenia. Sarcopenia is a condition characterized by loss of skeletal muscle mass and function. Although it is primarily a disease of the elderly, its development may be associated with conditions that are not exclusively seen in older persons. Sarcopenia is a syndrome characterised by progressive and generalised loss of skeletal muscle mass and strength and it is strictly correlated with physical disability, poor quality of life and death. Typical features are falling, muscle weakness, slow walking speed, self-reported muscle wasting and difficulties in performing daily activities. Sarcopenia is a key feature of frailty.

Frailty. Frailty is a progressive age-related decline in physiological systems that results in decreased reserves, which confers vulnerability to stressors and increases the risk of adverse health outcomes such as disability or death. Frailty overlaps with but is distinct from multimorbidity and disability. The five markers of frailty are weight loss, exhaustion, low physical activity, slowness and weakness.

3. Summary of the key falls statistics

- One in 3 people over the age of 65 fall each year.
- One in 2 people over the age of 80 fall each year.
- For an older person a fall can be:
 - trivial, profound or fatal.
 - the first sign of a new or worsening health problem.
 - a marker for the onset of frailty.
 - a 'tipping point' leading to loss of confidence and independence, and increased dependence on family, and health and social services.
- 5% of those who fall will suffer a significant injury needing hospitalisation.
- About 1 in 3 people who are admitted with a fall in Herefordshire are diagnosed with a hip fracture.
- Of those who have suffered a fractured hip:
 - One in 10 will die within 30 days.
 - A significant proportion will lose some or all of their independence / reduced QOL through withdrawal and fear of falling.
 - Even among those with higher levels of pre-fracture functional status, significant numbers do not fully recover. The rates are worse for patients who are older, cognitively impaired, and who have multiple comorbidities.³
- The cost of hip fractures to the NHS, pre-COVID-19, was estimated to be £1 billion per year.⁴
- The pandemic is estimated to have resulted in older people being less active, the result of which is that 110,000 more older people are expected to have at least one more fall per year in England. The largest reductions in strength and balance activity identified in this report were seen in males aged 65 to 74 and females aged 65 to 84.⁵
- For each year there is a decrease in the conditioning of older people, there is an additional £211 million cost, incurred over 2.5 years) to the health and social care system.
- *Life expectancy* is expected to increase with between now and 2040. The duration of time people will spend living with a major illness is also expected to increase. In 2010 the duration was 9.9 years, in 2019 it was 11.3 years and by 2040 that figure is expected to be 12.6 years.⁶

³ [V Tang et al, Rates of Recovery to Pre-Fracture Function in Older Persons with Hip Fracture: an Observational Study, J Gen Intern Med. 2017 Feb; 32\(2\): 153–158](#)

⁴ [The Royal College of Physicians, National Hip Fracture Database, NHFD annual report 2019.](#)

⁵ [Public Health England, Wider impacts of COVID-19 on physical activity, deconditioning and falls in older adults, 2021](#)

⁶ [The Health Foundation, Health in 2040 - predicted patterns of illness in England, July 2023](#)

4. Data

4.1 Accelerated muscle loss

Accelerated muscle loss can arise from a sedentary lifestyle, a single deconditioning event (for example a hospital admission or severe long COVID) or a series of deconditioning events over time.

4.1.1 People with chronic medical conditions

Individuals living with chronic medical conditions are at greater risk of having episodes of acute illness during which they do not exercise, are less likely to exercise generally and have less opportunity to exercise. It is likely that they and those around them also have lower expectations of what they can do. These individuals are likely to be in contact with the health service on a regular basis which presents regular opportunities to encourage and support people to undertake resistance exercise.

Table 2: Individuals living with a long-term condition with and without disability in Herefordshire.

Data was taken from the 2021 Census question: Do you have any physical, mental health conditions or illnesses lasting or expected to last 12 months or more?

Source: 2021 Census

Age group	No condition or disability	Living with a condition but not disabled	Living with a condition and disabled – activities limited a little	Living with a condition and disabled – activities limited a lot	Percentage living with a condition (all categories)	Total population
40-44	7,662	781	859	507	21.89%	9,809
45-49	8,472	953	1,076	719	24.49%	11,220
50-54	9,964	1,227	1,478	947	26.82%	13,616
55-59	10,292	1,485	1,684	1,120	29.41%	14,581
60-64	9,138	1,510	1,846	1,130	32.93%	13,624
65-69	8,166	1,339	1,895	1,078	34.56%	12,478
70-74	8,142	1,452	2,206	1,218	37.46%	13,018
75-79	5,708	964	1,839	1,222	41.35%	9,733
80-84	3,436	533	1,420	1,307	48.69%	6,696
85-89	1,689	219	1,000	1,240	59.28%	4,148
90+	825	66	487	1,018	65.57%	2,396
Total	73,494	10,529	15,790	11,506	33.98%	111,319

4.1.2 The impact of the COVID-19 pandemic on falls

Accelerated muscle loss can arise from a sedentary lifestyle, a single deconditioning event (for example severe COVID-19) or a series of deconditioning events. Both healthy ageing and reconditioning require a long-term commitment to regular exercise. The main source of information about the levels of activity in the population

comes from the regular national survey conducted by Sports England ^{7 8} and more recently a Public Health England report about the impact of COVID-19 on older adults. ⁹

There has been considerable focus on the impact of COVID-19 on activity levels and falls. The key findings from these two reports are:

- 21.5% of adults aged 65 to 74, 34.4% of those aged 75 to 84 and 57.4% who were 85 and over were inactive pre-pandemic. The picture worsened during the pandemic.
- Older people experienced a considerable reduction in strength and balance activity between March to May 2020, with the greatest change in the 70 to 74 age group with a reported 45% decrease in men and 49% decrease in women.
- Findings from an Age UK and Kantar Polling survey conducted during the months of August and September in 2020 found that:
 - 1 in 3 respondents reported feeling more anxious since the start of the pandemic
 - 1 in 3 agreed they felt less motivated to do the things they enjoy
 - 1 in 3 have less energy
 - 1 in 4 respondents not being able to walk as far as they used to
 - 1 in 5 are finding it harder to remember things
 - 1 in 5 say they feel less steady on their feet
 - 1 in 3 felt less confident taking public transport, 2 in 5 felt less confident going to the shops or 1 in 4 felt less confident spending time with family

The results were more pronounced amongst people with long-term health conditions.

- Amongst people from more disadvantaged socioeconomic backgrounds:
 - 43% of people with a long-term health condition were unable to walk as far as before, compared to 13% of people without a long-term health condition.
 - 22% of older people from more disadvantaged socioeconomic backgrounds reported they felt less steady on their feet compared to 14% from the most advantaged.
 - 39% of older people from more disadvantaged socioeconomic backgrounds said they had less energy compared to 26% of those from the most advantaged.
- Activity levels to November 2022 demonstrated recovery of activity after the pandemic although this was not the case for all sections of the population.
- Overall, both those with and without a disability or long-term health condition saw a return to pre-pandemic levels measured in November 18-19.

⁷ [Sport England, Adults' activity levels in England bounce back to pre-pandemic levels, April 2023](#)

⁸ [Sport England, Active Lives Adult Survey November 2021-22 Report, April 2023](#)

⁹ [Public Health England, Wider impacts of COVID-19 on physical activity, deconditioning and falls in older adults, 2021](#)

- Compared with November 2015, in 2022 there were 3.8% more active adults with a disability or long-term health condition.
- With respect to ethnic background, the sub-populations most negatively affected in terms of their activity levels were those belonging to the Asian (excluding Chinese) and Black communities and those coming from 'other' ethnic backgrounds. Overall, these sub-populations had lower levels of activity before the pandemic, did worse during it and have recovered the least.
- With respect to social economic status inequalities have persisted. The levels of activity in November 2022 have increased by 1.4% for those coming from the most- and mid-affluent populations. In the most deprived communities, the activities levels have decreased by 2.1%.
- Public Health England modelled the impact of the pandemic on the incidence of falls. In the absence of any significant mitigation, their modelling predicted that:
 - 110,000 more older people are projected to have at least one fall per year as a result of reduced strength and balance activity during the pandemic. This represents an overall increase of 3.9%.
 - The total number of falls could increase by 124,000 for males (an increase of 6.3%) and 130,000 for females (an increase of 4.4%).
 - For each year that the lower levels of strength and balance activity observed during the pandemic persist, there is projected to be an additional cost to the health and social care system as a result of the change in predicted related falls of £211 million (incurred over a two-and-a-half-year period).

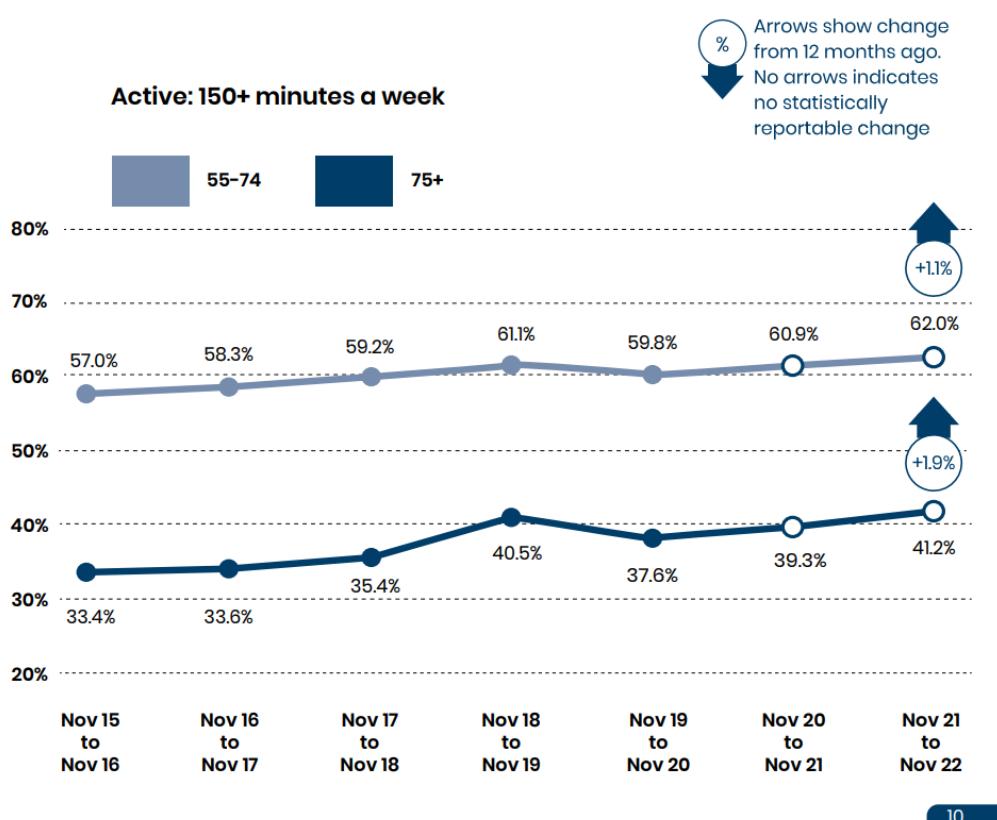
4.1.3 Current levels of activity for endurance exercise (walking, running, cycling, swimming etc.)

The Chief Medical Officers' report provide recommendations for how much endurance and strengthening exercise individuals should be doing per week.¹⁰

Figure 3 illustrates the percentage of adults aged 55 and over that had undertaken either 150+ minutes of moderate activity or 75 minutes of vigorous activity before, during the pandemic restrictions and following their end.

The latest figures available, therefore, indicate that only 62% of the population over the age of 55 and 41.2% of the population over the age of 75 are meeting the CMOs guidance for endurance exercise.

Figure 3: Percentage of adults over the age of 55 undertaking the national guidance on physical exercise (November 2015-2022)



Taken from Sport England, Active Lives Adult Survey November 2021-22 Report, April 2023.

¹⁰ [UK Chief Medical Officers' Physical Activity Guidelines, 2019](#)

4.1.4 Current levels of activity for resistance exercise (exercises using body weight, resistance bands or weights as resistance, Pilates, Tai Chi, etc.)

The CMOs' also recommend that adults do 2 x 30-minute sessions that include strengthening exercise.

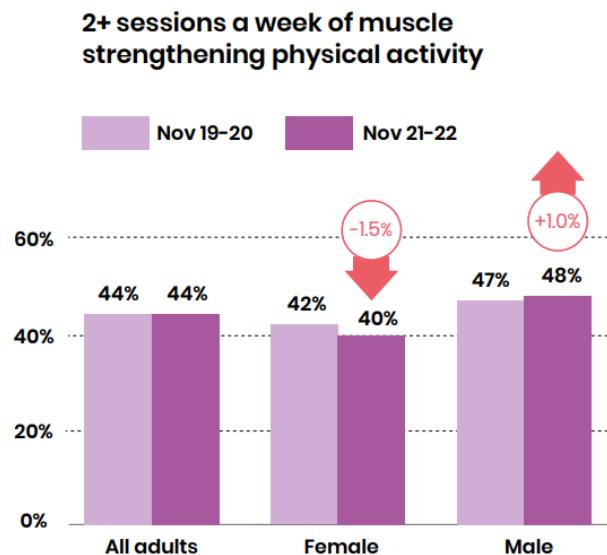
Across all ages, the adult population of England consistently does less strength and balance exercise than endurance exercise.

Figure 4 shows the percentage of the population meeting the recommended levels during and at the end of the pandemic.

This indicates that the majority of the adult population is at potential risk of an accelerated rate of muscle mass.

It is recognised that amongst those not doing regular strengthening exercise there will be individuals who may have physically demanding jobs or hobbies which will mitigate more or less the lack of regular exercise. However, the key is not only regular to undertake exercise, but also to ensure that all muscles are challenged, balance is practised, and muscles and tendons are fully stretched to maintain mobility of the joints.

Figure 4: The percentage of people undertaking resistance training just prior to the pandemic and after the main restrictions had ended (November 2019-2022)



Taken from Sport England, Active Lives Adult Survey November 2021-22 Report, April 2023.

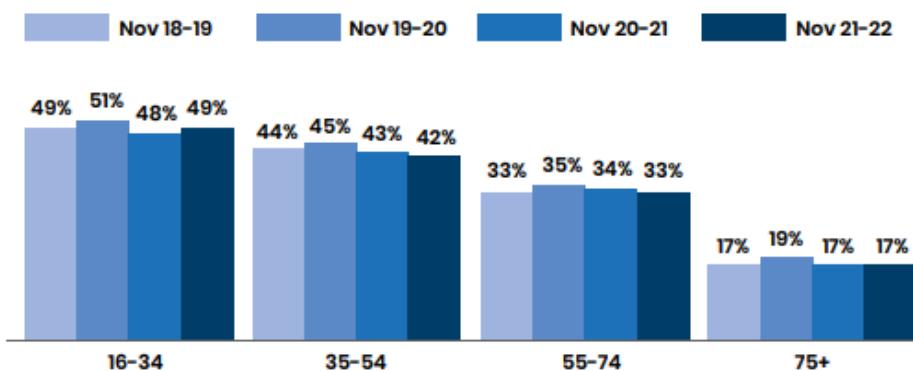
There has been mixed recovery by age from the pandemic with respect to strengthening exercise. Those aged 35-54 are doing marginally less while those aged 55-74 are doing marginally more. The worse impact has been in those over the age of 75 where the proportion of those meeting the guideline has significantly declined. This will lead to a significant impact on the incidence of falls and frailty in this age group.

In 2022, the least affluent groups remain less likely to meet the guidelines (33% vs. 52% of the most affluent).

Despite increases in the percentages of people from Asian (excluding Chinese) (+3.0%) and Chinese (+6.9%) adults doing regular strengthening exercise, those from Asian (excluding Chinese), Black, and Other ethnic groups continue to be the least likely to meet the guideline.

Sports England also looked at the view people have of their *ability* and their *opportunity* to exercise. Not all data is reported by age. Overall, less than 50% of adults (16+) feel they have the ability to exercise. The percentage decreases with age, reducing to less than 20% for the over 75s as illustrated in Figure 5.

Figure 5: The proportion strongly agreeing to the statement that 'I feel I have the ability to be physically active) (November 2018-2022)



Taken from Sport England, Active Lives Adult Survey November 2021-22 Report, April 2023.

Overall, less than 40% of the adult population feel they have the opportunity to exercise. Women felt they had less opportunities, as did those from the least affluent populations which was about 26%.

4.1.5 The relationship between exercise and falls

In their 2021 report on the impact of COVID on the falls rate, Public Health England, provide the modelling on the impact of exercise (or the loss of it). This was based on a meta-analysis of existing data. This is presented in Table 3. This indicates that even less than ideal levels of activity has a positive effect on fall rates.

Table 3: Public Health England's summary of their meta-analysis in terms of the impact of additional activity on the falls rate, fallers rate and the average falls per faller (2021)

Value	Impact of additional activity per week: 1 minute	Impact of additional activity per week: 30 minutes	Impact of additional activity per week: 1 hour	Impact of additional activity per week: 2 hours
Falls Rate	-0.20%	-5.94%	-11.53%	-21.73%
Fallers Rate	-0.14%	-4.12%	-8.08%	-15.50%
Average Fall per Fallers	-0.06%	-1.90%	-3.75%	-7.37%

4.2 Falls

4.2.1 Falls in the community

There is no data on the incidence of falls in the community. Suffice to say that in most instances individuals do not seek care when they have a fall. They may not have an injury, or the injuries are minor and they manage their injuries themselves.

4.2.2 Emergency admissions

The most reliable data that exists about falls is from emergency admissions. Falls admissions may not, however, always reflect a serious injury. Some individuals are admitted for other medical reasons that have given rise to the fall or because they cannot be cared for at home. The rates of admissions from care homes following a fall vary greatly and this can be influenced by care home practice.

As with any data it is also important to distinguish between total number of falls in a population compared to the age specific fall rate. Because Herefordshire has relatively low levels of deprivation it can be expected that age specific rates of falling are lower than the national average. This means that there will be fewer falls amongst a hundred 70 years olds in Herefordshire, than there would be in hundred 70 years olds in a more deprived area. However, because Herefordshire has a relatively older population, the absolute number of falls across the Country can be expected to be higher than that in a more deprived area with a relatively young population.

Overall, Herefordshire has a lower rate of fall admissions than England as a whole as shown in table 4.

Table 4: Comparative rates of emergency admissions directly attributed to a fall for Herefordshire and England, 2020-2021

	Herefordshire Adjusted rate per 100,000	England Rate per 100,000
Emergency admissions due to falls in those over 65 years of age	1552	2100
Emergency admissions due to falls in those between 65 and 79 years of age	698	993
Emergency admissions due to falls in those over 80 years of age	4031	5311

Source: Public Health Outcomes Framework

As can be seen the fall rate is strongly associated with age. As the population ages, the number of people expected to fall is shown in Table 5. The projected figures are based on the current rate of falls. The actual figures will be determined by how well the population ages from this point forward.

Table 5: The number of people predicted to fall until 2040

	2020	2025	2030	2035	2040
Total population aged 65 and over predicted to have a fall	36,685	40,356	45,303	49,751	52,542

Source of Data: POPPI, Projecting Older People Population Information

Table 6 uses more local generated data and compares the rate of falls across Herefordshire PCNs. The dataset used includes only those with a falls related injury.

Table 6: Emergency hospital admissions for falls injuries in persons aged 65 and over, by PCN, directly age standardised rate per 100,000, 2017/18 to 2021/22 pooled

By Primary Care Network (PCN) - HMG and WBC have been combined into Hereford City

PCN	Count	Rate (per 100,000)	95% Lower CI	95% Upper CI
North & West	249	417	367	472
South & West	256	451	398	510
East	227	487	425	554
Hereford City	467	592	539	648
Herefordshire	1199	496	468	524

Source of data: Local hospital activity data ¹¹

¹¹ This indicator, which is used in the PHOF, only counts falls that have been coded in the cause field and Injuries in primary diagnosis field. It has been observed that there are situations where falls (ICD10 W00-W19) and Injuries (S00-T98) are coded in secondary diagnosis fields. This may result in underestimation of falls resulting in injuries.

Figure 6: Emergency hospital admissions for falls injuries in persons aged 65 and over, by statistical comparators, directly age standardised rate per 100,000, 21/22

Figure 6 compares the rate of falls across statistical comparators, green indicates that Herefordshire is significantly better than the nationally.



Table 7 indicates those areas within Herefordshire that have rates of falls that are statistically higher than the average for Herefordshire. There may be a number of reasons for this, including the number of care homes in the locality. The tables below need to be interpreted with a degree of caution. Middle Layer Super Output Areas (MSOAs) typically have a population of 7000-8000.

Table 7: Emergency hospital admissions for falls injuries in persons aged 65 and over directly age standardised rate per 100,000, 2017/18 to 2021/22 pooled – MSOAs that have higher rates than the County average

By Middle Super Output Area (MSOA)

MSOA Name	Count	Rate (per 100,000)	95% Lower CI	95% Upper CI
Golden Valley	27	300	198	436
Wigmore, Orleton and Brimfield	30	304	205	434
Penyard, Llangarron & Goodrich	61	335	256	431
Shobdon, Luston & Bodenham	49	344	254	454
Kingstone & Kingsthorpe	50	373	277	492
Kington Eardisley & Staunton	47	381	280	507
Bromyard & Bishop's Frome	69	428	333	542
Colwall, Cradley & Wellington Heath	42	434	313	587
North Leominster	31	437	297	620
Lugwardine, Withington and Moreton on Lugg	39	439	312	600
Hereford South	35	448	312	623
Fownhope, Tarrington & Marcle	45	476	347	637
Hereford West	36	518	363	718
Credenhill, Weobley & Wellington	69	531	413	672
Belmont, Madley & Clehonger	40	564	403	768
Ledbury	89	610	490	750
South Leominster	51	630	469	828
Hereford North West	63	635	488	813
Hereford East	50	653	484	861
Hereford south west	35	677	471	942
Hereford central	56	684	516	888
Ross- On- Wye	109	694	570	838
Hereford North East	76	798	629	999
Herefordshire	1199	496	468	524

4.2.3 Hip fractures

Table 8 gives the comparative rates of hip fractures per 100,000 population (Directly standardised rate).

Table 8: Comparative rates of hip fractures for Herefordshire and England, 2020-2021

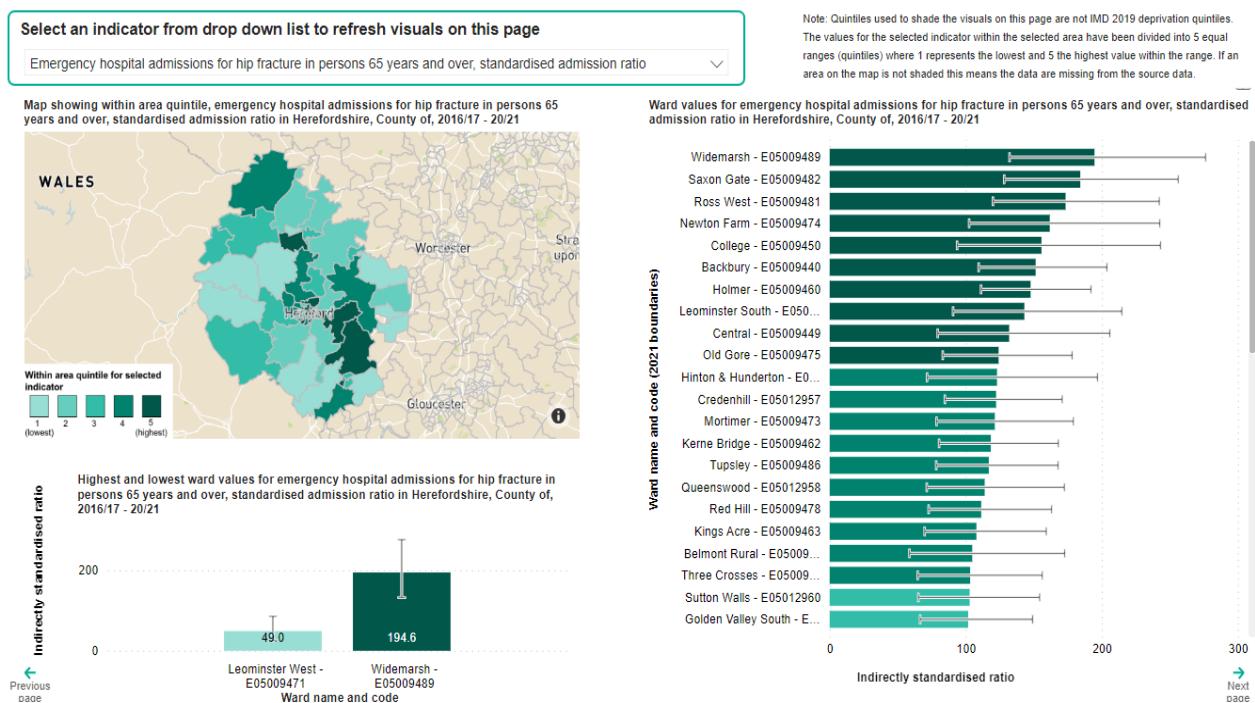
	Herefordshire Adjusted rate per 100,000	England Rate per 100,000
Hip fractures in people over 65 years of age	524	551
Hip fractures in people between 65 and 79 years of age	194	236
Hip fractures in people over 80 years of age	1483	1466

Source: Public Health Outcomes Framework

This is the reverse of what would be expected as the figures are adjusted for age and sex.

The Office for Health Improvement and Disparities has issued a comparative data set which is broken down by ward. Figure 6 indicates the areas with the highest rates of admission.

Figure 7: Variation by ward within area: Emergency hospital admissions for hip fractures in persons 65 years and over standardised admissions rate, 2016 to 2021



Source: OHID Local Inequalities Explorer Tool 2023

The Royal College of Physicians have issued a new report from the National Database for Hip Fractures (covering England, Wales and Northern Ireland). They have found a rise in the hip fractures right at the end of 2022 which resulted in 5160 more hip fractures in 2022 in the three countries, than before the pandemic. This increase is despite a fall in the older population during the years of the pandemic as most deaths were in the 65+ ages population.

The Database reported that 72% of those who have had a hip fracture return to their original residence (*the measure is discharged to original residence or at that residence at the 120 days follow-up which therefore covers those patients that are discharged to an intermediate care facility*). Extrapolating the crude numbers to Herefordshire, this represents roughly 13 to 14 people more moving into care homes at the end of 2022 over and above the pre-pandemic year. The figure is likely to be higher given the demographic profile of the Herefordshire population.

Figure 8 illustrates the rise in hip fractures admissions to Hereford County Hospital.

Figure 8: Figure taken from the National Database for Hip Fractures Chart for Length of Stay illustrating the risk in hip fracture admissions from December 2021 onwards
(Patients numbers represented by the blue bar charts)

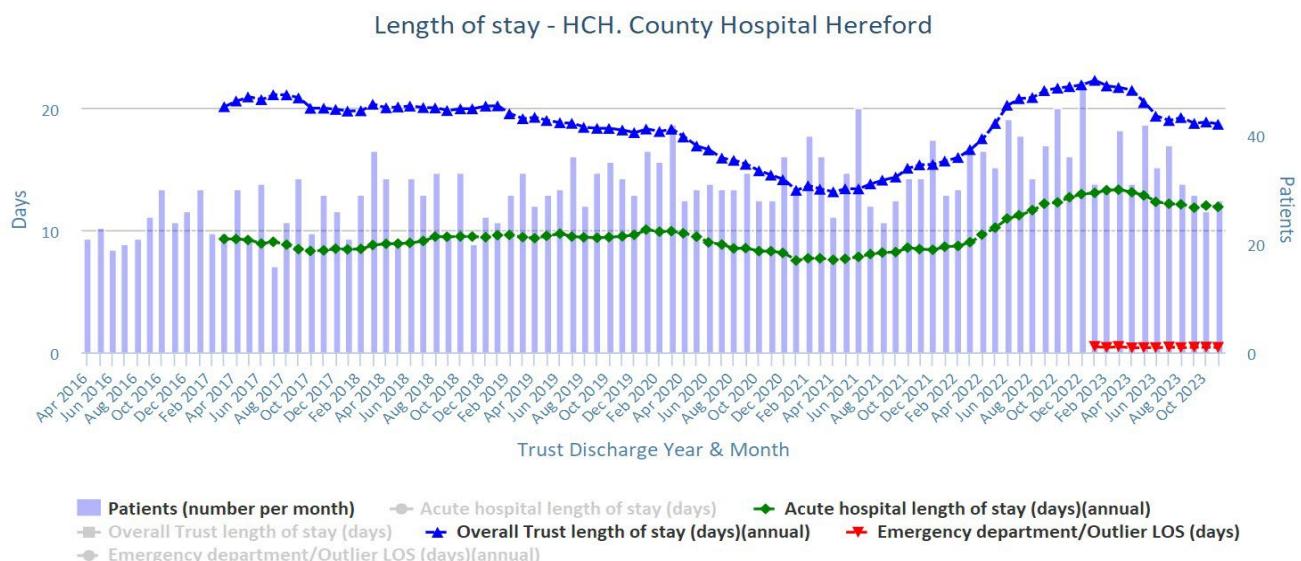


Chart data is indicative status only - www.nhfd.co.uk © Royal College of Physicians - Technology by Crown Informatics

Source: [Length of stay \(nhfd.co.uk\)](http://Length of stay (nhfd.co.uk))

Of those that fractured their hip while living in care homes, it can be predicted that most will have greater care needs as a result of the fracture.

Recovery from a hip fracture will be dependent on a number of factors, which includes the quality of surgery and rehabilitation. Two key NHS indicators that assess this are:

1. Hip fracture: Proportion of patients recovering to their previous levels of mobility / walking ability at 30 days
2. Hip fracture: Proportion of patients recovering to their previous levels of mobility / walking ability at 120 days

Data is not collected annually for these measures across the country and not all hospitals contribute to the national dataset.

4.3 Frailty

When muscle strength is lost and individuals fatigue easily, it reduces their ability to recover from illness. This is the start of state of **frailty**. Frailty is considered to be a complex concept based mainly on physical vulnerability, but also vulnerabilities in mental/psychological and social aspects.

Those living with frailty are at increased risk of falls, admission to hospital, and the need for long-term care, whether this is delivered in the individual's own home or in care settings such as supported living, residential or nursing homes.

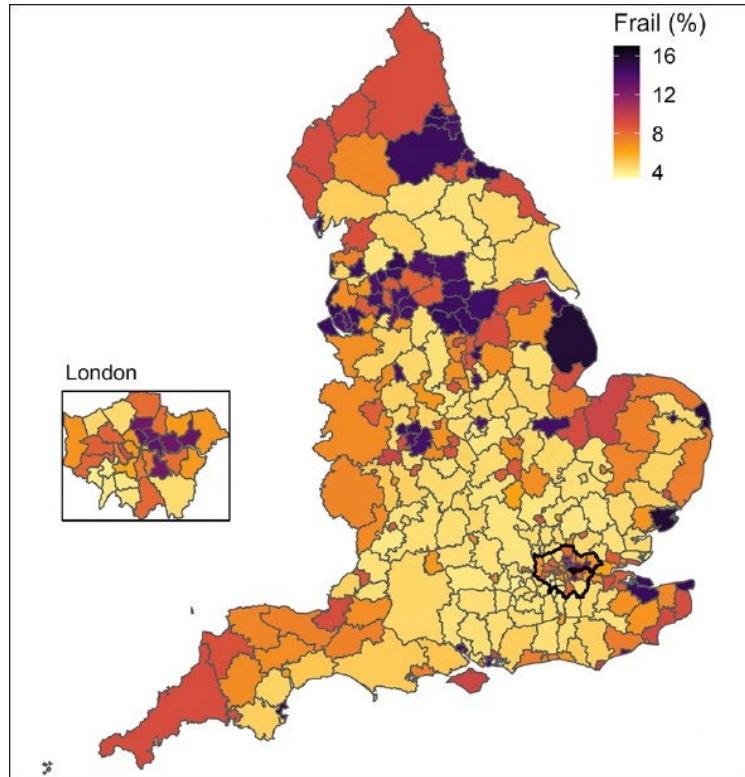
The prevalence of frailty shows wide variation across England as seen in Figure 7. The numbers of individuals living with frailty can be expected to significantly increase between now and 2040. The rate of frailty by age can be reduced by improving healthy lifestyles.

An interesting study, that looked at international comparisons of the level of frailty, found that the rates of frailty were higher in those from less affluent backgrounds, increased with age and was higher in women than men regardless of which country was studied. However the rates of frailty were overall lower in lower income countries compared to high income countries indicating that lifestyle factors affected overall levels of frailty. ¹²

Figure 9: Estimated prevalence of frailty among people aged over 50 in each local authority district in England, 2020 ¹³

¹² [K Harttgen et al, Patterns of Frailty in Older Adults: Comparing Results from Higher and Lower Income Countries Using the Survey of Health, Ageing and Retirement in Europe \(SHARE\) and the Study on Global AGEing and Adult Health \(SAGE\), PLoS One. 2013; 8\(10\): e75847.](#)

¹³ [D Sinclair et al, Frailty among Older Adults and Its Distribution in England, J Frailty Aging, 2022;11\(2\):163-168. doi: 10.14283/jfa.2021.55](#)



Higher rates of frailty are found in poorer communities, in urban rather than rural communities, and in England's coastal communities.

Herefordshire rates are generally at the lower end but are not the lowest group in the country.

A Gloucestershire Primary Care Network has recently undertaken a community-based exercise to determine the level of frailty for all their patients over the age of 65. By February 2023 they had assessed 85% of the target population. This exercise provides some important information and needs further analysis of the data.

¹⁴

As of February 2023, the percentage of patients in each Rockford grouping (see Appendix 3) is shown in Table 9.

Table 9: Distribution of Rockford Scores in the 65-year-old + age group for Tewkesbury, West Cheltenham, Newent & Staunton Primary Care Network

Rockford Scale	Percentage population 65+ in the PCN
1 Very fit	3%
2 Well	18%
3 Managing well	50%
4 Vulnerable	14%
5 Mildly frail	9%

¹⁴ A Williams, Tewkesbury, West Cheltenham, Newent & Staunton Primary Care Network, Quality Improvement Project Report, Proactive Approach to identification of frail elderly patients in Primary Care to prevent further decline and deterioration, Jan 2023

Rockford Scale	Percentage population 65+ in the PCN
6 Moderately frail	4%
7 Severe frailty	2%
8 Very severely frail	
9 Terminally ill	Excluded

The PCN also reassessed a 100 out of 400 patients who had had a Rockford score 4 years earlier in 2018-2019 and who had had no medical conditions at the time of the first assessment. Table 10 gives the findings.

Table 10: Rockford scores for 100 patients without medical conditions at first assessment (2018) and the subsequent assessment 4 years later

Rockford Scale	2018	2022
1 Very fit	10%	0%
2 Well	57%	14%
3 Managing well	26%	57%
4 Vulnerable	7%	26%
5 Mildly frail	0%	3%
6 Moderately frail	0%	0%
7+	Severe frailty	0%

Note: The full detail of the dataset is not currently known and so needs to be treated with caution

5. Effectiveness of interventions ^{15 16 17 18}

Despite the challenges of assessing interventions, there is, nevertheless a considerable body of evidence on the effectiveness and cost-effectiveness of a number of falls prevention interventions.

The most cost-effective interventions are:

1. **Exercise, including resistance training** at a population level (anyone and everyone).
2. **Strength and balance programmes** targeted at individuals who are significantly deconditioned and at risk of a fall with Tai Chi being the most cost-effective of all. The evidence indicates that in order to prevent falls in those at risk, training needs to be for 6 months, twice a week and include increased resistance. Functional based exercise has been shown to be an alternative method for resistance training for those at high risk of a fall although currently there is no cost-effectiveness data for these programmes.
3. **Expedited cataract removal**
It is important to note that individuals also have a slightly increased risk of falls following cataract surgery then individuals need to have new glasses. However, this is lower than pre-surgery.
4. **Home risk assessments and adaptations**

Not all exercise is sufficient to prevent falls. It is helpful to think about exercise that keeps muscle loss to a minimum and that which can rebuild muscle mass when an individual is deconditioned. There is very strong evidence that strength, balance and flexibility training improves and preserves functional ability as well as preventing falls. The following are worth noting:

- Individuals need to exercise two to three times per week for 12 weeks to see progress and 6 months is the minimum to recondition (although some people might need longer).
- Exercise should include working against some form of resistance – this can be the individual's own body weight.
- It is important that people know how to exercise properly and so exercising in a class with an instructor can be beneficial.
- Exercise sessions that both increase the heart rate and strengthen the muscle in the same session builds more muscle than just doing strengthening exercise alone.
- To regain muscle, it is essential that the resistance training is progressive (namely, the individual has to work against increased resistance over time).
- Exercises that reflect activities of daily living, and which use the individual's own body weight for resistance can be effective in building muscle mass.
- Older people are more likely to continue to exercise when they exercise with others. This has the added benefit of reducing social isolation.

¹⁵ [The Centers for Disease Control and Prevention \(USA\), A CDC Compendium of Effective Fall Interventions: What Works for Community-Dwelling Older Adults 2015](#)

¹⁶ [The Centers for Disease Control and Prevention \(USA\), A CDC Compendium of Effective Fall Interventions: What Works for Community-Dwelling Older Adults 2023 \(4th Edition\)](#)

¹⁷ [Public Health England, A structured literature review to identify cost-effective interventions to prevent falls in older people living in the community, 2018](#)

¹⁸ [V Alipour et al, Cost-Effectiveness of Multifactorial Interventions in Preventing Falls among Elderly Population: A Systematic Review, Bull Emerg Trauma. 2021 Oct; 9\(4\): 159–168, doi: 10.30476/BEAT.2021.84375.1068](#)

- Some exercise is always better than none.
- It is never too late to exercise. 85 years olds can gain considerable muscle mass with the correct exercise.

The Otago and FAME exercise programmes have a return on investment of £0.95- £0.99 for each £1 spent and a Societal return of £2.20-£2.28. For home assessment and modification programmes the figures are £3.17 for each £1 for Financial ROI and £7.34 for each £1 spent for Societal ROI.¹⁹

A recent study looked at the social factors that were associated with a reversal of frailty.²⁰ The study followed 5050 participants and found that frailty was reversed in this group by a third of people. The authors found that after adjusting for age and co-morbidities that the two factors strongly associated with reversal were:

1. Exercised-based social participation
2. High self-rated health (with individuals who exercised regularly being able to feel their improvement).

In addition to this the individuals that recovered from frailty were *characterised as having high individual-level social capital components (i.e., trust in community, interaction with neighbours, and social participation)*.

This paper indicates that frailty can be reversed and it implies that improving social connectedness earlier in life, might enable more individuals to reverse frailty.

Other interventions that have been found to be cost effective are:

5. **Multifactorial falls assessments and interventions** to include:
 - Resistance training
 - A review of medicines
 - Home safety assessments
 - Visual assessments
6. **Cardiac pacing** for people with carotid sinus hypersensitivity who are having falls for no known reason
7. **Withdrawal of benzodiazepines**
8. **Medicine reviews**

The various evaluations of the cost effectiveness of multifactorial assessments and interventions are mixed, with some being judged to not be cost-effective. At best these are expensive programmes with those being judged cost-effective only being marginally so. The model that is operating appears to be key. In their review, Public Health England found that the model operating in East England was most cost effective.²¹

A recent systematic and meta-analysis which compared the effectiveness and cost-effectiveness of unimodal versus multimodal interventions challenges the value of MFFA.²² The authors found that exercise delivered as a unimodal intervention, particularly resistance training, provided the best value for money for fall prevention.

¹⁹ [Public Health England, A Return-on-Investment Tool for the Assessment of Falls Prevention Programmes for Older People Living in the Community, 2018](#)

²⁰ [K Takatori and D Matsumoto, Social factors associated with reversing frailty progression in community-dwelling late-stage elderly people: An observational study, PLoS One. 2021; 16\(3\): e0247296, doi: 10.1371/journal.pone.0247296](#)

²¹ <https://www.bmjjournals.org/content/bmjj/340/bmj.c2102.full.pdf>

²² [C Adjetey et al, Cost-effectiveness of exercise versus multimodal interventions that include exercise to prevent falls among community-dwelling older adults: A systematic review and meta-analysis, Maturitas, 2023, Mar;169:16-31. doi: 10.1016/j.maturitas.2022.12.003.](#)

Multimodal interventions that included exercise did not demonstrate additional benefits in terms of costs, quality of life, or fall prevention compared with exercise-only unimodal interventions. However, the evidence base for multimodal interventions was generally more limited. This study reinforces the question raised by a 2019 systematic review of multifactorial assessment and prevention programmes which did not find strong evidence for their effectiveness.²³

Box 1: Public Health England top recommendations following a review of the evidence for different falls prevention programmes²⁴

- Otago strength and balance programme for people aged over 80 years (mean age 82 years) who have a similar falls risk to those in the clinical studies, being 43% had a fall(s) in previous 12 months.
- Group exercise for women aged 70 years or over (mean age 76 years) with a falls risk equivalent to about 6% a month.
- Group exercise using the FaME programme in people aged 65 and over (mean age 71 years) with a falls risk equivalent to 16% having a fall(s) in the 12 months before the intervention.
- Tai Chi or Tai Ji Quan in people with mean age of 75 years and 35% have 2 or more falls in the previous 6 months.
- Common aspects of the 4 multifactorial risk assessment and management studies that were cost-effective, with a focus on that delivered by Sach and colleagues in the East Midlands in a high-risk population group in people aged over 60 years (median 82 years) and 81% having 2 or more falls in the past 3 months.
- Home assessment and modification.
- Medication reviews. These will be delivered as an intervention within the multifactorial risk assessment and management programme so the same age and falls risk characteristics apply.

The MFFA and prevention programmes are targeted at those with moderate to high risk, programmes need to be multifactorial in approach which includes strength and balance programmes. For those at lower risk of a fall, strength and balance programmes alone has traditionally been considered adequate.

Digital technology is being explored as a means to prevent falls, particularly in social care settings, but also in individuals' homes. Using a range of sensors that track behaviour, artificial intelligence is able to identify when an individual's behaviour changes. These are currently being assessed for both their effectiveness and cost-effectiveness through a national programme of assessment. A 2022 review found that the evidence to support

²³ [S Hopewell et al, Multifactorial interventions for preventing falls in older people living in the community: a systematic review and meta-analysis of 41 trials and almost 20 000 participants, British Journal of Sports Medicine 2020;54:1340-1350.](#)

²⁴ [Public Health England, A structured literature review to identify cost-effective interventions to prevent falls in older people living in the community, 2018](#)

the effectiveness and cost-effectiveness of technological approaches to falls prevention especially for people living with dementia have yet to be established.²⁵

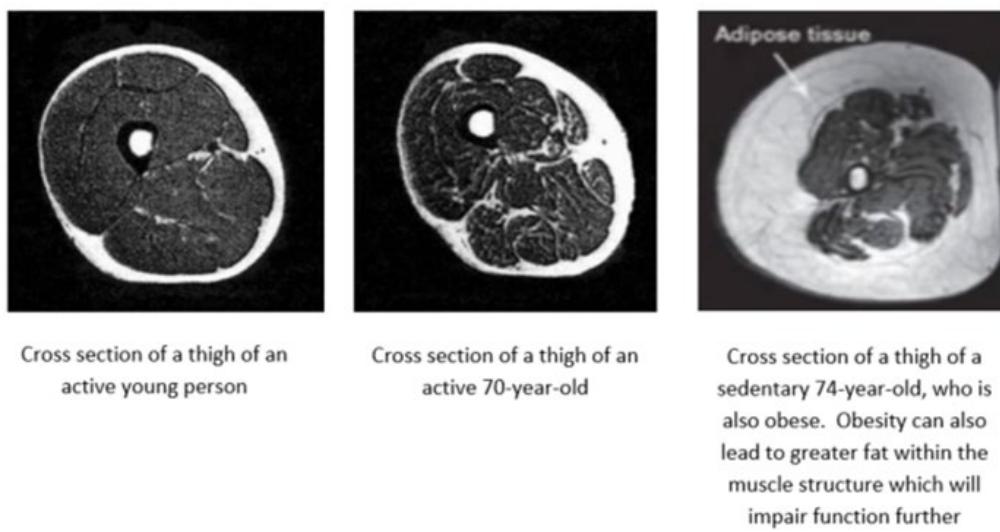
6. The role of strength balance and flexibility training

It is important to understand the role that body muscle mass plays in the risk of falling and progression to frailty.

Muscle mass is built up until we reach the age of about 40 years of age, after which it starts to decline. The more muscle we have at the point at which the decline starts the better as we start off with a bigger reserve. This reserve (called the **functional reserve**) is determined by a number of things including a person's genetic makeup, nutrition and environmental factors. One key factor is how much exercise was done through childhood and young adulthood.

The rate at which muscle is lost should be no more than 3 to 5% per decade. This should enable an individual to remain relatively independent into old age. The rate of loss will be accelerated by a sedentary lifestyle or periods of inactivity, the cause of which, is usually a health problem (including mental health) but can also be as a result of social demands and exercise opportunity.

Figure 10: Cross sections of thighs at different ages and states of health



Taken from a presentation by Dr Brendan Egan, Dublin University. Original source unknown.

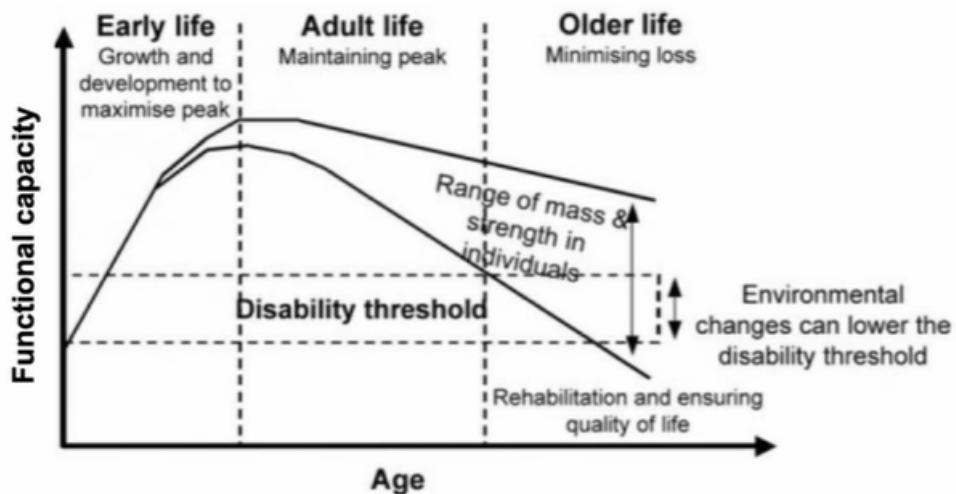
Muscle mass and strength do not have a direct relationship. In older age, for each 1% loss of muscle that occurs, the loss of strength is even greater. This is one of the reasons there is often more rapid functional loss after the age of 80.

Figure 10 illustrates how the rate of muscle loss can determine whether or not people remain independent in later life. The figure shows one trajectory at the ideal rate (which keeps the individual outside of loss of function) and a second trajectory which is an accelerated rate of decline as the result of a sedentary lifestyle.

²⁵ [Eost-Telling C et al. Rapid review of digital technologies to prevent falls in people living with dementia, January 2022.](#)

The difference between the ideal and the actual muscle lost is known as the **fitness gap**. It is therefore not unsurprising that exercise is seen as the cornerstone of a falls (and frailty) prevention strategy and that intervening earlier has the greatest impact.

Figure 11: Illustration of the potential impacts of different rates of muscle loss and their impact ²⁶



Taken from A Kalache & I Kiekbusch, 1997

Individuals are often exposed to a number of deconditioning events throughout life. For example, 3 days of bed rest is sufficient to have an impact on muscle mass. A fit 70-year-old who has 10 days bed rest due to an illness can lose 10% of their muscle mass. This is the equivalent to 10 years of natural loss. A fit person will lose 1% to 3% after a month of bed rest.²⁷

Preventing lifestyle related disease reduces the number of deconditioning events the individual is subjected to, so the greater the number of chronic illnesses that an individual acquires, the greater they are at risk of more rapid muscle loss as a consequence of a series of deconditioning events.

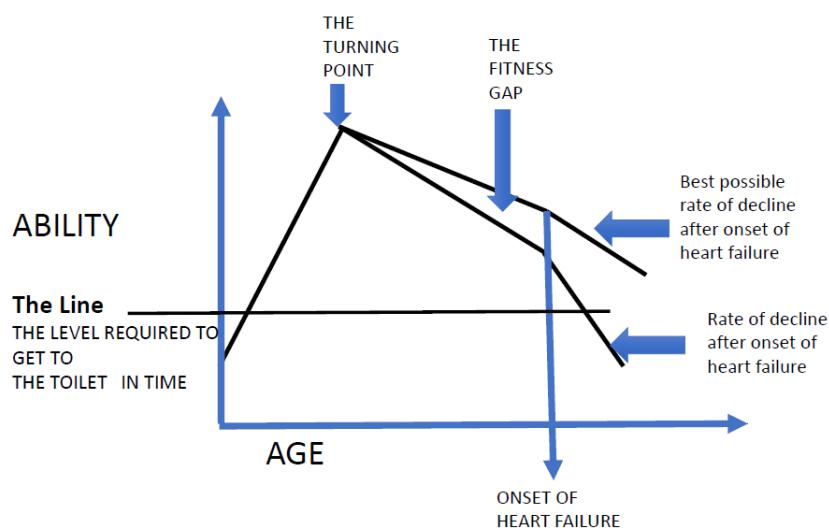
Figure 11 illustrates the deconditioning that occurs with a single episode of illness. The greater the reserve at the outset the better for the individual.

For the individual, achieving the best level of fitness (endurance and strength) even in the presence of a chronic illness, will reduce the risk of loss of function and independence.

²⁶ A Kalache & I Kiekbusch, A global strategy for healthy ageing, World Health 50th Year, No. 4, July-August 1997

²⁷ Dr B Egan, Lecture, Muscling in on Aging (TheHMC)

Figure 12: Illustration of the impact of chronic illness for individuals with different rates of muscle loss and fitness levels

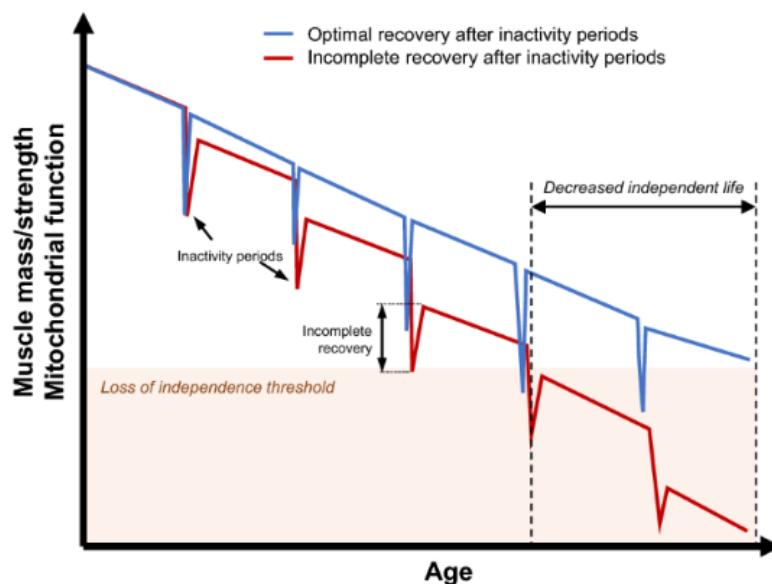


Taken from Sir Muir Grey, Executive Director of the Oxford Centre for Triple Value Healthcare, and a Director of the Optimal Ageing Programme

However, most people experience many deconditioning episodes through life.

It has been postulated that incomplete recovery of muscle mass after each event will, overtime, lead to individuals moving over to the poor projectory even if individuals maintain muscle loss at 1% in the interval between deconditioning events. This is illustrated in Figure 12.

Figure 13: Incomplete recovery after inactivity periods ('catabolic crises') accelerates decline over the life course



Taken from Dr Brendan Egan, University of Dublin

Figure 12 indicates that reconditioning after each injury and illness is an important secondary prevention intervention. The NHS presents a number of points of contact early in the life course which can impact on long term outcomes. Currently this is not being harnessed in the majority of care pathways.

7. Implications

1. The key finding is that the only route to preventing and reversing loss of function and frailty is exercise. It is impossible to overstate the importance of reconditioning and long-term exercise to avoid falls, loss of independence and frailty. As a result, the priority for public health is to promote healthy lifestyles, healthy ageing and create and support the development of widespread opportunities to exercise.
2. Given the aging population, action should be taken to influence the prevalence of falls and frailty in those currently in their 40s, 50s and 60s in order to avoid a potential system failure in terms of health and social care delivery in the future.
3. There is evidence that 1/3 of frailty (at a minimum) can be reversed. More research is needed to determine which patients are best to target with a view to reversing their frailty, but one might predict it is those that have more acute frailty.
4. The public and patients need to be educated about exercise and falls prevention.
5. Currently there is insufficient opportunity for the local population to exercise in groups.
6. Currently there is a limited exercise offer for those who have no access to exercise locally or who cannot leave their homes.
7. It is not known whether the exercise programmes that are being delivered through various routes are adequate in terms of their ability to prevent falls and recondition individual.
8. The NHS should be far more engaged in promoting movement, conditioning and reconditioning. Exercise and strength and balance in particular should be part of normal clinical conversations for all those with a chronic health condition and the ambition should be for all those with chronic conditions to be as fit as possible.
9. Reconditioning advice, signposting and service provision should be the top priority within the falls and frailty prevention/management action plan.
10. Reconditioning (and not just joint specific rehabilitation) should be viewed as an essential part of recovery for individuals that have acute illnesses or injuries that impact on their general level of exercise.
11. Reconditioning should be viewed as an important health care intervention. A 6-month exercise programme can cost as little as £160 per person.

12. Individuals who are on the waiting list should receive advice about exercise along with other lifestyle advice (smoking cessation and weight loss) before their surgery. Given the current waiting times, this is even more important.
13. Health and social care staff should be offered training in both the importance of strengthening, balance and flexibility/mobility activities as well as how to advise patients/clients about exercise.
14. The pathways for referring into reconditioning programmes need to be revisited as should the exercise programmes that are on offer.
15. In terms of fall prevention, home assessments and adaptations provide the best return on investment although they do not improve individuals overall levels of function or address functional decline.
16. Multifactorial assessment and interventions are recommended by NICE and PHE, but it is recognised that they are expensive, and many are not cost effective. Nationally the East Midlands model is promoted. This includes physio delivered exercise programmes. Some recent studies have question the added value these services offer. A review of the local service is warranted.
17. Expedited cataract surgery is also highly cost-effective.
18. A review of where the County is with a systematic programme of benzodiazepine withdrawal for those over the age of 65 may be warranted.
19. A review of how medicine reviews are managed for this age group, particularly for those recently reporting a fall may be warranted.
20. We currently do not have sufficient information on the cost-effectiveness of AT for the prevention of falls. AT might improve the quality of care, while not necessarily reducing the rate of falls, which may be worthwhile, but the two outcomes should not be conflated. The commissioning of an external systematic review may be warranted to understand the evidence base before there is commitment to what could potentially be a high-cost programme, and which might divert funds from more cost-effective interventions. Alternatively, commissioners should press for the evidence base of claims of manufacturers of these technologies.

Appendix 1: 2024 Needs Assessment Report Recommendations

1. Throughout the health and care system, a range of models and ways of working are in place to address falls within various settings e.g., the multi-factorial falls assessment. To ensure these models of delivery are well implemented and delivering desired outcomes, contract monitoring should include indicators to facilitate evaluating the effectiveness and fidelity of services delivered. NICE Quality Standards provide guidance for quality measures and indicators. This must be undertaken according to the stage of service development e.g., implementation, early operation or ongoing operation of the service. This information can be fed back to the falls steering group to inform service improvement and partnership working across the system.
2. Falls Steering Group should facilitate information and data sharing across the health and care system to facilitate the delivery of the falls prevention pathway.
3. The collaborative falls prevention work should be strengthened as part of the falls steering groups with key partners and stakeholders taking a whole-system approach to falls prevention with particular focus on workforce; upscaling of healthy ageing and physical activity work in older people; campaigns, education and increasing public awareness; and information giving.
4. Consideration to be given to workforce development in Herefordshire to include upskilling of frontline staff to recognise people at risk of falling, promote healthy ageing and expand the public health workforce. Additionally, this must also consider modelling and planning the future workforce to cope with future demand.
5. Multifactorial intervention in all care homes and extended care settings to be included as part of falls prevention strategy. Enabling and supporting the excellence in care homes partnership as the facilitator to standardise and improve quality across Herefordshire.
6. Consider options for the postural stability instruction programme to address the variance in referral rates across Herefordshire; increase capacity; increase participant retention to the programme; and consider the best model of delivery.

Appendix 2: Key national and local performance indicators

Public Health Outcomes Framework

C17a	Percentage of physically active adult (18 years +)	Direct outcome measure
C17b	Percentage of physically inactive adult (18 years +)	Direct outcome measure
C29	Emergency hospital admissions due to falls in people aged 65 and over	Direct outcome measure
C29	Emergency hospital admissions due to falls in people 65 to 79	Direct outcome measure
C29	Emergency hospital admissions due to falls in people aged 80 years and over	Direct outcome measure
E17	Hip fractures in people aged 65 and over	Direct outcome measure
E17	Hip fractures in people 65 to 79	Direct outcome measure
E17	Hip fractures in people aged 80 years and over	Direct outcome measure

NHS Outcomes Framework

3.5.i	Hip fracture: Proportion of patients recovering to their previous levels of mobility / walking ability at 30 days	Direct outcome measure
3.5.ii	Hip fracture: Proportion of patients recovering to their previous levels of mobility / walking ability at 120 days	Direct outcome measure
3.6.ii	Proportion of older people (65 and over) who were offered rehabilitation following discharge from acute or community hospital	
3.6.ii	Proportion of older people (65 and over) who were offered rehabilitation following discharge from acute or community hospital	

Adult Social Care Outcomes Framework

2A	The proportion of people who received short-term services during the year – who previously were not receiving services – where no further request was made for ongoing support (formerly metric 2D)	
2B	The number of adults aged 18 to 64 whose long-term support needs are met by admission to residential and nursing care homes (per 100,000 population) (formerly metric 2A(1))	
2C	The number of adults aged 65 and over whose long-term support needs are met by admission to residential and nursing care homes (per 100,000 population) (formerly metric 2A(2))	
2D	The proportion of older people (65 and over) who were still at home 91 days after discharge from hospital (formerly metric 2B)	
2E	The proportion of people who receive long-term support who live in their home or with family	
5A	The proportion of people who use services, who reported that they had as much social contact as they would like (formerly metric 1I)	

NICE Quality Standards – for Falls in Older People

QS1	Older people are asked about falls when they have routine assessments and reviews with health and social care practitioners, and if they present at hospital.	
QS2	Older people at risk of falling are offered a multifactorial falls risk assessment.	
QS3	Older people assessed as being at increased risk of falling have an individualised multifactorial intervention.	
QS4	Older people who fall during a hospital stay are checked for signs or symptoms of fracture and potential for spinal injury before they are moved.	

Public Health Outcomes Framework

QS5	Older people who fall during a hospital stay and have signs or symptoms of fracture or potential for spinal injury are moved using safe manual handling methods.	
QS6	Older people who fall during a hospital stay have a medical examination.	
QS7	Older people who present for medical attention because of a fall have a multifactorial falls risk assessment.	
QS8	Older people living in the community who have a known history of recurrent falls are referred for strength and balance training.	

NICE Quality Standards – for the Management of Fractured Necks of Femur

QS1	Adults with hip fracture are cared for within a Hip Fracture Programme at every stage of the care pathway	
QS2	Adults with hip fracture have surgery on a planned trauma list on the day of, or the day after, admission.	
QS4	Adults with trochanteric fractures above and including the lesser trochanter, except reverse oblique fractures, receive extramedullary implants in preference to intramedullary nails.	
QS5	Adults with subtrochanteric fracture are treated with an intramedullary nail.	
QS6	Adults with hip fracture start rehabilitation at least once a day, no later than the day after surgery.	

Strong and Steady 24-week intervention

	Number of people going through a targeted 24-week strength-based exercise programme	Direct outcome measure
	Number of people completed at least 18 weeks of exercise	Direct outcome measure
	Improvements in Falls Efficacy Scale - International (FES-I) The Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) Timed up and go score 180 Degree Turn Score	Direct outcome measure
	Number of people completing their 24 weeks exercise programme who are linked into ongoing exercise	Direct outcome measure

Appendix 3: The Rockford Frailty Scale

Clinical Frailty Scale	
	1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.
	2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.
	3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.
	4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.
	5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.
	6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.
	7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).
	8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.
	9 Terminally Ill – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

Appendix 4: Rightcare Pathway: Falls and Fragility Fractures