



Research Strategy

2024 – 2027



A note from our Chief Executive

Our research strategy will determine our direction of travel for the next three years. During the 35 years since we came into existence, originally as the Furlong Research Charitable Foundation, we have evolved our strategy in response to changing circumstances, especially the emergence of new forms of diagnosis and treatment and the rapid increase in the number of people suffering from poor bone, joint and muscle health.

We have become a more impatient charity. Medical research is inevitably a slow process – it can take many years for the benefits to be experienced by patients. This is why we are increasingly focusing our investments on research projects most capable of delivering benefits to patients and the healthcare system in a relatively short time-span, either by creating new MSK solutions (innovative products and services) or improving clinical practices and processes. We also recognise that as a small charity, we can only deliver a significant societal benefit by partnering with others – combining financial resources and research expertise. Our partnerships with leading academic institutions, healthcare organisations, societies, charities and private companies have significantly increased the amount of money available for MSK research.

We also recognise the need to support the whole MSK research eco-system, not simply funding a relatively small number of research projects. Our strategy therefore aims to support MSK researchers throughout their careers, from students to Early Career Researchers and beyond. This includes helping the more entrepreneurially-minded researchers translate their ideas into new products and services. We see this support for entrepreneurs as following in the footsteps of our founder Ronald Furlong, who combined a highly successful career as an orthopaedic surgeon with an equally successful career as an entrepreneur.

Supporting the whole MSK research system also means working with other professional bodies to ignite the research passion of our community and encourage enthusiastic researchers to remain in a research environment, especially by making their work more rewarding by helping translate their ideas into real world solutions. The success of this strategy will require us all to continue to advocate for and support initiatives to create a more diverse and inclusive research culture.

The past few years have been positive for MSK health with the inclusion of MSK disorders in the Major Conditions Strategy, combined with additional funding in the Spring 2023 Budget. However, given the scale of the MSK health crisis affecting tens of millions of people in the UK, the amount of money spent on MSK research is still relatively small. We will continue to work with the Association of Medical Research Charities (AMRC) and other MSK charities, primarily as part of The Arthritis and Musculoskeletal Alliance (ARMA), to highlight the importance of MSK research. Together we can make a difference.

Dr Arash Angadji,
Chief Executive



Introduction

The focus of every charity should be on its benefit to society. Our purpose is to both directly fund and encourage high quality research and innovation in the field of orthopaedic and musculoskeletal (MSK) medicine, to enable clinicians and scientists to support the millions of people suffering from poor bone, joint and muscle health.

We are a relatively small charity – our annual research investment of around £1m represents less than 2% of the overall MSK research spend in the UK – but we can make a difference by:

- Focusing our investments on research projects most capable of delivering benefits to patients and the healthcare system in a relatively short time-span, either by creating new MSK solutions (innovative products and services) or improving clinical practices and processes.
- Partnering with others, using our ‘seed core’ funding to attract additional investment.
- Supporting the overall research eco-system, especially at a time when clinical research faces significant challenges.

‘Concerns are growing about the state of clinical research in the NHS and problems in the future pipeline for the workforce, with the number of consultant clinical academics set to decline in the coming years without urgent action to reverse this trend.’¹

Annual spend on MSK health 2021/22 (£m) ²	
Health administrations	17.6
UKRI	24.3
Charities & not for profit	13.4
Other	3.9
Total	59.2

Our research strategy

Our research strategy reaffirms our direction of travel over the past 3 years, which has been based on:

1. Embracing all aspects of MSK health.
2. Broadening our remit beyond orthopaedic surgery to include the important surrounding ecosystem of MSK wellbeing, such as physiotherapy, podiatry and primary care.
3. Extending the impact of our investments by partnering with other sources of grant giving.
4. Supporting the work of MSK researchers (especially Early Career Researchers) including the direct funding of research projects and salaries.
5. Opening up longer-term opportunities and pathways for researchers by helping translate their research ideas into practice/process improvements or new products and services.
6. Encouraging junior clinicians to consider a career in MSK research.
7. Supporting the development of a more equal, diverse and inclusive research culture.
8. Helping to make the case for increased research investment in MSK conditions.



1 The future of clinical research in the NHS is under threat, House of Lords Science and Technology Committee has written to the Minister of State for Health and Social Care with the findings of its short inquiry into clinical academics in the NHS. 26 January 2023
2 UKCRC Health Research Analysis 2022. This does not include spend by the pharmaceutical industry.

Our planned programme of activities

1. Embracing all aspects of MSK health

The MSK health landscape as defined by Versus Arthritis (and used by NHS England)³ is as follows:

Non inflammatory MSK conditions	Osteoporosis & fragility fractures	Inflammatory conditions
Osteoarthritis (affects 10m people in the UK)	Osteoporosis (3m) 500,000 fragility fractures occur each year in the UK	Rheumatoid arthritis (450,000)
Low back pain (11 m)		Juvenile idiopathic arthritis (12,000 ever diagnosed)
Fibromyalgia (1.7-2.8m)		Psoriatic arthritis (190,000)

We believe that this does not reflect the total universe of MSK conditions which include trauma, sarcoma, scoliosis (and other osteo abnormalities) and other soft tissue conditions such as Dupuytren's disease.

Our research investments in 50 projects over the past 3 years have covered a wide range of MSK conditions and we plan to maintain this breadth of activity.

ORUK funding by MSK focus area 2020-2023	Number of projects	Amount invested	% of total budget
Joints	25	£2,786,088	63.07%
Bones	16	£1,171,869	26.53%
Multiple body areas	6	£264,408	5.99%
Muscles	3	£194,804	4.41%

ORUK funding by research topic 2020-2023	Number of projects	% of total projects
AI / Big data / Digital technology / Computational modelling	13	13.54%
Cell, bone and soft tissue biology	11	11.46%
Biomaterials, biomechanics, prosthetic and surgical devices	10	10.42%
Hip	10	10.42%
Knee	7	7.29%
Osteoarthritis	7	7.29%
Pain	5	5.21%
Bone fractures	5	5.21%
Spine / Back	3	3.13%
Children	3	3.13%
Co-morbidity	3	3.13%
Foot & Ankle	3	3.13%
Shoulder	3	3.13%
Trauma	3	3.13%
Bone cancer	2	2.08%
Rehabilitation & Exercise	2	2.08%
Hand & Wrist	2	2.08%
Rheumatic Arthritis	1	1.04%
Infection	1	1.04%
Fibromyalgia	1	1.04%
General MSK health awareness	1	1.04%

There is a trade-off between investing in research into the most common MSK conditions (to deliver the greatest potential benefit to the largest number of people) and focusing our investments in areas of unmet need. We believe that the current balance of investments is appropriate.

2. Beyond orthopaedic surgery to MSK wellbeing

We are proud of our heritage as a charity created by an orthopaedic surgeon and will continue to invest in breakthrough surgical innovation – 56% of our research grants since 2020 have been awarded to orthopaedic surgeons. However, with around 32% of the UK adult population (17.1 million people) experiencing poor MSK health and given the sheer scale of the MSK health challenges posed by an ageing population, we cannot focus simply on improvements to diagnosis and surgical intervention. We have therefore extended our research investments to include MSK wellbeing and prevention.

ORUK funding by research activity 2020-2023	Number of projects	Amount invested	% of total budget
Diagnostic	20	£2,436,357	55.16%
Treatment	18	£1,074,006	24.31%
Multiple focus areas	5	£483,352	10.94%
Management	4	£283,454	6.42%
Prevention	3	£140,000	3.17%
	50	£4,417,169	100%

This aligns us with the shifting focus of Government and NHS England from 'recovery' to 'prevention', with particular emphasis on 'alleviating pressure on the healthcare system' and 'reducing labour market inactivity.' NHS England has committed to a greater focus on community-based services

*'The health and care system in England must shift its focus away from hospital care to primary and community services if it is to be effective and sustainable.'*⁴

We are in discussions with the MRC Centre for Musculoskeletal Health and Work at the University of Aberdeen on a population health project to analyse the effectiveness (and return on investment) of initiatives to help people return to the workplace.

We will continue to invest in research into the impact of the ESCAPE-pain programme, which continues to be an exemplar of community-based, non-surgical intervention.

To encourage greater MSK literacy we co-fund RatLab, an educational, interactive show aimed at 7-11-year-olds, that introduces young people to biomechanics and the importance of bone, joint and muscle health.

3. Extending the impact of our investments through partnerships.

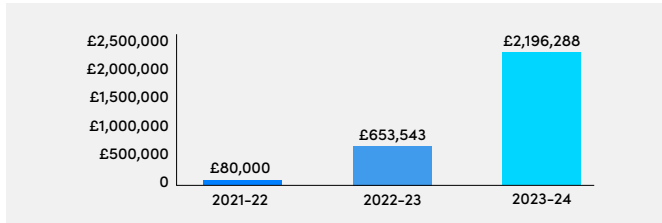
We continue to partner with other leading academic institutions, healthcare organisations, societies, charities and private companies to directly fund the most innovative, MSK research, education and innovation projects.



Over the last three years we have secured £2.93m of additional funding from partners including the National Institute for Health & Care Research (NIHR), Medical Research Council (MRC), British Orthopaedic Association (BOA), National Joint Registry (NJR), Versus Arthritis and other leading academic institutions and charities.

4 <https://www.kingsfund.org.uk/insight-and-analysis/reports/making-care-closer-home-reality>

Amount of partner funding generated



4. Supporting MSK Researchers

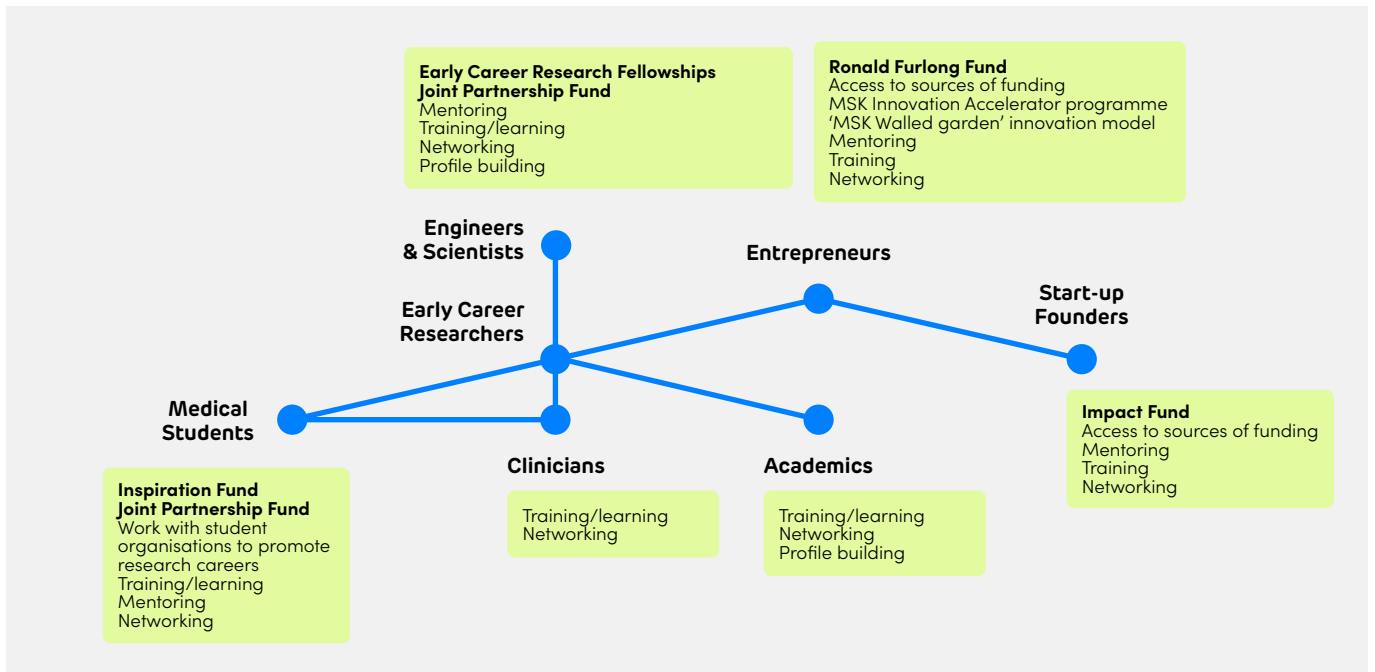
Clinical and scientific research is key to the advancement of knowledge and expertise within universities and hospitals. Early Career Researchers (ECRs) play a central role in this research ‘ecosystem’.⁵ We support ECRs working on MSK-related research projects across the UK and have directly invested £13.59m in the past decade on research projects that expand knowledge, improve patient outcomes and pioneer new forms of diagnosis and treatment, including the application of AI and digital technologies.

Supporting talented MSK professionals throughout their careers

We aim to ensure that the people we support remain clinically active within MSK health following the completion of their research projects and that our funding is not simply a stepping-stone for a career in industry. For this reason we do not support PhDs for non-clinicians and only support clinicians pursuing a higher degree where the funding and risk is shared with other organisations such as the BOA, BASK and BHS.

We aim to broaden our activities beyond the direct funding of a handful of research projects to supporting the majority of researchers involved in MSK projects through training, advice and mentoring.

This support is especially important at a time when clinical research appears to be in decline. We analysed the reasons for the decline in a recent paper – Where have all the research applicants gone. What we discovered was a system under pressure from backlogs and workforce disputes, which is leading to competing priorities and a squeeze on research. In addition, clinical research appears to be less attractive as a career option because of financial pressures, a lack of career security, bureaucracy, a lack of support and what is described as ‘a poor research culture’.



5 UKRI definition of an Early Career Researcher

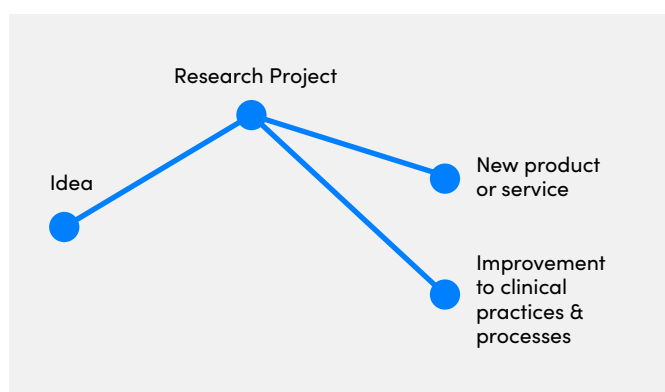
Although we alone cannot address the structural and financial issues, highlighted in our report, we can make a difference by:

- Showcasing the important work of MSK researchers, especially the (real) people behind the projects.
- Providing mentoring support for researchers and potential researchers seeking advice beyond their clinical supervisors.

5. Turning research ideas into practice

We aim to identify projects which have the potential to transform the work of clinicians and the lives of patients at scale and at speed, either:

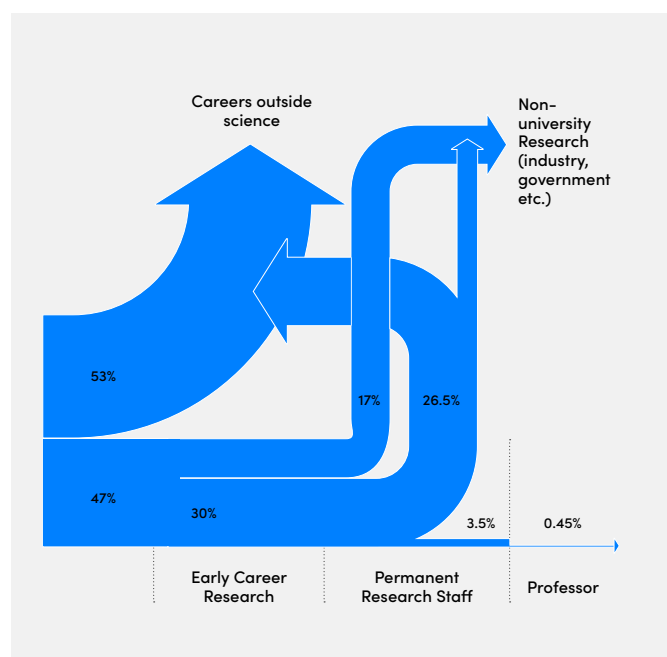
- an improvement to clinical practices and processes, for example, using the results from data analysis to improve planning and clinical decision-making or
- the creation of new products and services.



To accelerate the translation of research ideas into new products or services we partner with private, public and third-sector organisations to provide ECRs, who have successfully completed their research projects, with sources of ongoing funding and support.

This support helps to encourage talented ECRs to continue working within MSK research by opening-up career pathways as the evidence suggests that many ECRs leave research on completion and/or cessation of funding of their projects. A study by The Royal Society found that only 3.5% of research students who complete a PhD secure a permanent research position at a university. Of those lucky few, only 12% (or 0.45% of the total) make it to professor level.

Graphic from The Royal Society's report – The Scientific Century: securing our future prosperity⁶



Not every researcher wants to become an entrepreneur and not every research investment needs to lead to the creation of new products and services. Improvements to clinical practices and processes can also make a huge difference to the lives of MSK patients. However, an 'entrepreneurial mindset' when it comes to understanding patient needs, identifying gaps in the current provision of services and driving innovation is to be encouraged throughout MSK care.

We will maintain our support of the MSK Innovation Accelerator programme, hosted by MedTech SuperConnector, which is designed to accelerate the development of MSK innovation and thereby create and scale early-stage MSK ventures across the UK.

We will continue to support the NHS Clinical Entrepreneur Programme which helps entrepreneurial clinicians bring innovative ideas to the NHS.

We will continue to invest in entrepreneurial people and organisations delivering breakthrough innovations, using The Ronald Furlong Fund to support the development of innovative and commercially viable ideas from UK-based start-ups.

6 <https://royalsociety.org/news-resources/publications/2010/scientific-century/>

We have formed a partnership with Shionogi and Impeller Ventures to encourage greater innovation in what they describe as a ‘Walled Garden’ model.

6. Promoting careers in MSK research

It is in our interests to help create a pipeline of MSK researchers and to encourage those at an earlier stage in their careers (for example, medical students) to consider a career in clinical research.

We will continue to work in close partnership with British Orthopaedic Medical Students Association (BOMSA) and British Orthopaedic Trainee Association (BOTA) to highlight the importance of MSK research and the opportunities that are available.

7. Equality, diversity & inclusivity

We are committed to providing equality of opportunity, eliminating discrimination, and developing a diverse research community.

We appear to be achieving some success in encouraging more female clinicians to consider a career in MSK research – female researchers secured 45% of our awards and 55% of funding between 2020 and 2023. We will continue to invest in a joint fellowship with [The Daphne Jackson Trust](#) to support individuals (in many cases, women) returning to research after a career break due to illness, caring or family responsibilities. As well as financial support, the Fellowship offers retraining and mentoring which helps the recipient to develop the skills and the confidence necessary to pursue a successful and valuable career in research.

In addition to gender, we will begin monitoring the ethnicity, disability and caring responsibilities of research applicants. Evidence from this analysis will be used to inform future EDI initiatives.

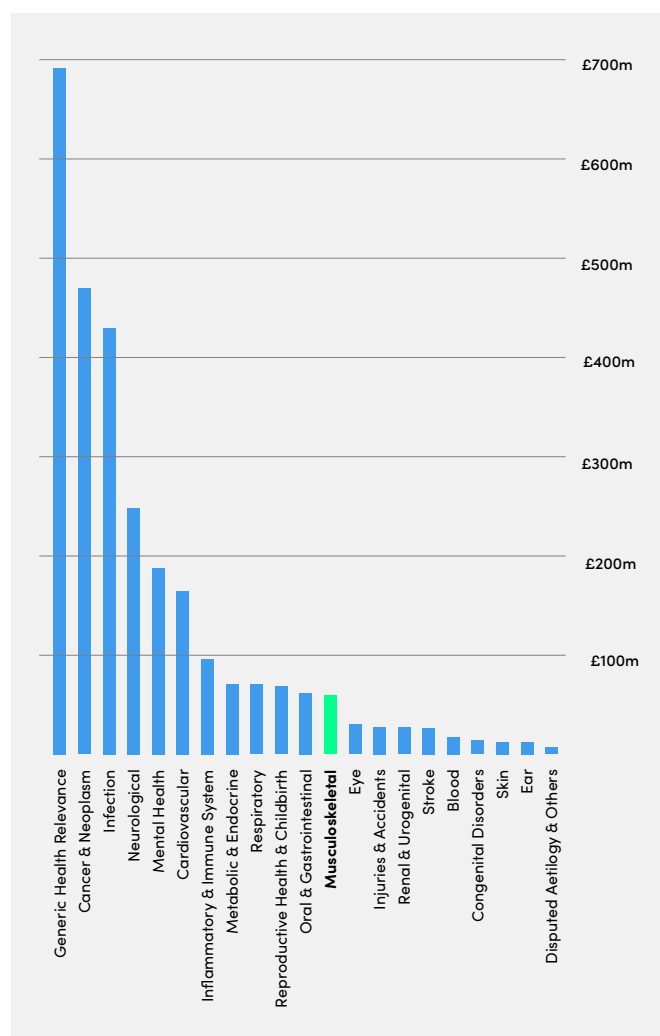
We will support initiatives to tackle inequalities in MSK health services and outcomes such as [ARMA’s Inquiry on Musculoskeletal Health Inequalities and Deprivation](#).

8. Making the case for MSK research

The inclusion of MSK disorders in the Major Conditions Strategy⁷, combined with additional funding in the Spring 2023 Budget, are positive signs that MSK health is finally receiving the attention it deserves.

That said, although the amount of money invested in MSK research has increased from £42m in 2004/5 to £59m in 2022, this figure is dwarfed by the amount of money spent on researching other major conditions.⁸

Total expenditure value for 2022 by HRCS Health Category (£m)



We will continue to work with other MSK charities, primarily as part of The Arthritis and Musculoskeletal Alliance (ARMA), to highlight the importance of MSK research. As a result of our membership with the Association of Medical Research Charities (AMRC) we have a strong relationship with the UKRI and NIHR, the largest funders of MSK research in the UK.

7 Department of Health & Social Care, ‘Major conditions strategy: case for change and our strategic framework’, Updated 21 August 2023

8 [UKCRC Health Research Analysis 2022](#)

Summary

This strategy reaffirms the evolution of our research approach and philosophy over the past few years, whilst being true to our original founding purpose.

It plays to our strengths:

- Our excellent connections with a wide range of organisations, institutions and companies within the MSK community who have the resources to amplify our (relatively limited) research investments.
- Our neutrality within MSK health – unlike most MSK charities we are not focused on a specific health condition, giving us the freedom to focus our efforts wherever we feel appropriate.
- Our entrepreneurial heritage – by increasing our focus on encouraging innovation and entrepreneurialism within MSK health we are following in the footsteps of our founder Ronald Furlong who combined a highly successful career as an orthopaedic surgeon with an equally successful career as a business entrepreneur. We need to embrace Furlong’s spirit of entrepreneurialism because the scale of the challenges facing all of us involved in musculoskeletal health continue to require new ideas and techniques.
- Our expertise as a learning provider – giving us the ability to support talented researchers through training and mentoring, as well as funding.

Our strategy will deliver a positive societal outcome by helping the millions of people suffering from poor MSK health.



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