

AIMSS

STRATEGIC PLAN

2022 - 2026

Australian Institute for
Musculoskeletal Science (AIMSS)

OUR VISION

**Everybody enjoys
the whole of life benefits
of having healthy muscles,
bones and joints**



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DIRECTOR'S MESSAGE

THE TIME FOR A NEW STRATEGIC PLAN 2022 - 2026 HAS ARRIVED.

These are inspiring although challenging times at our Institute. Our new Strategic Plan brings an excellent opportunity to solidify what has been done and build from there, aiming to place AIMSS as a centre of excellence in musculoskeletal research in Australia, that focuses on research translation, and has a substantial impact on our health services and the wellbeing of our communities. As the Director of AIMSS during its Strategic Plan 2015-2020, I am delighted and proud of our results and achievements. In just five years, we recruited 14 world leaders in musculoskeletal research as Program Directors, 12 Project Directors from 8 major academic institutions in Australia, and facilitated supervision of more than 50 members in training. Our productivity showed an outstanding growth as demonstrated by a 25-fold increase in publication output between 2015 and 2021 together with a major expansion in local resources (i.e. histology core facilities, 3D printing, stem cells unit, live-cell imaging), supporting personnel (Research Managers and Health Professionals), and infrastructure (i.e. state-of-the-art imaging services, OMICS platform, flow cytometry facilities, 12 busy clinical trial rooms, metabolic and balance/strength gyms, artificial intelligence/machine learning and 3D virtual reality unit). Our research has translated into practice via the implementation of innovative clinical care models such as the



Falls and Fractures Clinic and the Gait and Balance Gym (Gabagym), which have positively impacted our local communities and have received several awards and recognition from State and National Governments. Thanks to the support and participation of our partner organisations, local communities, industry, and a very committed team of members, our Institute is now recognised as a leader in the field. I find it even more exciting to participate in this transition into my second Strategic Plan. Contrary to the initial one designed by a small number of committed members, our new Strategic Plan 2022 - 2026 has been widely distributed and reviewed and has received feedback from many members and stakeholders. I am sure that this new Plan, whilst challenging, is achievable and will be embraced by all of our members.

This new Strategic Plan will face the new challenges offered not only by the current pandemic, which has affected all aspects of our lives, but also by the limited financial resources invested in health research as a whole and musculoskeletal research in

DIRECTOR'S MESSAGE

particular. With our ageing population, musculoskeletal diseases will become highly prevalent and affect a significant proportion of older Australians. During the delivery of this Strategic Plan, our members of AIMSS will work tirelessly to face this critical challenge and offer solutions that will impact our populations not only locally but Australia wide, aiming to maintain their independence, improve their quality of life and increase their years free of disability. Through a life course approach, our Research Programs will coordinate, optimise and share our local resources to conduct research and translate our results in a way that impacts our population of all ages and from all cultural and socioeconomic backgrounds, following the bench to bedside and community approach that has characterised AIMSS for the last five years. We are also excited to include in this Plan a series of National Indicators of success while also adopting the United Nations International Plan of Action on Ageing (Decade of Healthy Ageing) 2020 - 2030.

Overall, this new Strategic Plan identifies a set of realistic goals that are expected to be accomplished within the next five years. To deliver these goals and assure the growth and impact of AIMSS, we have designed a solid sustainability plan that involves novel strategies such as expanding our clinical and research services, facilitating success in competitive funding schemes, increasing our links with industry, promoting commercialisation, and developing a solid philanthropy program. Only through a stable and

reliable sustainability approach will we reach the goals of our Strategic Plan. In addition, although we have attracted excellent academics in the field, we will strengthen and expand our plans to recruit more members at several career stages and attract more members in training, thus generating a virtuous cycle and a new generation of researchers that will “transfer the torch” to the future generations.

The success of AIMSS will not only be relevant for Western Melbourne. Our steady success will also impact communities around Australia and worldwide. I am looking forward to witnessing AIMSS in 2025. I am very optimistic that we will see a solid, internationally recognised, and productive institute that will make all our stakeholders, members and local community proud.



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OUR VISION

EVERYBODY ENJOYS
THE WHOLE OF LIFE
BENEFITS OF HAVING
HEALTHY MUSCLES,
BONES AND JOINTS.

OUR ROLE

TO CONDUCT TRANSLATIONAL RESEARCH AND PIONEER STRATEGIES THAT REDUCE THE BURDEN OF MUSCULOSKELETAL DISEASES.

Enjoying the benefits of having healthy muscles, bones and joints across their lifetime is the right of every Australian.

Unfortunately, in Australia, diseases that affect the muscles, bones and joints (musculoskeletal diseases) are underestimated, misunderstood and poorly funded.

When we underestimate these diseases, we neglect the fact that they affect almost seven million Australians, account for about 41% of early retirements and contribute to around one in 20 deaths in Australia.

When we misunderstand these diseases, we attempt to treat them in silos rather than as disease clusters. We think of them as diseases that are just part of 'getting old', rather than as preventable diseases that impact people's independence across their lives, and we fundamentally misunderstand the significant but avoidable loss of productivity, cost of care and support, and the decrease in quality of life these diseases are responsible for.

This underestimation and misunderstanding lead to a chronic underfunding of musculoskeletal research in Australia. These conditions account for around 9% of healthcare expenditure, with osteoporosis alone costing more than \$2.75 billion annually. Yet, investment in research in this area comprises less than 4% of total healthcare funding granted in Australia.



OUR ROLE

THE PROBLEM OF MUSCULOSKELETAL DISEASE IS REAL, IT IS SIGNIFICANT, AND IT DEMANDS A COORDINATED STRATEGIC RESPONSE.

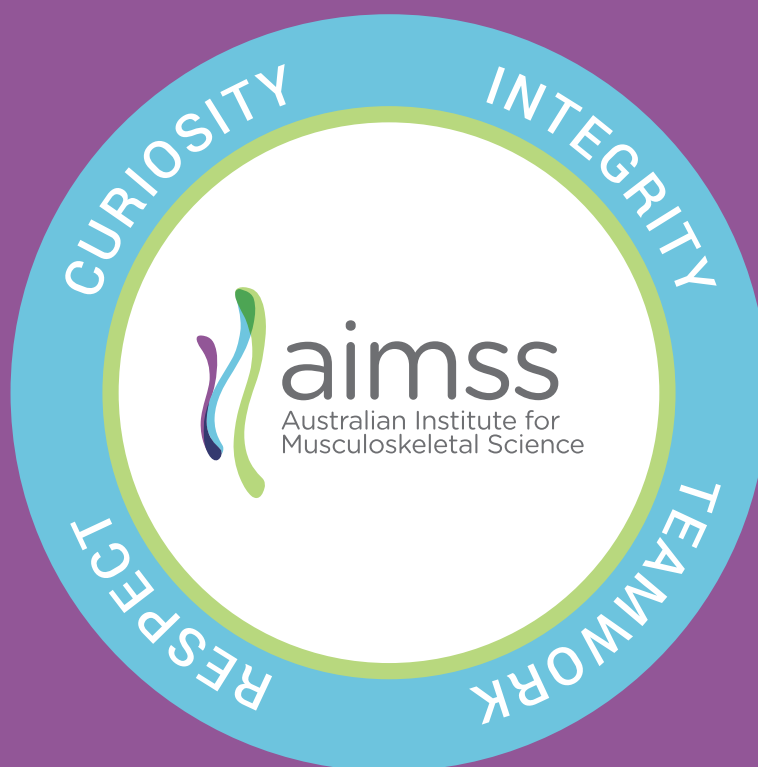
The Australian Institute for Musculoskeletal Science (AIMSS) strives to be the national leading musculoskeletal institute. We conduct world-leading research, which translates into positive results that reduce the burden for people suffering from diseases of the muscles, bones and joints. For example, our pioneering research has designed, validated and tested new technologies and biomarkers for musculoskeletal diseases, representing a breakthrough in the field. We have also identified new treatments for osteoporosis and sarcopenia, which are advancing into phase I and II trials.

This work is being translated into programs and initiatives which demonstrate significant positive impacts on quality of life and decreased health care costs and burden:

- Improved diagnosis and treatment. For example, integration of the new Osteoporosis Assessment Tools to be used by GPs all over Australia to diagnose osteoporosis and prevent fractures in older persons; the care given is of a higher quality and is better coordinated, and people's engagement with their care is also increased.
- As a result, Australians are more active, more productive, happier and healthier for more of their lives.
- New models of care for high-risk patients. For example, implementation of an entirely novel model of care for older persons at high risk for falls and fractures: The Falls and Fractures Clinic
- Prevention and Rehabilitation. For example, validation and implementation of the Gait and Balance Gym, an evidence-based model aimed to accelerate rehabilitation for post falls and fractures patients

OUR VALUES

THE AIMSS VALUES OF CURIOSITY, RESPECT, INTEGRITY AND TEAMWORK CLEARLY INTERCONNECT, CREATING THE SYNERGY THAT IS A CRITICAL PART OF OUR SUCCESS.



OUR VALUES



CURIOSITY

AIMSS members are not satisfied with current knowledge. We;

- Aspire to be world leaders by continually challenging ourselves
- Conduct innovative research and translate outcomes to generate solutions that have local and global impact
- Pursue excellence by boldly challenging the status quo
- Share our knowledge to inspire critical and creative thinkers
- Believe in freedom of intellectual enquiry



RESPECT

AIMSS members value and embrace diversity by

- Appreciating and recognising individual contributions
- Supporting inclusion and considering personal growth as a strength
- Listening and responding to concerns, and openly considering all opinions
- Demonstrating care and compassion for participants, partners, students and staff
- Respecting differing backgrounds, lived experiences, and future goals of our members

OUR VALUES



INTEGRITY

AIMSS is an ethical and accountable institute. We

- Make fair and transparent decisions that are disseminated widely
- Ensure trust and honesty within our relationships
- Effectively communicate with each other, with clarity of expectations
- Place ethics and research integrity at the forefront of everything we do



TEAMWORK

AIMSS works as one to foster a sense of belonging by

- Providing equal opportunity for everyone to succeed
- Collaborating with each other and our partners to drive innovation
- Embracing new perspectives and ideas
- Sharing our knowledge and expertise to help others grow
- Maintaining an encouraging environment to support our health and wellbeing

OUR CONTEXT

The Australian Institute for Musculoskeletal Science (AIMSS) aims to be Australia's premier institute for musculoskeletal research. It was established in 2012. Since then, it has expanded to engage more than 70 people, including 14 Program Directors, 16 Project Directors, 12 AIMSS staff and approximately >50 members in training. The Institute's founding members and current strategic partners are The University of Melbourne, Victoria University and Western Health. AIMSS also works successfully in partnership with national and more than 70 international researchers and institutions in 20 countries across five continents.

AIMSS started with a desire from Western Health to have a flagship institute focusing on musculoskeletal conditions. AIMSS was created as a shared initiative with The University of Melbourne and Victoria University, with which they share education and research facilities. The initial idea was to have a "virtual institute" that would facilitate the activities of local researchers interested in diseases affecting muscle, bone and joints. The original objective was to serve the local communities via translational research with strong beneficial impact on their health and quality of life.

Initial research activities were divided into three streams: bone, muscle and joints. The partner organisations supported and promoted their activities via subsidies, and the support of a small team of supporting personnel. This virtual and stream-based model faced several changes, including a certain level of

compartmentalisation and fragmentation, and a limited number of research outputs.

In 2015, a new Strategic Plan 2015-20 was approved to convert AIMSS from a virtual institute into a tangible one. The Institute re-focused on musculoskeletal research, and the streams model was replaced by a set of interconnected research programs led by experienced and respected researchers, and supported by a solid team of project directors. Productivity of this model was demonstrated by a significant increase in publications (from 12 in 2015 to 181 in 2020), recruitment of high quality members in training, combined with funding success, including the ability to offer seed grants, and a growing profile as a leading musculoskeletal research institute in Australia and overseas. Although the priority was still serving our local communities, the objectives were expanded to serve any person suffering from musculoskeletal disease worldwide. No other musculoskeletal research institute in Australia has the level of scope, impact and productivity that AIMSS has developed in the last 5 years.

Musculoskeletal conditions are a broad set of conditions including, but not limited to, back problems, osteoarthritis, sarcopenia, osteoporosis, and rheumatoid arthritis. These types of conditions are the fourth-leading contributor to the burden of disease in Australia, affecting 30% of the population, or almost seven million people¹.

OUR CONTEXT

Musculoskeletal conditions have a substantial impact on health, productivity and healthcare costs. The impact of these conditions includes reduced independence and life participation, as well as reduced life expectancy and increased disability. In nearly four out of five cases, co-morbidity exists – that is, at least one other chronic condition such as cardiovascular disease (CVD) exists alongside the musculoskeletal disorder.

Musculoskeletal conditions account for 20% of years lived with a disability (YLD) across Australia and a considerable level of lost productivity⁴. They are also responsible for around 41% of cases of early retirement². These conditions account for approximately 9% of healthcare expenditure¹. This includes costs for primary healthcare, specialist care, pharmacology and surgery. Musculoskeletal conditions can also be associated with increased mortality, contributing to about one in every 20 deaths, especially when associated with a co-morbidity³.

There are also social gradients associated with musculoskeletal conditions, where social and economic disadvantages negatively impact health. For example, the prevalence of musculoskeletal conditions is, for the most part, higher in indigenous populations than in all other populations in Australia¹.

Despite the growing prevalence of musculoskeletal conditions in Australia, investment in research comprises less than 4% of total healthcare funding grants. This indicates these conditions are given a low priority in Australia in terms of research

to find evidence-based solutions. This leaves musculoskeletal researchers with limited resources for undertaking rigorous research and development into these conditions. Given the burden of musculoskeletal conditions as described above, increased investment, in combination with excellent research conducted at AIMSS, will make a real difference to the lives of those living with musculoskeletal conditions.

There are also gaps in knowledge about musculoskeletal conditions among health professionals and medical students. Improvements in awareness and understanding are critical for improving the health of patients suffering from these conditions, from children through to older adults.

¹ Australian Institute of Health and Welfare (AIHW). The Burden of Musculoskeletal Conditions in Australia: A Detailed Analysis of the Australian Burden of Disease Study 2011. Canberra: AIHW; 2017.

² Arthritis Australia. The Burden of Musculoskeletal Conditions in Australia. Glebe NSW: Arthritis Australia; 2016

³ Australian Institute of Health and Welfare (AIHW). Musculoskeletal Conditions as Associated and Underlying Causes of Death 2013, Bulletin 136. Canberra: AIHW; 2016.

⁴ Institute of Health Metrics and Evaluation (IHME). Findings from the Global Burden of Disease Study, 2017, Seattle, WA: IHME; 2018.

OUR CURRENT AND FUTURE STATE

1 GOAL 1: COLLABORATION - WE ARE AN INCLUSIVE AND COLLABORATIVE INSTITUTE.

OBJECTIVE 1 - To provide researchers and professional staff with the skills, knowledge, environment, culture and support to thrive.

CURRENT STATE

To date, AIMSS members enjoy access to state-of-the-art laboratories, clinical trial rooms and imaging equipment. Use of external facilities and collaborations are being developed.

FUTURE STATE

We achieve excellent cross-collaboration through a shared approach to tackle musculoskeletal (MSK) conditions. Increased funding supports well designed and equipped spaces, along with supporting personnel to enable connections between basic researchers, clinical researchers and clinicians.

OBJECTIVE 2 - To create an inclusive and collaborative model that supports us to deliver our work as a globally significant institute.

CURRENT STATE

Currently, AIMSS is a member of the International Association of Geriatrics and Gerontology (IAGG) Global Ageing Research Network, International Osteoporosis Foundation – Capture the Fracture Program, and Frailomics.

FUTURE STATE

In future, AIMSS is a member of all major international research networks in the musculoskeletal field. AIMSS hosts visiting scholars, and international exchanges are part of many members in training projects. International exposure is facilitated by remote delivery of seminars by world experts, as well as a real and virtual presence at key conferences. Publications regularly include basic and clinical researchers, as well as international collaborators.

OBJECTIVE 3 - To share the impact of AIMSS with key stakeholders.

CURRENT STATE

AIMSS management reports to the Advisory Committee, representing the three partner organisations. Research performance is reported; however, there is no central repository for partners to easily access information.

FUTURE STATE

We achieve research excellence with high impact, with performance measured by a dashboard developed by AIMSS. Our research achievements are recognised in annual reporting, highlighted in AIMSS quarterly newsletters and actively shared through social media. Additionally, our impact is promoted heavily by our partners, through their media and marketing divisions.

OUR CURRENT AND FUTURE STATE

2 GOAL 2: CLINICAL IMPACT - WE PIONEER RESEARCH THAT DELIVERS REAL IMPACTS.

OBJECTIVE 4 - To deliver positive changes to clinical practice, and develop new approaches for disease prevention

CURRENT STATE

Each project conducted at AIMSS tries to apply the **BITE (Biomedical, Investigation, Translation, Education) model** to have translation- and clinical outcome-focused research. However, the adoption of the BITE model is not uniform, and few projects are discussed with the consumer representative.

FUTURE STATE

We achieve 100% alignment with the BITE model, and AIMSS leads changes to practice at Western Health and other health providers. AIMSS successfully obtains ample project funding that translates basic science to clinical adoption, with advice and adoption through a consumer advisory group to deliver real impact in the community.

OBJECTIVE 5 - To develop partnerships that engage healthcare professionals in delivering best practice treatment for musculoskeletal diseases.

CURRENT STATE

AIMSS was the Sponsor and initiator of the Australia and New Zealand Society for Sarcopenia and Frailty Research (ANZSSFR) and led the approval of an ICD-10 AM code for sarcopenia in Australia. However, most healthcare professionals have little knowledge of many MSK conditions.

FUTURE STATE

We have established links with residential aged care facilities and general practices, receiving regular participant referrals from local GP's. AIMSS runs several nationally recognised short course opportunities for various health care professionals, delivered through our university partners. We have achieved national recognition from all MSK peak bodies, regularly contributing to practice guidelines.

OUR CURRENT AND FUTURE STATE

3 GOAL 3: RESEARCH EXCELLENCE - WE CONDUCT HIGH-QUALITY RESEARCH.

OBJECTIVE 6 - To ensure our researchers are highly successful at writing, winning, delivering and acquitting grants.

CURRENT STATE

AIMSS members regularly submit grants to the most prestigious and competitive national bodies. However, grant success is difficult with limited funding, low focus on MSK, and siloed approaches.

FUTURE STATE

In future, AIMSS holds and administers a large number of grants, including collaborative grants in Asia, Europe and the Americas. Consumer input ensures translation, while basic and clinical research collaborations increase competitiveness. Specific AIMSS appointments facilitate and improve grant success, while finance, ethics and research management systems work seamlessly to ensure grants are carried out successfully.

OBJECTIVE 7 - To deliver highly respected research that attracts the world's best.

CURRENT STATE

AIMSS publication numbers have steadily increased, and we are respected amongst current collaborators. However, recognition within the partners is not uniform, and reputation needs to continue to be developed.

FUTURE STATE

We achieve positive outcomes on the dashboard developed by AIMSS. We have high-quality publications in the most respected journals in the MSK field, and our research impact is internationally recognised. As a result of grant successes, AIMSS is viewed as a "go-to" destination for research students, clinical trainees and visiting scholars, with increased partner members and international collaborations.

OUR CURRENT AND FUTURE STATE

4 GOAL 4: SUSTAINABILITY AND GROWTH - WE ARE A SELF-SUSTAINING INSTITUTE.

OBJECTIVE 8 - To generate income from members' grants, business services and philanthropic funds.

CURRENT STATE

AIMSS members have been successful in gaining industry funding and international clinical trials that have generated income for AIMSS. However, research grant success has been low, and clinical services are not used to their full potential.

FUTURE STATE

In future, expanded clinical services, such as bone and body composition scans, gait & balance gym (Gabagym), and falls & fractures clinic, generate funds for AIMSS across all three Western Health sites. AIMSS members win grants that use AIMSS services and provide infrastructure support, and AIMSS has numerous ongoing lucrative trials with numerous industry partners. The basic science labs have also expanded to generate income, such that AIMSS can conduct safety, toxicology, pre-clinical, and phase I-IV clinical trials, so it is a "one stop shop" for the entire translational research agenda of bench to bedside to community and backwards. Scholarship and Fellowship holding young researchers are drawn to work at AIMSS, bolstering our capabilities to conduct research and enhancing the vibrancy of our research environment.

OBJECTIVE 9 - To have high-quality infrastructure and well-supported people to ensure we effectively deliver our work.

CURRENT STATE

AIMSS has a very high quality basic science and clinical research infrastructure at the Western Centre for Health Research and Education (WCHRE). However, there is a lack of staff explicitly dedicated to AIMSS to help bring scientists and clinicians together to take advantage of this potential.

FUTURE STATE

In future, AIMSS has expanded its infrastructure to allow operations at all WH hospitals, and has developed wider collaborations with collaborating institutions, such as The Australian Synchrotron. AIMSS WH staff, supported by the university partners, operate facilities to maximise revenue and promote collaborations.

OUR CURRENT AND FUTURE STATE

OBJECTIVE 10 - To have the leadership, systems and processes that support us to be well-governed.

CURRENT STATE

AIMSS leadership through the Management committee meets regularly and communicates relevant matters. However, there is no coordination of systems and processes.

FUTURE STATE

Member satisfaction is high due to AIMSS being a vibrant research institute. Program directors support the AIMSS Management committee to provide leadership for members in training and project directors. AIMSS leadership has effectively galvanised support from the partner organisations and is benefiting from the strengths those institutions bring. AIMSS has the autonomy to hold, administer and offer grants, with a budget surplus achieved due to efficient use of equipment and facilities, and employment of support staff.

OUR STRATEGY

The Australian Institute of Musculoskeletal Science's strategy is to **demonstrate the value that investing in musculoskeletal research can bring to everybody's lives** by:

- Being the place that the best musculoskeletal researchers in the world want to be in partnership with.
- Providing members and staff with the skills, knowledge and support they need to do or support high quality research.
- Conducting impactful research and sharing the real-world positive influence of musculoskeletal research.



The Australian Institute for Musculoskeletal Science (AIMSS) is a collaborative institute for translational research into musculoskeletal diseases.



An innovative and collaborative environment for clinicians and researchers to translate basic research into direct health outcomes, created through a partnership between Western Health, Victoria University and the University of Melbourne.

AIMSS IS CELEBRATING 10 YEARS OF SERVICE TO THE RESEARCH COMMUNITY AND PUBLIC THIS YEAR (2022).