

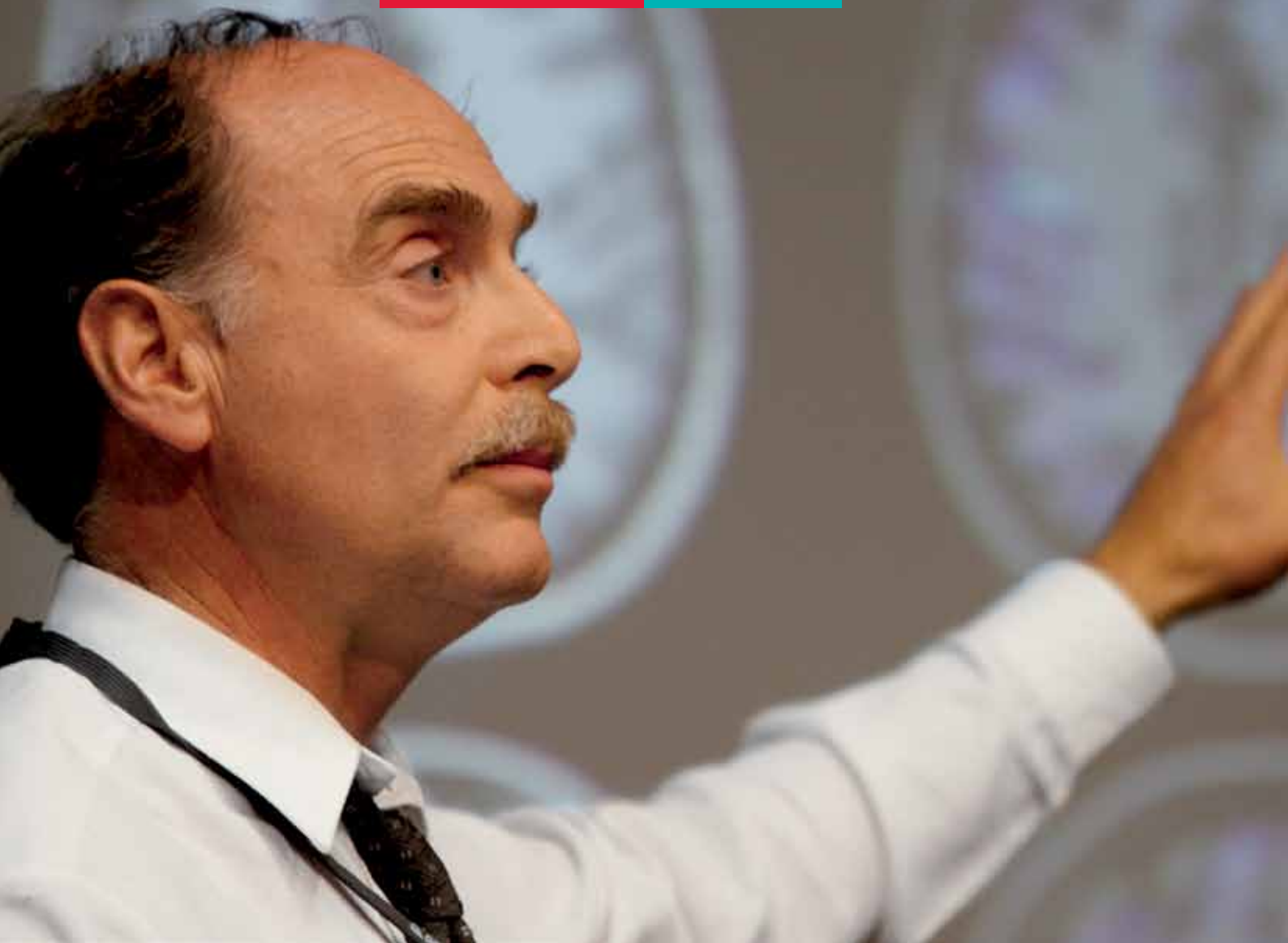
IMPROVING HEALTH AND WELLBEING

FOR INDIVIDUALS, FAMILIES AND
COMMUNITIES WORLDWIDE

FACULTY OF
HEALTH SCIENCES



THE UNIVERSITY OF
SYDNEY





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FROM THE DEAN

This year marks the start of an exciting new direction for the Faculty of Health Sciences. The faculty is embarking on a new strategic plan driven by the internationalisation of health and health professional education.



The plan is focused on building strategic partnerships that allow our learning, teaching and research to be at the forefront of this change.

As a world leader in health sciences research and education in health, disability, functioning and rehabilitation, we have much to offer, particularly in our own Asia Pacific region. We are committed to preventative health and to improving the quality of life of individuals and families worldwide who experience impairment, injury, illness, chronic health conditions or disability.

We achieve this through our focus on multidisciplinary and collaborative research of the highest quality, on research-enhanced learning and teaching and through workplace learning that advocates holistic patient-centred care. Finally, and perhaps most importantly, our new strategic plan has allowed us to reflect on the important role we play as advocates on health and social policy issues.

Our research underpins everything we do. Our people are changing the health landscape by conducting pioneering research into prevention and wellbeing. We are breaking new ground on some of the big issues facing our health and social care systems, which include:

- How do we prepare for an ageing population?
- How can we best support the needs and rights of people with disabilities?
- Is exercise the key to halting the growth in chronic disease?

Our learning and teaching programs are enhanced by our research efforts and aim to develop a new generation of allied health practitioners, corporate professionals, academics and researchers who will drive change within the health sector. We attract the best and brightest students from all walks of life and give them the opportunity to become the future leaders in health.

As you can see, the Faculty of Health Sciences has an exciting future ahead. Building on a long and proud history of success, we are eager to rise to the new challenges we have set ourselves.

If you share our vision and our passion for global health we look forward to welcoming you as a student, a member of our alumni community, a colleague, a sponsor or a corporate partner – all of whom are integral to us achieving our vision.

A handwritten signature in black ink that reads "Gwynnyth Llewellyn".

Gwynnyth Llewellyn
Dean, Faculty of Health Sciences



FACULTY OVERVIEW

9 allied health professions represented by our professional preparation programs

4000+ students currently enrolled

113 countries represented by our student body

The largest professoriate of any G08 allied health faculty in Australia

24th in the world rankings for clinical, pre-clinical and health*

32 percent increase in research performance between 2009–2010**

16,000+ alumni worldwide

* Times Higher Education Ranking 2011–2012

** Percentage increase refers to research publication score

FACULTY STRUCTURE

The Faculty of Health Sciences is a single-unit faculty within the University of Sydney, comprising nine disciplines, five research groups and two research centres.

The faculty is managed through the Faculty Executive and portfolios, reporting to the Dean. Each portfolio is led by an associate dean and is supported by professional staff within Faculty Services and the relevant portfolio.

Faculty portfolios

- Office of the Dean
- Research and Innovation
- International (Research Development)
- Learning and Teaching (Undergraduate)
- Learning and Teaching (Postgraduate)
- Work Integrated Learning
- Staff Development
- Faculty Services.

HEALTHSCIENCES@SYDNEY ADVISORY BOARD

The HealthSciences@Sydney Advisory Board is comprised of up to four individuals from outside the University, who are committed to the strategic direction of the University more broadly and the Faculty of Health Sciences specifically. Board members have significant expertise in government and business activities relevant to the University and the faculty. The board provides an external perspective to the Dean on the faculty's strategic directions.

OUR VISION, PURPOSE AND GOALS

VISION STATEMENT

The Faculty of Health Sciences is a world leader in health sciences and allied health research and education. We aim to be the acknowledged leading global hub of excellence in research and education in the health sciences.



PURPOSE

The Faculty of Health Sciences is committed to preventative action on health, and to improving quality of life for people who experience impairment, injury, illness, chronic health conditions or disability. We achieve this through pioneering multidisciplinary research in health, disability, functioning, and rehabilitation, and through educating the next generation of allied health professionals and corporate leaders in health.

The faculty takes as its underpinning proposition the values embedded in the moral and legal framework of the United Nations Convention on the Rights of Persons with Disabilities (2006), ratified by the Australian Government in 2008.

STRATEGIC GOALS

To ensure our faculty meets the challenges of the future and achieves our vision while staying true to our purpose, we have developed a strategic plan that will guide our focus between now and 2015.

In summary, we will:

1. develop and sustain a critical mass of researchers in a limited number of areas that are self-evident as health sciences/allied health research
2. ensure we deliver high-quality, research-enriched learning and teaching programs which offer students the opportunity to pursue a career in an allied health profession; in a corporate role in health; or as academics/health sciences researchers
3. increase participation of students from culturally and socially diverse backgrounds in order to build a health workforce appropriate for Australia's social and cultural diversity
4. be present in the public domain, nationally and internationally, through our writing, research, commentary and presence
5. develop and sustain a network of supporters and strategic partners to uphold, develop and build on our vision.

RECENT ACTIVITY



DECEMBER 2011

On 5 and 6 December the University of Sydney, in co-sponsorship with the World Health Organization (WHO), hosted a symposium on 'The World Report on Disability: Implications for Asia and the Pacific'. The symposium's aim was to provide a forum for free, open and vigorous discussion of the first-ever *World report on disability* and stimulate dialogue on the report's implications for research into policy and practice. Visit sydney.edu.au/disability-symposium

SEPTEMBER 2011

The faculty welcomed eight Australian Leadership Award fellows from Vietnam and Lao PDR to participate in a four-week program aimed at sharing the faculty's expertise in the International Classification of Functioning, Disability and Health (ICF). Their visit is part of our work on allied health, rehabilitation and long-term care workforce development in the Asia Pacific region.



SEPTEMBER 2011

The faculty and the Brain and Mind Research Institute hosted the conference 'Developmental Disabilities, Challenging Behaviour and Mental Health: Research to Practice and Policy' in association with the NSW Council for Intellectual Disability.

Pictured above:

1. *Shore of Life* by Bernard Franck, an award-winning photograph from the WHO photo contest 'Images of Health and Disability 2005'
2. AusAID ALA fellows welcome

Opposite page:

3. Professor Refshaug and Dr Bourne (top row, 3rd and 4th from left) at the Awards Ceremony
4. Her Excellency Professor Marie Bashir opens the Arthritis and Musculoskeletal Laboratory
5. The Tom Bass statue is the icon of the 'Think Before You Measure' symposium
6. Launch of the NSW Walk On Program
7. Professor Llewellyn, Professor Short and Gabi Hollows at the faculty Awards Night

AUGUST 2011

Professor Kathryn Refshauge and Dr Roger Bourne attended the Australian Learning and Teaching Council Awards ceremony at the Sydney Opera House on 16 August to receive their citations for outstanding contributions to student learning.



JUNE 2011

Her Excellency Professor Marie Bashir AC CVO, Chancellor of the University of Sydney and Governor of NSW, officially opened the faculty's new Arthritis and Musculoskeletal Research Laboratory at the Cumberland Campus.



JUNE 2011

The faculty hosted the 'Think Before You Measure' symposium in partnership with the Australian Institute of Health and Welfare, attracting international experts in health, functioning and disability to discuss challenges in measurement, information systems, definitions and classifications as they apply to research and policy development.



JUNE 2011

Staff from the Faculty of Health Sciences contributed to the development and launch of the World Health Organization's and the World Bank's *World report on disability* at the United Nations headquarters in New York.

MAY 2011

Gabi Hollows was among the 100 award recipients recognised at the Faculty of Health Sciences Awards Night on Wednesday 4 May. Themed 'celebrating our success,' the event recognised outstanding achievements by the faculty's students, staff and alumni.

NOVEMBER 2010

The Governor-General, Ms Quentin Bryce AC, and University of Sydney Vice-Chancellor Dr Michael Spence officially launched the first NSW Spinal Cord Injuries Australia Walk On Program, a unique partnership arrangement which embeds community-based service delivery into teaching and research at the faculty.

OUR RESEARCH HIGHLIGHTS

The research we do makes a real difference, reaching beyond our laboratories and clinical sites to bring tangible benefits to the wider community, both locally and internationally. The following is a summary of some of our exciting and transformative research.



OVERCOMING COMMUNICATION AND SPEECH DISORDERS

Communication and speech are fundamental to everyday life. We build our social and occupational networks around being able to communicate with others. Many of us take this for granted, but one in seven Australians cannot, due to a communication disorder. Whether temporary or permanent, these conditions can have a devastating impact on quality of life.

Our researchers are passionate about finding the best ways to improve the outcomes of people with communication disorders. They are pioneering new models of intervention, treatment and support.

COMMUNICATION FOLLOWING ACQUIRED BRAIN INJURY

Brain injury is the leading cause of disability and death in young people in Australia, with the most common cause of injury being road traffic accidents.

Of those who do survive, some 70 percent will go on to have long-term communication problems. This includes chronic communication disorders such as aphasia (difficulty in producing or comprehending language) and dysarthria (where mouth, face and respiratory system muscles become weak, move slowly, or do not move at all, resulting in slurred speech).

Associate Professor Leanne Togher leads the faculty's Brain Injury Research Team in collaboration with colleagues in the United States and Canada. In a world first, her team has demonstrated the effectiveness of including family members in communication training sessions, rather than the usual practice of training patients alone.

Key outcomes

Associate Professor Togher's team has made a real difference to our understanding of these conditions by:

- producing empirically evaluated communication training programs for families and community agencies, and publishing training packages for law and justice personnel
 - developing a multi-media communication training program for people with traumatic brain injury, their families, friends and carers.
- For more details visit sydney.edu.au/health_sciences/disability_community/tbi_express/

Current studies

Here is a snapshot of the team's current research:

- We are helping to translate recent advances in research into a clear pathway for clinical management of people with aphasia, through the Centre for Clinical Research Excellence in Aphasia Rehabilitation, funded by the National Health and Medical Research Council (NHMRC). Visit www.ccreaphasia.org.au
- Supported by NHMRC funding and in collaboration with colleagues in the United States, we are carrying

out the world's first longitudinal study into how people recover their communication skills.

- We are developing a world-first international web-based repository of spoken discourse of people with brain injury, in collaboration with the Aphasia Bank team at Carnegie Mellon University in the United States.
- We are developing and evaluating a range of computerised options for the management of communication disorders for people with brain injury and their families.
- We aim to improve health outcomes for people with aphasia by developing communication training programs for nurses and assistants.

MORE INFORMATION

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THE AUSTRALIAN STUTTERING RESEARCH CENTRE

Stuttering typically starts in two- to three-year-old children and can hinder educational and occupational success, and cause serious psychological problems related to speech anxiety. The Australian Stuttering Research Centre in the Faculty of Health Sciences is a world leader of stuttering research, having published around 85 percent of the speech pathology clinical trials for stuttering and pioneered the development and dissemination of evidence-based treatments.

Its mission is to support those who stutter and their families with research about the nature of the disorder, by developing new treatments, training future researchers and providing clinical professional development opportunities to speech pathologists.

The centre is led by Professor Mark Onslow with colleagues Associate Professor Ann Packman, Associate Professor Ross Menzies and Dr Sue O'Brian.

They are supported by an energetic team of postdoctoral researchers, postdoctoral associates, and PhD students from four continents.

Key outcomes

The centre has made a real difference to understanding and treatments for stuttering, by:

- developing the Lidcombe Program, a treatment for preschool children now used worldwide
- developing the Camperdown Program for stuttering control with teenagers and adults
- developing a psychological intervention to help adults who stutter with their speech anxiety.

Current studies

Here is a snapshot of our current research:

- We are conducting a large randomised controlled trial of the Westmead Program, a treatment that can be used much earlier in life than current treatments. It is designed for children younger than three years.
- We are exploring a webcam treatment for stuttering which eliminates the need for clinical infrastructure and travel, but still maintains face-to-face contact with the speech pathologist.
- A large international trial of standalone internet versions of all the centre's treatments is currently underway, thanks to a five-year NHMRC program



grant. It is planned that parents of stuttering children, and teenagers and adults who stutter, will have access to treatment without having contact with a speech pathologist.

- Working with geneticists at the University of Sydney, we are using sophisticated exome sequencing to identify a genetic cause of stuttering. This work could potentially help unlock the secrets to preventing the disorder.

MORE INFORMATION

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“Stuttering is a huge public health problem, particularly at its onset with preschool children, and there are not sufficient resources to treat it. With our technology-driven treatment we could tackle the problem worldwide.”

**PROFESSOR MARK
ONSLOW**
DIRECTOR, AUSTRALIAN
STUTTERING RESEARCH
CENTRE



PROMOTING HEALTHY AND PRODUCTIVE AGEING

Ageing affects all of us – either directly or through the experience of family and friends. Our Ageing, Work and Health Research Unit provides the critical thinking and evidence base essential to help Australia better prepare for an ageing society.

ADDRESSING AN AGEING SOCIETY

Population ageing is a global phenomenon and one of the major social challenges of the 21st century. In Australia, it is estimated that over the next 40 years the number of people of current working age will increase by 45 percent, but the number of people aged between 65 and 84 will more than double, and those 86 and older will increase more than fourfold. These changes in demographic structure have enormous implications for the economic and social fabric of countries worldwide.

Enhancing the welfare of an ageing society and minimising the stresses of adjustment will require government, business and households to respond to dramatically changing circumstances that range from financial to family, from labour force to health.

OUR CONTRIBUTION

Health and wellbeing in ageing is about far more than medical treatment. Work, environment, ways of life, and other social factors all have a critical impact on the health, productivity, and wellbeing of ageing people. Our multidisciplinary Ageing, Work and Health Research Unit is led by

Professor Hal Kendig, an internationally acclaimed expert on the health, social, and policy aspects of ageing and the recipient of a Centenary Medal for “outstanding service to aged care and healthy ageing research”.

Professor Kendig brings together a team of leading researchers including Professor Deborah Black, Professor Philip Bohle, Associate Professor Lindy Clemson and Dr Kate O’Loughlin, supported by a large cohort of postdoctoral fellows and postgraduate students.

The group addresses research questions from many angles and the unit’s work crosses fields ranging from sociology to gerontology, biostatistics, medicine and allied health.

The unit works in collaboration with government, professional and community organisations to explore new thinking and initiate policy in areas of health expertise. Through research output and commentary, staff participate in national and international public forums and contribute to leading bodies such as the World Health Organization (WHO), National Seniors Australia, and state and federal governments.

Centre of Excellence in Population Ageing Research: University of Sydney Node

The Centre of Excellence in Population Ageing Research, funded by the Australian Research Council (ARC), is transforming our capacity to respond to the economic and social challenges of demographic change and increased longevity through later life. The centre is led by the University of New South Wales with the University of Sydney and the Australian National University as partner universities, along with several international collaborators.

Professor Kendig will lead the University of Sydney node on population ageing, while Professor Bob Cumming, from the Sydney School of Public Health, will examine biological influences on longevity.

The Sydney node will investigate the interrelated work and health dimensions of productive ageing, decisions over the life course that impact upon work and health, and preparation for life as a retiree.



“The impacts of ageing are not predetermined. Our current knowledge shows us that the ageing experience can be improved at all levels – individual, community and government – if we think through, shape and manage them.”

PROFESSOR HAL KENDIG
DIRECTOR, AGEING, WORK
AND HEALTH RESEARCH UNIT

OTHER STUDIES

- Professor Hal Kendig and Dr Kate O’Loughlin are working on an ARC-funded study to examine how life experiences of the baby boom cohort in Australia and England influence health, productivity, well-being, and pension and service use at ages 60 to 64 in 2011.
- Associate Professor Lindy Clemson has conducted randomised trials in the area of falls prevention with NHMRC project grant funding, including the successful ‘Stepping On’ prevention program. It has attracted funding from the US Centers for Disease Control and Prevention to investigate development for the US context.
- Professor Deborah Black is the Chief Investigator on a Climate Change Adaptation Research Grant, which targets ways aged-care facilities and their staff can adapt to the increasing likelihood of heatwave events.
- The unit’s work on workforce ageing includes an NHMRC/ARC project examining individual and organisational variables affecting the work attitudes, workforce participation and health and safety of older workers, led by Professor Philip Bohle.

MORE INFORMATION

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IMPROVING THE LIFE CHANCES OF PEOPLE WITH DISABILITIES

The first ever *World report on disability*, produced jointly by the World Health Organization and the World Bank in 2011, acknowledges that people with disabilities generally have poorer health, lower educational achievements, less economic participation and higher rates of poverty than people without disabilities.

Our researchers are committed to improving the life chances of people with disabilities and their families. We achieve this through our leading research, which identifies and addresses the barriers people face, and by influencing policy and practice to enhance the everyday opportunities for people with disabilities.

FAMILY AND DISABILITY

The Australian Family and Disability Studies Research Collaboration within the faculty is internationally recognised for its translational research into the health and wellbeing of children, youth and young adults with disabilities. It also addresses the specific challenges faced by families where a young adult, child or parent has a disability.

The collaboration is led by Professor Gwynnyth Llewellyn with colleagues Professor Eric Emerson, Professor Anita Bundy, Dr Nikki Wedgewood, Dr Anne Honey, Dr Rachel Mayes, and a team of research associates and doctoral students. They have international collaborators in Canada, the United States, New Zealand and Scandinavia.

In parallel with their research efforts, the collaboration plays a key role in knowledge

dissemination and capacity-building to influence social policy and practice. One key project is the seven-year federally funded 'Healthy Start' initiative, www.healthystart.net.au, a national strategy to help practitioners support parents with learning difficulties and their children. The team also recently commenced work on the international project 'Health and Wellbeing Indicators for Disabled Children and Youth', which taps into the expertise of several universities in the Worldwide Universities Network.

MORE INFORMATION

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MENTAL HEALTH AND CHALLENGING BEHAVIOUR

Professor Stewart Einfeld and his team focus on behavioural and emotional disturbance in people with developmental disabilities, addressing behavioural phenotypes of genetic syndromes

and developing evidence-based early intervention strategies. His pioneering work on the Australian Child to Adult Development longitudinal study, now running for more than 20 years, identified that mental health problems in young people with developmental disability are a substantial public health issue.

Under a recently awarded NHMRC program grant 2011–2015, Professor Einfeld is leading a large-scale national study which aims to reduce the prevalence of mental health problems experienced by young people with developmental disabilities. Its focus is on evaluating and developing new models of parenting training.

Professor Einfeld also contributes to a number of government policy committees in the area of children's mental health.

MORE INFORMATION

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Chair of Mental Health

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COMMUNITY LIVING AND ACTIVE SUPPORT

Associate Professor Roger Stancliffe leads the faculty's work on community living and active support for people with developmental disabilities. His research addresses choice, self-determination, individual planning, and deinstitutionalisation.

In partnership with Lorna Hodgkinson Sunshine Home and the House with No Steps, Associate Professor Stancliffe is leading an applied research project which aims to combat growing concerns about the sedentary lifestyles of adults with intellectual disability by investigating strategies to increase physical activity.

Ongoing collaboration with colleagues in the United States has also led international advances in understanding the costs and outcomes of community services for people with intellectual disabilities.

MORE INFORMATION

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SOCIAL AND HEALTH INEQUALITIES

With joint appointments at the University of Sydney and Lancaster University, Professor Eric Emerson's main focus is on using data from large-scale longitudinal and cross-sectional surveys to explore the social and health inequalities faced by people with disabilities.

In collaboration with Professor Llewellyn and Dr Honey, his work has demonstrated that life opportunities for young people with disabilities in Australia continue to lag behind those of their non-disabled peers.

His current projects focus on the interaction between child disability, poverty and the wellbeing of children and families; and understanding risk and resilience factors impacting on the emotional and behavioural health of disabled children.

MORE INFORMATION

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REHABILITATION AND PREVENTION OF CHRONIC PAIN



Musculoskeletal conditions such as osteoarthritis, back and neck pain and foot and ankle problems are rarely cured, though often they can be prevented. If not effectively treated, these conditions persist, causing chronic pain and disability to patients and placing a significant economic burden on the community.

The Faculty of Health Sciences is crossing new frontiers in this field, conducting groundbreaking research into the functional outcomes of musculoskeletal conditions, that is: how people with these conditions are able to manage their everyday lives.

In turn we are leading the development of new interventions and techniques to effectively reduce pain, prevent physical and psychosocial disability and improve quality of life.

KEY FACTS

- There are more than 100 forms of arthritis and musculoskeletal conditions.
- More than 6.3 million (31 percent) of Australians report arthritis or some other musculoskeletal condition.
- The prevalence and severity of these conditions increase with age and with obesity – two of the major challenges facing Australia.
- Young people also make up a significant proportion of patients through accident and injury.



THE ARTHRITIS AND MUSCULOSKELETAL RESEARCH GROUP

Professor Kathryn Refshauge, Professor of Physiotherapy and Deputy Dean of the Faculty of Health Sciences, leads a team of 36 researchers including 15 doctoral students, who are carrying out research in this national health priority area.

Recognised with multiple awards and honours for her supervision of research higher degree students, Professor Refshauge brings together a broad team of multidisciplinary professionals including Associate Professor Marlene Fransen, Associate Professor Joshua Burns, Dr Leslie Nicholson and Dr Claire Hiller, with international colleagues in 20 countries.

This team leads the world in discovering cost effective, non-invasive treatments to reduce the burden of pain and disability caused by chronic musculoskeletal conditions.

OUR FOCUS

We look at problems from all angles and are targeting the following conditions:

– Back pain

Despite the intense attention that back pain has received internationally, there is no cure and little definitive knowledge about its cause, pathology, treatment or risk factors. Having conducted many trials of treatments and prognosis, the team is now focused on investigating underlying pathology, and changes in the brain, nervous system and the cognitive domain as acute pain becomes chronic. We are also designing new treatments and models of health care delivery.



– **Neck pain**

We found that 50 percent of office workers developed neck pain within 12 months and that stress increased the risk but physical activity was protective. We are currently investigating the use of cerebral biomarkers for differential diagnosis of headaches in order to better understand the development of chronic neck pain. We are also exploring diagnosis and treatment of cervicogenic dizziness and development of chronic pain after whiplash injury.

– **Ankle and foot problems**

Although ankle and foot problems are often believed to be inconsequential, our research shows that almost 20 percent of Australians report some pain or disability from chronic ankle conditions. We are currently investigating pathology and impairments that lead to persisting symptoms and disability, and designing effective, targeted rehabilitation to prevent chronicity.

– **Osteoarthritis**

There is no cure for osteoarthritis (OA). The most effective treatments are those that improve the biomechanical environment of the joint. Associate Professor Marlene Fransen and her team are currently investigating effectiveness of an exercise program after total knee replacement and also the long-term effects of glucosamine and chondroitin on structural disease progression and symptomatic relief among people with knee OA. Because more than 50 percent of people with joint problems use glucosamine and chondroitin, we need to treat the evaluation of their effectiveness as a public health priority.

FOR FURTHER INFORMATION

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EXERCISE FOR HEALTH PROMOTION AND DISEASE PREVENTION

The potential of exercise to both manage and prevent many chronic diseases is now indisputable. However, exercise and physical activity still often fail to play a primary role in mainstream health care. The focus of our leading research in this area is to provide an evidence base that makes prescribed exercise integral to health promotion and disease prevention for all people across the lifespan.



In parallel with this work we are exploring the effectiveness of exercise therapy and functional rehabilitation, including the use of assistive technologies, for people living with underlying disease or disability.

PREVENTION AND TREATMENT OF CHRONIC DISEASE

Professor Maria Fiatarone Singh, a recognised international expert on the integration of geriatric medicine, exercise physiology, and nutrition, leads the faculty's research into exercise for the prevention and treatment of chronic disease. In collaboration with colleagues from across the University of Sydney and internationally, her research has inextricably linked the

ways in which our bodies and minds age and our disease resistance to our levels of physical activity and fitness.

Professor Fiatarone Singh and her team have a number of NHMRC-funded studies underway, exploring the effect of structured exercise prescription on conditions such as type 2 diabetes, osteoarthritis, osteoporosis and vascular disease. They are also conducting world-first research into the neurological benefits of exercise for older adults. The three-year Study of Mental Activity and Resistance Training (SMART) trial aims to determine whether structured regimes of physical and mental exercise can delay or even prevent the onset of dementia.

MORE INFORMATION

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“Unfortunately, most healthcare practitioners would consider a pharmaceutical solution to common conditions in the aged, such as osteoporosis or depression, before they considered the prescription of a tailored exercise regime. Our research aims to change this.”

**PROFESSOR MARIA
FIATARONE SINGH**
JOHN SUTTON CHAIR OF
EXERCISE AND SPORT SCIENCE



EXERCISE THERAPY AND REHABILITATION

Professor Glen Davis leads the Clinical Exercise and Rehabilitation Unit research into activity-based therapies for disabled populations, including community-based exercise rehabilitation. The unit is known for its work investigating the use of intensive physical activity alone, or in combination with assistive technologies, to maximise functional recovery and cardiovascular health benefits for people with the following conditions:

- spinal cord and brain injury
- multiple sclerosis
- intellectual disability
- other chronic conditions.

The unit is integral to the multi-national Spinal Cord Injury and Physical Activity Research Project, which aims to uncover the effects that treadmill walking, functional electrical stimulation leg exercise and assistive technologies

have on individuals with spinal cord injury. This research includes exploring the potential for neurological improvements and functional outcomes.

Through a unique partnership arrangement that embeds community-based service delivery into teaching and research, the faculty also hosts the NSW Spinal Cord Injuries Australia Walk On Program, a vital exercise rehabilitation service for the community and an avenue for transformative research in this area.

MORE INFORMATION

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HEALTHY UNIVERSITY INITIATIVE

With the establishment of the new centre for research into the prevention of obesity, diabetes and cardiovascular disease, the University of Sydney has the opportunity to lead by example and turn academic discoveries into solutions that improve and transform lives in both our local community and around the world.

We believe this can be achieved through the vision of a healthy university in which students and staff follow healthy living principles in every university setting.

The University has therefore set up a working group, chaired by our Dean, Professor Gwynnyth Llewellyn, to propose short-term and longer term goals, and develop a strategic plan to realise the potential of this concept.



“In the long term
our work could help
to identify more
effective treatments
for diseases such as
dementia, schizophrenia
and cancer.”

PROFESSOR STEVEN
MEIKLE
PROFESSOR OF MEDICAL
IMAGING PHYSICS



INNOVATION IN IMAGING FOR DISEASE DIAGNOSIS AND TREATMENT

Our imaging scientists are committed to making scientific discoveries that can be translated into improved health outcomes for patients with debilitating diseases.

The interdisciplinary team of leading researchers brings together complementary strengths to make discoveries focused on the development and applications of new imaging techniques that improve our ability to understand, diagnose and treat disease.

THE IMAGING SCIENCES GROUP

The Imaging Sciences Group is one of the largest interdisciplinary research hubs at the Faculty of Health Sciences, comprising chemists, physicists, pathologists, computer scientists and medical radiation scientists. The group's leadership team – Professor Richard Banati, Professor Dale Bailey, Professor Patrick Brennan, Professor Michael Kassiou, Professor Steven Meikle, Associate Professor Roger Fulton and Honorary Associate Professor Marie-Claude Gregoire (ANSTO) – are supported by a diverse group of experienced researchers, postdoctoral fellows and PhD students from around the world.

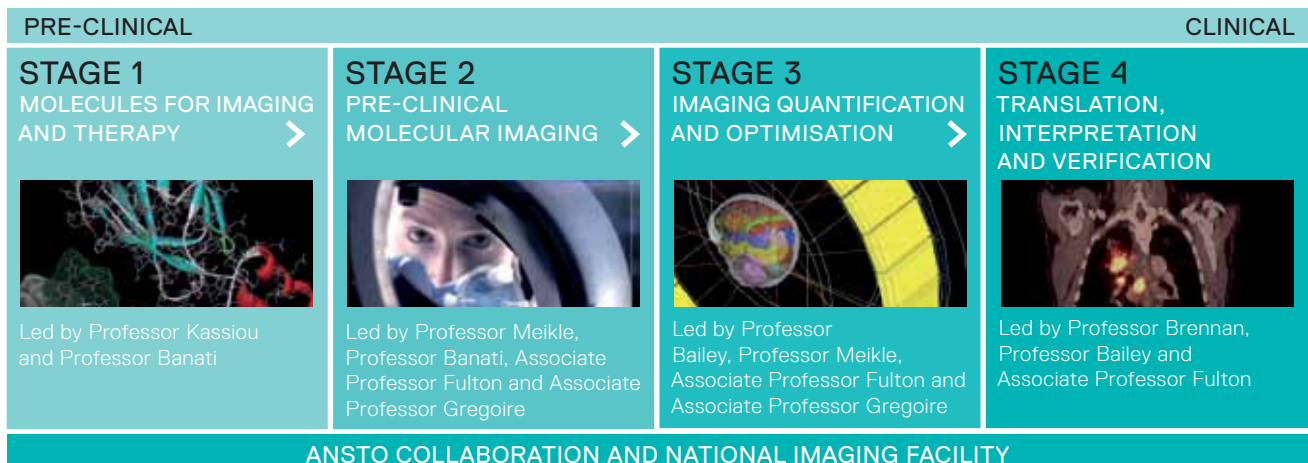
DRIVING INNOVATION

The group has led many of the recent innovations in imaging science, including the development of motion-correction techniques for clinical and pre-clinical imaging, quantitative whole body PET, and Australia's first integrated SPECT and diagnostic X-ray CT scanner for combined imaging of anatomy and physiological function. The group was also the first to demonstrate the relevance of specific modern mobile technology to image interpretation.

THE RESEARCH PROCESS

The unique blend of expertise and experience within the group allows it to encompass the whole spectrum from fundamental and pre-clinical to applied clinical research (see diagram below).

The process of translating scientific discoveries (Stage 1) to clinical applications (Stage 4) is underpinned by the ANSTO collaboration and the support of the National Imaging Facility.





SUPPORTED BY LEADING INFRASTRUCTURE AND PARTNERSHIPS

Our work is supported by the University of Sydney's role as a node of the National Imaging Facility (NIF), an open access network of advanced imaging laboratories across several Australian universities and research institutes. We also tap into state-of-the-art clinical imaging systems in the University of Sydney's teaching hospitals.

The Sydney NIF node, located at the University's Brain and Mind Research Institute, is operated by the group in partnership with the Australian Nuclear Science and Technology Organisation (ANSTO). It includes Australia's first fully dedicated medical research cyclotron, state-of-the-art radiochemistry facilities and multi-modality pre-clinical and clinical imaging systems.

The group also operates a fully digital x-ray imaging suite and radiation treatment simulator at the University's Cumberland Campus, as well as facilities for studying and optimising the interpretation of medical images by expert clinicians.

CURRENT STUDIES

Here is a snapshot of some of the group's current research:

- As part of a European Union research program, Professor Michael Kassiou and his team are aiming to identify novel biological targets of neuroinflammation for both diagnostic and therapeutic purposes, and to translate this knowledge into clinical applications and patient benefits.
- Associate Professor Roger Fulton and Professor Steven Meikle have developed breakthrough techniques that combine optical motion tracking with event-by-event motion correction of microPET imaging data to allow brain imaging in fully conscious animals.

- Under the leadership of Professor Patrick Brennan and in partnership with Associate Professor Warwick Lee, State Radiologist with BreastScreen NSW, the faculty is leading a new national strategy that promotes diagnostic efficacy in BreastScreen imaging. The initiative will use a world-first web-based program that monitors, assesses and improves radiological reporting of breast x-rays.
- Professor Dale Bailey is leading a project that will develop our knowledge of how radiation affects cancer cells in the body. Using basic physics and radiobiology knowledge of the effects of ionising radiation on living cells, it will examine the relationship between calculated radiation dose distribution to the cancer patient and compare it with the clinical outcome.
- Professor Richard Banati is currently undertaking pioneering research into membrane-bound mitochondrial proteins as part of an ANSTO Distinguished Research Fellowship using life cell imaging, impedance spectrometry, quartz crystal microbalance measures, and protein structure analysis by x-ray and neutron-based techniques.

MORE INFORMATION

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OUR LOCAL AND GLOBAL PARTNERSHIPS

Members of the University are part of a wide network of relationships with researchers and communities around the world. We are growing and strengthening this network to enable collaboration and new perspectives that will benefit our staff, students and communities at home and abroad.



INTERNATIONAL HEALTH AND DEVELOPMENT



We are committed to fostering global partnerships – particularly within our own Asia Pacific region – that allow us to contribute to the health and wellbeing of our neighbours, provide opportunities for two-way mutual learning and enrich the learning experience of our students.

ALLIED HEALTH, REHABILITATION AND LONG-TERM CARE WORKFORCE DEVELOPMENT

As a leader in research and education in disability, health, functioning and rehabilitation, the faculty is well placed to assist the Asia Pacific region with the many current challenges of building and sustaining a competent and well-supported health workforce. We are currently undertaking a body of work aimed at significantly improving health outcomes for all.

Our focus is on providing relevant information, conducting collaborative research and engaging in pre-service and professional education that targets the needs of vulnerable populations. This work program is engaging senior people with specialist skills from across the faculty and the wider University, and collaborators across the Asia Pacific region.

MORE INFORMATION

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INTERNATIONAL CLASSIFICATIONS IN HEALTH

To assist with providing a common language for health systems worldwide the faculty is actively involved in the efforts of the the World Health Organization (WHO) to develop and maintain up-to-date classifications.

NATIONAL CENTRE FOR CLASSIFICATION IN HEALTH

Our National Centre for Classification in Health, directed by Professor Richard Madden, is an international centre of expertise in the development and use of health classifications and is playing a leading role in this field.

The centre forms part of the Australian Collaborating Centre of the WHO Family of International Classifications network.

The centre is assisting with development of the International Classification of Health Interventions and a revision of the International Classification of Diseases.

MORE INFORMATION

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AUSTRALIAN ICF DISABILITY AND REHABILITATION RESEARCH PROGRAM

Ros Madden leads this faculty program. She has played a major role in the development and implementation of the WHO's International Classification of Functioning, Disability and Health.

We established the program in 2009 to conduct and promote high-quality research on disability, rehabilitation and health.

Through the program we also provide leadership in research and education applying to or consistent with the International Classification of Functioning, Disability and Health. We are building our collaborations in the region around work on developing instruments for monitoring community-based rehabilitation.

MORE INFORMATION

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FHS ABROAD INTERNATIONAL EXPERIENCE PROGRAM

Students in our faculty have been working in low-income countries for more than 30 years, enriching their global outlook and understanding of global health and making a lasting difference in communities worldwide.

Most recently the faculty has introduced the 'FHS Abroad' program, which offers undergraduate and graduate entry master's students an international experience in South East Asia as part of their study program.

In partnership with two-well established Australian volunteer agencies, we offer students the chance to gain hands-on experience in community development and learn about new cultures and new perspectives on health and healthcare. At the same time they also make a meaningful contribution to a community in need.

MORE INFORMATION

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“An experience like this allows you to see the world from a different perspective. It changes the way you think and feel, and broadens your cultural horizons. It was exciting, touching, challenging, rewarding, and one of the most amazing experiences of my life.”

ALANA PEARCE

BACHELOR OF HEALTH SCIENCES

FHS ABROAD STUDENT

RURAL AND REMOTE HEALTH

Our work in rural and remote health is centred on building strategic partnerships which allow our students to experience careers in rural health and contribute to allied health care. We also conduct ongoing policy-relevant research to address the needs of rural and remote communities.

Through these three endeavours we aim to contribute to a healthier future for people living in these regions.

PARTNERSHIPS WITH UNIVERSITY DEPARTMENTS OF RURAL HEALTH

Broken Hill Department of Rural Health

Our partnership with the Broken Hill Department of Rural Health grew out of community need and works on a school-based placement model. Students studying speech pathology, occupational therapy, physiotherapy and orthoptics undertake clinical placements in local schools to improve access to much-needed services. Diagnostic radiography students have also undertaken placements in the local hospital. We have already completed more than 46 placements in 2011.

Students also travel to remote towns such as Wilcannia to provide therapy services and in 2012 we will offer further remote support through our collaboration with the School of the Air.

Our students are making an immense contribution to the health of the community, with obvious flow-on benefits for the career aspirations of rural youth.



University Centre for Rural Health North Coast

The faculty's partnership with the University Centre for Rural Health North Coast, based in Lismore, educates students on clinical practice in rural health and delivers ongoing research into the health needs of rural communities.

In addition to facilitating student placements, the faculty also has a senior lecturer in allied health based in Lismore who teaches the rural content of the faculty's Bachelor of Health Sciences degree by distance (online and multimedia content) to give students in city campuses exposure to rural health.

On the research front, the collaboration allows the faculty and its partners to make progress on the Rural Allied Health Workforce Study. It aims to provide a large-scale, detailed profile of the allied health workforce in rural NSW to inform evidence-based policies for service delivery and workforce planning.

MORE INFORMATION

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COLLABORATIVE RESEARCH ON MENTAL HEALTH AND WELLBEING

Mental health and wellbeing in our rural communities is a critical public health issue, with studies showing that people living in those regions tend to have poorer health than those in urban areas and higher mortality rates from mental health disorders.

In response to this, the faculty is one of five partners working with the University of New England to establish a Collaborative Research Network on Mental Health and Well-being in Rural and Regional Communities.

Under the network, five universities and the Hunter New England Area Health Service will collaborate to expand rural health strengths, and feed into the education of thousands of health professionals and better rural mental health services. The University of Sydney will contribute to the research theme on 'Self-care and mental health within regional communities'.

MORE INFORMATION

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PARTNERSHIPS FOR BETTER HEALTH IN WESTERN NSW

The 'Wobbly Hub and Double Spokes' project investigates the delivery of timely and efficient therapy services for people with a disability, and addresses ongoing problems with recruiting and retaining therapists to work in rural and remote communities. It is an NHMRC Partnerships for Better Health project headed by Professor Craig Veitch, Chair of Community Based Health Care at the Faculty of Health Sciences, and Mr Scott Griffiths, Regional Director of Ageing, Disability and Home Care in the western region of NSW.

Through community consultation the project team is exploring the current issues around service delivery in western NSW and aims to produce and evaluate evidence-based policies to improve therapy services.

MORE INFORMATION

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A WORD OF THANKS

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Australian Nuclear Science and Technology Organisation	Department of Health and Ageing (Federal)	New South Wales Podiatrists Registration Board
Australian Podiatry Education and Research Foundation	Department of Innovation, Industry, Science and Research (Federal)	Office for Science and Medical Research (NSW)
Australian Research Council	Diabetes Australia Research Trust	Parenting Research Centre
Australian Rotary Health Research Fund	Exercise and Sports Science Australia	Parkinson's New South Wales Incorporated
Australian Society of Rehabilitation Counsellors	Health Networks Australia	Physiotherapy Research Foundation
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FACULTY OF
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THE UNIVERSITY OF
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