



# Ageing Well

## National Ageing Research Institute

Newsletter Issue 31  
November 2002

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Print post approved PP341 403000444

## Setting the pace in ageing research for 25 years

Since the beginning, the National Ageing Research Institute has set the pace in Australia for its vision and pioneering research into improving the health of older people.

Even the concept was ahead of its times - in the 1970s, few doctors focused on the needs of older people and the notion of an ageing society was unfamiliar.

Initially known as the Mount Royal National Research Institute of Gerontology and Geriatric Medicine, it was officially opened on December 9, 1977. The Institute was a joint venture involving the University of Melbourne, the then Mount Royal Hospital and the Victorian Government.

During Professor Derek Prinsley's term as inaugural director, from July 1976 to 1986, research focused on social issues relating to ageing and nutrition. Complementing this were geriatric clinical services and professional education programs.



Remarkable achievements occurred in the first four years despite "severe financial constraint and in the face of a general community attitude which does not yet appreciate fully the medical and social problems" of older people.

David Derham, Vice Chancellor, University of Melbourne, 1979.

Under Professor Robert Helme's directorship (1987 - 2000), research changed direction to the biomedical sphere. Biological gerontology provided an insight into the ageing process, and medical gerontology examined the causes and consequences of diseases in the elderly. From 1988, specialty clinics in pain, falls and balance, memory and wounds were established and staffed by multidisciplinary teams.

However, the Institute's turning point occurred on June 7, 1994 with incorporation. It was transformed from what Professor Helme described as a "vague entity owned by the hospital" into an independent research institute. The accompanying name change to the National Ageing Research Institute was to reflect its multidisciplinary research in all aspects of ageing.

"Of the health professionals in Victoria with appropriate skills, attitudes and knowledge of ageing, many were educated through NARI."

Professor Robert Helme, NARI Director, 1987-2000

Above: Official opening: Victoria Governor Sir Henry Winneke (right), Mount Royal Committee of Management President, Alan Forbes, and Professor Derek Prinsley

Subsequent expansion of NARI's education division and clinical services, and the development of a public health division places NARI and its dedicated team in a unique position.

"NARI is the only institute for ageing in Australia that takes research from cell biology to service delivery and public health in an interactive research cycle."

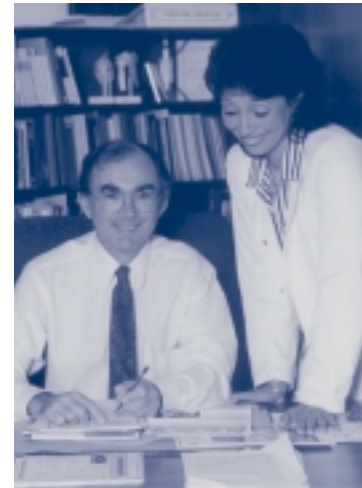
NARI Interim Director, Associate Professor Zeinab Khalil, June 2000 - December 2001.

As a centre of excellence, NARI enjoys national and international recognition.

Looking to the future, NARI's Director, Professor Allan McLean, cites the interactive research cycle as the key to promoting close collaboration throughout the institute. He envisages a move to primary ageing research to identify the biological processes driving ageing. Biological research will encompass human genome projects to discover how the body's ageing process influences the genetic expressions later in life.

"Heading NARI is exciting. It is also a great challenge and privilege."

NARI Director, Professor Allan McLean, 2002



Professor Robert Helme and Associate Professor Zeinab Khalil



### Key achievements

- World leader in pain and ageing research.
- Leads the way nationally in falls prevention.
- International patent for ACV1, a compound that acts as an analgesic and assists in repairing injured tissue.
- Patents pending for a non-invasive skin test for the early diagnosis of Alzheimer's disease, a non-invasive electrical stimulator to accelerate tissue repair, and a computerised up-timer to monitor physical activity in older people.

### Generous support

In its work, NARI relies on the generous support of Federal and State Governments, the University of Melbourne, Melbourne Extended Care and Rehabilitation Service, individual donors, and the corporate sector. Volunteers also play an integral role in NARI's research.



## Your liver also ages

Innovative research by NARI Director, Professor Allan McLean, and Professor David Le Couteur from the Centre for Education and Research in Ageing has identified that changes occur to the liver with ageing, triggering the risk of atherosclerosis. Atherosclerosis, which is a hardening of the arteries from a build-up of fats, is a major cause of heart disease.

The research, published in part recently in the prominent medical journal, *The Lancet*, is the first example of primary ageing change in a major organ.

In a healthy liver, the blood vessels have tiny holes in their walls

to allow blood from the gut into the liver to be processed. However, the holes in the blood vessels diminish as the liver ages, preventing fats from being processed properly, and deposits occurring in arteries.

"The causes of atherosclerosis in young people are smoking, diabetes and cholesterol but these don't apply to older people. The attributable risk for this group is ageing," says Professor McLean.

"Directions for future research include dietary changes, particularly the protective effects of antioxidants when consuming fatty foods, and how medication can increase the circulation in the blood supply to the liver, to help it metabolise fats."

## More than a humble sea snail

Toxin from the cone-shell snail could have enormous potential in relieving chronic pain and treating delayed tissue repair.

Discovery of the compound, known as ACV1, has resulted in NARI's first international patent, with product commercialisation also being discussed. The research is a collaborative project with the University of Melbourne.

NARI's Deputy Director, Associate Professor Zeinab Khalil, describes ACV1 as a thousand times more potent than morphine.

She says animal experiments have revealed no side-effects, though this needs to be confirmed in clinical trials.

"Many snail venoms are being trialled for use as an analgesic.

"However, this particular one, from the Barrier Reef, has an additional characteristic above all others. It also accelerates the functional recovery of injured nerves, and is effective when applied directly to an injury," says Associate Professor Khalil, who heads NARI's Biomedical Division.

"Delayed tissue repair is a major problem underlying many of the diseases of ageing."

The wider implications of ACV1 are for conditions associated with ageing and chronic pain, like neuropathy, cancer, arthritis and shingles.

## Carers exercise to better health

People in the demanding role of caring for a frail partner or other family member could benefit physically and psychologically from regular physical activity.

This is the preliminary finding of a joint study between NARI and Villa Maria Carer Services, where carers did hourly sessions of tai chi, yoga or strength training, once or twice weekly.

More than 100 people participated in the Health Carers Physical Activity Program, based in nine community centres in Melbourne's eastern suburbs. Villa Maria generously funded the program and provided respite services to enable the carers to attend classes.

Acting Director of NARI's Public Health Division, Dr Keith Hill, says previous research has highlighted the effectiveness of physical activity for older people, but this is the first study to target carers,

"Caring is demanding, and carers often let their own health suffer as a consequence.

"Anecdotally, participants have reported considerable improvements physically, emotionally and psychologically," says Dr Hill.

Initial testing revealed that the carers were reasonably well, but their balance and mobility were slightly lower compared with healthy people of their age. They also recorded moderate feelings of depression.

Dr Hill presented a paper about the research at the recent International Federation on Ageing Conference, in Perth.





## NARI leads the way at international conference

NARI reaffirmed its position as the leader in pain and ageing research when Associate Professor Stephen Gibson took to the podium before thousands of delegates at a prestigious international conference, in San Diego.



He spoke at the triennial conference for the International Association for the Study of Pain (ISAP), in August, attended by more than 6000 delegates.

"It's a once-in-a-lifetime invitation to be a keynote speaker at an ISAP conference. It is offered to the 15 professionals who are considered world

experts in their areas," says Associate Professor Gibson, NARI's Director of Clinical Research.

"The experience has certainly been the highlight of my academic career, so far."

His talk explored the differences in how younger and older people experienced and reported pain, and the impact of pain.

"Our clinical research shows that older people are less sensitive to low levels of painful stimulation, but they are more vulnerable to higher levels of pain. Both scenarios are counterproductive," he says.

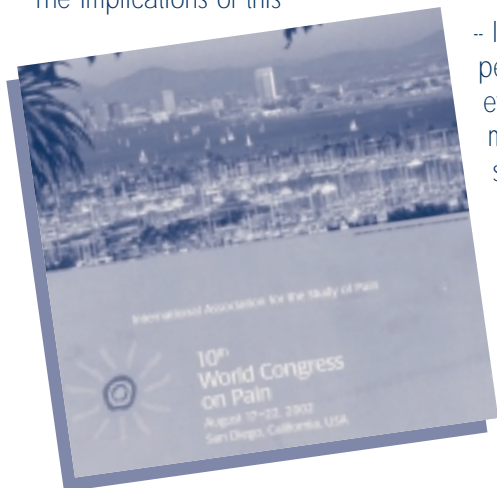
"At the lower level, injury could occur before there is any preventive action. At the upper extremes, the difficulty of dealing with strong, on-going pain demands aggressive treatment.

"Such clear differences make older people more vulnerable to the impact of the whole pain experience. This perspective has never been reported before."

He also presented an insight into the world's ageing population by revealing that 30 percent of people would be aged over 65 years, in some European and Asian countries, by 2050.

The implications of this

-- large numbers of people needing effective pain management and services to better meet the needs of older people -- prompted discussion at several workshops.



At the conference, Associate Professor Gibson was interviewed for a television news story about social factors affecting pain.

Nine representatives from NARI, including medical staff from the Pain Clinic at Melbourne Extended Care and Rehabilitation Service, attended the conference. Of their 14 poster presentations, those that created particularly strong interest were brain imaging by Dr Michael Farrell, the body's pain control system by PhD student Lindy Washington, and how dementia modifies the pain experience by Dr Benny Katz.

Associate Professor Gibson is on the ISAP editorial committee for professional education and he is a member of the scientific committee for the Australian Pain Society.



### We are leaders in ageing research. Your donation will help us maintain the pace.

Looking to the future, Australia will have six million people over the age of 65 by the year 2050. They will comprise 25 percent of the population.

The issues surrounding ageing are complex. At this time of life, the major health concerns include diseases of ageing, dementia, falls, wounds and pain management.

NARI leads the way in Australia as the only institute for ageing that takes research from cell biology to service delivery and public health. We would appreciate your support.

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# NARI news ....

## Distinguished visitors

NARI was delighted to welcome several distinguished visitors recently and discuss their support of health issues for older people.

The Minister for Senior Victorians, Christine Campbell, and the Secretary of the Department of Health and Ageing, Jane Halton, visited during August.

In September, former Sidney Myer Fund Chairman, Baillieu Myer, spent time at NARI. Earlier this year, Mr Myer and Sir Arvi Parbo initiated the independent inquiry, 2020: A Vision for Aged Care in Australia, funded by the Myer Foundation.

## An inspiring time

Singapore geriatrician Dr Ian Leong is inspired by NARI's achievements in pain management and services for older people.

Dr Leong, who was awarded a one-year fellowship from the Tan Tock Seng Hospital in Singapore, has been at NARI since January.



His research project is examining the link between pain and medical co-morbidity in older people. In the area of patient care, he attends sessions at various pain and palliative care clinics, including those at the Melbourne Extended Care and Rehabilitation Service and St Vincent's Hospital.

## Students from Sweden

Three students from the University of Uppsala, in Sweden, are completing their degrees in Master of Science in Pharmacy, at NARI.

Kajsa Nilsson, who has been in Melbourne since the beginning of the year, likes the atmosphere at NARI and the opportunity to increase her knowledge about ageing during weekly seminars. For the past few months, she has been working on a research project involving a skin test for the early diagnosis of Alzheimer's disease.

Kristin Kvernrod and Mattias Carlstroem arrived in Melbourne in September, for a six-month visit to do the research component for their degrees. They are enjoying their challenging research project, which focuses on the beta amyloid protein -- a toxin that could change the ability of blood vessels to dilate in people with Alzheimer's disease.



Visiting students Kristin Kvernrod and Mattias Carlstroem.

## Fellowship winner shares his skills

Research fellow Dr Michael Farrell gained invaluable experience in the complex technique of functional brain imaging using MRI, during his two years at the National Institutes of Health, in Washington.

"The work was wonderful, and I had easy access to scanner time and analysis equipment. Here, it would have taken me twice as long to get a fraction of that experience," says Dr Farrell.

"In Washington the institutes receive money to use at their own discretion on projects, which is enormously liberating. However, over there work is relatively individualistic, while at NARI there is a great feeling of being part of a team."

Dr Farrell is a recipient of the prestigious Neil Hamilton Fairley Fellowship, from the National Health and Medical Research Council, which enabled him to study in America and then continue his work at NARI for another two years.

His present research is determining if the brain processes pain any differently in older people than younger ones. Related questions include how people rate the pain stimulus used, and whether the relative intensity versus the unpleasantness changes with age.

"No other study has looked at functional brain imaging and pain in older people. And, NARI is the only place in the world with the right mix of skills to explore this issue," he says.

For the project, Dr Farrell is working with the Howard Florey Institute and the Royal Children's Hospital.

