

# The fall guys

Professors ROBERT CUMMING and STEPHEN LORD are at the forefront of Australian research into the causes and prevention of falls, known as one of the “geriatric giants” of aged health. They spoke to CCR about what we know about falls and where knowledge gaps remain.

One in three people over 65 are affected by falls and by the time you reach 80, you have a one in two chance of falling every year. At worst, a fall can result in traumatic brain injury or a hip fracture, from which about a quarter of elderly people will die within a year. But even if it doesn't result in injury, a fall can lead to a spiralling loss of confidence in older people, says Sydney University's

Professor Robert Cumming, who has been doing falls research since 1988. “They might start being worried about going out and exercising and that will lead to more loss of muscle which might lead to them falling again,” he tells *Community Care Review*. “Once they've fallen two or three times they get worried and their family gets worried and they go out even less. For some people

that ends up in a spiral which means they need aged care, and possibly residential aged care, even without a fracture.”

**WHY THE ELDERLY ARE AT RISK OF FALLS**

Falls in the elderly are caused by a range of age-related physiological factors, including sensory changes, deteriorating muscle strength and loss of balance, says Professor

## SISTERS ARE DOING IT FOR THEMSELVES

Dr Jane Mears' interest in preventing falls through women-specific programs began in 2012 when she and her colleague Pat Bazeley, both from the University of Sydney, looked at six Older Women's Network wellness centres in NSW. The researchers had previously noted that the ageing of the population and the “feminisation of the aged population” heralded an increasing incidence of falls among older people, especially women. The pair produced a scoping study in 2013 that concluded the wellness centres provided a range of activities, including exercise programs that directly meet the

criteria for falls prevention, in a cultural and social environment that invites and maintains participation by women. “Exercise programs that build strength and balance are effective, but participation in them needs to be sustained. The best way to achieve this is to base these programs in a gender and age sensitive social and community context,” the study concluded. Five years later, Dr Mears found more promising evidence while carrying out an evaluation of an OWN centre in Bankstown, in Sydney's inner west, for a local health service.

She found that despite representing a vulnerable group, the health and wellbeing of the women at the centre was at least equal to or better than the average Australian population of their age. “Further, they have maintained that position over the past year. Health status has generally remained stable over the year, the number and seriousness of falls experienced was lower than might be expected and lower than last year,” she said.



Dr Jane Mears

Stephen Lord, from Neuroscience Research Australia (NeuRA). Add to that the effects of medication, plus symptoms of diseases like stroke or Parkinson's, and you have what's known as one of the three leading geriatric health problems, along with dementia and incontinence.

“To stand steady and walk we need input from our vision so we can see obstacles and avoid them,” he says. “We get information from the inner ear for balance, and we get sensory information from our feet and legs.

“Then we need the motor side - that's muscle strength, particularly around the hips, knees and ankles. We need to be able to react quickly if we're knocked off balance, and we need good control of our centre of balance.”

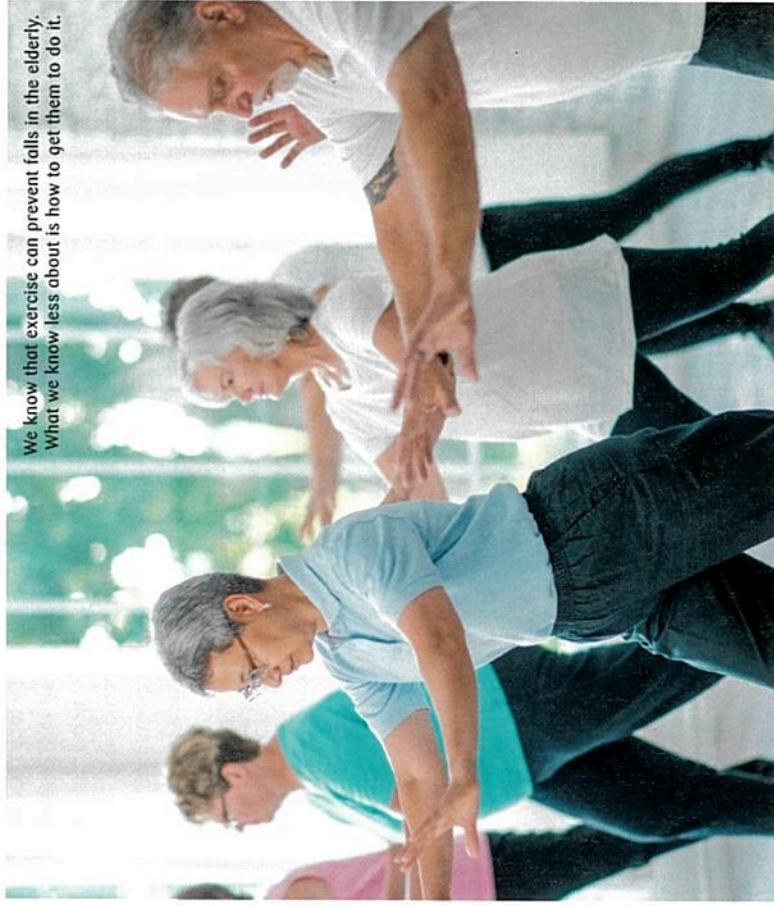
“All of these functions are susceptible to age-related changes.” But that doesn't mean falls can't be prevented. Professor Cumming says it wasn't until the 1980s that researchers began to realise that falls weren't just a

normal part of ageing and that “there was nothing we could do”. The big shift in thinking came in 1994 when *The New England Journal of Medicine* published the first study to conclusively show it was possible to reduce the risk of falling. Since then there have been about 200 studies looking at different aspects of how to prevent falls.

## THE IMPORTANCE OF EXERCISE

Exercise has emerged as the predominant factor in falls prevention. But other measures like avoiding sleeping tables and anti-depressants are also effective. An assessment of home safety by an OT can also minimise risks. “That could involve putting rails in the bathroom and so on, but also just looking at the home and making sure that it's safe and there isn't something they're going to slip on,” Professor Cumming says. But when we're talking exercise, it's not just any exercise, he says. The exercise

**“Probably the single exercise that's shown to be most effective is Tai Chi because it really is good for balance. Just pumping iron isn't going to be particularly beneficial because you need something that improves your balance.”**



We know that exercise can prevent falls in the elderly. What we know less about is how to get them to do it.

**GPS ENLISTED IN FALLS PREVENTION**

GPs and other primary health care services can do better in preventing falls among the elderly, Professor Lindy Clemson, a professor in ageing and occupational therapy at the University of Sydney believes. Clemson is heading a project to develop an intervention known as the Integrated Solution for Sustainable Fall Prevention (ISOLVE) that helps GPs identify patients who are at risk of falling.

The ISOLVE project aims to establish integrated processes and pathways between general practice, allied health services and programs to identify older people at risk of falls and engage a whole of primary care approach to falls prevention. Professor outlined her research at the 4th International Conference of Long-term Care Directors and Administrators in Sydney on August 1-3.

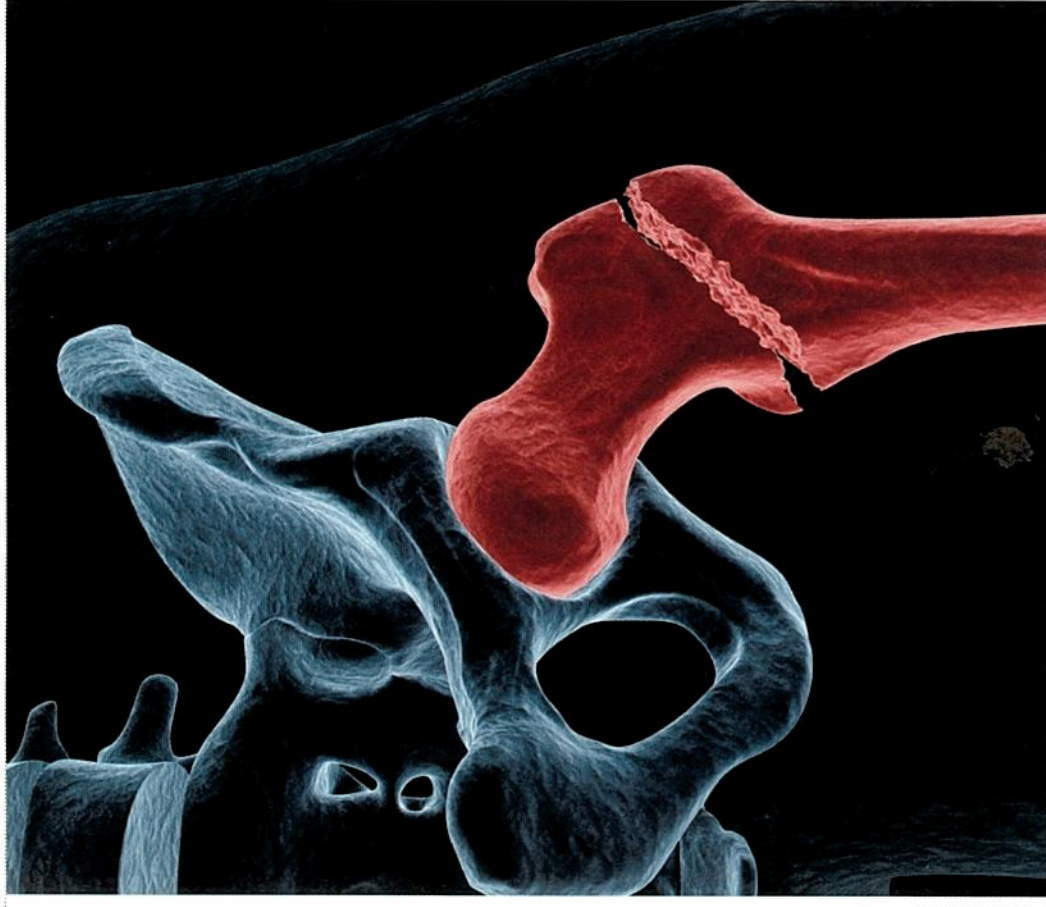
A trial of the intervention, which involved 28 general practices and 560 patients in Sydney, evaluated the effectiveness of changing falls management at general practices. It found that patients were interested in speaking about falls with their GP, which surprised many doctors and helped shift the focus to prevention, Professor Clemson said.

“We are trying to get the GPs to be aware when their patients are a bit unsteady and ask them the question if they've had a fall just to raise that discussion with their patients, so it becomes a routine question,” Professor Clemson said. “Some have moved from just thinking about treating the injuries to saying ‘there is something I can do to manage these falls.’”

The project is developing an online training module based on the research findings to assist GPs with how to approach the subject with seniors in the community and to focus on the prevention of falls. “Falls can be prevented... if GPs and practice nurses think about how they can try talk to their patients about falls, they can do something about it,” Professor Clemson said.

By Sandy Cheu





### VITAMIN D COULD OFFER A SIMPLE SOLUTION FOR PREVENTING FALLS

Vitamin D can play a key role in recovery from hip fractures because of its ability to aid the absorption of calcium, and supplements were recommended as a routine part of post-discharge treatment at the release of the ANZHR's 2018 report in August.

But there is also evidence Vitamin D could help prevent falls in the first place, says ANZHR chair Professor Jacqueline Close.

"It's good for bone health but it also prevents falls. You've got vitamin D receptors in your muscles and nervous tissue and there is evidence that if you're Vitamin D deficient and you replace it, you will reduce people's risks of falls.

"It improves muscle function and if you give it to people who are Vitamin D deficient you will also help them to react more quickly and stop themselves falling over if they lose their balance."

Professor Close said Vitamin D is cheap and easy to administer and can be

taken as a gel capsule or in syrup form. The report found Australia is lagging behind other countries in providing osteoporosis plans for hip fracture patients leaving hospital.

As well as being put on vitamin D supplements patients should also start on bone density treatments, or be given a plan for them to follow up with a GP. "The long-term management of chronic diseases sits with GPs and osteoporosis is chronic disease so longer term, it should sit with primary care," Professor Close said.

She said giving GPs financial incentives to immunise patients had been successful, and a similar model could be considered for providing osteoporosis treatment to people who have had a hip fracture.

"The commonwealth government should consider producing incentives for increasing the uptake of osteoporosis treatment after fracture," she said.

must be regular - around three sessions a week - and needs to focus on balance and muscle strength.

"Probably the single exercise that's shown to be most effective is Tai Chi because it really is good for balance," Professor Cumming says.

"Just pumping iron isn't going to be particularly beneficial, you need something that improves your balance. Similarly, just going for a walk isn't going to prevent you falling."

Professor Lord directs the falls, balance and injury research centre (FBIRC) at NeuRA. The centre documents falls and fall injuries, identifies risks, develops prevention strategies and manages people with a fall related injury.

**"What would be good is if GPs regularly asked their older patients if they had a fall recently, because the strongest predictor of having a fall in the future is having a fall in the past."**

He says while it's now well established that exercise can prevent falls, the next challenge for researchers is finding out how to get elderly people to begin exercising and stick to it, especially those who are frail, socially isolated or living with dementia.

"We know exercise is good, but the challenge is making it enjoyable," he says. The group is running a number of studies using apps, digital games and interactive technology for in-home exercises and brain and balance training. NeuRA also provides fall risk assessment kits for GPs and aged care facilities, as well as a more comprehensive screening tool for rehabilitation specialists including physical therapists and OTs.

"We are very much interested in a whole range of issues regarding the problem of falls in older people," Professor Lord tells *Community Care Review*.

"Everything from documenting the size of the problem and the implication that has on the health care setting through to understanding why falls occur and developing risk factor assessments to try and identify people at risk of falls, through to preventions."

Professor Lord says the problem is only going to get worse as Australia's population

ages. Falls in the elderly will have a significant impact on healthcare services unless effective prevention strategies are found, he warns.

Professor Cumming says he'd like to see GPs become more proactive in falls prevention.

"What would be good is if GPs regularly asked their older patients have they had a fall recently, because the strongest predictor of having a fall in the future is having had a fall in the past," he says.

### THE FINAL FRONTIERS IN FALLS PREVENTION

Professor Cumming says one of the last research frontiers in the area of falls involves people with dementia, often because of difficulties getting consent to participate in a study.

There is evidence this group tends to suffer different fall-related injuries than the non-dementia cohort, he says. For example, they are more likely to suffer a hip fracture than a wrist fracture. The reasons for this are not entirely clear but it may be that cognitive issues affect the extent to which they respond to, or are able to prevent, a loss of balance.

"Also, the sort of exercise programs you do at home you have to be able to

remember, so you have to have the support of a carer to do the programs," he says of dementia patients.

"It's a separate field of research on its own. The other thing where we need more research is on falls prevention in hospital, where delirium is the major risk factor. The interventions we've tried haven't focused enough on delirium."

### FACTS ABOUT FALLS

- Falls are the leading cause of injury related hospitalisation in people over 65

- A third of people over 65 have at least one fall per year
- People with dementia are at greater risk
- Strength and balance exercises along with home hazard reduction can prevent falls
- There are no proven effective strategies for people with memory problems or dementia
- Rates of hospitalisation for people with dementia who have hip fractures have decreased over the last ten years but the reasons for this are unclear. ■



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PO BOX 2181, Wellington Point, Qld 4160, Australia  
Ph. 07 3822 7777 Web huraustralia.com.au

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A Cluster Randomized Trial of The Sunbeam Program\*

*This trial was designed to determine if combined high level balance and moderate intensity progressive resistance training is effective in reducing the rate of falls in residents of aged care facilities.*

#### KEY FINDINGS

Rate of Falls Reduced By

**55%**

following a regular routine of circuit exercise using HUR Progressive Resistance Machines and Balance Exercises!

Original published study: Hewitt J, Goodall S, Clemson L, Henwood T, Reifshaug K. (2018) Progressive Resistance and Balance Training for Falls Prevention in Long-Term Residential Aged Care: A Cluster Randomized Trial of the Sunbeam Program. J Am Med Dir Assoc. 'Sunbeam (Strength and Balance Exercises in Aged Care)