Post-hospital exercise

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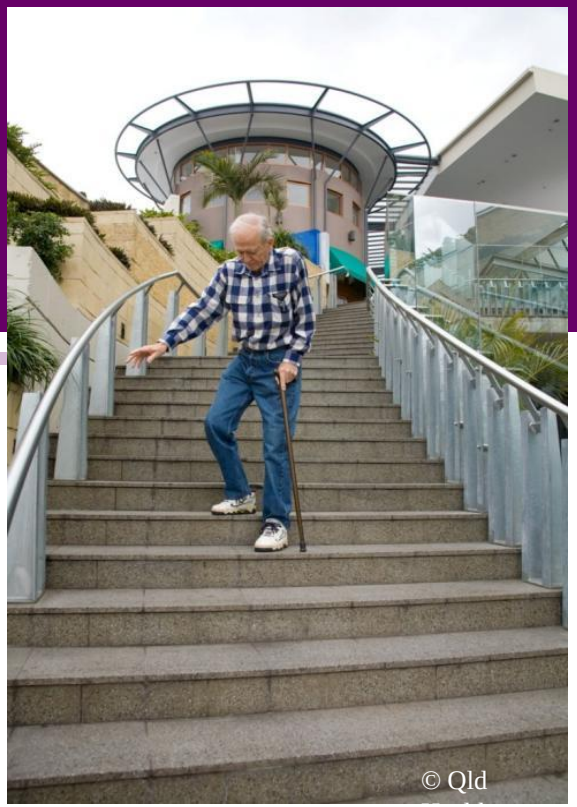
Outline

- The problem of falls and disability after hospital stays
- Exercise interventions
  - to prevent falls
  - to lessen disability
- Current RCT
  - overview of intervention
  - adherence

Falls after hospital stays



- 14% fell in the month after a hospital stay for a medical illness (n=214)[1]
- 34% fell in the 3 months after aged care inpatient rehabilitation in Sydney (n=442)[2]
- 73% of stroke survivors fell within 6 months of discharge from hospital (n=108)[3]
- 46% of stroke survivors fell within 6 months of discharge from rehabilitation in Adelaide, most falls within 2 months (n=56)[4]
- 49% of 255 people so far in our current Sydney trial[5] fell in 12 months after hospital stay in aged care or rehab: rate 0.9 falls/ person

[1]Mahoney J, J Am Geriatr Soc 1994; 42:269-274.
[2]Sherrington C, J Clin Epi 2011; Epub 18 Jan.
[3] Forster A, BMJ 1995; 311:83-86
[4]Macintosh SFH, Clin Rehab 2005; 19:441-451
[5]Sherrington C, BMC Geriatrics 2009;9:8

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A decade of
DISCOVERY · INNOVATION · IMPACT

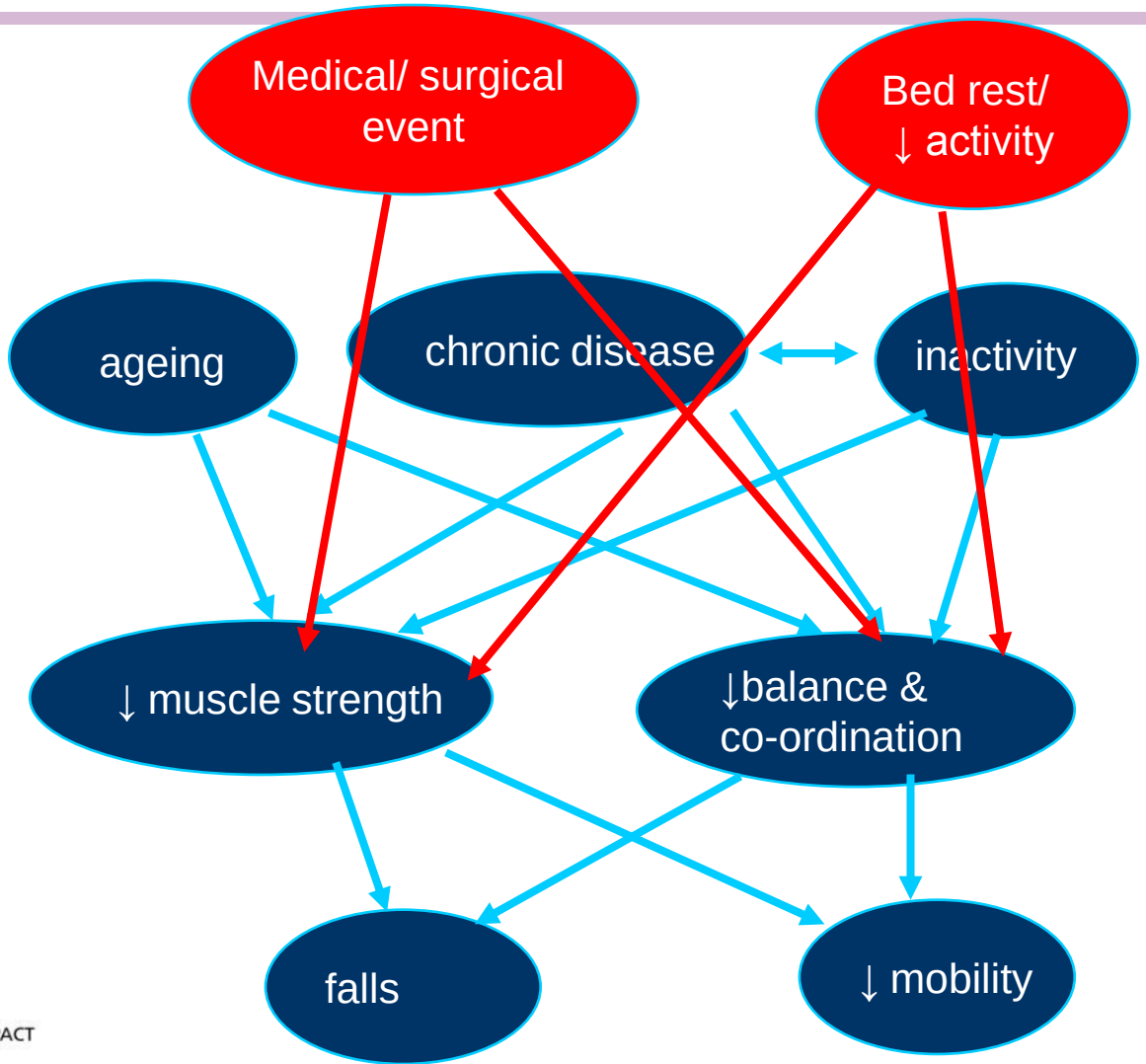
Disability after hospital stays

- Community-dwellers 70+ who did not need any assistance with personal tasks followed for 5 years (n=754)[1]
  - 55% developed disability (need for help with daily tasks)
  - 49% were hospitalised
  - very high risk of developing disability within a month of hospitalisation: hazard ratio 61.8 (95% CI, 49.0-78.0)

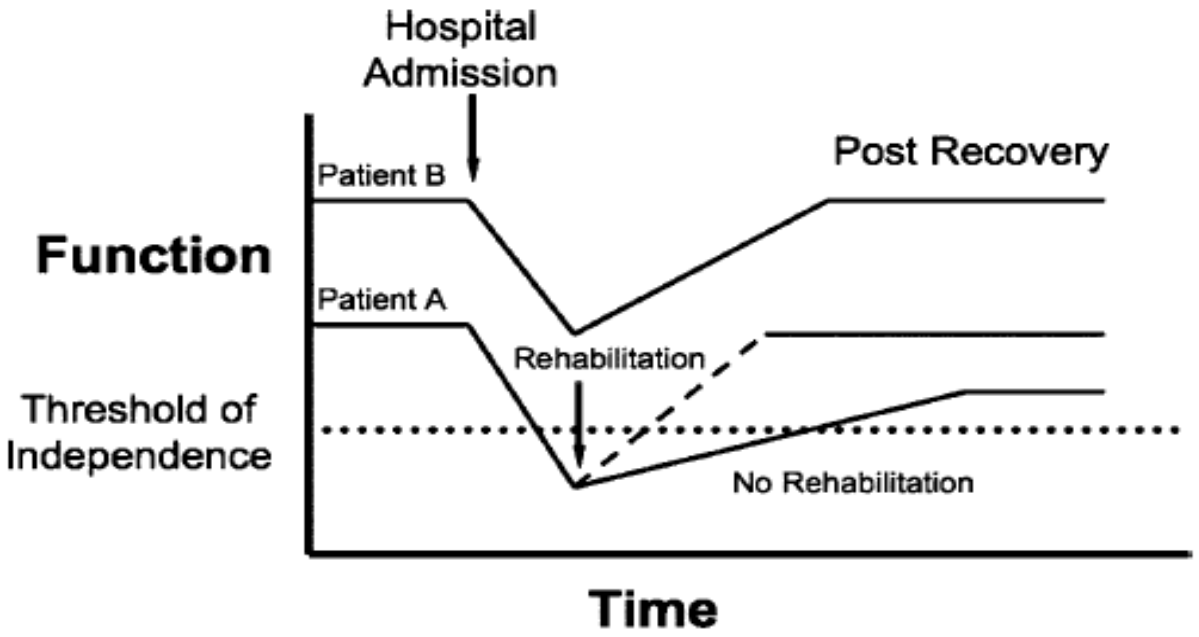
- People after discharge from aged care inpatient rehabilitation followed for 3 months (n=442) [2]
  - 59% were unable to climb a flight of stairs or walk 800m
  - 36% had been unable to do this prior to hospital stay

[1]Gill, JAMA, 2004;292:2115-2124
[2]Sherrington C, J Physio 2010;56:121–127

The context of falls and disability



Reserve capacity



Functional decline during hospitalization.

Kortebein, AM J Phys Med Rehabil 2009:88-66-77

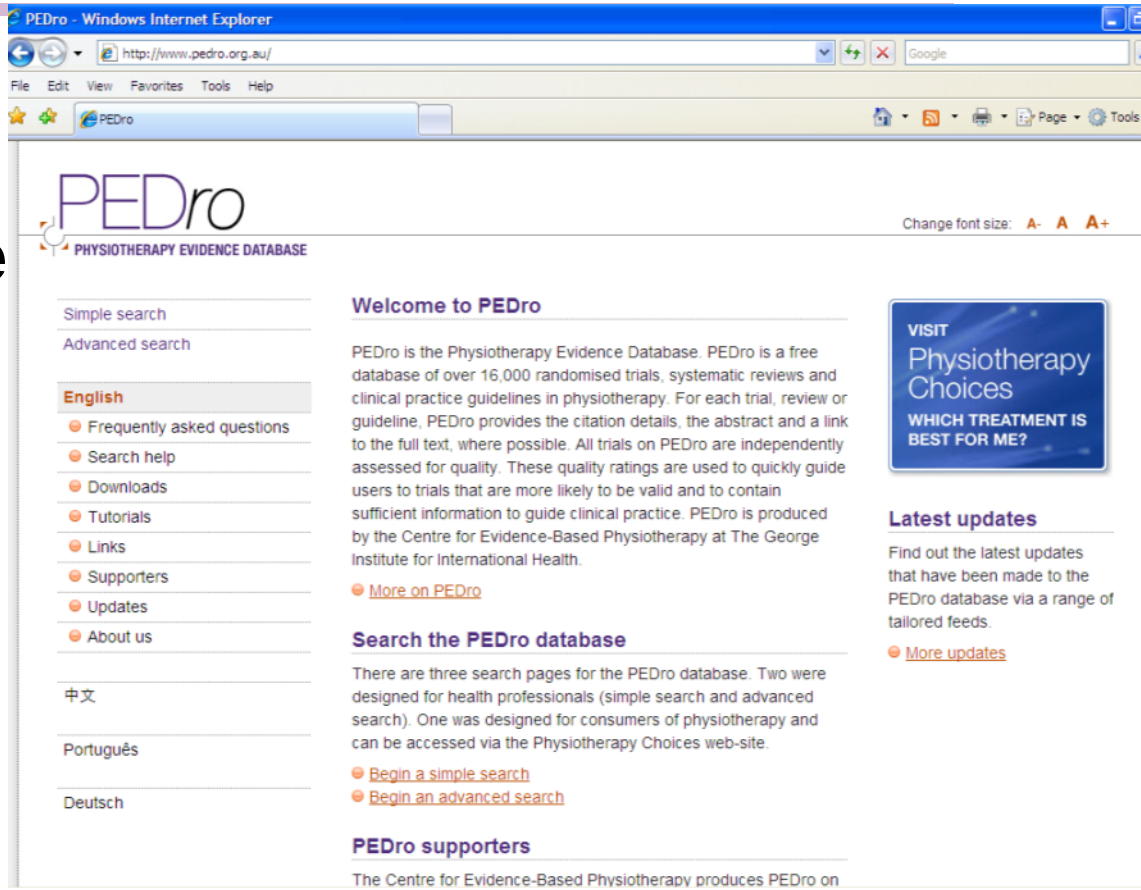
Intervention questions

- Can exercise prevent falls and improve mobility (decrease disability) among older people who have been in hospital?

- What is the effectiveness and cost-effectiveness of different intervention approaches?

Evidence about exercise: Physiotherapy Evidence Database

- www.pedro.org.au
- **Freely available since 1999**
- **18,000 records**
  - clinical practice guidelines
  - systematic reviews
  - RCTs



Latest Cochrane review

- Exercise interventions reduce risk and rate of falls
- One trial of exercise after hospital discharge
  - Latham (n=243)
  - seated leg strengthening exercise 3x weekly for 10 weeks
  - no effect on falls
  - RR 0.95, 95% CI 0.77 to 1.18

Gillespie et al, 2009, www.thecochranelibrary.org

Effect of High-Dosage Cholecalciferol and Extended Physiotherapy on Complications After Hip Fracture

A Randomized Controlled Trial

- Comparison of 7 days of
  - extended physiotherapy: supervised 60 min/d during acute care plus an unsupervised home program) versus
  - standard physiotherapy supervised 30 min/d during acute care plus no home program
- All patients also received Vitamin D
- Extended physiotherapy reduced the rate of falls by 25% (95% CI -44% to -1%)

Bischoff-Ferrari Arch Intern Med. 2010;170(9):813-820 [10]

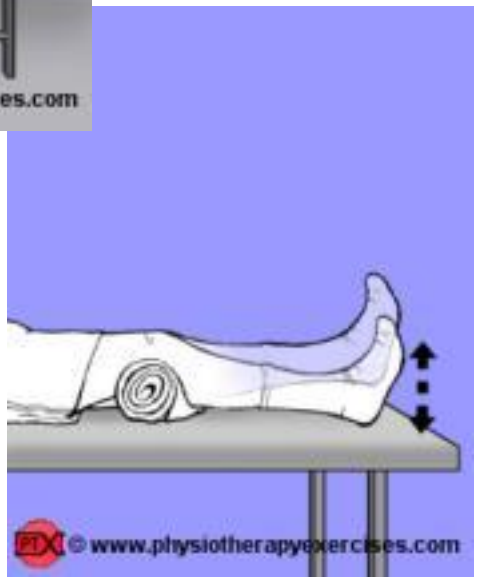
“Task-specificity”

- Everyday tasks are motor skills
- Practice is a key aspect of motor skill improvement: “practice makes perfect”
- Task-specificity: greater improvements in tasks which have been practised
- Rehabilitation in older people
  - exercises that are similar to daily activities eg standing up, walking, climbing stairs
  - exercises to improve components of these activities (eg the ability to straighten the leg against gravity)
  - balance is the ability to safely carry out tasks in standing
  - strength can also be trained in a way that is relevant to daily tasks

A Randomized Controlled Trial of Weight-Bearing Versus Non–Weight-Bearing Exercise for Improving Physical Ability After Usual Care for Hip Fracture

Catherine Sherrington, PhD, Stephen R. Lord, PhD, Robert D. Herbert, PhD

- RCT among 120 people after hip fracture
- Weight-bearing exercise led to greater improvements in balance and mobility in 4-month home program than non-weight-bearing exercise
- eg 7cm further on functional reach (95% CI 3-11)



Sherrington C, Arch Phys Med Rehabil, 2004;85:710-6

A novel weight-bearing strengthening program during rehabilitation of older people is feasible and improves standing up more than a non-weight-bearing strengthening program: a randomised trial

- RCT inpatient rehabilitation, n = 88
- Better sit to stand ability from 2-weeks of weight-bearing strength training than traditional seated exercise
- diff in min chair height 5.3 cm (95% CI 0.7 to 9.8)

Olivetti L, Aust J Physio, 2007;53:147-153

Reducing Risk of Falling in Older People Discharged From Hospital: A Randomized Controlled Trial Comparing Seated Exercises, Weight-Bearing Exercises, and Social Visits

Constance M. Vogler, MBBS, FRACP, PhD, Catherine Sherrington, PhD, Susan J. Ogle, MBBS, FRACP, Stephen R. Lord, PhD, DSc

- RCT 180 people recently hospitalised
- 12 weeks of home-based weight-bearing exercises led to greater improvements in standing balance than non-weight-bearing exercises
- eg 2 cm more functional reach test, 95% CI 3 to 29)
- no difference in muscle strength

Vogler C, Arch Phys Med Rehabil, 2009;90-1317-24

Group exercise can improve participants' mobility in an outpatient rehabilitation setting: a randomized controlled trial

- RCT 173 people
- 5-week twice weekly circuit class incorporated into usual care

lead to better stepping, sit-to-stand and gait speed

- exercise vs control diff. incl. 31m further in 6 min walk (95% CI 9 to 52)

Sherrington C, Clin Rehabil, 2008;22:493-502