Physical Activity and Exercise for Wellbeing

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Physiology of Ageing

- Interaction of lifestyle and genetic factors
  - ↑ Total blood cholesterol
  - ↓ Respiratory and cardiac parameters
  - ↓ Total body blood and water volume
  - ↓ Immunocompetance
  - ↑ Susceptibility to disability and disease
Muscle mass and normal ageing

• ↓ Muscle mass
• 25% ↓ in muscle cross-sectional area
  • ↓ muscle strength and muscle power
    • 50% ↓ in muscle strength and 75% ↓ in muscle power

• Frailty and Sarcopenia
  • ↓ balance confidence
    • ↑ incidence of falls
  • ↓ functional ability
    • ⇒ losses of independence

As well as contributing to:
• ↓ metabolic rate
• ↓ total blood volume
• ↑ body fat
• ↓ bone mineral density
• ↓ quality of life
The Benefits of Being or Becoming Physically Active

Figure: Health Promotion for Old Age, Adapted from Alexandre Kalache WHO
Exercise and the Older Adult - Benefits

• Improves cardiac and respiratory function

• \( \uparrow \) Muscle parameters
  • \( \uparrow \) Muscle mass
  • \( \uparrow \) Muscle strength, muscle power and muscle endurance
  • \( \uparrow \) Mitochondrial and capillary density
  • \( \uparrow \) Functional ability

• \( \downarrow \) Markers of inflammation

• Prevent further loss of bone mineral density
Exercise and the Older Adult - Benefits

- ↓ Body fat
- ↓ Symptoms of disease, depression and anxiety
- Improves sleeping patterns
- ↑ Balance, postural stability and flexibility
- ↑ Social interaction
- ↑ Quality of life
- ↑ Cognitive capacity

- Prolonged independence
Exercise is Medicine

- Preventative
- Symptom reduction
Dementia

**Figure 2.** Total daily physical activity and risk of AD in old age

Buchman et al. 2012

Heyn et al. 2004

**Fig 1.** Exercise training outcome variables and ES values.
Prehabilitation

Exercise undertaken by older adults pre-elective surgery:

⇒ Shortened recovery time
⇒ Increased quality of life during recovery
⇒ Decreased post-operative complications
⇒ Increased functional ability post-departure from hospital
EXERCISE PRESCRIPTION

• Mode/type
• Frequency
• Intensity
• Duration
• Environment
• Recovery
• Pain

“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
Recommendations on physical activity for health for older Australians

Recommendation 1
• Older people should do some form of physical activity, no matter what their age, weight, health problems or abilities.

Recommendation 2
• Older people should be active every day in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility.

Recommendation 3
• Older people should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days.

Recommendation 4
• Older people who have stopped physical activity, or who are starting a new physical activity, should start at a level that is easily manageable and gradually build up the recommended amount, type and frequency of activity.

Recommendation 5
• Older people who continue to enjoy a lifetime of vigorous physical activity should carry on doing so in a manner suited to their capability into later life, provided recommended safety procedures and guidelines are adhered to.
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“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
“We don't stop playing because we grow old; we grow old because we stop playing.” George Bernard Shaw 1856 - 1950