



Social, mental, and physical factors: effects on healthy ageing

AgeWell 2023

Prof Anna C. Whittaker, Faculty of Health Sciences & Sport

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Outline


- What are social, mental and lifestyle factors?
- How do they affect health/healthy ageing?
- Evidence of effects
- Practical tips





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What are social, mental and lifestyle factors?

 Social connections, social support, loneliness, isolation

 Depression, anxiety, chronic stress

 Positive mood, spirituality

 Lifestyle physical activity, diet, sleep, drug use etc.

 These all interact



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How do they affect health?

- Perception of external stimuli
- Regulation of emotional responses
- Effects on...organs, systems, processes, cells, gene expression etc. etc.
- Example of stress

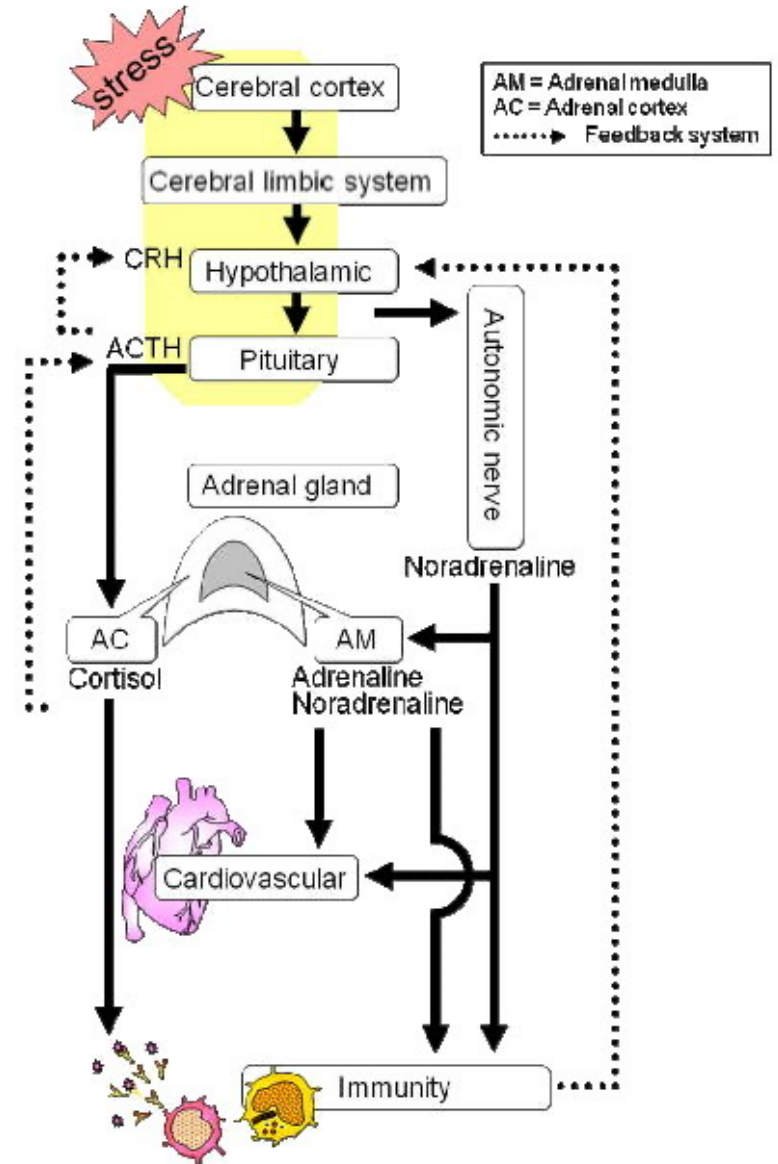
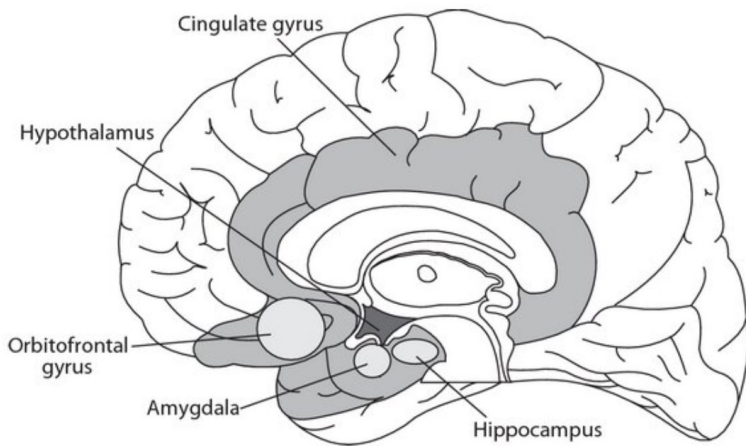


Figure 1.1 Mechanism of acute stress responses

Social factors

- Social network size => mortality rate
- Social support quality => mortality rate
- ...
- Better social support => more antibodies produced to a 'flu vaccination



Phillips et al., (2005). *Brain, Behavior and Immunity*, 19, 325-333.

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Is social support important in immunity in ageing?

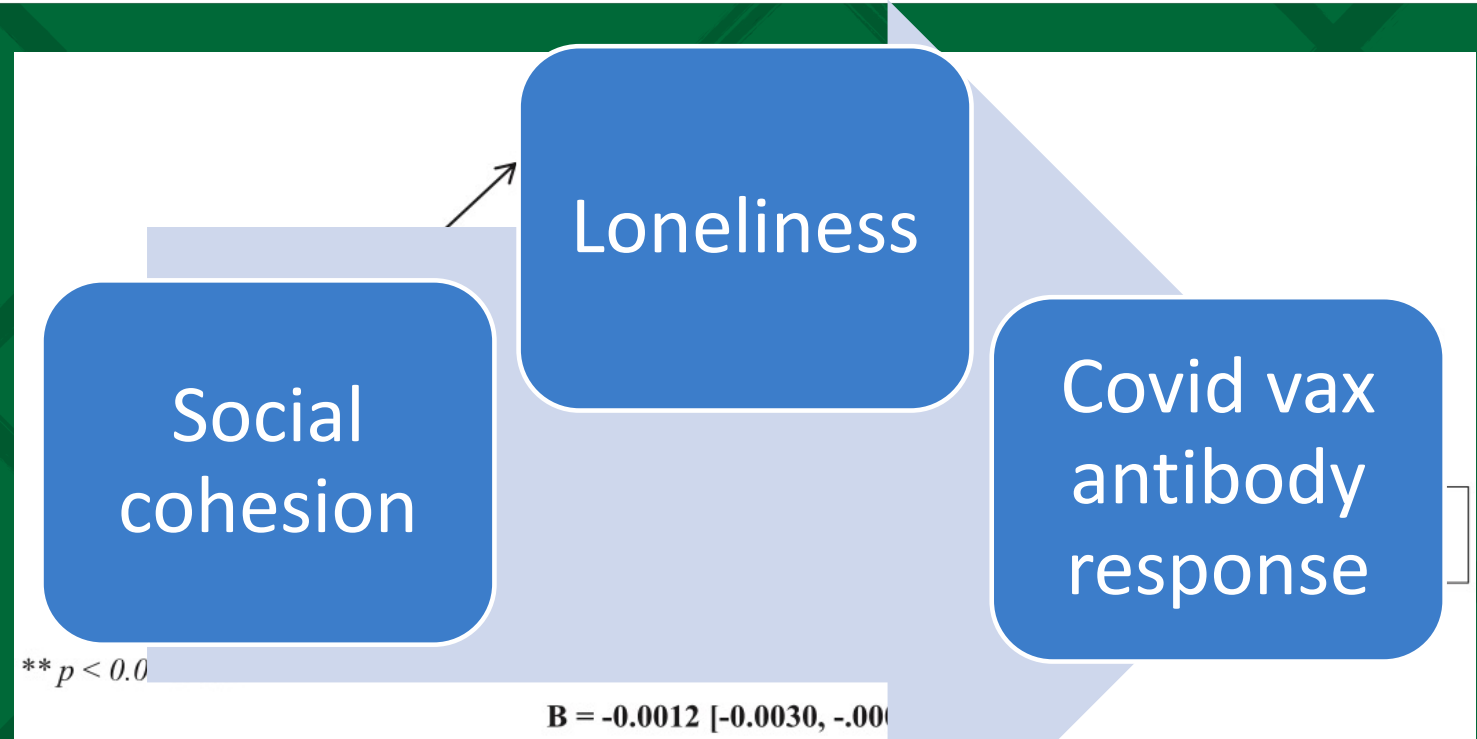
- 184 older adults > 65 years.
- 5 GP surgeries across Birmingham.



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Lower social cohesion was associated with a lower antibody response to a single dose Covid vaccination via loneliness

- Understanding Society COVID-19 study - UK Household Longitudinal Survey
- N = 676 had vaccine
- Neighbourhood social cohesion



Intervention studies – group activities

Feasibility study – digital
danceSing Care in 10 care
homes – **social** exercise

Improvements in loneliness,
stress, anxiety, and
depression.



Ofosu, De Nys, Connelly, Ryde, & Whittaker (2023). *BMC Geriatrics*, 23, 125.



Mental factors

- Direct effects on health e.g., cardiovascular disease
- Worsen or interact with other conditions
- Indirect effects via health behaviours
- Accelerate ageing

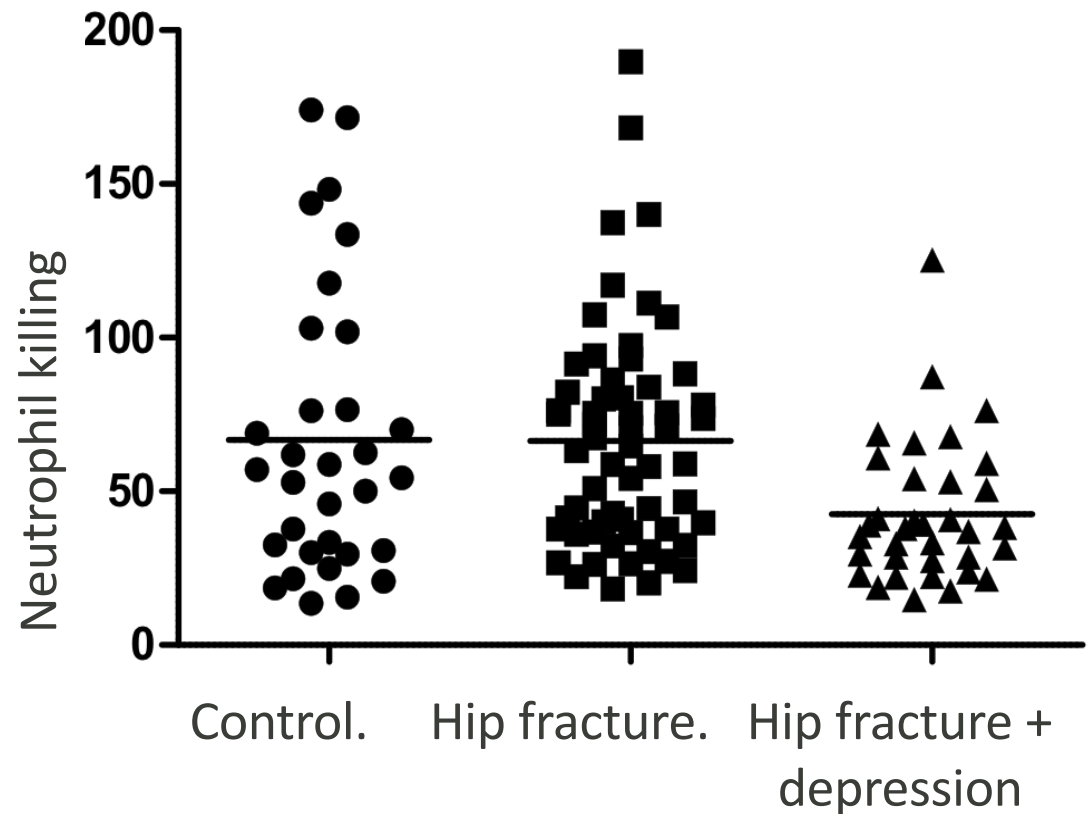


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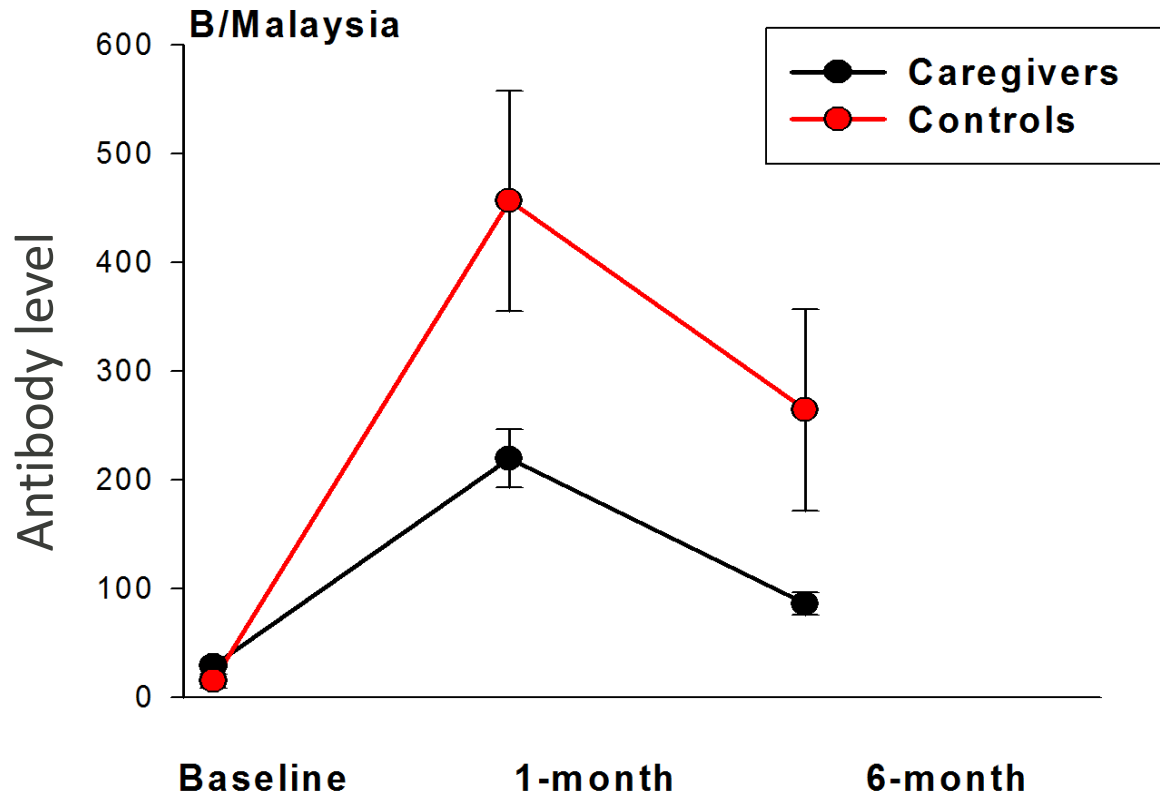
Depression interacts with immunity

Decline in neutrophil killing ability only in older hip fracture patients with depression

Increase risk of bacterial infections like pneumonia.



Chronic stress, e.g., caregiving and immunity



Effects were worse in the older caregivers

Positive factors

- Trait positivity – vaccination response
- Higher positive mood – more salivary antibodies
- Optimism – lower blood pressure
- Optimism – lower mortality from some cancers



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Positive factors



- Religiosity/Spirituality and health – **confounding**
- **Multifactor** analyses – lower blood pressure, better immunity
- **RCTs** = strongest evidence is for meditation and lower blood pressure, lower stress hormones, better immune function

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Lifestyle factors

Physical activity

- heart health
- cognitive function
- stronger bones
- better mental health
- delay the onset of dementia
- help prevent falls
- maintain independence and activities of daily living

Tomaz, Coffee, Ryde, Swales, Neely, Connelly, Kirkland, McCabe, Watchman, Andreis, Martin, Pina & Whittaker, (2022). *EURAPA*, 19, 16.

Physical activity for adults and older adults

Benefits health	Type II Diabetes -40%
Improves sleep	Cardiovascular disease -35%
Maintains healthy weight	Falls, depression etc. -30%
Manages stress	Joint and back pain -25%
Improves quality of life	Cancers (colon and breast) -20%

Some is good, more is better | Make a start today: it's never too late | Every minute counts

Be active

at least **150** minutes moderate intensity per week
increased breathing able to talk

OR

at least **75** minutes vigorous intensity per week
breathing fast difficulty talking

or a combination of both

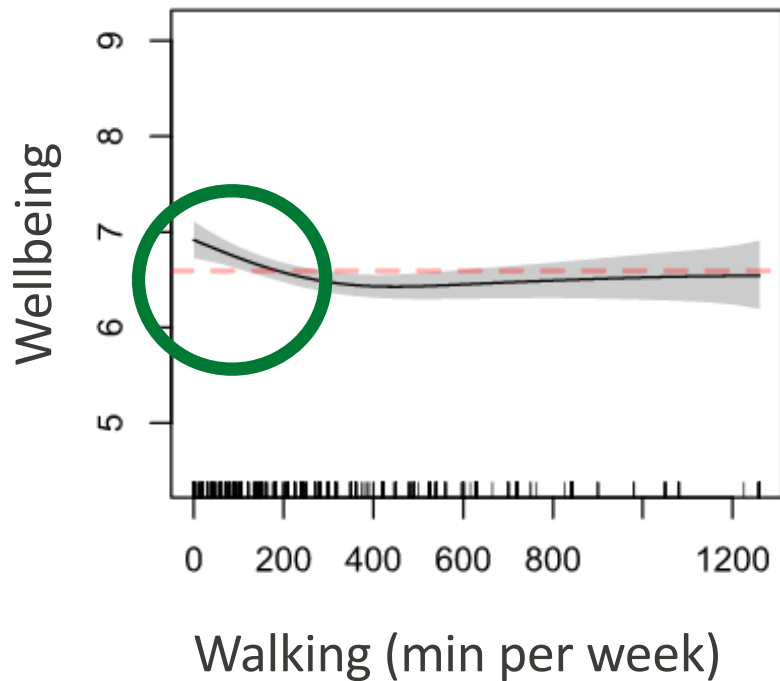
Build strength
to keep muscles, bones and joints strong
on at least **2** days a week

Minimise sedentary time
Break up periods of inactivity

Improve balance
For older adults, to reduce the chance of frailty and falls
2 days a week

UK Chief Medical Officers' Physical Activity Guidelines 2019

Better wellbeing related to: more time spent walking during lockdown/social distancing



Up to a point



Tomaz, Coffee, Ryde, Swales, Neely, Connelly, Kirkland, McCabe, Watchman, Andreis, Martin, Pina & Whittaker (2021). *International Journal of Environmental Research and Public Health*, 18, 4517.

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Positive effects of being physically active and acute exercise on antibody response to vaccination

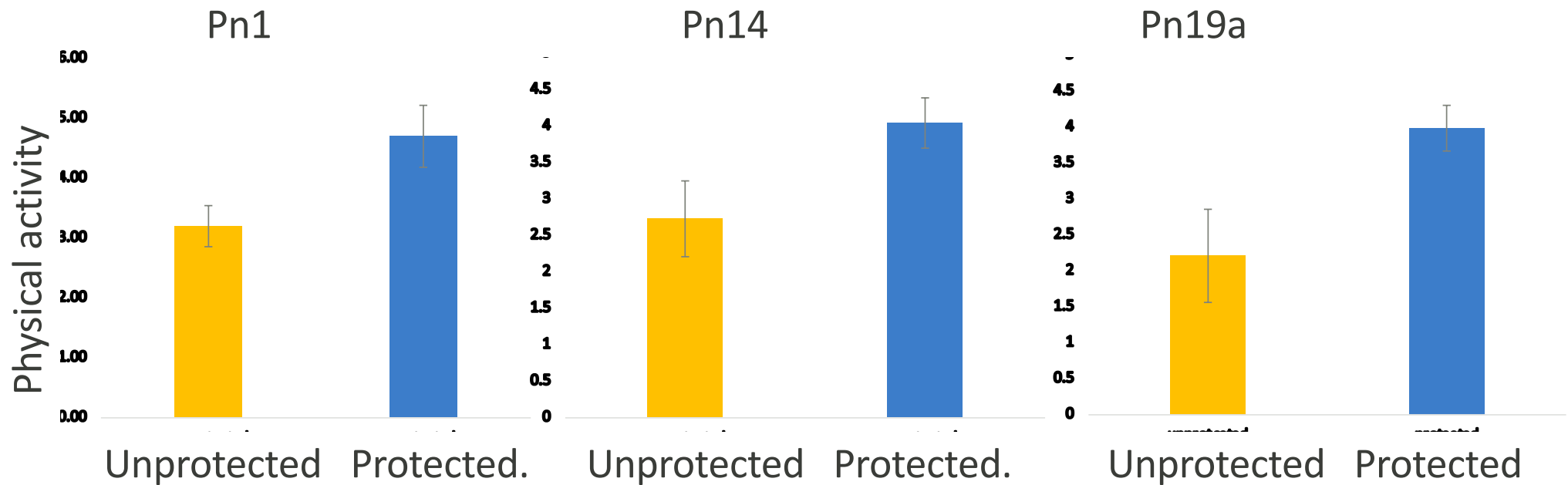
- Physical activity => higher antibody levels
- A bout of exercise => higher antibody levels
- Stronger effects of acute exercise in those already physically active
- Stronger benefit in older adults



Bohn-Goldbaum et al (2022) meta-analysis, PLOS One

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Higher Physical Activity = more likely to have protective antibody levels against pneumonia



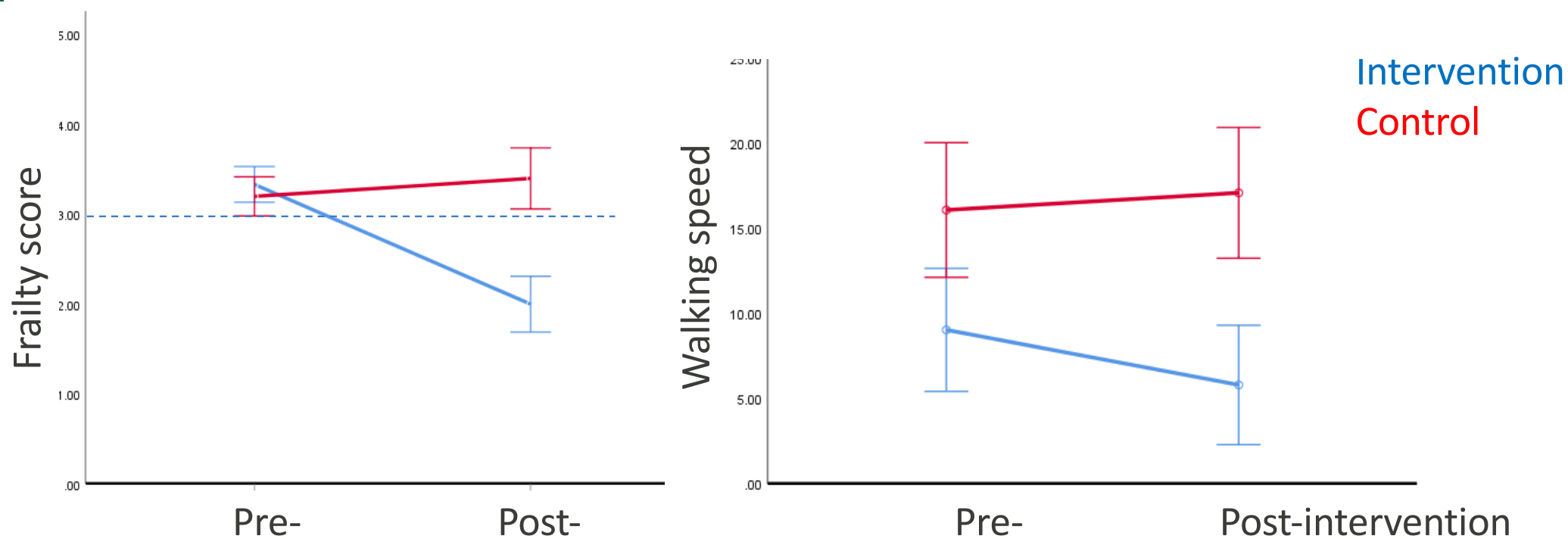
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Whittaker, De Nys, Brindle & Drayson (2023 online). *Brain, Behavior & Immunity - Health*, 100661

Strength training on specific machines for older people



Frailty and walking speed improved over 6 weeks



Swales, Ryde & Whittaker (2021). *Journal of Aging and Physical Activity*, 30, 364-388

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Using digital tech to improve physical activity, social connectedness and wellbeing in ageing



Healthy Ageing Challenge
Social, Behavioral and
Design Research



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Practical Tips for health and wellbeing

- Expand social network
- Maintain social connectedness
- Seek support for mental health conditions
- Positive outlook, meditation
- Physical activity – walking, strength training
- Exercise before you go for your 'flu jab
- New tech solutions for social connectedness and physical activity



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Healthy Ageing Challenge
Social, Behavioral and
Design Research



new dynamics of ageing
a cross-council research programme



Thank you!



@SparkleStir
@brainsnstyle



a.c.whittaker@stir.ac.uk

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