

Active NZ: Recreational Physical Activity and Mental Wellbeing

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What is the context?

The New Zealand Government have identified mental health as a key priority. This fits within the broader “wellbeing agenda” that the New Zealand government is currently developing to guide future public policy and investment.

It is well established that physical activity can contribute to the prevention and management of a broad spectrum of mild and severe mental illnesses across the life span.^{1,2} Although preventing and treating disease is often the focus of health care, the World Health Organisation defines “health” as a “state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity”.³ The evidence for the role of physical activity in promoting mental wellbeing is emerging and international research indicates that people who are active are more likely to be happy.⁴ However, there appears to be some differences according to domain, dose and type of physical activity that also varies based on gender and in different countries.⁵

The purpose of this work was to explore some of the gaps in the existing evidence-base for the association between physical activity and mental wellbeing in a New Zealand context.

What did Sport NZ do?

Up until March 2018, over 25,000 adults in New Zealand had completed the Active NZ survey and their data were used to examine the association between recreational physical activity participation and mental wellbeing. This is the first study of its kind conducted in New Zealand.

Physical activity was measured using a locally developed survey to specifically assess the duration and frequency of participation in sport, exercise and active recreation. Mental wellbeing was measured using the WHO-5 instrument, which has been internationally validated and has an established “at risk” threshold that indicates further mental health assessment is required.⁶ We used logistic regressions to calculate the odds ratios for the association between achieving the current global physical activity recommendations (i.e. 2.5 hours/week) and scoring better than the “at-risk” threshold for mental well-being on the WHO-5 index. We repeated this analysis for different doses and types of activity as well as for the independent incremental increases in physical activity frequency and duration. The analyses were also completed stratified by gender and adjusted for age, education and ethnicity.

¹ Physical Activity Guidelines Advisory Committee (2018), *Physical Activity Guidelines Advisory Committee Scientific Report*. U.S. Department of Health and Human Services

² Czosnek L et al (2018), *Translating evidence to practice: A meta-review of physical activity effectiveness research and implications for mental health decision-making*. Mental Health and Physical Activity Journal (under review)

³ World Health Organisation (1946), *Constitution of the World Health Organisation*. Archives of the United Nations.

⁴ Zhang V et al (2018), *A Systematic Review of the Relationship between physical activity and happiness*. Journal of Happiness Studies.

⁵ Richards et al (2015), *Don't worry, be happy: cross-sectional associations between physical activity and happiness in 15 European countries*. BMC Public Health.

⁶ Topp C et al (2015), *The Who-5 Well-Being Index: A systematic Review of the Literature*. Psychotherapy and Psychosomatics.

What did Sport NZ find out?

Recreational physical activity is positively associated with mental wellbeing in New Zealand adults:

- People meeting the physical activity recommendations through the recreational domain had 51% higher odds of having a healthy mental wellbeing.

Participating in more recreational physical activity each week strengthens the positive association with mental wellbeing:

- The positive association between recreational physical activity duration and healthy mental wellbeing was only significant when participating for at least 2.5 hours per week.
- People doing at least 4.5 hours per week of recreational physical activity had 65% higher odds of having good mental well-being, which appeared to be the optimal duration where the association plateaus.

Spreading recreational physical activity across multiple days in the week strengthens the positive association with mental wellbeing:

- The positive association between recreational physical activity frequency and healthy mental wellbeing was only significant when participating at least two days per week.
- The odds of having better mental wellbeing then increased for each additional day of recreational physical activity to three days (24%), four days (18%) and five days (13%) per week.

Vigorous-intensity physical activity has a stronger association with mental wellbeing than moderate-intensity and light-intensity physical activity:

- People meeting the physical activity recommendations by participating in **vigorous-intensity** recreational activity had 59% higher odds of having a healthy mental wellbeing;
- People meeting the physical activity recommendations by participating in **moderate-intensity** recreational activity had 24% higher odds of having a healthy mental wellbeing.
- People participating in an equivalent duration of **light-intensity** recreational activity had 25% higher odds of having a healthy mental well-being.

The association between recreational physical activity and mental wellbeing goes beyond organised sport:

- People meeting the physical activity recommendations by participating in recreational walking had 11% higher odds of having a healthy mental wellbeing;
- People meeting the physical activity recommendations by participating in recreational gardening had 25% higher odds of having a healthy mental wellbeing.

The association between recreational physical activity and mental wellbeing is stronger for women:

- Women meeting the physical activity recommendations through the recreational domain had 59% higher odds of having a healthy mental wellbeing;
- Men meeting the physical activity recommendations through the recreational domain had 38% higher odds of having a healthy mental wellbeing
- The patterns described above for intensity, duration, frequency and type of recreational physical activity were consistent across genders, but the relative strength of the associations was stronger for women in all cases except recreational gardening.

So what?

These findings confirm that the positive association between recreational physical activity and mental wellbeing for adults in New Zealand is similar to what has been reported in other high-income countries around the world. This association between physical activity and mental well-being was particularly strong for women and was observed across a variety of active recreation pursuits. The results also indicate that:

- Recreational physical activity for at least 2.5 hours per week is associated with better mental well-being, but the optimal duration appears to be at least 4.5 hours per week;
- Recreational physical activity spread over 2 days per week is associated with better mental well-being, but there is additional benefit if people are active on at least 5 days per week;
- Recreational physical activity at a light- and moderate-intensity is associated with better mental wellbeing, but there is additional benefit from vigorous-intensity activity;

These findings are in contrast with the current global physical activity recommendation, which is based on epidemiological evidence for cardiovascular and metabolic health outcomes (i.e. 2.5 hours of moderate- to vigorous-intensity physical activity accumulated over any number of days during the week).⁷ Additional research is indicated to establish causation and further explore the potential moderating effects of all dosage variables on the relationship between physical activity and mental well-being. This will further substantiate whether current global physical activity recommendations are appropriate for mental well-being outcomes.

⁷ World Health Organisation (2010), *Global Recommendations on Physical Activity for Health*. World Health Organisation