

Participation in physical activity

A determinant of mental and physical health
Research summary

Addressing the social and economic determinants of mental and physical health



While the overall health of world populations is improving, there are significant factors that continue to impact on our mental and physical health. How much you earn, your social position, your level of education or your capacity to be involved in activities that help connect you to others in your community are important factors in determining your health status (VicHealth 2009).

In acknowledgement of the social and economic factors affecting the health of the population and sub-populations, VicHealth has established a focus on increasing social and economic participation as a key priority area for action during 2009–13. Our objectives in this area are to:

- 1. increase participation in physical activity**
- 2. increase opportunities for social connection**
- 3. reduce race-based discrimination and promote diversity**
- 4. prevent violence against women by increasing participation in respectful relationships**
- 5. build knowledge to increase access to resources.**

This research summary presents a synopsis of the latest published research examining participation in physical activity. Specifically, the summary focuses on physical activity rates, impacts, barriers and facilitators to participation. Other summaries in this series are available at www.vichealth.vic.gov.au.

Introduction

Over the past 50 years, there has been a huge shift from a lifestyle that was, by definition, physically active to one that is predominantly sedentary (WHO 2004, Edwards & Tsouros 2006). There is widespread acknowledgement that participation in physical activity is a 'fundamental means of improving the physical and mental health of individuals' (WHO 2004, p.3). Physical activity can promote health and prevent the onset of disease including cardiovascular disease, type 2 diabetes and osteoporosis, forms of cancer, obesity and injury (Bauman et al. 2002, Bull et al. 2004a, WHO 2010a&b). Participation in physical activity is also known to reduce depression, stress and anxiety, and improves self-confidence, self-esteem, energy levels, sleep quality and the ability to concentrate (AIHW 2010a).

We know that those least likely to be active are women, people with lower socioeconomic status, older adults, people born overseas, people with a disability and Indigenous Australians (NPHP 2005, Bauman et al. 2002, Cadilhac et al. 2009, Chau 2007, Thorpe & Browne 2009).

The World Health Organization recommends that 'daily activity should be accepted as the cornerstone of a healthy lifestyle. Physical activity should be reintegrated into the routine of everyday living' (WHO 2002, p.6).

The individual, social and economic costs of physical inactivity have led to a national focus on this issue. Our challenge is to facilitate opportunities for access to physical activity. We can do this by supporting individuals to develop the skills required to be physically active across the lifespan and address factors in the environment that lead to sedentary lifestyles. The approach to address the determinants of physical inactivity requires a long-term, collective commitment from a variety of sectors.

This summary is available on the VicHealth website at www.vichealth.vic.gov.au/publications

Key definitions and concepts

Active transport refers to travel between destinations by walking, cycling or other non-motorised modes (NPHP 2001).

All-cause mortality refers to death due to any or all causes.

Built environment refers to aspects of our surroundings that are created or modified by people rather than occurring naturally. It includes our homes, neighbourhoods, schools and workplaces, parks, recreation areas and transport systems (including public transport, footpaths and roads) (AIWH 2010a, Sallis & Glanz 2006, Zubrick et al. 2010).

Measurement of current levels of physical activity across population groups

refers to various methods adopted to measure the proportion of people who are sufficiently active for health, with the varying approaches yielding different estimates. Methods range from self-report, direct observation and heart and motion monitoring (Bauman et al. 2006). Data collections vary, with a more detailed knowledge base available around formalised sport and exercise participation, and less of a knowledge base regarding more incidental physical activity as a result of, for example, active transport.

MVPA (Moderate to vigorous level physical activity): *Moderate physical activity* refers to activity at a level that causes your heart to beat faster and some shortness of breath, but that you can still talk comfortably while doing. This might include brisk walking, bike riding with friends, skateboarding and dancing. *Vigorous physical activity* refers to activity at a level that causes your heart to beat a lot faster and shortness of breath that makes talking difficult between deep breaths so that you 'huff and puff'. This might include football, netball, soccer, running, swimming laps or training for sport (Glasgow et al. 2005, DoHA 2004b, AIHW 2009).

National guidelines for physical activity refer to the following recommendations:

- for healthy development in infants (birth to one year), physical activity – particularly supervised floor-based play in safe environments – should be encouraged from birth (DoHA 2009)

- toddlers (one to three years) and pre-schoolers (three to five years) should be physically active every day for at least three hours, spread throughout the day (DoHA 2009)
- infants, toddlers and pre-schoolers should not be sedentary, restrained or kept inactive for more than one hour at a time, with the exception of sleeping (DoHA 2009)
- children aged five to 12 should participate in at least 60 minutes (and up to several hours) of moderate to vigorous physical activity every day (DoHA 2004a)
- children and adolescents aged 12 to 18 should participate in at least 60 minutes of moderate to vigorous physical activity every day (DoHA 2004b)
- adults should participate in 30 minutes of moderate intensity physical activity on most, and preferably all, days (DoHA 1999)
- older Australians (primarily referring to those aged over 65, and over 55 for Indigenous Australians) should accumulate at least 30 minutes of moderate intensity physical activity on most, and preferably all, days (Brown, Moorhead & Marshall 2005, DoHA 2010).

Physical activity is 'any bodily movement produced by the muscles that results in energy expenditure. Exercise is a subset of physical activity...[While] most measures of physical activity focus on deliberate activity in leisure time, other forms of activity – such as walking and cycling for transport, and activity associated with a person's job – are important components of overall physical activity' (AIHW 2010, p.92).

Sedentary behaviour is activity characterised by a sitting or reclining posture and low energy expenditure such as watching television or sitting in the workplace (Schofield, Quigley & Brown 2009, Dunstan et al. 2010, Salmon et al. 2005).

Screen time refers to time spent, for example, watching television or using a computer (AIHW 2008a). Screen time recommendations include the following:

- children younger than two years should not spend any time watching television or using other electronic media (DVDs, computer and other electronic games) (DoHA 2009)

- for children aged two to five years, sitting and watching television and the use of other electronic media should be limited to less than one hour per day (DoHA 2009)
- children aged five to 18 years should not spend more than two hours a day using electronic media for entertainment (DoHA 2004a&b).

A life-course (life-span) approach to physical activity refers to encouraging regular and adequate physical activity from youth to old age and involves maternal health and pregnancy outcomes, child and adolescent health and various settings for physical activity (WHO 2004).

More information on physical activity, screen time and healthy eating can be found at www.health.gov.au.

Participation in physical activity

Adults

- More than two thirds of Australian adults were classified as being sedentary (34.6%) or having low levels of exercise (36.9%) in the two weeks prior to interview. Of these, 68% were men and 76.1% women (ABS 2009a).
- In 2007–08, the proportion of Australian adults who exercised sufficiently to obtain benefits to their health was 37% (AIHW 2010a).
- Although across the whole Australian population women report slightly higher regular physical activity participation rates than men, when compared to men, women of all ages are less likely to engage in levels of physical activity sufficient for health benefits. This is particularly so for older women, mothers and women from non-European speaking backgrounds (Australian Government Independent Sports Panel 2009, AIHW 2010a, Pink 2010a, Brown & ALSWH 2003a, Brown & Trost 2003b, Bauman et al. 2002, Women's Health Australia 2007, ERASS 2009).
- Adults who watch more than four hours of television a day, when compared to those who watch less than two hours a day, may have up to 46% higher risk of death from all causes, and 80% increased risk for cardiovascular related death (Dunstan et al. 2010).
- More adults participate in non-organised physical activity than organised physical activity (ERASS 2009).

Socioeconomic status

- Regardless of how socioeconomic status is measured (for example, based on education, household income, workforce participation, private health insurance or area of residence) studies repeatedly find that men and women from low socioeconomic groups have a higher incidence of sedentary behaviour or insufficient physical activity to benefit health, and within this cohort, women report lower levels of physical activity (Giles-Corti & Donovan 2002, DHS 2008, ABS 2009a, NPHP 2005, Pink 2010b).
- People living in the most disadvantaged areas in Australia are nearly twice as likely to be sedentary (45.4%) as people living in the least disadvantaged areas (24.9%) (AIHW 2010).

Culturally and linguistically diverse communities

- People born overseas are more likely to have a sedentary or low exercise level. Those born in Southern and Eastern Europe (81.8%), North Africa and the Middle East (79.5%) and South East Asia (76.7%) report lower levels of exercise compared to those born in Australia (69.2%) (AIHW 2008b).
- 46% of children born in non-English speaking countries do not participate in organised sport, compared with 25% of children born in Australia (ABS 2009b).
- For people born overseas, physical activity rates are higher in non-organised sport than for organised sport regardless of country of birth, although there are differences within groups. For example, people born in the Middle East or North Africa have the lowest participation rates in organised sport and physical activity (17%) and have high participation rates in non-organised sport and physical activity (88%) (Chau 2007).

- Regular participation in non-organised physical activity is less common among those who speak a non-European language at home (32.5%), compared to those who speak English or another European language at home (39.8%). Regular participation by men in organised physical activity is not significantly impacted by language; however, among females, those who speak a non-European language at home have the lowest regular participation rates (37.8%), especially when compared to those who speak a European language at home (55.2%) (ERASS 2009).

Indigenous Australians

- Indigenous Australians are less likely to be physically active than non-Indigenous Australians (Pink & Albon 2008, ABS 2007, Steering Committee for the Review of Government Service Provision 2009).
- Physical inactivity is responsible for 8.4% of the total disease burden for Indigenous Australians (Vos et al. 2007).
- In non-remote areas, being sedentary or engaging in low levels of exercise increased with age, ranging from 67% of Indigenous people aged 15 to 24 to 85% of those aged 55 and over (ABS 2007).
- 49% of Indigenous Australian adults living in non-remote areas in 2004–05 stated that they had not done any physical activity in the two weeks prior to reporting (Penm 2008).
- Structural barriers can decrease participation in sport. Such barriers include limited access to facilities and high costs of transport, membership and uniforms. Factors such as race-based discrimination can also exclude participation (Thorpe et al. 2009, NPHP 2005).
- In 2002, while two thirds of non-Indigenous Australians took part in sport and physical recreation activities, less than half the Indigenous population participated (Thorpe et al. 2009).
- Overall, rates of sedentary/low levels of exercise are notably higher among Indigenous Australian females than Indigenous Australian males (82% compared with 67%) (Pink et al. 2008).

Children and young people

A significant number of children and young people are insufficiently active to achieve the health benefits of physical activity. Increasing numbers spend less time playing games or sport and more time watching television, using computers and playing video games, very often at the expense of time and opportunities for physical activity and sport (Garrard 2009). There are clear age and gender-related patterns in both the quantity and the type of physical activity children and young people undertake (CSIRO 2008).

- Of children aged five to 12 years, 42% did not participate in any organised sport or dancing in the two weeks prior to being surveyed (AIHW 2008a).
- A national survey found that approximately 31% of boys and girls aged nine to 16 years failed to meet the national guidelines for physical activity. Adolescent girls achieved lower levels of physical activity than boys and fewer girls aged 14 to 16 years complied with the physical activity guidelines than boys (CSIRO 2008).
- Only 46% of males and 30% of females aged 15 to 24 years participated in levels of physical activity as recommended in the national guidelines to obtain a health benefit (AIHW 2007).
- It is important to consider children and young people's physical activity alongside information on the amount of screen time they engage in. Various studies found a positive correlation between hours of television viewing and being overweight (AIHW 2007) with 66% of children exceeding the screen time guidelines (AIHW 2009).

People with a disability

- In 2003 there were approximately 3.9 million people (20% of the population) with a disability. Of these, 2.6 million were aged under 65 years (15% of the population aged under 65) and 1.2 million always or sometimes needed help with self-care, mobility or communication. Of people aged under 65, 700,000 always or sometimes needed help with self-care, mobility or communication (AIHW 2010c).

- In 2002, 102,900 Indigenous Australians (37%) aged 15 years or over had a disability or a long-term health condition. In general terms, the severe disability rates for Indigenous Australians are more than double those of other Australians (2.1 to 2.4 times) (AIHW 2010c).
- Increased severity of disability is associated with lower rates of participation in a range of activities offering health benefits and the potential for community interaction.
- Of people without a disability, 64% take part in sport or physical activities or attend sporting events as a spectator, compared with 50% of people with a disability and 28% of those with a profound or severe core-activity limitation (Trewin 2006).
- For some people with a disability, the barriers in the built environment limit their ability to participate fully in community life. But for others the barriers are social and attitudinal. It is these barriers that proved the most difficult to overcome (National People with Disabilities and Carer Council 2009).
- Whenever possible all people with a disability, including children and youth, should meet physical activity recommendations; however, they should work with their health care provider to understand the types and amounts of physical activity appropriate for them considering their disability (WHO 2010a).
- Physical inactivity is an important contributor to other health risk factors such as obesity, high cholesterol and hypertension (AIHW 2010b).
- Physical inactivity is responsible for more than 6.6% of the total burden of disease and injury in Australia (Begg et al. 2007).
- Globally physical inactivity accounted for 21.5% of heart disease, 11% of stroke, 14% of diabetes, 16% of colon cancer and 10% of breast cancer (Bull et al. 2004b).
- There is typically a risk reduction of 30% (in all-cause mortality) for those achieving the recommended levels of at least moderate intensity physical activity on most days of the week compared to those who are inactive (Lee & Skerrett 2001, Bauman 2004, Woodcock et al. 2010).
- Physical inactivity is now identified as the fourth leading risk factor for global mortality. Physical inactivity levels are rising in many countries with major implications for the prevalence of non-communicable diseases and the general health of the population worldwide (WHO 2010a).

Psychosocial health impacts

The impact of physical activity on psychosocial development is considerable.

- There is evidence that physical activity can make a significant contribution to preventing depression, reducing stress and anxiety and improving moods (Bull et al. 2004a&b, Sustrans 2010).
- Sport and organised physical activity in particular were identified as settings where young people develop their identity. They also learn important social skills and values such as working as a team, learning to win and lose, fair play, leadership, decision-making, trust and honesty. A Canadian study demonstrated that sports and physical activity ranked second only to the family in terms of their role in children's values development (The Public Policy Forum and Sport Matters Group 2004).
- Engagement in play and sports gives young people opportunities for self-expression, relief of tension, achievement, social interaction and integration as well as encouraging adoption of other healthy behaviours (for example, avoidance of tobacco, alcohol and other drugs) (WHO 2010c, NPH 2005).

- International evidence indicates that physical activity improves problem-solving capacity and academic performance (Active Living Research 2009).
- Physical activity is believed to contribute to increased productivity in the workplace and lower worker absenteeism and turnover (Parks & Steelman 2008).

Community health impacts

Sport and recreational activities have the capacity to bring people from diverse backgrounds to watch, participate and organise together.

- Participation in physical activity can provide opportunities for social interaction and reduce isolation and exclusion through strengthening relationships, building cohesive communities and enhancing our access to safe and supportive environments (Sport England 2009, Coggins, Swanston & Crombie 1999).
- Participation in physical activity provides opportunity for social connection, cooperation, reciprocity, collective identity and trust in the community (Chau 2007).
- In rural communities, sport and recreation clubs are the primary source of social interaction and support (Townsend, Moore & Mahoney 2002).
- Inclusive and accessible sport and recreation programs can play an important role in supporting newly arrived and refugee young people settling in Australia (CMY 2007).

Economic impacts

- Each year the total economic cost of physical inactivity is estimated to be \$13.8 billion and, of this, it was estimated that the cost to the health sector is \$719 million (Medibank 2008).
- Physical inactivity was estimated to be responsible for 16,178 premature deaths per year in Australia and corresponds to a direct loss of 1.8 working days per average Australian worker per year, or an annual cost of \$458 per employee (Medibank 2008).
- Less tangible costs arising from reduced life expectancy and reduced quality of life relate to the cost to the ill person and their family in terms of their reduction of quality of life due to such issues as pain, disability, anxiety and suffering (Medibank 2008).

Physical activity impacts

Physical health impacts

The health benefits of physical activity are well recognised and include increased life expectancy, physical fitness, energy, mental health, cognitive functioning and social connectedness (Bauman et al. 2002, Kahn et al. 2002).

- Regular physical activity reduces cardiovascular risk and helps protect against type 2 diabetes and some forms of cancer, particularly in the primary prevention of colon and breast cancer. It also has benefits for musculoskeletal health in maintaining muscle strength, joint functioning and bone health, which is important for skeletal development in young people and protects against falls and fractures among older people (AIHW 2010, Kahn et al. 2002, WHO 2004, WHO 2010a).

- By reducing physical inactivity by as little as 5% in the Australian population there would be significant savings to expenses in the health sector, increases in overall productivity and reduced mortality (Medibank 2008, Stephenson et al. 2000, Cadilhac et al. 2009).
- A recent review of interventions aimed at increasing physical activity highlights that some interventions can provide better cost savings to the health sector than others, for example, the pedometer, mass media campaigns, GP referral interventions and internet-based intervention programs (Vos et al. 2010).
- the amenity of the neighbourhood, such as green spaces and less urban decay, and distance to destinations
- proximity, as adults are more likely to walk if they have a variety of destinations within 400 metres. The closer sports centres and parks are to young people, the more likely they are to use them (Sunarja, Wood & Giles-Corti 2008, Garrard 2009, Kelty, Giles-Corti & Zubrick 2008).

Social and cultural environment factors

- The cost of participating in physical activity is increasingly onerous for many families. The importance of physical activity opportunities that are affordable is evidenced by the strong correlation between sport participation and family income (Australian Government Independent Sports Panel 2009).
- Contemporary lifestyles have become increasingly sedentary. Technological advances, labour-saving devices and passive forms of electronic entertainment used during leisure time require less energy expenditure in the domestic and occupational settings and have resulted in minimising physical activity (Bauman et al. 2002, Edwards et al. 2006, AIHW 2008b).
- Recent studies found that adult television viewing time and other sedentary behaviours are directly associated with disease, including type 2 diabetes and some cancers (Dunstan et al. 2010).
- Increased car ownership and use, along with safety concerns, have led to less walking, cycling and transport-related physical activity (AIHW 2008b).
- Contemporary social norms of being a 'good parent' have led to parents seeking to protect children from potential risks of strangers or hazards in the built environment. This has resulted in more children being driven to school, picked up from school and kept off the streets. Often the only physical exercise children get is when their parents have time to supervise them (Thomson 2009).
- Sporting environments need to be inclusive of the whole community and ensure safe, supportive and culturally inclusive environments for women, Indigenous Australians, people from culturally and linguistically diverse communities and people with disabilities.

- The total participation rate in club-based physical activity was 24.9% in 2009. Of this the male regular participation rate (8.6%) exceeded the female rate by almost double (4.4%) (ERASS 2009).
- All of these factors need to be addressed in order to increase physical activity rates across the whole population and at the sub-population level.
- In a recent study it was identified that social connectedness consistently impacted on the percentage of individuals undertaking sufficient weekly exercise and that over 20% of Australians of working age experienced a low level of social connectedness (expressed in terms of gathering infrequently with friends and relatives, feeling lonely and struggling to find someone to confide in) (Brown & Nepal 2010).

Factors impacting on participation in physical activity

Individual factors

- The most commonly reported barriers to physical activity among physically inactive Australians are a lack of time (40%) and injury or disability (20%) (Booth et al. 1997).
- Injury was reported by just under 20% of those aged 18 to 59 years as a barrier to being more active, and was a barrier for nearly 40% of people aged 60 and over (Finch, Owen & Price 2001).
- Lack of time is consistently reported as a major constraint on participation in physical activity. People perceive that they have less discretionary time for exercise and sporting activities (Bauman et al. 2002).
- Other factors impacting on physical activity participation include lack of social support, lack of time, lack of enjoyment, having children, having health problems and feeling self-conscious (Chau 2007).

Built environment factors

The built environment can either facilitate or discourage physical activity. Consideration should be given to aspects of the built environment that have a significant impact on levels of physical activity, including:

- the neighbourhood environment, such as provision of footpaths, street connectivity, mixed land use and urban density
- the road environment and safety measures, such as provision of pedestrian crossings, traffic volume, speed limits and traffic calming

Promoting physical activity

'Physical activity promotes wellbeing, physical and mental health, prevents disease, improves social connectedness and quality of life, provides economic benefits and contributes to environmental sustainability. Communities that support health enhancing physical activity, in a variety of accessible and affordable ways, across different settings and throughout life, can achieve many of these benefits' (Global Advocacy Council for Physical Activity 2010).

Conclusion

This research summary provides an insight into the importance of including physical activity in our everyday lives. Ensuring that the environmental, social and individual determinants of physical inactivity are addressed will help to arrest the increase in sedentary behaviour and reduce the decline in physical activity levels across the lifespan.

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