Just doing it!?

Older Australians' Physical Activity

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National Seniors AUSTRALIA

CAS Confederation of Australian Sport

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National Seniors Australia and Confederation of Australian Sport

National Seniors Australia and the Confederation of Australian Sport have mutual interests in the health, physical activity, sport and broader wellbeing of older Australians. They formed a corporate partnership in 2018 in which National Seniors Australia was the Official Healthy Ageing Partner in the 2019 Masters Games in Adelaide.

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Executive Summary

Being physically active in later life reduces age-related disability and maintains health and wellbeing. However, most older Australians are not active enough to support healthy ageing; the 2017-18 Australian National Health Survey showed less than one-third of people over 65 are doing recommended amounts of physical activity. Multiple factors affect the choice or capacity to be physically active and specific information is necessary about seniors' experiences of doing physical activity and the factors associated with physical activity barriers.

In partnership with the Australian Confederation of Sport, National Seniors Australia presents findings from the physical activity component of the online annual National Seniors Social Survey. Members and non-members aged over 50 years from all states and territories were eligible to participate. Approximately 4,000 participants provided responses to four physical activity questions that also included free text options.

Findings

- 32% did 30 minutes of moderate intensity physical activity 5-times a week or more;
- Approximately 60% would like to be more physically active and this was particularly the case for people who were still in the workforce or had poor health;
- Physical limitations due to pain, poor health or mobility issues were barriers to doing physical activity;
- Lack of motivation was the single barrier nominated by the largest proportion of the sample (32%);
- Not having an exercise companion was a barrier for more people than being too tired or time-poor;
- 26% did sport or exercise in a team or club;
- Doing physical activity was not necessarily perceived as doing regular sport or exercise;
- Seniors' free text responses expressed their need for more support from government and councils to facilitate suitable physical activity engagement for older people.

Conclusion

Although most seniors do not do adequate physical activity to meet national guidelines, the National Seniors Social Survey results show that the majority would like to be more active. In recognition of the value that physical activity and sport have for healthy ageing, government and community organisations need to provide the resources that enable older adults to attain their desired and required physical activity levels.

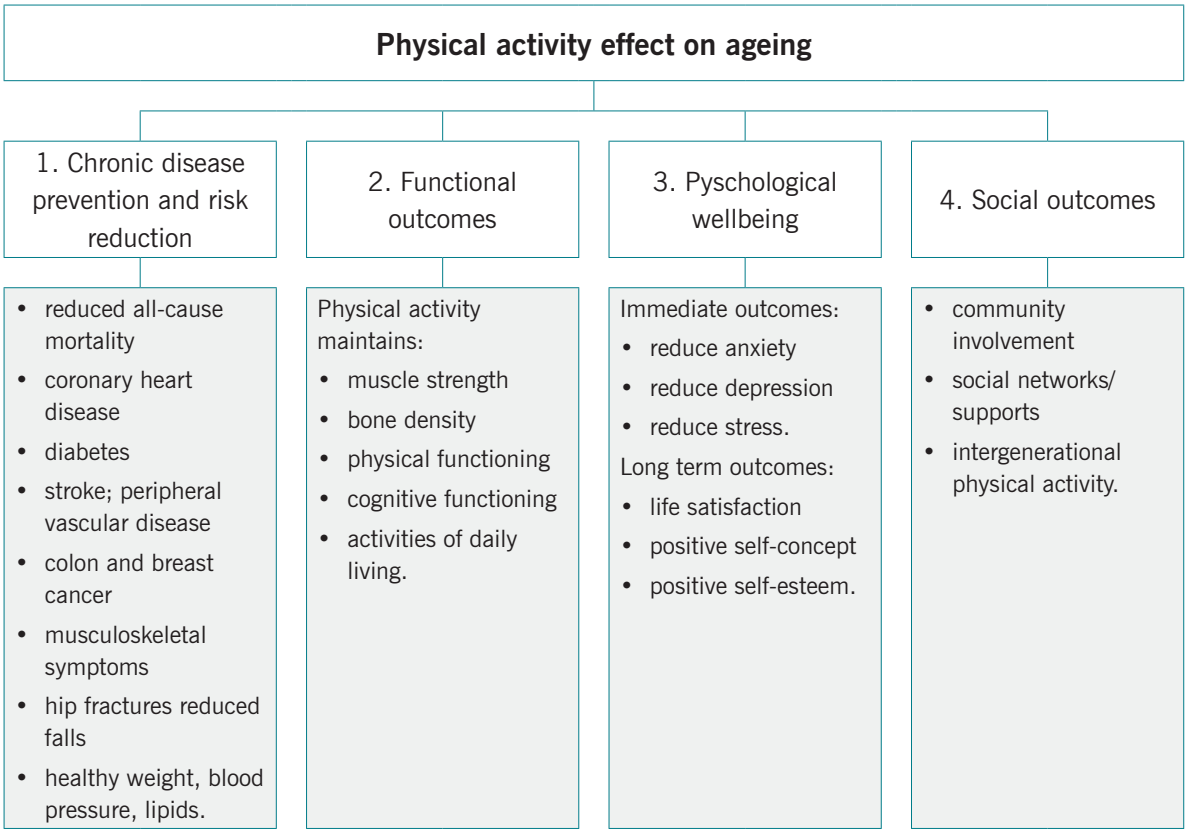
1. Background

1.1 Physical activity and healthy ageing

As lifespan increases, a clear goal is to increase the number of years people remain free of disability and enjoy quality of life [1]. The World Health Organisation reports that there is strong evidence for doing physical activity to maintain health and wellbeing in older age [2], with physical inactivity a common risk factor for major non-communicable diseases including dementia, diabetes, stroke, coronary heart disease and multiple cancers [3].

Regular physical activity contributes to better physical functioning, mobility and independence in older people [4] and reduces progression into major disability [5] even for those with existing disabilities or chronic health conditions [6]. Doing physical activity also enhances overall psychological wellbeing by increasing positive mood [7], reducing depression and anxiety [8] and lowering risk of incident depression [9]. Exercise increases levels of the protein 'Brain Derived Neurotrophic Factor' or BDNF that maintains healthy neurons, supports learning and memory and helps build new connections between neurons [10]. When exercise is done together with others, benefits to psychological health can also occur via increased social connections or community engagement and reduced risk of isolation and loneliness.

Figure 1: Theoretical framework for the beneficial effect of physical activity on healthy ageing**



***Adapted from Bauman et al.[11]*

Australia's physical activity and sedentary guidelines recommend older adults should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all days. Moderate intensity activity increases breathing rate to the point where talking is possible but singing is not [12]. Examples of moderate intensity activities include brisk walking, swimming, tennis, garden work, dancing, and cycling.

Results from Australia's 2017-18 National Health Survey found approximately 66% of people aged 65-74 and 80% of people 75 years and over did not undertake the recommended 30 minutes of moderate activity on 5-days or more [13]. Data from the comprehensive 2018-19 national Ausplay survey confirmed that overall only a third of Australians aged 55 and over are sufficiently active. The survey also found that poor health or injury is the main reason older Australians did not participate in physical activity or sport [14].

In the context of age-related disabilities, being physically active is particularly important. Even doing small amounts of physical activity is associated with better functional status compared to being inactive [15]. Functional status is relevant to the success of reablement interventions that are being adopted in many countries including Australia [16]. Reablement aims to decrease premature admission to institutionalised care, reduce health service use and increase quality of life for seniors with disabilities [17].

Multiple factors affect the choice or capacity to be physically active across all life stages. Specific information is necessary from seniors about their experiences doing physical activity and the factors associated with physical activity barriers. This information can guide government and non-government organisations in formulating policies and strategies to enable seniors' participation in physical activity throughout later life, at levels that reduce risk of disability and promote physical and mental health during ageing.

2. Data and Methods

2.1 The National Seniors Social Survey (NSSS-8)

Every year, National Seniors conducts an online survey of members' behaviours and views across a range of topics relevant to older people's lifestyle, health and wellbeing. The survey is open to members and non-members 50 years and over from all states and territories. A link to the survey was emailed directly to all members who had provided an email address. The survey was available on the National Seniors website and was also circulated via a member online newsletter and in the quarterly magazine. The NSSS-8 was approved by the Belberry Human Research Ethics Committee, reference HREC-2019-04-329. Questions were 'point and click' multiple choice format accompanied by free text boxes enabling participants to elaborate on their responses if they wished.

Data for this report were taken from participants' responses to four physical activity questions from the 'Your Healthy Lifestyle' component of the Survey. Questions asked about frequency of physical activity; if people wished to engage in more sport or physical activity; whether exercise was done in a team or at a club; and barriers to doing exercise. The physical activity questions are provided as Appendix 1. Participants also provided socio-demographic information and their self-rated level of health.

Survey responses were collected online via the survey tool Survey Monkey®. Twelve responses received via a paper copy of the survey were entered into Survey Monkey by a National Seniors Research Officer. A pre-defined data cleaning protocol was used to remove duplicate responses. Data were collated and graphed using Microsoft Excel and Stata (version 15.1). Text comments were evaluated and grouped according to themes identified by two National Seniors Research Officers.

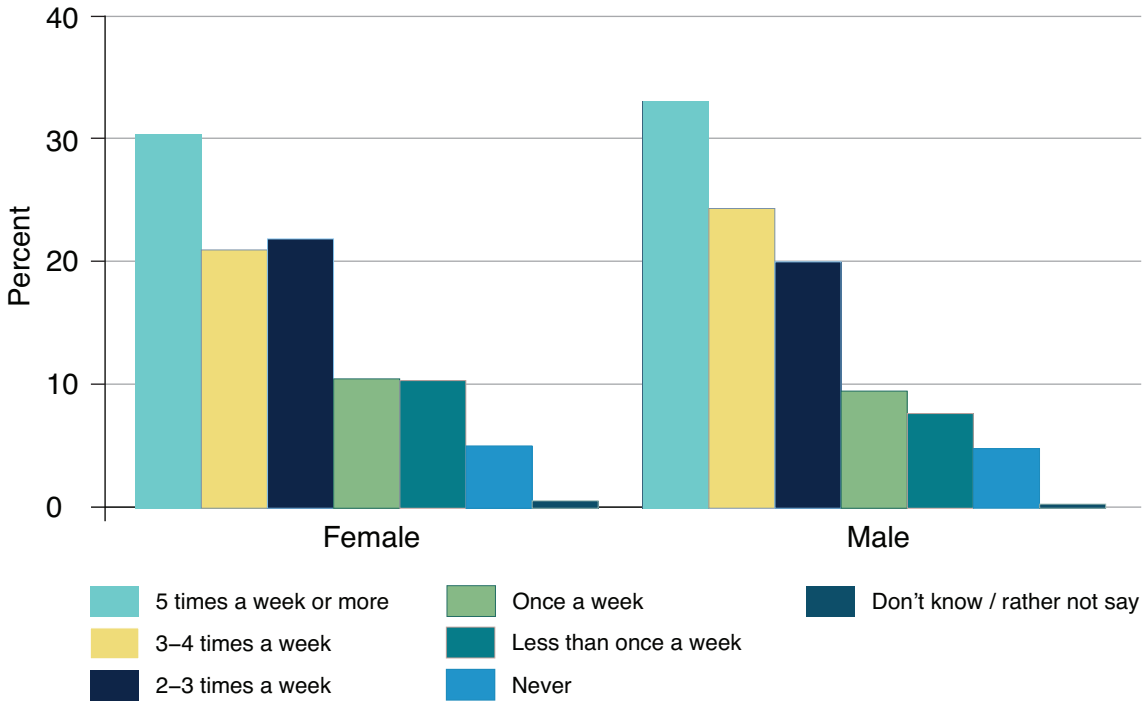
3. Results

The demographic characteristics of approximately 4,000 NSSS-8 participants who responded to the physical activity questions are presented as Supplementary Table 1 in the Appendix.

3.1 Moderate intensity physical activity – how often?

When asked how often they did 30 minutes or more of moderate intensity activity at a time, 32% of the sample nominated '5-times a week or more' with no significant differences between men and women in activity frequency.

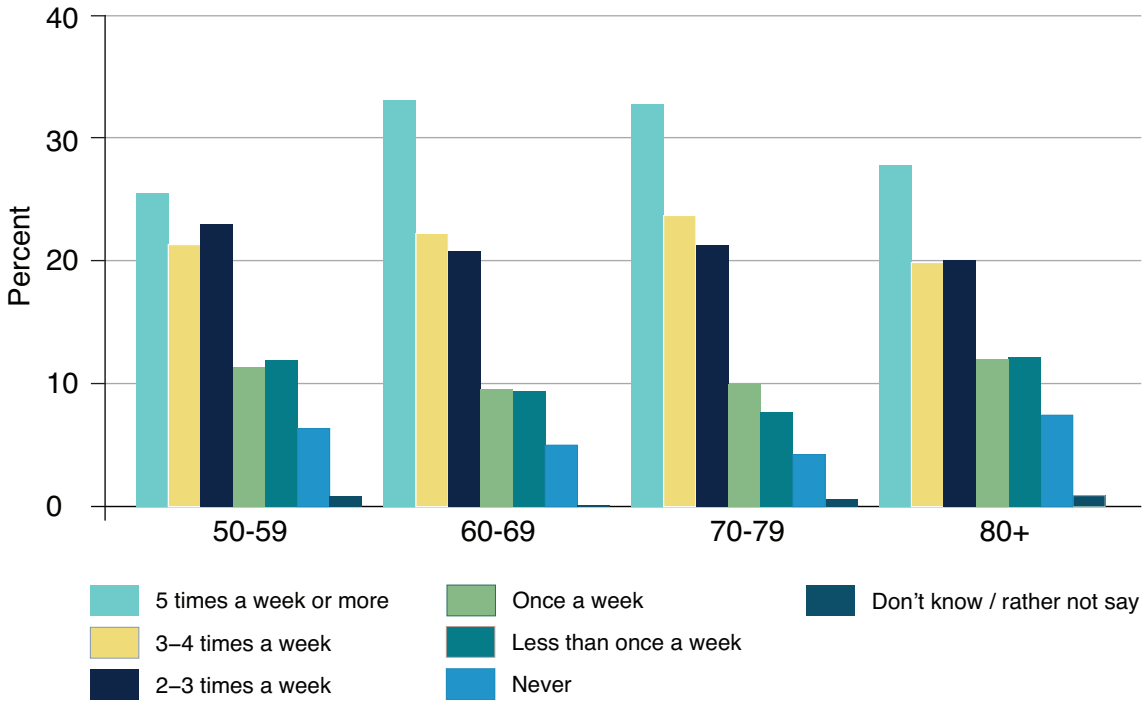
Figure 2: Frequency of doing at least 30 minutes of moderate intensity physical activity according to gender



The proportion of people doing recommended levels of moderate activity were similar for those aged 60-69 (33%) and 70-79 (32.7%) The 50-59 group and the 80+ group were not as active, with 29% of 50-59s and 28% of 80+ meeting the moderate activity frequency recommendations (Figure 2). These apparent differences in activity engagement across age groups did not, however, reach statistical significance (Appendix 6.3.a)[1].

1. The raw output for all logistic regression models reported in the Results section is presented in the Appendix (section 6.3a-6.3d)

Figure 3 Frequency of doing at least 30 minutes of moderate intensity physical activity according to age group



Doing 30 minutes or more of moderate intensity physical activity was more likely for those in better health and for retirees (Appendix 6.3.a).

In text-based responses, 1,032 people provided additional information about the activities they did; walking was the most prevalent activity followed by gardening, gym and fitness classes, swimming, stretching exercises such as tai chi and yoga, then cycling or using an exercise bike.

Amongst those who commented on their exercise or physical activity, there was general positivity and awareness about the benefits of exercise:

> *"If I do not look after my body, then who is! By feeding my body correctly and exercising HOPEFULLY my body will look after me in these later years."*

> *"I think of exercise as investing in myself and indirectly in my relationship and family. It is often hard but makes me feel great - after I recover ☺"*

> *"I exercise every morning for one hour - it helps my physical and mental health - life is much harder when I don't exercise."*

"I love walking, it gets me out of these 4 walls. I start off normal and head into brisk walking, I even pace with other people who may be out walking also and that is part of my motivation, if I start to fall asleep during the day, I know I won't sleep well at night, so once again I get up and go for a walk. I do have osteoarthritis in my knees but this walking is good for it, so I'm told, and I'm sure it's right. If I have other health issues. I can only hope that this daily exercise keeps me mobile and free from any health problems."

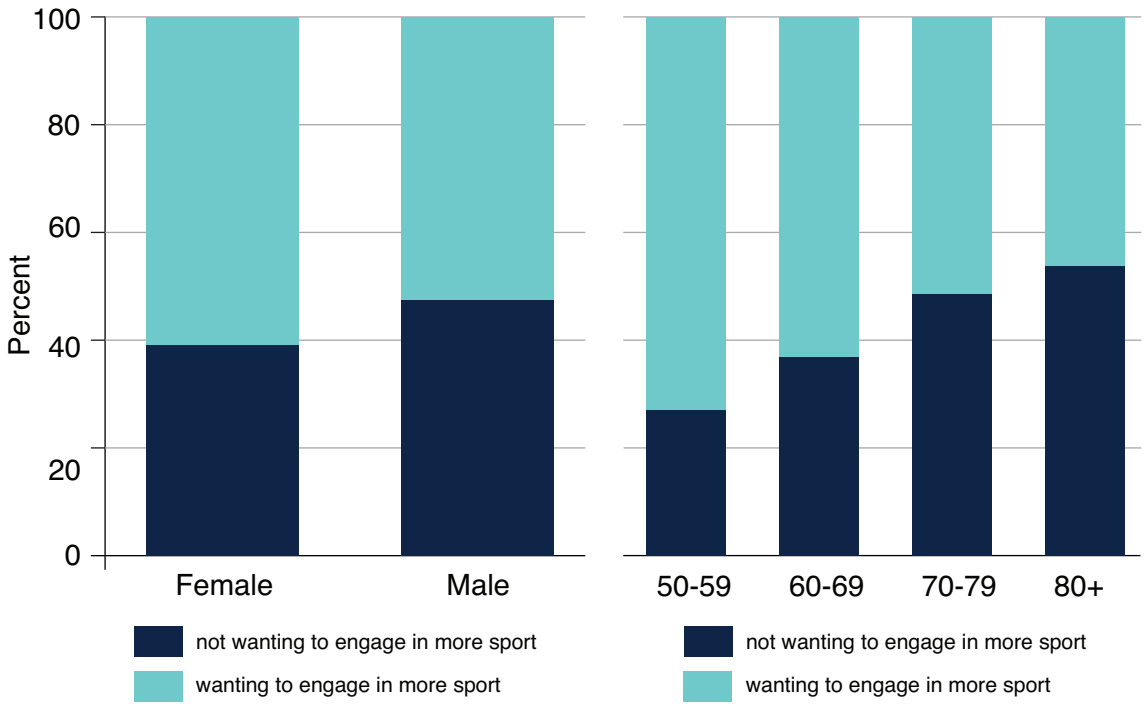
"I force myself to exercise because it's good for me! Use it or lose it. I have osteoarthritis, I'd seize up if I didn't move!"

"Seriously, just do it."

3.2 Barriers to doing physical activity

Nearly 60% of participants wanted to engage in more physical activity or sport with the proportion being higher for women (61%) than men (52%) and greatest for the 50-59 age group (73%). Retirees and those in better health were less likely to want to do more physical activity or sport (Appendix 6.3.b)

Figure 4: Desire to engage in more sport or physical activity by gender and age group



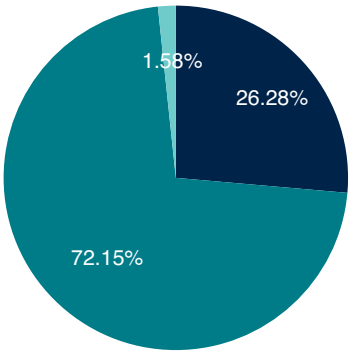
3.2.1 Physical barriers

People were asked if they experienced one or more potential barriers to doing physical exercise. Pain, mobility and health issues were the physical barriers nominated by the highest proportions of participants.

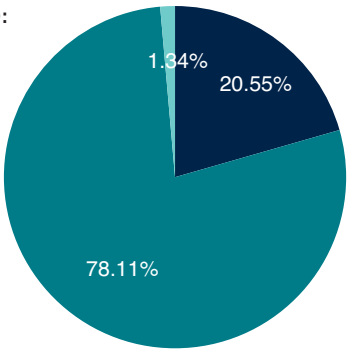
Women were 65% more likely to identify pain and 52% more likely to identify mobility as exercise barriers, but men were 66% more likely to be affected by heart and circulation problems (Appendix 6.3ci, 6.3cii, 6.3ciii). There were no gender differences for other health problems. Unsurprisingly, mobility problems were more likely in older age groups and for those in poorer health.

Figure 5A: Physical activity and exercise barriers

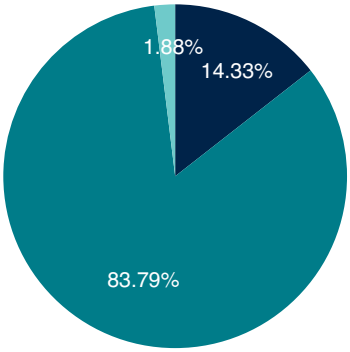
26% said "yes" to: exercise is **painful** for me. *(30% of women, 22% of men)*



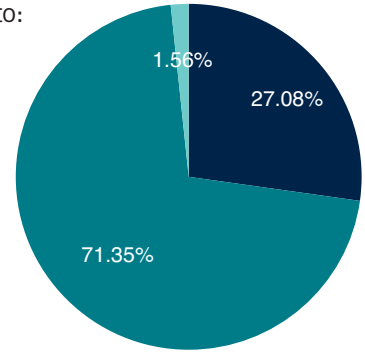
21% said "yes" to: I have **mobility** problems. *(22% of women, 19% of men)*



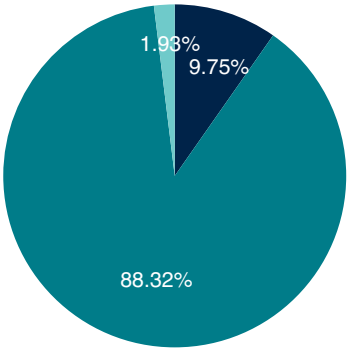
14% said "yes" to: I have **heart and/or circulation problems** *(11% of women, 18% of men)*

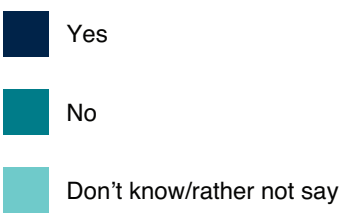


27% said "yes" to: I have **other health issues** *(28% of women, 25% of men)*



10% said "yes" to: I have a **disability** *(10% of women, 9% of men)*





People expanded on their experiences of being unable to exercise due to pain, mobility or health issues in their free-text responses:

> *"I love physical activity. Have been involved in sport, gym and aerobics most of my life. Unfortunately, I've had a knee replacement and need the other knee done within the next 12 months. I've been a keen seniors badminton player for 25 years, but have had to curtail my involvement because of my knees. I miss this sporting activity immensely. Gardening has become my major physical activity."*

> *"I have a chronic physical condition that precludes exercise, moderate or otherwise. ADL can be exhausting on "bad" days so I save my energy for basic needs."*

> *"Osteo in my knees so if I exercise 1 day then I suffer for 4 days."*

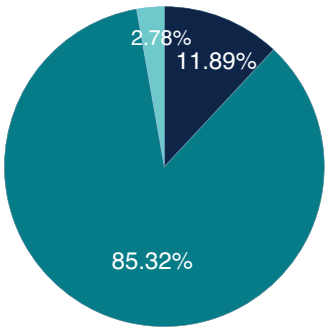
> *"It is painful for me to breathe during aerobic/anaerobic exercise due to radiotherapy for breast cancer."*

3.2.2 Psychosocial barriers

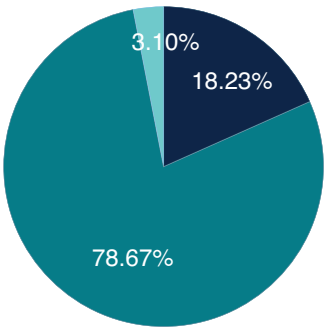
The other barriers assessed were: time, tiredness, lack of companionship and motivation.

Figure 5B: Physical activity and exercise barriers

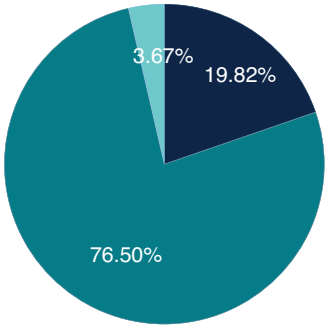
12% said "yes" to:
I don't have **time**
(13% of women, 10% of men)



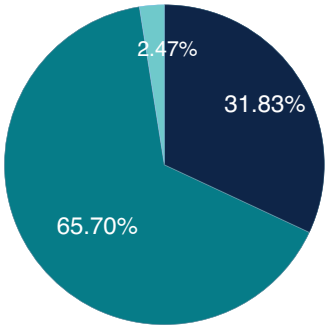
18% said "yes" to:
I am **too tired**
(23% of women, 13% of men)



20% said yes to:
"I don't have anyone to exercise with"
(23% of women, 15% of men)



32% said "yes" to:
I am **not motivated**
(35% of women, 27% of men)



Age group, poorer health and retirement status were significantly associated with most of the 'Other barriers' to doing physical activity.

Being younger was associated with being more likely to be too tired, have no time and lack motivation. Being in the youngest age group (50-59 years) was borderline associated with not having an exercise companion, but the relationship was stronger for those aged 80-plus; they were 88% more likely to be without anyone to exercise with compared to those in the 70-79 age group (Appendix 6c.vii).

Poorer health was strongly associated with being unmotivated (Appendix 6cvii), being tired (Appendix 6c.viii) and lacking companionship (Appendix 6v.ix). Retirement, on the other hand, buffered against potential barriers to exercise. Those who were retired were

- 71% less likely to be time poor (Appendix 6.3c.vi);
- 64% less likely to be tired (Appendix 6.3cviii);
- 30% less likely to lack companionship (Appendix 6.3c.ix);
- 21% less likely to lack motivation (Appendix 6.3c.vii).

Caring responsibilities were strongly associated with the time and tiredness barriers. Carers were 68% more likely to have no time (Appendix 6.3c.vi) and 60% more likely to be too tired for exercise (Appendix 6.3c.viii):

> *"When you are a full time carer for someone as disabled as my husband is it is not possible to leave him alone and the 2 lots of respite I get a week are taken up with shopping, bills etc."*

Comments showed that caring demands may also undermine exercise motivation:

> *"Since being a carer for my son (5 years now) I have lost motivation to Exercise."*

> *"I focus on my mother's care and am not highly motivated to exercise. Mindless repetition of exercises bores me senseless."*

> *"I find caring responsibilities rather depressing, so whilst I could exercise after my duties are completed, motivation is at zero."*

> *"Not doing too much at the moment as I have to get my wife her meal ready and then I don't feel like going for my usual 5 Km walk. But I do potter around in the yard."*

Interestingly however, in the overall sample, carers were 18% less likely to be unmotivated to exercise. Possibly caring for someone else is a motivation to stay active to ensure one's own future health.

3.2.2.1 Motivation

Lack of motivation was the single main barrier to exercise with 32% of people saying 'yes' to not being motivated.

When people elaborated on the barriers to doing exercise, feeling unmotivated was a dominant theme:

> *"Motivation is the main reason I don't exercise more often."*

> *"I do not make time for exercise or myself. Other jobs always take precedence. Some relatively minor mobility issues decrease motivation despite knowing it would be better to do it."*

> *"Don't do enough exercise apart from 2-3 days p.w. -either too tired or not motivated enough."*

> *"Sometimes I do find it hard to motivate myself to exercise at home and I have just retired after 49 years of working and I seem to be a bit tireder than I imagined. I am guessing this will pass."*

> *"I'm 80 in 2 months and am not motivated to do this."*

The motivation that comes with group membership or exercising with a friend or partner was a common experience:

> *"I am more motivated when I exercise with a friend."*

> *"I am more motivated to exercise in a group than alone."*

> *"I know how to exercise but find it very hard to commit to exercise on my own. It would be good to find a local group to exercise with regularly."*

> *"I find it hard to be motivated. I live alone and as such I have no one to do exercise with. I find it difficult to motivate myself."*

> *"Need more motivation and encouragement. Need company (a kind friend)."*

For dog owners, commitment to their animals' wellbeing boosted motivation for walking that may have been lacking otherwise:

> *".....a pair of mournful eyes from the golden retriever means not walking is not an option."*

> *"Retirees should consider owning a dog to encourage regular walking.....and meeting like people."*

> *"Post cancer side effects limits me but the dog motivates me."*

"I have back and hip issues, and a 4 year old Labrador dog to exercise. Labrador dogs are a great motivator to get out and do something they enjoy."

"I lack motivation in certain weather conditions and when over-worked or over-tired from working. Thankfully, I have a dog who requires walking daily."

"Need motivation? need to find time? too tired? - get a [small] dog to walk with ... "

"My dog walks me and I must follow."

3.3.1 Social factors

The social benefits of exercise were well recognised:

"My council gym is v good and lots of old people go there. I can be unmotivated, if I had a training partner I would be motivated to turn up."

"Senior Fit class at local PCYC with a trainer is great. Social and Fitness connection!"

"Working out in classes means I have to adhere to a set time plus gives social benefits."

"Exercising with a group of people, under the guidance of a qualified instructor, would be good (and could also provide me with a wider social circle)."

Together with the relevance of these social connections to mental health:

"I try to get to both my exercise sessions each week to get the benefits and socialise which I feel is also of importance to my physical and mental health."

"I enjoy exercise and also meet people for a chat while swimming and walking which helps with mental well being as well."

3.3.2 Accessibility and environmental factors

Personal safety and accessibility issues were also evident from text comments. Exercising alone was a concern:

"I know I should walk more but feel constrained as I feel uncomfortable walking on my own with no-one knowing where I am or if I've made it home safely."

"It is important to feel safe when exercising alone - that is not always the case."

"I don't feel safe walking in my area as people are attacked from time to time - hence the walker!"

The logistics of getting to and from appropriate facilities were also a problem:

"I used to swim a lot, but now it's too much trouble to get to a public pool."

"I would like to play badminton or squash but I live in a rural-residential area so we need to drive 45 minutes to these facilities."

"Nowhere close by where it is easy to exercise, hilly terrain and nasty dogs. Need to drive some distance to walk, pool too far to go every day."

Not only access to classes, but their suitability was also an issue

"No suitable sports for old people readily available and how do I get there and home comfortably."

"I would like to go to a fitness class daily if one were closer to suit my age and movement ability."

The weather and limited daylight hours are barriers for some people:

"In winter I leave in the dark and come home in the dark. I have cataracts and don't like to drive at night to go to gym etc. In summer I can walk a few times a week."

"Rain stops play!"

"Bad weather limits my physical activity."

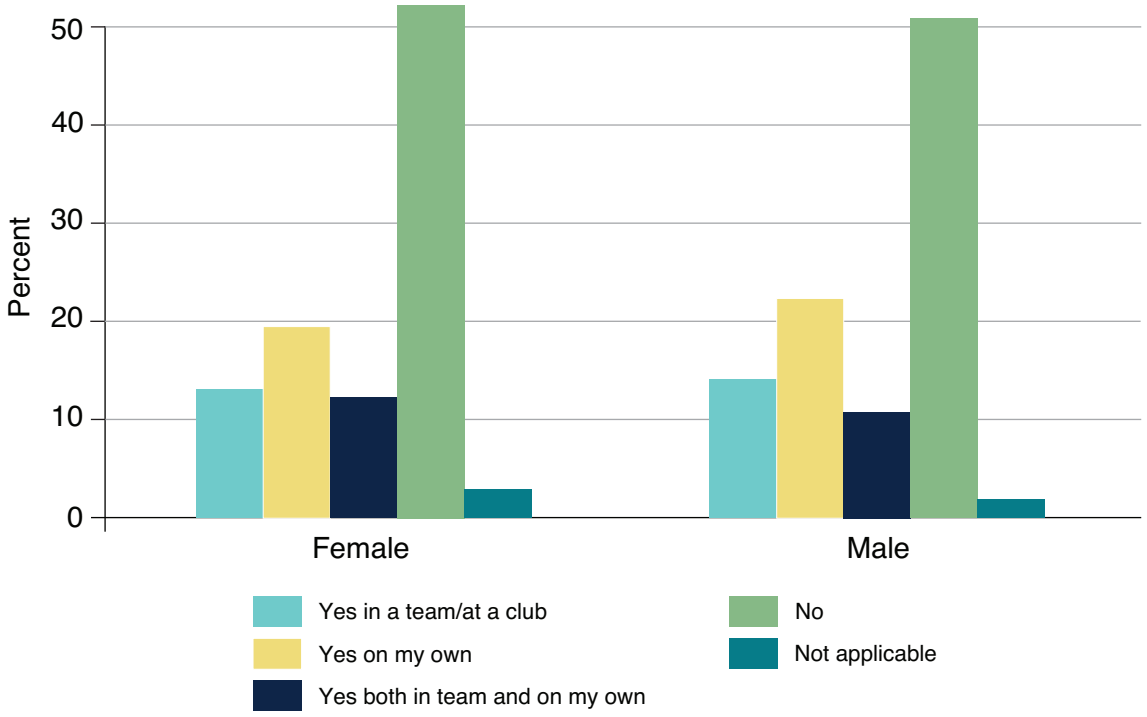
"I find it more difficult when it is cold in winter and dark by the time I finish work."

"Winter is cold and I do not enjoy being outdoors in cold weather at my age. In the warmer months I was walking early nearly every morning, but not at this time of year - I go early afternoons if I can."

3.3 Team or club participation

Doing physical activity as part of a team or club contributes a social component to exercising that may play a vital part in its beneficial effects [18]. Figure 6 and Figure 7 present the proportions of those affirming they did sport or exercise in a team or club environment according to gender and age-group respectively.

Figure 6: Organised sporting or exercise participation by gender

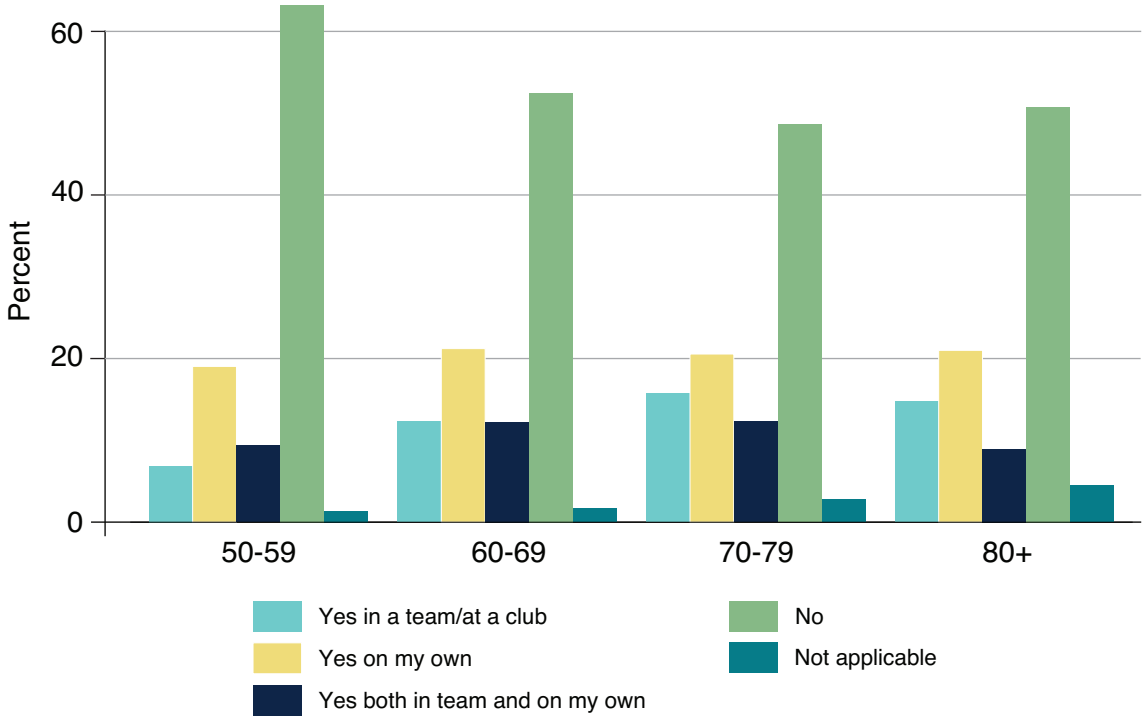


**Excludes N/A responses: 2%*

*** sport or exercise in a team/club environment according to gender: n=3883*

In total, twenty-six percent of the sample affirmed they participated in sport or regular exercise in a team or a club while twenty-one percent did sport or exercise on their own. The 70-79 age group had the highest proportion of team or club members.

Figure 7: Organised sporting or exercise participation by age



**Excludes N/A responses: 2%*

***Sport or exercise in a team/club environment according to age: n=3864*

As with overall physical activity participation, being healthier was associated with being involved in a team or club. Likelihood of team or club membership was higher for those with more savings and

- 43% less likely for those aged 50-59 compared to the 70-79 age group
- 49% higher in those who were retired (Appendix 6.3d).

The relatively small association between financial wellbeing and team or club membership was nonetheless reflected in participants' texts responses:

> *"To participate in exercise there are costs. Gym or running needs appropriate footwear. Playing sports such as tennis or golf require entry fees or memberships and the purchase of equipment or apparel. e.g. Shoes, racquets. There are several reasons, but these would all apply in some measure to different seniors."*

> *"Too costly to play golf regularly."*

> *"Cost is a big factor in participating in activities with other people i.e. cost to join a club or gym."*

Results also show that participants' physical activity engagement was not necessarily for sport or exercise reasons. Table 2 shows that some people affirmed they did moderate physical activity each week but did not consider they did sport or regular exercise.

Table 2: Comparison of physical activity engagement against doing sport or exercise responses

Engaging in moderate intensity physical activity for 30 minutes at a time	Do not do sport or regular exercise
5-times a week or more	21.6%
3-4 times a week	19.6%
2-3 times a week	22.0%
once a week	14.2%

The perceived separation between sport and general physical activity was expressed clearly in the following:

> *"Sport no. Physical activity maybe."*

> *"Sport is a complete waste of time..... I work physically hard on the weekend and at the end of the day have not only exercised but can generally see the results of my efforts."*

> *"Since my teens I have been philosophically opposed to competitive sport, but have been a bushwalker in the past."*

> *"Not sport as such but a few hours of gardening, moving rocks, digging, etc, it's all bending stretching and weight lifting."*

3.4 Seniors' suggestions for policy

Approximately 2,400 people or nearly 60% of the NSSS-8 participants who responded to the physical activity section of the survey said they wanted to do more sport or physical activity than they were doing. This report has highlighted some of the barriers to exercising experienced by participants, but free text comments showed the commitment by many to suggesting solutions to the issues they were having. Examples of their responses are grouped under the four headings below:

3.4.1 Exercise program on public television

> *"Remember when there was a program on tv during the day which was for exercising at home. Something along those lines in a simplified, level graded, format put out by the government would be good for people who can't get out. It's no good saying "go out and exercise" if you can't get out. I know it won't happen - there's no money in it. Health is only addressed if there is money in it."*

3.4.2 Subsidised gym membership

"Gym membership and the type of exercise I do is specifically aimed at bone and muscle strength. What stops a lot of my peers is the cost of this type of exercise. Anyone can walk etc but we are constantly told to work on the weight machines which are only available at the gym.

"I do feel though that the Govt should provide some subsidy for older Australians to join gym classes or other exercise sessions as a way of keeping the cost burden down as I feel it would be an incentive and cost effective."

"While there are many free exercise groups in my city, I find them too physically challenging for me. I cannot justify the cost of gym fees plus the transport costs to get to and from them. As an independently funded retiree I would love if National Seniors advocated for a hefty discount to gyms around Australia so we can afford to attend and in doing so improve our overall health outcomes thus taking pressure off hospitals, doctors, carers and care homes."

"I joined AIS in Canberra and they have a number of options. I would like to be able to claim the cost of the pass on my health insurance. It is possible to claim on a couple of funds but not Defence. It is a shame but not being able to claim does not stop me from being a member of the AIS."

3.4.3 Walking groups

"Companionship to walk with. Often wonder if there are Volunteer walking Companions anywhere!"

"Apart from exercising I like to walk. I would like to walk more than I do sometimes. Being part of a group might help."

"PTSD and depression are self limiting even if you try to fight them. I would love to have a walking group near here and have often thought of starting one but I don't want or need to have that extra stress with the other voluntary things I do. I like being outdoors but tend to self-isolate."

3.4.4 Support from local community

"There should be more local swimming pools. You can't swim properly in most residential pools."

"Would really like to see local area gyms offering reduced or free membership to older citizens. I am sure this would reduce the amount of health care needed and the ensuing costs of particularly broken bones due to falls."

"The local sports centre is too far away and gym membership is expensive. The Silver Sport grant was great."

"Councils do not seem to accept any responsibility to provide facilities for exercise. There are many broken down resources in my town but the Council won't repair them so they cannot be used."

4. Discussion

4.1 Summary of findings

Responses to the physical activity questions in the NSSS-8 showed that

- 32% were doing 30 minutes of moderate intensity physical activity 5-times a week or more;
- Approximately 60% would like to be more physically active and this was particularly the case for people who were still in the workforce or had poor health;
- Physical limitations due to pain, poor health or mobility issues were barriers to doing physical activity;
- Lack of motivation was the single barrier nominated by the largest proportion of the sample (32%);
- Not having an exercise companion was a barrier for more people than being too tired or time-poor;
- 26% did sport or exercise in a team or club;
- Doing physical activity was not necessarily perceived as doing regular sport or exercise;
- Seniors free text responses expressed their need for more support from government and councils to facilitate suitable physical activity engagement for older people.

Australia's National Physical Activity Guidelines differ for those aged under 65 and 65+, but for both age groups, a minimum of 30 minutes of moderate intensity physical activity most days or 150 minutes a week is recommended for health and wellbeing and to reduce risk of chronic diseases [(12)]. The proportion the NSSS-8 sample meeting these guidelines was slightly higher than in the general population where only 27.2% of people aged from 45 to 75+ exercised 30 minutes at a time for 5 days a week or more [(13)]. Clearly, there is potential for improved health-related quality of life for most older Australians if they could engage more frequently in moderately intense levels of physical activity.

4.2 Addressing barriers

Sixty percent of NSSS-8 participants expressed a desire to exercise more than they were currently doing which is a positive sign that the importance of physical activity is understood but that practical strategies are required to overcome the barriers to exercising.

Health, pain and mobility limitations frequently accompany ageing. Fear of exacerbating these issues and/or of falling may prevent people from being physically active, particularly once they reach their 70s and 80s. For NSSS-8 participants, poorer health was strongly related to being unmotivated to exercise. Frail older adults used to be advised to rest and not 'overdo it' but more recently, exercising has been found to counteract frailty and the debilitating effects of some chronic diseases with very little risk of harm [(19)].

General practitioners are in a key position to initiate and help maintain healthy physical activity levels amongst their older patients, particularly those with chronic health conditions who have high rates of attendance at their doctor's clinic [20]. GPs' advice is generally respected and there is evidence that people who receive physical activity guidance from their doctor do more moderately vigorous activity than those who do not receive advice [21]. To be effective, however, physical activity recommendations from GPs need to be specific and provide information about locally available exercise options for older people [22].

A recent policy evidence brief on 'how to get more Australians moving' [23] from Victoria University highlighted the potential of 'social prescribing' to address lack of physical activity engagement. Social prescribing is a system that refers people via health professionals to exercise facilitators and partner organisations that support physical activity engagement and adherence. This system has been adopted to varying degrees in the US, the UK and New Zealand but to date is not implemented systematically in Australia.

Motivation to exercise is strongly linked to self-efficacy [24], the belief in one's capacity to do particular behaviours. Self-efficacy for exercise can be improved, in part by having the social support of an exercise companion [25]. Motivation to exercise for NSSS-8 participants was helped by having exercise companions, including dogs, and a key psychosocial barrier to exercising was not having anyone to exercise with. Women and people over eighty were particularly vulnerable to not exercising due to lacking companionship.

Time and tiredness barriers were more problematic for younger age groups and those not retired. One way of increasing physical activity for time-poor workers is to incorporate physical activity programs into the work place, such as lunch time walking groups or yoga classes or ball games. Alternatively, if the environment is suitable, cycling, walking or using public transport are active options for getting to work. Doing more physical activity can also alleviate feelings of tiredness by increasing energy levels and improving sleep quality [26].

Caring responsibilities were understandably associated with lacking time and being too tired to exercise. For carers particularly, adequate opportunities to exercise are important for promoting physical and mental health that are often compromised by caring duties [27]. Initiatives that provide respite care specifically so carers can attend physical activity sessions would support carers' health by increasing their available time for exercising.

Text responses in the NSSS-8 revealed that accessibility barriers were also problematic for many. To enable seniors' engagement with physical activity and exercise, governments and planning agencies need to prioritise age-friendly neighbourhoods and fitness facilities [28]. Subsidised exercise programs and sports club memberships for pensioners are also important to support equality of access to the benefits of physical activity programs across all socioeconomic groups.

4.3 Sport and team-based exercise to increase physical activity

A proportion of NSSS-8 participants acknowledged they did regular physical activity, but not exercise or sport. For some people, regular physical exercise has no purpose except as a by-product of more useful activities such as housework, transport, gardening or family responsibilities [29].

Meaningful outcomes of being physically active may come through participation in team sports or exercising within a sporting club environment. Data from the national AusPlay survey showed that older Australians clustered into six physical activity 'types', each defined by a set of physical activity behaviours and motivations. The groups participating in sport were motivated by 'fun/enjoyment' or 'social reasons' in addition to increasing their health and fitness [14]. Having fun, feeling good and sharing events with others are immediate and pleasurable experiences that are more likely to motivate people to exercise than the intangible benefit of future health [30].

Engaging with sport may provide the support and motivation many seniors need to be more active. A study in England followed approximately 11,000 people aged 50-plus for 13 years and found that being a member of a sporting club was associated with increased physical activity over time and with reduced frailty, although information was not collected on the type of sports club people belonged to [31].

Playing sport also potentially provides seniors with psycho-social benefits beyond those attributable to increasing levels of physical activity. A systematic review concluded that sport participation can enhance life satisfaction, social belonging and psychological status including sense of empowerment, self-esteem, self-worth, and self-efficacy [32]. More longitudinal and experimental studies are needed that evaluate if community-based sporting activity improves seniors' psychological wellbeing [33]. Most research in older adults focuses on Master's Games competitors who are an elite group among seniors. However, such elite sport among older Australians is in the deep shadow of elite sports for younger people in terms of public funding of their activities, facilities and events. Given the public concern about the costs of ageing due to health and disability, this needs to be addressed.

4.4 Conclusion

Although the majority of seniors are not physically active enough to support healthy ageing, results from the NSSS-8 show that the majority would like to be more active. It is important to acknowledge that older adults are a diverse group and, as for all age groups, there is no 'one-size fits all' approach to increasing physical activity. In accord with most survey findings, physical health limitations are major barriers for older people when it comes to being more active, but lack of motivation and companionship were also contributing factors.

People were keen to share their thoughts and experiences about doing or attempting physical activity. These experiences were invaluable in providing more nuanced information about not only physical activity barriers, but also the factors that enable seniors to enjoy the protective effects of a physically active older age. Given the evidence, it is time for the value of sport and physical activity for older people to be reflected in the funding and recognition it deserves from all parties involved.

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National Seniors submissions to the Royal Commission into Aged Care Quality and Safety:

1. Witness Statement 31/1/19;
2. Review of recommendations of prior reviews that were not implemented 6/2/19;
3. The dementia journey legacy of trauma and what to do about it 9/5/19;
4. Response to the Interim Report of the Aged Care Royal Commission 22/11/19

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1. Response to Visions for Aged Care Consultation Paper 1 24/1/2020

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6. Appendices

6.1 The physical activity questions from the NSSS-8

'How often do you do 30 minutes or more of moderate intensity physical activity at a time? (Examples of moderate intensity activity include brisk walking, continuous swimming, dancing, garden work, cycling)

- 5 times a week or more
- 3-4 times a week
- 2-3 times a week
- Once a week
- Less than once a week
- Never
- Don't know / rather not say
- Please feel free to tell us more about your exercise

'Do any of the following apply to you in terms of stopping or limiting you doing physical exercise?'

- Exercising is painful for me
- I have heart and/or circulation problems
- I have mobility problems
- I have other health issues
- I have a disability
- I don't have time
- I am not motivated
- I am too tired
- I don't have anyone to exercise with
- Please feel free to tell us more about your answers

'Do you do any sport or regular exercise, either in a team/at a club or on your own? Yes, in a team/at a club"

- Yes, on my own
- Yes, I do sports / physical activity both in a team/at a club and on my own
- No
- Not applicable

'In general, would you like to engage in more sport or physical activity than you do?"

- Yes
- No
- Don't know / rather not say
- Not applicable
- Please feel free to tell us more about engaging in physical activity

6.2 Supplementary Table 1. Demographics of sports subsample

Age	n	percentage
50-59	362	9.4
60-69	1420	36.8
70-79	1633	42.3
80+	444	11.5

Gender	n	percentage
Female	2127	54.6
Male	1751	45.0
Non-binary	5	0.1
Other identity	2	0.1
Prefer not to say	10	0.3

State	n	percentage
VIC	564	14.5
QLD	1594	41.0
SA	180	4.6
WA	370	9.5
TAS	120	3.1
ACT	137	3.5
NT	64	1.6

Partnered	n	percentage
Yes	2353	61.8
No	1456	38.2

Carer	n	percentage
Yes	817	20.9
No	3090	79.1

Retirement savings	n	percentage
Less than 50K	475	12.6
50-100K	340	9.0
100-200K	340	9.0
200-300K	296	7.8
300-500K	461	12.2
500-750K	415	11.0
750K-1.5M	517	13.7
More than 1.5M	213	5.6
Don't know	151	4.0
Rather not say	573	15.2

Health	n	percentage
Very poor	32	0.8
Poor	143	3.7
Fair	889	22.8
Good	2115	54.3
Excellent	713	18.3

6.3 Log regressions raw output

A. Logistic regression: risk of not doing 30 minutes moderate intensity physical activity 5-times/week

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex2 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,753
                                                LR chi2(7)        =     177.84
                                                Prob > chi2       =     0.0000
Log likelihood = -2258.4451                     Pseudo R2         =     0.0379
```

ex2	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	1.116042	.0812511	1.51	0.132	.9676332	1.287214
agegrp						
50-59	.8655244	.1314547	-0.95	0.342	.6426877	1.165624
60-69	1.112387	.0932657	1.27	0.204	.9438189	1.311061
80+	.8501295	.104606	-1.32	0.187	.6679551	1.081989
health2	1.831188	.0930412	11.91	0.000	1.657616	2.022934
carer	1.117562	.0997148	1.25	0.213	.9382592	1.331129
retired	1.361619	.1268185	3.31	0.001	1.134427	1.634312
_cons	.0285248	.0073173	-13.87	0.000	.0172531	.0471604

Note: _cons estimates baseline odds.

B. Logistic regression: Desire to engage in more sport or physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic moresport2 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,468
                                                LR chi2(7)        =     154.58
                                                Prob > chi2       =     0.0000
Log likelihood = -2293.2176                     Pseudo R2         =     0.0326
```

moresport2	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.7705957	.0547057	-3.67	0.000	.6704996	.8856347
agegrp						
50-59	1.90753	.2863845	4.30	0.000	1.421272	2.560149
60-69	1.441112	.1184308	4.45	0.000	1.226721	1.692971
80+	.8307765	.096919	-1.59	0.112	.660971	1.044205
health2	.7567111	.0355921	-5.93	0.000	.6900707	.8297869
carer	1.021626	.0902132	0.24	0.809	.8592663	1.214664
retired	.7124335	.0642801	-3.76	0.000	.5969579	.8502467
_cons	6.147743	1.4576	7.66	0.000	3.86278	9.784338

Note: _cons estimates baseline odds.

C. Health and demographic barriers to exercising

c.i – Logistic regression: risk of nominating PAIN as a barrier to doing physical activity

Reference: gender, female; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_pain1 1.gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,452
                                                LR chi2(7)        =     708.68
                                                Prob > chi2       =     0.0000
Log likelihood = -1650.0191                     Pseudo R2         =     0.1768
```

ex_pain1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender						
Female	1.645472	.1469794	5.58	0.000	1.381205	1.960301
agegrp						
50-59	1.062775	.1847156	0.35	0.726	.7559587	1.494116
60-69	1.017728	.1042988	0.17	0.864	.8325281	1.244126
80+	1.373625	.2044053	2.13	0.033	1.026132	1.838794
health2	.2412841	.015525	-22.10	0.000	.2126962	.2737145
carer	1.113561	.1152758	1.04	0.299	.909071	1.364051
retired	.7972242	.0879868	-2.05	0.040	.6421498	.9897479
_cons	60.82634	16.27881	15.35	0.000	35.99869	102.7772

c.ii – Logistic regression: risk of nominating MOBILITY as a barrier to doing physical activity

Reference: gender, female; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_mob1 1.gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,416
                                                LR chi2(7)        =     755.68
                                                Prob > chi2       =     0.0000
Log likelihood = -1365.3572                     Pseudo R2         =     0.2168
```

ex_mob1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender						
Female	1.516946	.151039	4.19	0.000	1.24801	1.843837
agegrp						
50-59	.5204664	.1125207	-3.02	0.003	.3406981	.7950888
60-69	.6571092	.0776493	-3.55	0.000	.5212581	.8283662
80+	2.678566	.3872807	6.81	0.000	2.017583	3.556096
health2	.2102947	.0150151	-21.84	0.000	.182832	.2418825
carer	.9931414	.1175706	-0.06	0.954	.7874875	1.252502
retired	.9647993	.1259568	-0.27	0.784	.7469829	1.24613
_cons	69.66333	20.50889	14.41	0.000	39.12104	124.0504

Note: _cons estimates baseline odds.

c.iii – Logistic regression: risk of nominating HEART PROBLEMS as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_heart1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,331
                                                LR chi2(7)        =     404.32
                                                Prob > chi2       =     0.0000
Log likelihood =  -1181.988                     Pseudo R2         =     0.1461
```

ex_heart1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	1.662121	.179419	4.71	0.000	1.345175	2.053743
agegrp						
50-59	.5341559	.130986	-2.56	0.011	.3303208	.8637741
60-69	.6305693	.081788	-3.56	0.000	.4890212	.8130888
80+	1.924282	.2988938	4.21	0.000	1.419233	2.609058
health2	.3184442	.0218162	-16.70	0.000	.2784317	.3642067
carer	1.179885	.1502244	1.30	0.194	.919314	1.514314
retired	1.143177	.1670473	0.92	0.360	.8584823	1.522285
_cons	5.247733	1.699315	5.12	0.000	2.781868	9.899356

Note: _cons estimates baseline odds.

c.iv – Logistic regression: risk of nominating OTHER HEALTH PROBLEMS as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_health1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,346
                                                LR chi2(7)        =     851.17
                                                Prob > chi2       =     0.0000
Log likelihood = -1533.4965                     Pseudo R2         =     0.2172
```

ex_health1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.8636302	.0791998	-1.60	0.110	.7215522	1.033684
agegrp						
50-59	1.314349	.2384482	1.51	0.132	.9210566	1.875578
60-69	1.224411	.1299717	1.91	0.056	.9944242	1.507587
80+	1.450567	.2267365	2.38	0.017	1.067793	1.970553
health2	.1853944	.0131756	-23.71	0.000	.1612886	.2131031
carer	1.113008	.1208737	0.99	0.324	.8996158	1.377018
retired	1.013809	.1177878	0.12	0.906	.8073481	1.273068
_cons	207.6243	66.72649	16.60	0.000	110.5906	389.7967

Note: _cons estimates baseline odds.

c.v – Logistic regression: risk of nominating DISABILITY PROBLEMS as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_dis1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,290
                                                LR chi2(7)        =     399.83
                                                Prob > chi2       =     0.0000
Log likelihood =  -854.1432                     Pseudo R2         =     0.1897
```

ex_dis1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.9139219	.1203529	-0.68	0.494	.7060179	1.183048
agegrp						
50-59	1.041147	.2720468	0.15	0.877	.6238746	1.737509
60-69	.8891831	.1388748	-0.75	0.452	.6547092	1.20763
80+	1.44957	.3076282	1.75	0.080	.9563065	2.19726
health2	.2311351	.0191028	-17.72	0.000	.1965694	.271779
carer	.956777	.14992	-0.28	0.778	.7037747	1.300732
retired	.9902765	.1684838	-0.06	0.954	.7094709	1.382224
_cons	23.49442	9.152812	8.10	0.000	10.94861	50.41626

Note: _cons estimates baseline odds.

c.vi – Logistic regression: risk of nominating NO TIME as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_time1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,247
                                                LR chi2(7)        =     202.75
                                                Prob > chi2       =     0.0000
Log likelihood = -1102.6424                     Pseudo R2         =     0.0842
```

ex_time1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.8355584	.0966624	-1.55	0.120	.6660467	1.048212
agegrp						
50-59	1.539403	.2857783	2.32	0.020	1.069875	2.214987
60-69	1.199451	.1673888	1.30	0.193	.9124169	1.576781
80+	1.007513	.2577253	0.03	0.977	.6102535	1.663378
health2	.877869	.0604763	-1.89	0.059	.7669916	1.004775
carer	1.684253	.2064095	4.25	0.000	1.324618	2.141531
retired	.2943729	.0381491	-9.44	0.000	.2283426	.3794974
_cons	.4616742	.1630435	-2.19	0.029	.2310616	.9224511

Note: _cons estimates baseline odds.

c.vii – Logistic regression: risk of nominating MOTIVATION as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_mot1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,325
                                                LR chi2(7)        =     173.52
                                                Prob > chi2       =     0.0000
Log likelihood = -2014.5556                     Pseudo R2         =     0.0413
```

ex_mot1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.697869	.0542934	-4.62	0.000	.5991718	.8128238
agegrp						
50-59	1.551943	.2277381	3.00	0.003	1.164038	2.069114
60-69	1.202884	.107779	2.06	0.039	1.00915	1.433811
80+	1.087253	.1524788	0.60	0.551	.8259543	1.431215
health2	.5932489	.0294445	-10.52	0.000	.5382569	.6538593
carer	.8184808	.0779305	-2.10	0.035	.679145	.9864032
retired	.7859431	.0746155	-2.54	0.011	.6524993	.9466776
_cons	6.640698	1.664488	7.55	0.000	4.063128	10.85343

Note: _cons estimates baseline odds.

c.viii – Logistic regression: risk of nominating TIRED as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_tired1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,233
                                                LR chi2(7)        =     613.75
                                                Prob > chi2       =     0.0000
Log likelihood = -1255.9528                     Pseudo R2         =     0.1964
```

ex_tired1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.5486037	.0582959	-5.65	0.000	.4454593	.6756308
agegrp						
50-59	2.481658	.4376339	5.15	0.000	1.756446	3.5063
60-69	1.333613	.1654252	2.32	0.020	1.045789	1.700651
80+	1.256938	.2620067	1.10	0.273	.8353763	1.891235
health2	.3168829	.0213199	-17.08	0.000	.2777345	.3615495
carer	1.600296	.1824834	4.12	0.000	1.279785	2.001077
retired	.3588816	.0430462	-8.54	0.000	.2836962	.4539927
_cons	51.17304	17.07047	11.80	0.000	26.61305	98.39833

Note: _cons estimates baseline odds.

c.ix – Logistic regression: risk of nominating COMPANIONSHIP as a barrier to doing physical activity

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health

```
. logistic ex_comp1 gender b3.agegrp health2 carer retired

Logistic regression                             Number of obs     =      3,226
                                                LR chi2(7)        =     171.63
                                                Prob > chi2       =     0.0000
Log likelihood = -1552.8531                     Pseudo R2         =     0.0524
```

ex_comp1	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.6459056	.0602363	-4.69	0.000	.5380059	.775445
agegrp						
50-59	1.399649	.2377629	1.98	0.048	1.003281	1.95261
60-69	1.202992	.1306905	1.70	0.089	.9722766	1.488454
80+	1.887893	.291676	4.11	0.000	1.39466	2.555562
health2	.5649748	.0316404	-10.20	0.000	.506243	.6305204
carer	1.027561	.1119698	0.25	0.803	.829956	1.272214
retired	.7016984	.0780805	-3.18	0.001	.5642014	.8727036
_cons	4.517389	1.284512	5.30	0.000	2.587318	7.887242

Note: _cons estimates baseline odds.

D. Log regression: probability of team/club participation

Reference: gender, male; age,70-79; carer; retired. Health: higher score, better health; Savings: higher score, more savings

```
. logistic sport3 gender b3.agegrp health2 carer retired saved

Logistic regression                             Number of obs     =      2,930
                                                LR chi2(8)        =     124.91
                                                Prob > chi2       =     0.0000
Log likelihood = -1626.1503                     Pseudo R2         =     0.0370
```

sport3	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.8026476	.0714931	-2.47	0.014	.6740732	.9557467
agegrp						
50-59	.567063	.1082296	-2.97	0.003	.3900957	.8243118
60-69	.8442694	.0847818	-1.69	0.092	.6934308	1.027919
80+	.9572625	.1375095	-0.30	0.761	.7223656	1.268543
health2	1.49178	.0908218	6.57	0.000	1.323983	1.680843
carer	.9160854	.0988793	-0.81	0.417	.7414127	1.13191
retired	1.491844	.1684315	3.54	0.000	1.195698	1.861339
saved	1.097886	.0220039	4.66	0.000	1.055596	1.141871
_cons	.0570171	.0173022	-9.44	0.000	.031456	.1033493

Note: _cons estimates baseline odds.

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