EXERCISE FOR *Older Adults*

An eBook by

ESSA
Exercise & Sports Science Australia

WHO IS ESSA?

Exercise & Sports Science Australia (ESSA) is the nation's leading voice on exercise and sports science. We govern and represent approximately 10,000 degree-qualified professionals who support Australians to reach their health and performance goals.

Find your local accredited exercise professional: **www.essa.org.au/find-aep/**

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Editor: Camella Brightman | **Designer:** Leigh McLennan

Peer reviewed by Associate Professor Pazit Levinger, PhD, AEP, Senior Research Fellow with the Clinical Gerontology Division at the National Ageing Research Institute.

We thank all ESSA accredited professionals who contributed their time and expert knowledge.

ESSA
Exercise & Sports Science Australia

P 07 3171 3335 **F** 07 3318 7666
E info@essa.org.au **www.essa.org.au**
A Locked Bag 4102, Ascot QLD 4007

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ABOUT THIS *eBook*

Do you need more strength to help with the groceries?

Do you wish you had more energy to play with your grandkids?

Do you find you need better balance so that you can garden?

Do you want to prevent future falls or surgeries?

This eBook has been designed to encourage older Australians to become more active. It also covers the benefits of exercise for a wide range of common conditions and illnesses you may encounter as you age.

Not sure where to start?

That's okay! Finding the right exercise for you can be as simple as including activities that you enjoy.

No matter your age, it's never too late to start incorporating exercise into your daily life.

Living with a health condition or need an extra hand?

That's okay too. Speak to an accredited exercise professional to find out more.

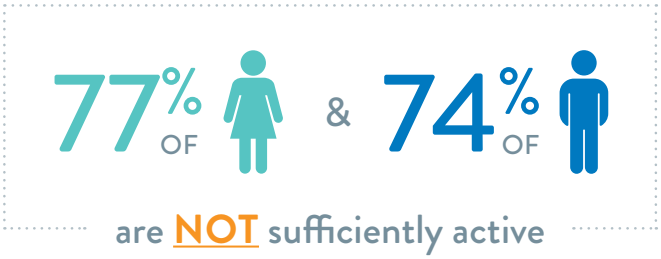
THE PHYSICAL ACTIVITY LEVELS OF OLDER AUSTRALIANS

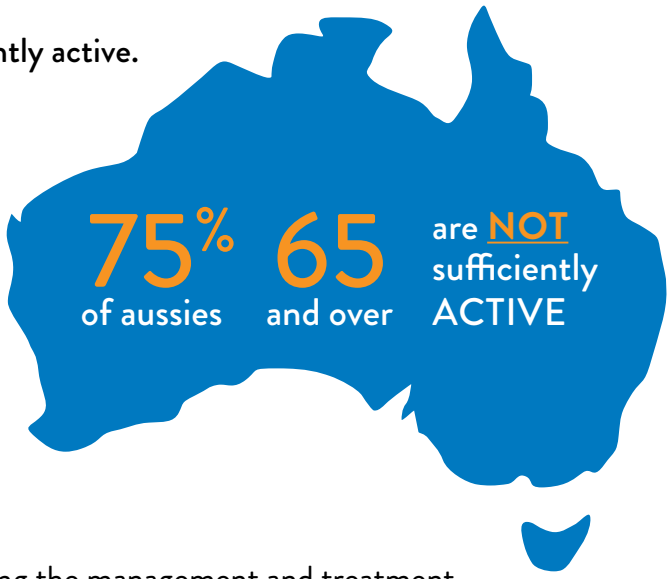
For Australians aged 65 and over, physical activity becomes important in maintaining energy levels, increasing joint movement, preventing or managing mental health problems (by reducing stress and anxiety), and improving mood and memory function.

However, despite the significant benefits of being physically active, the physical activity levels of many Australians are less than the level recommended to gain a health benefit.

In Australia:

- **For people aged 65 and over, 75% were not sufficiently active.**
- **For females, 77% were not sufficiently active.**
- **For males, 74% were not sufficiently active.**





Exercise provides a wide range of benefits, the main being the management and treatment of chronic conditions, and with older age comes greater incidence of chronic illness and disease.

In fact, 3 in 5 Australians (60%) aged 65 years and over have at least one chronic condition and chronic disease is a leading cause of disability in older adults.

With exercise playing an important role in heathy ageing – **let's take a closer look.**

Source: *Australian Institute of Health and Welfare*

WHAT ARE THE PHYSICAL ACTIVITY GUIDELINES?

Australia has developed Physical Activity and Sedentary Behaviour Guidelines which outline the minimum amount of physical activity required for all ages, including older Australians.

As older people make up a considerable proportion of Australia's population – in 2017, over **1 in 7 Australians were aged 65 years and over** – it's important they have their own set of physical activity recommendations.

These recommendations for older Australians **(those aged 65 years and over, or aged 55 years and over for Aboriginal and Torres Strait Islander peoples)** state that older people **should be active every day** in as many ways as possible, doing a range of physical activities that incorporate **fitness, strength, balance and flexibility.**

It's recommended that they should complete at least **30 minutes of moderate intensity physical activity on most, preferably all, days,** no matter their age, weight, health problems or abilities.

What sort of physical activities does the recommendations include?

AEROBIC EXERCISES

Aerobic exercise is any movement where your breathing and heart rate increases for a sustained period of time. This then improves your body's cardiorespiratory fitness which is how well your heart, lungs and muscles work together to keep your body active and healthy over an extended period of time.

Aerobic exercises should be performed on most days of the week, aiming to achieve around 30 minutes, or at least 150 minutes of exercise across the week, at a moderate intensity.

The benefits of aerobic training include:

- Increased efficiency of respiration
- Improved blood volume, distribution and delivery to muscles
- Increased amount of blood pumped from the ventricle during each contraction of the heart
- Increased volume of blood pumped by the heart each minute
- Decreased resting heart rate
- Strengthened ligaments, tendons and bones
- Decreased anxiety and stress
- Improved overall mood

Activities should be weight bearing where possible (such as walking or stepping), however, other forms of training such as stationary or recumbent cycling may be more appropriate if there is a significant falls risk.

Typical examples include walking, cycling, swimming or any form of physical activity that produces an increased heart rate.

STRENGTH EXERCISES

Strength training, or resistance training, can assist with slowing the ageing process. Older adults should aim to complete strength training two to three days a week, of 8-10 exercises involving major muscle groups, with a day of rest between workouts.

The benefits of strength training include:

- Increased lean muscle mass
- Preserved/increased bone density and joint health
- Increased balance and decreased risk of falls or injury
- Prevention of muscle loss associated with ageing
- Improved sleep

» Improved mental health and reduced depression
» Reduced risk and symptoms of some chronic diseases
» Improved cognitive function
» Potential to reduce risk of dementia, Alzheimer's and Parkinson's disease

It can be completed by using one's own body-weight or household items, lifting weights, or using machines, rubber bands or balls.

Typical examples include carrying heavy shopping bags, yoga, Pilates, Tai Chi, push-ups, sit-ups, heavy gardening, such as digging and shovelling, etc.

BALANCE EXERCISES

It's recommended that older adults do at least two to three sessions of balance exercises per week.

Research points to the effectiveness of balance and functional exercises, plus resistance exercises, in reducing falls in older adults. Along with the physical benefits such as enhanced stability, balance exercises may help improve mental functioning, including memory and spatial cognition.

Balance training should get progressively harder by progressing from stable to less stable positions and using less hand-rail support, as well as adding cognitive tasks (such as naming as many items in a category or performing subtractions).

Incorporating stretching into your balance exercises can then also increase your flexibility which is vital to active ageing and reducing pain when moving.

Typical examples include shifting your weight with your feet, practicing walking on a tightrope, the flamingo stand, the tree pose, etc.

INCIDENTAL PHYSICAL ACTIVITY

Incidental physical activity is the small amounts of activity that build up in small amounts over a day and tend to be less structured than planned exercise training. Incidental movement is still important in the daily lives of older adults and can help contribute to daily physical activity recommendations.

Typical examples include gardening, housework, walking to the bus or grocery store, walking up the stairs, etc.

Note

It's important to remember that for older people who are starting to re-engage in physical activity after a period of time, or for the first time ever, they should consult with an accredited exercise professional or their GP. You will be encouraged to start at a level that is easily manageable and then gradually build up to the recommended amount, type and frequency of activity.

TIP

How can I identify the intensity of the exercise I am completing?

A quick way to test your exercise intensity is using the talk test. When exercising can you:

» Talk comfortably and sing comfortably? You're probably moving at a **light intensity.** *Examples include incidental exercises such as getting up to make a tea, walking to the mailbox, vacuuming, etc.*

» Talk comfortably but not sing? This is likely to be **moderate intensity** exercise. *Examples include brisk walking, water aerobics, leisurely riding a bike, doubles tennis, hiking, etc.*

» Neither talk nor sing comfortably? You're working hard at a **vigorous to high intensity.** *Examples include jogging or running, fast swimming, singles tennis, riding a bike or hiking up hill, etc.*

MEET THE EXERCISE PROFESSIONALS

Sometimes it can be hard to know who the exercise professionals are.

In Australia, there are three types of accredited exercise and sports science experts who can support older adults in many ways, from looking after their general health and fitness, to using exercise to manage and treat chronic conditions, to those working with a masters athlete or sporting team.

WHAT DOES *"ACCREDITED"* MEAN?

Accredited means the professional is registered with Exercise & Sports Science Australia (ESSA) and as such have been approved for meeting all of the requirements necessary to be considered an exercise health professional, as well as undertaking regular professional development to ensure their knowledge and skills are up to date.

ESSA's accredited exercise professionals are:

Accredited Exercise Physiologists (AEPs) complete a minimum 4 years of study at university in order to specialise in prescribing and supervising exercise for people who have complex health conditions. They work with clients living with cancer, diabetes, heart conditions, mental health conditions, any other chronic condition, or a disability or injury.

Accredited Exercise Scientists (AES) complete a minimum 3 years of study at university, providing them with a high level of training in exercise and sports science. They use exercise to improve the health, well-being and fitness of their clients, and assist in the prevention of chronic conditions.

Accredited Sports Scientists (ASpS) complete a minimum 3 years of study at university and are highly trained professionals who provide sports science services and conduct research relating to sport in an elite environment such as the Australian Institute of Sport, state academy or professional sports club. They use exercise to improve sporting performance for individual athletes or teams.

TIP

How can I find an accredited exercise professional?

Currently there are over 7,000 ESSA-accredited exercise professionals throughout Australia. You can find one close to your home by looking at the online directory provided by Exercise & Sports Science Australia (ESSA), the accreditation body for exercise and sports science professionals, www.essa.org.au/find-aep.

> **Physical activity lowers the risk of many chronic conditions.**

THE IMPORTANCE OF ACTIVE AGEING

Older Australians are a diverse group, with different ages and socioeconomic backgrounds and different life experiences and lifestyles. These factors all influence the ageing process.

In our younger years, we grow well and experience positive change in the determinants of physiological well-being. Through early and mid-life, our well-being is in plateau, and even in the presence of stressors and poor lifestyle choices, the symptoms of disease and disability are not so significant that they limited our daily activities. But in later life, it is these choices that will come back to haunt us by manifesting as a sure decline into poor health and possible loss of functional independence and increased prevalence and severity of chronic disease.

> *The cheapest and most effective countermeasure to this decline is choosing to be physically active at every age.*

Even if you start for the first time tomorrow, measurable, noticeable improvements will occur and not just in your physical well-being but also your psychological well-being. There is no doubt about it, exercising regularly, at a moderate to vigorous intensity, and combining activities that challenge the heart, lung and muscle, will guarantee better projected health outcomes.

WHAT ARE THE BENEFITS OF EXERCISE?

We have a reduced risk of developing chronic diseases, or managing the ones we already have

Physical activity lowers the risk of many chronic conditions such as dementia, diabetes, obesity, heart disease, osteoporosis and cancers, to name a few. As well as this, physical activity also assists in managing the symptoms of any chronic diseases you may have e.g., blood sugar control for diabetics or pain management for osteoarthritis sufferers.

Our memory and brain function improve

Keeping a healthy body is imperative to keeping a healthy mind. Regular exercise boosts oxygen to the brain and in turn can improve cognitive processing, memory recall and reaction times. These notable benefits effectively reduce the risk of dementia and cognitive decline in later life.

Studies have consistently shown that exercise stimulates the human brain's ability to maintain old and create new network connections that are vital to cognitive health. Other studies have shown that exercise increases the size of a brain structure important to memory and learning, improving spatial memory. Visit our 'Brain Health' chapter (pg. 19) for more information.

We have a reduced risk of falls

Every year, 1 in 3 people aged 65 years and over will have a fall, and falls are the most common cause of injury among older people. Physical activity improves balance and coordination and in turn can minimise the risk of falls. Visit our 'Exercise to prevent falls' chapter (pg. 39) for more information.

Our bones get stronger

As we age, the focus is addressing risk factors for frailty and falls. Bone strength effectively can be addressed through different types of exercise. Ultimately, bones become stronger when a certain amount of load is placed on them. Visit our 'Osteoporosis' chapter (pg. 30) for more information.

We improve our physical function and independence

With exercise improving muscle strength and muscle function, and reducing the risk of falls, this in turn then improves our physical function and independence as we age. Maintaining functional independence is important as we age as it provides older adults with the choice to stay at home and enjoy all aspects of their daily lives at their own pace which then has positive effects on their mental health.

We recover from illness more quickly

Just like a healthy diet, exercise can contribute to general good health and therefore to a healthy immune system. It may contribute even more directly by promoting good circulation, which allows the cells and substances of the immune system to move through the body freely and do their job efficiently.

We stay socially connected

Our ability to maintain social connections is often compromised as we age. This is mainly due to our decline in functional abilities and independence, which in turn makes it difficult to get out and maintain our social connections, often leading to feelings of loneliness and poor mental health. Community-based exercise programs are a great solution to social isolation and prolonging independence, as they effectively provide a safe, supportive and motivational environment to build self-confidence and maintain relationships with others. Visit our *'Exercise to prevent loneliness'* chapter (pg. 43) for more information.

The Exercise is Medicine® Australia factsheets and resources are a great source of information that provide detailed information on the role of exercise in the prevention, treatment and management of most chronic diseases and conditions, including some listed in this eBook.

Expert Contributor: *Richelle Street, Accredited Exercise Physiologist at Blue Care, Brisbane Metro South QLD*

WAIT! WHY IS STRENGTH TRAINING IMPORTANT?

Strength training sometimes comes with it the reputation of being too hard, or too painful, but it's important that we continue to discuss how vital it is to healthy ageing.

Strength training is an important and beneficial type of activity that should be undertaken at nearly every stage of our lifespan. The natural ageing process leads to distinct muscle mass and strength deterioration and weakening, with a 15% loss per decade over the age of 50.

Age-related factors contributing to loss of muscle mass and strength include:

- Loss of anabolic factors such a neural growth factors, growth hormone, androgens and oestrogens
- Decreased physical activity
- Chronic conditions such as heart disease and rheumatoid arthritis
- Insufficient nutrient intake
- Muscle atrophy and sarcopenia

MUSCULOSKELETAL HEALTH CARE MATTERS

Musculoskeletal health, which means to look after our muscles, joints, nerves, soft tissues, tendons and ligaments, is particularly important for maintaining an active, productive and prolonged (working) life. Impaired musculoskeletal health can be the cause of acute and chronic pain, with lower back pain and shoulder disorders being the most common and debilitating.

There is a strong relationship between painful musculoskeletal conditions, lack of physical activity and resulting functional decline; frailty; loss of independence; withdrawal from social activities; and decreased mental health, well-being and quality of life.

Strength training, in both highly controlled environments and minimally supervised home-based programs, has significant results overall in ageing adults.

How does it work? Well it provides health benefits due to our muscles ability to adapt when a 'stimulus' or 'stress' is placed on our body. In order to better tolerate this stimulus, the muscles respond by increasing in size, with supporting ligaments, tendons and connective tissue also increasing in strength.

TYPES OF EXERCISE RECOMMENDED

To encounter the physical and mental health benefits of strength training, it is recommended that older adults complete two or more sessions per week of muscle strengthening exercise, focusing on the major muscle groups.

The great news is that completing strength training is something that many can complete in the comfort of their own home. It can be activities as simple as:

» Slowly sitting and standing from a chair

» Pushing up against the wall or kitchen bench

» Rising up onto the balls of your feet

» Bicep curls, overhead raises, side and frontal raises with makeshift dumbbells using jars or milk bottles

» Slowly stepping up and down from the back step

SPEAK TO THE EXERCISE PROFESSIONALS

We all know the barriers to changing or maintaining a healthy lifestyle – pain, functional capacity, mental health conditions, time, cost, motivation, family, work and social commitments, etc. – but you don't need to start the process of active ageing alone.

As allied health professionals who specialise in using exercise as medicine, Accredited Exercise Physiologists are the best professionals to help you remain active at all ages and can speak to you specifically about incorporating strength training into your daily routine.

Expert Contributor: *Troy Burgess, Accredited Exercise Physiologist and Director at Achieve Exercise Physiologists*

BEFORE YOU START EXERCISING

When starting out in any exercise or sport program as an older person, there are some key principles and tips to adhere to. These include:

1. Get a clearance from your family doctor and/or medical specialist.

2. If you have a chronic disease or condition or family history, get a referral to an Accredited Exercise Physiologist (AEP) to undertake the ESSA Adult Pre-Exercise Screening System first which will assist you in making informed choices.

3. Focus on starting slowly with small volumes of training that gradually increase in frequency, duration, and intensity in that order. Consult an AEP or Accredited Exercise Scientist (AES) to assist and monitor this for you.

4. Think about asking a buddy to join you. You are more likely to stick with your exercise plan if you share it with someone close to you.

5. Set goals or targets that are easily attainable aiming to meet the guidelines of 150 minutes of moderate intensity aerobic exercise or 75 minutes of vigorous aerobic exercise per week AND strength and balance training twice a week.

6. Self-monitor what you are doing by keeping records of times or how you are feeling.

7. Breaking up an exercise program or doing exercise in intervals is a great way to include rest in your program. Remember, every step and repetition counts, and some exercise is better than no exercise at all.

8. Minimise the amount of time spent in prolonged sitting. Try breaking up long periods of sitting as often as possible with some movements and incidental exercises (e.g., checking the letterbox).

9. Get strong as part of your training. Research has shown that a lack of strength is a major risk factor for musculoskeletal injury in both young and older adults. Moreover, muscle mass and strength decline significantly after the age of 50 years and dramatically after 65 years of age. An accredited exercise professional can help with this aspect of your training.

> **Focus on starting slowly with small volumes of training that gradually increase in frequency.**

BRAIN HEALTH

The prevention of cognitive decline and onset of dementia has been identified as an international health priority by the World Health Organization. Over 400,000 older Australians currently live with dementia which is expected to double and triple by the year 2030 and 2050, respectively both at a national and international level.

Dementia is an umbrella term for a wide variety of diseases (such as Alzheimer's disease and Lewy body disease) that lead to a progressive decline in cognition and a person's daily function. While memory loss is a common symptom of most dementias, other areas of a person's cognition may be affected (i.e. decision-making, orientation, attention) as well as experiencing other psychological (i.e. depression, anxiety) and physical (i.e. slow movements, tremor, rigidity) symptoms.

Dementia is typically diagnosed through a combination of patient history, cognitive testing and diagnostic procedures.

There is a range of non-modifiable (age, genetics) and modifiable (lifestyle) risk factors that increase the risk of dementia. Promisingly, around half of the risk for dementia comes from potentially modifiable risk factors such as obesity, physical inactivity, smoking, low educational attainment, diabetes, hypertension and depression, which can all be treated by modifying your lifestyle.

Additionally, reducing the prevalence of frailty in older age, a condition characterised by reduced strength and a vulnerability to illness and life's stressors, significantly decreases the risk of developing dementia.

THE BENEFITS OF EXERCISE

Currently dementia has no cure. There are however treatments for the symptoms of dementia (such as memory, agitation, depression, etc.). In addition to a limited number of approved medications for the treatment, five lifestyle interventions have emerged as effective lifestyle changes to maintain brain health in older adults.

These interventions are recognised by Australia's peak dementia body Dementia Australia and include being physically and cognitively active, adhering to a Mediterranean diet, maintaining social networks, and minimising chronic disease burden.

Currently, there are no formal guidelines for exercise and dementia but there is extensive research indicating that if you are more physically active, less sedentary, stronger, fitter and less frail you can reduce your risk of dementia in the future.

TYPES OF EXERCISE RECOMMENDED

The aims of exercising for brain health and dementia are to maintain and/or improve cognition, independence and mobility, as well as minimising the risk of falls and prolonged periods of bed-rest and sedentary time.

This is best achieved through an exercise prescription involving aerobic exercise, resistance training and dual-task balance training that is of moderate to high intensity. This is the most effective for maintaining the brain's structure and function, and reducing the risk of frailty and falls, which can often accelerate cognitive decline in older age.

In moderate to severe dementia it may be difficult to maintain the appropriate intensity of aerobic exercise, and therefore frequent, smaller bouts of movement throughout the day to breakup prolonged sedentary time is a good alternative.

Resistance training should be performed with moderate to heavy loads that gradually get heavier with each session on two to three days per week. A combination of machine weights (i.e. horizontal leg press) and functional movements (i.e. chair stand) should be used to target muscles of the thigh, hip, buttocks, upper back, and the back of the arm, as these muscle groups are crucial for maintaining mobility and independence.

Dual-task balance training involves training your balance at the same time as performing cognitive tasks. An example may include walking heel-to-toe as fast and accurately as you can while trying to name as many countries as you can at the *same time*. This sort of training is best performed under supervision when you are not fatigued, at the start of a session, and with a nearby rail or bench for support.

Lastly, while maintaining balance is a key part of the training, learning to regain your balance by practising taking a purposeful step is also just as important for falls prevention as it trains you to react fast should you begin to fall in everyday life.

SPEAK TO THE EXERCISE PROFESSIONALS

If you are concerned about a loved one or yourself, be proactive and seek a cognitive health check-up from your GP and discuss ways to manage your brain health.

While there, ask to see an Accredited Exercise Physiologist to get professional guidance on the best exercise prescription for you.

Expert Contributor: *Dr Michael Inskip, PhD; Accredited Exercise Physiologist; Associate Lecturer in Exercise Physiology at James Cook University; and Honorary Associate Lecturer at University of Sydney*

PARKINSON'S DISEASE

Parkinson's disease is a progressive disease of the nervous system marked by tremor, muscular rigidity, and slow, imprecise movement and affects an estimated 100,000 Australians.

While medication can help control the symptoms of Parkinson's disease, the benefits of exercise have shown in more recent years to further improve progress in individuals with neurological conditions.

THE BENEFITS OF EXERCISE

Current research shows that exercise is important for individuals with neurological conditions as it not only improves cardiorespiratory fitness, but also muscle strength. This in turn has shown to have positive effects on managing symptoms associated with Parkinson's disease.

Remember that better mobility may improve quality of life and prolong independent living. Exercise may also have positive effects on mood and improve brain function and make drug therapy more effective.

TYPES OF EXERCISE RECOMMENDED

Every individual is unique, so it's important to remember that although a combination of aerobic, resistance, flexibility and balance exercises have the best overall effect, modifying each element to suit a person's unique circumstance may be needed.

Aerobic Exercises

Aerobic exercise is described as continual movement to assist in the improvement of cardiorespiratory function. This includes walking, cycling, swimming and even dancing! Exercising to music specifically has seen some fantastic results in managing Parkinson's symptoms. Dance for Parkinson's Australia run specialised dance classes across Australia, providing a social environment to share stimulating activity.

Strength Exercises

Maintaining strength is not only important to keep our muscles healthy, it also helps with daily activities like getting off the toilet and getting out of the car which can become more difficult when living with Parkinson's.

Resistance exercises can be performed using body-weight, light hand weights, resistance bands, various machines found in a gym setting, or even using common household items like cans of food. Moving the muscle under a greater resistance promotes an increase in muscle mass.

Those living with Parkinson's disease may like to participate in a group setting, a home program, or a combination of both.

Balance Exercises

Declining balance is common as we age. Unfortunately, this is also common in individuals with Parkinson's. Practicing both static balance and dynamic balance, in a range of different foot positions and environments, are great ways to maintain and even improve balance. Tai Chi is also a great option for balance training.

Due to increasing rigidity or stiffness, individuals living with Parkinson's may sometimes need additional stretching exercises. Stretching of the legs, arms and torso are all important to ensure you can function at your best. Research has shown that exercising in a group setting helps with motivation to continue participation.

EXERCISE FOR NEUROPLASTICITY

Many studies have shown that repetitive exercise is important for individuals living with Parkinson's as it encourages what is called 'neuroplasticity' or 'the ability to create new neural pathways in the brain'. Making these new connections in the brain assists with managing the symptoms of Parkinson's.

Exercises include:

- Cycling
- Walking (including treadmill walking)
- Boxing
- Treatment found in the LSVT Program
- Exercises found in a PD Warrior Program

SPEAK TO THE EXERCISE PROFESSIONALS

If you're living with Parkinson's disease, it's important to contact a health professional before commencing exercise to ensure your safety. An Accredited Exercise Physiologist can assess and tailor an exercise program specific to your individual needs. They will supervise your exercises and ensure you start at a light intensity, gradually increasing your prescription based on your progress.

Sometimes individuals with Parkinson's may need to be cautious during hot temperatures, around trip hazards and if they are fatigued or unwell. Your Accredited Exercise Physiologist will adapt your program and always be there to guide you.

For further resources, download the *Exercise is Medicine® Australia factsheet on Parkinson's Disease here.*

Expert Contributor: *Elise Hoyer, Accredited Exercise Physiologist at BallyCara*

> Aerobic exercise helps to improve cardiorespiratory function. This includes walking, cycling, swimming and even dancing!

CANCERS

With 1 in 2 Australian men and women being diagnosed with cancer by the age of 85, there's over 1 million people alive in Australia who are either living with or have been previously diagnosed with cancer.

Some of the more common cancers in older adults include:

» Breast cancer » Prostate cancer » Lung cancer » Bowel cancer

Thanks to advances in treatment, many people are living longer after a cancer diagnosis. Living longer is one thing but living well is even better. We can use exercise to counteract the many side effects of cancer treatment so people can live long and fulfilling lives.

Cancer treatment can create an accelerated ageing process. For example, 12 weeks of chemotherapy creates a similar decline in cardiorespiratory fitness as seen in more than a decade of ageing, and it can accelerate the loss of muscle mass and strength and cause a rapid loss of bone mass. The way to counteract this ageing process is through appropriately prescribed exercise.

Exercising before, during and after cancer treatment offers the most protective effect, but it is never too late to start.

THE ROLE OF EXERCISE IN CANCER CARE

In 2009, Exercise & Sports Science Australia (ESSA) published the first ever position statement in the world on exercise guidelines for people with cancer. Since then, there has been exponential growth in research evaluating the role of exercise pre-, during and post-cancer treatment.

More recently, further literature has been published, including the 2019 ESSA position statement on cancer-specific exercise prescription, and the 2019 ESSA consensus statement on the role of Accredited Exercise Physiologists in the treatment of cancer.

THE BENEFITS OF EXERCISE

Exercise is widely accepted as important for maintaining good health, reducing the risk of chronic disease, and aiding rehabilitation from disease. Physical activity decreases the risk of developing many cancers including our common cancers.

The benefits of exercise for people with cancer include:

» Improved muscle strength and fitness
» Improved physical function to help with everyday activities
» Improved immune function
» Improved mood and self-esteem

- Reduced hospitalisation duration
- Reduced psychological and emotional stress, including depression and anxiety
- Reduced number and severity of symptoms and side effects reported (e.g., pain, fatigue, nausea)
- Reduced chance of developing new cancers and other diseases such as cardiovascular disease, diabetes and osteoporosis
- May improve tolerance to treatment by reducing chemotherapy related toxicities such as chemotherapy induced peripheral neuropathy and cardiac deficiency, therefore reducing treatment delays
- May improve the efficacy of treatment
- Increased chance of survival and reduced chance of recurrence

THINGS TO REMEMBER

It's important to remember that it's not a "one size fits all" approach. Appropriate exercise prescription for those living with cancer needs to be targeted and individualised by an exercise professional according to patient- and cancer-specific considerations.

After listening to you and your needs, an exercise professional will prescribe the correct dose of exercise. This includes the right mode, frequency, intensity and duration of exercise for you.

Remember that sometimes a seemingly 'easy' activity, for example walking for 10 minutes, might feel like moderate intensity during treatment, so it's important to exercise at an intensity that feels right.

As we age, there are often other health issues we are dealing with, such as joint pain, osteoporosis, balance problems and heart conditions. Accredited exercise professionals will consider these health conditions when prescribing an exercise program. These health conditions can also benefit from exercise when appropriately prescribed.

SPEAK TO THE EXERCISE PROFESSIONALS

Everyone's treatment programs and backgrounds are different, which means the exercise program needs to be unique as well. The very best way to know what type of exercise to do is to work with an Accredited Exercise Physiologist, as they're the experts in exercise prescription.

Currently there are over 6,000 Accredited Exercise Physiologists throughout Australia and your cancer care team will be able to recommend one who specialises in cancer. You can find one close to your home by looking at the online ESSA directory.

For further resources, download ESSA's *Exercise & Cancer eBook*, available for free here.

Expert Contributor: *Dale Ischia, Accredited Exercise Physiologist at Moving Beyond Cancer in Melbourne*

> We can use exercise to counteract the many side effects of cancer treatment so people can live long and fulfilling lives.

HEART HEALTH

Cardiovascular disease (CVD) remains the leading cause of death worldwide and in Australia. Approximately 27% of all deaths and 11% of all hospitalisations are attributed to CVD in Australia, with more than 80% of hospitalisations being for people aged over 55 years.

Very high rates of CVD exist for Aboriginal and Torres Strait Islander people and those living in remote areas (including farming communities).

Heart disease is strongly linked to risk factors such as smoking, high cholesterol, high blood pressure, diabetes, being inactive, being overweight, an unhealthy diet and depression.

THE BENEFITS OF EXERCISE

Exercise is wonderful for the heart, both to prevent CVD in the first place, and to 'rehabilitate' the heart after a big event such as a heart attack. There is excellent information provided by the National Heart Foundation of Australia on exercise for people with CVD.

Increasingly, exercise has been shown to be beneficial for the heart for people experiencing cancer or mental health issues. The heart is a muscle and like any other muscle, it benefits from exercise. It will become slower but stronger, and often reduce blood pressures. Exercise can also help the body to process cholesterol, sugars and fats. If the benefits of exercise could be captured into a single pill, it would be the most prescribed drug in the world.

THINGS TO BE AWARE OF

If you are someone who already has cardiovascular disease, then your doctor or other health professional should have recommended some form of exercise to you. The first thing to do is to get proper exercise advice and a personalised exercise plan by an Accredited Exercise Physiologist.

You should start with a proper exercise assessment which should enable the exercise professional to design a program ideally suited to you that is both safe and effective. Then when you are underway, it is important that you monitor any symptoms that you may experience during or immediately after exercise and convey these to your exercise professional as soon as possible. In that way, any new or worsening of your condition can be dealt with appropriately so that you can quickly get back to exercise and a good lifestyle.

There are many smart fitness devices on the market now (watches, smartphone apps) that can be very helpful, but these often need to be adjusted for people with CVD. For example, it is often inappropriate or even unsafe to use the heart rate guides on these smart devices if you have CVD. Again, your accredited exercise professional will guide you on this.

TYPES OF EXERCISE RECOMMENDED

The main forms of exercise that are known to improve heart health are aerobic exercise and strength exercise. Aerobic exercise includes walking, jogging (if you are able), cycling and swimming, and any variations of these such as golf or tennis. These modes of exercise can also be done in a gym using a treadmill or gym bike.

Strength exercises include lifting weights, using machines, rubber bands, balls or simple equipment such as a park bench or a wall, or even using your body-weight as the 'resistance'. It is important for people with CVD that your exercise program be designed based on a proper assessment at the start.

SPEAK TO THE EXERCISE PROFESSIONALS

ESSA has an online directory of more than 6,000 Accredited Exercise Physiologists around Australia who are highly trained to support you to develop and implement a safe, effective and personalised exercise plan.

Accredited Exercise Physiologists will understand the nature of whatever CVD you may have, and be able to properly assess you, design a plan that you will enjoy doing, and then support you through not only the good times, but other times that can be challenging.

> For further resources, download the ***Exercise is Medicine® Australia factsheets on various heart conditions here.***

Expert Contributor: *Professor Steve Selig, Accredited Exercise Physiologist and ESSA Fellow*

> The heart is a muscle and like any other muscle, it benefits from exercise.

OSTEOPOROSIS

With over 1.2 million Australians affected by osteoporosis, it's easy to see why looking after bone health is important as you age.

Throughout our lifetime, our bones are constantly going through a process called 'bone remodelling'. New bone cells are produced (bone formation) and old bone cells are removed (bone resorption). In osteoporosis, the rate of bone resorption is increased, with no increase in bone formation. This means that we get rid of old bone cells at a faster rate than we create our new ones, causing an overall change in the structural integrity of our bones.

Osteoporosis is classified based on your Bone Mineral Density (BMD). When you go for a bone mineral density scan, you will receive a T-score which represents the density of your bone. They will then classify your bone health into three categories:

» Osteoporosis – where you have a BMD lower than -2.5

» Osteopenia – where you have a BMD between -1 to -2.5

» Normal bone health – where you have a BMD higher than -1

THE BENEFITS OF EXERCISE

Exercise provides valuable benefits on managing and even reversing the signs of osteoporosis. It can help bones modify their shape and size so they become stronger and this can prevent injuries. Exercise also increases muscle strength and improves balance which can help reduce the risk of falls.

TYPES OF EXERCISE RECOMMENDED

It is important to know the areas and bones affected by osteoporosis and the severity before beginning an exercise program to ensure your accredited exercise professional can tailor a safe program that is going to meet your specific needs.

Strength Exercises

Strength training is one of the best exercises for osteoporosis. Application of sufficient load on the skeletal system helps stimulate bone formation. The most effective way to do this is through a well-designed strength, or resistance, training intervention. In fact, numerous studies show that resistance training causes significant improvements in BMD.

Plyometric Exercises

'Plyometrics' are explosive, powerful exercises that are trained to activate the quick response and elastic properties of the major muscles. It causes the participant to exert a high degree of force for a short period of time. Examples include exercises like jumping, skipping and hopping.

Although research shows that jumping combined with resistance training show greater improvements in BMD than strength training alone, this style of training **must be completed** under the prescription and supervision of an accredited exercise professional to avoid injury.

Sound extreme? It doesn't have to be. Plyometrics don't have to be super explosive movements like you see athletes performing. It can be simple step down patterns from a step or forward/backward hopping patterns on the ground. The key is to start slowly and progressively overload under guidance of an allied health professional.

Aerobic Exercises

Although some aerobic exercise programs are not as beneficial in improving BMD, they should still be considered as part of the overall training plan. Weight bearing aerobic exercises such as power walking and jogging exercises may be useful in building BMD where walking may not be enough.

SPEAK TO THE EXERCISE PROFESSIONALS

Always chat to your GP and get advice from an exercise expert before starting a new exercise regime. An Accredited Exercise Physiologist is specially qualified to prescribe exercise for those with osteopenia or osteoporosis, and will work alongside your GP to ensure exercise prescription is safe and effective.

TIPS FOR GETTING STARTED

See a qualified exercise professional – When it comes to exercise, a generic program isn't always the best way to start your training. Having an individualised program by an Accredited Exercise Physiologist that is based on your assessment findings will be extremely beneficial.

Use the right resistance – Establishing suitable resistance training loads will allow you to perform strength training safely and effectively.

Check in with yourself – Make sure you track your muscle and joint soreness each day and be sure to let your Accredited Exercise Physiologist know how you're feeling. This will help to establish the proper training loads moving forward.

Progressive overload is key – Progressively overloading your skeletal system improves your muscular strength and ensures you continue to see results.

Find Balance – Incorporating a balance component will help to prevent falls and reduce the risk of osteoporotic fractures.

> For further resources, access the ***Exercise & Sports Science Australia (ESSA) Position Statement on Exercise and Osteoporosis here.***

Expert Contributor: *Adam Luther, Accredited Exercise Physiologist at Absolute Health & Performance*

OSTEOARTHRITIS

Osteoarthritis (OA) is a leading cause of pain and disability in Australia and is widely understood to be the result of changes within the joints. However, there is strong evidence these days to suggest that OA a changeable 'whole person condition' that may be influenced by many physical, lifestyle and psychological factors.

For example, lack of exercise and/or physical activity, poor pacing of activity (i.e. doing too much too soon), poor sleep habits, excessive alcohol, smoking and/or other health conditions can impact OA. Psychological factors such as negative beliefs about pain and OA, fear of pain, fear of movement and activity, or emotional factors such as stress, anxiety, depression and anger, are also all factors that may impact upon your condition.

There is also strong evidence to suggest that many suffers can successfully manage their condition without needing surgery.

THE BENEFITS OF EXERCISE

It is widely accepted that getting active can reduce pain, reduce disability and improve function for those with OA, not to mention improve outcomes for other chronic conditions (e.g., diabetes, cardiovascular disease, depression). Below are some of the types of exercise that may be helpful:

Strength exercises will strengthen some of the muscles around the hips and knees which can often help you perform everyday tasks with greater ease. These muscles are often weaker in those who suffer from hip and/or knee OA. Exercises such as step ups, squats and chair stands are all good exercises.

Aerobic exercise such as walking, cycling, swimming or anything else of that is continuous and increases you heart rate is helpful and should be a part of any plan for those with OA.

Anything else that you enjoy! If there is another form of exercise that you enjoy (e.g., water exercise, dancing, Tai Chi), then go for your life. The best exercise is the one that you are going to do!

THINGS TO BE AWARE OF

The pain you experience as a result of OA is not an accurate measure of damage or so called 'wear and tear' or a measure of any harm that you are doing to yourself if experienced while being active.

It is important for people who suffer from OA to be aware that pain may be present when exercising and it is safe for you to be active when you have mild pain. Keeping it at a level that eases off afterwards and makes your pain no worse the following day will ensure you are able to keep making progress.

With the right plan and a little bit of persistence, you may find you can perform exercise with greater ease and less pain and get back to the things you love doing (e.g., gardening, playing golf, walking the dog).

But don't panic if you have a 'flare-up' of pain as this may be a sign you have done too much too soon, rather than any harm you have done. It is common to have some flare-ups when you are starting to get active again, so stay calm, and discuss your exercise program with your accredited exercise professional to gradually work on getting back to being active again, when you are able.

Medical imaging such as x-rays and MRIs are also not usually required to assess and treat OA. Often medical imaging can be more harmful than helpful as it may leave you feeling that the changes seen on x-ray are the sole cause of your symptoms. It is important to be aware that it is not uncommon to see significant changes on x-ray for those who have little or no pain (e.g., degenerative changes or changes in cartilage).

THE FACTS ABOUT OSTEOARTHRITIS

To help guide those living with OA to make more informed decisions about their condition, here are some of the most common myths and facts:

MYTH 1: Osteoarthritis is caused by ageing and will inevitably progress over time

FACT: Osteoarthritis is a changeable condition, regardless of age and stage of condition. Making sense of your condition, getting active and addressing any other relevant lifestyle factors will go a long way.

MYTH 2: There's nothing you can do; you just have to put up with the pain and symptoms of osteoarthritis

FACT: The current guidelines recommend exercise as one of the most effective first-line treatments for osteoarthritis.

MYTH 3: Exercise will make osteoarthritis worse

FACT: One of the best ways to reduce the pain incurred during every day activities is to complete exercises that gradually increase in difficulty over time, which are specifically prescribed for your condition and its severity.

MYTH 4: If you have hip or knee osteoarthritis then surgery is the only option

FACT: Surgery is avoidable with a more conservative approach involving exercise and addressing other lifestyle factors. An Accredited Exercise Physiologist can help guide you through this process and help get you back doing the things that you love doing.

SPEAK TO THE EXERCISE PROFESSIONALS

When it comes to OA, self-management is something to be working towards.

The goal of your interactions with an Accredited Exercise Physiologist should be to empower you with the knowledge, skills and tools to manage your own condition and get you back to the things that you enjoy.

Remember, you are the most important person when it comes to managing your condition and an Accredited Exercise Physiologist will prescribe an exercise plan that's specific to you and your needs.

For further resources, download the *Exercise is Medicine® Australia factsheet on Osteoarthritis here.*

Expert Contributor: *Zac O'Rourke, Accredited Exercise Physiologist at Gippsland Lakes Complete Health*

PERSISTENT PAIN

Pain is defined as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage".

Pain is normal – it is one of the human body's protective systems. Its intention is to alter human behaviour. Pain occurs when your brain (nervous system) concludes that there is more credible evidence of danger related to your body than there is credible evidence of safety related to your body. Equally, pain will not occur when our credible evidence of safety is greater than our credible evidence of danger.

Acute pain (also known as 'short-term' pain) resolves within three months, which is the duration considered to be sufficient for normal healing. Pain can occur, and persist, without actual tissue damage or harm.

Pain that persists beyond three months is known as persistent or chronic pain.

As pain persists, it is more associated with protective changes that the human body has made, and less associated with actual tissue harm. The ability of the body to change, through bioplasticity, allows these protective changes to occur over time. For example, as pain persists, the body can play the 'pain tune' easier because the nervous system has become more sensitive. Pain may also spread to other body parts, as whole-body sensitivity increases.

But whilst the pain system can become overprotective, the same bioplastic properties of the body can be used to re-train the pain system to become less protective. Exercise is one proven method to retrain the pain system to become less protective.

PERSISTENT PAIN STATS FOR OLDER ADULTS

For Australians aged 65-74 years, 1 in 5 will experience moderate to severe pain lasting longer than six months. Chronic pain increases with increased age.

The financial cost of chronic pain in Australia is estimated at $73.2 billion according to Pain Australia.

People with chronic pain have higher levels of depression and anxiety, higher rates of other long-term health conditions, and reduced performance of everyday life activities.

MEDICATION USE FOR PAIN

Medication is used to help treat the symptoms of pain, which can occur due to a variety of conditions such as osteoarthritis, osteoporosis, etc. If medication is required, short-term use is preferable. Longer-term pain medication use should be under the guidance of a medical professional.

Paracetamol, Aspirin, and Ibuprofen, when recommended by a GP, are considered safer, less dependent pain medications to that of opioids.

Common opioids include oxycodone, codeine, tramadol, buprenorphine, tapentadol and morphine. All opioids carry a significant risk of dependency, accidental overdose, hospitalisation, and death.

THE BENEFITS OF EXERCISE

Exercise is proven beneficial for numerous persistent pain conditions, including neck and back pain, arthritis, fibromyalgia and migraines.

Many people think about exercise benefits for pain as increasing strength, endurance or range of movement.

Exercise for people in pain also facilitates the irresistible forces of healing in the human body such as anti-inflammatory effects; releases pain management chemicals, such as endorphins, from the natural medicine cabinet of the brain; reduces the sensitivity of your nervous system; and improves your sleep quality and mood.

TYPES OF EXERCISE RECOMMENDED

As the source of pain can vary depending on your health condition, it can be very hard to identify specific exercises to complete to assist in alleviating your pain.

Whilst standard guidelines recommend a combined total of 2.5 hours of moderate intensity exercise each week, it is recommended for people in pain to start at a baseline that can be tolerated.

This may require you to do small blocks, such as starting with 10-15 minutes at a tolerable level, once or twice a day, performing exercise that you can manage and enjoy.

It is recommended to gradually build up to perform exercise across most days of the week.
Types of exercise that are beneficial include:

- **Recreational activities** that you enjoy. The perceived threat to your pain system is reduced from your enjoyment and therefore physiologically better tolerated. This can include playing with children, and social exercise activities such as outdoor walking classes and excursions.
- **Water-based exercise** can calm and settle the sensitive nervous system due to the therapeutic properties of water. The buoyancy effects of water also better enable bodily movement that may be more difficult to perform on land.

- **Targeted resistance exercise** may use your body-weight, resistance bands, free weights and machines. This increases your strength to reduce the risk of falls and ability to perform everyday activities.
- **Aerobic endurance exercise** improves your cardiorespiratory fitness which is often reduced in people experiencing persistent pain. This may include cycling, walking and rowing on an ergometer.
- **Stretching and flexibility** increases the ability to move joints and body parts through and increase range and reduces tightness.
- **Mind and body exercise** such as Yoga and Tai Chi can improve mental well-being, balance, mobility and pain.

THINGS TO BE AWARE OF

When in pain, it can be normal to worry or be anxious about increasing your physical activity levels or starting an exercise program. It is important to find types of exercise that you enjoy, feel confident with, and know that you are safe.

During or following exercise, if your pain levels increase to intolerable levels, you may be experiencing a flare-up. Flare-ups can be unpleasant, but do not worry, as they are normal.

During flare-ups, your overly protective pain system is protecting you before any tissue harm or damage occurs. It is creating an unpleasant experience that is trying to change your behaviour to avoid movement.

During flare-ups, it is important to keep actively moving where possible, by decreasing your physical activity to tolerable levels. Then, through repetitive, tolerable graded exercise and movement, you can gradually increase your levels. Doing so helps re-train your pain system to be less protective.

SPEAK TO THE EXERCISE PROFESSIONALS

It's important to seek advice from a qualified exercise professional to help you exercise correctly for your pain to ensure you are correctly targeting the source of pain.

Accredited Exercise Physiologists are university qualified allied health professionals trained in exercise prescription for persistent pain.

To find an Accredited Exercise Physiologist near you, click here.

For further resources, download the ***Exercise is Medicine® Australia factsheet on Chronic Pain here.***

Expert Contributor: *Chris Sinclair, Accredited Exercise Physiologist and Managing Director at EXPHYS®*

> **Water-based exercise can calm and settle the sensitive nervous system due to the therapeutic properties of water.**

EXERCISE TO PREVENT FALLS

Falls are a main cause of morbidity and disability in the older population. More than one-third of persons aged 65 years and over fall each year, and in half of such cases the falls are recurring.

Falls affect older adults in many ways.

Common physical injuries include:

- Hip and wrist fractures
- Hip and shoulder dislocations
- Head injuries and abrasions
- Bruising and sprains

Common psychological risks from a fall include:

- Reduced quality of life
- Fear of falling
- Loss of confidence
- Increase in poor mental health such as depression
- Physical health deterioration from a subsequent restriction of activities

Remember: falls are preventable, and strength and balance can be regained after a fall, with appropriate exercise.

THE BENEFITS OF EXERCISE

As we age, exercise may become daunting, especially post-joint replacement or after years of sedentary (or inactive) behaviour. Sometimes people may not know the safest way to start an exercise routine; they may be wary of their balance deteriorating, or they may be living with chronic pain.

Balance exercises are paramount for all individuals but become increasingly important to reduce the risk of falls in older people. Falls may include slips, trips and near misses. They can happen to anyone, but if falls do occur, injuries are more significant the older we get.

With all this in mind, surely each of us knows either a family member, neighbour or friend that may benefit from some balance and leg strengthening. Perhaps it's even yourself. Please spare some time in your busy lives to try and practice these exercises together.

TYPES OF EXERCISE RECOMMENDED

Some simple exercises can be practiced at home to reduce the risk of falls. They can be practiced sporadically throughout the day and you can build up your capacity slowly.

Some pointers:

» Move slowly

» Stop if you feel faint or experience sharp pains

» Complete the exercise near a wall or somewhere that offers support for the hands if needed

» Stand tall and breathe deeply to improve your posture

Exercises to improve balance are best practiced **daily**, however, the guidelines recommend being active at least three times per week, with accumulation of at least two hours. Try to complete the below exercises as often as possible for the best outcomes.

1. Heel to toe balance

As well as improving overall balance, this exercise will help you keep your balance if you should have to walk through a narrow space.

First, choose a level appropriate for you:

» *Level 1:* Feet together

» *Level 2:* Step forward

» *Level 3:* Heel to toe standing

> **Tip:** You should feel a tiny bit wobbly, but not so wobbly you feel you will fall. By feeling wobbly you will help train leg strength and balance.
>
> **Practice:** 4 x 10 seconds – alternating between left and right foot in front.
>
> You may find that it is a lot easier to balance one leg than the other. This is okay, just persevere with both legs so that you do not favour one side too heavily when walking and stepping.
>
> Remember to hold on – this is not cheating! Maintain a tall stance and as you improve, try to hold on with just your fingertips held lightly on support.

2. Sideways walking

This exercise will help improve hip stability, and help you keep your balance if you need to take a sideways step to avoid oncoming traffic or in the instance of recovering from a bump from side on (relying on your new-found leg strength!).

> **Practice:** 2 x 10 steps – either on the spot or up and back the length of the kitchen bench or wall. Steps don't need to be excessively large, small is fine too.
>
> Remember to hold on, maintain a tall stance and as you improve, try to hold on with your fingertips.

3. Marching on the spot

This exercise will help with foot clearance when walking up or down steps, help with getting in and out of a car or bus, and help you feel stronger and less fatigued in climbing up the stairs.

> **Practice:** 2 x 5-10 steps – alternate between lifting the left and right legs.
>
> Feel free to hold on to two strong supports, one in each hand.
>
> Stand tall. Keep the body straight (avoid leaning to one side).
>
> Don't worry if the knee doesn't lift to knee height, lift as high as you feel comfortable with – it will improve over time!

Tai Chi

Tai Chi has also been shown to improve balance. In a largescale review, Tai Chi was found to successfully prevent falls and decrease the rate of falls in older adults. Tai Chi's falls prevention effect improved with increased practice. This highlights the importance of small bouts of exercise, often, to keep us healthy and active across the lifespan.

Strength Exercises

Although balance is the main type of exercise for falls prevention, evidence is also suggesting the importance of incorporating strength exercises to increase muscle stability which improves body mechanics and balance, which are all important in reducing falls.

SPEAK TO THE EXERCISE PROFESSIONALS

It's important to see an accredited exercise professional, such as an Accredited Exercise Scientist or Accredited Exercise Physiologist, for further advice before commencing a balance program or if any further concerns are raised.

For those living with a chronic condition, speaking to an Accredited Exercise Physiologist can ensure they're prescribed a balance exercise program suitable for all aspects of their health.

For further resources, access the ***Exercise & Sports Science Australia (ESSA) Position Statement on Exercise and Falls Prevention in Older People here.***

Expert Contributor: *Alex Hardy, Accredited Exercise Physiologist at IGNITE Health & Fitness*

> Exercise provides a good way to connect and engage with other people and minimise the risk of social isolation and loneliness.

EXERCISE TO PREVENT LONELINESS

In Australia, 1 in 2 adults report feeling lonely at least once a week, with older Australians most prone to experiencing loneliness given they often live alone; as social isolation is a major contributor to loneliness. Older adults may also experience a loss in functional ability as part of the ageing process, which may make it more difficult to get out and stay socially connected.

Loneliness is a negative feeling that arises when someone's social needs are unmet by their current social relationships. It can be harmful to both mental and physical health and is a significant health issue because of the serious impact it has on peoples' lives.

There is strong evidence that loneliness can increase your risk of early death by as much as 26%. This means that the risk of premature death associated with loneliness is similar to that associated with well-known risk factors such as obesity and smoking.

THE SOCIAL BENEFITS OF EXERCISE

In all stages of life, it is important to be physically active and many older people do live very active and engaged lives. As we get older, keeping physically active enables you to maintain your independence whilst also providing a good way to connect and engage with other people and minimise the risk of social isolation and loneliness.

One of the major factors that are known to increase the adherence of older adults to an exercise programs is their participation in community group programs. This is primarily due to the social support and sense of belonging they receive whilst in a group setting. The opportunity to interact with friends and peers is another benefit of group exercise, meaning individuals are more likely to maintain their exercise routine if doing it with others.

Exercising on your own also brings with it many benefits and provides an opportunity to take in your surrounds and bump into neighbours or others who are on the same 'exercise shift' as you. All these interactions help with the enjoyment and motivation to exercise, so do what works for you and enjoy it.

Whatever exercise you choose to undertake, the important thing is to enjoy it as participation is the key. The positive benefits that can be gained from participation in a regular exercise program include improved physical and cognitive abilities, increased mood and social connectedness. These changes can subsequently lead to an overall greater level of independence and well-being and or at least a maintenance of your current levels.

THINGS TO BE AWARE OF

The hardest part if you have been inactive for a while is getting started. Exercising should be enjoyable so find something you like doing and make a plan to do it. Little and often is a good way to go so you can build it into your daily routine and find the times that work best for you. Start gradually and progressively increase.

It can be important to vary your activities. Some days focus on cardiovascular fitness, things that make you huff and puff such as going for a walk or riding a bike. Other days focus on your strength and balance; stretching can be done every day even while sitting on your chair or lying on your bed.

Even when you feel like you don't want to exercise, just getting out of the house will increase your chances of saying hello to a neighbour or even a stranger walking by. It all helps to put a smile on your face.

Be proud to be exercising and be visible to others such as your neighbours and friends who will encourage you and hopefully someone may want to join you. The social community aspect of exercise can be positive in many ways, but one benefit is that it can keep you accountable.

SPEAK TO THE EXERCISE PROFESSIONALS

Chat to your GP if you are concerned about exercise and restrictions for any health conditions that you may have and ask to see an Accredited Exercise Physiologist who will help you get started with a program tailored just for you.

Accredited Exercise Physiologists deliver safe and effective community-based programs that assist with improving an older adult's physical function, quality of life and self-management whilst considering individual needs and medical conditions.

Expert Contributor: *Associate Professor Annette Raynor, ESSA Fellow; School of Medical and Exercise Science at Edith Cowan University*

SPORT FOR OLDER ADULTS

In older age, sport can be engaged in either recreationally or competitively. Research on recreational older persons and masters athletes has shown numerous sporting benefits.

Sport may provide even greater social, mental and cognitive health benefits than other forms of exercise due to the social interactions and decision-making components that occur frequently during sport.

Many of these benefits can be obtained with just one or two sessions per week.

BENEFITS OF SPORT FOR OLDER ADULTS

Physical	Social	Mental	Cognitive
↑ Muscular strength and endurance	Meeting more people	↑ Quality of life	↑ Cognitive function and decision making
↓ Body fat ↑ muscle and bone mass	Become part of a community	↑ Self-esteem	↓ Risk of dementia and Alzheimer's disease
↑ Immune function ↓ risk of chronic diseases (breast and colon cancer, heart disease, hypertension, type II diabetes)	↑ Social support	↓ Anxiety and depression	↓ Memory failure
↑ Sleep quality and ability to cope with pain	Playing with younger family members	↑ Motivation	

Research has also shown there are several constraints on older individuals engaging in sport. The major reasons are poor health, lack of time (family, career, caregiving), social expectations discouraging sport participation, lack of accessible opportunities and lack of self-discipline.

Once you do find opportunities to connect with other older adults who share your sporting interests, you will discover the many benefits will override these barriers.

SPORT CAN BE ADAPTIVE FOR CONDITIONS AND DISABILITIES

Many sports are now modified to allow more middle-aged and older adults to safely participate and reap the rewards of long-term sport participation. However, it is still recommended that older individuals who are considering engaging with sport first inform their family doctor or medical specialist, particularly older individuals with medical conditions.

Many major sporting organisations such as soccer, netball, basketball, swimming, Australian football, cycling, triathlon and track and field have activities organised at club levels for older people. Many of these formal clubs or informal gatherings will get together once or twice a week.

FIND A SUITABLE PROGRAM IN YOUR AREA

If you live in an apartment complex or retirement village, there may already be sporting activities that are available. If not, you may be able to encourage the management to develop such sporting activities.

A simple web search can also identify contact details for local, state, or national organisations that cater for older individuals. A list of major sporting organisations at national level can be found via the Sport Australia directory or you can locate local community sporting events via the PlaySport directory.

You can also visit your local pool or sporting facility, ring the local council or shire Sport and Recreation Officer, or jump online and look for community resources websites to find a local contact.

Don't be scared off. Get a local contact and ring them for a chat. You will be pleasantly surprised to find the emphasis is on fun, fitness and friendship rather than competition.

SPEAK TO THE EXERCISE PROFESSIONALS

ESSA has an online directory of accredited exercise professionals – Accredited Exercise Physiologists, Accredited Exercise Scientists and Accredited Sports Scientists – who can assist older adults initiate and adhere to long-term beneficial and safe sports participation by:

1. Working in conjunction with local organisations to develop sporting competitions for older adults. Examples of these could be Sport for Health programs, whereby the program is more sport- than exercise-based.

2. Developing short-term training programs that help prepare insufficiently active older adults for safe participation in sport. Such programs could be offered at relevant times throughout the year prior to the season or event commencing.

It's also important to not be scared off by the risk of injury. Research has shown that older athletes have similar or lower rates of injury than younger athletes. Training smart under the guidance of an accredited exercise professional can help prevent injury.

Expert Contributors: *Professor Peter Reaburn, Adjunct Professor and Head of Program at Bond University; and Dr Justin Keogh, Accredited Sports Scientist and Associate Professor at Bond University*

> Benefits of sport for older athletes range from improved strength, sleep quality and immune function to reducing the risks of chronic disease and memory failure.

FINDING THE RIGHT EXERCISE FOR YOU

Still unsure on how to include more exercise and physical activity into your daily routine?

Think about what you currently enjoy or used to enjoy doing, can you implement these activities again? Also think about any physical activities you always wanted to try, but never did. The saying "you can't teach an old dog new tricks" is just not true – it's never too late to try something new and in turn it's a great way to stimulate new pathways in the brain and even make new connections in the community.

If leaving the house or your community is difficult, there are various resources available that offer examples of online exercises and workouts, such as Exercise Right at Home. Home furniture (table, bench and chairs) can also be utilised in other ways to create a functional home exercise program such as chair stands, squats, going up and down stairs and even lunges.

Some easy examples of adding more physical activity into your life:

- Community exercise groups – many local councils often provide free or low-cost exercise classes and fitness programs for older people
- Travel and day trips
- Low impact sport e.g., bowls, croquet
- Clubs and groups e.g., local walking groups, ballroom dancing
- Walk around the golf course instead of getting the cart
- Walk up and down every aisle when doing the groceries
- Walking around the perimeter of a shopping centre before they open
- Incidental movement – household chores can also be incorporated to add more physical activity to your schedule e.g., vacuuming, gardening, hanging out the washing, making the bed, setting the dinner table, taking the rubbish out
- Walking around the sports fields either before or a after a friend or loved one's game
- Dance and move to your favourite music. Using music is a great way to make us feel happy and motivate us to move. Combining exercise with music is also known to produce more positive effects on brain function in older people than exercise alone

It's important to remember that any information you find online in videos, factsheets and other resources should be viewed as just a guide.

Each person is different, and their exercise prescription should be individualised by an accredited exercise professional to suit any health conditions they may be living with.

If you need extra support or have any concerns, talk to your local GP or accredited exercise professional where possible.

TESTIMONIALS

"Mary is 76-years-old and was fairly set in her ways, claiming that she used to hate exercise. A short daily walk was all Mary needed – or so she thought! But after a fall on the walking track, Mary began to question her fitness and found herself under the charge of an Accredited Exercise Physiologist at Absolute Health & Performance Group.

Three months later, Mary now feels like a new person. She is developing core strength and balance; has learnt to walk properly; has lost weight; her posture is improving; her clothes have begun to fit her better; her shoes don't hurt; and she feels more alert and positive. Mary is happy to announce to the world that she feels great!

The crucial factor Mary believes has been her one-on-one sessions with her Accredited Exercise Physiologist and the program they designed to address her needs and age. Their expertise and experience of working with older people assured Mary that she was in good hands; not an over-strained muscle or pulled hamstring in sight!"

Testimonial provided by **Adam Luther,** Accredited Exercise Physiologist

"Alice is a vibrant and now-active 69-year-old who was diagnosed with osteoporosis six years ago. During this time, her GP recommended doing some walking and this 'should be enough'. Alice became an avid hiker, conquering many hiking trials in Spain. Alice saw some excellent results with this increased physical activity, coupled with drug therapy, where she saw an improvement in her bone mineral density by 17%. However, during this time, Alice's health journey took a halt when she had to care for her mother (who made it to her 104th birthday!).

Consequently, Alice became inactive due to the demands of caring for her loved ones. After no success joining a group-based gym class, as the exercises were not tailored to her abilities, Alice then joined the BallyCara Burleigh Heads Community Centre group and was lucky enough to be a part of the Exercise Right for Active Ageing program. Alice started with an Accredited Exercise Physiologist in January of 2020 and has 'never looked back'!

Alice has reported to be thoroughly enjoying the structured activity, alongside doing her usual gardening, family time with the grandchildren and travels. Alice loved structured exercise so much after joining the program, she decided to give an osteoporosis-specific, heavy weights class a try. Here, Alice has also excelled and loved learning new movements and having the ability to 'lift heavy'. Alice is now currently participating in weekly online virtual sessions on Wednesdays, group classes on Thursdays and the osteoporosis-specific, heavy weights class multiple times a week."

Testimonial provided by **Elise Hoyer,** Accredited Exercise Physiologist

"Brian is a motivated 81-year-old with Parkinson's Disease who has recently commenced seeing an Accredited Exercise Physiologist in March 2020. Brian is currently on a Level 2 Home Care Package and has funding to see an Accredited Exercise Physiologist to help reach his goals to lose weight, build confidence, prevent falls and help improve strength, balance and function. Brian was originally referred after he had three falls in six months and his wife and care coordinator were concerned for his declining health.

Brian has always led an active life, in particular he loved playing AFL for Geelong. Even after he retired from high level football, Brian has continued to try and keep active by walking his dog and occasionally bike riding. Unfortunately, since his diagnosis of Parkinson's Disease 10 years ago, Brian has struggled to keep up his desired level of activity noticing increased freezing on his right side.

Over the last few months, Brian has been continuing to walk his dog while incorporating a home program of his own with assistance from his wife and participating in weekly home visits with his Accredited Exercise Physiologist. Brian's Accredited Exercise Physiologist has been incorporating a range of strength, balance and specific exercises adapted from the LSVT program to assist him to reach his goals. Brian loves his weekly home visits from his Accredited Exercise Physiologist saying it 'brings a ray of sunshine into his home during trying times'. Brian has noticed improvements in his mobility and strength."

Testimonial provided by **Elise Hoyer,** Accredited Exercise Physiologist

"Margaret, a caring 69-year-old lady, is one of the founding members of her community exercise group run by her local Accredited Exercise Physiologist in August 2018. Margaret was not active prior to commencing her group and wanted to meet like-minded individuals in her local area.

Margaret reported that she had tried other groups in the past but sometimes found members and instructors weren't as friendly and didn't meet her needs. When she joined the community group, run by her Accredited Exercise Physiologist, she knew she was in safe hands. Margaret has enjoyed improvements in her walking, strength, balance and confidence. In 2019, she even walked 5.7km as part of her community group team in the Gold Coast Marathon Festival!

Margaret reports she loves 'the sense of community with all the members' and how her Accredited Exercise Physiologist is always 'caring and looking out for me, even if I overdo it in the garden one week!' Margaret loves attending her weekly group and the knowledge that she will be exercising safely every week. She has also recently joined another gym group closer to home in the last few months, bumping up her group sessions to twice weekly."

Testimonial provided by **Elise Hoyer,** Accredited Exercise Physiologist

> It's never too late to try something new and exercise can be a great way to make new connections in the community.

"Jan is a lively 68-year-old who has been seeing an Accredited Exercise Physiologist to assist with the management of osteoarthritis in her knees and overall well-being for many years. In 2016, Jan's X-rays of her knees showed 'bone on bone' but as she was a regular participant in hydrotherapy, reformer Pilates groups, as well as doing her own cycling on her red three-wheeled-bicycle around her home, Jan only recently had her right knee replaced in July 2020. How impressive is that!?

Post-surgery, Jan requested to have home visits from her Accredited Exercise Physiologist and came home just five days after surgery with clearance and guidelines from her surgeon. Jan was very diligent with her exercises, following the strict guidelines from her surgeon and hospital physiotherapists, but Jan really enjoyed her twice weekly guidance from her Accredited Exercise Physiologist.

Over the coming weeks, with a gradually progressed exercise program, Jan was able to improve her range of motion, strength, balance and walking ability – being basically pain free! Jan said that her visits from her Accredited Exercise Physiologist 'really helped to keep me on track and my spirits up'. Jan was very excited to be cleared by her surgeon for driving and back into the pool for her hydrotherapy six weeks post-surgery.

Jan is continuing her own exercise program at home and her local pool, while participating in her weekly hydrotherapy group. She is excited to be able to regain her independence again after waiting for elective surgeries to open back up again during the COVID-19 pandemic. Jan's story is evidence of how pre-habilitation can really have a huge impact post-surgery."

Testimonial provided by **Elise Hoyer,** Accredited Exercise Physiologist

"Over the past four years, Pete had experienced significant functional decline due to a major stroke in 2017 and numerous uncontrolled seizures prior to Pete reaching out for support in exercise in April 2019 for his functional capacity, health and well-being. Pete was reliant on a four wheeled walker for walking and due to his balance impairments and lacked confidence in; talking to people, working in the shed at home, going out in public, or attending the men's shed.

Upon initially engaging in exercise, Pete experienced significant complications during exercise sessions associated with epilepsy and postural hypotension which resulted in dizziness, light-headedness, absent seizures, and balance impairments. In addition to these symptoms, Pete also experiences high blood pressure, ischaemic heart disease, chronic obstructive pulmonary disease, type 2 diabetes mellitus, peripheral arterial disease, and emphysema.

Despite the complications, Pete persisted in attending weekly exercise sessions for the past 17 months which involved exercises aimed at improving Pete's strength, fitness, balance, proprioception and mobility. Since commencing sessions with an Accredited Exercise Physiologist, Pete reported that due to exercise he has gained the confidence to be able to attend the men's shed three times each week, complete more of his daily activities at home, spend time in his shed working on the tools, and engage in independent exercise and group exercise classes.

Pete now walks independently, has not experienced an absent seizure in well over six months, has reduced the medications required to manage his high blood pressure, and reports significant improvements in his mental health and his ability to do his activities of daily living around the home and the shed. Due to Pete's experience in exercise, he is now a passionate and active advocate for the importance of exercise and can often be heard reminding the fellas down at the men's shed."

Testimonial provided by **David Dall'Alba, Accredited Exercise Physiologist**

"Blair is an 88-year-old gentleman who experienced unfortunate timing during COVID-19 lockdowns as he was forced to self-isolate and was confined to one room for a two-week period without any physical activity or therapy, and nil social contact with others. Unfortunately, this contributed to significantly increased pain and functional decline upon his return home after lockdown restrictions were eased.

Blair's primary concern upon his return to home following respite was the recurrent pain he experienced in his hips and lower back, which he reported as 10/10, with 10 being the worst pain imaginable and his strength and mobility limited. Due to the amount of pain Blair experienced on a daily basis, he experienced low mood, frustration and significant difficulties associated with walking, personal care, and transferring in and out of chairs or bed. In addition to Blair's persistent pain, he has been through, and currently experiences numerous health concerns associated with osteoporosis, residual weakness from multiple strokes, dementia, dizziness, numerous cardiac complications, prostate cancer, balance impairments, falls and fractures, renal impairment, vision impairment, hearing impairment, a left hip replacement and bilateral knee replacements.

Despite the significant pain, precautions, risks and difficulties in engaging in exercise, Blair wholeheartedly committed to engagement in weekly sessions with an Accredited Exercise Physiologist in late June 2020 with the support from his wife, Robyn, who assisted Blair in completion of his exercises on a daily basis.

Since commencing exercise physiology sessions three months ago, Blair reported that due to exercise, he no longer experiences any pain in his hips or lower back, feels more comfortable throughout his day, moves more easily, and is able to be more active. Six months ago, Blair was unable to walk with his four-wheeled walker more than 15 metres due to pain and he now is walking on a daily basis 10-15 minutes with the assistance of his four-wheeled walker.

At Blair's most recent cardiology review, his Cardiologist indicated that due to improved blood pressure management and a healthier heart, he no longer needed ongoing cardiology reviews. Due to Blair's newfound function, he plans to continue daily engagement in exercise to keep the cardiologist and his pain away, and build upon his strength, mobility and fitness."

Testimonial provided by **David Dall'Alba, Accredited Exercise Physiologist**

"Edna is a cheeky 93-year-old lady living with dementia (short-term memory loss) in assistance living on the Gold Coast. Edna has two lovely sons that assist with her care needs alongside her home care package services. Over the last few years, Edna has become more afraid of falling which limited the amount of physical activity she participated in. With the encouragement from her sons and package coordinator, Edna now has two Accredited Exercise Physiologist visit her a few times during the week. Her Accredited Exercise Physiologists have even encouraged the support workers coming in for her daily services to encourage Edna to participate in a daily walk or her home program on the fridge.

When Edna was younger, she used to work as a hairdresser, loved painting and frequently travelled around Australia with her late husband. Edna can always tell you the gossip of the English Royals and always has a story from where she was in the many photos around her unit. Over the last few months, Edna has noticed significant improvements in her balance, strength and mobility. At the beginning, Edna could only do two sit-to-stands before getting tired. Now Edna can do 10 in a row without assistance! This means that Edna now enjoys her coffee and cake at the café in her village with other residents.

Edna's sons reported that, 'not only have Edna's stamina levels increased but her overall attitude towards accepting help and care has changed.' Edna's sons further say they 'really appreciate the Accredited Exercise Physiologists' help motivating mum to get outside and see the sunshine. It's what she really needs'."

Testimonial provided by **Elise Hoyer,** Accredited Exercise Physiologist

"John is an energetic 81-year-old who has been living with Alzheimer's disease since 2018. John and his wife, Joy moved into assisted living in 2019 and never looked back. Through the assistance of a home care package, John is able to see his Accredited Exercise Physiologist twice weekly along with other daily care needs.

John has always been an active individual. Even after losing his left leg in a workplace accident in 1959 (5 weeks after he met his lovely wife, Joy of 59 years), John continued to coach AFL, and play cricket and golf in Victoria. When John and Joy moved up to the sunny Gold Coast in 1991, John started to play lawn bowls at his local club. It is here that John has made connections lasting a lifetime and found a real sense of community with his team.

The activities John participated in slowed down after being diagnosed with Alzheimer's. Joy said he used to spend lots of time on his own at home and rarely left. It wasn't until John's package coordinator suggested for him to start seeing an Accredited Exercise Physiologist to assist with maintaining his strength, balance and fitness. In the last year, with the help of his Accredited Exercise Physiologist, John has restarted playing golf in his village and continues to see improvements in his balance, strength and fitness. John says he enjoys 'keeping his mind and body active'."

Testimonial provided by **Elise Hoyer,** Accredited Exercise Physiologist

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