

**GUIDELINE FOR THE
PROMOTION OF ACTIVE
AGEING IN OLDER
ADULTS AT PRIMARY LEVEL**

Active ageing makes the difference

INTRODUC- TION

It is now widely recognised that regular physical activity is associated with reduced risk for several chronic diseases including coronary heart disease, hypertension, diabetes mellitus, osteoporosis, and depression (Pate *et al.*, 1995). In developed countries, over 10% of deaths each year may be attributable to lack of regular physical activity.

This association between physical activity and health is consistent and the magnitude of the effect is similar to that found between smoking and hypertension. Furthermore, there is a dose-response relationship between levels of physical activity and risk reduction, although the majority of the health benefits of physical activity occur in the transition from little or no activity to regular activity (3 or more times per week). In general, physical activity declines with age, and persons from the more disadvantaged communities and with lower levels of education are less likely to participate in leisure-time physical activity.

Physical activity is an important component of health for all individuals. However, in older adults physical activity is particularly important for maintaining functional independence and mobility and physical activity will slow (attenuate) the loss of muscle tissue and bone mineral density that occurs with ageing. Furthermore, regular activity in older adults has been shown to improve balance and postural stability, thus reducing the risk of falling and associated fractures. Finally, physical activity has been associated with improved psychological function in older adults, including self-efficacy (or one's belief in one's ability to complete a specific task or to control one's situation) (Mendes de Leon *et al.*, 1996).

• It is important to recognise that research on 'active living' in older adults will have many potential confounding findings. For example, older adults may be more physically active because they have fewer health problems or, alternatively, older adults with greater self-efficacy may be more likely to remain active. Furthermore, there may be other factors that modify the relationship between physical activity and health in older adults, including nutritional status.

• The promotion of brisk walking as a form of exercise holds considerable potential, both in terms of health benefits and its wide appeal to inactive groups. For both women and men in all age and socio-economic groups, brisk walking is reported to be the most popular form of active recreation (Foster *et al.*, 1995) and the most prevalent form of physical activity (The Sports Council and the Health Education Authority, 1992). Its appeal lies in the fact that it is easy to do, it is achievable by virtually all ages and fitness levels, it requires no special skill or attendance at special classes or facilities, it can take many forms - transport, recreational activity, exercise or sport - and the risk of injury is low.

• The older population show relative low participation rates in sport or formal exercise programmes, therefore habitual or customary physical activity should be encouraged.

• To accumulate 30 minutes of exercise at least 3 times a week is beneficial to health. Very old people can also benefit from participation in regular exercise whilst sitting down, which can improve their functional capacity.

Aerobic capacity - the amount of oxygen taken up - declines by about one per cent a year from the age of 30. It was found that capacity in a group of walkers 70 years old improved by more than 20 per cent in 26 weeks, suggesting that some effects of old age can be reversed.

- To create an awareness of the importance of physical activity for health promotion in older persons, the general public and caregivers.
- To facilitate the implementation of programmes aimed at promoting **active ageing**.
- To lower the burden of disease associated with lack of physical activity in older adults.
- To improve the quality of life of older adults and their families or caregivers.

MANAGEMENT OBJECTIVES

Target population:

SCOPE OF THE GUIDELINE

Promoting active living	Education and primary prevention	Training	Special 'at risk' groups
Older adults (> 60 years)	Schoolchildren; families of older adults; older adults; advocacy groups for older adults; churches and other social groups of older adults; general public	Persons employed working with older adults; volunteers; caregivers; doctors; all other health professionals	Institutionalised older adults; those with chronic diseases of lifestyle

**PRIORITY
ISSUES TO BE
ADDRESSED
TO ASSIST
IMPLEMENTA-
TION**

- Identification or development of a supportive infrastructure to promote active ageing in communities of free-living or institutionalised older adults.
- Identification and training of persons already involved in the care or support of older adults.
- Collaboration with all role-players.

**PROMOTION
OF PHYSICAL
ACTIVITY**

1 Cardiorespiratory endurance and resistance to fatigue:

Regular physical activity, involving rhythmic, sustained movement of large muscle groups, and resulting in a moderate increase in heart rate is associated with the following beneficial adaptations in older adults:

1.1 Physical benefits:

- Improved functional capacity.
- Improved ability of muscles to extract oxygen from blood.
- Improved functioning of the heart muscle.
- Improved glucose tolerance.
- Lowered blood pressure.
- Increased muscle mass and reduced fat mass.
- Increase in the threshold of activity before angina or ischaemia occurs.

1.2 Regular participation in physical activity in older persons may:

- alleviate mild to moderate depression and anxiety
- improve quality of sleep
- improve cognitive function, e.g. memory

- increase a sense of well-being and relaxation
- improve self-esteem, self-worth and life satisfaction
- counter-attack the loneliness associated with old age
- increase energy and independence (psychological, physical and social).

2 Exercise protocol

◆ **Guideline for exercise programming for cardiorespiratory fitness in older adults:**

- Older adults with unstable medical conditions or uncontrolled metabolic disease (unstable angina, uncontrolled blood pressure, poor diabetes control, heart failure, etc.) should not exercise or should exercise only under medical supervision.
- Older adults should be screened prior to exercise for the following major risk factors:
 - physical health
 - prescription drug use
 - over-the-counter drug use
 - limiting long-term illness, e.g. diabetes mellitus
 - symptoms/diagnosed arthritis
 - symptoms/diagnosed heart disease/hypertension
 - symptoms/diagnosed respiratory disease
 - frequency of falls
 - obesity
 - smoking history
 - prior inactivity.

- Older adults with risk factors, and/or stable medical conditions, may benefit from low-intensity **OR** 'light' exercise.
- Rhythmic activities that can be sustained for periods of 30 - 45 min, such as walking, swimming, cycling or dancing may be suitable activities for older adults. Individuals should aim to participate in activities of this type from 2 to 3 times per week.
- For individuals who cannot stand or walk, or who are too frail to balance, arm 'rowing' and other rhythmic upper body activities may be performed. Within hours after immobilisation of muscle, chemical changes set in which lead to atrophy of muscle fibre. Bed-rest in the elderly person leads to muscle atrophy and a loss in muscle power. One week of bed-rest may turn a frail, but self-caring elderly person into a bedridden patient. This has to be prevented. An exercise programme to re-develop the muscles may be beyond the capabilities of the older adults. The caregiver should help these persons to do passive (assisted) exercises, which will retain some measure of flexibility and blood circulation (refer Annexure A).
- The intensity of exercise may be measured using an individual effort rating or 'perceived exertion' (see table 1), by measuring pulse or heart rate (see table 2) or simply by 'talk test'. A 'talk test' may be used to gauge exercise intensity for low-to-moderate activity. Individuals should be able to hold a somewhat breathless conversation while exercising.

The measurement of heart rate would not be

appropriate for many older adults taking medication for the control of blood pressure (β -receptor antagonists).

Table 1 Effort rating (perceived exertion):

6	
7	very, very light
8	
9	very light
10	
11	fairly light
12	
13	somewhat hard
14	
15	hard
16	
17	very hard
18	
19	very, very hard

Table 2 Heart rate response to exercise at various intensities

Age	Low-to-moderate	Moderate-to-high
50 - 60 years	88 - 93 bpm (15 - 16 beats/10 sec)	96 - 102 bpm (16 - 17 beats/10 sec)
60 - 70 years	82 - 88 bpm (14 - 15 beats/10 sec)	87 - 93 bpm (15 - 16 beats/10 sec)
70 - 80 years	77 - 82 bpm (13 - 14 beats/10 sec)	84 - 90 bpm (14 - 15 beats/10 sec)

(Based on American College of Sports Medicine Guidelines for Exercise Testing and Prescription, 1993)

• **Muscular strength and endurance in older adults**

• Loss of muscle mass is one of the documented consequences of ageing. It has been demonstrated that muscle strength may decline by as much as 30% between the ages of 50 - 70 years. This decline in strength with ageing is associated with a loss of functional capacity and, in particular, independent walking. Along with decline in muscle strength with ageing is an associated and progressive loss of bone mineral content.

• Strength training ('type of training in which the resistance against which the muscle is working increases progressively over time', American College of Sports Medicine *Position Statement on Physical Activity in Older Adults*, 1998) in older adults has been shown to reduce or reverse this loss of muscle and bone mass, maintain or restore nitrogen balance (prevents the loss of muscle proteins), and improve strength.

• ♦ **Guideline for exercise programming for muscular strength and endurance in older adults:**

• ■ Older adults with similar limitations as described in the guideline for cardiorespiratory fitness should avoid strength training; persons with hypertension should avoid strength training particularly with arms overhead; all older adults should avoid breath-holding while performing resistance or strength training activities.

• ■ Strength training activities should be devised that take into consideration postural stability

and the risk of falling, as well as the risk of soft-tissue injury and an exacerbation of blood pressure.

- Strength training may involve functional activities and minimal equipment including household items. To prevent or reduce the loss of muscle mass, a programme of strength training may be introduced for a minimum of 2 sessions per week. These sessions may include functional movements against some external resistance or even against body weight.

For example, a simple wall-push-up may be performed by placing the hands against the wall at chest height, and by placing the feet approximately half to one metre away from the wall. This exercise may be repeated from 8-15 times, and the entire set of 8-15 may be repeated 2-3 times.

Alternatively, cool drink or milk bottles may be filled with sand, or bicycle tubes may be used as equipment for strength or resistance training. In addition, exercises improving hand-grip, e.g. squeezing a small rubber ball, squeezing a plastic bottle or a partner's fist or wringing a face-cloth, should be encouraged. This will improve a person's ability to rise from a chair, get onto a bus or out of a bath.

Balance and flexibility in older adults

Postural stability (related to the risk of losing balance and falling) decreases with increasing age. It is thought that loss of static and dynamic bal-

• ance or postural stability may be an important
• factor related to increasing frequency of falls in
• older adults, along with poor vision, medications
• and environmental hazards.

• Regular dynamic exercise has been associated
• with an improvement in dynamic balance and
• postural stability, and indirectly with a reduced fre-
• quency of falling.

• In addition, joint range of motion or flexibility also
• decreases with increasing age. This may limit
• functional capacity and independent living in older
• adults, as well as limit overall levels of physical
• activity.

• Exercise programmes specifically targeting
• improving joint range of motion in older adults
• have shown improvements in flexibility and
• balance.

• ◆ **Guideline for exercise programming for
• postural stability and flexibility in older
• adults:**

• ■ Older adults with rheumatoid arthritis may
• need to consult their doctor prior to embark-
• ing on a programme of training. However, even
• mild, static stretching should not exacerbate
• the condition.

• ■ Exercise programmes for older adults should
• include activities specifically designed to train
• dynamic balance or postural stability (line
• walking, weight transfer, coordinated move-
• ment to music, e.g. dancing). Older adults at
• risk of falling can perform activities while hold-
• ing a bar, chair or other stable object at hip or

waist height. These activities should be undertaken, ideally, a minimum of 3 times weekly, and can be included in a 'home exercise programme'.

- Exercise programmes for older adults designed to increase joint range of movement can be performed sitting, lying and standing. For example, shoulder joint range of movement may be improved in frail older adults by passing a large lightweight ball (shoulder width) overhead to another seated participant. Older persons without hypertension, may wish to perform a similar exercise by standing, holding a piece of rope, and raising their arms over their head. Shoulder joint range exercises improve reaching up above head to draw curtains, hang out washing, brush hair, reach back of neck to fasten clothes.
- Participants should avoid activities that cause pain or discomfort and programmes should be progressed slowly, particularly in persons who have been inactive or have serious physical limitations.

(Information adapted from *Exercise and Physical Activity for the Older Adult, ACSM Position Stand, Medicine and Science in Sports and Exercise* 30: 992-1008, 1998)

For chair exercises: refer Annexure B.

3 Health Education

- Motivation to exercise is a crucial factor at any age. A person is usually motivated to

exercise if the activity is seen as fun and rewarding.

- Desirable physical activity habits should be reinforced by positive feedback from health professionals. The people working with older adults must also be motivated on a continuous basis.
- Facilitate regular education sessions covering the following topics:
 - The ageing process.
 - The benefits of exercise.
 - The importance of healthy eating habits.
 - Tobacco use and support to quitters.
 - Osteoporosis.
 - Stress management.
 - Exercise must be tailored to suit the needs of the individual. Most of the health education information has neglected this important issue.
 - Information pertaining to available resources.
 - Coping with difficult people.
 - Good communication skills.
 - Importance of drinking fluids frequently. Older people have reduced thirst perception, therefore they are at an increased risk for dehydration.

Refer: Annexures C and D.

CONCLUSION

It is widely known that fitness is many-faceted: "... quality of life; the condition that helps a person look well and feel well; able to cope with daily duties and responsibilities successfully and yet have sufficient physical resources to enjoy social,

cultural and recreational interests and meet unusual or emergency demands."

Fitness as described here is adequate to enable older people to live healthy, active lives. Health professionals should lay to rest the myth that old age is a time to slow down and take a well-earned rest.

Older people have the most to gain from regular exercise and the most to lose from inactivity. An important message to convey to older people is that exercise can make it easier to complete activities of daily living with less fatigue. As a person ages and has less functional reserve, the importance of exercising regularly becomes significant. The long-term implication is that the conditioning effects may enhance and prolong an independent lifestyle, thereby increasing active life expectancy.

It is never too late to start exercising and never a good time to stop.

ANNEXURE A

BED EXERCISES

1. Breathing and stretching:



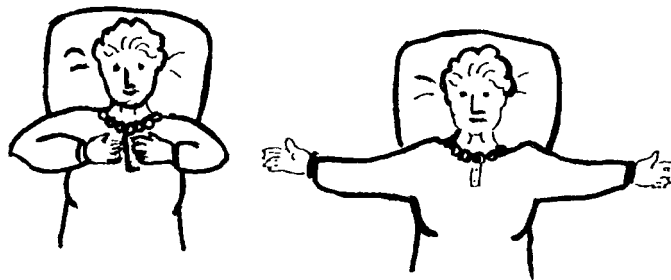
Lie flat on your back with arms relaxed at your sides. Breathe in and reach with your toes toward the end of the bed. Feel your torso and legs stretch. Exhale. Repeat 5 times. Relax.

2. Back stretch:



Lie on your back. Reach with both arms over the head to touch the head board or wall. Give your whole body a stretch. Return to original position. Repeat 5 times.

3. Arm stretch:



Place your hands on your chest. Your bent arms will be parallel with the foot of the bed. Open both arms out, reaching over on both sides to touch the bed. Return both hands to chest position. Repeat 5 times.



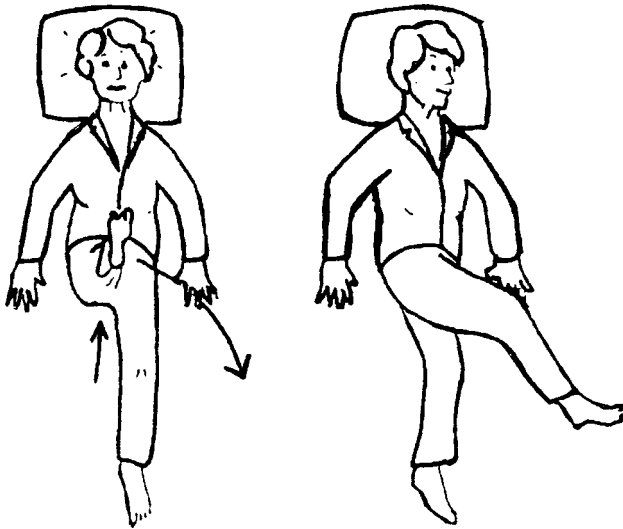
Lie flat on your back. Bend your knees, feet on the bed, arms alongside your body, palms down. Gently roll your head slowly from side to side 25 times (each side counts). Then relax for a few seconds.

4. Head turns:



Lie flat on your back. Bring your knees up pulling one leg at a time. With your feet on the bed, roll your knees gently 10 times to the left touching the bed. Repeat to the right side. Relax.

5. Leg rolls:



Lie flat on your back with your legs straight. Lift your left leg and circle it over your right knee to reach to the side of the bed. Circle back over knee toward

6. Leg half circle:

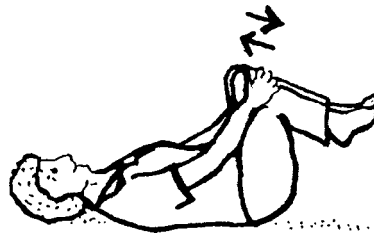
• the opposite side of the bed. Return to first position.
• Repeat 5 times. Then repeat 5 times with the right leg. Keep your shoulders flat on the bed if you can.
• Hip will roll as your leg reaches to the side.

7. Knee to chest:



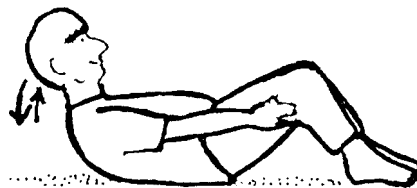
• Bend your left leg. Grasp knee with both hands. Pull your knee towards your chest. Hold for 3 seconds.
• Return to flat position. Repeat 5 times. Repeat using right knee 5 times.

8. Both knees to chest:

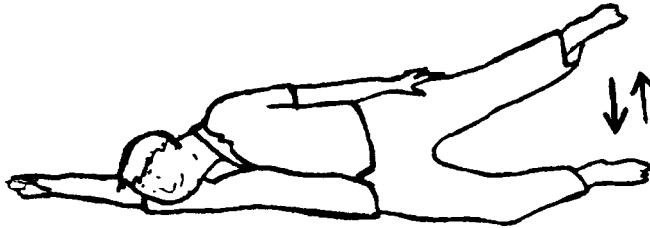


• Lift both knees towards your chest. Clasp hands, hold for a count of 3. Return to original position. Relax by deep breathing. Repeat exercise 3 times.

9. Head lift and abdominal stretch:

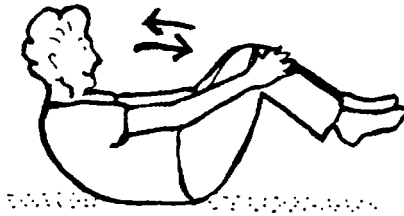


• Pull your knees towards your chest with feet flat on the bed. Lift your head and shoulders slightly off the bed. Hold for a count of one. Lower knees slowly. Repeat 5 times.



10. Leg raise:

Lie on your right side with your lower leg slightly flexed. Place your right arm under your head. Raise your left leg upward as high as you can without discomfort. Repeat 10 times. Change and do exercise lying on your left side.



11. Rocking:

Pull your knees toward your chest. Clasp your knees with both hands. Lift your head and shoulders and rock back and forth. Repeat 5 times.

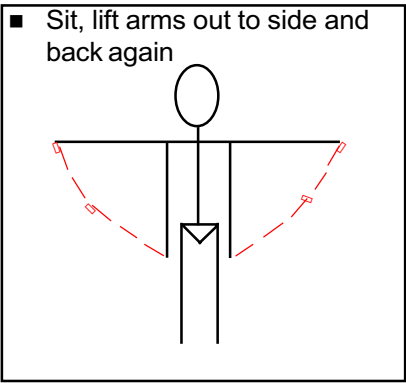
Cool down by repeating Exercise 1.

Always get out of bed slowly.

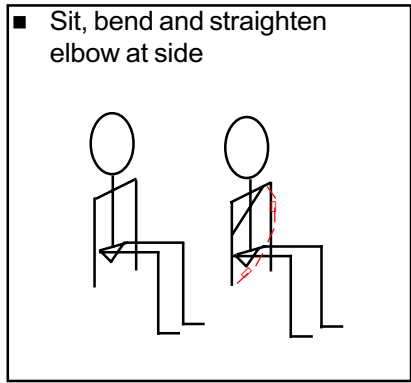
ANNEXURE B



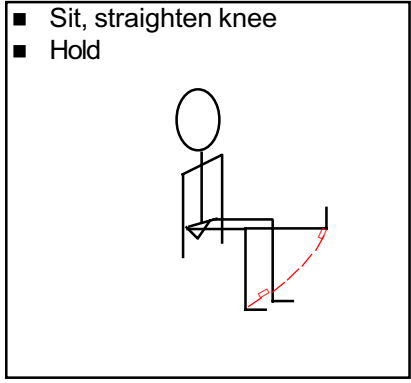
1 ■ Sit, lift arms out to side and back again



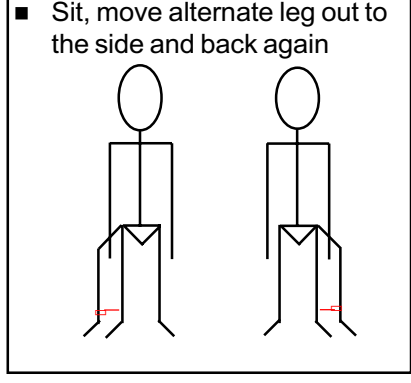
2 ■ Sit, bend and straighten elbow at side



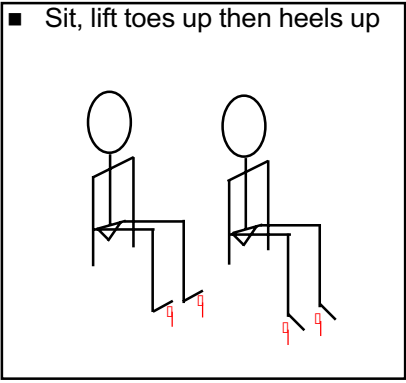
3 ■ Sit, straighten knee
■ Hold



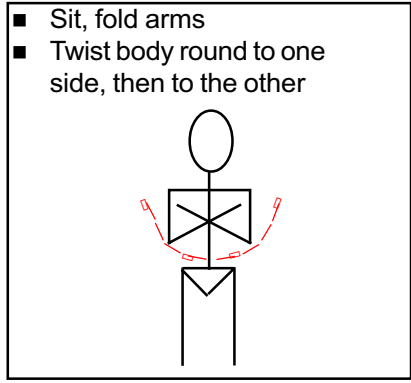
4 ■ Sit, move alternate leg out to the side and back again



5 ■ Sit, lift toes up then heels up



6 ■ Sit, fold arms
■ Twist body round to one side, then to the other



7 ■ Sit, circle ankles, heel on floor

8 ■ Stand 0,5-1m from wall
■ Keep knees straight, lean towards wall and stretch

9 ■ Stand as before, move foot 15 cm in front and bend knee
■ Stretch

10 ■ Stand, use back of chair for balance
■ Move leg out to the side

11 ■ Stand as before
■ Keeping knee straight, extend leg out behind

12 ■ Stand, bend up alternate knee in front

ANNEXURE C



EXERCISE PROGRAMME

WHAT SHOULD BE DONE:

- A person who has been inactive for a long time should return to exercise gradually. Participate in fitness activities, such as brisk walking and swimming, rather than competitive sport, such as tennis.
- A person should wait 2 to 3 hours after a heavy meal before exercising. Also avoid hot or cold showers immediately before or after exertion.
- A person should wear comfortable, lightweight clothing and shoes with adequate support. Should dress in layers and remove articles of clothing gradually as one warms up.
- A person should perform warm-up exercises to stretch muscles and loosen joints; this will lessen the risk of muscle strain or ligament damage. In competitive sports/exercises a good warm-up offers psychological benefits as this time is used to focus on the activities ahead and to get rid of tension. Take resting pulse rate, then perform 5 to 10 minutes of passive stretching exercises.
- A person should gradually work towards an optimal aerobic training level. The pulse should be taken 2 or 3 times, and the pace should be adjusted according to the pulse rate and how one feels. If the target heart rate should be exceeded or if one has chest discomfort, breathlessness or palpitations, one should slow down gradually. Don't stop immediately unless the symptoms continue or worsen.

- A person should decrease the pace of exercise gradually for 5 to 10 minutes to 'cool down'. Then do 5 minutes simple stretching exercises. At this point, the pulse should not be more than 15 beats above the resting pulse rate. If a person feels dizzy or faint after exercise, he/she may need a longer cool-down period or need to see a doctor.
- If possible, a person should keep an exercise diary listing the date and time, activity and its duration, the pulse rate and any symptoms that are experienced.

WHAT SHOULD NOT BE DONE:

A person should not

- exercise wearing slippery shoes
- exercise in extreme heat or cold, windy weather, high humidity, heavy pollution or at high altitudes
- exercise if he/she has a fever or does not feel well
- stop exercising abruptly, because the amount of blood circulating back to the heart, which is still beating rapidly, won't be adequate to meet the body's needs
- lift both arms simultaneously, especially persons with hypertension.

WHEN TO STOP:

- If there are any symptoms of muscle cramps, a side 'stitch', or excessive shortness of breath or fatigue, slow down and stop.
- If one experiences chest pain, with or without a cold sweat, dizziness, nausea or vomiting, heart palpitations, fluttering or an abnormal heart rhythm, **stop immediately** and call a doctor.

• ANNEXURE D

• • • • • • OVERCOMING BARRIERS TO • EXERCISE

• Older adults have lots of excuses for not exercising. Here are some suggestions to counteract their
• negative attitude towards exercise.
•

REASONS FOR NOT EXERCISING	SUGGESTED RESPONSES
'Exercise is hard work.'	'Pick an activity that you enjoy and that's easy for you.'
'I don't have the time.'	'It will only take 3-5 sessions of about 30 minutes each per week.'
'I'm usually too tired to exercise.'	'Tell yourself: This activity will give me more energy.'
'I hate to fail, so I won't start.'	'Exercise isn't a test; start off slowly and choose something that you like.'
'I don't have anyone to work out with.'	'Ask someone like a neighbour or caregiver who might be a willing partner. Or choose an activity that you can do by yourself.'
'There is no convenient place to exercise.'	'Pick an activity that you can do in a convenient place; for example, walk around the neighbourhood, or do exercises at home.'
'I'm afraid I may fall and get hurt.'	'Perform activities that will improve your balance and use a bar or stable object for support whilst exercising.'
'The weather is bad.'	'There are many activities that you can do in your own home even when the weather is bad.'
'Exercise is boring.'	'Listen to music or a book on tape to keep your mind occupied. Brisk walking or running can take you past many interesting places.'
'I'm too overweight.'	'You can benefit regardless of your weight. Pick an activity that you're comfortable with, like brisk walking. It will help you to lose weight.'
'I'm too old.'	'It's never too late to start; people of any age can benefit from exercise.'

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