

FOREVER ACTIVE

PERSONALIZED FITNESS AND WELLNESS FOR MEN 50+



Editor's Note- Starting with this, July's Newsletter, Forever Active's newsletter will be published quarterly (July, October, January and April)

Fall Prevention - Agility, Balance and Coordination Training at 50+ (Part 2)

Introduction

In June's newsletter "Fall Prevention- Agility, Balance and Coordination (Part 1)" the following topics were covered;

1. Physiological factors that affect your Agility, Balance and Coordination
2. Prerequisites for Agility, Balance and Coordination Training
3. Agility, Balance and Coordination Exercise Progressions

This newsletter will build upon this foundational information and list and illustrate specific fall prevention exercises; sitting and standing balance exercises, multisensory balance exercises, postural balance exercises and gait balance exercises.

The goal after reading June and July's newsletters is to understand the importance of fall prevention for the older adult and be able to develop and implement your own fall prevention exercise program so your risk of falling is greatly reduced.

Risk Factors for Falling

Falling is the number one risk factor for the Older Adult

Risk Factors for falling:

1. Over the age of 50
2. Taking medication to assist with sleeping or nerves/stress
3. Taking more than 4 medications / day
4. Living a sedentary lifestyle and becoming de-conditioned, resulting in weak leg muscles and poor cardiovascular endurance
5. Sensory changes- poor vision and hearing
6. Balance issues
7. Cognitive weakness
8. Chronic conditions such as diabetes and osteoarthritis



DID YOU KNOW

Editors Note

The purpose of agility, balance and coordination training exercises is to improve your ability to maintain and control balance while the body is moving. Since these exercises challenge your ability to maintain balance there is an increased risk of falling while performing them. As a result, it is important to start agility, balance and coordination exercises slowly, introducing one or two new exercises initially and then more as you show adaptation and improvement.

Initially, you may feel awkward performing some of these exercises but with repetition your performance and confidence will improve.

If your agility, balance and coordination is already weak, you should not perform agility, balance and coordination exercises alone.

FITT Guidelines for Fall Prevention Agility, Balance and Coordination Training

Frequency, duration and progression of the exercises will depend on the clients fitness level, experience, orthopaedic impairments, body awareness, strength and flexibility.

Follow the FITT template for Exercise prescription;

Frequency – Once a solid muscle strength base has been established, agility, balance and coordination exercises can be performed with each exercise session. Recovery is vitally important in re-conditioning older adults and exercises should be done no more than 2-3 non-consecutive days per week.

Intensity –The intensity of the exercise must be graded based on fatigue and successful completion of the exercise. The exercises must be performed with perfect technique at all times, working to the last point of success rather than the first point of failure. When adaption has occurred, increase the number of repetitions.

Time - Each exercise session should last no longer than 20 minutes including a warm-up and cool-down.

Type - Agility, balance and coordination exercises can and should be incorporated seamlessly into your regular exercise routine. The use of the agility ladder, Bosu, stability ball and steps are effective and add variety to your exercise routine.

Fall Prevention Balance Training Exercises

Effective older adult muscular strengthening and reconditioning programs must incorporate fall prevention training exercises which include;

1. Sitting & Standing Balance training
2. Multisensory Balance training
3. Postural Balance training
4. Gait Balance training

1a. Seated Balance Training

- easiest because of the large base of support

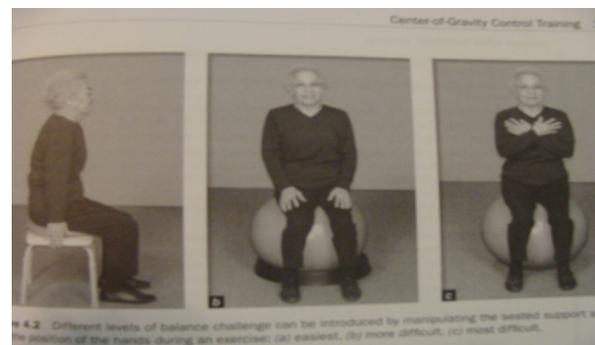
1. Before you start you must determine the following;

1. Sitting support surface

- stationary chair
- stability ball on ball holder
- stability ball with no ball holder (most challenging)

2. Starting Hand position

- on the seat
- on your lap
- crossed on the chest (most challenging)



1a. Seated Balance Training Exercises

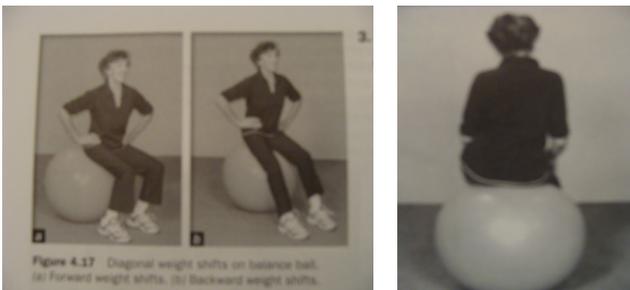
1. Stationary sitting - single, double and diagonal arm raises



2. Single leg support - single, double and diagonal arm raises



3. Weight shift with hips (forward/backward, side ways & rotational) while doing single, double and diagonal arm raises



1b. Standing Balance Training Exercises

- this is a progression from sitting due to a narrower base of support

1. Vary Foot Position (hold 5-10 sec) & arm movements

- 1. Feet shoulder width apart
- 2. Feet together
- 3. Split stance



- 4. Heel-to-toe
- 5. Single leg stance



2. Progressions

- vary foot position, perform arm movements &;

- 1. Cognitive task- (ie- count by 3's)
- 2. Toss a ball from one hand to another



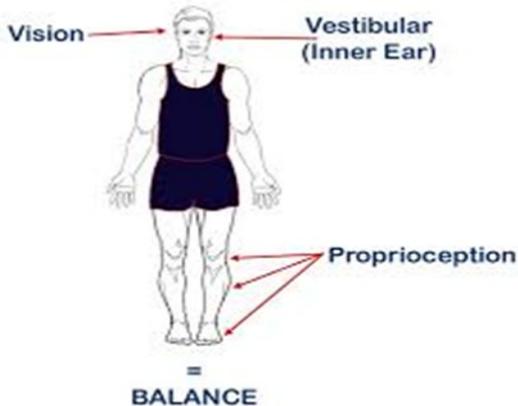
- 3. Kick a stationary object
- 4. Kick a moving object
- 5. Step-ups – forward and sideways



2. Multisensory Balance Training

There are three sensory systems that the body uses to control and maintain balance;

1. Somato (Muscles and Joints)
2. Visual (Eyes)
3. Vestibular (Inner ear)



Goals of multisensory balance training:

1. Improve the somato sensory system - by distorting or removing visual &/or vestibular sensory inputs.
2. Improve visual inputs for balance - by manipulating the somato &/or vestibular sensory inputs.
3. Improve vestibular system - by manipulating both the somato &/or visual sensory inputs.

Multisensory Balance Training Exercises

Perform arm balance training exercises while doing the following to stimulate;

1. Somato sensory system

1. Manipulate visual inputs (sunglasses/close eyes)
2. Manipulate vestibular inputs (move head sideways)

2. Visual sensory system

1. Manipulate somato/proprioceptive inputs (change surface to stand on or base of support (foot position))
2. Manipulate vestibular inputs (move head sideways)

3. Vestibular sensory system

1. Manipulate somato/proprioceptive inputs (change surface to stand on or base of support (feet position))
2. Manipulate visual inputs (sunglasses/close eyes)

Key point- Multi sensory training can be easily combined with the other balance training exercises.

3. Postural Balance Training

There are three Postural Balance Strategies utilized by the older adult to assist in maintaining and controlling balance;

Progressive strategies:

1. Ankle Strategy

- ankle and hips move in same direction.
- controls small and slow forward and backward sway movements

2. Hip Strategy

- ankle and hips move in opposite directions.
- larger hip muscular controls medium sway movements.

3. Step Strategy

- taking a step
- controls largest or fastest sway movements

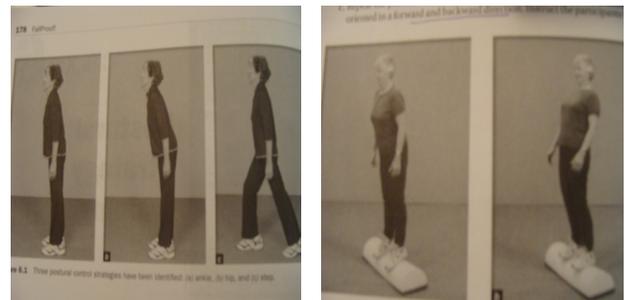
Postural Balance Exercises

1. Introduce small slow swaying and then gradually increase the size and speed of the sway until the client loses their balance (step strategy).

Progressions;

-introduce multi-sensory balance exercises

1. Somato sensory - Alter feet position & type of surface you are standing on (Bosu).
2. Visual sensory -Wear sunglasses or close your eyes
3. Vestibular sensory - Move your head in different directions



4. Gait Balance Training

To achieve a normal gait pattern a person must have 4 attributes;

1. Adequate ROM in the ankle, knee and hip joints (Flexibility evaluation).
2. Appropriate neurologic timing for muscle activation during the different phase of the gait cycle.
 1. Heel strike
 2. Stance
 3. Toe off
 4. Swing
3. Unimpaired sensory input from the visual, somato and vestibular systems.

Note- Vision is very important in the control and modulation of gait because it helps us anticipate rather than just reacting to things.

4. Sufficient muscle strength in the legs to meet the demands involved in each phase of the gait cycle

Age Associated Changes in Gait

1. Decrease in Stride frequency
2. Decrease in stride length



3. Increase in stride width



Gait Balance Training Exercises

1. Walk forward as normal as possible
2. Walk forward & change direction on command (hand clapping)
3. Walk forward & change direction pattern (zig zag, figure 8, circles)
4. Walk forward & alter base of support (staggered feet, on toes, on heels)
5. Gait pattern variation
 - side step
 - side step and trail leg crosses behind lead leg
 - side step and trail leg crosses in front of lead leg
 - use agility ladder for various gait patterns
6. Obstacle negotiation and avoidance
 - walk around a set of cones set up in a straight line
 - decrease the distance between the cones
 - stagger the cones
 - walk the course carry in object
 - walk the course and do cognitive tests
 - step over an d around objects (bench, bosu)



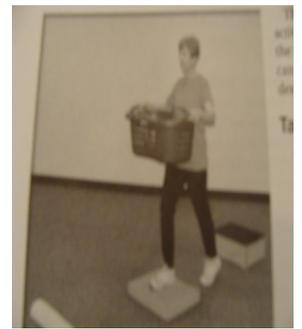
Toe walking



Heel to toe walking



Obstacle negotiation



Obstacle avoidance