

Fall/ Injury Prevention During COVID

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Outline of Presentation

- ▶ Background: Why should I be concerned about balance and falls?
- ▶ How to prevent falls
 - ▶ Balance Exercises
 - ▶ Balance Reactions
 - ▶ Fear of Falling
- ▶ How to prevent injury during a fall
 - ▶ Head injury
- ▶ What to do if I fall
 - ▶ How to get up

Why should I be concerned about balance and fall risk?

▶ Frequency

- ▶ Approximately 40% of people over 65 report at least 1 fall each year.
- ▶ COVID numbers?

Why should I be concerned about balance and fall risk?

▶ Consequences

▶ Hospitalization

- ▶ Each year at least 250,000 older people are hospitalized for hip fractures.

▶ Injury

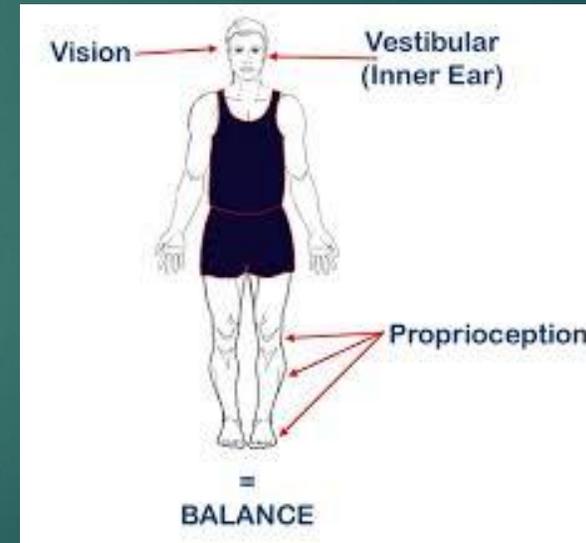
- ▶ One out of five falls causes a serious injury such as broken bones or a head injury.
- ▶ More than 95% of hip fractures are caused by falling.
- ▶ Falls are the most common cause of **traumatic brain injuries (TBI)**.

▶ Death

- ▶ Every 20 minutes an older adult dies from a fall in the US.

What is Balance

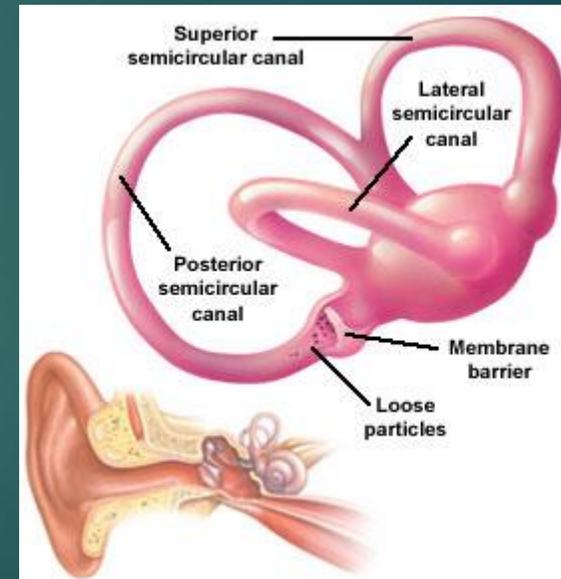
- ▶ The ability to move or to remain in a position without losing control or falling.
- ▶ 3 Major body systems
 - ▶ Vision
 - ▶ Vestibular Sense
 - ▶ Proprioception



- ▶ Surrounding reference system
 - ▶ Sensory receptors in the retina send impulses to the brain that provide visual cues identifying how a person is oriented relative to other objects.

Vestibular Sense

- ▶ Sensory information about motion, and spatial orientation is provided by the vestibular system of your inner ear.
- ▶ Utricle, saccule, and three semicircular canals
 - ▶ linear movement = utricle and saccule
 - ▶ Rotational movement = semicircular canal



Proprioception

- ▶ Knowing where your body is in space.
- ▶ Proprioceptive information from the skin, muscles, and joints involves sensory receptors that are sensitive to stretch or pressure in the surrounding tissues.

Risk Factors for Falls

- ▶ Lower body weakness
- ▶ Vitamin D deficiency
- ▶ Difficulties with walking and balance
- ▶ Use of medicines, such as tranquilizers, sedatives, or antidepressants. Even some over-the-counter medicines can affect balance and how steady you are on your feet.

Risk Factors for Falls

- ▶ Vision problems
- ▶ Foot pain or poor footwear
- ▶ Home hazards or dangers

Risk Factors for Falls

- ▶ Most falls are caused by a combination of risk factors. The more risk factors a person has, the greater their chances of falling.

What can you do to improve your balance and prevent falls?

- ▶ Know your risk factors
- ▶ Have your health care provider review your medicines and health status
- ▶ Make your home safer by eliminating hazards
- ▶ Wear proper footwear and clothing
- ▶ **EXERCISE!**

Controlling Your Environment

- Remove throw rugs
- Use non-stick bathroom rugs and tub mats
- Place railings in the bathroom when needed
- Keep rooms well-lit, scan your environment
- Refrain from walking on wet floors
- Be cautious with tripping over pets



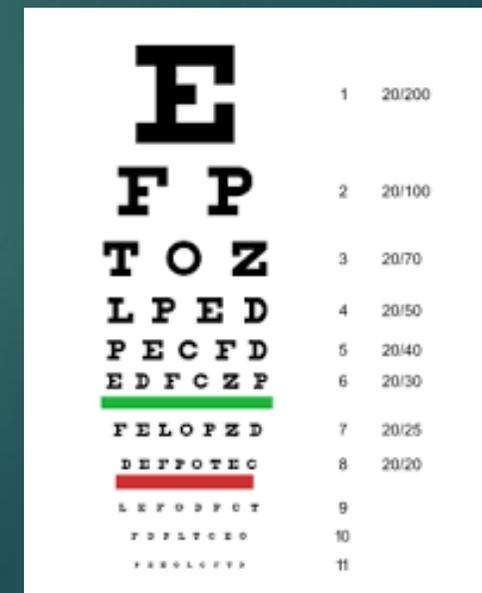
Controlling Your Environment

- Utilize adaptive equipment as needed (e.g. grab bars, walkers, reacher)
- Be cautious on uneven surfaces (e.g. walking outside on sidewalk, grass, gravel)
- Be cautious in poor weather conditions
- Allow sufficient time to get to places



Minimizing Internal Risk Factors

- Routine eye examination
- Routine physician visits for physical ailments and anxiety
- Taking medication as prescribed
- Monitoring blood pressure and blood sugar
- If you are fearful of falling or have lost confidence with your balance, schedule an evaluation with therapy





Did you know that 21-85% of
community-dwelling older adults
have a fear of falling?

You fall

**Increased risk of
falling**



**Fear of pain or falling
again**

Reduced activity

How Does Fear of Falling Contribute to Falls?

- Anxiety contributes to attentional bias which then yields “stiffening” behaviors
- “Stiffening” behaviors are defined as increased contractions of muscles, shortened stride, decreased ROM and center of mass
- “Stiffening” behaviors and compromised attention can increase risk for falls (Young & Williams, 2015).

Source of Fear & its Effects

- Fear of falling is directly related to overall balance confidence, history of falls, and falls-related self efficacy or ability to prevent falls
- Fear of falling also contributes to activity-avoidance and therefore, overall physical decline, depression, decreased quality of life and higher incidence of future falls (Hughes, Kneebone, Jones, & Brady, 2015).

Balance

- Static Balance
- Dynamic Balance
- Balance Reactions
 - Step Response

Preparing For Balance Training

↓ Stretching

↩ Ankles

↓ Calf

↩ Hips/ knees

↓ Hamstring

↓ Piriformis

↩ Back

↓ Lumbar Flexion



Static Balance

- ▶ Static balance is the ability to maintain postural stability and orientation with center of mass over the base of support and body at rest.



Static Balance Exercises

- ▶ Narrow Stance
- ▶ Tandem Stance
- ▶ Uneven Surface – balance pad, towel
- ▶ Single Leg Stance
- ▶ Turning
- ▶ Reaching



- **The Base of Support is the location on a body or object where most of the weight is supported.**
- The larger the area the base of support covers, the more stable an object will be.



Dynamic Balance

- ▶ Dynamic balance is the ability to maintain postural stability and orientation while the body parts are in motion.
 - ▶ Walking
 - ▶ Kicking

Dynamic Balance Exercises

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- ▶ Tapping a step (trash can, book)
- ▶ Balance beam walking (tape line)
- ▶ Moving in and out of different foot positions



USE SUPPORT WHEN NECESSARY!

Balance Reactions

- ▶ Your bodies reaction to a loss of balance.
 - ▶ Ankle – small balance disruptions
 - ▶ Hip – medium balance disruptions
 - ▶ Step response – large balance disruptions

Balance Reaction Exercises

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- ▶ Step Backwards
- ▶ Step Forwards
- ▶ Step Sideways
- ▶ Clock Stepping



How to Prevent Injury During a Fall

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- ▶ For some professionals, falling is not an option - it is part of the job. Here's how they do it to minimize injury.
 - ▶ Servicemen and Paratroopers in the U.S. military are drilled on proper Parachute Landing Fall (PLF) techniques, which involves falling to the side after the feet hit the ground.
 - ▶ Martial Artists are trained to round their bodies, distributing energy by moving with the fall
 - ▶ Professional Stuntmen combine several strategies such as getting the body low, rolling, relaxing and distributing their weight on impact

How to Prevent Injury During a Fall

- ▶ Protect your head by tucking your chin when falling back or to the side when falling forward



How to Prevent Injury During a Fall

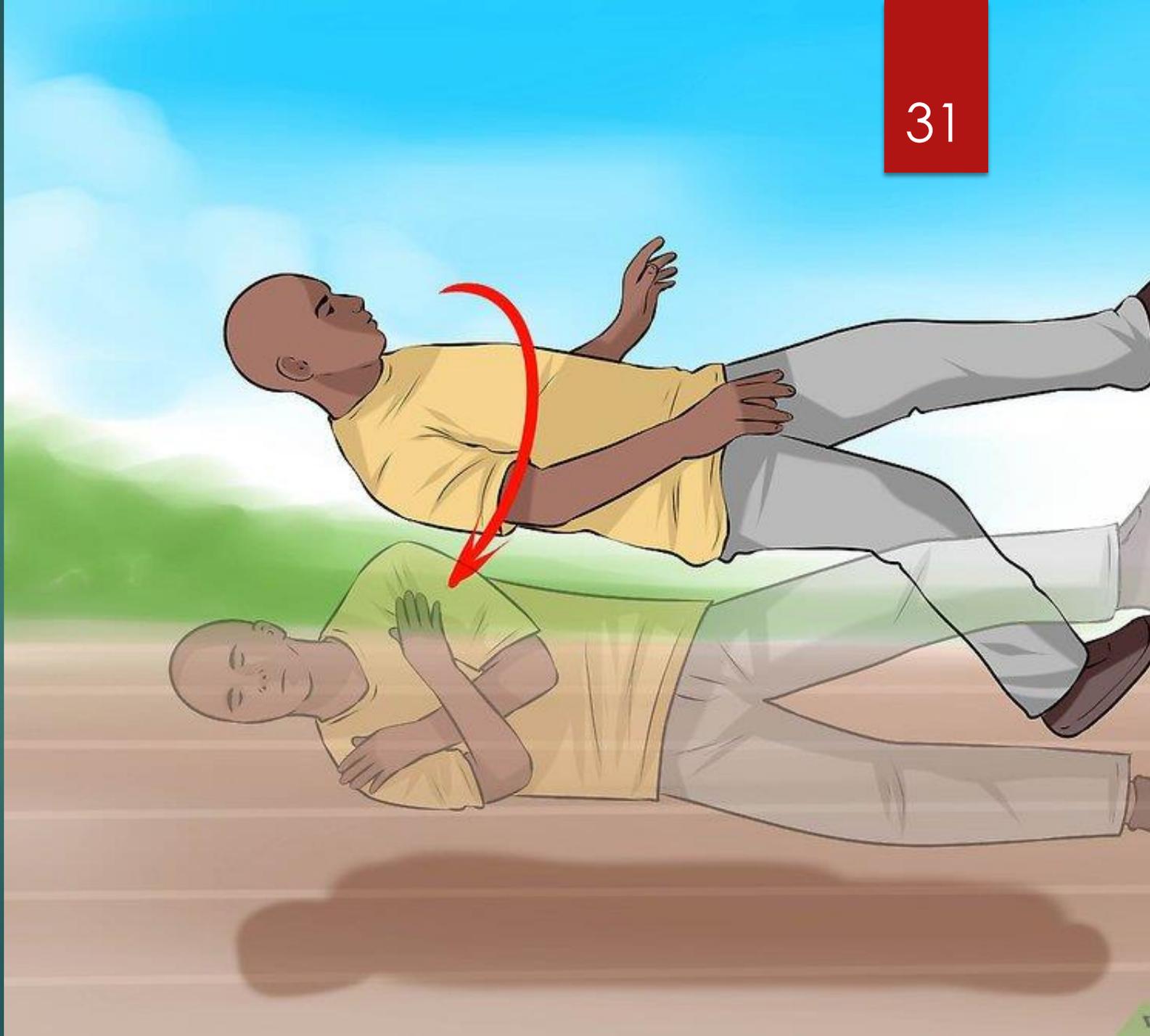
- ▶ Keep your knees and elbows bent



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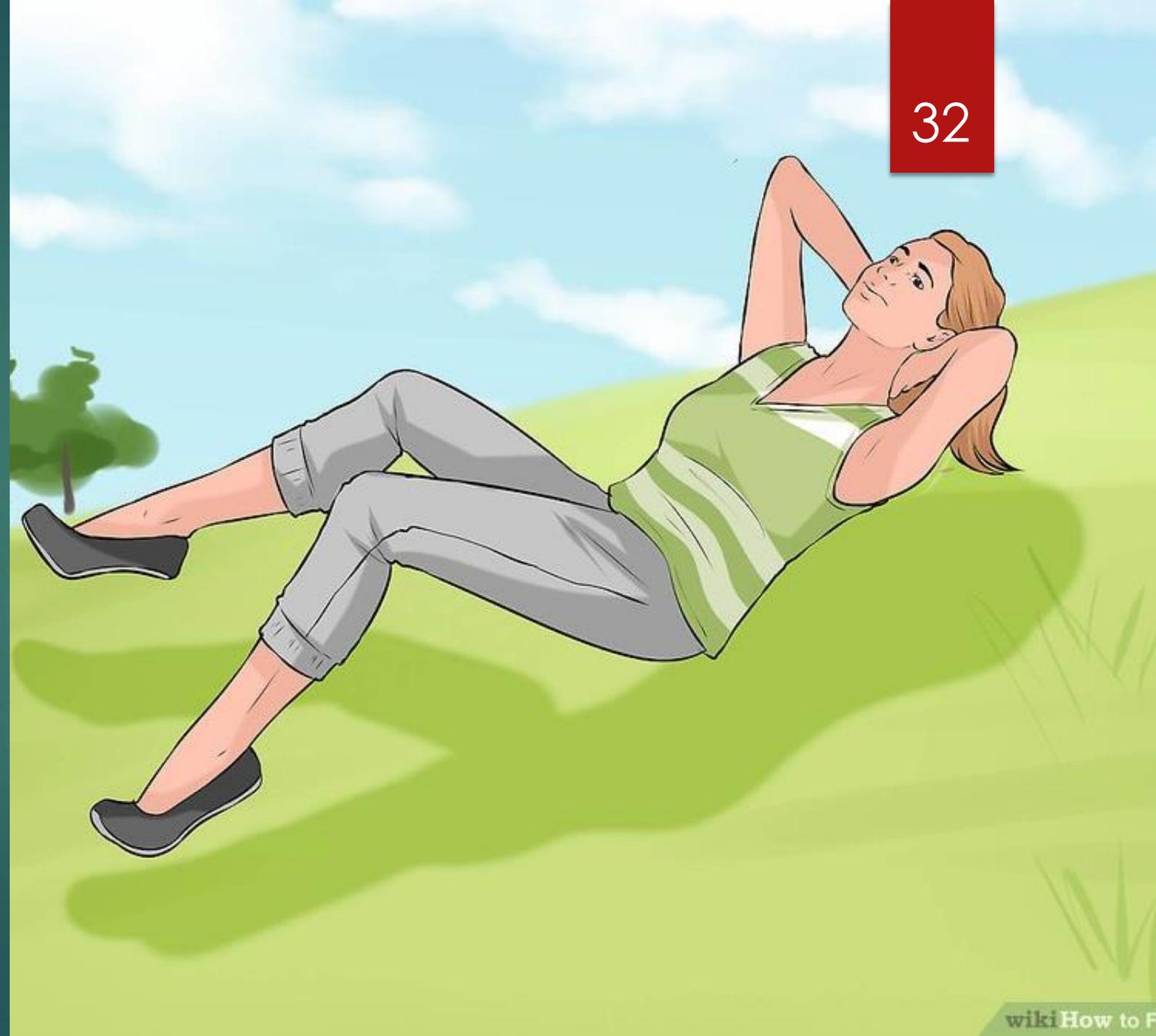
How to Prevent Injury During a Fall

- ▶ Shift your body weight to land on your side



How to Prevent Injury During a Fall

- ▶ Avoid rigidity and don't panic. Instead, loosen up as you fall



What To Do If I Have Fallen

1. Check for injuries
 - ▶ If you're not hurt prepare to get up
 - ▶ If you are hurt call for help
 - Alert button
 - If a phone is within reach call security

1 Turn onto your back



2 Roll onto your side



3 Push onto your hands



4 Push up onto your hands and knees



5 Kneel, using stable furniture to steady yourself



6 Place your strongest leg forward



7 Stand up



8 Turn slowly



9 Sit down. Rest and tell someone you have fallen



1 Turn onto your back



2 Roll onto your side



3 Push onto your hands



4 Prop with both arms behind



5 Use a cushion (or other low sturdy object) as a low seat



6 Lift bottom back onto cushion



7 Push as far back as possible



8 Lift bottom back onto chair



9 Sit down. Rest and tell someone you have fallen



Physical and Occupational Therapy

- ▶ Balance screening/ standardized testing
 - ▶ Tinetti Balance Assessment
 - ▶ BERG Balance Test
 - ▶ Mini Best Test
- ▶ One on one treatment tailored to your individual functional needs.
- ▶ Work on 4 main components of balance
 - ▶ Static balance
 - ▶ Dynamic balance
 - ▶ Balance reactions
 - ▶ Balance Confidence

Demonstration

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