

## Handout on How to Prevent Falls

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### 1. Consequences of Falls

Falls can lead to minor injuries, major injuries, and many other harmful side effects.

- 1 in 3 older adults that fall will be hospitalized. In 2012, the Medicare costs per fall averaged between \$13,797 and \$20,450.
- 1 in 5 falls results in a head injury. 78% of fall related deaths are related to head trauma.
- 95% of hip fractures are due to falling, and 1 in 3 of these individuals who lived independently before will stay in a nursing home for 1 year after the injury.
- Close to half of older adults will limit activity because they are afraid of falling and want to prevent it.
  - The more a person limits their activity the more confidence they lose in performing normal activities.
  - Limiting activity decreases a person's fitness level and their overall health, because they become more sedentary.
  - Decreased activity also promotes osteoporosis due to less weight bearing. Being osteoporotic means your bones are fragile and you are at greater risk of a fracture.
  - Decreased activity also increases the risk for depression, because people are less active, and socialize less.

### 2. Cause of falls

Falls can be caused by many factors, but it's often related to a combination of factors. Some of these factors can be modified while others cannot.

- **Aging**- as you get older systems slow or decline. The decline of vision, strength, and balance are some of the systems that increase the risk of falling.
  - Vision- decreases with normal aging, but it can also be affected by conditions like cataracts, glaucoma, diabetic eye disease, macular degeneration, or optic neuritis. The list below describes how vision is affected.
    - Reduced ability to detect low-contrast hazards
    - Decreased ability to judge distances
    - Decreased ability to perceive where things are located

- Decreased ability to process information about movement in visual field
- Strength- is important for balance and recovering from a slip or trip. Normal aging may lead to decreases in muscle mass because as people get older they tend to be less active and have more medical conditions.
- Balance- incorporates vision, the inner ear, and joint/muscle receptors (the sense of what position your body is in).
  - Vision plays a large role in balance, closing your eyes or moving in the dark reveals this.
  - The inner ear also plays a big role in your brain interpreting what position your body is in. With normal aging, there are fewer nerve cells in the inner ear. The inner ear can also be affected by disorders such as vertigo (sensation of the environment spinning)
  - The sensation you get from your muscles/joints supply your brain with information about where your body is in space.
- Reflexes/Reactions- is a response from the brain when it processes the information from your eyes, inner ear, and joint/muscle receptors. How fast your brain processes this information about a loss of balance, partly determines whether you fall or not. The faster you process this the more likely you are to avoid a fall given you have enough muscular strength to make necessary correction with your body
- **Environmental Hazards**- come in all shapes and sizes. Below is a brief list.
  - Indoor Hazards- slippery throw rugs, rugs with bent up corners, pets, cluttered room, poor lighting, and low furniture.
  - Outdoor Hazards- uneven terrain, curbs, hoses.
  - Personal Hazards- narrow shoes, higher heeled shoes, slip on shoes, bulky shoes, gripped/slippy shoes, restrictive clothing, and long-loose clothing, walking in risky areas while wearing bi-focal glasses.
  - Assistive Devices- cane and walkers improperly sized, improperly used, improperly educated on how to use, devices in poor condition, devices that break.
  - Stairs- pose a leg strength challenge. They can also pose a balance challenge if there are no railings.

- **Medications-** aging changes the way medications are broken down in your body. Taking more than 4 medications increases the risk of falling because many medicines have side effects (such as dizziness, frequent urination) that increase the risk for falling.
  - Psychotropic drugs - that includes anti-depressants has been proven to be the most likely to cause a fall.
- **Alcohol-** affects individual's judgment, coordination, and reaction. All of which increase the risk of falls.
- **Diseases-** There are many diseases that increase the risk of falling by affecting different components of balance. Here is a brief list,
  - Parkinson's- affects coordination and movement
  - Diabetes- affects vision, sensation
  - Osteoarthritis – pain affects activity, balance, strength, endurance
  - Stroke- could result in strength and balance deficits
  - Orthostatic hypotension- getting up to quickly can make you dizzy
  - Cardiovascular disease- decreased blood supply to heart
  - Incontinence- diuretics (water pills), weak pelvic muscles, increased urge to urinate and rushing to the bathroom

**3. Primary Prevention of falls-** Since falls are often caused by multiple factors, it's important to address many of the factors listed above.

- **Medication Assessment-** Identifying side effects and interactions between drugs that could increase risk of falling Talk to your health provider or your pharmacist to review your medications.
- **Exercise-** plays one of the greatest roles in preventing falls. Exercise can directly improve muscle strength, improve balance, and strengthen bones to prevent fracture. Exercise can also improve your confidence in your balance so you may be less worried about being active. Different types of exercise are better able to address different risk factors.
  - Balance- improves joint/muscle receptors, reaction time, and inner ear risk factors
  - Strength- improves muscle strength that can help overcoming forces that would otherwise result in a fall
  - Endurance- Improves ability to be active longer without fatiguing
  - Flexibility- Sometimes joints have limited motion, which can increase the risk of falling.

- Functional Training- Training in specific tasks you perform on a daily basis can boost your confidence, and improve efficiency
- Tai Chi- Tai Chi is a form of martial arts that focuses on slow-smooth movements through various postures, which challenges balance.
- Dance- Dancing works on balance and endurance.
- Nordic pole walking- Walking with poles in both hands. Improves endurance, and adds extra stability when walking.
- **Walking Patterns**- Changes in walking patterns such as short uneven steps increase the risk of falls. Weakness and poor balance can cause walking deviations. A physical therapist is trained to identify and address these patterns, to help decrease the risk for falls.
- **Assistive Devices**- Assistive devices improve balance by increasing support, improve confidence, decrease pain, and facilitate independent living. There are a variety of assistive devices and each have their own pros and cons.
  - Walkers- standard, 2 wheeled, 4 wheeled, 3 wheeled, rollator, hemi-walker.
  - Canes- single point, small and large based quad cane, straight canes, off-set handle canes, walking sticks/poles
- **Education**- When you are able to recognize fall risks and strategies to prevent them, then it gives you the information to take appropriate actions.

#### 4. Secondary Prevention Strategies

- **Home Modifications**- adding grab bars in bathroom, removing tripping hazards like throw rugs, clearing pathways from clutter, adding stair rails or ramps, using night lights, etc.
- **Shoe wear**- Wearing shoes that are slip-resistant, low-heel, re-enforced heel support, slightly greater than foot width sole, and can be tightened will reduce fall risk associated with shoes.
- **Bone Health**- severe osteoporosis can lead to fragility fractures, and then falls. Ask doctor if you are concerned about this.
- **Nutrition Counseling**- Proper nutrition can help maintain bone health (Vitamin D, Calcium), decrease risk of dehydration, prevent low blood sugar, provide adequate protein, etc.
- **Behavioral Therapy**- Addressing fear or anxiety related to falling can help individuals improve their activity/exercise levels.

**5. Minimizing Injury Risk During a Fall**- Stunt devils and martial artists have learned different strategies to prevent injuries during a fall. Knowing these strategies and being prepared to implement them in the quick instant of a fall is hard, but it is worth remembering. Some of these strategies include,

- Instead of falling on an arm that is locked out, bending the elbow can help absorb the impact from a fall by using muscles.
- As your hand makes contact with ground with a bent elbow, initiate a roll in the direction you are falling. By rolling you are spreading out the moment of impact so that the impact isn't focused on one location
- The taller you are the harder you fall. Lowering your center of mass, by bending knees and hips can reduce impact force.
- Tucking your chin can help prevent head trauma when falling backwards.
- Don't tense up, tensing decreases the bodies ability to slow down the moment of impact.

**6. Getting up after a fall**- Some risks associated with not being able to get up include hypothermia and dehydration. Strategies to get up include,

- Sequence of Steps
  - a. Lying on the floor, take a moment to assess how you feel, or if you are hurt
  - b. Slide, or roll to closest sturdy piece of furniture
  - c. Roll on to left or right side, wait a little while to make sure you are not dizzy
  - d. Push up into a side sitting position with one arm support
  - e. Place other hand shoulder width apart on to the floor as you turn to get onto all fours
  - f. Use furniture to help come to a kneeling position or pull yourself onto the chair or sofa.
  - g. Bring one leg through to place foot on floor and are in a half-kneeling position
  - h. Push up through both hands on furniture and the leg that you just placed
  - i. Once back to standing, find a safe place to sit and reassess for injuries.
- Backward Chaining- This is a strategy that can be used to practice getting down on the floor and back off. It reverses the sequence above, so starting at step 9 and going to step 1.

- What to do if you can't get up and no one is around to help- If you don't have an emergency call button, try sliding to the nearest phone. It would help to keep the phone on a table that can be reached from the floor.

## **7. Proactive versus Reactive-** Why wait for a fall when you can prevent it.

- If you identify yourself at low risk of falling, or are unsure of your risk, be proactive and start your prevention program now
  - Have medications assessed
  - Have vision checked
  - Find an exercise program that fits your needs here at the YMCA, local senior center, or church.
  - A physical therapist can identify balance, weakness, imbalances, other limitations that increase your risk, and then the PT or personal trainer can help you set up a custom exercise program to address your needs.
  - Remove tripping hazards in your home, and provide adequate lighting at night.
- If you identify yourself at high risk of falling certain areas, and want to be proactive. You should go to a...
  - Doctor/Geriatrician/PCP- if you think medicines need to be adjusted or changed, your vision needs to be assessed, experiencing dizziness or lightheadedness, are experiencing pain in joints, identify and treat other medical conditions (e.g., infections)
  - Pharmacists- if you want to know more about the side effects of your medications or interactions.
  - Physical Therapists if you have poor balance, are unsteady or uncoordinated, have trouble walking in crowded or over uneven terrain, have decreased strength, need an assistive device or learn how to use one, need home assessed for modifications, have poor endurance, have limited joint motion, want to improve confidence in normal daily routine, or you have changed your activity because you are afraid of falling or you are concerned about your balance.
  - Dietician- if you want to know that you are drinking enough fluids, concerned about adequate intake of vitamin D, calcium, protein, sugars, or carbs. The dietician can also help you control your blood sugar if you are starting an exercise program.

- Psychologist- if you feel that you are limiting your activity because of fear or anxiety of falling, or if you think you are struggling with depression.

## **8. Resources**

- Area Agency on Aging Piedmont Triad Regional Council- their role is to be a resource to the county for community resources, caregiver assistance, and a good place to start getting your questions answered. Phone: 336-904-0300  
Website: <http://www.ptrc.org/index.aspx?page=43>
- Health in Aging- provides information on all aspects of aging
  - [www.Healthinaging.org](http://www.Healthinaging.org)
- Emergency Response Systems- These devices can help you stay independent safely because they are worn on the body. There are many systems that are on the market, and you can ask doctor about them as well. Things to consider when buying a emergency response system are
  - Price, waterproof, ease of use, replacement warranty, are the operators trained, and is it 24/7 service.
  - This link can provide you with information on alert systems [medical-alert-systems-review.toptenreviews.com](http://medical-alert-systems-review.toptenreviews.com)
- Move Forward PT- This website can provide you with information on different symptoms/conditions that physical therapists can assist you with, as well as help you find a PT close to where you live.
  - [www.moveforwardpt.com/Default.aspx](http://www.moveforwardpt.com/Default.aspx)
- Silver Sneakers- Having certain health plans, and Medicare plans can qualify you for the silver sneaker program. This program pays for a fitness membership and allows you to take the exercise classes you prefer. Many YMCAs offer SilverSneakers.
  - Here is a link to the website to find out if you qualify and where these exercise programs are offered <http://www.silversneakers.com>
- Randolph County Senior Center- offers many services including screenings, transportation services, and financial assistance/counseling. They are located on 133 West Wainman Avenue PO Box 1852 Asheboro, North Carolina 27204-1852 Phone: 336-625-3389
- Asheboro-Randolph YMCA- offers several silver sneaker approved programs for seniors. Pick up flyer for more information.