

Assessing Gait Disorders: Important observations to record and report

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Gait Analysis

- What is it and why does it important?
- Individual Risks –
What to look for
- The role of CHWs

Objectives

- Increase knowledge about the difference between normal and abnormal gait patterns
- Increase knowledge and ability to identify an abnormal gait pattern
- Identify individual risk factors for falling
- Increase knowledge of intrapersonal skills in discussing fall risks with patients
- Increase knowledge of appropriate referral protocol

Gait Analysis

THE GAIT CYCLE

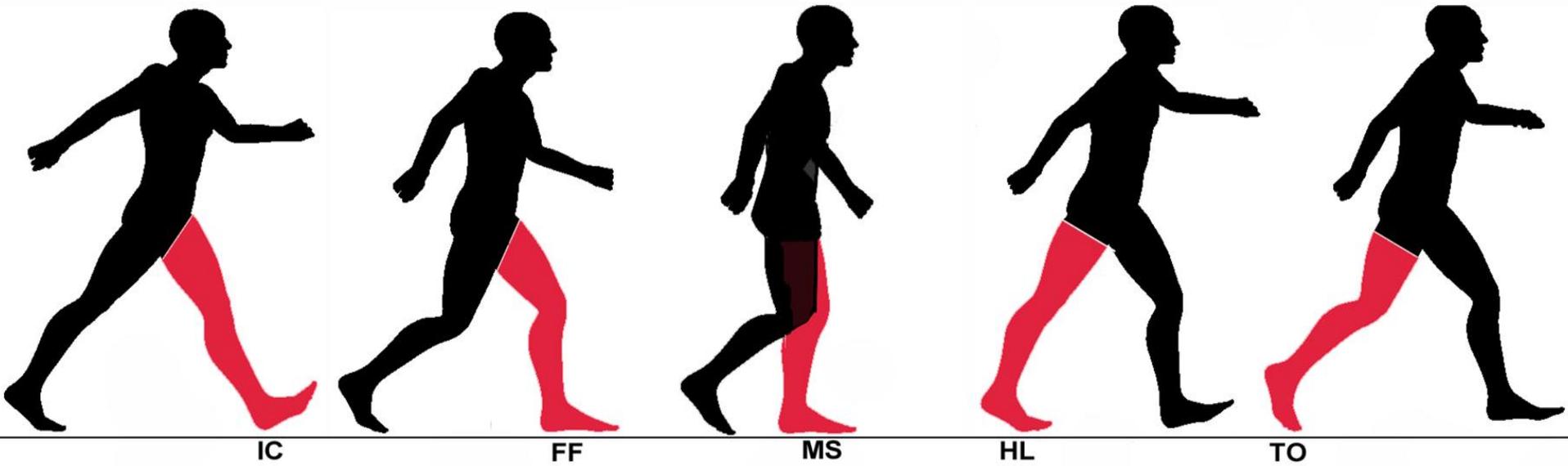


Image courtesy of: <http://www.footbionics.com>

Definitions

Gait – the manner in which walking is performed and can be normal, antalgic, or unsteady.

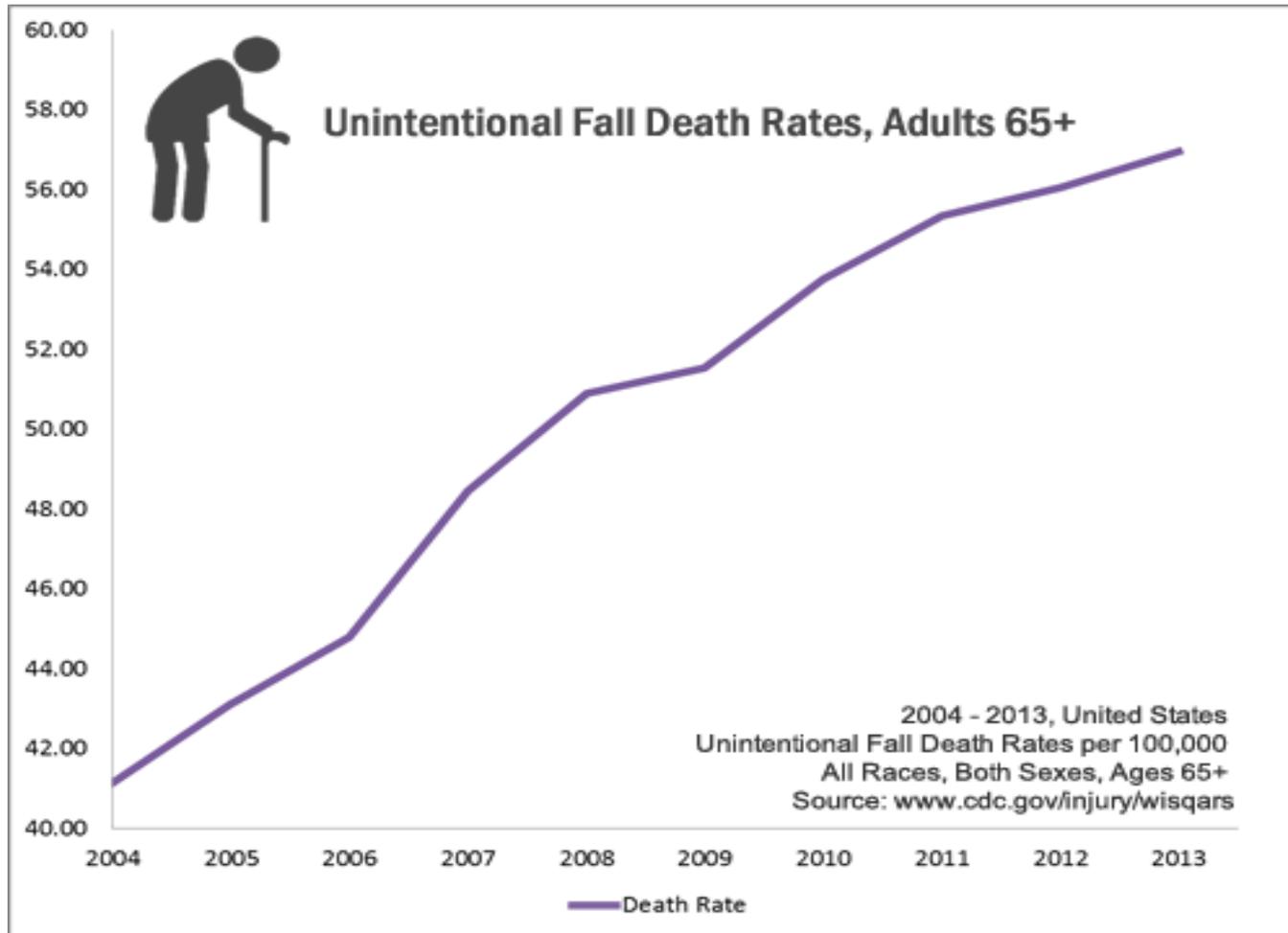
Antalgic gait- a gait that develops as a way to avoid pain while walking It is a form of gait abnormality where the stance phase of gait is abnormally shortened relative to the swing phase.

Gait Analysis

- Gait analysis can be assessed by various techniques but is most commonly performed by clinical evaluation incorporating the individual's history, physical examination, and functional assessment.
- The analysis or observation should include how the whole person moves
- Observing, documenting, and reporting any abnormal gait pattern helps prevent falls

Falls Are Serious and Costly

- Each year at least 250,000 older people are hospitalized for hip fractures.
- More than 95% of hip fractures are caused by falling, usually by falling sideways.
- Falls are the most common cause of traumatic brain injuries (TBI).
- Adjusted for inflation, the direct medical costs for fall injuries are \$34 billion annually. Hospital costs account for two-thirds of the total.





What Can Happen After a Fall?

Many falls do not cause injuries.

But 1 of 5 falls does cause a serious injury such as a broken bone or a head injury.

These injuries can make it hard for a person to get around, do everyday activities, or live on their own.

- Falls can cause broken bones, like wrist, arm, ankle, and hip fractures.

Unintentional fall death rates increase exponentially after age 65!



What Can Happen After a Fall?

- Falls can cause head injuries. These can be very serious, especially if the person is taking certain medicines (like blood thinners). An older person who falls and hits their head should see their doctor right away to make sure they don't have a brain injury.

Other Fall Consequences

- Many people who fall, even if they're not injured, become afraid of falling. This fear may cause a person to cut down on their everyday activities. When a person is less active, they become weaker and this increases their chances of falling

What Are Risk Factors in General?

Many risk factors can be changed or modified to help prevent falls.

Individual Risks may be:

- Lower body weakness
- Vitamin D deficiency (that is, not enough vitamin D in your system)
- 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.
- Vision problems
- Foot pain or poor footwear

What Are Risk Factors in General?

Environmental Risks may be:

- Home hazards or dangers such as broken or uneven steps, throw rugs or clutter that can be tripped over, and no handrails along stairs or in the bathroom.

Most falls are caused by a combination of risk factors. The more risk factors a person has, the greater their chances of falling. **Persons older than 65 years of age are at greatest risk.**

What Medical Conditions Can Increase Risks?

Many conditions increase the risk of falling and sometimes the treatment (medication) for the condition can increase the risk.

- Congestive Heart Failure, Chronic Obstructive Pulmonary Disease, Advanced Arthritis, Peripheral Neuropathy (from diabetes or smoking), even depression...How? Any condition that could contribute to a sedentary lifestyle/cause immobility can cause weakness and increase risk.

What Other Medical Conditions Can Increase Risks?

- Conditions such as vestibular system dysfunction can increase the risk of falling. How?
 - It is the primary organ of equilibrium and thus plays a major role in the subjective sensation of motion and spatial orientation.
 - Vestibular input to areas of the nervous system involved in motor control elicits adjustments of muscle activity and body position to allow for upright posture.
 - Vestibular input to regions of the nervous system controlling eye movements helps stabilize the eyes in space during head movements. This reduces the movement of the image of a fixed object on the retina

What Demographic (or Populations) are at Risk?

Persons over the age of 65 are most at risk of falling and of having a fall with injury.

- Baby Boomers – In 2011 Baby Boomers started turning 65 years old. The generation will have about 10,000 people turn 65 *every day...for 15 years!*
- That means 10,000 people **will turn 65 years old every day until 2026!!**

What Movements Aren't Normal? (What to look for...)

Getting up from a chair

- **Strength to rise** – Can they stand up easily? Do they have to stand up slowly? Do they need to use the chair arms?

Sitting down in the chair

- **Deceleration** – Do they have trouble slowing themselves down when approaching the chair? Can they easily turn to sit? Can they turn in both directions? Do they have a controlled movement when sitting? Do they need to use the chair arms? Do they 'plop' down?

What Movements Aren't Normal? (What to look for...)

Walking

- Do they seem to have difficulty walking in a straight line?
- Can they easily turn/go around object such as tables or corners?
- Is there symmetry in their steps? (Is each step the same length and speed on each side?)
- Do they naturally swing both of their arms when walking or are the arms seem strangely still?

What Movements Aren't Normal? (What to look for...)

Walking

- Can they walk at an average pace? (Do they need to walk very slow?)
- Do they seem to have a hip swing out? (Do they look like they have a dance move in their step?)
- Do their steps seem extremely small? Do they 'shuffle' along when they walk?
- Do their feet seem to occasionally freeze when walking?
- Do their toes seem to drop down while walking?
- Do they seem to lean forward excessively?

ORR & Scope

- Observe, Record, Report
- Stay within the scope of practice of a community health worker!
- While we can observe any gait abnormalities and we always should record (document) any abnormalities – our role is to simply report observations (to the patient’s nurse, medical assistant...)

ORR & Scope

- Community Health Workers are able to do motivational interviewing and use behavioral change strategies but should never give advice or try to diagnose or treat (see sources for additional information on the TX A&M course Helping older adults change their health behaviors to prevent falls & related Injuries: Health Behavior Change Theories)



What is the Role of the CHW?

ORR & Scope

Because CHWs often have initial contact with patients, have community interactions or home visit with patients, and often spend significantly more time with patient than other healthcare providers; CHWs are in the unique position of being able to observe possible gait abnormalities and **alert medical staff.**



Sources:

- Slide 4: <http://www.footbionics.com/Patients/The+Gait+Cycle.html>
- Slide 4, 5,6: <http://www.rehab.research.va.gov/mono/gait/malanga.pdf>
- Slide 7, 8 9,10,11,12,13,14,15, 16:
<http://www.cdc.gov/homeandrecreationalafety/falls/>
- Slide 15: <http://www.neurophys.wisc.edu/h&b/textbook/chap-8.html>
(Disorders of the inner ear)
- Slide 20,21,22: <http://nchwtc.tamhsc.edu/> Helping older adults change their health behaviors to prevent falls & related Injuries: Health Behavior Change Theories.”
- Slide 17,18,19: <http://acsm.idealfit.com> (Continuing education curricula for Clinical Exercise Physiologist by The American College of Sports Medicine presented by Dr. Christian Thomas, University of San Francisco)

Thank you!

Questions?



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