



# Clinical Assessment of Falls

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## Topics for today

- Effects of falls on everyday life
- Normal walking
- What balance and gait issues look like
- What can you do about it?

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## Impact of falls

- Fractures (broken bones)
  - Hip fractures account for most of medical costs
- Bruising
- TBI
- Brain hemorrhage
- Immobility if unable to arise after fall
- Fear of falling



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## Normal Walking

- Walking = “Controlled falling”
- Balance requires integration of multiple inputs and outputs
  - Sensory perception
  - Higher Processing
  - Communication to muscles

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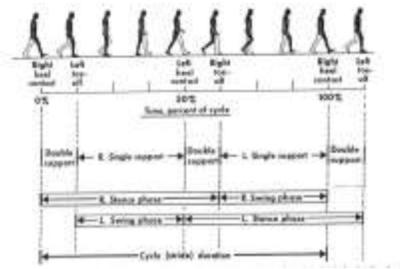
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## Normal Walking



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## Walking problems can be multifactorial

- Pain - injury
- Arthritis
- Neurologic causes
  - Ataxia
  - Strokes
  - Weakness
  - Dystonia
  - Dyskinesias
- Cautious gait
- Psychogenic



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## Orthopedic and Antalgic gait

- “Leg gives out” or “locks up”
- Associated with joint pain/swelling or injury
- Pt quickly takes weight off painful side
- Decreased ROM

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## Parkinsonian Gait

- Classic signs
  - Shortened stride length
  - Decreased arm swing
  - Freezing or festination – especially on turns
  - Narrow base of support
- Higher level gait disorder
  - Just gait problems
  - Examples: NPH or vascular PD

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## Ataxic gait

- Wide-based and very unsteady
- “Staggering”
- Common etiologies
  - Cerebellar
  - Vestibular
  - Sensory

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## Spastic gait

- Stiff legs
- “Scissoring gait”
- Common causes
  - Multiple sclerosis
  - Spinal cord lesion
  - Cerebral palsy
- Variant – hemiparetic gait
  - Example = post-stroke

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### Dystonic/chorieform gait

- Much more chaotic gait with frequent unplanned movements
- Usually wide-based

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### Cautious gait

- Slightly wide-based
- Arms “parachuting”
- Shorter steps
- Visually think about walking on ice

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### Pyschogenic gait

- Form of somatization
- Bizarre wide fluctuations in movements
- Regularly recover from large perturbations of balance

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### Risk factors for falls

- >2 falls in last 2 years
- Polypharmacy
- Increased disease severity
- Orthostatic hypotension
- Other Orthopedic or neurological problems
  - Cognitive dysfunction
- Fear of falling
- Visual difficulties
- Substance abuse (ie EtOH)

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### What do I ask people in clinic who have had a fall?

- Have you fallen in the last 6 months?
  - When was your last fall?
  - Do you fall once a day? Once a week? Once a month?
  - Have you injured yourself because of a fall?
  - Pick one recent fall and explore details about it
- \*Involve caregiver/spouse in discussion

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### How I Assess Falls in Clinic

- Thorough physical examination
  - Orthostatic blood pressure
  - Mental status examination
  - Strength and sensation
  - Coordination testing
  - Station and gait testing
    - Arising from chair
    - Gait
    - Romberg
    - Posterior pull/push and release

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### What do we do about falls? (how to prevent falls)

- Exercise is the most important thing you can do
  - 45 min a day 5-6 times per week
  - Varied activities
    - Stretching
    - Balance exercises (Pilates, yoga, Tai Chi, etc)
    - Aerobic exercise
    - Agility training

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### Exercise tips

- More likely to succeed if:
  - Start small and work up slowly
  - Keep aware of other limitations (heart condition, arthritis, etc)
  - At designated times (especially classes)
  - Others are working with you
  - Activities are something you enjoy

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### Other treatments

- Check medication list
- Treat other medical problems
- Check vision/ glasses
- Check for proper footwear
- Assistive devices
- Home safety evaluation
  - Throw rugs
  - Proper lighting
  - Grab bars

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## Treatment

- Orthostasis
  - Aggressively treat with non-medical and medical options
- Osteoporosis
  - More common in PD
  - Ca/Vit D replacement
  - Vit D may have direct effects on balance and gait<sup>1</sup>



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## Treatment

- Team approach
  - RN
  - PT
  - OT
  - Pharmacist

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## Conclusions

- Falls can impact the lives of people with PD
- Falls can be assessed in clinic
- There are many potential things to do to try to prevent falls

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### Clinical case A

- 45 yo male presents with frequent falls. He says his feet stick to the floor. Based on clinical exam, what is most likely diagnosis?
  - A) Parkinson's disease
  - B) Normal pressure hydrocephalus
  - C) Cerebellar ataxia

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### Clinical case A

- For patient from last slide, he has many falls where he loses his balance and goes straight backwards. What is best advice to prevent this type of falls?
  - A) Home health safety evaluation
  - B) Wheeled walker
  - C) Advise him to use wheelchair full-time

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### Case B

- Based on this clinical presentation, which of the following is the most likely diagnosis:
  - A) Cerebellar ataxia
  - B) Peripheral neuropathy
  - C) Osteoarthritis

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### Case B

- Please outline your treatment plan for immediately after this clinic visit.

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### Case C

- A 78 yo female is in the ED with a recent fall. Does not remember the fall, and was found down by his family. He hit his head and has a large laceration on the forehead. He has had 4 falls within the last six months, but this is the first one with an injury.

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### Case C

- Which of the following additional history items if confirmed would be the most likely cause of this fall:
  - A) Her beta-blocker was recently increased as his PCP found her home BP was consistently over 160/95
  - B) You find she had a remote history of absence seizures as a child
  - C) She is set up for a right knee replacement in 2 months
  - D) She drinks 3 cocktails nightly

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### Case C

- As family arrives, you discover that the 78 yo female has dementia. How does this affect your treatment plan?

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