Gait Abnormality Rating Scale - modified (GARS-M) -- VanSwearingen, et al, 1996

distance walked approx 25 feet each direction, 50 feet total.

1. Variability-a measure of inconsistency and arrhythmicity of stepping and/or arm movements
    0 = fluid and predictably paced limb movements
    1 = occasional interruptions (changes in speed) approximately 25% of the time
    2 = unpredictability of rhythm approximately 25%-75% of the time
    3 = random timing of limb movements

2. Guardedness-hesistancy, slowness, diminished propulsion, and lack of commitment in stepping and arm swing
    0 = good forward momentum and lack of apprehension in propulsion
    1 = center of gravity of head, arms, and trunk (HAT) projects only slightly in front of pushoff, but still good arm-leg coordination
    2 = HAT held over anterior aspect of foot and some moderate loss of smooth reciprocation
    3 = HAT held over rear aspect of stance phase foot and great tentativeness in stepping

3. Staggering-sudden and unexpected laterally directed partial losses of balance
    0 = no losses of balance to side
    1 = a single lurch to side
    2 = two lurches to side
    3 = three or more lurches to side

4. Foot contact-the degree to which heel strikes the ground before the forefoot
    0 = very obvious angle of impact of heel on ground
    1 = barely visible contact of heel before forefoot
    2 = entire foot lands flat on ground
    3 = anterior aspect of foot strikes ground before heel

5. Hip ROM-the degree of loss of hip range of motion seen during a gait cycle
    0 = obvious angulation of thigh backward during double support (1 0")
    1 = just barely visible angulation backward from vertical
    2 = thigh in line with vertical projection from ground
    3 = thigh angled forward from vertical at maximum posterior excursion

6. Shoulder extension-a measure of the decrease of shoulder range of motion
    0 = clearly seen movement of upper arm anterior (1 5") and posterior (20") to vertical axis of trunk
    1 = shoulder flexes slightly anterior to vertical axis
    2 = shoulder comes only to vertical axis or slightly posterior to it during flexion
    3 = shoulder stays well behind vertical axis during entire excursion

7. Arm-heel-strike synchrony-the extent to which the contralateral movements of an arm and leg are out of phase
    0 = good temporal conjunction of arm and contralateral leg at apex of shoulder and hip excursions all of the time
    1 = arm and leg slightly out of phase 25% of the time
    2 = arm and leg moderately out of phase 25%-50% of the time
    3 = little or no temporal coherence of arm and leg

"Sensitivity (62.3%) and specificity (87.1%) for recurrent fall risk have been determined for community-dwelling older men (64–96 years of age), including a cutoff score of 9 for recurrent fall risk." (Brach, 2002)

- VanSwearingen JM, Paschal KA, Bonino P, Yang JF. (1996). The Modified Gait Abnormality Rating Scale and recognizing recurrent fall risk of community-dwelling, frail older veterans. Phys Ther. 76:994–1002.
- VanSwearingen JM, Paschal KA, Bonino P, Chen TW. (1998). Assessing recurrent fall risk of community-dwelling, frail older veterans using specific tests of mobility and the physical performance test of function. J Gerontol A Biol Sci Med Sci. 1998;53:M457–M464.
- Brach JS. VanSwearingen JM. (2002). Physical Impairment and Disability: Relationship to Performance of Activities of Daily Living in Community-Dwelling Older Men. Physical Therapy 82:8, 752-761.

The original GARS is a 16 item measure (Wolfson, 1990)
Wolfson I., Whipplc R. Amerman P, Tobin JN. (1990). Gait assessnient in the elderly: gait abnormality rating scale and its relation to falls. J Gerontol. 45:M12-M19.