Seated Balance Assessment and Treatment Recommendations

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Fact Sheet

Outcome Measures and References:

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Seated balance relies on segmental trunk control, anticipatory postural adjustments, and managing the center of mass over a dynamic base of support.

Recent RCTs (2021–2024) show that trunk-focused training across postures improves trunk stability, dynamic sitting balance, and function. Foundational work in cerebellar ataxia by Ilg & Synofzik shows that progressive coordinative postural training improves dynamic stability, supporting structured position progressions in neuro rehab.

Assessments

Function in Sitting Test (FIST)

- Best for individuals with neurologic impairments who can sit unsupported, when detailed sitting balance assessment is needed to guide treatment and goals.
- Adults with sitting balance dysfunction:
  - **MDC:** 5.5 points (Gorman et al., 2014)
  - **MCID:** > 6.5 points (Gorman et al., 2014)

Spinal Cord Injury–Falls Concern Scale (SCI-FCS)

- Self-report questionnaire for manual wheelchair users with spinal cord injury that evaluates concern about falling during daily activities.
  - **MDC:** 7.1 points (Ronaldsen et al., 2016)
  - **MCID:** Not yet established

Trunk Impairment Scale (TIS)

- Assesses static & dynamic sitting balance & trunk coordination, providing more detail than the 4-item Trunk Control Test, and is useful when a precise, task-specific evaluation is needed, esp. after stroke.
  - **MCID (acute stroke):** ~ 3 points (Ishiwatari et al., 2023)

Modified Functional Reach Test (mFRT)

- A sitting balance test measuring forward and lateral stability limits in those unable to stand, using maximal reach without loss of balance or arm support; a quick, low-equipment option for limited standing tolerance.
  - **MDC/MCID:** Not yet established

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Position Progressions & Clinical Application

Sitting
- Why: Direct carryover, salience
- Carryover: Direct improvement in functional seated tasks (ADLs)

Quadruped
- Why: Low center of mass + wide base of support → significant trunk activation, low fall risk
- Carryover: Improved static and dynamic sitting balance, fall recovery

Tall Kneeling
- Why: Removes ankle strategy, shifts stability demands to hips/trunk
- Carryover: Improved trunk extension, vertical alignment, pelvic control

Half Kneeling
- Why: Asymmetric BOS challenges lateral control and cross-body stability
- Carryover: Improved unilateral reaching and scooting in sitting

Modified Plantigrade (bridge to standing)
- Why: Safe way to train forward-flexed trunk control with UE support
- Carryover: Improved anterior/posterior trunk control needed for ADLs

Simple Progression Framework

Support: Bilateral → unilateral → no UE support → unstable surface
BOS: Wide → narrow → asymmetrical → dynamic
Postures: Sitting → Quadruped → Tall Kneeling → Half Kneeling → Modified Plantigrade
Task: Static → weight shift (A/P, lateral) → reaching (within → outside BOS) → object manipulation → perturbations (internal → external; predictable → unpredictable) → dual-task (cognitive, motor)
Planes: Single-plane (sagittal, frontal) → multi-plane → rotational → combined tasks; predictable → variable → unpredictable directions
Head/Visual: Stable gaze → head turns (vertical → horizontal → diagonal) → head turns with task → altered vision (reduced, busy, eyes closed) → gaze stabilization → dual-task with head movement
Intensity: Add resistance (weighted vest, ankle weights, bands, manual contact), increase speed, reduce support, increase range, add dual-task
Gamify: Use blaze pods, timers, SMART WOD app, Clock it app

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