

Single-Leg Balance Clinical Protocol

Foundational Neuromuscular Control & Lower Extremity Stability

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1. Clinical Overview & Purpose

Single-leg stance is a fundamental metric of postural stability, proprioceptive control, and lower limb kinetic chain integrity. Regular practice conditions the ankle complex, knee stabilizers, and hip abductors to react dynamically against surface perturbations.

Clinical Note: Balance training targets neuromuscular reflexes and motor recruitment pathways. Maintain normal breathing throughout; avoid breath-holding.



1. Environment Setup:

Position near a corner, wall, or sturdy chair.

Light fingertip touch for tactile feedback.

Figure 1. Safe training environment utilizing corner wall support.

2. Execution Guidelines

- **Starting Position:** Stand tall on a firm, flat surface with your posture upright and shoulders relaxed.
- **Weight Shift:** Slowly shift your center of gravity onto the working leg while lifting the opposite foot several inches off the floor.
- **Joint Alignment:** Keep a soft, micro-flexed knee on the stance leg; avoid locking the joint out straight.

3. Compensations to Monitor

Proper biomechanical execution ensures targeted muscle recruitment without overloading secondary joints:

- **Lateral Pelvic Drop:** Ensure the pelvis remains level. Avoid allowing the unsupported hip to sag or drop downward.
- **Knee Valgus:** Keep the standing kneecap tracking directly over the second toe to prevent medial collapse.
- **Trunk Sway:** Minimize excessive forward, backward, or lateral torso leaning. Use gaze fixation on a stationary focal point to aid stability.

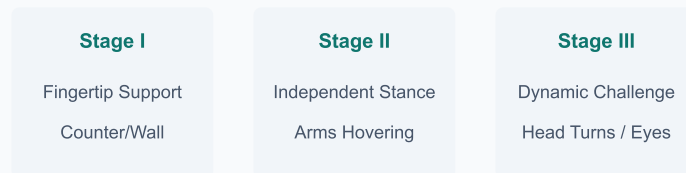


Figure 2. Step-by-step clinical progression from supported to advanced stance.

4. Progression Protocol

Advance only when a stable, unlabored 30-second hold is achieved. Progressions include reducing hand support, introducing gentle head turns, or performing the drill on compliant surfaces under supervision.

Safety Reminder: Always ensure a stable support surface is within immediate arm's reach during any progression stage to prevent slips or falls.