Flex Therapist CEUs

Introduction to Dual-Tasking In Clinical Practice

1. Which scenario best illustrates a clinically relevant motor–cognitive dual task that reflects typical community mobility demands?

A. Walking down a hallway while performing serial subtraction out loud
B. Standing quietly with eyes closed on a firm surface
C. Sitting in a chair while completing a written word search
D. Carrying a bag of groceries while standing still at a countertop

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2. In dual-task terminology, which description best defines the "primary task" in a rehabilitation dual-task paradigm?

A. The activity judged most important for the intended functional outcome, such as gait during walking while talking
B. The task that is new to the patient and therefore requires more conscious practice
C. The task that the patient performs with the least automaticity during baseline testing
D. Any cognitive task that is paired with a motor task, regardless of clinical goals

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3. A therapist compares a patient’s gait speed during usual walking to gait speed while walking and naming animals. The percentage decrease in gait speed with the added cognitive task is best described as:

A. Gait reserve capacity
B. Dual-task cost
C. Selective attention index
D. Motor learning plateau

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4. An older adult with peripheral neuropathy walks safely on a quiet level surface but becomes unstable when navigating a crowded parking lot while talking with a friend. Which concept best explains this change?

A. Enhanced selective attention that protects gait from environmental distractions
B. Improved vestibular compensation that reduces the need for visual input in complex environments
C. Increased strength allowing faster gait in more stimulating settings
D. Reduced movement automaticity that increases attentional demands during complex dual-task conditions

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5. According to the capacity-sharing model, what primarily causes performance to deteriorate during dual-task walking with serial subtraction?

A. Voluntary movement is fully automatic and therefore unaffected by additional cognitive load
B. Motor and cognitive tasks are processed in completely separate neural systems that cannot communicate
C. Combined task demands exceed the finite attentional resources that must be flexibly divided between walking and cognition
D. Cognitive tasks always suppress vestibular function, leading directly to balance loss

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6. A patient performs well on single-task gait but becomes unsteady when asked to walk while responding to questions, frequently missing questions or hesitating. Which attentional construct is most directly challenged in this situation?

A. Motor adaptation
B. Sensory habituation
C. Divided attention
D. Long-term memory consolidation

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7. Impaired executive function after traumatic brain injury most directly increases dual-task cost during gait by limiting the ability to:

A. Strengthen peripheral muscles required for propulsion and push-off
B. Generate spinal reflexes that control automatic stepping responses
C. Switch, prioritize, and inhibit competing motor and cognitive demands in real time
D. Maintain joint range of motion during repetitive mobility tasks

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8. A patient's walking significantly slows and becomes variable when combined with mental arithmetic. Which mechanism of motor–cognitive interference best explains this pattern when both tasks rely on overlapping neural systems?

A. Metabolic interference due to transient hypoglycemia during exertion
B. Peripheral interference due to muscle fatigue in the lower extremities
C. Sensory gating interference due to suppression of proprioceptive input
D. Structural interference due to competing use of shared neural pathways

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9. Why are individuals with Parkinson's disease particularly vulnerable to dual-task–related gait breakdown when a cognitive task is added?

A. Basal ganglia dysfunction reduces movement automaticity, forcing greater reliance on limited attentional resources during walking
B. Spinal reflexes become hyperactive, making gait fully independent of cortical control
C. Cerebellar hyperfunction eliminates the need for executive control during ambulation
D. Vestibular function improves, so balance becomes independent of cognitive demand

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10. Which age-related change most directly contributes to increased dual-task cost and fall risk in older adults during community ambulation?

A. Increased automaticity of gait that removes the need for any cortical involvement during walking
B. Reduced processing speed and working memory that limit flexible allocation of attention across simultaneous tasks
C. Enhanced divided attention capacity that allows prioritization of all incoming stimuli equally
D. Improved movement efficiency that decreases the cognitive load of walking in complex environments

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11. A patient walks at normal speed in the clinic but reports feeling overwhelmed and unsteady in a busy grocery store while pushing a cart and planning purchases. Which factor best explains the discrepancy between clinic and real-world performance?

A. Greater environmental complexity and simultaneous cognitive demands that increase dual-task load beyond clinic conditions
B. Improved proprioceptive input from the cart reducing need for cognitive involvement
C. Superior lighting in the store that automatically enhances postural reflexes
D. Elimination of vestibular input in the clinic making single-task walking seem more difficult

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12. Before adding a secondary cognitive task to gait, why is it essential for a clinician to establish single-task baselines for both gait and cognition?

A. To determine whether performance changes during dual-task testing represent true interference rather than preexisting single-task limitations
B. To ensure that the patient has no variability in any motor parameter before adding complexity
C. To guarantee that dual-task performance will improve regardless of intervention selection
D. To eliminate the need for any qualitative observation during later assessments

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13. A community-dwelling stroke survivor reports difficulty walking while talking in busy environments. Which secondary task is most clinically meaningful to pair with gait during assessment?

A. Performing maximal grip strength testing while seated with feet supported
B. Engaging in conversation or serial subtraction while walking at a self-selected speed
C. Completing a static balance test with eyes closed and no verbal interaction
D. Reading silently while sitting and avoiding any head or trunk motion

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14. During a dual-task gait trial with serial subtraction, a post-stroke patient begins to slow markedly, demonstrates increased double support time, and eventually stops walking to finish the subtraction. What does this behavior most likely indicate?

A. Improved gait automaticity that allows full attention to be redirected toward the cognitive task without risk
B. The combined motor and cognitive demands exceed available capacity, leading to inconsistent task prioritization and breakdown of simultaneous performance
C. Primary impairment in muscle strength with preserved cognitive flexibility under dual-task load
D. Vestibular adaptation that enhances balance when cognitive challenge is maximized

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15. Which standardized test is particularly useful for examining how divided attention affects transfers, gait initiation, straight walking, and turning when a cognitive task is added?

A. Sit-and-reach flexibility test performed in long sitting
B. Single-leg stance test performed with eyes open on a firm surface
C. Manual muscle testing of hip abductors in supine
D. Timed Up and Go (TUG) performed under dual-task conditions

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16. When gait speed substantially decreases and gait variability increases during dual-task walking with a cognitive challenge, what clinical implication is most strongly supported by current evidence?

A. Improved aerobic conditioning that permits longer walking distances without fatigue
B. Higher fall risk and reduced community mobility capacity compared with single-task gait alone
C. Enhanced selective attention that protects cognitive performance at all effort levels
D. Decreased sensitivity to environmental hazards due to reduced sensory integration demands

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17. Why might adding a simple cognitive task to selected items of the Berg Balance Scale be valuable in an older adult who scores near normal under standard conditions?

A. It can reveal balance instability and increased postural sway that emerge only when attention is divided
B. It primarily strengthens lower-extremity muscles needed for higher test scores
C. It eliminates the influence of sensory systems on postural control during testing
D. It automatically normalizes performance across all items regardless of underlying deficits

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18. During hallway ambulation, a patient repeatedly stops walking whenever asked a question, then resumes after answering. How should this "stops walking when talking" phenomenon be interpreted?

A. As evidence of substantial dual-task interference and limited capacity to allocate attention to gait and conversation simultaneously
B. As an indication that gait is fully automatic and independent of cognitive control
C. As proof that the cognitive task has negligible impact on mobility-related safety
D. As a benign preference for conversational pauses with no functional implications

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19. In clinical practice, how is dual-task cost most usefully applied over the course of rehabilitation?

A. Estimating the maximal oxygen uptake during high-intensity interval training
B. Tracking percentage change between single- and dual-task performance across sessions to quantify interference and monitor treatment effectiveness
C. Determining whether a patient meets diagnostic criteria for mild cognitive impairment
D. Calculating body mass index changes associated with physical activity counseling

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20. A therapist notes that a patient's average dual-task gait speed changes minimally over several weeks, but step-to-step variability and number of gait hesitations markedly decrease. How should this trend be interpreted?

A. Reduced variability indicates worsening automaticity and greater reliance on conscious control
B. Lack of substantial speed gain proves that dual-task training has been ineffective
C. Improved consistency and reduced variability suggest better motor–cognitive integration despite modest changes in mean speed
D. The pattern is expected only when the cognitive task is too easy to challenge attention

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21. In the case of Robert, a stroke survivor whose gait speed and TUG time worsen substantially when serial subtraction is added, what is the most accurate interpretation?

A. His primary problem is peripheral muscle fatigue that occurs only in quiet environments
B. He has reduced ability to allocate attentional resources efficiently during simultaneous motor and cognitive tasks despite relatively preserved single-task mobility
C. He demonstrates intact dual-task capacity because both gait and cognition remain above fall-risk thresholds
D. His dual-task changes are expected normal variability and do not reflect functional limitation

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22. When designing dual-task gait training for a person following stroke, which progression strategy best aligns with the course content?

A. Begin with low-load cognitive tasks during steady-state walking, then gradually increase cognitive complexity and motor/environmental demands as performance stabilizes
B. Introduce complex multitasking with obstacles, rapid head turns, and difficult memory tasks on the first visit to accelerate neuroplasticity
C. Focus exclusively on strengthening and single-task balance until gait is completely symmetrical, then abruptly add maximal cognitive load
D. Emphasize seated cognitive drills for several weeks before allowing any concurrent motor activity

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23. For an individual with moderate Alzheimer's disease who frequently stops walking when spoken to, which dual-task intervention approach is most appropriate?

A. Use simplified, highly structured motor tasks paired with basic, familiar cognitive activities and strong external cueing to avoid cognitive overload
B. Only implement complex multitasking drills in noisy environments to force adaptation of divided attention
C. Rely solely on standard single-task balance tests because dual-task conditions are not clinically meaningful in dementia
D. Prioritize challenging novel memory games while expecting gait performance to remain unchanged

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24. Which caregiver and environmental strategy best supports safer dual-task mobility in a person with cognitive impairment?

A. Reducing background noise and visual clutter while providing consistent cueing and supervision during walking tasks
B. Encouraging frequent multitasking in crowded environments to promote independence
C. Changing household layout weekly to stimulate cognitive flexibility during ambulation
D. Withholding verbal cues during mobility so that the patient must self-generate all strategies

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25. Which mechanism best explains why dual-task walking often worsens gait in Parkinson's disease even when single-task gait appears only mildly impaired?

A. Visual acuity deficits alone account for all observed dual-task changes in gait
B. Cerebellar hyperactivity produces fully automatic stepping that is independent of attention
C. Peripheral muscle hypertrophy restricts stride length when any upper-extremity movement is added
D. Basal ganglia dysfunction forces gait control to rely on limited executive resources, making it highly susceptible to additional cognitive load

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26. What is the primary role of external cueing strategies (e.g., metronome, visual stepping targets) during dual-task gait training in Parkinson's disease?

A. They provide alternative timing and patterning inputs that reduce reliance on impaired internal automatic control mechanisms during walking
B. They directly increase selective attention capacity so that patients can ignore all distractions
C. They permanently normalize basal ganglia structure regardless of disease progression
D. They eliminate the need to monitor gait variability or freezing episodes over time

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27. Why are dual-task assessments particularly important when making return-to-activity decisions after concussion, even if single-task tests appear normal?

A. Single-task assessments are unreliable for all other neurological conditions but not concussion
B. Concussion affects muscle strength far more than cognition, so single-task tests typically overestimate risk
C. Dual-task testing mainly measures pain tolerance, which is the key determinant of readiness

D. Subtle deficits in attention, processing speed, and sensory integration often emerge only when cognitive and motor systems are challenged simultaneously

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28. During graded dual-task progression after concussion, which monitoring strategy best reflects evidence-informed practice?

A. Increase environmental complexity first, then add motor load without reassessing cognitive performance
B. Advance task difficulty whenever the patient completes a single repetition without error, regardless of later fatigue
C. Focus solely on symptom ratings at rest, as activity-related responses rarely change over time
D. Track both objective performance and symptom response, including delayed symptom onset, before increasing cognitive or motor complexity

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29. Which combination of findings most strongly indicates meaningful clinical improvement in dual-task performance over time?

A. Faster single-task gait speed with no change or worsening in dual-task instability
B. Unchanged dual-task cost, increased freezing episodes, and greater reliance on hand support during balance tasks
C. Reduced dual-task cost, fewer gait interruptions, smoother turning, and improved accuracy on the secondary cognitive task
D. Stable dual-task cost but new onset of activity avoidance in community settings

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30. Across stroke, Parkinson’s disease, cognitive impairment, and concussion, why is dual-task training emphasized as a core component of rehabilitation rather than a specialized add-on?

A. Because dual-task ability underlies safe, independent functional mobility in real-world environments where motor, cognitive, and environmental demands occur simultaneously
B. Because most patients perform better under multitasking, making single-task training unnecessary
C. Because dual-task performance is unrelated to fall risk or community participation across populations
D. Because dual-task training replaces the need for any diagnosis-specific intervention strategies

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