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Motor Learning and Control: Concepts and Applications
12th Edition

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Changes to Magill: Motor Learning and Control, 12e

Chapter 1

- Updated and added new research relevant to the concept discussed in this chapter

Chapter 2

- Clarified situations in which discrimination reaction time is important
- Clarified the distinction between consistency and bias in error measures
- Described additional tools for recording movement kinematics
- Added a new figure showing the four types of EEG waves
- Expanded the description of transcranial magnetic stimulation (TMS)
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 3

- Updated and added new research relevant to the concept discussed in the chapter
- Expanded discussion of research evidence related to the relative independence of static and dynamic balance

Chapter 4

- Updated several figures within the chapter
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 5

- Added section describing and discussing the OPTIMAL theory of motor learning and control
- Included discussion of OPTIMAL theory in section on "The Present State of the Control Theories Issue"
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 6

- Updated several figures within the chapter and added a figure on the knee jerk reflex
- Updated the definition of proprioception
- Provided additional information on how muscle spindles encode joint angle
- Added new research about how sensory neuropathy patients control movement
- Added new research showing tendon vibration can improve and impair motor performance
- Described technological innovations related to the temporal occlusion procedure
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 7

- Added new information to section on "The role of visual information in the speed-accuracy trade-off"
- Added text about the role of vision in prehension
- Added section to "A Closer Look" (on the Constraint-Induced movement therapy" intervention strategy) describing and discussing the HABIT (Hand-Arm Bimanual Intensive Therapy) strategy to include therapeutic strategies for improving bimanual coordination skills for people with cerebral palsy (CP)
- Added to section on Handwriting information about the role of sensory feedback
- Expanded discussion of "Why do spontaneous gait transitions occur?" to update prevalent hypotheses
- Expanded discussion in "A Closer Look" (Visual Cues Can Aid Walking with Parkinson's Disease") to update research evidence supporting the visual cueing benefit
- Updated and added new research relevant to the concept discussed in the chapter

Changes to Magill: Motor Learning and Control, 12e

Chapter 8

- Added a new example in the "A Closer Look" section on applying Hick's Law to a sport performance situation
- Added new information about reaction time in the sprint start
- Related the "A Closer Look" section on the performance expectancy phenomenon to the OPTIMAL theory of motor learning
- Clarified how research on piano playing provides evidence for the preparation of movement sequences2
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 9

- Updated the Closer Look box on how cellphone use influences driving
- Updated and expanded discussion of neural characteristics associated with automaticity of motor skill performance
- Expanded discussion of research evidence related to attention allocation and vision while driving a car
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 10

- Added information about a proposed fourth subsystem in working memory
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 11

- Updated and added new research relevant to the concept discussed in the chapter

Chapter 12

- Added a new section on brain changes in elite athletes
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 13

- Added "dance" to list of activities in Introduction to which the transfer of learning concept applies
- Revised section "Using Gentile's Taxonomy to Develop Skills" by deleting section heading and connecting discussion to previous section "Sequencing Skills to be Learned"
- Added discussion to "A Closer Look" on "Bilateral Transfer Training for Using an Upper-Extremity Prosthesis" to update research evidence supporting the experiment described
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 14

- Updated "A Closer Look" section on clinical implications of a mirror neuron system with an example of feedforward video self-modeling in stroke rehabilitation
- Added information on the brain areas that are active during action observation
- Added information about self-observation in the section on novices observing novices
- Updated information on the frequency of observing demonstrations
- Updated information on auditory modeling
- Provided an additional example of the potential downsides of viewing a demonstration
- Added information about how visual cueing can enhance the effectiveness of demonstrations
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 15

- Updated and expanded discussion in "A Closer Look" on "Augmented Feedback as Motivation"
- Added surgical skills learning example to discussion of "Augmented Feedback May Not Be Needed for Skill Acquisition"
- Expanded discussion of why beginners ask for KR after good trials during practice
- Added sub-section "Manual Guidance as Augmented Feedback" to section "Types of Knowledge of Performance"
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 16

- Updated information on how performance errors benefit learning
- Added information about using the contextual interference effect to enhance learning of perceptual-cognitive skills
- Added information about how the contextual interference effect might encourage refinement of error detection and correction processes
- Provided an additional example of research on the especial skills effect
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 17

- Clarified use of term "procedural skills"
- Related research on treadmill training and falls risk to discussion of "The Overlearning Strategy Can Lead to Poor Test Performance"
- Updated and added new research relevant to the concept discussed in the chapter

Chapter 18

- Updated and added new research relevant to the concept discussed in the chapter

Chapter 19

- Revised discussion in section "Mental Practice as Part of a General Preparation Strategy that Aids Learning" by including more recent research involving learning to shoot free throws in basketball; Deleted Figure 19.2 and related discussion
- Added a specific reference for reading a review of research on neural plasticity related to imagery
- Updated and added new research relevant to the concept discussed in the chapter

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