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AOTA Approved Provider #4023

**Course Title:** Stroke Rehab 139

**Course Subtitle:** Sensorimotor Impairments and Their Treatment

**Source:** Stroke Recovery and Rehabilitation, 2<sup>nd</sup> ed.

Source Description: The definitive core text in its field, *Stroke Recovery and Rehabilitation* is a comprehensive reference covering all aspects of stroke rehabilitation from neurophysiology of stroke through the latest treatments and interventions for functional recovery and restoration of mobility. This second edition is completely updated to reflect recent advances in scientific understanding of neural recovery and growing evidence for new clinical therapies.

The second edition provides in-depth information on the assessment and management of all acute and long-term stroke-related impairments and complications including cognitive dysfunctions, musculoskeletal pain, and psychological issues.

It examines risk factors, epidemiology, prevention, and neurophysiology as well as complementary and alternative therapies, functional assessments, care systems, ethical issues, and community and psychosocial reintegration.

With contributions from over 100 acknowledged leaders from every branch of the stroke recovery field, this edition features expanded coverage of key issues such as the role of robotics and virtual reality in rehabilitation. New chapters have been incorporated to cover fields of recent exploration including transcranial magnetic stimulation, biomarkers, and genetics of recovery as well as essentials like the use of medication and the survivor's perspective. The up-to-date presentation of scientific underpinnings and multi-specialty clinical perspectives from physical medicine and rehabilitation, neurology, physical therapy, occupational therapy, speech and language pathology, and nursing ensures that *Stroke Recovery and Rehabilitation* will continue to serve as an invaluable reference for every health care professional working to restore function and help stroke survivors achieve their maximum potential.

See course outline below for details and inclusive content in Stroke Rehab 139 course.

**Target Audience:** OT/OTA, PT/PTA and other healthcare professionals

**Course Length:** 7 hours

**Course Author/Instructor:** Joel Stein, MD / Brown, MS, OTR/L

**Educational Level:** Introductory, Intermediate, Advanced

## **Course Objectives:**

At the end of the course, participants will be able to:

- Outline and describe 5 patterns of locomotor recovery after stroke
- Analyze and describe the effects of stroke severity on locomotor recovery
- Describe task-oriented training and differentiate it from neuromuscular reeducation
- Summarize key components of at least 3 emerging and innovative approaches to upper limb rehabilitation
- Describe the use, application and effectiveness of neuromuscular electrical stimulation for motor restoration in hemiplegia
- Discuss what robots are and why they are used in stroke rehabilitation including 3 advantages and disadvantages
- Become familiar with and describe 5 components of using virtual reality and video games for stroke rehabilitation
- Analyze and describe walking recovery progression after stroke including biomechanics of poststroke gait, early and poststroke patterns of recovery
- Describe 3 components involved in walking rehabilitation interventions following stroke

## **Outline of Content:**

### **Hour #1**

#### **Patterns of Locomotor Recovery After Stroke**

NEURAL PLASTICITY AND BEHAVIORAL COMPENSATIONS

WALKING SPEED AS A MARKER OF RECOVERY AFTER STROKE

RECOVERY FROM STROKE ONSET TO TWO YEARS AFTER STROKE, OF

WALKING SPEED AND ITS RELATION TO MOVEMENTS AND MUSCLE

ACTIVATIONS OF THE LOWER EXTREMITY

MAGNITUDE OF REHABILITATION-RELATED CHANGES IN WALKING SPEED

MUSCLE GROUPS CONTRIBUTING TO THE GENERATION OF ENERGY FOR

FORWARD PROPULSION, THEIR RELATIVE CONTRIBUTIONS TO WALKING

SPEED, AND STRATEGIES USED BY PERSONS WITH HEMIPARESIS

SUMMARY

RESEARCH FRONTIERS

### **Hour #2**

#### **Task-Oriented Training to Promote Upper Extremity Recovery**

EMERGENCE OF TASK-ORIENTED TRAINING FOR NEUROREHABILITATION

CRITERION-BASED TASK-ORIENTED TRAINING: WHAT ARE THE ACTIVE

INGREDIENTS?

CONSTRAINT-INDUCED MOVEMENT THERAPY: A SPECIAL CLASS OF TASK

ORIENTED TRAINING?

MOTOR CONTROL AND LEARNING CONSIDERATIONS

CONSIDERATIONS FROM THE NEUROSCIENCE PERSPECTIVE

EMERGING INNOVATIVE APPROACHES TO UPPER LIMB REHABILITATION

RESEARCH FRONTIERS  
CONCLUSIONS

**Hour #3**

**Neuromuscular Electrical Stimulation for Motor Restoration in Hemiplegia**

NEUROPHYSIOLOGY OF NMES  
SYSTEM COMPONENTS  
MOTOR RELEARNING  
NEUROPROSTHESIS  
CONCLUSIONS

**Hour #4**

**Robots in Stroke Rehabilitation**

WHAT ARE ROBOTS AND WHY USE THEM IN STROKE REHABILITATION?  
USE OF ROBOTS IN STROKE REHABILITATION  
ECONOMIC CONSIDERATIONS  
RESEARCH FRONTIERS  
CONCLUSION

**Hour #5**

**Virtual Reality and Video Games for Stroke Rehabilitation**

IMPORTANT DEFINITIONS  
VR TECHNOLOGY SYSTEMS  
COMMERCIAL OFF-THE-SHELF VIDEO GAMES  
UPPER LIMB SENSORIMOTOR REHABILITATION  
WALKING AND BALANCE REHABILITATION  
ACTIVITY PROMOTION  
CONCLUSIONS

**Hour #6**

**Walking Recovery and Rehabilitation After Stroke**

BIOMECHANICS OF POSTSTROKE GAIT  
EARLY POSTSTROKE PATTERNS OF RECOVERY  
CHRONIC POSTSTROKE PATTERNS OF RECOVERY  
POSTSTROKE WALKING REHABILITATION  
CONCLUSION

**Hour #7**

**Recovery and Rehabilitation of Standing Balance After Stroke**

SCOPE OF THE BALANCE PROBLEM  
RECOVERY OF STANDING BALANCE  
INTERVENTION APPROACHES  
PROTECTIVE STEPPING: A MODEL FOR LINKING DYNAMIC BALANCE  
CONTROL, FUNCTIONAL OUTCOMES, AND RISK OF FALLS  
RESEARCH FRONTIERS  
SUMMARY

**Instructional Methods and Formats:**

Online course available 24/7 at [www.OnlineCE.com](http://www.OnlineCE.com) includes PDF downloadable course. See course formats for additional details.

**Course Completion Requirements:**

A minimum passing score of 100% is required for course completion. You will have as many attempts as needed until your passing score of 100% is achieved. Upon successful completion of course, you will receive your certificate of completion and AOTA eligible CEUs.

**AOTA Classification Codes:**

Category 1: Domain of OT

Category 2: Occupational Therapy Process

Category 3: Professional Issues

**Additional Policies:**

OnlineCE Policies are available by clicking on the tab – Policies – located in the left-hand navigation bar.

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