Balance Rehabilitation:
Translating Research into Clinical Practice

Krishna Gundapudi

BSc, PG Dip (neuro rehab), MCSP
Email: balancecourseuk@gmail.com
www.rehabtherapist.co.uk

Krishna Gundapudi, BSc, PG Dip (neurorehab), MCSP, MIAP qualified with a BSc Physiotherapy (Hons) degree and received a Post Graduate Diploma in Neurorehabilitation in 2005 from Brunel University, London. He then completed a master's level module in 'spasticity management using Botulinum toxin' in 2011 from University of Plymouth. For a large part of his career, he worked with patients with various neurological conditions in acute, sub acute and long-term rehabilitation facilities at various levels. This clinical experience has equipped him with an advanced level of skills in assessment and treatment of various neurological conditions by using various approaches. His particular interests are in complex disability management, spasticity management, splinting, posture management, balance rehabilitation and hydrotherapy. He is currently working as a Clinical Therapy Lead for Central London Community Healthcare NHS Trust.

To further his interest in balance rehabilitation, he completed a basic level as well as an advanced level course titled "*Balance rehabilitation: Translating research in to clinical practice*" taught by **Marjorie Woollacott** and **Anne Shumway-Cook** who permitted him to teach this 3 day course following a successful completion of the advanced level course for instructors in Copenhagen in summer 2013. Since then, he has been teaching this course widely in the UK and abroad.

This course was originally designed by the following

Marjorie Woollacott, PhD, is a Professor in the Department of Human Physiology and a member of the Institute of Neuroscience at the University of Oregon, Eugene, Oregon. She is well known for her research on balance control and rehabilitation in both neurologic populations, including children with cerebral palsy (CP), and geriatrics, and has received numerous grants from the National Institutes of Health to study balance rehabilitation in these individuals. She has published extensively, and is coauthor of the book Motor Control: Translating Research into Clinical Practice. Her current research focuses on methods to improve sitting balance in children with CP and to improve balance and reduce falls when neurologic patients and older adults are in complex environments, and focusing on more than one task.

Anne Shumway-Cook, PT, PhD, FAPTA is a Professor Emeritus in the Department of Rehabilitation Medicine at the University of Washington, Seattle, Washington. Her research focuses on understanding the physiologic basis for balance and mobility disorders in neurologic and geriatric populations, and the translation of this research into best practices related to assessment and treatment of balance disorders. She has published extensively, and is coauthor of the book Motor Control: Translating Research into Clinical Practice. Her clinical practice focused on treatment of adults with balance and mobility impairments; she has helped to develop a number of hospital and community evidence-based fall prevention programs

Course Description

The overall goal of this course is to discuss new concepts in the assessment and treatment of balance impairments leading to loss of functional independence and falls in both neurologic, geriatric and pediatric populations. The course will review research related to the physiological basis for normal and impaired balance, and consider the application of this research in the assessment and treatment of balance disorders. The course will include three assessment labs where participants can explore tests related to the measurement of balance and mobility functions. Case studies and small group discussions will focus on the development of evidence based treatment strategies to improve balance and prevent falls.

Course Objectives: At the completion of this course participants will be able to:

1. Discuss the control of balance within a dynamic systems model, and within the International Classification of Function, Health and Disability.
2. Describe sensory, motor and cognitive contributions to normal and impaired balance in older adults and those with neurologic pathology.
3. Discuss the rationale for selecting tests used to measure balance.
4. Learn to administer sensory, motor and cognitive measures of balance, and discuss their psychometric properties.
5. Develop an appropriate progression of exercises for persons with impaired balance.
6. Based on a review of the research evidence, discuss current best practices related to balance training in pediatric, geriatric and neurologic populations.

Day 1_____

08.45 – 08:50	Arrival, registration, coffee and tea
08:50 - 09:00	Welcome and Introductions
09:00 – 09:40	Introduction to Balance (PPT1)
09:40 – 09:50	Small Groups - How do you currently assess balance?
09:50 – 10:00	Group Discussion
10:00 - 11:00	Physiological Basis for Balance: Motor Systems (PPT 2)
11:00 – 11:15	Small Groups: Motor Matrix
11:15 – 11:30	**BREAK**
11:30 - 12.15	Introduction to Assessment (PPT 3)
12:15 – 01:00	Assessment Lab -- Motor Components of Balance
01:00 – 01:45	**LUNCH**
01:45– 02:00	Group Discussion of Assessment Lab
02:00 – 03:30	Balance Rehabilitation: What is the evidence? (PPT 4)
03:30 – 04:15	**BREAK &** Treatment Assignment 1: Motor Components of Imbalance (PPT 5)
04.15-05.00	Group Discussion: Treatment
05.00 -05.30	Questions from the day

Day 2_____

08.30 – 08:45	Arrival, coffee and tea
08:45 – 10:00	Physiological Basis for Balance: Sensory (PPT 6)
10:00 – 10:15	Introduction to Assessment Lab: Sensory
10:15 - 10:45	Assessment Lab
10:45 – 11:00	Group Discussion: Assessment of Sensory Aspects of Balance
11:00 – 11:15	**BREAK**
11:15 – 12:00	Evidence Based Treatment Strategies: Sensory (PPT 7)
12:00 – 12:30	Small Groups – Treatment Assignment 2: Sensory Components
12:30 – 12:45	Group Discussion: Treatment
12:45 – 01:15	**LUNCH**
01:15– 02:15	Physiological Basis for Balance: Cognitive Systems (PPT 8)
02:15 – 02:30	Introduction to Assessment Lab: Cognitive Components of Balance (PPT 9)
02:30 – 03:00	Assessment Lab
03:00 – 03:15	Group Discussion of Lab
03:15 – 04:00	Evidence Based Balance Training: Cognitive (PPT 10)
04:00 – 04:15	**BREAK &**Small Groups: Treatment Assignment 3: Cognitive components (PPT 11)
04.15 - 04.25	Concluding Remarks (PPT 12)
04.25 - 04.30	Final Questions and Feedback forms