



The StrokeEd UL MOOC

Analysis and retraining of upper limb function after stroke

This document outlines the week-by-week content of the MOOC

Week 1

Learning outcomes	Content	Learning Activities	Interactive activities
<p>At the completion of Week 1, the participant should be able to:</p> <ul style="list-style-type: none"> • Define biomechanics, kinematics and kinetics • Identify the major muscle groups of the arm and the role of each key muscle • Name the ICF levels and apply these concepts to movement analysis • Describe the contribution of impairments to activity limitations after stroke • Outline a structured clinical reasoning approach to the analysis of movement problems of the arm after stroke 	<ul style="list-style-type: none"> • Baseline knowledge Quiz • Baseline movement analysis task • What is EBP? • Definitions of key concepts including: <ul style="list-style-type: none"> ○ Kinematics, kinetics ○ Essential components ○ Types of Muscle actions ○ ICF framework • UL anatomy revision • Review of the evidence for the relative contributions of impairments to activity limitations after stroke • Clinical reasoning for movement analysis after stroke 	<ul style="list-style-type: none"> • Baseline Quiz • Video-based analysis task • Lesson 1: Evidence-based practice • Lesson 2: Biomechanics Short quiz • Lesson 3: UL anatomy review Short quiz • Lesson 4: Application of the ICF framework Short quiz • Lesson 5: Impairments after stroke: implications for movement analysis Short quiz • Week one quiz 	<ul style="list-style-type: none"> • Facebook MOOC group discussions



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Week 2

Learning outcomes	Content	Learning Activities	Interactive activities
<p>At the completion of Week 2, the participant should be able to:</p> <ul style="list-style-type: none"> • Describe the normal biomechanics of reach (transport and pre-shaping), grasp and in-hand manipulation • Apply a structured process to the analysis of movement problems of the arm after stroke including the following steps; <ul style="list-style-type: none"> ○ identify the kinematic deviations (compensations and missing essential components) ○ hypothesise about the potential impairments ○ propose testing strategies to determine the causes of the kinematic deviations 	<ul style="list-style-type: none"> • Biomechanical task analysis of reaching, grasping and drinking from a cup • Biomechanical analysis of knife use • Biomechanical analysis of handwriting • Planning the UL assessment • Movement analysis and the essential components of UL tasks • Videos of Stroke survivor UL initial assessments 	<ul style="list-style-type: none"> • Lesson 1: Movement analysis • Learners will make slow-motion videos and complete analysis of UL tasks • Lesson 2: Planning the initial UL assessment • Lesson 3: Movement analysis, the essential component of UL tasks Short quiz • Lesson 4: Initial assessments of stroke survivors Melanie and Gill • Week 2 Quiz 	<ul style="list-style-type: none"> • Facebook MOOC group discussions



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Week 3

Learning outcomes	Content	Learning Activities	Interactive activities
<p>At the completion of Week 3, the participant should be able to:</p> <ul style="list-style-type: none"> • Outline the appraisal of and interpretation of results from systematic reviews • Outline the evidence for interventions to improve strength and activity of the affected arm after stroke • Describe strategies to increase strength in very weak muscles of the affected arm after stroke 	<ul style="list-style-type: none"> • Critical appraisal of systematic reviews and randomised clinical trials • Evidence-based strategies to improve strength in very weak UL muscles after stroke • Video examples of training very weak muscles including implementing mirror therapy, E-stim, mental practice 	<ul style="list-style-type: none"> • Lesson 1: Critical appraisal of evidence Short quiz • Lesson 2: Improving strength in very weak UL muscles, examples of implementation Short quiz • Lesson 3: Intervention planning for a stroke survivor with a very weak UL • Week 3 Quiz 	<ul style="list-style-type: none"> • Facebook MOOC group discussions • Live online Q and A session



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Week 4

Learning outcomes	Content	Learning Activities	Interactive activities
<p>At the completion of Week 4, the participant should be able to:</p> <ul style="list-style-type: none"> Describe task specific training strategies to improve hand co-ordination Outline the evidence for interventions to prevent or manage secondary impairments and spasticity of the affected arm after stroke 	<ul style="list-style-type: none"> Critical features of task-specific training Task-specific training of advanced hand activities Video examples of training common tasks involving in-hand manipulation Evidence-based strategies to prevent and reduce; subluxation, shoulder pain, swelling, contracture after stroke 	<ul style="list-style-type: none"> Lesson 1: Task-specific training of advanced hand activities Short quiz Lesson 2: Intervention planning for a stroke survivor working on advanced hand activities Lesson 3: Secondary impairments and spasticity Short quiz Lesson 4: Strategies to decrease over-activity in UL muscles Week 4 Quiz 	<ul style="list-style-type: none"> Facebook MOOC group discussions



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Week 5

Learning outcomes	Content	Learning Activities	Interactive activities
<p>At the completion of Week 5, the participant should be able to:</p> <ul style="list-style-type: none"> • Describe evidence-based coaching principles including effective instructions, feedback and environment structure to optimise motor learning • Describe strategies to increase intensity and amounts of practice after stroke • Discuss strategies for practice change within their workplace 	<ul style="list-style-type: none"> • Effective coaching • Strategies to increase amounts and intensity of practice • Case studies of UL movement analysis and intervention planning • Changing practice 	<ul style="list-style-type: none"> • Lesson 1: Effective coaching to optimise motor learning Short quiz • Self-evaluation of effectiveness of communication • Lesson 2: Strategies to increase practice in UL rehabilitation Audits of stroke survivor practice • Lesson 3: Putting it together: video case studies • Lesson 4: Changing clinical practice • Re-visiting the baseline movement analysis • End of MOOC quiz 	<ul style="list-style-type: none"> • Facebook MOOC group discussions • Live online Q and A session