



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



# The StrokeEd UL MOOC

## Analysis and retraining of upper limb function after stroke



### Week 2

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



# The StrokeEd UL MOOC

## Analysis and retraining of upper limb function after stroke



### Week 3

Learning outcomes	Content	Learning Activities	Interactive activities
<p><b>At the completion of Week 3</b>, the participant should be able to:</p> <ul style="list-style-type: none"> <li>• Outline the appraisal of and interpretation of results from systematic reviews</li> <li>• Outline the evidence for interventions to improve strength and activity of the affected arm after stroke</li> <li>• Describe strategies to increase strength in very weak muscles of the affected arm after stroke</li> <li>• Describe task specific training strategies to improve hand co-ordination</li> <li>• Outline the evidence for interventions to prevent or manage secondary impairments and spasticity of the affected arm after stroke</li> </ul>	<ul style="list-style-type: none"> <li>• Critical appraisal of systematic reviews and randomised clinical trials</li> <li>• Critical features of task-specific training</li> <li>• Evidence-based strategies to improve strength in very weak UL muscles after stroke</li> <li>• Video examples of training very weak muscles including implementing mirror therapy, E-stim, mental practice</li> <li>• Task-specific training of advanced hand activities</li> <li>• Video examples of training common tasks involving in-hand manipulation</li> <li>• Evidence-based strategies to prevent and reduce; subluxation, shoulder pain, swelling, contracture after stroke</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Lesson 1:</b> Critical appraisal of evidence Short quiz</li> <li>• <b>Lesson 2:</b> Improving strength in very weak UL muscles, examples of implementation Short quiz</li> <li>• Intervention planning for a stroke survivor with a very weak UL</li> <li>• <b>Lesson 3:</b> Task-specific training of advanced hand activities Short quiz</li> <li>• Intervention planning for a stroke survivor working on advanced hand activities</li> <li>• <b>Lesson 4:</b> Secondary impairments and spasticity Short quiz</li> <li>• Week 3 Quiz</li> </ul>	<ul style="list-style-type: none"> <li>• Facebook MOOC group discussions</li> </ul>



# The StrokeEd UL MOOC

## Analysis and retraining of upper limb function after stroke



### Week 4

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