

# Kinesiology/Analysis of Physical Performance

For the following videos analyze the movement of the client's indicated or non-affected upper extremity; joints; movement(s); prime movers; type of contraction; approximate AROM; and any movements/muscles associated.

The patient is a gentleman who is receiving outpatient OT following a CVA approximately 5 weeks prior. The session is in multiple parts.

ICE Video: **IADLs: Making a Sandwich, Part 2**

Exercise 1: Client's Right Arm from 0:09 - 0:12 seconds

Focus on the forearm, wrist, and hand

Joint	Forearm	Wrist	Fingers	Thumb
<b>Movement</b>	From neutral into pronation	From neutral into extension	From gently flexed/relaxed position MCP – extension; slight abduction PIP - extension DIP – extension	CMC – Palmar Abduction or opposition MP – extension  IP - extension
<b>Prime Movers</b>	Pronator teres  Pronator quadratus	Extensor carpi radialis longus and brevis  Extensor carpi ulnaris	MCP – Extensor digitorum; Dorsal interossei PIP - Extensor digitorum; extensor digiti minimi, extensor indicis DIP – Extensor digitorum; extensor digiti minimi, extensor indicis	CMC – Abductor pollicis brevis, abductor pollicis longus or opponens pollicis MP – Extensor pollicis brevis  IP – Extensor pollicis longus
<b>Type of Contraction</b>	Isotonic concentric	Isotonic concentric	Isotonic concentric	Isotonic concentric
<b>Approx. Range</b>				
<b>Other</b>				

# Kinesiology/Analysis of Physical Performance

ICE Video: IADLs: Making a Sandwich, Part 3

Exercise 2: Client's Right Arm from 0:05 - 0:25 seconds

Focus on the forearm, wrist, and hand – there will be multiple movements

Joint	Forearm	Wrist	Fingers	Thumb
<p><b>Movement</b></p> <ul style="list-style-type: none"> <li>• 0:05-0:07</li> <li>• 0:07-0:11</li> <li>• 0:12-0:25 – reciprocal mvmts</li> </ul>	<p><b>05-07:</b> Start in pronation and remained in pronation; the positioning of the hand occurred more proximally with elbow extension and shoulder flexion</p> <p><b>07-11:</b> no change – movement is occurring at elbow and shoulder to pull back</p>	<p><b>05-07:</b> Start neutral and stays neutral 2* height of the jar not need to extend to position palm for grasp</p> <p>12-25 Wrist radial and ulnar dev.</p> <p><b>07-11:</b> toward the end of this segment goes into wrist extension to orient the jar for (B) hand use</p>	<p><b>05-07:</b> MCP slight flexion; PIP flexed (most in 2<sup>nd</sup>); DIP relaxed (typically in neutral ext) – moves into: MCP – extension &amp; abduction PIP – goes into a less flexed position, but since will be a spherical grasp maintains slight flex here</p> <p>DIP – neutral extension to flexes to grasp top of jar/apply pressure</p> <p><b>07-11:</b> MCP, PIP and DIP flexion &amp; pressure to pick up the jar joints are maintained in spherical grasp</p>	<p><b>05-07:</b> starts adducted to the palm at CMC with MP flexed approx. 20* &amp; IP neutral extension and moves into: CMC palmar abduction followed by opposition/flexion MP &amp; IP – extension followed by flexion to apply pressure to the jar</p> <p><b>07-11:</b> Following mvmt (CMC flexion &amp; opposition; MP &amp; IP flexion) &amp; pressure to pick up the jar joints are maintained in spherical grasp</p>
<p><b>Prime Movers</b></p> <ul style="list-style-type: none"> <li>• 0:05-0:07</li> <li>• 0:07-0:11</li> <li>• 0:12-0:25 – reciprocal mvmts</li> </ul>	<p><b>05-07:</b> at forearm in this position no MM action required here 2* gravity</p> <p><b>07-11:</b> forearm stays pronated; UE comes to midline with adduction and some internal rotation at the shoulder</p>	<p><b>05-07:</b> gravity wants to pull the hand down at the wrist - Extensor carpi radialis longus and brevis</p> <p>Extensor carpi ulnaris</p> <p><b>07-11:</b> Extensor carpi radialis longus and brevis</p> <p>Extensor carpi ulnaris</p> <p><b>12-25:</b> reciprocal ulnar and radial deviation</p>	<p><b>05-07:</b> MCP – Extensor digitorum; Dorsal interossei; PIP - Extensor digitorum; extensor digiti minimi, extensor indicis</p> <p>DIP – Extensor digitorum; extensor digiti minimi, extensor indicis</p> <p><b>07-11:</b> MM above maintained in spherical grasp</p>	<p><b>05-07:</b> CMC – Abductor pollicis brevis, abductor pollicis longus;</p> <p>MP – Extensor pollicis brevis</p> <p>IP – Extensor pollicis longus</p> <p><b>07-11:</b> Flexor Pollicis longus &amp; brevis; adductor pollicis; opponens pollicis</p> <p><b>12-25:</b> reciprocal thumb flexion/opposition and</p>

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Joint	Forearm	Wrist	Fingers	Thumb
		ulnar deviation – Flexor Carpi Ulnaris & Extensor Carpi Ulnaris followed by radial dev – Extensor Carpi Radialis & Flexor Carpi Radialis Longus	<b>12-25</b> reciprocal finger flexion and extension to grasp and release to reposition on the lid	extension to grasp and release to reposition on the lid
<b>Type of Contraction</b> <ul style="list-style-type: none"> <li>• 0:05-0:07</li> <li>• 0:07-0:11</li> <li>• 0:12-0:25 – reciprocal mvmts</li> </ul>		<b>05-07:</b> isometric <b>07-11:</b> isotonic concentric <b>12-25:</b> Isotonic concentric	<b>05-07:</b> Isotonic concentric <b>07-11:</b> Isometric <b>12-25:</b> Isotonic concentric	<b>05-07:</b> Isotonic concentric <b>07-11:</b> isotonic concentric followed by isometric <b>12-25:</b> Isotonic concentric
<b>Other</b>			During each movement of the wrist, the fingers will be contracting against the lid in an isometric contraction	During each movement of the wrist, the thumb will be contracting against the lid in an isometric contraction

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