

**FUGL-MEYER ASSESSMENT  
UPPER EXTREMITY (FMA-UE)  
Assessment of sensorimotor function**

**ID:**  
**Date:**  
**Examiner:**

*Fugl-Meyer AR, Jaasko L, Leyman I, Olsson S, Steglind S: The post-stroke hemiplegic patient. A method for evaluation of physical performance. Scand J Rehabil Med 1975, 7:13-31.*

<b>A. UPPER EXTREMITY, sitting position</b>				
<b>I. Reflex activity</b>		<b>none</b>	<b>can be elicited</b>	
<b>Flexors:</b> biceps and finger flexors (at least one)		0	2	
<b>Extensors:</b> triceps		0	2	
Subtotal I (max 4)				
<b>II. Volitional movement within synergies, without gravitational help</b>		<b>none</b>	<b>partial</b>	<b>full</b>
<b>Flexor synergy:</b> Hand from contralateral knee to ipsilateral ear. From extensor synergy (shoulder adduction/ internal rotation, elbow extension, forearm pronation) to flexor synergy (shoulder abduction/ external rotation, elbow flexion, forearm supination). <b>Extensor synergy:</b> Hand from ipsilateral ear to the contralateral knee	Shoulder retraction	0	1	2
	elevation	0	1	2
	abduction (90°)	0	1	2
	external rotation	0	1	2
	Elbow flexion	0	1	2
	Forearm supination	0	1	2
	Shoulder adduction/internal rotation	0	1	2
	Elbow extension	0	1	2
	Forearm pronation	0	1	2
Subtotal II (max 18)				
<b>III. Volitional movement mixing synergies, without compensation</b>		<b>none</b>	<b>partial</b>	<b>full</b>
<b>Hand to lumbar spine</b> hand on lap	cannot perform or hand in front of ant-sup iliac spine hand behind ant-sup iliac spine (without compensation) hand to lumbar spine (without compensation)	0	1	2
<b>Shoulder flexion 0°- 90°</b> elbow at 0° pronation-supination 0°	immediate abduction or elbow flexion abduction or elbow flexion during movement flexion 90°, no shoulder abduction or elbow flexion	0	1	2
<b>Pronation-supination</b> elbow at 90° shoulder at 0°	no pronation/supination, starting position impossible limited pronation/supination, maintains starting position full pronation/supination, maintains starting position	0	1	2
Subtotal III (max 6)				
<b>IV. Volitional movement with little or no synergy</b>		<b>none</b>	<b>partial</b>	<b>full</b>
<b>Shoulder abduction 0 - 90°</b> elbow at 0° forearm neutral	immediate supination or elbow flexion supination or elbow flexion during movement abduction 90°, maintains extension and pronation	0	1	2
<b>Shoulder flexion 90° - 180°</b> elbow at 0° pronation-supination 0°	immediate abduction or elbow flexion abduction or elbow flexion during movement flexion 180°, no shoulder abduction or elbow flexion	0	1	2
<b>Pronation/supination</b> elbow at 0° shoulder at about 30° flexion	no pronation/supination, starting position impossible limited pronation/supination, maintains start position full pronation/supination, maintains starting position	0	1	2
Subtotal IV (max 6)				
<b>V. Normal reflex activity</b> assessed only if full score of 6 points is achieved in part IV; compare with the unaffected side		<b>hyper</b>	<b>lively</b>	<b>normal</b>
Biceps, triceps, finger flexors	2 of 3 reflexes markedly hyperactive 1 reflex markedly hyperactive or at least 2 reflexes lively maximum of 1 reflex lively, none hyperactive	0	1	2
Subtotal V (max 2)				
<b>Total A (max 36)</b>				

<b>B. WRIST</b> support may be provided at the elbow to take or hold the starting position, no support at wrist, check the passive range of motion prior testing		none	partial	full
<b>Stability at 15° dorsiflexion</b> elbow at 90°, forearm pronated shoulder at 0°	less than 15° active dorsiflexion dorsiflexion 15°, no resistance tolerated maintains dorsiflexion against resistance	0	1	2
<b>Repeated dorsiflexion / volar flexion</b> elbow at 90°, forearm pronated shoulder at 0°, slight finger flexion	cannot perform volitionally limited active range of motion full active range of motion, smoothly	0	1	2
<b>Stability at 15° dorsiflexion</b> elbow at 0°, forearm pronated slight shoulder flexion/abduction	less than 15° active dorsiflexion dorsiflexion 15°, no resistance tolerated maintains dorsiflexion against resistance	0	1	2
<b>Repeated dorsiflexion / volar flexion</b> elbow at 0°, forearm pronated slight shoulder flexion/abduction	cannot perform volitionally limited active range of motion full active range of motion, smoothly	0	1	2
<b>Circumduction</b> elbow at 90°, forearm pronated shoulder at 0°	cannot perform volitionally jerky movement or incomplete complete and smooth circumduction	0	1	2
<b>Total B</b> (max 10)				

<b>C. HAND</b> support may be provided at the elbow to keep 90° flexion, no support at the wrist, compare with unaffected hand, the objects are interposed, active grasp		none	partial	full
<b>Mass flexion</b> from full active or passive extension		0	1	2
<b>Mass extension</b> from full active or passive flexion		0	1	2
<b>GRASP</b>				
<b>a. Hook grasp</b> flexion in PIP and DIP (digits II-V), extension in MCP II-V	cannot be performed can hold position but weak maintains position against resistance	0	1	2
<b>b. Thumb adduction</b> 1-st CMC, MCP, IP at 0°, scrap of paper between thumb and 2-nd MCP joint	cannot be performed can hold paper but not against tug can hold paper against a tug	0	1	2
<b>c. Pincer grasp, opposition</b> pulpa of the thumb against the pulpa of 2-nd finger, pencil, tug upward	cannot be performed can hold pencil but not against tug can hold pencil against a tug	0	1	2
<b>d. Cylinder grasp</b> cylinder shaped object (small can) tug upward, opposition of thumb and fingers	cannot be performed can hold cylinder but not against tug can hold cylinder against a tug	0	1	2
<b>e. Spherical grasp</b> fingers in abduction/flexion, thumb opposed, tennis ball, tug away	cannot be performed can hold ball but not against tug can hold ball against a tug	0	1	2
<b>Total C</b> (max 14)				

<b>D. COORDINATION/SPEED</b> , sitting, after one trial with both arms, eyes closed, tip of the index finger from knee to nose, 5 times as fast as possible		marked	slight	none
<b>Tremor</b>		0	1	2
<b>Dysmetria</b>	pronounced or unsystematic slight and systematic no dysmetria	0	1	2
		≥ 6s	2 - 5s	< 2s
<b>Time</b> start and end with the hand on the knee	6 or more seconds slower than unaffected side 2-5 seconds slower than unaffected side less than 2 seconds difference	0	1	2
<b>Total D</b> (max 6)				

<b>TOTAL A-D</b> (max 66)				
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<b>H. SENSATION</b> , upper extremity eyes closed, compared with the unaffected side		<b>anesthesia</b>	<b>hypoesthesia or dysesthesia</b>	<b>normal</b>
<b>Light touch</b>	upper arm, forearm palmary surface of the hand	0 0	1 1	2 2
		<b>less than 3/4 correct or absence</b>	<b>3/4 correct or considerable difference</b>	<b>correct 100%, little or no difference</b>
<b>Position</b> small alterations in the position	shoulder elbow wrist thumb (IP-joint)	0 0 0 0	1 1 1 1	2 2 2 2
<b>Total H</b> (max12)				

<b>I. PASSIVE JOINT MOTION</b> , upper extremity, sitting position, compare with the unaffected side				<b>J. JOINT PAIN</b> during passive motion, upper extremity		
	only few degrees (less than 10° in shoulder)	decreased	normal	pronounced pain during movement or very marked pain at the end of the movement	some pain	no pain
<b>Shoulder</b>						
Flexion (0° - 180°)	0	1	2	0	1	2
Abduction (0°-90°)	0	1	2	0	1	2
External rotation	0	1	2	0	1	2
Internal rotation	0	1	2	0	1	2
<b>Elbow</b>						
Flexion	0	1	2	0	1	2
Extension	0	1	2	0	1	2
<b>Forearm</b>						
Pronation	0	1	2	0	1	2
Supination	0	1	2	0	1	2
<b>Wrist</b>						
Flexion	0	1	2	0	1	2
Extension	0	1	2	0	1	2
<b>Fingers</b>						
Flexion	0	1	2	0	1	2
Extension	0	1	2	0	1	2
<b>Total</b> (max 24)				<b>Total</b> (max 24)		

<b>A. UPPER EXTREMITY</b>	/36
<b>B. WRIST</b>	/10
<b>C. HAND</b>	/14
<b>D. COORDINATION / SPEED</b>	/ 6
<b>TOTAL A-D (motor function)</b>	/66

<b>H. SENSATION</b>	/12
<b>I. PASSIVE JOINT MOTION</b>	/24
<b>J. JOINT PAIN</b>	/24