FUGL-MEYER ASSESSMENT ID: UPPER EXTREMITY (FMA-UE) Date: Assessment of sensorimotor function 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.

A. UPPER EXTREMI	IY, sit	tting pos	sition				
I. Reflex activity					none	none can be elic	
Flexors: biceps and finge	r flexor	rs (at lea	ast one)		0	2	
Extensors: triceps					0	2	
Subtotal I (max 4)							
II. Volitional movement within synergies, without gravitational help					none	partial	full
Flexor synergy: Hand from		Shoulder retraction			1	2	
contralateral knee to ipsilateral ear.		Cricaidoi	elevation	0	1	2	
From extensor synergy (s	houldei	r	abduction (90°)			1	2
adduction/ internal rotatio				external rotation	0	1	2
extension, forearm pronat	ion) to	flexor	Elbow	flexion	0	1	2
synergy (shoulder abduct	ion/ ext	ternal	Forearm	supination	0	1	2
rotation, elbow flexion, for	earm			•		-	
supination).			Shoulder	adduction/internal rotation	0	1	2
Extensor synergy: Hand			Elbow	extension	0	1	2
ipsilateral ear to the contr	alateral	l knee	Forearm	pronation	0	1	2
			ARS T	Subtotal II (max 18)			
III. Volitional movem	ent m	nixing	synergies	, without compensation	none	partial	full
Hand to lumbar spine				n front of ant-sup iliac spine	0		
hand on lap				spine (without compensation)		1	
•				thout compensation)			2
Shoulder flexion 0°- 90°			abduction or e		0		
elbow at 0°				n during movement		1	
pronation-supination 0°				abduction or elbow flexion		-	2
Pronation-supination	_			starting position impossible	0		
elbow at 90°			mited pronation/supination, maintains starting position				
		Ill pronation/supination, maintains starting position			- COL - TO	-1	
	I full d	oronatio			CT	TI	2
shoulder at 0°	full p	oronatio		maintains starting position	SI	TE	2
OOILI		11	n/supination,	maintains starting position Subtotal III (max 6)	SI	TE	2
IV. Volitional moven	nent w	vith lit	n/supination,	maintains starting position Subtotal III (max 6) ynergy	SI	partial	2 full
IV. Volitional moven Shoulder abduction 0 - 9	nent w	vith lit	n/supination, tle or no so te supination	maintains starting position Subtotal III (max 6) ynergy or elbow flexion	none 0	partial	
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0°	nent w	vith lit mmedia supinatio	n/supination, tle or no s te supination on or elbow fle	maintains starting position Subtotal III (max 6) ynergy or elbow flexion exion during movement		partial 1	full
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated	nent w	vith lit mmedia supination	tle or no stee supination on or elbow flon 90°, mainta	ynergy or elbow flexion exion during movement ins extension and pronation		-	
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18	nent w	vith lit mmedia supinatio abductio mmedia	tle or no stee supination on or elbow flen noon of the abduction	ynergy or elbow flexion extension and pronation or elbow flexion and pronation or elbow flexion		1	full
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0°	nent w 90° ir s a 80° ir	with lit mmedia supination abduction mmedia abduction	tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement	0	-	full 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0°	nent w 90° ir s a 80° ir a fl	with lite mmedia supination abduction mmedia abductio lexion 1	tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle 80°, no shoul	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement during movement during movement der abduction or elbow flexion	0	1	full
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination	nent we see a see	with lite mmedia supination abduction mmedia abductio description lexion 1 no prona	tle or no so te supination on or elbow flom 90°, maintante abduction on or elbow flom or elbow flom or elbow flom 180°, no shoulation/supination	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible	0	1	full 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0°	nent w 90° irr s a 30° irr a fil	with litemmedia supination abduction mmedia abduction lexion 1 no prona simited p	tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle 80°, no shoul ation/supination	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position	0	1	full 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination	nent w 90° irr s a 30° irr a fil	with litemmedia supination abduction mmedia abduction lexion 1 no prona simited p	tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle 80°, no shoul ation/supination	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position	0	1	full 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0°	nent w 90° irr s a 30° irr a fil	with litemmedia supination abduction mmedia abduction lexion 1 no prona simited p	tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle 80°, no shoul ation/supination	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position	0	1	full 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination elbow at 0° Pronation/supination elbow at 0° shoulder at 30°- 90° flexion	nent wood of the second of the	with litemmedia supination abduction mmedia abduction lexion 1 no pronatimited pron	n/supination, tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle 80°, no shoul ation/supination ation/supination d only if full se	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position	0 0 0	1 1	full 2 2 2 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination elbow at 0° Shoulder at 30°- 90° flexion V. Normal reflex act part IV; compare with the	nent wood of the second of the	with literation media abduction media abduction lexion 1 no prona imited prona assessed cted side	n/supination, tle or no so te supination on or elbow fle n 90°, mainta te abduction n or elbow fle 80°, no shoul ation/supination ation/supination d only if full so	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position Subtotal IV (max 6)	0 0 0 (IV), hyper	1	full 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0° shoulder at 30°- 90° flexion V. Normal reflex act part IV; compare with the	nent wood of ir s a a a a a a a a a a a a a a a a a a	with lite mmedia supination abduction mmedia abduction lexion 1 no prona imited p ull prona assessed cted side eflexes	tle or no some te supination, or elbow flem 190°, maintain te abduction on or elbow flem 190°, no should ation/supination	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position Subtotal IV (max 6) core of 6 points is achieved in eractive or 0 points in part IV	0 0 0	1 1 1 lively	full 2 2 2 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0° shoulder at 30°- 90° flexion V. Normal reflex act part IV; compare with the	nent wood of the second of the	with literation media supination abduction media abduction lexion 1 no prona imited pull prona assessed cted side eflexes a marked	tle or no steements on or elbow flements on shoult on the steements of the or	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position Subtotal IV (max 6) core of 6 points is achieved in eractive or 0 points in part IV e or at least 2 reflexes lively	0 0 0 (IV), hyper	1 1	full 2 2 2 normal
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0° shoulder at 30°- 90° flexion V. Normal reflex act part IV; compare with the	nent wood of the second of the	with literation media supination abduction media abduction lexion 1 no prona imited pull prona assessed cted side eflexes a marked	tle or no steements on or elbow flements on shoult on the steements of the or	maintains starting position Subtotal III (max 6) ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position Subtotal IV (max 6) core of 6 points is achieved in eractive or 0 points in part IV e or at least 2 reflexes lively ione hyperactive	0 0 0 (IV), hyper	1 1 1 lively	full 2 2 2 2
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0° shoulder at 30°- 90° flexion V. Normal reflex act part IV; compare with the	nent wood of the second of the	with literation media supination abduction media abduction lexion 1 no prona imited pull prona assessed cted side eflexes a marked	tle or no steements on or elbow flements on shoult on the steements of the or	ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position Subtotal IV (max 6) core of 6 points is achieved in eractive or 0 points in part IV e or at least 2 reflexes lively	0 0 0 (IV), hyper	1 1 1 lively	full 2 2 2 normal
IV. Volitional moven Shoulder abduction 0 - 9 elbow at 0° forearm pronated Shoulder flexion 90° - 18 elbow at 0° pronation-supination 0° Pronation/supination elbow at 0° shoulder at 30°- 90° flexion V. Normal reflex act part IV; compare with the	nent wood of the second of the	with literation media supination abduction media abduction lexion 1 no prona imited pull prona assessed cted side eflexes a marked	tle or no steements on or elbow flements on shoult on the steements of the or	maintains starting position Subtotal III (max 6) ynergy or elbow flexion exion during movement ins extension and pronation or elbow flexion exion during movement der abduction or elbow flexion on, starting position impossible nation, maintains start position on, maintains starting position Subtotal IV (max 6) core of 6 points is achieved in eractive or 0 points in part IV e or at least 2 reflexes lively ione hyperactive	0 0 0 (IV), hyper	1 1 1 lively	full 2 2 2 normal

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

C. HAND support may be provided at the	none	partial	full	
the wrist, compare with unaffected hand,	the objects are interposed, active grasp		partia	
Mass flexion		0	1	2
from full active or passive extension		U		2
Mass extension	G GOTH	0	1	2
from full active or passive flexion	A. Co.	U	ı	2
GRASP				
a. Hook grasp	cannot be performed	0		
flexion in PIP and DIP (digits II-V),	can hold position but weak		1	
extension in MCP II-V	maintains position against resistance			2
b. Thumb adduction	cannot be performed	0		
1-st CMC, MCP, IP at 0°, scrap of paper	can hold paper but not against tug		1	
between thumb and 2-nd MCP joint	can hold paper against a tug			2
c. Pincer grasp, opposition	cannot be performed	0		
pulpa of the thumb against the pulpa of	can hold pencil but not against tug		1	
2-nd finger, pencil, tug upward	can hold pencil against a tug	CI		2
d. Cylinder grasp	cannot be performed	0		
cylinder shaped object (small can)	can hold cylinder but not against tug		1	
tug upward, opposition of thumb and	can hold cylinder against a tug			2
fingers				
e. Spherical grasp	cannot be performed	0		
fingers in abduction/flexion, thumb	can hold ball but not against tug		1	
opposed, tennis ball, tug away	can hold ball against a tug			2
	Total C (max 14)			

D. COORDINATION closed, tip of the index fir	marked	slight	none	
Tremor	at least 1 completed movement 0 1			2
Dysmetria	pronounced or unsystematic	0	_	
at least 1 completed	slight and systematic		1	
movement	no dysmetria			2
		> 6-	0 5-	- 0-
		≥ 6s	2 - 5s	< 2s
Time	at least 6 seconds slower than unaffected side	0 	2 - 58	< 2S
Time start and end with the	at least 6 seconds slower than unaffected side 2-5 seconds slower than unaffected side		2 - 5 s	< 28
-			1	2

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

J. PASSIVE JOINT MOTION, upper extremity, sitting position, compare with the unaffected side			J. JOINT PAIN 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
Shoulder						
Flexion (0° - 180°)	0	1 6	2	0	1	2
Abduction (0°-90°)	0	15	2	0	1	2
External rotation	0	/ 1	2	0	1	2
Internal rotation	0	6/1083	2	0	1	2
Elbow		141 639	VN' Y	2		
Flexion	0	[변 17]	2 2	0	1	2
Extension	0	1	2	0	1	2
Forearm				/		
Pronation	0	1 1 1 9	2	0	1	2
Supination	0	1	2	0	1	2
Wrist						
Flexion	0	- 1 -	_ 2		_1_	2
Extension		1	2		1	2
Fingers	MOI		DTA	TATIVOT	TT	7
Flexion	0	1	2	0	1	2
Extension	0	1	2	0	1	2
Total (max 24)				Total (max 24)		

A. UPPER EXTREMITY	/36
B. WRIST	/10
C. HAND	/14
D. COORDINATION / SPEED	/ 6
TOTAL A-D (motor function)	/66
	I
H. SENSATION	/12
J. PASSIVE JOINT MOTION	/24
J. JOINT PAIN	