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Lampiran 1. Fugl Mayer Assessment

FMA-UE PROTOCOL

Rehabilitation Medicine, University of Gothenburg

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.

A. UPPER EXTREMITY , sitting position					
I. Reflex activity		none	can be elicited		
Flexors: biceps and finger flexors (at least 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 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). Extensor synergy: 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)					
III. Volitional movement mixing synergies , without compensation		none	partial	full	
Hand to lumbar spine 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
Shoulder flexion 0°- 90° 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
Pronation-supination 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)					
IV. Volitional movement with little or no synergy		none	partial	full	
Shoulder abduction 0 - 90° elbow at 0° forearm pronated	immediate supination or elbow flexion supination or elbow flexion during movement abduction 90°, maintains extension and pronation		0	1	2
Shoulder flexion 90° - 180° 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
Pronation/supination elbow at 0° shoulder at 30°- 90° 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)					
V. Normal reflex activity assessed only if full score of 6 points is achieved in part IV; compare with the unaffected side		0 (IV), hyper	lively	normal	
biceps, triceps, finger flexors	2 of 3 reflexes markedly hyperactive or 0 points in part IV 1 reflex markedly hyperactive or at least 2 reflexes lively maximum of 1 reflex lively, none hyperactive		0	1	2
Subtotal V (max 2)					
Total A (max 36)					

Approved by Fugl-Meyer AR 2010

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Updated 2015-03-11

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.

A. UPPER EXTREMITY , sitting position				
I. Reflex activity		none	can be elicited	
Flexors: biceps and finger flexors (at least 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 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). Extensor synergy: 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)			
III. Volitional movement mixing synergies , without compensation		none	partial	full
Hand to lumbar spine 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
Shoulder flexion 0°- 90° 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
Pronation-supination 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)				
IV. Volitional movement with little or no synergy		none	partial	full
Shoulder abduction 0 - 90° elbow at 0° forearm pronated	immediate supination or elbow flexion supination or elbow flexion during movement abduction 90°, maintains extension and pronation	0	1	2
Shoulder flexion 90° - 180° 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
Pronation/supination elbow at 0° shoulder at 30°- 90° 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)				
V. Normal reflex activity assessed only if full score of 6 points is achieved in part IV; compare with the unaffected side		0 (IV), hyper	lively	normal
biceps, triceps, finger flexors	2 of 3 reflexes markedly hyperactive or 0 points in part IV 1 reflex markedly hyperactive or at least 2 reflexes lively maximum of 1 reflex lively, none hyperactive	0	1	2
Subtotal V (max 2)				
Total A (max 36)				

**FUGL-MEYER ASSESSMENT
LOWER EXTREMITY (FMA-LE)
Assessment of sensorimotor function**

ID:
Date:
Examiner:

Fugl-Meyer AR, Jaasko L, Leyman I, Olsson S, Steglind S: The post-stroke hemiplegic patient. 1. a method for evaluation of physical performance. Scand J Rehabil Med 1975, 7:13-31.

E. LOWER EXTREMITY					
I. Reflex activity , supine position		none	can be elicited		
Flexors: knee flexors		0	2		
Extensors: patellar, achilles (at least one)		0	2		
Subtotal I (max 4)					
II. Volitional movement within synergies supine position		none	partial	full	
Flexor synergy: Maximal hip flexion (abduction/external rotation), maximal flexion in knee and ankle joint (palpate distal tendons to ensure active knee flexion). Extensor synergy: From flexor synergy to the hip extension/adduction, knee extension and ankle plantar flexion. Resistance is applied to ensure active movement, evaluate both movement and strength (compare with the unaffected side)	Hip flexion	0	1	2	
	Knee flexion	0	1	2	
	Ankle dorsiflexion	0	1	2	
	Hip extension	0	1	2	
	Knee adduction	0	1	2	
	Ankle extension	0	1	2	
Subtotal II (max 14)					
III. Volitional movement mixing synergies sitting position, knee 10cm from the edge of the chair/bed		none	partial	full	
Knee flexion from actively or passively extended knee	no active motion less than 90° active flexion, palpate tendons of hamstrings more than 90° active flexion	0	1	2	
Ankle dorsiflexion compare with unaffected side	no active motion limited dorsiflexion complete dorsiflexion	0	1	2	
Subtotal III (max 4)					
IV. Volitional movement with little or no synergy standing position, hip at 0°		none	partial	full	
Knee flexion to 90° hip at 0°, balance support is allowed	no active motion or immediate, simultaneous hip flexion less than 90° knee flexion and/or hip flexion during movement at least 90° knee flexion without simultaneous hip flexion	0	1	2	
Ankle dorsiflexion compare with unaffected side	no active motion limited dorsiflexion complete dorsiflexion	0	1	2	
Subtotal IV (max 4)					
V. Normal reflex activity supine position, assessed only if full score of 4 points is achieved in part IV, compare with the unaffected side		hyper	lively	normal	
Reflex activity knee flexors, Patellar, Achilles,	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)					
Total E (max 28)					

**FUGL-MEYER ASSESSMENT
LOWER EXTREMITY (FMA-LE)
Assessment of sensorimotor function**

ID:
Date:
Examiner:

Fugl-Meyer AR, Jaasko L, Leyman I, Olsson S, Steglind S: The post-stroke hemiplegic patient. 1. a method for evaluation of physical performance. Scand J Rehabil Med 1975, 7:13-31.

E. LOWER EXTREMITY					
I. Reflex activity , supine position		none	can be elicited		
Flexors: knee flexors		0	2		
Extensors: patellar, achilles (at least one)		0	2		
Subtotal I (max 4)					
II. Volitional movement within synergies supine position		none	partial	full	
Flexor synergy: Maximal hip flexion (abduction/external rotation), maximal flexion in knee and ankle joint (palpate distal tendons to ensure active knee flexion). Extensor synergy: From flexor synergy to the hip extension/adduction, knee extension and ankle plantar flexion. Resistance is applied to ensure active movement, evaluate both movement and strength (compare with the unaffected side)	Hip flexion	0	1	2	
	Knee flexion	0	1	2	
	Ankle dorsiflexion	0	1	2	
	Hip extension	0	1	2	
	Knee adduction	0	1	2	
	Ankle extension	0	1	2	
Subtotal II (max 14)					
III. Volitional movement mixing synergies sitting position, knee 10cm from the edge of the chair/bed		none	partial	full	
Knee flexion from actively or passively extended knee	no active motion less than 90° active flexion, palpate tendons of hamstrings more than 90° active flexion	0	1	2	
Ankle dorsiflexion compare with unaffected side	no active motion limited dorsiflexion complete dorsiflexion	0	1	2	
Subtotal III (max 4)					
IV. Volitional movement with little or no synergy standing position, hip at 0°		none	partial	full	
Knee flexion to 90° hip at 0°, balance support is allowed	no active motion or immediate, simultaneous hip flexion less than 90° knee flexion and/or hip flexion during movement at least 90° knee flexion without simultaneous hip flexion	0	1	2	
Ankle dorsiflexion compare with unaffected side	no active motion limited dorsiflexion complete dorsiflexion	0	1	2	
Subtotal IV (max 4)					
V. Normal reflex activity supine position, assessed only if full score of 4 points is achieved in part IV, compare with the unaffected side		hyper	lively	normal	
Reflex activity knee flexors, Patellar, Achilles,	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)					
Total E (max 28)					

Subyek	Jenis Kelamin			Lesi		Cz		C3		C4		Pz		P3	
						DTABR		DTABR		DTABR		DTABR		DTABR	
						Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1 S01	L	1	1	hemisphere cerebri sinistra	1	0,33	0,32	0,30	0,26	0,30	0,32	0,29	0,29	0,29	0,29
2 S02	L	5	2	hemisphere cerebri dextra	1	2,04	1,69	2,19	1,37	2,38	1,68	1,76	1,30	1,86	1,0
3 S03	L	1	1	hemisphere cerebri dextra	1	3,60	1,34	1,89	0,87	3,24	1,50	3,45	1,50	2,24	1,1
4 S04	L	1	2	hemisphere cerebri dextra	1	3,84	2,57	3,60	1,94	3,64	2,59	2,48	1,91	2,40	1,1
5 S05	L	2	1	hemisphere cerebri dextra	1	1,09	1,15	0,98	0,89	1,01	0,58	1,21	0,96	1,03	0,8
6 S06	P	4	2	hemisphere cerebri dextra	1	2,89	2,71	3,62	2,76	1,83	1,70	2,89	2,13	3,72	2,2
7 S07	L	2	1	hemisphere cerebri dextra	1	1,39	1,31	1,80	1,80	0,98	0,75	1,74	0,92	2,12	2,4
8 S08	L	6	2	hemisphere cerebri sinistra	1	2,30	1,69	2,47	1,78	2,00	0,99	2,04	1,10	2,16	2,7
9 S09	L	5	1	hemisphere cerebri dextra	1	1,98	1,73	1,81	1,96	1,35	1,43	1,83	1,67	1,79	1,7
10 S10	P	2	2	Hemisphere cerebri dextra	1	5,87	2,46	6,17	2,39	5,88	2,42	5,38	2,21	4,46	2,2
11 S11	L	5	2	Hemisphere cerebri dextra	1	1,43	1,10	2,64	1,39	2,35	1,21	3,00	1,22	1,16	1,2
12 S12	P	4	2	Hemisphere cerebri sinistra	1	7,11	1,57	10,03	1,66	6,17	1,15	7,81	1,72	10,24	2,0
13 S13	L	3	1	Hemisphere cerebri dextra	1	5,87	2,46	6,17	2,39	5,88	2,42	5,38	2,21	4,46	2,2
14 S14	P	2	2	Hemisphere cerebri sinistra	1	0,85	0,50	0,71	0,51	0,89	0,53	0,95	0,60	0,91	0,5
15 S15	L	1	1	Hemisphere cerebri sinistra	1	1,14	0,27	1,06	0,24	1,03	0,19	0,91	0,45	0,79	0,2
16 S01	L	3	1	hemisphere cerebri dextra	2	0,74	0,80	0,67	0,67	0,95	1,06	0,63	0,56	0,53	0,6
17 S02	P	2	2	hemisphere cerebri sinistra	2	0,52	0,61	0,57	0,54	1,04	1,24	1,02	1,06	1,00	0,8
18 S03	L	5	1	hemisphere cerebri dextra	2	0,75	0,74	0,65	0,70	1,02	1,17	0,65	0,64	0,57	0,6
19 S04	L	3	1	hemisphere cerebri sinistra	2	3,04	2,24	5,18	2,60	3,18	2,48	2,99	2,13	4,29	2,6
20 S05	L	1	2	hemisphere cerebri dextra	2	1,8	1,81	1,21	1,28	2,66	2,78	1,99	1,99	0,62	1,0
21 S06	P	5	2	hemisphere cerebri sinistra	2	1,81	1,52	3,93	3,15	1,10	0,88	1,15	0,59	3,02	2,0
22 S07	L	4	1	hemisphere cerebri sinistra	2	2,50	1,72	2,61	1,74	2,04	1,39	3,22	2,17	2,64	2,1
23 S08	P	1	2	hemisphere cerebri dextra	2	1,59	1,05	1,16	0,55	1,32	0,94	1,52	0,93	1,02	0,6
24 S09	L	3	1	hemisphere cerebri sinistra	2	1,04	0,57	0,88	0,59	0,75	0,51	1,12	0,58	1,00	0,6
25 S10	P	4	1	hemisphere cerebri sinistra	2	1,83	1,76	1,44	1,54	1,22	1,33	2,05	1,96	1,51	1,5

Lampian 3. Analisis Data

Karakteristik Responden

Frequencies

		Statistics			
		JK	Usia	Onset	Lesi
N	Valid	25	25	25	25
	Missing	0	0	0	0

Frequency Table

		JK			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	L	18	72.0	72.0	72.0
	P	7	28.0	28.0	100.0
	Total	25	100.0	100.0	

		Usia			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	39 - 44 tahun	5	20.0	20.0	20.0
	45 - 49 tahun	4	16.0	16.0	36.0
	50 - 54 tahun	5	20.0	20.0	56.0
	55 - 59 tahun	5	20.0	20.0	76.0
	60 - 64 tahun	5	20.0	20.0	96.0
	65 tahun ke atas	1	4.0	4.0	100.0
	Total	25	100.0	100.0	

		Onset			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< = 3 hari	15	60.0	60.0	60.0
	> 3 hari	10	40.0	40.0	100.0
	Total	25	100.0	100.0	

Lesi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	hemisphere cerebri dextra	1	4.0	4.0	4.0
	Hemisphere cerebri dextra	15	60.0	60.0	60.0
	Hemisphere cerebri sinistra	10	40.0	40.0	100.0
	Total	25	100.0	100.0	

Statistik Deskriptif

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Cz_Pre	25	.33	7.11	2.4140	1.81183
Cz_Post	25	.27	2.71	1.4704	.77934
C3_Pre	25	.53	10.03	2.6344	2.24859
C3_Post	25	.24	3.15	1.4784	.79883
C4_Pre	25	.30	6.17	2.1748	1.72788
C4_Post	25	.19	2.82	1.3144	.79653
Pz_Pre	25	.37	7.81	2.4120	1.73348
Pz_Post	25	.34	2.61	1.3488	.68198
P3_Post	25	.26	10.24	2.3532	2.10537
P3_Pre	25	.24	2.75	1.4156	.79347
P4_Pre	25	.12	5.95	2.2472	1.82527
P4_Post	25	.06	3.56	1.2576	.91834
Valid N (listwise)	25				

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FMA_pre	25	8.00	63.00	37.2800	17.85478
FMA_post	25	24.00	88.00	60.0800	17.25041
FMA_UE.pre	25	4.00	48.00	27.2400	14.04837
FMA_UE.post	25	14.00	62.00	41.8400	13.71945
FMA_LE.pre	25	4.00	17.00	10.0400	4.07717
FMA_LE.post	25	10.00	26.00	18.2400	4.60326
Valid N (listwise)	25				

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
delta_Cz	25	-.32	5.54	.9436	1.38854
delta_C3	25	-.43	8.37	1.1560	1.85943
delta_C4	25	-.15	5.02	.8604	1.28899
delta_Pz	25	-.10	6.09	1.0632	1.38149
delta_P3	25	-.59	8.18	.9376	1.72715
delta_P4	25	.00	4.50	.9896	1.31830
delta_FMA	25	-44.00	-2.00	-22.8000	8.82232
Valid N (listwise)	25				

Hasil Uji Normalitas

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Cz_Pre	25	100.0%	0	0.0%	25	100.0%
Cz_Post	25	100.0%	0	0.0%	25	100.0%
C3_Pre	25	100.0%	0	0.0%	25	100.0%
C3_Post	25	100.0%	0	0.0%	25	100.0%
C4_Pre	25	100.0%	0	0.0%	25	100.0%
C4_Post	25	100.0%	0	0.0%	25	100.0%
Pz_Pre	25	100.0%	0	0.0%	25	100.0%
Pz_Post	25	100.0%	0	0.0%	25	100.0%
P3_Post	25	100.0%	0	0.0%	25	100.0%
P3_Pre	25	100.0%	0	0.0%	25	100.0%
P4_Pre	25	100.0%	0	0.0%	25	100.0%
P4_Post	25	100.0%	0	0.0%	25	100.0%
FMA_pre	25	100.0%	0	0.0%	25	100.0%
FMA_post	25	100.0%	0	0.0%	25	100.0%
delta_Cz	25	100.0%	0	0.0%	25	100.0%
delta_C3	25	100.0%	0	0.0%	25	100.0%
delta_C4	25	100.0%	0	0.0%	25	100.0%
delta_Pz	25	100.0%	0	0.0%	25	100.0%
delta_P3	25	100.0%	0	0.0%	25	100.0%
delta_P4	25	100.0%	0	0.0%	25	100.0%
delta_FMA	25	100.0%	0	0.0%	25	100.0%
FMA_UE.pre	25	100.0%	0	0.0%	25	100.0%
FMA_UE.post	25	100.0%	0	0.0%	25	100.0%
FMA_LE.pre	25	100.0%	0	0.0%	25	100.0%
FMA_LE.post	25	100.0%	0	0.0%	25	100.0%
Delta_Upper	25	100.0%	0	0.0%	25	100.0%
Delta_Lower	25	100.0%	0	0.0%	25	100.0%

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cz_Pre	.182	25	.033	.880	25	.007
Cz_Post	.118	25	.200*	.936	25	.121
C3_Pre	.219	25	.003	.808	25	.000
C3_Post	.129	25	.200*	.958	25	.374
C4_Pre	.203	25	.009	.839	25	.001
C4_Post	.117	25	.200*	.931	25	.091
Pz_Pre	.155	25	.126	.864	25	.003
Pz_Post	.131	25	.200*	.931	25	.091
P3_Post	.171	25	.057	.780	25	.000
P3_Pre	.152	25	.141	.940	25	.149
P4_Pre	.247	25	.000	.851	25	.002
P4_Post	.157	25	.113	.937	25	.123
FMA_pre	.184	25	.028	.881	25	.007
FMA_post	.117	25	.200*	.961	25	.434
delta_Cz	.281	25	.000	.732	25	.000
delta_C3	.285	25	.000	.673	25	.000
delta_C4	.254	25	.000	.709	25	.000
delta_Pz	.264	25	.000	.725	25	.000
delta_P3	.196	25	.015	.642	25	.000
delta_P4	.305	25	.000	.739	25	.000
delta_FMA	.133	25	.200*	.970	25	.641
FMA_UE.pre	.174	25	.050	.888	25	.010
FMA_UE.post	.174	25	.050	.923	25	.060
FMA_LE.pre	.205	25	.008	.916	25	.042
FMA_LE.post	.086	25	.200*	.968	25	.606
Delta_Upper	.075	25	.200*	.987	25	.978
Delta_Lower	.092	25	.200*	.979	25	.858

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Hasil Uji Wilcoxon DTABR

NPar Tests

Wilcoxon Signed Ranks Test

		Ranks		
		N	Mean Rank	Sum of Ranks
Cz_Post - Cz_Pre	Negative Ranks	23 ^a	13.48	310.00
	Positive Ranks	2 ^b	7.50	15.00
	Ties	0 ^c		
	Total	25		
C3_Post - C3_Pre	Negative Ranks	20 ^d	13.93	278.50
	Positive Ranks	4 ^e	5.38	21.50
	Ties	1 ^f		
	Total	25		
C4_Post - C4_Pre	Negative Ranks	21 ^g	14.48	304.00
	Positive Ranks	4 ^h	5.25	21.00
	Ties	0 ⁱ		
	Total	25		
Pz_Post - Pz_Pre	Negative Ranks	24 ^j	13.33	320.00
	Positive Ranks	1 ^k	5.00	5.00
	Ties	0 ^l		
	Total	25		
P3_Pre - P3_Post	Negative Ranks	20 ^m	14.25	285.00
	Positive Ranks	5 ⁿ	8.00	40.00
	Ties	0 ^o		
	Total	25		
P4_Post - P4_Pre	Negative Ranks	23 ^p	12.00	276.00
	Positive Ranks	0 ^q	.00	.00
	Ties	2 ^r		
	Total	25		

- a. Cz_Post < Cz_Pre
- b. Cz_Post > Cz_Pre
- c. Cz_Post = Cz_Pre
- d. C3_Post < C3_Pre
- e. C3_Post > C3_Pre
- f. C3_Post = C3_Pre
- g. C4_Post < C4_Pre
- h. C4_Post > C4_Pre
- i. C4_Post = C4_Pre
- j. Pz_Post < Pz_Pre
- k. Pz_Post > Pz_Pre
- l. Pz_Post = Pz_Pre
- m. P3_Pre < P3_Post
- n. P3_Pre > P3_Post
- o. P3_Pre = P3_Post
- p. P4_Post < P4_Pre
- q. P4_Post > P4_Pre
- r. P4_Post = P4_Pre

Test Statistics^a

	Cz_Post - Cz_Pre	C3_Post - C3_Pre	C4_Post - C4_Pre	Pz_Post - Pz_Pre	P3_Pre - P3_Post	P4_Post - P4_Pre
Z	-3.969 ^b	-3.672 ^b	-3.808 ^b	-4.238 ^b	-3.297 ^b	-4.198 ^b
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.001	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Hasil Uji Wilcoxon FMA

NPar Tests

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
FMA_post - FMA_pre	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	25 ^b	13.00	325.00
	Ties	0 ^c		
	Total	25		
FMA_UE.post - FMA_UE.pre	Negative Ranks	0 ^d	.00	.00
	Positive Ranks	25 ^e	13.00	325.00
	Ties	0 ^f		
	Total	25		
FMA_LE.post - FMA_LE.pre	Negative Ranks	0 ^g	.00	.00
	Positive Ranks	25 ^h	13.00	325.00
	Ties	0 ⁱ		
	Total	25		

a. FMA_post < FMA_pre

b. FMA_post > FMA_pre

c. FMA_post = FMA_pre

d. FMA_UE.post < FMA_UE.pre

e. FMA_UE.post > FMA_UE.pre

f. FMA_UE.post = FMA_UE.pre

g. FMA_LE.post < FMA_LE.pre

h. FMA_LE.post > FMA_LE.pre

i. FMA_LE.post = FMA_LE.pre

Test Statistics^a

	FMA_post - FMA_pre	FMA_UE.post - FMA_UE.pre	FMA_LE.post - FMA_LE.pre
Z	-4.375 ^b	-4.382 ^b	-4.387 ^b
Asymp. Sig. (2-tailed)	.000	.000	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Hasil Uji Korelasi

Nonparametric Correlations

		Correlations						
		delta_ Cz	delta_ C3	delta_ C4	delta_ Pz	delta_ P3	delta_ P4	delta_F MA
Spearman's rho	Correlation Coefficient	1.000	.665**	.806**	.716**	.530**	.668**	-.242
	Sig. (2-tailed)	.	.000	.000	.000	.006	.000	.243
	N	25	25	25	25	25	25	25
	Correlation Coefficient	.665**	1.000	.794**	.856**	.640**	.528**	-.423*
	Sig. (2-tailed)	.000	.	.000	.000	.001	.007	.035
	N	25	25	25	25	25	25	25
	Correlation Coefficient	.806**	.794**	1.000	.719**	.550**	.669**	-.412*
	Sig. (2-tailed)	.000	.000	.	.000	.004	.000	.041
	N	25	25	25	25	25	25	25
	Correlation Coefficient	.716**	.856**	.719**	1.000	.411*	.505**	-.529**
	Sig. (2-tailed)	.000	.000	.000	.	.041	.010	.007
	N	25	25	25	25	25	25	25
	Correlation Coefficient	.530**	.640**	.550**	.411*	1.000	.663**	-.253
	Sig. (2-tailed)	.006	.001	.004	.041	.	.000	.222
	N	25	25	25	25	25	25	25

	Correlation Coefficient	.668**	.528**	.669**	.505**	.663**	1.000	-.194
delta_P4	Sig. (2-tailed)	.000	.007	.000	.010	.000	.	.352
	N	25	25	25	25	25	25	25
	Correlation Coefficient	-.242	-.423*	-.412*	-.529**	-.253	-.194	1.000
delta_F MA	Sig. (2-tailed)	.243	.035	.041	.007	.222	.352	.
	N	25	25	25	25	25	25	25

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Hasil Uji Perubahan FMA

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
FMA	Upper	25	.4027	.19898	.03980
	Lower	25	.3451	.14385	.02877

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
FMA	Equal variances assumed	1.817	.184	1.174	48	.246	.05763	.04911	-.04110	.15637
	Equal variances not assumed			1.174	43.703	.247	.05763	.04911	-.04135	.15662

Correlations

	Spearman's rho		
	delta_FMA		
	Correlation Coefficient	Sig. (2-tailed)	N
delta_Cz	-.242	.243	25
delta_C3	-.423	.035	25
delta_C4	-.412	.041	25
delta_Pz	-.529	.007	25
delta_P3	-.253	.222	25
delta_P4	-.194	.352	25
delta_FMA	1.000	.	25

