Show

Functional Analysis of MINI-Q II positions

Functional Analysis of MINI-Q II positions, and Use with Live Z-scores

A Window to 4-channel EEG Assessment and Training

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Introduction

The MINI-Q II

provides 8 positions, each selecting 4 channels. With a rear pushbutton, a 9 th position is available. The sensors for the positions are:

Position	Active 1	Active 2	Active 3	Active 4
1	Fz	Cz	T3	T4
2	F3	F4	O1	O2
3	C3	C4	F7	F8
4	P3	P4	T5	T6
5	Fp1	Fp2	Pz	Oz (not 10/20)
5a	T3	T4	Pz	Oz (not 10/20)
6	O1	O2	C3	C4
7	F7	F8	F3	F4
8	T5	T6	Fz	Cz

In addition to taking EEG data for evaluation, the MINIŁQ II can also be used for training. In each position, a particular set of sites and connections is used.

In each position, the MINIŁQ II provides 4 sites, and 6 connection paths between them. By using particular MINIŁQ II positions for training, it is possible to target sp

When used with the Live ZŁscore training capability, it is possible to train all 4 sites, in addition to their 6 interconnections. This provides an efficient means to target

For each channel, for each of 8 bands: Absolute and relative power (4x16 = 64 zŁscores) For each channel: 10 power ratios (4x10 = 40 zŁscores) For each pair of ch (6x24 = 144 zŁscores)

The following pages detail the brain locations and functions accessed by each MINIŁQ II position, based upon the cited paper by Walker et. al. Each position provide

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

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Functional Analysis of MINIŁQ II positions

MINIŁQ II Position: 1

Sites: Fz Cz T3 T4 "Frontal Midline and Temporal Lobes"

Summary: This position provides a primary
window to motor planning of the lower extremities, sensorimotor integration, and logical and emotional memory formation and storage. Secondary functions include

10/20 Territory Modules	Principal Function	Other Functions
Fz	Motor planning of both lower extremities (BLE) and midline	Running, Walking, Kicking
Cz	Sensorimotor integration both lower extremities (BLE) and midline	Ambulation
T3	Logical (verbal) memory formation and storage	phonological processing, hearing (bilateral) suppression of tinnitus
T4	Emotional (nonŁverbal memory formation and storage	hearing (bilateral), suppression of tinnitus, autobiographical memory storage

Coherence	Result of Hypocoherence	Result of Hypercoherence
FzŁCz	Less efficient midline motor action/midline sensorimotor integration	Lack of flexibility of midline motor action/midline sensorimotor integration
FzŁT3	Less efficient logical memory/midline motor actions	Lack of flexibility of logical memory/midline motor actions
FzŁT4	Less efficient emotional memory/midline motor actions	Lack of flexibility of emotional memory/midline motor actions
CzŁT3	Less efficient logical memory/midline sensorimotor integration	Lack of flexibility of logical memory/midline sensorimotor integration
CzŁT4	Less efficient emotional memory/midline sensorimotor integration	Lack of flexibility of emotional memory/midline sensorimotor integration
T3ŁT4	Less efficient logical memory/emotional memory	Lack of flexibility of logical memory/emotional memory

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

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Functional Analysis of MINIŁQ II positions

MINIŁQ II Position: 2

Sites: F3 F4 O1 O2 "Frontal and Occipital Homologous Sites"

Summary: This position provides a primary window to motor planning of the upper extremities, motor actions, and visual processing. Secondary functions include fi recognition, and visual sensations and perception.

10/20 Territory Modules	Principal Function	Other Functions
F3	Motor planning right upper extremity (RUE)	Fine motor coordination, mood elevation
F4	Motor planning left upper extremity (LUE)	Fine motor coordination (left hand)
O1	Visual processing right half of space	Pattern recognition, color perception, movement perception, black/white perception, edge perception
O2	Visual processing left half of space	Pattern recognition, color perception, movement perception, black/white perception, edge perception

Coherence	Result of Hypocoherence	Result of Hypercoherence
F3ŁF4	Less efficient motor actions RUE/motor actions LUE	Lack of flexibility motor actions RUE/motor actions LUE
F3ŁO1	Less efficient motor actions RUE/visual sensations R	Lack of flexibility of logical memory/midline motor actions
F3ŁO2	Less efficient motor actions RUE/visual sensations L	Lack of flexibility of emotional memory/midline motor actions
F4ŁO1	Less efficient motor actions LUE/visual sensations R	Lack of flexibility of motor actions LUE/visual sensations R
F4ŁO2	Less efficient motor actions LUE/visual sensations L	Lack of flexibility of motor actions LUE/visual sensations L
O1ŁO2	Less efficient visual sensations R/visual sensations L	Lack of flexibility of visual sensations L/visual sensations R

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

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Functional Analysis of MINIŁQ II positions

MINIŁQ II Position: 3

Sites: C3 C4 F7 F8 "Mesial Motor Strip and Lateral Frontal Homologous Sites "

Summary: This position provides a primary window
to sensorimotor integration, and verbal and emotional expression, motor actions of the upper extremities, visual sensations, verbal/sensorimotor integration, and verba

10/20 Territory Modules	Principal Function	Other Functions
C3	Sensorimotor integration right upper extremity (RUE)	Alerting Responses Handwriting (right hand)
C4	Sensorimotor integration left upper extremity (LUE)	Calming Handwriting (left hand)
F7	Verbal Expression	Speech Fluency Mood Regulation (cognitive)
F8	Emotional Expression	Drawing (right hand) Mood Regulation (endogenous)

Coherence	Result of Hypocoherence	Result of Hypercoherence
C3ŁC4	Less efficient sensorimotor integration RUE/sensorimotor integration L	Lack of flexibility of sensorimotor integration RUE/sensormotor integration L
C3ŁF7	Less efficient verbal/sensorimotor integration RUE	Lack of flexibility of verbal/sensorimotor integration RUE
C3ŁF8	Less efficient emotional expression/sensorimotor integration RUE	Lack of flexibility of emotional expression/sensorimotor integration RUE
C4ŁF7	Less efficient emotional expression/sensorimotor integration LUE	Lack of flexibility of emotional expression/sensorimotor integration LUE
C4ŁF8	Less efficient emotional	Lack of flexibility of emotional

	expression/sensorimotor integration LUE	expression/sensorimotor integration LUE
F7ŁF8	Less efficient verbal/emotional expression	Lack of flexibility of verbal/emotional expression

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

MINIŁQ II Position: 4

Sites: P3 P4 T5 T6 "Parietal and Posterior Temporal Homologous Sites "

Summary: This position provides a primary window
to perception and cognitive processing, spatial relations, and logical and emotional understanding, memory, and perceptions. Secondary functions include spatial rela

10/20 Territory Modules	Principal Function	Other Functions
P3	Perception (cognitive processing) right half of space	Spatial Relations Sensations Multimodal sensations Calculations Praxis Reasoning (verbal)
P4	Perception (cognitive processing) left half of space	Spatial Relations Multimodal Interactions Praxis Reasoning (nonŁverbal)
T5	Logical (verbal) understanding	Word Recognition Auditory Processing
T6	Emotional understanding	Facial Recognition Symbol Recognition Auditory Processing

Coherence	Result of Hypocoherence	Result of Hypercoherence
P3ŁP4	Less efficient perceptions R/perceptions L	Lack of flexibility of perceptions R/perceptions L
P3ŁT5	Less efficient logical memory/perception R	Lack of flexibility of logical memory/perception R
P3ŁT6	Less efficient emotional memory/perceptions R	Lack of flexibility of emotional memory/perceptions R
P4ŁT5	Less efficient logical memory/perceptions L	Lack of flexibility of logical memory/perception L
P4ŁT6	Less efficient emotional memory/perceptions L	Lack of flexibility of emotional memory/perceptions L
T5ŁT6	Less efficient logical memory/emotional memory	Lack of flexibility of logical memory/emotional memory

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

MINIŁQ II Position: 5

Sites: Fp1Fp2 Pz Oz "Prefrontal Homologous, and Posterior Midline Sites "

Summary: This position provides a primary window
to logical and emotional attention, perception, and visual processing. Secondary functions include planning, decision making, task completion, sense of self, selfŁcor

10/20 Territory Modules	Principal Function	Other Functions
Fp1	Logical Attention	Orchestrate network interactions planning Decision making Task completion Working memory
Fp2	Emotional Attention	Judgement Sense of self SelfŁcontrol Restraint of impulses
Pz	Perception midline	Spatial Relations Praxis Route Finding
Oz (not a 10Ł20 position)	Visual processing of space	Primary visual sensation

Coherence	Result of Hypocoherence	Result of Hypercoherence
Fp1ŁFp2	Less efficient integration of logical/emotional attention	Lack of flexibility of integrating logical/emotional attention
Fp1ŁPz	Logical attention/midline perception	Lack of flexibility of logical attention/midline perception

Fp1ŁOz	(no data)	(no data)
Fp2ŁPz	Less efficient emotional attention/midline perception	Lack of flexibility of emotional attention/midline perception
Fp2ŁOz	(no data)	(no data)
PzŁOz	(no data)	(no data)

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

MINIŁQ II Position: 5a (rear pushbutton OUT)

Sites: T3 T4 Pz Oz "Temporal Lobes, and Posterior Midline "

Summary: This position provides a primary window to logical and emotional attention, perception, and visual processing. Secondary functions include planning, dec

10/20 Territory Modules	Principal Function	Other Functions
T3	Logical (verbal) memory formation and storage	phonological processing, hearing (bilateral) suppression of tinnitus
T4	Emotional (nonŁverbal memory formation and storage	hearing (bilateral), suppression of tinnitus, autobiographical memory storage
Pz	Perception midline	Spatial Relations Praxis Route Finding
Oz (not a 10Ł20 position)	Visual processing of space	Primary visual sensation

Coherence	Result of Hypocoherence	Result of Hypercoherence
T3ŁT4	Less efficient logical memory/emotional memory	Lack of flexibility of logical memory/emotional memory
T3ŁPz	Less efficient logical memory/midline perception	Lack of flexibility of logical memory/midline perception
T3ŁOz	(no data)	(no data)
T4ŁPz	Less efficient logical memory/midline perception	Lack of flexibility of logical memory/midline perception
T4ŁOz	(no data)	(no data)
PzŁOz	(no data)	(no data)

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

MINIŁQ II Position: 6

Sites: O1 O2 C3 C4 "Occipital and Motor Strip Homologous Sites "

Summary: This position provides a primary window to perception and cognitive processing, spatial relations, and logical and emotional understanding, memory, and

10/20 Territory Modules	Principal Function	Other Functions
O1	Visual processing right half of space	Pattern recognition, color perception, movement perception, black/white perception, edge perception
O2	Visual processing left half of space	Pattern recognition, color perception, movement perception, black/white perception, edge perception
C3	Sensorimotor integration right upper extremity (RUE)	Alerting Responses Handwriting (right hand)
C4	Sensorimotor integration	Calming

	left upper extremity (LUE)	Handwriting (left hand)

Coherence	Result of Hypocoherence	Result of Hypercoherence
P3ŁP4	Less efficient perceptions R/perceptions L	Lack of flexibility of perceptions R/perceptions L
P3ŁT5	Less efficient logical memory/perception R	Lack of flexibility of logical memory/perception R
P3ŁT6	Less efficient emotional memory/perceptions R	Lack of flexibility of emotional memory/perceptions R
P4ŁT5	Less efficient logical memory/perceptions L	Lack of flexibility of logical memory/perception L
P4ŁT6	Less efficient emotional memory/perceptions L	Lack of flexibility of emotional memory/perceptions L
T5ŁT6	Less efficient logical memory/emotional memory	Lack of flexibility of logical memory/emotional memory

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

MINIŁQ II Position: 7

Sites: F7 F8 F3 F4 ”Full Frontal Lobes Homologous Sites ”

Summary: This position provides a primary window to verbal and emotional expression, motor planning of the upper extremities, and motor actions. Secondary func

10/20 Territory Modules	Principal Function	Other Functions
F7	Verbal Expression	Speech Fluency Mood Regulation (cognitive)
F8	Emotional Expression	Drawing (right hand) Mood Regulation (endogenous)
F3	Motor planning right upper extremity (RUE)	Fine motor coordination, mood elevation
F4	Motor planning left upper extremity (LUE)	Fine motor coordination (left hand)

Coherence	Result of Hypocoherence	Result of Hypercoherence
F7ŁF8	Less efficient verbal/emotional expression	Lack of flexibility of verbal/emotional expression
F7ŁF3	Less efficient verbal/motor actions R	Lack of flexibility of verbal/motor actions R
F7ŁF4	Less efficient verbal/motor actions L	Lack of flexibility of verbal/motor actions L
F8ŁF3	Less emotional expression/motor actions RUE	Lack of flexibility of emotional expression/motor actions RUE
F8ŁF4	Less emotional expression/motor actions LUE	Lack of flexibility of emotional expression/motor actions LUE
F3ŁF4	Less efficient motor actions RUE/motor actions LUE	Lack of flexibility motor actions RUE/motor actions LUE

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

MINIŁQ II Position: 8

Sites: T5 T6 Fz Cz ”Posterior Temporal and Frontal Midline ”

Summary: This position provides a primary window to logical and emotional understanding and memory, motor planning of the lower extremities, and sensorimotor

10/20 Territory Modules	Principal Function	Other Functions
T5	Logical (verbal) understanding	Word Recognition Auditory Processing
T6	Emotional understanding	Facial Recognition Symbol Recognition

		Auditory Processing
Fz	Motor planning of both lower extremities (BLE) and midline	Running, Walking, Kicking
Cz	Sensorimotor integration both lower extremities (BLE) and midline	Ambulation

Coherence	**Result of Hypocoherence**	**Result of Hypercoherence**
T5ŁT6	Less efficient logical memory/emotional memory	Lack of flexibility of logical memory/emotional memory
T5ŁFz	Less efficient logical memory/midline motor actions	Lack of flexibility of logical memory/midline motor actions
T5ŁCz	Less efficient logical memory/midline sensorimotor integration	Lack of flexibility of logical memory/midline sensorimotor integration
T6ŁFz	Less efficient emotional memory/midline motor actions	Lack of flexibility of emotional memory/midline motor actions
T6ŁCz	Less efficient emotional memory/midline sensorimotor integration	Lack of flexibility of emotional memory/midline sensorimotor integration
FzŁCz	Less efficient midline motor action/midline sensorimotor integration	Lack of flexibility of midline motor action/midline sensorimotor integration

Data from: Walker, J.E., Kozlowski, G.P., and Lawson, R. (2007) A Modular Activation/Coherence Approach to Evaluating Clinical/QEEG Correlations, Journal of Neurotherapy 11(1) 25Ł44.

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