

Neural Regions Associated with MI Components and MIDAS Scales and Subscales

Primary regions are large areas of the brain inclusive of Sub-Regions listed in decreasing size, 1- 3.

MIDAS scales are matched with corresponding cognitive units cited in neuroscientific literature.

Table 1. Interpersonal:

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

INTERPERSONAL				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Interpersonal	Combined			
	Frontal Cortex	Prefrontal~Cortex	Dorsolateral Prefrontal	Posterior Orbitofrontal
	Temporal Cortex	Superior~Temporal~Sulcus	Hippocampus	Fusiform Face Area
Social Sensitivity	Understanding			
	Frontal Cortex	Prefrontal~Cortex	Orbitofrontal	Posterior Orbitofrontal
	Cingulate	Anterior~Cingulate~Cortex		Brocas Area
Social Persuasion	Leadership			
	Frontal Cortex	Prefrontal~Cortex	Medial Prefrontal	Brocas Area
	Temporal Cortex	Medial~Temporal~Lobule	Hippocampus	
Interpersonal Work	Social Perception			
	Temporal Cortex	Superior~Temporal~Sulcus	Posterior Superior Temporal	Fusiform Face Area

Table 2. Intrapersonal:

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

INTRAPERSONAL				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Intrapersonal	Combined			
	Frontal Cortex	Prefrontal	Dorsomedial PFC	Ventromedial Orbitofrontal Cortex
	Temporal Cortex	Medial Temporal Lobule	Hippocampus	Parahippocampus Gyrus
	Cingulate Cortex	Anterior Cingulate	Subgenual ACC	Ventral Triatum
Personal Knowledge	Self-Awareness			
	Frontal Cortex	Prefrontal Cortex	Dorsomedial /Lateral PFC	Ventromedial Orbitofrontal Gyrus
	Temporal Cortex	Medial / Anterior Temporal	Hippocampus	Parahippocampus Gyrus
	Cingulate Cortex	Anterior / Posterior	Ventral / Dorsal ACC	Ventral Striatum
Self-Effectiveness	Self-Regulation			
	Frontal Cortex	Prefrontal	Lateral PFC	Broca's Area
	Temporal Cortex	Amygdala	Hippocampus	Fusiform Gyrus
Metacognition	Executive Functions			
Calculations Spatialization	Frontal Cortex	Prefrontal Cortex Motor Cortex	Orbitofrontal PMA	Precuneus Striatum

Table 3. Linguistic:

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

LINGUISTIC				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Linguistic	Combined			
	Temporal Cortex	Inferior~Temporal~ Cortex	Fusiform Gyrus	Visual Word Form Area
	Frontal Cortex	Inferior Frontal Gyrus	Posterior Inferior Frontal Gyrus	Brocas Area
	Parietal Cortex	Inferior Parietal Lobule	Angular Gyrus	Precuneus
Writing - Reading	Reading			
	Temporal Cortex	Inferior~Temporal~ Cortex	Fusiform Gyrus Wernickes Area	Visual Word Form Area
	Frontal Cortex	Inferior Frontal Gyrus	Posterior Inferior Frontal Gyrus	Brocas Area
	Parietal Cortex	Inferior Parietal Lobule	Ventral Inferior Parietal	Precuneus
	Writing			
	Frontal Cortex	Prefrontal~Cortex Motor Cortex	Medial Prefrontal Dorsolateral PFC	Brocas Area Orbitofrontal Gyrus
	Occipital Cortex	Middle Occipital Gyrus Inferior Occipital Gyrus	Striatum	Dorsal Striatum
Rhetorical Skill	Speech			
	Temporal Cortex	Superior~Temporal~Sulcus Superior~Temporal~Cortex	Wernickes Area	Visual Word Form Area
	Frontal Cortex	Inferior Frontal Gyrus	Posterior Inferior Frontal Cortex	Brocas Area
Expressive Sensitivity	Parietal Cortex	Inferior Parietal Lobule	Supramarginal Gyrus	Ventral Premotor Cortex

Table 4. Logical-mathematical:

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

LOGICAL-MATHEMATICAL				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Logical-math	Combined			
	Frontal~Cortex	Prefrontal Cortex	Posterior Inferior Frontal	Brocas Area
	Parietal~Cortex	Intraparietal Sulcus	Precuneus	Anterior Supramarginal Gyrus
Problem Solving	Logical Reasoning			
Strategy Games	Temporal~Cortex	Medial Temporal Lobule	Parahippocamp al Gyrus	
	Frontal~Cortex	Prefrontal Cortex	Dorsolateral Prefrontal	Brocas Area
Everyday Math	Mathematical Reasoning			
	Parietal~Cortex	Intraparietal Sulcus	Angular Gyrus	Precuneus
	Frontal~Cortex	Prefrontal	Posterior Inferior Frontal	Brocas Area
School Math ?	General Intelligence			
	Parietal~Cortex	Inferior Parietal Lobule	Supramarginal Gyrus	Anterior Supramarginal Gyrus
	Frontal~Cortex	Medial / Lateral Postcentral Lobule	Posterior Inferior Frontal	

Table 5. Visual-Spatial:

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

VISUAL-SPATIAL				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Visual-spatial	Combined			
	Frontal~Cortex	Motor Cortex Prefrontal	Premotor Dorsolateral PFC	Brocas Area
	Parietal~Cortex	Superior Parietal Lobule	Precuneus	Posterior Precuneus
Spatial Awareness	Spatial Cognition			
	Frontal~Cortex	Prefrontal	Premotor Dorsolateral PFC	Brocas Area
	Parietal~Cortex	Superior Parietal Lobule	Precuneus	Supramarginal Gyrus
	Intuition-Insight			
	Subcortical	Basal Ganglia	Striatum/ Midbrain	Dorsal Striatum
	Frontal~Cortex	Prefrontal	Dorsolateral	
Artistic Design	Visual Arts			
	Frontal~Cortex	Prefrontal	Premotor Dorsolateral PFC	Posterior Dorsolateral PFC
	Parietal~Cortex	Superior Parietal Lobule	Precuneus	Posterior Precuneus
Working w/ Objects	Working w/Objects			
	Parietal~Cortex	Intraparietal Sulcus	Anterior Intraparietal	Angular Gyrus
	Frontal~Cortex	Motor Cortex	Premotor Cortex	Dorsal Premotor Gyrus

Table 6. Kinesthetic

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

KINESTHETIC				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Kinesthetic	Combined			
	Frontal~Cortex	Motor Cortex	Primary Motor Premotor	Dorsal / Ventral Premotor
	Parietal~Cortex	Inferior Parietal Lobule	Superior Posterior Parietal	
Dexterity	Dexterity			
	Frontal~Cortex	Motor Cortex	Primary Motor SMA	Dorsal Premotor
	Temporal~Cortex	Superior Temporal Gyrus	Primary Auditory	Heschls Gyrus
	Parietal~Cortex	Inferior Parietal Lobule		
Athletics	Whole Body			
	Frontal~Cortex	Motor Cortex	Primary Motor Premotor	Brocas Area
	Parietal~Cortex	Posterior / Inferior Parietal	Medial Superior / Posterior Parietal	
	Body Awareness			
	Frontal~Cortex	Motor Cortex	Primary Motor SMA	Lateral Premotor
	Parietal~Cortex	Posterior Parietal		
	Motor Cognition			
	Frontal~Cortex	Motor Cortex Prefrontal	SMA Premotor	Dorsal / Ventral Premotor
	Parietal~Cortex	Medial / Inferior Parietal		

Table 7. Musical:

Primary and Sub-Regions Highlights Summarized / Compared with MIDAS Main Scale and Subscales

MUSICAL				
MIDAS Scales	Neural Cognitive Regions			
	Cognitive Units Primary Regions	Sub-Regions-1	Sub-Regions-2	Sub-Regions-3
Musical	Combined			
	Frontal~Cortex	Motor Cortex	Premotor SMA	Dorsal Premotor Brocas Area
	Temporal~Cortex	Superior Temporal Gyrus	Primary Auditory	Wernickes Area
Appreciation	Musical Cognition			
	Frontal~Cortex	Motor Cortex	Primary Motor Cortex	Brocas Area
	Temporal~Cortex	Superior Temporal Cortex	Superior Temporal Gyrus	Primary Auditory Cortex / Heschls Gyrus
	Parietal~Cortex	Anterior /Superior Parietal Lobule	Posterior Superior Parietal Lobule	Precuneus
Appreciation	Musical Perception			
	Frontal~Cortex	Motor Cortex	Primary Auditory Cortex	Dorsal Premotor
	Temporal~Cortex	Superior Temporal Gyrus	Anterior Temporal Gyrus	
Instrumental Skill	Musical Production			
Composing	Frontal~Cortex	Motor Cortex	Premotor Primary Motor	Brocas Area
Vocal Ability	Temporal~Cortex	Superior Temporal Gyrus	Primary Auditory	Wernickes Area
		Superior Temporal Cortex		
Appreciation	Melody-Pitch-Rhythm			
	Temporal~Cortex	Superior Temporal Cortex	Superior /Inferior Temporal Gyrus	
	Parietal~Cortex	Inferior Parietal Lobule	Supramarginal Gyrus	Angular Gyrus

Neural Regions That Are Shared and Unique to Cognitive Components Within Each MI





