NTLGroup Neurocoach® Training System

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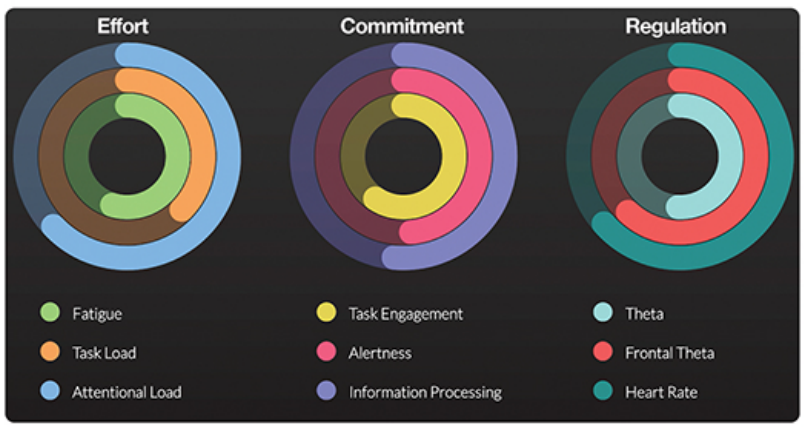


NeuroCoach® Monitoring/Training Screens

Performing complex tasks viewed through a neuroscience lens has shed light on how the brain resourcefully transfers information through and between dedicated, and functionally modularized brain sub-networks. Whether applied to increase cognitive performance or overcome brain dysfunctions, NTLGroups NeuroCoach® Training System provides insight into how brain networks perform in real time, which is key to improving brain performance capabilities.

With the aid of a Brain Computer Interface (BCI), NTLGroups NeuroCoach® Training System uses a set of brain performance metrics (organized in a NeuroCognitive Performance Profile™) to let the user know how their brain is functioning 'in the moment' and provides this information for use by NTLs cognitive training modules. These metrics, when properly applied to a valid cognitive processing model, yield valuable insight into how the brain is functioning. More importantly, the application of the NeuroCoach® Cognitive Training modules lead the way towards increased cognitive performance.

NTLGroup® training system uses the Global Workspace Theory (GWT) cognitive processing model to represent cognitive performance at the neural network level. The GWT model establishes a neural framework to characterize brain sub-network interactions and thinking-state transitions. The GWT model suggests that information processed in the brain's sensory areas is transmitted to a global neuronal workspace (much like a computer desktop space) that organizes interconnecting sensory-level capabilities with higher-level processing areas. As such, NTLGroup's NeuroCoach® program measures dynamic changes between specialized sub-networks used between selected brain areas as they interact within the global workspace for the task at hand. Equally important, when real time brain performance metrics are coupled with FDA registered age stratified databases to compare current performance metrics this further aids in identifying age normed reduced (or increased) or dysfunctional (or optimized) neural performance brain networks during effortful cognitive and skill-based tasks.

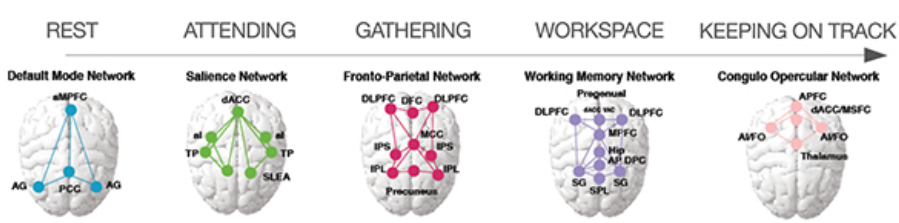
How it is used

Clinically - For Cognitive Repair

- Monitor Training Effects
- Redirect training focus towards weakest Index
- Assist in Training exercise selection

Performance Monitoring - Increased Performance

- Monitor Workload/Learning Effects
- Redirect Training focus towards weakest Index
- Boasting Index Needs viaiTraining exercise



The table below lists the predicted relationships between physiological workload indicators and model-based workload generated from NCPP

Neurocognitive Performance Profile™ (NCPP) Metrics	
NCP-PM Index	**What ability it measures**
• Task Engagement Index (TEI)	*Engagement (FOCUS) - Alertness/Arousal*
• Attentional Load Index (ALI)	*Attention (Resources) Attnetion/Vigilance*
• Cognitive Control Index (CCI)	*Goal Awareness / Vision Awareness*
• Cognitive Global Workspace Index (GWI)	*Conscious Complexity Ability (Based on Memory Capacity)*
• Learning Ability Index (LAI)	*Learning Ability - /Store/Retrieve/Associate*
• Thinking Ability Index (TAI)	*Abstraction/Synthesize/Analyze/Evaluate/Decide*
• Cognitive Effeciency Index (CEI)	*Speed, Reaction Time, Timing*
• Metacognition Access Index (MAI)	*Basic Living, Working, Interactive, Survival, Higher Thinking Skills*
• Cognitive Resilience Index (CRI)	*Cognitive Load - Hardiness - Mental and Physical Fatigue - Health*
• Cognitive Awareness/Goal/Vision Performance (NPI)	*Cognitive Awareness / Cognitive Goal / Vision Execution*