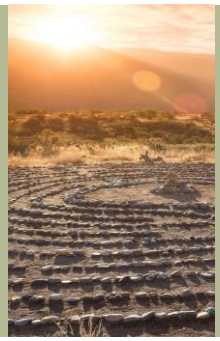
PsychoNeuroPhysiological Assessment
within a
Multidisciplinary Comprehensive Assessment Program



Antoinette S. Giedzinska, PhD
Director of Behavioral Medicine
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"Materials that are included in this course may include interventions and modalities that are beyond the authorized practice of mental health professionals. As a licensed professional, you are responsible for reviewing the scope of practice, including activities that are defined in law as beyond the boundaries of practice in accordance with and in compliance with your professions standards."

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PsychoNeuroPhysiological Assessment

1. Bio/Neurofeedback as a Integral Player in Integrative Mental Health
2. From Bio/Neurofeedback training *To Psychoneurophysiological Interpretation*
3. Comprehensive Assessment Program (CAP)

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Integrative Medicine

Defined (1983):

....is healing-oriented medicine that takes account the whole person (body, mind, and spirit), including all aspects of life style; emphasizing the therapeutic relationship and makes use of all appropriate therapies, both conventional and alternative.

"get the patient better" philosophy

Weil, A. (1983). Health and Healing: The Philosophy of Integrative Medicine and Optimum Health. Houghton Mifflin Co. New York, NY.

Integrative Medicine

Consortium of Academic Health Centers for Integrative Medicine (2009)

Integrative Medicine Points:

- Emphasizing the importance of the relationship between practitioner & patient
- Focusing on the whole person
- Treatment is informed by evidence
- Considering a diverse range of appropriate therapeutic approaches
- Aiming to achieve optimal health and healing

Integrative Medicine

James Lake (2009):

"Because every human being is shaped by unique Social, Cultural, Psychological, Biological & Spiritual factors that determine his or her physical, psychological and spiritual health."

Lake, J (2009). Integrative mental health care: A therapist's handbook. WW Norton & CO. New York.

Integrative Mental Health

INIMH – International Network of Integrative Mental Health (2010)

Integrative Mental Health Points:

- Considering the "whole" person
  - mind/body & interrelated systems
- Emphasizing the therapeutic relationship / alliance
- Examining healthy lifestyle
  - "lifestyle medicine"
    - *exercise * diet * sleep * moderation*

Integrative Mental Health

INIMH – International Network of Integrative Mental Health (2010)

World Health Organization (WHO) 1948:

" 'Health' is a state of complete physical, mental, and social well-being, and not merely the absence of disease and infirmity."

Kaplan, RM., & Bush JW. (1982). Health-related quality of life measurement for evaluation research and policy analysis. Health Psychology (1); 61-80.

Torrance, GW. (1987). Utility approach to measuring health-related quality of life. Journal of Chronic Diseases; 593-600.

Ware, JE. (1994). The status of health assessment. Annual review of public health (16):327–54.

Integrative Mental Health

Baby & Bathwater Remain

1. Psychiatric Care
2. Psychotherapy

Tub Mates:

1. Naturopath / Chinese Medicine
2. Biofeedback / SE
3. Nutraceuticals / Dietary
4. Chiropractic
5. Psycho-Education / Coaching
6. Acupuncture

PsychoNeuroPhysiological Assessment

- Bio/Neurofeedback as a Integral Player in Integrative Mental Health
2. From Bio/Neurofeedback training *To Psychoneurophysiological Interpretation*
3. Comprehensive Assessment Program (CAP)

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PsychoNeuroPhysiological Assessment

2. From Bio/Neurofeedback training *To Psychoneurophysiological Interpretation*
   - *Equipment*

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PsychoNeuroPhysiological Assessment

2. From Bio/Neurofeedback training *To Psychoneurophysiological Interpretation*
   - *Equipment*
   - *Software*

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Overview of Initial Procedures

Initial Session

- Brief Interview
- Orientation
- PsychoPhysiological Stress Evaluation
- Mini Brain Map (Clinical Q) Evaluation

- *Body Informs*
  - *Physiological responses to Stress are excellent indicators of PsychoPhysiological representation of Psychological factors related to various states of Anxiety, Depression, & Resiliency*
  - *Assessing through the Clinical Q identifies predispositions and experiential factors that are fundamental to guide effective neurotherapeutic treatment*

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Overview of Initial Procedures

Initial Session

- Brief Interview
- Orientation
- PsychoPhysiological Stress Evaluation
- Mini Brain Map (Clinical Q) Evaluation

Follow-Up Session

- Review PsychoNeuroPhysiological Evaluation
- Protocol Planning
- Respiration Training
- Heart Resonant Frequency Mapping (HRV)

- *Body Informs*
- *Protocol Plan (4 Rs)*
  - *Rehabilitate*
  - *Reintegrate*
  - *Rehabituate*
  - *Resiliency*

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PsychoPhysiological Stress Evaluation

Physiological Processes related to "stress & relaxation responses" are measured

Plugged In	Instruments	Common Acronyms
Respiration	Pneumograph	
Heart Rate	Photoplethysmograph	HR/BVP/HRV
Peripheral Temperature	Thermistor	
Muscle Tone	Electromyograph	EMG
Skin Conductance	Electrodermograph	GSR
Peripheral Oxygen Saturation	Pulse Oximeter	SpO2

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PsychoPhysiological Stress Evaluation

Physiological Processes related to "stress & relaxation responses" are measured

Plugged In	Stressed	Relaxed
Respiration	Rapid &/or Shallow	Slow & Even
Heart Rate	Fast &/or Attenuated	Rhythmic & Prosodic
Peripheral Temperature	Cold	Warm
Muscle Tone	Tense / Tight	Toned / Relaxed
Skin Conductance	Clammy	Dry

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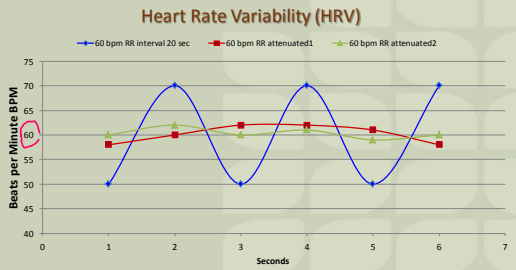
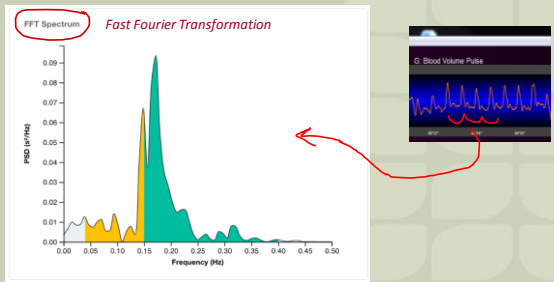
PsychoPhysiological Stress Evaluation



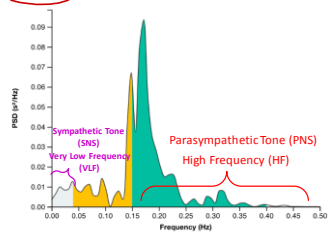
PsychoPhysiological Stress Evaluation



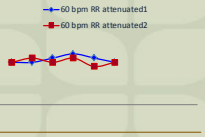
PsychoPhysiological Stress Evaluation

FFT Spectrum

Fast Fourier Transformation



Rough Estimate of the ANS
Autonomic Nervous System



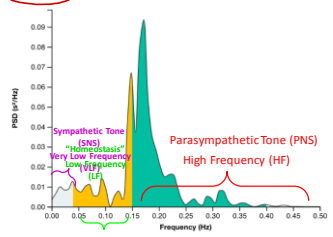
van Rosenberg, W. , Chanwimalueang , T., et al. (2017). Resolving ambiguities in the LF/HF ratio: LF-HF scatter plots for the categorization of mental and physical stress from HRV. Frontiers in Physiology *8 (360): 1-12.*

Shaffer, F., & Ginsberg, JP. (2017). An overview of heart rate variability metrics and norms. Frontiers in Public Health: *5(258): 1-17.*

PsychoPhysiological Stress Evaluation

FFT Spectrum

Fast Fourier Transformation



Rough Estimate of the ANS
Autonomic Nervous System

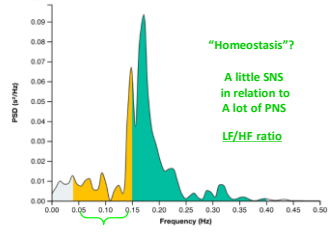
Goldstein, DS, Bentho, O., et al., (2011). Low frequency power of heart rate variability is not a measure of cardiac sympathetic tone but may... Experimental Physiology: *96(12): 1255-61.*

Draghici, AE., & Taylor, JA. (2016). The physiological basis and measurement of heart rate variability. Journal of Physiological Anthropology: *35(22): 1-8.*

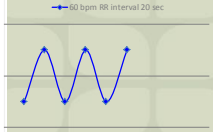
PsychoPhysiological Stress Evaluation

FFT Spectrum

Fast Fourier Transformation



Rough Estimate of the ANS
Autonomic Nervous System



Biofeedback – Heart Rate Variability (HRV)

Attenuated HRV or "reduction" in resting-state HRV, associated with:

1. Depression
2. Alcohol Dependence
3. Cardiovascular risk and mortality
4. Diabetic neuropathy
5. Anxiety *(specifically, worry and panic)*
6. PTSD

Evidenced-based efficacy in symptoms related to:

1. Depression
2. PTSD
3. Anxiety
4. Stress-Related Illnesses *(i.e., Heart Diseases, COPD, Fibromyalgia, Asthma, chronic pain)*

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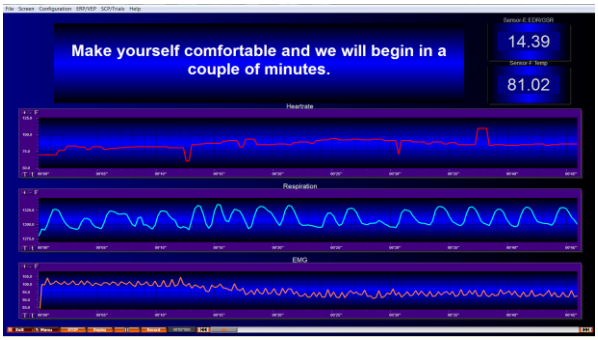


COLOR WORDS STRESSOR

Next, you will see a series of words written in different colors. Don't say the word, name the color that the word is written.

BLUE
RED
YELLOW
GREEN
ORANGE

RECOVERY

Thank you. Now sit comfortably and we will begin again in a couple minutes.

HR	Temperature	Skin Conductance	EMG	Resp-rate
70.00	81.02	14.39	100.08	10.00

Starting from 1081, Keep subtracting 7:

1081	941	801	661	521	381	241	101
1074	934	794	654	514	374	234	94
1067	927	787	647	507	367	227	87
1060	920	780	640	500	360	220	80
1053	913	773	633	493	353	213	73
1046	906	766	626	486	346	206	66
1039	899	759	619	479	339	199	59
1032	892	752	612	472	332	192	52
1025	885	745	605	465	325	185	45
1018	878	738	598	458	318	178	38
1011	871	731	591	451	311	171	31
1004	864	724	584	444	304	164	24
997	857	717	577	437	297	157	17
990	850	710	570	430	290	150	10
983	843	703	563	423	283	143	3
976	836	696	556	416	276	136	
969	829	689	549	409	269	129	
962	822	682	542	402	262	122	
955	815	675	535	395	255	115	
948	808	668	528	388	248	108	

TALK STRESSOR

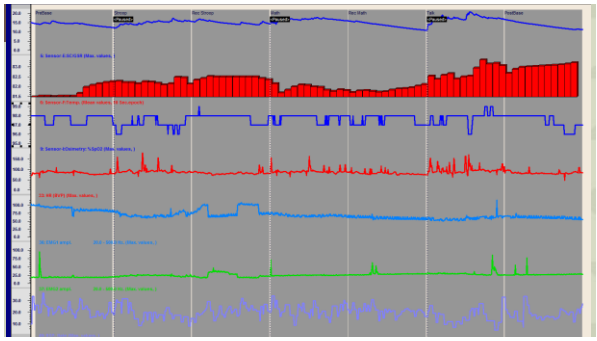
Now, talk about a stressful event that happened to you. Describe how you felt and what you were thinking.

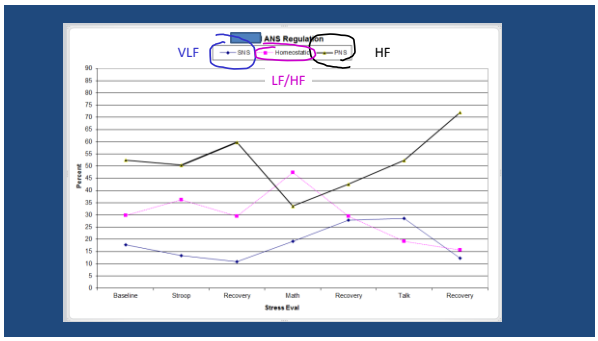
FINISHED!

Thank you. Now sit comfortably and we will review your results in a couple of minutes.

Session Overview

70.00	81.02	14.39	100.08	10.00





Mini Brain Map Initial Procedures

Initial Session

- Brief Interview
- Orientation
- PsychoPhysiological Stress Evaluation
- Mini Brain Map (Clinical Q) Evaluation

Follow-Up Session

- Review PsychoNeuroPhysiological Evaluation
- Protocol Planning
- Respiration Training
- Heart Resonant Frequency Mapping (HRV)

- *Body Informs*
- *Protocol Plan (4 **R**s)*
  - *Rehabilitate*
  - *Reintegrate*
  - *Rehabituate*
  - *Resiliency*

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Swingle's Clinical Q Assessment

Rationale (2013):

1. Time: *ADC > 120 patients*
2. Scope: *Staff training (BCN / BCB)*
3. Appropriateness: *Clinical population v General population* ***qEEG norms***

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Swingle's Clinical Q Assessment

Paul Swingle (2014):

Clinical versus Normative qEEG Databases:

The normative database qEEG provides very useful and important information. Discriminations based on the normative databases are simply statistically blind to many of the important neurological features associated with the clinical condition of clients. Clinical databases, such as that used in the Clinical Q, are far more efficient for identifying manifested predispositions and experiential factors that are fundamental to the efficient neurotherapeutic treatment of our clients. Clinical databases are also far more efficient at identifying conditions that require therapies other than neurotherapy.

Swingle, PG (2014). Clinical versus normative databases: Case studies of clinical Q assessments. Neuro Connections, Spring 2014; 72-8.

Swingle, PG (2013). Effects of negative emotional stimuli on alpha blunting. Journal of Neurotherapy; 17: 133-7.

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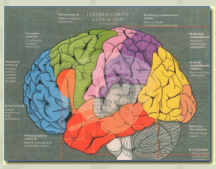
Swingle's Clinical Q Assessment

Got Brodmann?

Brainwave Patterns are unique to NeuroAnatomical Structures

- **Clinical Database >700** patients
- **Synchronization (Harmony)**
  - Cognitive flexibility
  - Impulse control
  - Natural alerting / calming responses
- **Imbalanced brainwave relationships**
  - ADD / ADHD / Focus Fatigue
  - Memory / Hx Learning Issues
  - Mood Instability
  - Non-restorative sleep / Burnout
  - Trauma signature
  - OCD tendencies



EEG 10/20 System

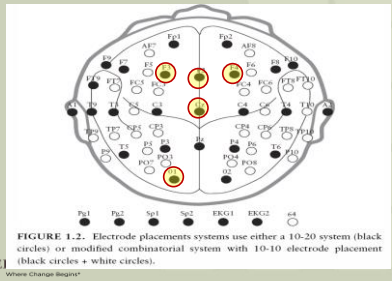


FIGURE 1.2. Electrode placements systems use either a 10-20 system (black circles) or modified combinatorial system with 10-10 electrode placement (black circles + white circles).

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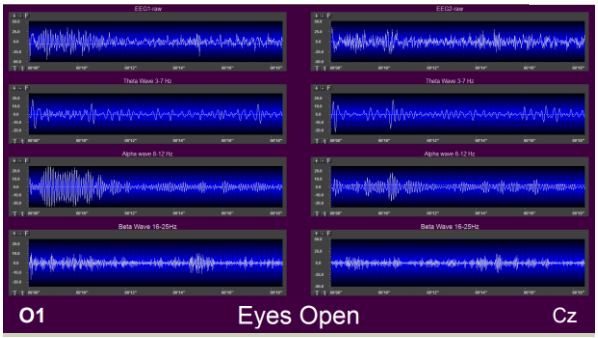
QuickQ EEG Assessment Part A

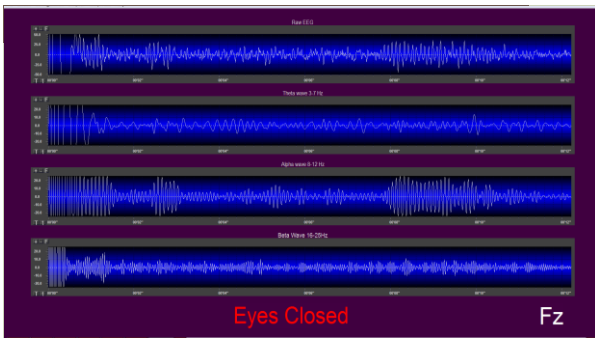
Attach:

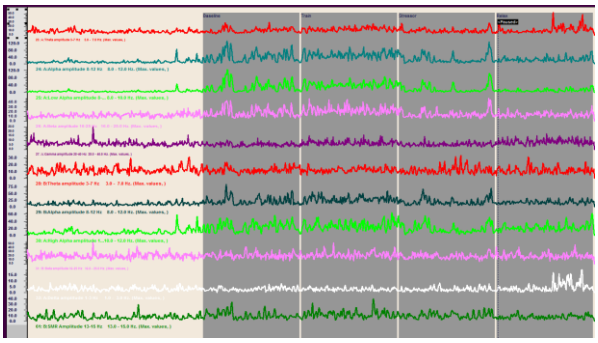
1) EEG Ground to Pz
2) EEG 1 Reference to Left Mastoid Process or Ear (Black 1)
3) EEG 2 Reference to Right Mastoid Process or Ear (Black 2)
4) EEG 1 Active to O1 (Red 1)
5) EEG 2 Active to Cz (Red 2)
6) Switch the NeXus-10 on
7) Click the START Protocol button

This protocol is based on Basic Neurotherapy: The Clinician's Guide by Paul Swingle, Ph.D.

Start Protocol







May get fatigued when reading or problem solving = Theta/Beta Ratio Under Task increases >15% at Cz	Cz
Normal Theta/SMR Ratio Eyes Closed at Cz	Cz
	Cz
	Cz
	Cz
Normal Beta Increase Under Task	Cz
Normal Total Amplitude Theta+Alpha+Beta at Cz; Learning Hx on Target	Cz
	Cz
	Cz
	Cz
	Cz
Low Theta/Beta Ratio EO at O1; May have Low Tolerance for Stress	O1
Racing Thoughts	O1
May have Anxiety	O1
Difficulty 'Shutting off Brain'	O1
Sleep Quality Problems	O1
Very Low Theta/Beta at O1; Patient may be easily Distracted	O1
feeling 'Burnout' Based Depression	O1
feels the necessity to Self Medicate	O1
Inefficient Self Restoration (frequent colds, flu..)	O1
Normal Alpha Recovery; clear thinking	O1
	O1
	O1
T/B ratio is less EC than EO at O1; Query for Sleep Disturbance	O1
especially Sleep Onset Insomnia	O1
Low T/B EO at O1; Sleep may be inefficient	O1
Low T/B EC at O1; Sleep may be inefficient	O1
	O1
	O1
Normal Alpha Reponse at O1; Flexible Alpha (i.e., calming response)	O1
Very Strong Alpha Response at O1; May have Strong Artistic Skills or Interest	O1
Normal Theta/Beta Ratio at Both F3 & F4	F3/4

Neurofeedback Quick-QEEG
2/27/2018
32158

Mental Clarity / Memory / Attention

Able to comprehend what is read
May get fatigued when reading or problem solving
May be easily Distracted
Dominant Alpha at the Frontal lobes is associated with challenges in paying attention or focusing
Problems with Planning, Organizing, Sustained Focus,
Sequencing, Staying on Task, Task Completion, or Talkativeness

Cognitive Flexibility

May have Strong Creative Problem Solving or Artistic Skills or interest

Body / Physical Health

Query for Malaise, OR, Fatigue, or Apt to get frequent colds, flu

Stress

May use Substances to Help relax

Sleep

Quality of Sleep may be Problematic
May experience Fitful Sleep
especially Sleep Onset Insomnia
History of Sleep Disturbance

Anxiety / Worry

May have Racing Thoughts or Chattery Mind
May feel Anxious
Has difficulty Quieting the Mind

Depression / Motivation

May get easily fatigued or feels 'Burnt Out'

Interpersonal Skills

May be Impatient or Easily Agitated/Frustrated
Can express Emotions
Can be Flexible and/or Cooperative
Can be Assertive

PsychoNeuroPhysiological Assessment

2. From Bio/Neurofeedback training
   To Psychoneurophysiological Interpretation
   - *Why we do it*
     - *Physiological responses to Stress are excellent indicators of Psychophysiological representation of Psychological factors related to various states of Anxiety, Depression, & Resiliency*
     - *Using Brodman Areas and Clinical Q provides adjunctive & meaningful interpretation to patients' overall profile*
   - *Therapeutically*
     - *Assists in guiding protocols*
   - *Conceptually*
     - *Adds meaningful dimension to overall comprehensive patient profiling*

PsychoNeuroPhysiological Assessment

✓ Bio/Neurofeedback as a Integral Player in Integrative Mental Health

✓ From Bio/Neurofeedback training
To Psychoneurophysiological Interpretation

3. Comprehensive Assessment Program (CAP)

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PsychoNeuroPhysiological Assessment

3. Comprehensive Assessment Program (CAP)
   - *What it is & How it works*
   - *Bio/Neurofeedback's role in CAP*
     Illustrated thru 2 Case Studies

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Comprehensive Assessment Program (CAP)

- **5-day** (+/-)
  - Intensive assessment & evaluation
    - 12+ professional clinical consultations
  - Yielding treatment recommendations and referrals
  - Clients:
    - Professional Board Referrals
    - Treatment Non-Responders
    - Diagnostic Clarification
    - Second Opinion

Consultations / Evaluations

- Medical/Psychiatric Stabilization if necessary
- Psychiatric Evaluation(s)
- Psychological Assessment
- Medical Evaluation(s)
- PsychoNeuroPhysiological Evaluation
- Naturopathic Consultation
- Psychotherapeutic Consultation & Process
- Medication Management

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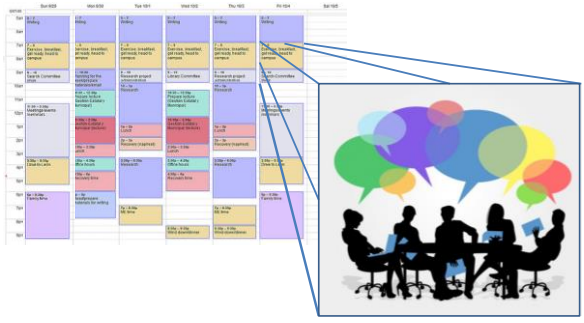

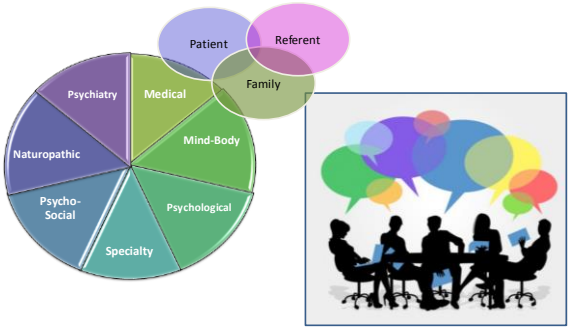

PsychoNeuroPhysiological Assessment

3. Comprehensive Assessment Program (CAP)
   - *Bio/Neurofeedback's role in CAP*
     Illustrated thru 2 Case Studies

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Case Study #1

- *22 year-old male*
- *Failure to Launch*
- *Daily Cannabis use*
- *History of Bullying*
- *Diagnostic clarification for:*
  - ***Depression***
  - ***Bipolar***
  - ***Anxiety***
  - ***ADHD***

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Mental Clarity / Memory / Attention
May experience problems with attention and/or focus
May have had a history of attentional and/or focus problems
May have problems with poor reading, comprehension/retention
May get fatigued when reading or problem solving
May experience Foggy Thinking
May have Memory issues
Query for Deficits in Memory or Information Assimilation
Cognitive Flexibility
May be open minded
Body / Physical Health
May be unable to Sit Still or Quiet the Body
Query for Headaches or Chronic Pain
May be fidgety or unable to sit still
Stress
Presents as Calm under Stress
Sleep
May have Problems Falling Asleep
Quality of Sleep may be Problematic
Anxiety / Worry
May have Racing Thoughts or Chattery Mind
May feel Anxious
Has difficulty Quieting the Mind
May feel overly stimulated or have excess energy
Brain likely to have Excessive Chatter
May have symptoms consistent with Anxiety
Interpersonal Skills
May be Impatient or Easily Agitated/Frustrated

Case Study #1

Case Study #1

Parietal / Sensory Motor Strip

General Functions (Brodmann 1-3)
1. Sensory Info Integration
2. Spatial / Body Awareness
3. Attention / Concentration
4. Speech / Language

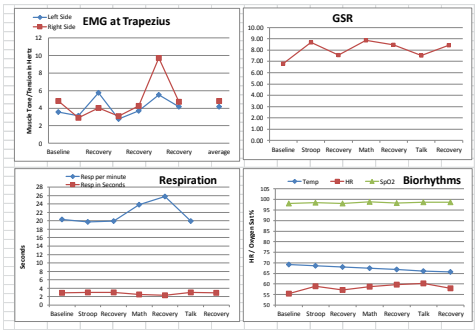
EEG Characteristics (C2)
1. Theta/Beta change < 15% 51%
2. Alpha Recovery < 25% 42 %
   1. Foggy Thinking
   2. Inability to sit still
   3. Attentional Challenges
   4. Focus / Comprehension
   5. Chronic Pain / Headache

Case Study #1

Frontal Lobes

Right Hemisphere	Left Hemisphere
General Functions	General Functions
1. Synthesizes	1. Analyzes
2. Social Cues	2. Logic
3. Emotion Expression	3. Sequential

EEG Characteristics
1. Relatively Synchronous w/ Beta: Left > Right
   1. Clarity
   2. Decision Making
   3. Mood Stability
2. Left Beta 15% > Right 21 %
   1. Increased Arousal
   2. Excessive Chatter
   3. Negative Mentation



Case Study #1

Case Study #1

Case Study #1

Kessler Distress Scale (K10)				Ranges
Patient summary score is:	38			
A score in this range suggests that severe psychological distress may be evident.			10-19	little to no distress; mentally well
			20-24	mild distress; activated/poorly coping
			25-29	moderate distress; R/O psych problems
			30-50	severe distress; likely has psych issues

PCL5			
Patient summary score is:	55	Score indicates possible PTSD, rule out DSM 5 Criterion A.	Cut-off is 38

Specific to **DSM 5 clusters**, the patient scored in the following manner:

			CRITERIA Rules
Cluster B (INTRUSIVE THOUGHTS). endorsements of moderate or more	2	*thus indicating possibility that re-experiencing or intrusion Sx are present; further assessment is recommended*	Cluster B: *at least 1 out of 5 items endorsed as moderately bothersome or more*
Cluster C (AVOIDANCE) endorsements of moderate or more	1	*indicating little likelihood of avoidance tendencies or behaviors are present*	Cluster C: *at least 1 out of 2 items endorsed as moderately bothersome or more*
Cluster D (MOOD DISTURBANCE). endorsements of moderate or more	6	*thus indicating a likelihood that this patient endorses having negative alterations in mood or thoughts; further assessment is recommended*	Cluster D: *at least 2 out of 7 items endorsed as moderately bothersome or more*
Cluster E (HYPER-AROUSAL). endorsements of moderate or more	6	*thus indicating likely changes in arousal & reactivity are present; further assessment is recommended*	Cluster E: *at least 2 out of 6 items endorsed as moderately bothersome or more*

MAQ	Qualifier	Raw	T-Score (gender)	%ile
Patient Summary T-scores & Percentile is:		94	85	99
	Anxiety may be of severe clinical severity at this time (T>71).			

Specific to MAQ Subscales, the patient scored in the following manner:

		Raw	T-Score (gender)	%ile
Physiological / Panic Sx	*T-Score > 65, Diagnosable Anxiety specific to Physio Arousal or Panic possible*	26	108	99
Social Phobia Symptoms	*T-Score > 62, Diagnosable Anxiety specific to Social Phobia possible.*	21	69	95
Worry & Fears	*Anxiety related to Worrying and Fearfulness, NOT likely to be present (T<65).*	16	64	89
Negative Affect	*T Score > 63, Diagnosable Anxiety specific to Negative Affectivity possible.*	29	80	99

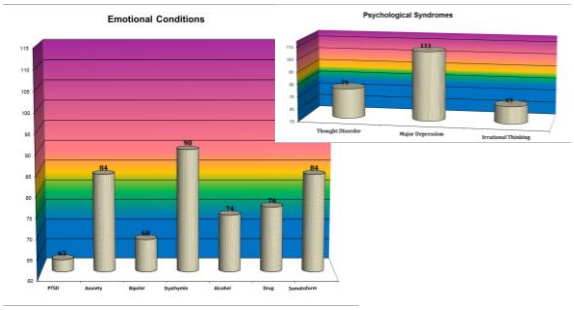
Case Study #1

Mood Disorder Qst			
Patient endorsed	4	out of 13 items	
		Patient's Bipolar screen is not positive; further psychiatric eval for Bipolar disorder may not be necessary at this time.	
ASRM			
Patient reported	No	elevation in needing to sleep less than usual	
	No	increase in starting tasks w/o finishing or engaging in risky behaviors	ASRM summary score is 0
ASRM score is not considered, because patient likely does not meet criteria for current Manic Episode			Symptom criteria not met to report ASRM findings; therefore a condition of Mania is not likely present at this time
CESD-R			
Patient summary score is:	70	patient score is above the cut-off for diagnosable Depressive Episode, please see Criteria Analyses for further interpretation.	
Diagnostically speaking, criteria indicate		***Major Depressive Episode is likely.***	

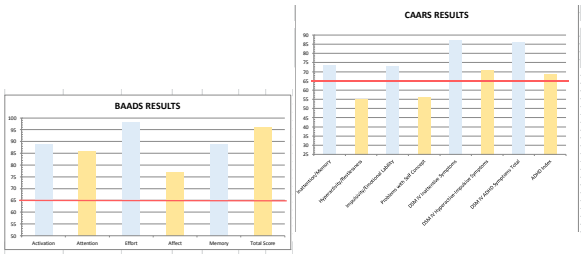
Criteria Post Analysis (or "Symptom Groups")		CRITERIA Rules
Dysphoria	Meets Criteria for Dysphoria	Either Dysphoria or Anhedonia must be met
Anhedonia	Meets Criteria for Anhedonia	in order to Diagnose,
Appetite	Patient reports Appetite is negatively impacted	plus at least 2 out of these 7 Sx Groups
Focus	Criteria not met	
Sleep	Patient reports Sleep is negatively impacted	**cut-off is a score of 16**
Fatigue	Patient reports experiencing Fatigue Sx	
Worthless	Patient reports feelings of Worthlessness	
Agitation	Patient reports feeling Agitated	
Suicidal	Patient reports Suicidal Ideation	

Existential Status			Ranges	
The patient may be currently struggling existentially with their life meaning or purpose specifically:			Patient	Range
	he	likely feels absolutely 'lost' in life	1.0	0-10
	he	likely believes that life has a little purpose	3.0	0-10
	he	does not necessarily believe he/she is 'enough'	5.0	0-10
	he	might feel uncertain that he/she has what 'it takes'	3.0	0-10

Case Study #1



Case Study #1



Case Study #2

- 31 year-old female
- On leave from graduate school
- History of domestic abuse
- Polysubstance Use
- Diagnostic clarification for:
  - Depression
  - Bipolar
  - Anxiety

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Mental Clarity / Memory / Attention
May experience Short Term Memory issues
May have Poor Retention of Information
Able to focus
Able to comprehend what is read
May get fatigued when reading or problem solving
Cognitive Flexibility
Has been regarded as 'Stubborn' by others
May tend to be Perfectionistic, or experience symptoms consistent with Obsessive/Compulsive Tendencies
May Perseverate OR Hyper-Focus on tasks
Stress
May be Emotionally Volatile or has Anger Management Problems
Sleep
Quality of Sleep may be Problematic
May experience Fitful Sleep
especially Sleep Onset Insomnia
Trauma
Inquire about Traumatic Emotional Stress
Anxiety / Worry
May have Racing Thoughts or Chattery Mind
May feel Anxious
Has difficulty Quieting the Mind
May have symptoms consistent with Anxiety
Interpersonal Skills
May be Impatient or Easily Agitated/Frustrated
May be Emotionally Impulsive or have Knee-Jerk responses
May be Emotionally Restricted or 'Flat'
Tendency toward being Oppositional, Defiant and Socially Aggressive

Case Study #2

Frontal Lobes

General Functions (Brodmann 8-12)
1. Thinking
2. Planning
3. Impulse Control
4. Attention / Focus
5. Initiating Learning / Memory

EEG Characteristics L>R @ 15% Variance
1. Theta → Right > Left *>18%*
   1. Emotional Volatility
   2. May Appear Emotionally "Restricted"
2. Alpha → Right > Left *>25%*
   1. Oppositional / Defiant

Case Study #2

Anterior Cingulate

General Functions (Brodmann 23-33)
1. Attentional Shifting
2. Mental Flexibility
3. Adaptability
4. Emotion Regulation

EEG Characteristics (Fz, AFz, FCz)
1. Gamma/Beta ratio → 0.5
2. Case #1: G/B = 0.73
   1. Perseverative Tendencies
   2. Rigid / Stubborn Temperament
   3. OCD tendencies or Perfectionism
   4. Hot Cingulate

Case Study #2

Parietal / Occipital

General Functions
1. Sensory Info Integration
2. Spatial / Body Awareness
3. Creative Thought
4. Visual Processing & Perception

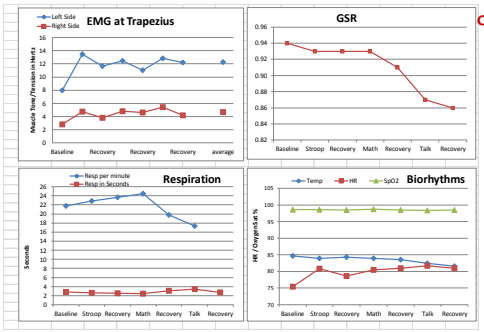
EEG Characteristics (Oz, O1)
1. Theta/Beta ratio → 2.0 < 1.35
2. Anxious Manifestations:
   1. Nightly Mind Chatter
   2. Sleep Onset Insomnia
   3. Calming only via Substances
   4. Distractibility
   5. Physiological Burn-Out

Case Study #2

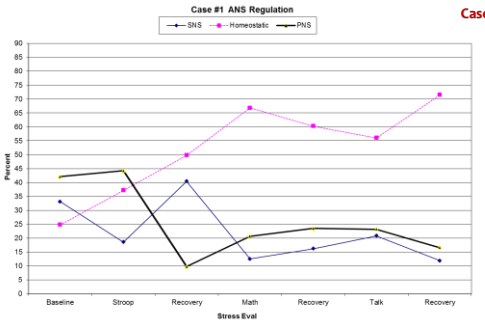
Parietal / Occipital

General Functions
1. Sensory Info Integration
2. Spatial / Body Awareness
3. Creative Thought
4. Visual Processing & Perception

EEG Characteristics
1. Responsive/Flexible Alpha
   1. Alpha Burst EO→EC (>50%)
2. Case #1 = 31%
3. "Stuck" Alpha
   1. Trauma Hx (Hyper Vigilance)
   2. Foggy Thinking
   3. Fitful Sleeping / "Light" sleep
   4. Poor STM retention



Case Study #2



Case Study #2

Case Study #2

Measures of Psychology Distress & Anxiety

Kessler Distress Scale (K10) — Ranges

Patient summary score is: **32**

A score in this range suggests that severe psychological distress may be evident.

10-19	little to no distress; mentally well
20-24	mild distress; activated/poorly coping
25-29	moderate distress; R/O psych problems
30-50	severe distress; likely has psych issues

PCL5

Patient summary score is: **65** Score indicates possible PTSD, rule out DSM 5 Criterion A. **Cut-off is 38**

Specific to DSM 5 clusters, the patient scored in the following manner:

			CRITERIA Rules
Cluster B (INTRUSIVE THOUGHTS) endorsements of moderate or more	5	*thus indicating possibility that re-experiencing or intrusion Sx are present; further assessment is recommended*	Cluster B *at least 1 out of 5 items endorsed as moderately bothersome or more*
Cluster C (AVOIDANCE) endorsements of moderate or more	2	*thus indicating possibility that avoidance tendencies & behaviors are present; further assessment is recommended*	Cluster C *at least 1 out of 2 items endorsed as moderately bothersome or more*
Cluster D (MOOD DISTURBANCE) endorsements of moderate or more	7	*thus indicating a likelihood that this patient endorses having negative alterations in mood or thoughts; further assessment is recommended*	Cluster D *at least 2 out of 7 items endorsed as moderately bothersome or more*
Cluster E (HYPER-AROUSAL) endorsements of moderate or more	6	*thus indicating likely changes in arousal & reactivity are present; further assessment is recommended*	Cluster E *at least 2 out of 6 items endorsed as moderately bothersome or more*

MAQ	Qualifier	Raw	T-Score (gender)	%ile
Patient Summary T-scores & Percentile is:		108	91	99
	Anxiety may be of severe clinical severity at this time (T>71).			

Specific to MAQ Subscales, the patient scored in the following manner:

		Raw	T-Score (gender)	%ile
Physiological / Panic Sx	*T-Score > 65, Diagnosable Anxiety specific to Physio Arousal or Panic possible*	24	84	99
Social Phobia Symptoms	*T-Score > 62, Diagnosable Anxiety specific to Social Phobia possible.*	22	70	97
Worry & Fears	*T Score > 64, Diagnosable Anxiety, specific to Worry and Fearfulness possible.*	33	116	99
Negative Affect	*T Score > 63, Diagnosable Anxiety specific to Negative Affectivity possible.*	29	77	99

Case Study #2

Measures of Mood Disorders

Mood Disorder Qst

Patient endorsed **12** out of 13 items

Patient's Bipolar screen is positive; further psychiatric eval for Bipolar disorder is recommended.

ASRM — **Indicated these symptoms have occurred during the same period**

Patient reported **Moderate** elevation in needing to sleep less than usual

Severe increase in starting tasks w/o finishing or engaging in risky behaviors

ASRM summary score is **17**

ASRM score is considered, given patient may meet criteria for a Manic Episode a high probability of a manic or hypo-manic condition is present

CESD-R

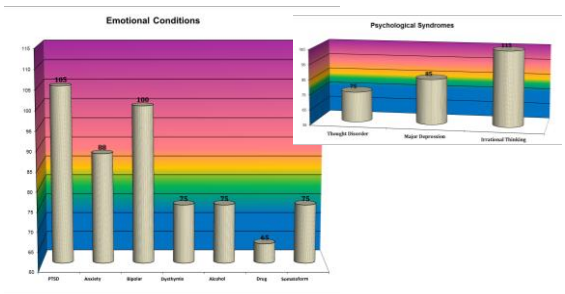
Patient summary score is: **50** patient score is above the cut-off for diagnosable Depressive Episode, please see Criteria Analyses for further interpretation.

Diagnostically speaking, criteria indicate ***Major Depressive Episode is probable.***

Criteria Post Analysis (or "Symptom Groups")		CRITERIA Rules
Dysphoria	Not met for Dysphoria	Either Dysphoria or Anhedonia must be met
Anhedonia	Meets Criteria for Anhedonia	in order to Diagnose,
Appetite	Criteria not met	plus at least 2 out of these 7 Sx Groups
Focus	Patient reports Concentration is negatively impacted	
Sleep	Criteria not met	**cut-off is a score of 16**
Fatigue	Patient reports experiencing Fatigue Sx	
Worthless	Criteria not met	
Agitation	Patient reports feeling Agitated	
Suicidal	Criteria not met	

Existential Status

		Ranges	
Patient may be currently struggling existentially with their life meaning or purpose specifically:		Patient	Range
	she likely feels absolutely 'lost' in life	1.0	0-10
	she believes that life has some purpose	8.0	0-10
	she does not believe that he/she is 'enough'	2.0	0-10
	she likely feels that he/she does not have what 'it takes'	1.0	0-10



In Summary

1. Bio/Neurofeedback as a Integral Player in Integrative Mental Health
2. From Bio/Neurofeedback training *To Psychoneurophysiological Interpretation*
3. Comprehensive Assessment Program (CAP)

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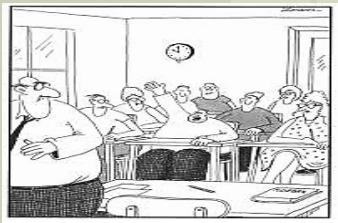
Thank you



Mr. Osborne, may I be excused? My brain is full

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