



The Biofeedback Certification International Alliance

Blueprint of Knowledge Statements for Heart Rate Variability Biofeedback – 16 Hours

The provider who earns a BCIA certificate in Heart Rate Variability Biofeedback will have knowledge of:

I. HRV Anatomy and Physiology (3 hours)

- A. Cardiac Anatomy and Physiology
 - 1. How the ECG is generated
 - 2. Sympathetic and parasympathetic influences
 - 3. Heart-brain interaction.
- B. Respiratory Anatomy & Physiology
 - 1. The functions of breathing
 - 2. The respiratory cycle
 - 3. Muscle involvement in breathing
 - 4. The Bohr effect
 - 5. Functional and dysfunctional breathing behaviors
- C. Autonomic Nervous System Anatomy and Physiology
 - 1. Three autonomic branches
 - 2. The vagus nerve

II. Heart Rate Variability (2 hours)

- A. The meaning of HRV
- B. The sources of HRV
- C. Factors that influence HRV
- D. Correlates of low and normal HRV
- E. The benefits of increased HRV

III. HRV Instrumentation (3 hours)

- A. Blood volume pulse (BVP)
 - 1. Source
 - 2. PPG sensor
 - 3. Signal
 - 4. Placements
 - 5. Tracking test
 - 6. Artifacts
- B. The electrocardiogram (ECG/EKG)
 - 1. Source
 - 2. ECG sensor
 - 3. Signal
 - 4. Placements
 - 5. Tracking test
 - 6. Artifacts

- C. Respirometer
 - 1. Source
 - 2. Signal
 - 3. Placements
 - 4. Tracking test
 - 5. Artifacts

- D. Accessory SEMG
 - 1. Source
 - 2. Signal
 - 3. Placements
 - 4. Tracking test
 - 5. Artifacts

- E. Artifacting Strategies

IV. HRV Measurements (2 hours)

- A. Time domain measurements and their meaning, properties, and correlates
- B. Frequency domain measurements and their meaning, properties, and correlates
- C. Brief versus 24-hour monitoring
- D. How to interpret HRV measurements

V. HRV Biofeedback Strategies (4 hours)

- A. How to explain HRV biofeedback to a client
- B. How to assess breathing
- C. How to measure the resonance frequency
- D. How to teach resonance frequency breathing
- E. How to structure an HRV biofeedback training session
- F. How to augment training with emotional regulation strategies
- G. HRV biofeedback side effects and contraindications
- H. Practice assignments to promote generalization

VI. HRV Applications (2 hours)

- A. Clinical applications
- B. Optimal performance applications