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Studying Traumatic Stress with Advanced Biosensors

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Measuring the autonomic nervous system

Heart rate variability (HRV)
Specific patterns
Vagal pathway

Vocal affect (prosody)
Complex patterns
Vagal pathway
Trauma and neurophysiological regulation

- GREEN = Trust and Collaborate
- YELLOW = Mobilize
- RED = Freeze

- GREEN = New vagal systems
- YELLOW = Sympathetic arousal
- RED = Old vagal systems
Traumatic Stress Research Consortium: The first 5 years

Quantify the impact of Trauma on Health

- Physical
- Mental
- Sexual
- Social

Validate ANS Self-Report

- IU Lab
- Bloomington Clinic

Physiology of vocal affect

- Internet collection
- Multi-layer data

Noncontact HRV

- Thousands of subjects
- Enrich and validate self-report
PhysioCam – Heart Rate Variability from a camera

- Heart Rate (beats/min): 80.46
- Respiration Rate (breaths/min): 9
- Inter Beat Interval-IBI (ms): 746
- RSA: 6.355

Arterial Pulse Signal

Relative Amplitude

Time (s)
THANK YOU

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