

THE SCIENCE BEHIND THE SCAN

ReadyOS Technical White Paper

HRV measurement, the 90-second workflow, and Readiness-Based Care™.

ReadyOS is a commercial physiological readiness platform for clinicians and performance professionals who want measurable context at the point of care. It combines a rapid scan with a clear interpretation and longitudinal tracking to make complex HRV information usable in everyday workflows.

1. The measurement foundation: heart rate variability

Heart rate variability (HRV) describes the changing time intervals between heartbeats. It provides a window into cardiac autonomic regulation and is influenced by recovery, activity, sleep, pain, illness, medication, breathing, and recording conditions. Established HRV analysis includes time-domain measures such as RMSSD and SDNN, among other metrics. **HRV is not a direct measure of every aspect of health or a diagnosis.**

The scientific basis for HRV measurement is well documented, including the 1996 ESC/NASPE Task Force standards and later methodological reviews. ReadyOS applies this established measurement foundation in a proprietary clinical workflow; its readiness interpretation is a product-specific layer beyond the underlying HRV metrics.

2. Designed for a 90-second clinical workflow

Stage	What it does
Measure	The ReadyOS Standard Scan acquires physiological data over 90 seconds.
Check quality	The workflow evaluates signal integrity and artifact-related concerns before interpretation.
Contextualize	Measurements are considered in the context of a person's baseline, trends, and presentation.
Discuss and decide	The clinician can use the readiness interpretation alongside examination and patient goals; the interface offers Train, Adjust, or Protect guidance.

ReadyOS materials also describe a Deep Scan based on 300 consecutive R–R intervals. That is a product-defined recording protocol, **not a universal clinical gold standard**. The 90-second accuracy validation should be understood for the outputs and conditions tested rather than assumed to apply identically to every metric or scan length.

3. The value of before-and-after measurement

The same practical scan can be used before and after a clinical encounter to show how measured physiology changed across that visit. This gives clinicians another way to discuss response to care instead of relying only on a retrospective subjective impression.

Interpretation still requires consistency. Posture, breathing, recent activity, elapsed rest, medications, and ordinary biological variation can all influence HRV. A measurable change is valuable information; it is not automatically proof that an intervention caused an improvement in clinical outcomes.

4. What has been technically validated

Completed evaluation	Public status
90-second Standard Scan accuracy	NeuPT Technologies reports completed accuracy validation by its engineering team.
Comparison with NeuPT HRV metrics	NeuPT Technologies reports completed comparative measurement validation against its established ECG-based NeuPT HRV assessment, with engineering and independent-researcher involvement.
Clinical outcome prediction	Not established by the measurement evaluations above; separate research questions remain.

The independent researcher's participation is distinct from journal peer review or an independent replication claim. The public Measurement Validation Summary identifies the scope of confirmed work without inventing sample sizes, accuracy percentages, or agreement statistics. Those quantitative findings should be disclosed only from the approved underlying technical records.

5. The ReadyOS interpretation

ReadyOS helps translate detailed measurements into a readiness interpretation for practical use. **Train / Adjust / Protect** is a clinician-facing guidance framework, not an instruction to disregard red flags, restrictions, patient symptoms, or established care plans. Personal trends can offer context; a single score is not a stand-alone measure of treatment capacity.

6. Where ReadyOS fits

ReadyOS is designed for physical therapy, performance, and wellness settings where repeated physiological measurement adds context to activity, recovery, and patient conversations.

READYOS ADDS OBJECTIVE PHYSIOLOGICAL CONTEXT. THE CLINICIAN REMAINS THE DECISION-MAKER.

Scientific sources: ESC/NASPE Task Force (Circulation, 1996); Shaffer & Ginsberg (Front Public Health, 2017); Laborde et al. (Front Psychol, 2017). Source links and predecessor NeuPT HRV research: readyos.ai/science.