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SCIENCE & VALIDATION

# Sweat Biosensing



Every workout is a physiological challenge.

Wearables provide movement and cardiovascular context. **Sweat biosensing adds biochemical measurement.**

GYM3000.com is developing biosensing infrastructure for biochemical measurement in sweat.

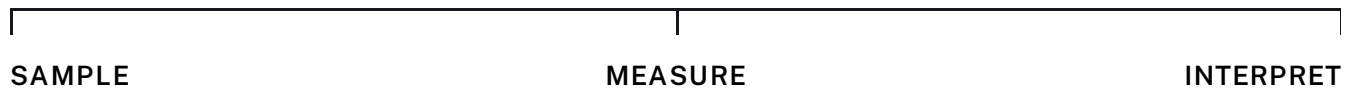
TimePurchase is its biosensing division.

Biosensors and measurement science for biochemical signals in sweat and the longitudinal study of physiological response, recovery and resilience.

| Measurement

# Biochemistry in real-world exercise.

Maintaining measurement validity from sample to interpretation.



## II Signals

# Selected by evidence.

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### BIOCHEMICAL SIGNALS

Metabolites · Ions · Acid–base chemistry

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### CONTEXT

Physical conditions of measurement

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ANALYTICAL PERFORMANCE

STABILITY

INTEGRATION

PHYSIOLOGICAL RELEVANCE

*Evidence determines the final combination.*

One measurement  
shows a moment.  
Repeated  
measurements  
show change.

Exercise under comparable conditions provides a repeatable physiological challenge.



**RESPONSE**

What changes with the challenge?

**RECOVERY**

How does the response evolve after the challenge?

**RESILIENCE**

How do response and recovery patterns change over time under comparable conditions?

Figure 1 — Conceptual framework for response, recovery and resilience.

# From measurement to evidence.

Biological information requires a validated measurement chain.

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## 01 SAMPLE

Was a valid sample collected?

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## 02 SIGNAL

Was the measurement stable and reproducible?

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## 03 ANALYTE

Did the result agree with an appropriate reference method?

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## 04 HUMAN RESPONSE

Was the response pattern reproducible under comparable conditions?

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## 05 USE

Did it add useful information for a defined purpose?

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Evidence determines  
how far each claim  
can advance.

V Translation

# GYM3000.com

Biosensing Infrastructure

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## FitButlr<sup>™</sup>

Distribution & Interfaces

## TimePurchase<sup>™</sup>

Biosensing Division

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Measurements, sensing methods and physiological interpretations remain under experimental validation and are presented for research and development purposes.

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