



VICTORY BEGINS WITH **HOW YOU TRAIN**

Zephyr™ Performance Systems for Sports



Medtronic



CUSTOMIZED TRAINING. IMPROVED CONDITIONING. PEAK PERFORMANCE.

A scientific approach

The coach asks,
"How will this help win games?"

The athletic trainer asks,
"How can this prevent injuries and get players back on the field quicker?"

And the strength coach asks,
"How can I get my players to perform at their peak?"

There is one answer to all these questions: **Zephyr™ Performance Systems.**

Measuring physiological parameters and biomechanical movements can also help you answer these questions:

- Is the athlete performing at peak level?
- Is the athlete over-training or under-training?
- Can I modify my training specific to practices versus games?
- Can I prevent injuries or reinjuries?

Because better-conditioned athletes can lead to fewer injuries, great results, and more wins.



HOW ELITE ATHLETES GET THAT WAY

The benefits of performance monitoring

By tracking key metrics with sophisticated wearable technology, Zephyr™ Performance Systems lets strength and conditioning coaches, athletic trainers, sports scientists, and on-field coaches:

- **Measure the effectiveness of training regimes over time**
 - Determine preseason. Track results during the season and in pre- and post-seasons.
 - Analyze technique with advanced accelerometry utilities that measure explosiveness, rate of force development, and strike time.
- **Quantify subjective measurements**
 - Gain insight to detect how hard athletes are training.
- **Optimize rehabilitation**
 - Quantify intensities and loads during training sessions.
 - Simulate game-day situations and monitor workloads to reduce the risk of further injury.



A SINGLE SOLUTION. A RANGE OF APPLICATIONS.

An inside look at what most people thought the human body couldn't do

Zephyr™ Performance Systems provide a single solution that measures, streams, and logs a variety of physiological and biomechanical data. Measure and analyze both teams and individuals — up to 100 athletes at a time — using the market-leading BioModule technology with OmniSense software.

A customized and tailored approach to training leads to optimal results. So you can consistently achieve maximum performance.

OmniSense Live software

Real-time data on athletes lets you:

- Record and analyze conditioning, effort, stress, and exertion
- Use physiological and biomechanical output to help players close the gaps
- View intensities and loads
- Customize speed zones and training zones
- Track specific individuals

OmniSense Analysis software

Create reports and comparisons of athletes so you can:

- Help fine-tune practices to achieve individual and team goals
- Customize reports in summary spreadsheets, radar plots, and bar graphs
- Export data in .csv and DADiSP formats for MatLab and LabView

FROM SPORTS TO SPACE

Our performance monitoring has been used to measure subjects' vital signs in more than 500 published research papers — as well as by:

- Professional and collegiate sports teams
- Defense organizations
- First responders
- National Governing Bodies in countries such as England, South Africa, Netherlands, Brazil, and the U.S.
- The National Aeronautics and Space Administration (NASA)

To learn more about organizations that use Zephyr™ Performance Systems, visit zephyranywhere.com.



WHAT IT MEASURES. HOW IT WORKS.

A closer look at Zephyr™ Performance Systems

Take a closer look at the nearly two dozen physiological and biomechanical parameters — based on six inputs — collected by Zephyr™ Performance Systems.

Measured parameters	Physiological and biomechanical measurements		Biometric indicators
The BioHarness™ technology, BioModule, and GPS units provide data on:	Based on these six parameters, OmniSense software reports biometrics on:		These biometric measurements yield insight into markers of:
- ECG - Respiration - Estimated core body temperature - Accelerometry - Time - Location	- Heart rate (HR) - Breathing rate - HR variability - HR confidence - Estimated core body temperature - Impact - Activity - Posture - Caloric burn % Heart rate (max) % Heart rate (AT) - Accelerometry	- Physiological and mechanical intensity and loads - Training loads and intensity - Jump - Explosiveness - Peak force - Peak acceleration - GPS speed - GPS distance - GPS elevation	- Fatigue — HR recovery - Readiness — HR variability - Safety — max HR, core body temperature, location - Over-training and under-training — intensity and load - Fitness improvement — VO₂ max, HR @AT - Caloric expenditure and burn - Agility — accelerometry, speed, and distance - Athlete management — intensity and load - Stress — HR variability

OmniSense Live Software





BENEFITS THAT ARE IMPOSSIBLE TO IGNORE.

Here's why the Zephyr™ family of performance products is the top choice for many professional and collegiate athletic teams

FEATURE	BENEFIT
Live monitoring of large groups	▪ Provides configurable thresholds for real-time management of training intensity and loads for each athlete ▪ Allows real-time insight into the potential for conditions such as fatigue, over- or under-training, and heat stress
Team and individual training and fitness reports	▪ Shows baseline metrics such as anaerobic threshold, HR recovery, and VO₂ max ▪ Lets coaches and trainers compare and contrast athletes, and ascertain improvements
Measurements of kinematic and physiological variables	▪ Measures explosiveness from a dash or sprint start, as well as vertical jump flight time and peak acceleration ▪ Supports customizable speed and training zones
Detection and monitoring of anaerobic threshold	▪ Provides a method of monitoring fitness ▪ Allows breathing rate-triggered monitoring of anaerobic threshold for intensity-based training
Monitoring of athletes in situation for signs of heat stress or fatigue	▪ Uses estimated core body temperature, HR recovery, resting HR, and HR variability ▪ Monitors training intensity and load over time to assist in training customization and ultimately improve athlete management
Comprehensive analysis capabilities	▪ Detailed analysis of an individual's training and performance ▪ Trend analysis of individuals or teams over multiple practices or sub-sessions ▪ Quick and easy comparisons between players
GPS and player positioning	▪ Provides GPS logging data that works with Google Maps™ and FalconView™
Eliminate artifact issues	▪ OmniSense software algorithms and mechanical design address noise and movement artifact issues that affect other systems
Transmission range	▪ Provides an ECHO transmission range suitable for in-arena use or outside use across multiple playing fields
Extended range	▪ Offers available antenna repeaters to extend coverage to an area of approximately 4 million square feet with no dead zones

GARMENTS. SENSORS. DISPLAY. COMMUNICATION.

Details of the Zephyr™ Performance Systems workflow

The Zephyr™ Performance Systems include garments, sensors, display capabilities, and communication devices, along with robust software.

Spotlight on BioModule compact physiological monitoring module

The BioModule compact physiological monitoring module enables the capture and transmission of comprehensive physiological data on the wearer via mobile and fixed data networks. It enables genuine remote monitoring of human performance and condition in the real world.

Here's a look at the key product features and specifications:

Connectivity	Uses ECHO to provide heart rate, RR interval, speed, and distance to Android™ devices
Strap and shirt	Machine washable strap and compression shirt offer both comfort and accuracy
Garment washes	80
Water resistance	Up to 1 meter
Data capacity	Logs and stores up to 20 days of data
Heart rate range	25–240 BPM
Breathing rate range	4–70 BPM
Acceleration range	±16g
Battery type	Rechargeable lithium polymer
Battery life	24 hours per full charge
Charge cycles	300
Transmit range	Up to ~300 feet; extending to up to ~1000 feet with antenna and amplifier
Frequency	2.4–2.4835GHz
Operating limits	Temp: -10° C – 60° C Humidity: 5% – 95%

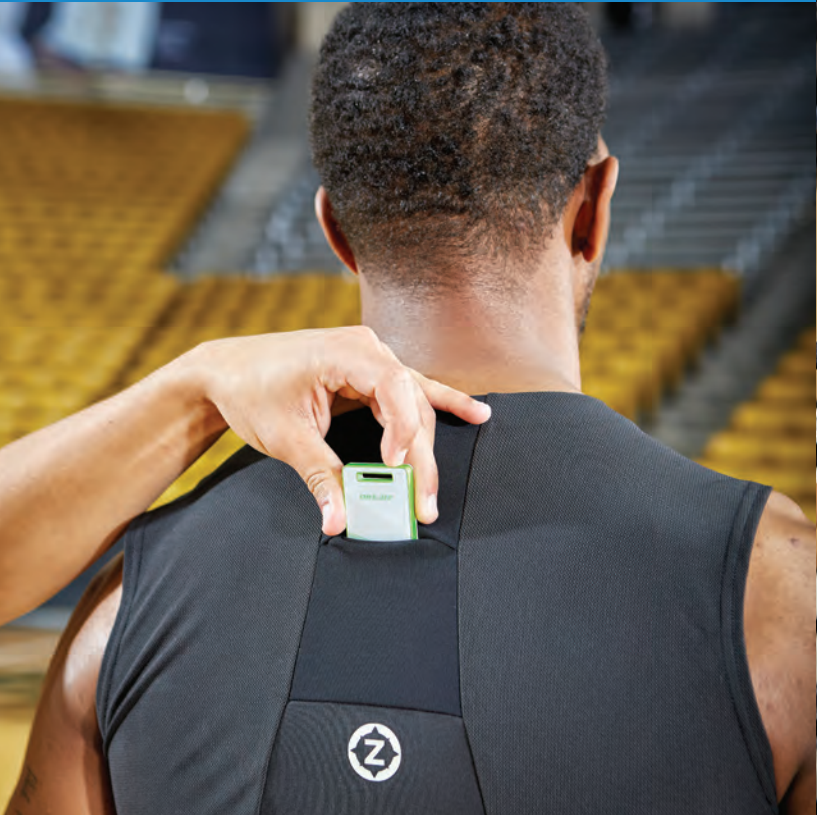


READY TO LEARN MORE?

For a closer look at performance monitoring and the products profiled here, visit zephyranywhere.com.



REINVENTING WHAT'S HUMANLY POSSIBLE



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