# Firstbeat Sports

What’s New?

17 May 2019

# FIRSTBEAT ANALYTICS DEVELOPMENT

**36**
developers

**30**
Physiologists and Data-analysts

**1**
certified lab in use

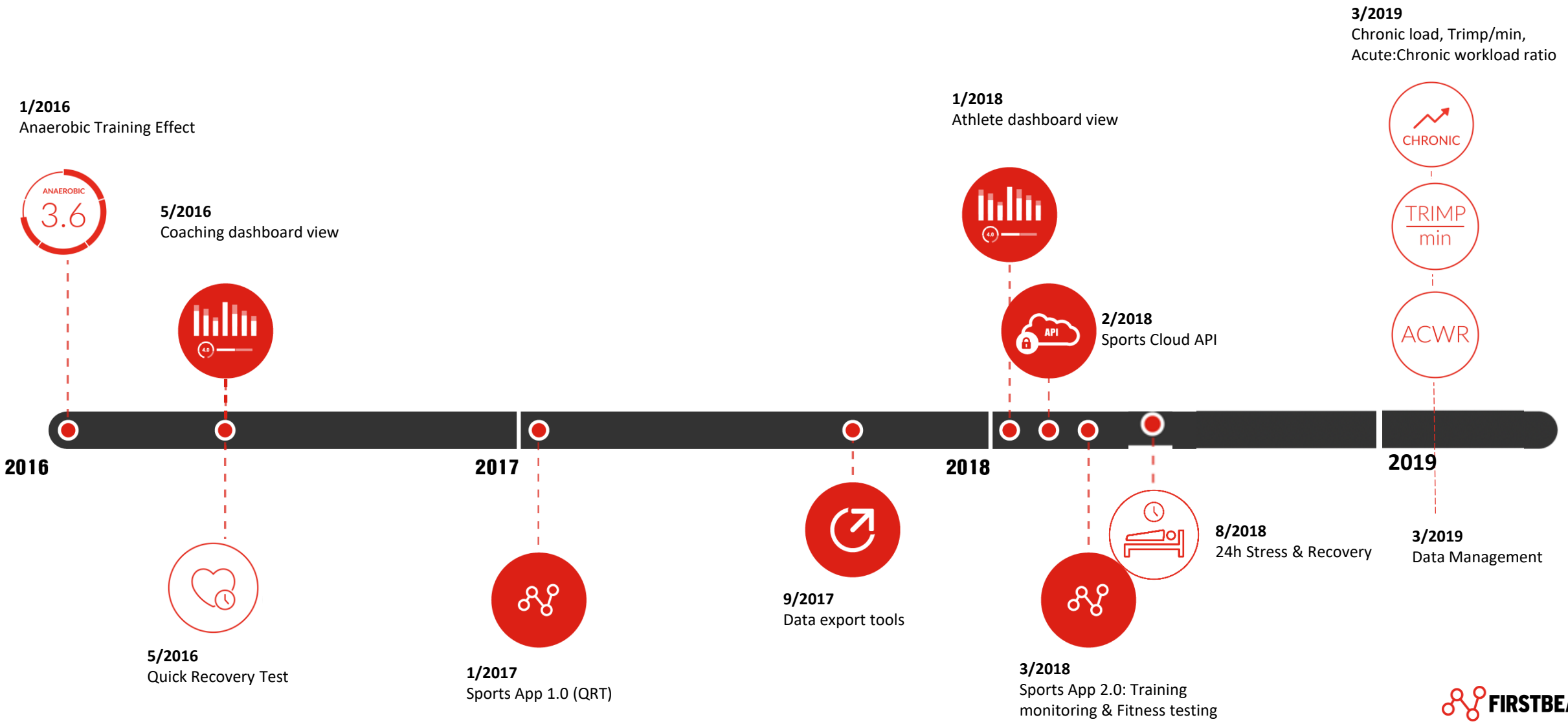
**2M**
measurements from professional sports





FIRSTBEAT

# SOFTWARE UPDATES




FIRSTBEAT

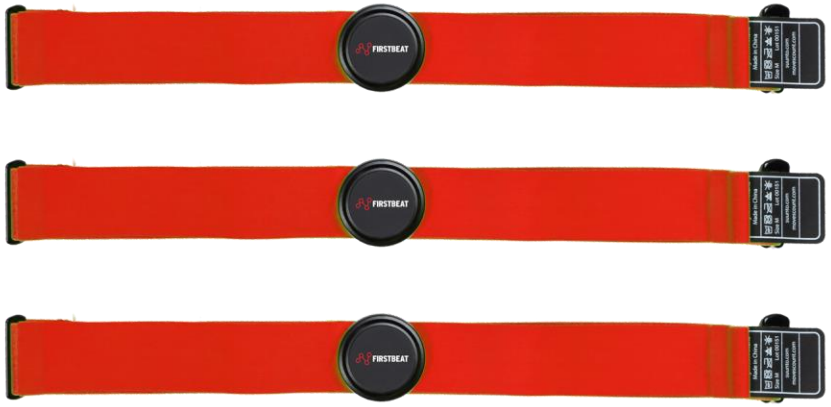
# Firstbeat Sports Sensor and Live App

17 May 2019

# BRINGING FOCUS AND MOBILITY TO COACHING

**Firstbeat Sports Sensor (BLE)**
- 12-hour built-in memory
- Embedded processor for load calculations
- RR-I detection and 9D acceleration sensors
- Updateable firmware

**Firstbeat Sports Live app (ipad)**
- Real-time display for intensity and cumulative load
- Range of 40-100meters (BLE)
- Wireless data upload and memory upload
- Automatic sync to cloud




FIRSTBEAT

# SPORTS SENSOR

- Memory capacity: 12-18h R-R data
- Battery life: 160h with CR2025 user replaceable coin cell battery
- Weight: 10g (0.35 oz.) with the battery
- 9-Axis motion sensor (Accelerometer, gyroscope and magnetometer)
- Compatibility:
  - Full feature support only with Sports Live
  - Works as a standard Bluetooth device with watches and mobile apps
- Wireless firmware update
- Firstbeat software + analysis library
- Textile strap (Movesense connector)
- R-R recording accuracy: < 2ms
- Water resistant 30m / 100ft
- Transmission protocol: Bluetooth Smart
- Developed, designed and manufactured in Finland

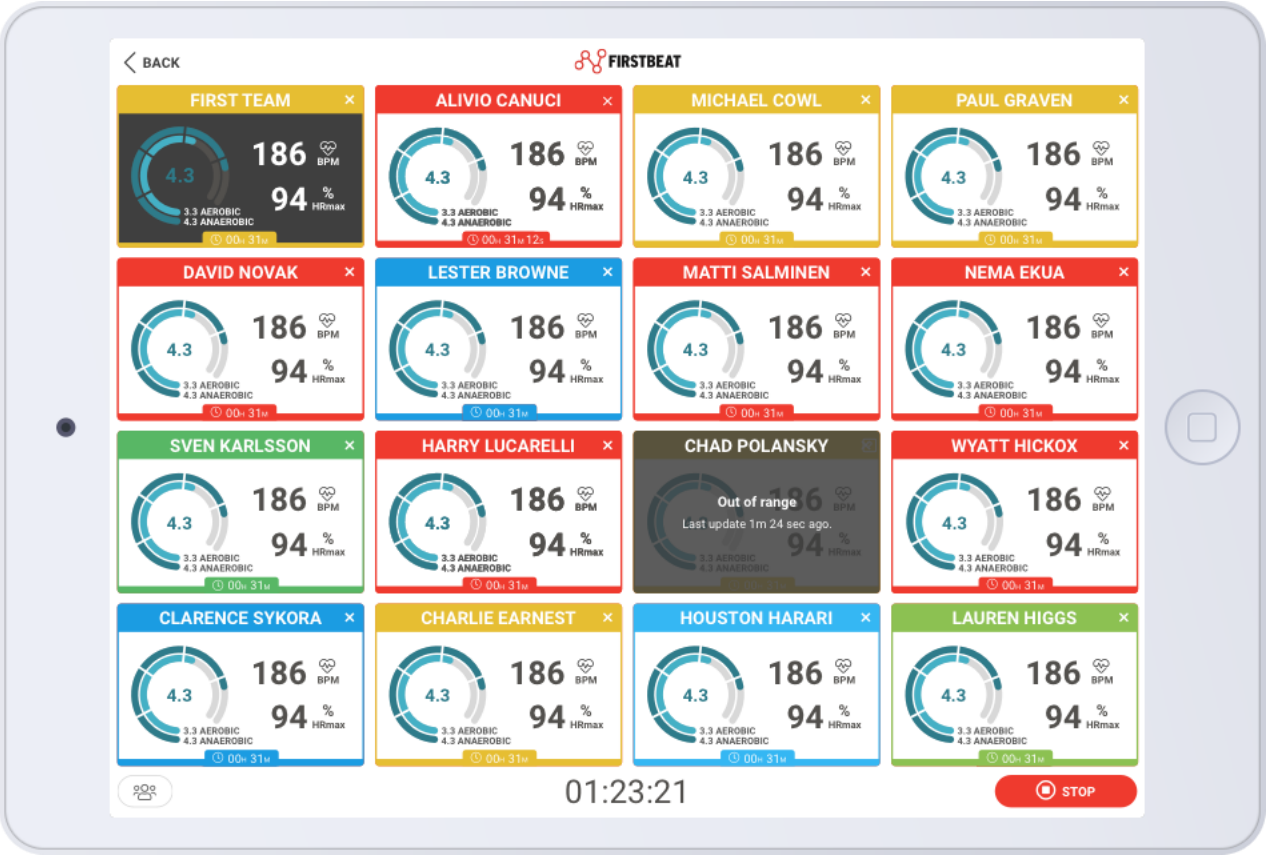
# HOW IT WORKS

- Automatic start with RR-I validation algorhitms.
  - If R-R data is not detected, sensor powers off after 1 minute.
- Pair sensor for athlete with Live app
  - Profile background information will stored to the sensor for real time analysis.
- Wear sensor on with textile strap.
  - During the RECORDING state, sensor keeps advertising how long the sensor have been recording + following real time training metrics: Heart rate, EPOC, TRIMP, Training Effect, Average Heart rate, Lowest Heart rate, Peak Heart rate, Time in Heart rate zone (1 – 5), Calories, TRIMP/min (latest 1 min average)
- Wear sensor off
  - Sensor stops recording in few minutes after you have taken the sensor off and goes back to STANDBY state
  - Sensor waits 15 minutes in STANDBY mode after RECORDING before powers off.
  - In STANDBY mode sensor sends also advertising data for how many measurements are pending download.

# SPORTS LIVE

- iPad application (Bluetooth 4.0 and IOS version 11 and later)
- Language:  English, Finnish, Spanish, France, German, Portuguese (Brazil)
- Profile pairing with Sports Sensor.
- Live view to Sports sensors advertisement data.
- Transmission range 40-200 meters

- Measurement download from sensors
  - Mass download from 40+ sensors (6 sensors simultaneously from queue)
  - Multiple iPads can be used for download.
  - Download time around 7 sec for 2 hour session/device
- Sync with Sports Cloud
- Possibility to use 2 weeks offline.
- Compatible only with Firstbeat Sports Sensor



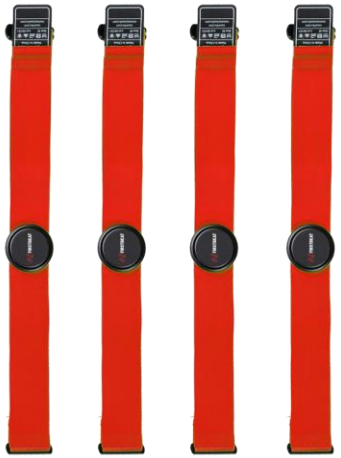


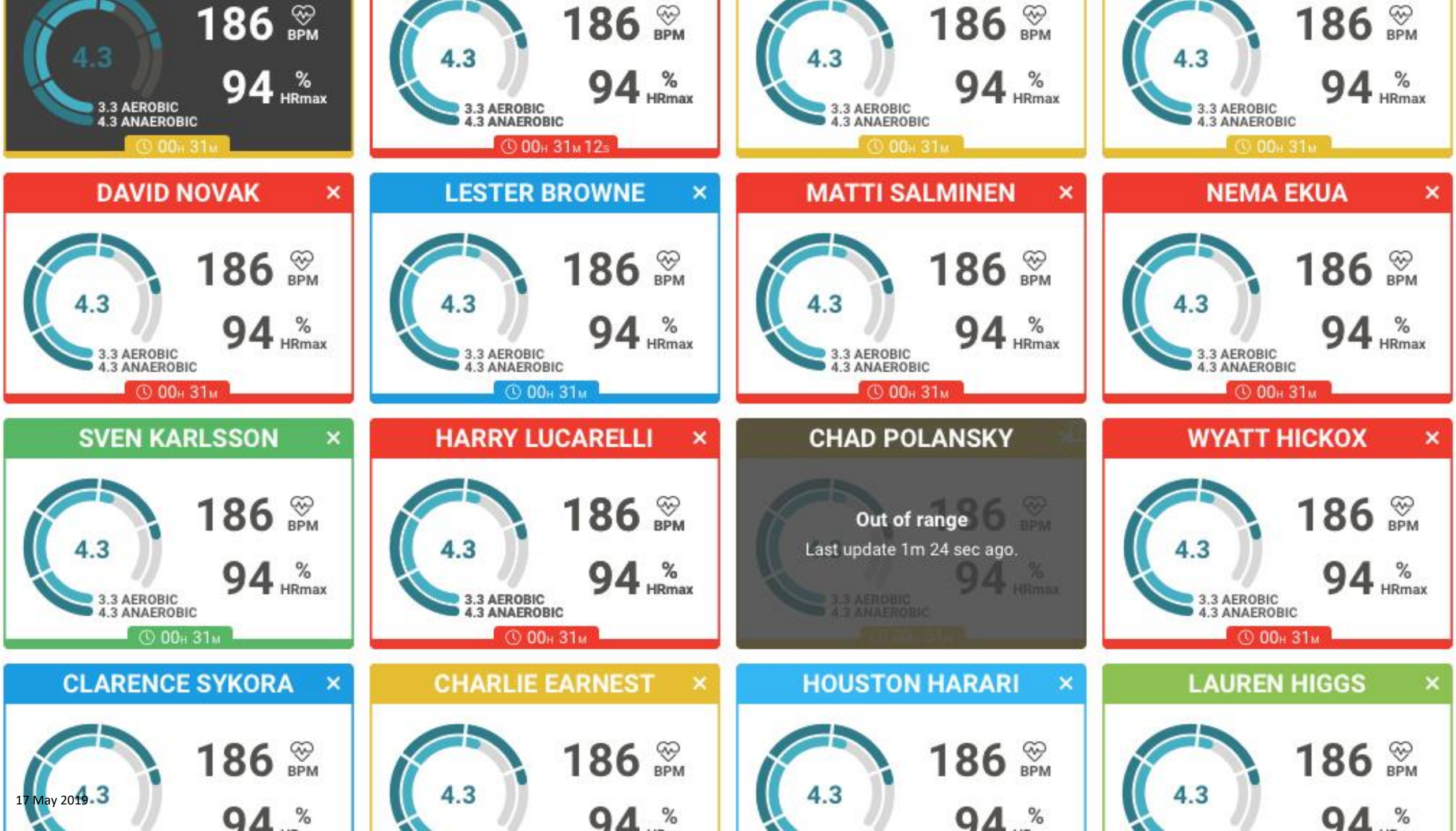

FIRSTBEAT

# INCLUDED IN THE PACK

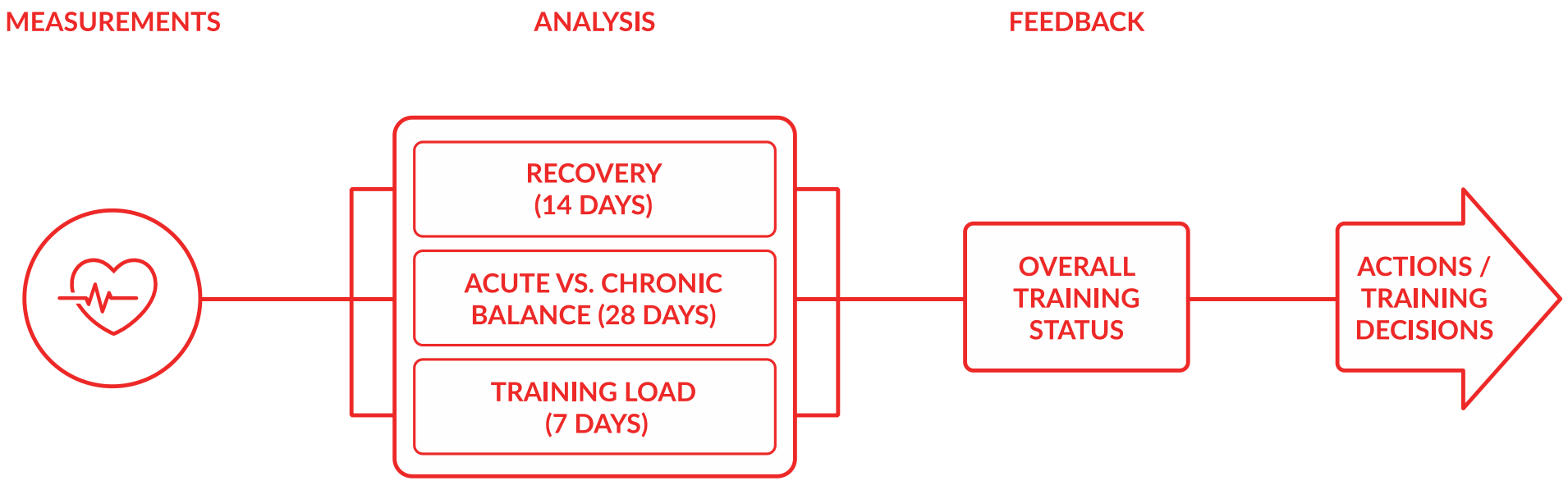
- Firstbeat Sports Sensors
- EVA case to store and transport Sensors
- Textile straps and additional replacement straps
- Washing bag
- Team bag

**AVAILABLE DURING SUMMER 2019**



4.3
186 BPM
94 % HRmax
3.3 AEROBIC
4.3 ANAEROBIC
00H 31M
00H 31M 12S
DAVID NOVAK
LESTER BROWNE
MATTI SALMINEN
NEMA EKUA
SVEN KARLSSON
HARRY LUCARELLI
CHAD POLANSKY
Out of range
Last update 1m 24 sec ago.
WYATT HICKOX
CLARENCE SYKORA
CHARLIE EARNEST
HOUSTON HARARI
LAUREN HIGGS

# TRAINIG STATUS ANALYSIS COMBINES ALL AVAILABLE INFORMATION TO ASSESS THE TRAINING BALANCE

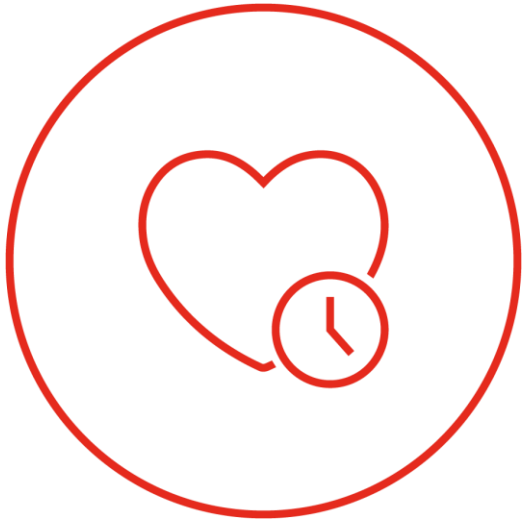





FIRSTBEAT

# TRAINING STATUS





**ACUTE LOAD (7 days TRIMP)**

- High > 80% of max
- Optimal: 30-70%
- Low: < 50%

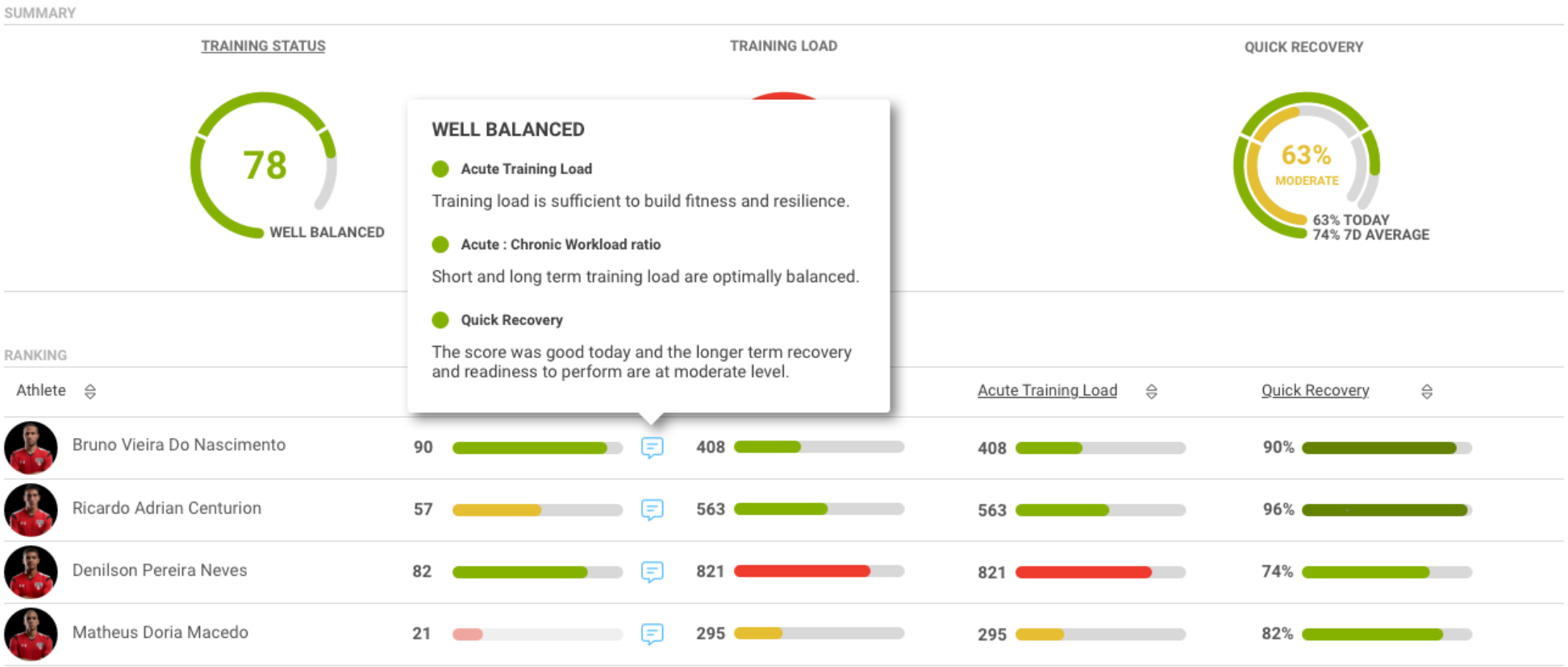
**ACUTE:CHRONIC WORLOAD RATIO**

- Increasing >1.4
- Steady: 0.7-1.4
- LOW < 0.7

**QUICK RECOVERY TEST (trend):**

- HIGH > 66%
- MODERATE 34-66%
- LOW <34%

# TRAINING STATUS IN DASHBOARD VIEW

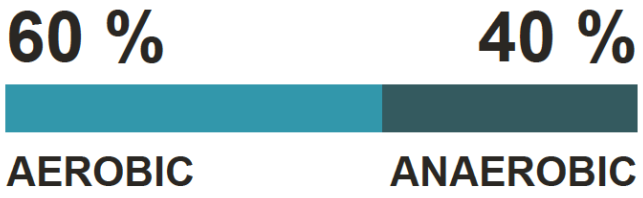





FIRSTBEAT

# TRAINING EFFECT UPDATE

OLD


NEW




FIRSTBEAT

# TRAINING EFFECT ACCUMULATION

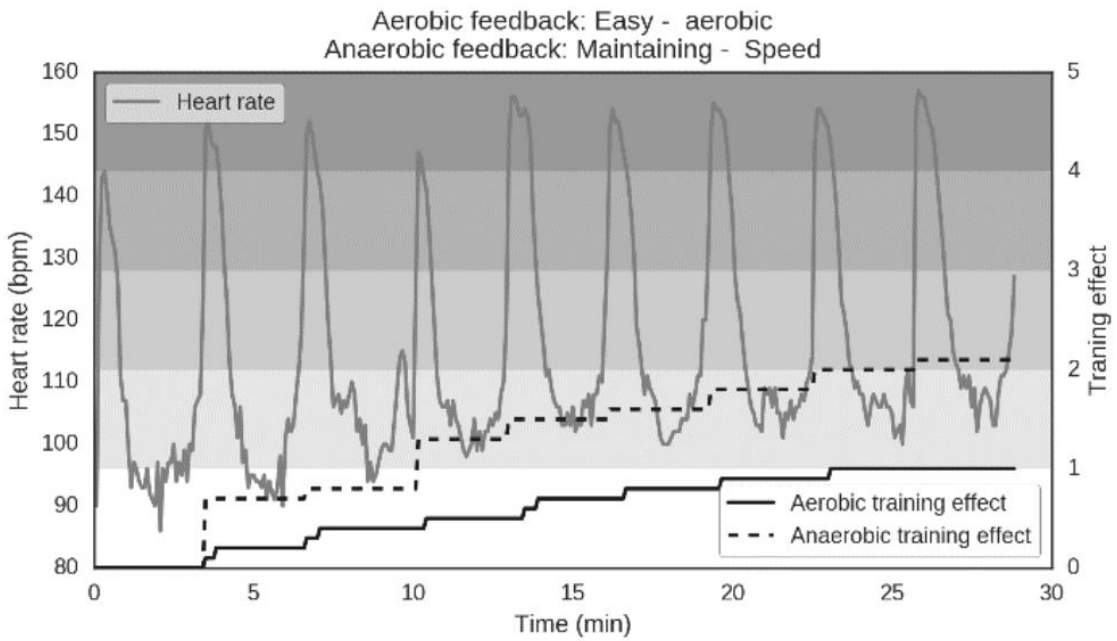



**Figure 4**. 9 x 50m sprint running intervals, lactate after the session: 8.2, RPE: 14. Aerobic TE: 1.0, anaerobic TE: 2.1.

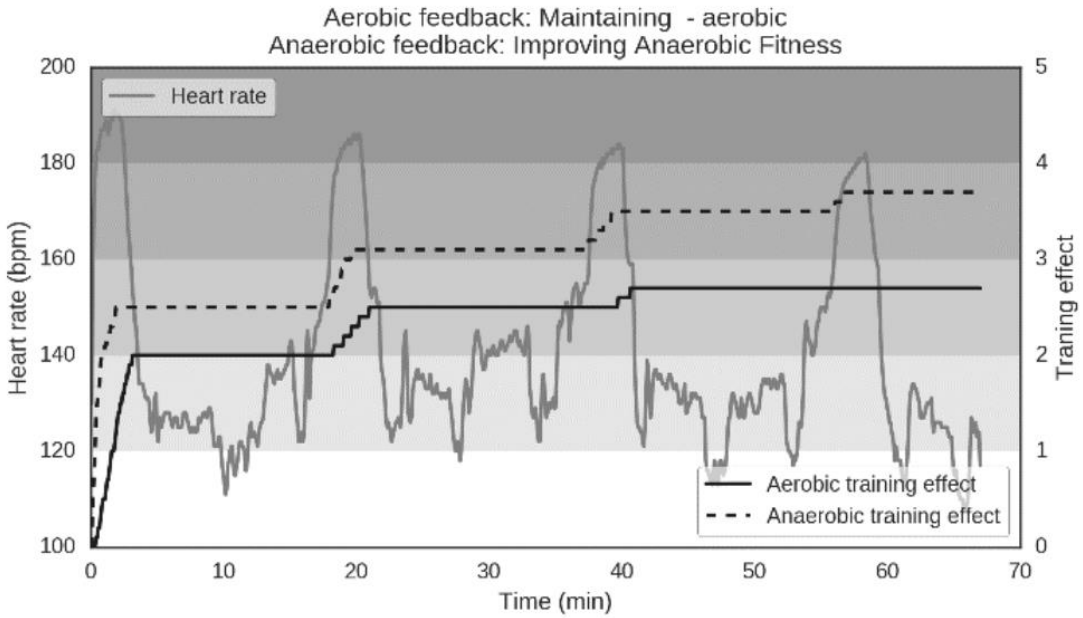



**Figure 5**. Cross-country skiing sprint race simulation (4 x 2min full speed). Lactate after the workout: 18.7, RPE: 20. Aerobic TE 2.7, anaerobic TE: 3.7.



FIRSTBEAT

# TRAINING EFFECT

| EFFECTS OF AEROBIC TRAINING | EFFECTS OF ANAEROBIC TRAINING |
|---|---|
| Improved endurance and fatigue resistance abilities (+VO2max) | Improved ability to produce high-levels of energy anaerobically and turn that into sprinting performance |
| Improved aerobic metabolism due to higher capillary density<br>and aerobic enzyme activity | Improved anaerobic metabolism and enzyme activity |
| Improved central and peripheral blood flow | Elevated CP and ATP stores in the muscles |
| Enhanced ventilation/pulmonary fitness | Enhanced glucose and glycogen metabolism |
| Improved fat metabolism andutilization | Biomechanical & neuromuscular adaptation |

# Time for Questions!