Package: sportsfeatures (via r-universe)

October 28, 2026

Title Simulation Framework for Sports Physiology and Analytics

Version 0.3.0

Description Provides a rule-based simulation environment for modeling real-world athlete performance, dynamic training sessions, hierarchical variance, and missing telemetry data.

License MIT + file LICENSE

Depends R (>= 4.1.0)

Suggests dplyr, ggplot2, glmnet, here, knitr, lme4, lmerTest, mice, quarto, ranger, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder quarto

Encoding UTF-8

Config/roxygen2/version 8.1.0

NeedsCompilation no

Author Mohammad Abbas [aut, cre]

Maintainer Mohammad Abbas <ma.abbas3107@gmail.com>

Repository https://artisto123.r-universe.dev

Date/Publication 2026-09-28 11:00:02 UTC

RemoteUrl https://github.com/cran/sportsfeatures

RemoteRef HEAD

RemoteSha 334df38be9adbd419e0dcd5f3a1bb5e2de1de138

Contents

sports_features_missing 2

Index **4**

`sports_features_missing` *Comprehensive Sports Features Dataset (With Missing Values)*

Description

Comprehensive Sports Features Dataset (With Missing Values)

Usage

```
data(sports_features_missing)
```

Format

A tibble or data frame with 42 variables describing athlete sessions and performance metrics:

session_id Unique alphanumeric identifier for each training session.

athlete_id Unique alphanumeric identifier for each athlete.

datetime Timestamp of when the training session occurred.

activity_type Type of exercise performed (e.g., running, cycling, swimming).

region Geographical area where the session took place.

distance_km Total distance covered during the session in kilometers.

weather_type Weather condition during the session (e.g., sunny, rainy, cloudy).

temperature_c Ambient outdoor temperature in degrees Celsius.

personal_status Pre-activity physical or mental status reported by the athlete.

is_group_activity Logical indicator (TRUE/FALSE) if the session was done with a group.

gender Categorical gender of the athlete.

age Age of the athlete in years.

base_fitness Baseline fitness score of the athlete.

base_speed Baseline average speed capability of the athlete.

base_stamina Baseline stamina level of the athlete.

base_weight Baseline body weight of the athlete in kilograms.

resting_heart_rate Baseline resting heart rate in beats per minute (bpm).

device_type Type of tracking device used during the session.

speed_kmh Average speed maintained throughout the session in km/h.

duration_min Total duration of the training session in minutes.

heart_rate_avg Average heart rate monitored during the session in bpm.

calories_burned Estimated total energy expenditure in kilocalories (kcal).

exhaustion_level Subjective exhaustion level reported after the session.

hydration_status Hydration level (%) recorded during or after the session.

fatigue_score Calculated post-activity fatigue accumulation score.

aerobic_contribution_pct Estimated percentage contribution of the aerobic energy system to total session workload.

anaerobic_contribution_pct Estimated percentage contribution of the anaerobic energy system to total session workload.

energy_system Categorical classification of session effort (Aerobic dominant, Mixed, or Anaerobic dominant).

vo2_session_ml_kg_min Estimated oxygen consumption rate during the session in mL/kg/min.

vo2max_est_ml_kg_min Estimated maximal oxygen uptake potential of the athlete in mL/kg/min.

vo2_utilisation Normalises aerobic demand relative to VO2max; quantifies session intensity as a fraction of physiological capacity.

efficiency_index Captures cardiovascular economy by relating oxygen uptake to heart rate; used to assess aerobic efficiency and readiness.

hr_reserve Represents net cardiovascular elevation above resting state; proxy for internal load and autonomic strain.

aerobic_efficiency Indicates aerobic contribution per unit heart rate; evaluates aerobic system utilisation and metabolic economy.

fatigue_per_km Normalises fatigue accumulation by distance; models workload-adjusted fatigue dynamics.

athlete_mean_fatigue Chronic fatigue baseline; separates stable athlete-level fatigue differences from session-level variation.

fatigue_deviation Within-athlete centred fatigue; isolates session-specific deviations from an athlete's personal fatigue norm.

athlete_mean_distance Chronic volume baseline; captures habitual training load differences between athletes.

distance_centered Within-athlete centred distance; models session-specific deviations from typical training volume.

pace_min_km Represents external speed demand; used to model performance intensity and pacing strategy.

calories_per_km Normalises metabolic cost by distance; quantifies energetic efficiency and workload economy.

calories_per_min Represents metabolic burn rate; models internal metabolic intensity independent of distance.

Details

A variant of the core sports analytics dataset containing structured missingness (NA values) across performance tracking columns to demonstrate imputation workflows.

Source

Synthesized sports features analytics framework.

Index

∗ **datasets**
sports_features_missing, 2

sports_features_missing, 2