

# Package ‘ACWR’

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**Type** Package

**Title** Acute Chronic Workload Ratio Calculation

**Version** 0.1.0

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**Description** Functions for calculating the acute chronic workload ratio using three different methods: exponentially weighted moving average (EWMA), rolling average coupled (RAC) and rolling averaged uncoupled (RAU). Examples of this methods can be found in Williams et al. (2017) <[doi:10.1136/bjsports-2016-096589](https://doi.org/10.1136/bjsports-2016-096589)> for EWMA and Windt & Gabbet (2018) for RAC and RAU <[doi:10.1136/bjsports-2017-098925](https://doi.org/10.1136/bjsports-2017-098925)>.

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**Encoding** UTF-8

**LazyData** true

**Imports** r2d3

**Depends** R (>= 2.10)

**RoxygenNote** 7.1.1

**URL** <https://github.com/JorgeDelro/ACWR>

**BugReports** <https://github.com/JorgeDelro/ACWR/issues>

**Suggests** testthat (>= 3.0.0)

**Config/testthat/edition** 3

**NeedsCompilation** no

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**Repository** CRAN

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## R topics documented:

ACWR	2
EWMA	3

plot_ACWR . . . . .	4
RAC . . . . .	6
RAU . . . . .	7
training_blocks . . . . .	8
training_load . . . . .	9
<b>Index</b>	<b>10</b>

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ACWR	<i>Acute Chronic Workload Ratio</i>
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## Description

Acute Chronic Workload Ratio

## Usage

```
ACWR(
  db,
  ID,
  TL,
  weeks,
  days,
  training_dates,
  ACWR_method = c("EWMA", "RAC", "RAU")
)
```

## Arguments

db	a data frame
ID	ID of the subjects
TL	training load
weeks	training weeks
days	training days
training_dates	training dates
ACWR_method	method to calculate ACWR

## Value

a data frame with the acute & chronic training load and ACWR calculated with the selected method/s and added on the left side of the data frame

**Examples**

```
## Not run:
# Get old working directory
oldwd <- getwd()

# Set temporary directory
setwd(tempdir())

# Read dfs
data("training_load", package = "ACWR")

# Convert to data.frame
training_load <- data.frame(training_load)

# Calculate ACWR
result_ACWR <- ACWR(db = training_load,
                    ID = "ID",
                    TL = "TL",
                    weeks = "Week",
                    days = "Day",
                    training_dates = "Training_Date",
                    ACWR_method = c("EWMA", "RAC", "RAU"))

# set user working directory
setwd(oldwd)

## End(Not run)
```

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EWMA

*Exponentially Weighted Moving Average*

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**Description**

Exponentially Weighted Moving Average

**Usage**

```
EWMA(TL)
```

**Arguments**

TL                    training load

**Value**

This function returns the following variables:

- EWMA\_chronic: EWMA - chronic training load.

- EWMA\_acute: EWMA - acute training load.
- EWMA\_ACWR: EWMA - Acute-Chronic Workload Ratio.

### Examples

```
## Not run:
# Get old working directory
oldwd <- getwd()

# Set temporary directory
setwd(tempdir())

# Read db
data("training_load", package = "ACWR")

# Convert to data.frame
training_load <- data.frame(training_load)

# Select the first subject
training_load_1 <- training_load[training_load[["ID"]] == 1, ]

# Calculate ACWR
result_EWMA <- EWMA(TL = training_load_1$TL)

# set user working directory
setwd(oldwd)

## End(Not run)
```

---

plot\_ACWR

*ACWR plots using d3.js*

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### Description

ACWR plots using d3.js

### Usage

```
plot_ACWR(
  db,
  TL,
  ACWR,
  day,
  ID = NULL,
  colour = NULL,
  xLabel = NULL,
  y0Label = NULL,
```

```

    y1Label = NULL,
    plotTitle = NULL
  )

```

### Arguments

db	a data frame
TL	training load
ACWR	Acute Chronic Workload Ratio
day	training days
ID	ID of the subjects
colour	colour of the bars. By default "#87CEEB" (skyblue)
xLabel	x-axis label. By default "Days"
y0Label	left y-axis label. By default "Load [AU]"
y1Label	right y-axis label. By default "Acute:chronic workload ratio"
plotTitle	Title of the plot. By default "ACWR"

### Value

This function returns a d3.js object for a single subject. For several subjects it returns a list of d3.js objects.

### Examples

```

## Not run:
# Get old working directory
oldwd <- getwd()

# Set temporary directory
setwd(tempdir())

# Read db
data("training_load", package = "ACWR")

# Convert to data.frame
training_load_db <- data.frame(training_load)

# Calculate ACWR
result_ACWR <- ACWR(db = training_load_db,
  ID = "ID",
  TL = "TL",
  weeks = "Week",
  days = "Day",
  training_dates = "Training_Date",
  ACWR_method = c("EWMA", "RAC", "RAU"))

# Plot for 1 subject

```

```

# Select the first subject
result_ACWR_1 <- result_ACWR[result_ACWR[["ID"]] == 1, ]

# plot ACWR (e.g. EWMA)
ACWR_plot_1 <- plot_ACWR(db = result_ACWR_1,
                        TL = "TL",
                        ACWR = "EWMA_ACWR",
                        day = "Day")

# Plot for several subjects
# plot ACWR (e.g. RAC)
ACWR_plot <- plot_ACWR(db = result_ACWR,
                      TL = "TL",
                      ACWR = "RAC_ACWR",
                      day = "Day",
                      ID = "ID")

# set user working directory
setwd(oldwd)

## End(Not run)

```

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RAC

*Rolling Average Coupled*


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## Description

Rolling Average Coupled

## Usage

```
RAC(TL, weeks, training_dates)
```

## Arguments

TL	training load
weeks	training weeks
training_dates	training dates

## Value

This function returns the following variables:

- RAC\_chronic: RAC - chronic training load.
- RAC\_acute: RAC - acute training load.
- RAC\_ACWR: RAC - Acute-Chronic Workload Ratio.

**Examples**

```
## Not run:
# Get old working directory
oldwd <- getwd()

# Set temporary directory
setwd(tempdir())

# Read db
data("training_load", package = "ACWR")

# Convert to data.frame
training_load <- data.frame(training_load)

# Select the first subject
training_load_1 <- training_load[training_load[["ID"]] == 1, ]

# Calculate ACWR
result_RAC <- RAC(TL = training_load_1$TL,
                 weeks = training_load_1$Week,
                 training_dates = training_load_1$Training_Date)

# set user working directory
setwd(oldwd)

## End(Not run)
```

---

RAU

*Rolling Average Uncoupled*

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**Description**

Rolling Average Uncoupled

**Usage**

```
RAU(TL, weeks, training_dates)
```

**Arguments**

TL	training load
weeks	training weeks
training_dates	training dates

**Value**

This function returns the following variables:

- RAU\_chronic: RAU - chronic training load.
- RAU\_acute: RAU - acute training load.
- RAU\_ACWR: RAU - Acute-Chronic Workload Ratio.

**Examples**

```
## Not run:
# Get old working directory
oldwd <- getwd()

# Set temporary directory
setwd(tempdir())

# Read db
data("training_load", package = "ACWR")

# Convert to data.frame
training_load <- data.frame(training_load)

# Select the first subject
training_load_1 <- training_load[training_load[["ID"]] == 1, ]

# Calculate ACWR
result_RAU <- RAU(TL = training_load_1$TL,
                 weeks = training_load_1$Week,
                 training_dates = training_load_1$Training_Date)

# set user working directory
setwd(oldwd)

## End(Not run)
```

---

training\_blocks

*Create Training Blocks*

---

**Description**

Create Training Blocks

**Usage**

```
training_blocks(training_dates, actual_TL, diff_dates)
```



**Arguments**

training\_dates training dates  
actual\_TL position of the actual training load  
diff\_dates difference in days

---

training\_load *Training load dataframe*

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**Description**

A dataframe with the training load of 3 subjects.

**Usage**

```
data("training_load", package = "ACWR")
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 84 rows and 5 columns.

**Variables**

**ID** ID of the subjects  
**Week** training weeks  
**Day** training days  
**TL** training load (arbitrary units)  
**Training\_Date** training dates

# Index

\* **datasets**

training\_load, 9

ACWR, 2

EWMA, 3

plot\_ACWR, 4

RAC, 6

RAU, 7

training\_blocks, 8

training\_load, 9