

# Package ‘combinedevents’

September 23, 2020

**Title** Calculate Scores and Marks for Track and Field Combined Events

**Version** 0.1.0

**Description** Includes functions to calculate scores and marks for track and field combined events competitions. The functions are based on the scoring tables for combined events set forth by the International Association of Athletics Federation (2001)  
<<https://www.worldathletics.org/about-iaaf/documents/technical-information>>.

**License** GPL-3

**URL** <https://katie-frank.github.io/combinedevents/>,  
<https://github.com/katie-frank/combinedevents>

**BugReports** <https://github.com/katie-frank/combinedevents/issues>

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.1.1

**Imports** lubridate, magrittr, rlang, stats, stringr

**Suggests** knitr, rmarkdown, testthat, spelling, covr

**Depends** R (>= 2.10)

**Language** en-US

**NeedsCompilation** no

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combinedevents	<i>combinedevents: Calculate Scores and Marks for Track and Field Combined Events</i>
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## Description

Includes functions to calculate scores and marks for track and field combined events competitions. The functions are based on the scoring tables for combined events set forth by the International Association of Athletics Federation (2001).

## Author(s)

**Maintainer:** Katie Frank <katiexfrank@gmail.com>

## References

International Association of Athletics Federation (2001). *IAAF Scoring Tables for Combined Events*.

## See Also

Useful links:

- <https://katie-frank.github.io/combinedevents/>
- <https://github.com/katie-frank/combinedevents>
- Report bugs at <https://github.com/katie-frank/combinedevents/issues>

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combined_events	<i>Combined events results</i>
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## Description

combined\_events() is a generic function used to present results of calls to [scores\(\)](#) and [marks\(\)](#).

## Usage

```
combined_events(marks, scores, event_names, event, seconds, ...)
```

**Arguments**

marks	a numeric vectors of marks
scores	an integer vector of scores
event_names	a character vector of event names
event	a character string indicating the combined events competition
seconds	a numeric (either 0 or 1)
...	other arguments passed on to methods

**Value**

An object of class "combined\_events". The default method returns a list of that class.

**See Also**

[scores\(\)](#), [marks\(\)](#)

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combined\_events\_null *Combined events null results*

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**Description**

`combined_events_null()` is a generic function used to present results of calls to [scores\(\)](#) and [marks\(\)](#) where in those calls `combined_event = NULL`.

**Usage**

```
combined_events_null(marks, scores, event_names, seconds, ...)
```

**Arguments**

marks	a numeric vector of marks
scores	an integer vector of scores
event_names	a character vector of event names
seconds	a numeric (either 0 or 1)
...	other arguments passed on to methods

**Value**

An object of class `combined_events_null`. The default method returns a list of that class.

**See Also**

[scores\(\)](#), [marks\(\)](#)

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dec *Men's decathlon performances*

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### Description

A dataset containing the performances of 23 athletes in the men's decathlon at the 2016 Summer Olympics.

### Usage

dec

### Format

A data frame with 23 rows and 24 variables. The variables `100m`, LJ, SP, HJ, `400m`, `110mH`, DT, PV, JT, and `1500m` correspond to the performances of the athletes for the ten events comprising the decathlon. Those variables ending in `\_p` (e.g., `100m\_p`) represent the points athletes earn for their performances in each of the ten events. A full description of the 24 variables is below.

**rank** rank of athlete  
**athlete** name of athlete  
**nationality** nationality of athlete  
**score\_total** overall score  
**100m** 100m result, in seconds  
**100m\_p** 100m points  
**LJ** long jump result, in meters  
**LJ\_p** long jump points  
**SP** shot put result, in meters  
**SP\_p** shot put points  
**HJ** high jump result, in meters  
**HJ\_p** high jump points  
**400m** 400m result, in seconds  
**400m\_p** 400m points  
**110mH** 110m hurdles result, in seconds  
**110mH\_p** 110m hurdles points  
**DT** discus throw result, in meters  
**DT\_p** discus throw points  
**PV** pole vault result, in meters  
**PV\_p** pole vault points  
**JT** javelin throw result, in meters  
**JT\_p** javelin throw points  
**1500m** 1500m result, in minutes  
**1500m\_p** 1500m points

**Source**

[https://en.wikipedia.org/wiki/Athletics\\_at\\_the\\_2016\\_Summer\\_Olympics\T1\textendash\\_Men%27s\\_decathlon](https://en.wikipedia.org/wiki/Athletics_at_the_2016_Summer_Olympics\T1\textendash_Men%27s_decathlon)

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marks	<i>Calculate marks for track and field combined events</i>
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**Description**

marks() calculates marks for track and field combined events competitions.

**Usage**

```
marks(scores, gender, combined_event = NULL, seconds = FALSE)
```

**Arguments**

scores	a numeric vector of track and field scores
gender	gender of athlete; either "male" or "female"
combined_event	an optional character string indicating the combined events competition. For gender = "male", the options are "decathlon"/"outdoor decathlon", "outdoor pentathlon", "heptathlon"/"indoor heptathlon", and "indoor pentathlon". For gender = "female", the options are "heptathlon"/"outdoor heptathlon", "decathlon"/"outdoor decathlon", and "pentathlon"/"indoor pentathlon". If combined_event = NULL, the elements of scores must be named. <ul style="list-style-type: none"> <li>• For gender = "male", the allowed names for the elements of scores are `100m`, LJ, SP, HJ, `400m`, `110mH`, DT, PV, JT, `1500m`, `200m`, `60m`, `60mH`, and `1000m`.</li> <li>• For gender = "female", the allowed names are `100m`, LJ, SP, HJ, `400m`, `100mH`, DT, PV, JT, `1500m`, `200m`, `60mH`, and `800m`.</li> </ul>
seconds	a logical; if TRUE, will return all track event marks in seconds

**Details**

marks() can be thought of as the inverse function of [scores\(\)](#): you give it the scores you want to obtain, and it gives you the marks you need to achieve those scores.

For track events, marks() returns the slowest time needed to achieve the input score. Similarly, for jumping and throwing events, marks() returns the shortest distance necessary to achieve the input score.

For some events, when a score is given to marks(), the score returned is not necessarily the same as the one input because some scores are not actually possible (due to rounding). In other words, not every input score is associated with a unique mark. When this is the case, marks() will return the highest score corresponding to that mark.

**Value**

A list of class "combined\_events" (or "combined\_events\_null" if combined\_event = NULL) with the following fields:

results	if called with non-NULL combined_event, a data frame with columns for the specified combined event containing the names of those events, mark for the resulting marks based on the input scores, and score based on the input scores. The last row of the data frame gives the total score for the specified combined events competition. If combined_event = NULL, a data frame with columns event, mark, and score.
marks	the vector of marks based on the input scores for the specified combined event. If not all scores were supplied to marks(), then there will be NA values for those events with missing scores. If combined_event = NULL, the vector of marks.
scores	the vector of scores for the specified combined event. If not all scores were supplied to marks(), then there will be NA values for those events with missing scores. If combined_event = NULL, the vector of scores.
score_total	if called with non-NULL combined_event, an integer representing the overall score for the specified combined events competition
call	the matched call

**References**

International Association of Athletics Federation (2001). *IAAF Scoring Tables for Combined Events*.

**Examples**

```
# Men's heptathlon
marks(scores = rep(800, 7),
      gender = "male", combined_event = "heptathlon")

# Women's pentathlon
marks(scores = c(`60mH` = 981, HJ = 875, SP = 799, LJ = 956, `800m` = 1000),
      "female", "pentathlon")

# Men's events
marks(scores = c(LJ = 790, LJ = 810, HJ = 850, HJ = 900, PV = 900, PV = 915),
      "male")
```

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scores *Calculate scores for track and field combined events*

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**Description**

scores() calculates scores for track and field combined events competitions.

**Usage**

```
scores(marks, gender, combined_event = NULL, seconds = FALSE)
```

**Arguments**

marks	a numeric or character vector of track and field marks/performances
gender	gender of athlete; either "male" or "female"
combined_event	an optional character string indicating the combined events competition. For gender = "male", the options are "decathlon"/"outdoor decathlon", "outdoor pentathlon", "heptathlon"/"indoor heptathlon", and "indoor pentathlon". For gender = "female", the options are "heptathlon"/"outdoor heptathlon", "decathlon"/"outdoor decathlon", and "pentathlon"/"indoor pentathlon". If combined_event = NULL, the elements of marks must be named. <ul style="list-style-type: none"> <li>• For gender = "male", the allowed names for the elements of marks are `100m`, LJ, SP, HJ, `400m`, `110mH`, DT, PV, JT, `1500m`, `200m`, `60m`, `60mH`, and `1000m`.</li> <li>• For gender = "female", the allowed names are `100m`, LJ, SP, HJ, `400m`, `100mH`, DT, PV, JT, `1500m`, `200m`, `60mH`, and `800m`.</li> </ul>
seconds	a logical; if TRUE, will return all track event marks in seconds

**Value**

A list of class "combined\_events" (or "combined\_events\_null" if combined\_event = NULL) with the following fields:

results	if called with non-NULL combined_event, a data frame with columns for the specified combined event containing the names of those events, mark for the input marks/performances, and score for the resulting scores based on those marks. The last row of the data frame gives the total score for the specified combined events competition. If combined_event = NULL, a data frame with columns event, mark, and score.
marks	the vector of marks for the specified combined event. If not all marks were supplied to scores(), then there will be NA values for those events with missing marks. If combined_event = NULL, the vector of marks.
scores	the vector of scores based on the input marks for the specified combined event. If not all marks were supplied to scores(), then there will be scores with NA values for those events with missing marks. If combined_event = NULL, the vector of scores.
score_total	if called with non-NULL combined_event, an integer representing the overall score for the specified combined events competition
call	the matched call

**References**

International Association of Athletics Federation (2001). *IAAF Scoring Tables for Combined Events*.

**Examples**

```
# Men's decathlon
scores(marks = c(`100m` = 11.61, LJ = 7.32, SP = 13.17, HJ = 1.9,
```

```
      `400m` = 49.96, `110mH` = 15.32, DT = 38.18, PV = 4.6,  
      JT = 58.98, `1500m` = "4:39.34"),  
  gender = "male", combined_event = "decathlon")  
  
# Women's heptathlon  
scores(c(14.11, 1.95, 13.96, 25.61, 6.44, 45.98, "2:07.26"),  
      "female", "heptathlon")  
  
# Men's events  
scores(c(`60m` = 7.09, LJ = 7, LJ = 7.03, SP = 11.8, HJ = 2,  
      `60mH` = 8.30, `60mH` = 9.31, PV = 4.30, `1000m` = "2:40.00"),  
      gender = "male")
```



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