

# Package ‘dumbbell’

July 6, 2026

**Type** Package

**Title** Displaying Changes Between Two Points Using Dumbbell Plots

**Version** 0.2

**Description** Creates dumbbell plots to visualize changes between two measurements for the same observations. The package provides customization options for labels, colors, arrows, delta values, and paired statistical test annotations.

**License** MIT + file LICENSE

**Encoding** UTF-8

**Imports** dplyr, ggplot2, grid, rlang, tidyr, utils

**URL** <https://github.com/foocheung/dumbbell>

**BugReports** <https://github.com/foocheung/dumbbell/issues>

**NeedsCompilation** no

**RoxygenNote** 7.3.3

**Collate** 'global.R' 'dumbbell.R'

**Suggests** knitr, rmarkdown

**VignetteBuilder** knitr

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**Repository** CRAN

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*Dumbbell Plot*

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**Description**

Draws a dumbbell plot, essentially a dot plot with two series of data.

**Usage**

```
dumbbell(  
  xdf,  
  id,  
  key,  
  column1,  
  column2,  
  lab1 = "Addlab1",  
  lab2 = "Addlab2",  
  title = "",  
  pointsize = 1,  
  textsize = 2,  
  segsize = 1,  
  expandx = 0.05,  
  expandy = 1,  
  p_col1 = "red",  
  p_col2 = "blue",  
  leg = "",  
  col_seg1 = "gray80",  
  col_seg2 = "gray80",  
  col_lab1 = "black",  
  col_lab2 = "black",  
  pt_alpha = 1,  
  arrow_size = 0.2,  
  arrow = 0,  
  pt_val = 0,  
  delt = 0,  
  pval = 0  
)
```

**Arguments**

|     |                                                                                                                         |
|-----|-------------------------------------------------------------------------------------------------------------------------|
| xdf | A data frame containing at least four columns: an id column, a key/grouping column, and two numeric columns to compare. |
| id  | Name of the column containing the id variable used to label the y axis, e.g. id = "id".                                 |
| key | Name of the column containing the key/facet variable, e.g. key = "key".                                                 |

|                    |                                                                                                              |
|--------------------|--------------------------------------------------------------------------------------------------------------|
| column1, column2   | Names of the first and second numeric columns, e.g. column1 = "Control", column2 = "Test".                   |
| lab1, lab2         | Labels for the two data series, e.g. lab1 = "Control", lab2 = "Test".                                        |
| title              | Plot title, e.g. title = "This is a plot title".                                                             |
| pointsize          | Point size, e.g. pointsize = 3.                                                                              |
| textsize           | Numeric value specifying the text size, e.g. textsize = 3.                                                   |
| segsz              | Numeric value specifying the segment width, e.g. segsz = 1.                                                  |
| expandx            | Add space to both ends of the x axis, e.g. expandx = 0.6.                                                    |
| expandy            | Add space to both ends of the y axis, e.g. expandy = 1.                                                      |
| p_col1, p_col2     | Colors for the first and second points, e.g. p_col1 = "red".                                                 |
| leg                | Legend title, e.g. leg = "Group".                                                                            |
| col_seg1, col_seg2 | Colors for segments in each direction, e.g. col_seg1 = "red".                                                |
| col_lab1, col_lab2 | Colors for text labels below each dumbbell, e.g. col_lab1 = "red".                                           |
| pt_alpha           | Point transparency, e.g. pt_alpha = 0.6.                                                                     |
| arrow_size         | Size of arrows, e.g. arrow_size = 0.2.                                                                       |
| arrow              | Add an arrow to one end of the dumbbell. Use arrow = 1 to show arrows.                                       |
| pt_val             | Add point-value labels to the plot. Use pt_val = 1 to show values.                                           |
| delt               | Add a delta column to the plot. Use delt = 1 to show the difference.                                         |
| pval               | Add p-value to the key/facet label. Use pval = 1 for a paired Wilcoxon test or pval = 2 for a paired t-test. |

**Value**

A ggplot object.

**Author(s)**

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**Examples**

```
library(dumbbell)
library(ggplot2)
z <- data.frame(
  Group = c(rep("A", 20), rep("B", 20)),
  Subject = c(paste0("sub_", 1:20), paste0("sub_", 1:20)),
  result = sample(1:100000, 40, replace = TRUE),
  analysis = c(rep("a", 10), rep("b", 10), rep("b", 10), rep("a", 10))
)
b <- z[z$Group == "A", ]
c <- z[z$Group == "B", ]
d <- merge(b, c, by = "Subject")
dumbbell(xdf = d, id = "Subject", key = "analysis.x", column1 = "result.x", column2 = "result.y")
```

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