

Sandbox

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The data, wrangled and cleaned/tidied

```
library(tidyverse)
df <- read.csv("data/all.csv", stringsAsFactors = FALSE)
```

Make sure it's clean

```
# Check for missing values
na_rows <- df[!complete.cases(df), ]
na_rows

## [1] Character Move onBlock plnCmd airmove followUp
## [7] projectile moveType health stun vgauge1 vgauge2
## [13] fDash bDash fWalk bWalk throwHurt throwRange
## [19] Damage Stun
## <0 rows> (or 0-length row.names)
```

Validate before we really begin

```
c(nrow(df), ncol(df))

## [1] 1809 20

dim(df) # same thing

## [1] 1809 20

summary(df)

## Character Move onBlock plnCmd
## Length:1809 Length:1809 Min. :-95.000 Length:1809
## Class :character Class :character 1st Qu.: -8.000 Class :character
## Mode :character Mode :character Median : -3.000 Mode :character
## Mean : -4.429
## 3rd Qu.: 1.000
## Max. : 48.000
## airmove followUp projectile moveType
## Length:1809 Length:1809 Length:1809 Length:1809
## Class :character Class :character Class :character Class :character
## Mode :character Mode :character Mode :character Mode :character
##
##
##
```

```
##      health      stun      vgauge1      vgauge2
## Min.   : 900.0   Min.   : 900.0   Min.   :300.0   Min.   :600.0
## 1st Qu.: 950.0   1st Qu.: 950.0   1st Qu.:600.0   1st Qu.:600.0
## Median :1000.0   Median :1000.0   Median :600.0   Median :600.0
## Mean   : 987.8   Mean    : 997.2   Mean    :713.9   Mean    :663.5
## 3rd Qu.:1025.0   3rd Qu.:1050.0   3rd Qu.:900.0   3rd Qu.:600.0
## Max.   :1100.0   Max.    :1100.0   Max.    :900.0   Max.    :900.0
##      fDash      bDash      fWalk      bWalk
## Min.   :15.0    Min.   :21.00   Min.   :0.02200   Min.   :0.02000
## 1st Qu.:16.0    1st Qu.:21.00   1st Qu.:0.04000   1st Qu.:0.03000
## Median :17.0    Median :23.00   Median :0.04700   Median :0.03200
## Mean   :17.5    Mean    :22.99   Mean    :0.04377   Mean    :0.03214
## 3rd Qu.:18.0    3rd Qu.:24.00   3rd Qu.:0.05000   3rd Qu.:0.03500
## Max.   :25.0    Max.    :26.00   Max.    :0.05500   Max.    :0.04700
##      throwHurt      throwRange      Damage      Stun
## Min.   :0.2500   Min.   :0.8000   Min.   : 10.0   Min.   : 0.0
## 1st Qu.:0.2500   1st Qu.:0.8000   1st Qu.: 60.0   1st Qu.:100.0
## Median :0.2500   Median :0.8500   Median : 80.0   Median :120.0
## Mean   :0.2852   Mean    :0.8358   Mean    : 88.2   Mean    :122.2
## 3rd Qu.:0.3000   3rd Qu.:0.8500   3rd Qu.:100.0   3rd Qu.:150.0
## Max.   :0.4500   Max.    :1.0000   Max.    :400.0   Max.    :400.0
```

```
str(df)
```

```
## 'data.frame': 1809 obs. of 20 variables:
## $ Character : chr "Abigail" "Abigail" "Abigail" "Abigail" ...
## $ Move : chr "Stand LP" "Stand MP" "Stand HP" "Stand LK" ...
## $ onBlock : int 3 5 -3 3 0 -8 3 -2 -18 2 ...
## $ plnCmd : chr "LP" "MP" "HP" "LK" ...
## $ airmove : chr "False" "False" "False" "False" ...
## $ followUp : chr "False" "False" "False" "False" ...
## $ projectile: chr "False" "False" "False" "False" ...
## $ moveType : chr "normal" "normal" "normal" "normal" ...
## $ health : int 1100 1100 1100 1100 1100 1100 1100 1100 1100 1100 ...
## $ stun : int 1050 1050 1050 1050 1050 1050 1050 1050 1050 1050 ...
## $ vgauge1 : int 900 900 900 900 900 900 900 900 900 900 ...
## $ vgauge2 : int 900 900 900 900 900 900 900 900 900 900 ...
## $ fDash : int 25 25 25 25 25 25 25 25 25 25 ...
## $ bDash : int 25 25 25 25 25 25 25 25 25 25 ...
## $ fWalk : num 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 ...
## $ bWalk : num 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 ...
## $ throwHurt : num 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 ...
## $ throwRange: num 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 ...
## $ Damage : int 40 70 90 50 80 90 40 70 90 40 ...
## $ Stun : int 70 100 150 70 100 150 70 100 150 70 ...
```

Module 1: Information (description)

Descriptive stats, here mainly seeking to answer the question: how do the distributions look?

Attacks for all characters

```
library(tidyverse)
df <- read.csv("data/all.csv", stringsAsFactors = FALSE)
```

Character numerical features summary (averages)

```
# transpose so we print vertically
t(colMeans(df[9:18]))

##      health      stun  vgauge1  vgauge2    fDash    bDash      fWalk      bWalk
## [1,] 987.8386 997.236 713.9303 663.5158 17.50083 22.99281 0.04376739 0.03213941
##      throwHurt throwRange
## [1,] 0.2851816 0.8358322
```

Attack categorical features summary tables

```
# define the function to create each summary table
summary_tb <- function(feature) {
  df %>%
    group_by({{ feature }}) %>%
    summarise(
      count = n(),
      average_damage = mean(Damage),
      average_stun = mean(Stun)
    ) %>%
    arrange(desc(average_damage))
}
```

```
# call for each feature with its name as argument
summary_tb(plnCmd)
```

```
## # A tibble: 545 x 4
##   plnCmd                count average_damage average_stun
##   <chr>                <int>         <dbl>         <dbl>
## 1 Hold & Release PP/KK Max      1           370           400
## 2 qcf,qcf+P (can hold)         3           353             0
## 3 qcb,qcb+K                    2           345             0
## 4 qcf,qcf+K                    8           339           44.5
## 5 qcb,qcb+P                    1           330             0
## 6 qcf,qcf+P                   24           330             0
## 7 qcf,qcf+P or qcb,qcb+P       1           330             0
## 8 b,f,b,f+P                   1           320             0
## 9 Hold & Release PP/KK lvl9    1           290           300
## 10 Hold & Release PP/KK lvl8   1           260           300
## # i 535 more rows
```

```
summary_tb(moveType)
```

```
## # A tibble: 11 x 4
##   moveType                count average_damage average_stun
##   <chr>                <int>         <dbl>         <dbl>
## 1 super                 40           334            8.9
## 2 command-grab          18           176           207.
## 3 throw                 22           131           168.
```

```
## 4 vtrigger      38      106.      124.
## 5 special      701      95.8      140.
## 6 movement-special  2      90      100
## 7 vskill      165      81.1      119.
## 8 taunt        1      70      100
## 9 normal      757      68.1      119.
## 10 vbreak      41      60       0
## 11 alpha       24      55       0
```

```
summary_tb(airmove)
```

```
## # A tibble: 2 x 4
##   airmove count average_damage average_stun
##   <chr>   <int>         <dbl>         <dbl>
## 1 True     178          90.3          137.
## 2 False  1631          88.0          121.
```

```
summary_tb(followUp)
```

```
## # A tibble: 2 x 4
##   followUp count average_damage average_stun
##   <chr>   <int>         <dbl>         <dbl>
## 1 True     258          96.6          135.
## 2 False  1551          86.8          120.
```

```
summary_tb(projectile)
```

```
## # A tibble: 2 x 4
##   projectile count average_damage average_stun
##   <chr>   <int>         <dbl>         <dbl>
## 1 False  1549          88.9          125.
## 2 True   260          83.9          105.
```

Kernel density estimates (KDEs)

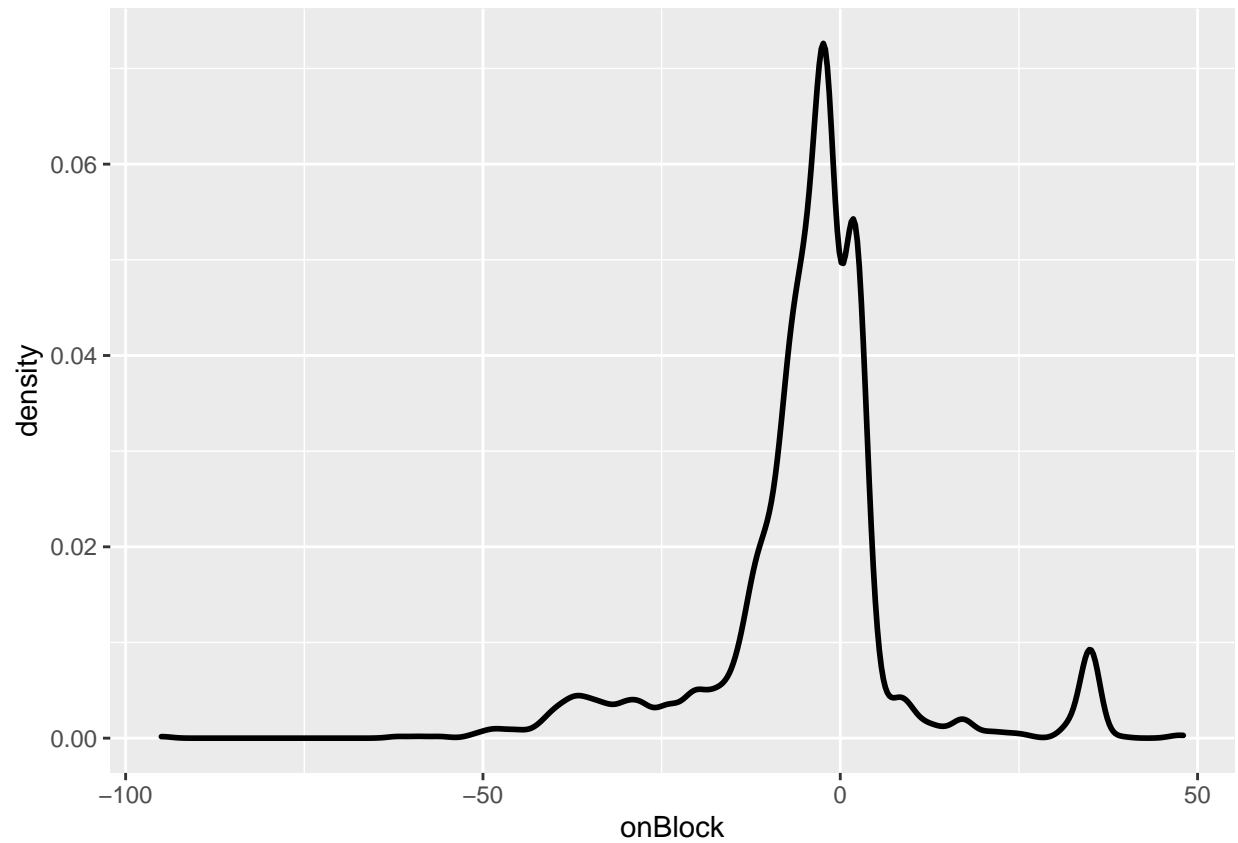
```
desc <- function(variable) {
  sprintf(
    "Median: %.2f | Mean: %.2f | Standard deviation: %.2f",
    median(variable),
    mean(variable),
    sd(variable)
  )
}
```

```
desc(df$onBlock)
```

```
## [1] "Median: -3.00 | Mean: -4.43 | Standard deviation: 13.31"
```

```
# user will be able to adjust bandwidth with slider
```

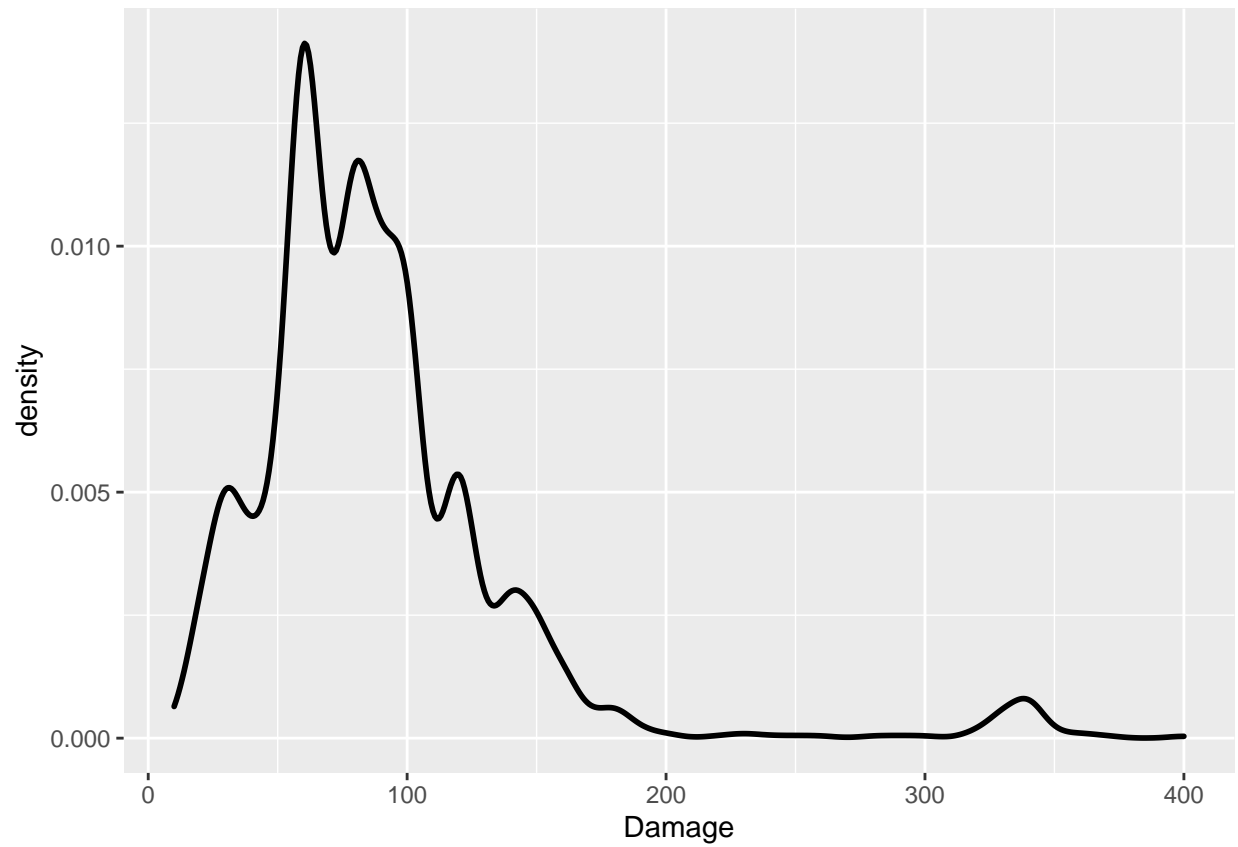
```
ggplot(df, aes(onBlock)) +
  geom_density(adjust = 1, linewidth = 1, lineend = "round")
```



```
desc(df$Damage)
```

```
## [1] "Median: 80.00 | Mean: 88.20 | Standard deviation: 51.90"
```

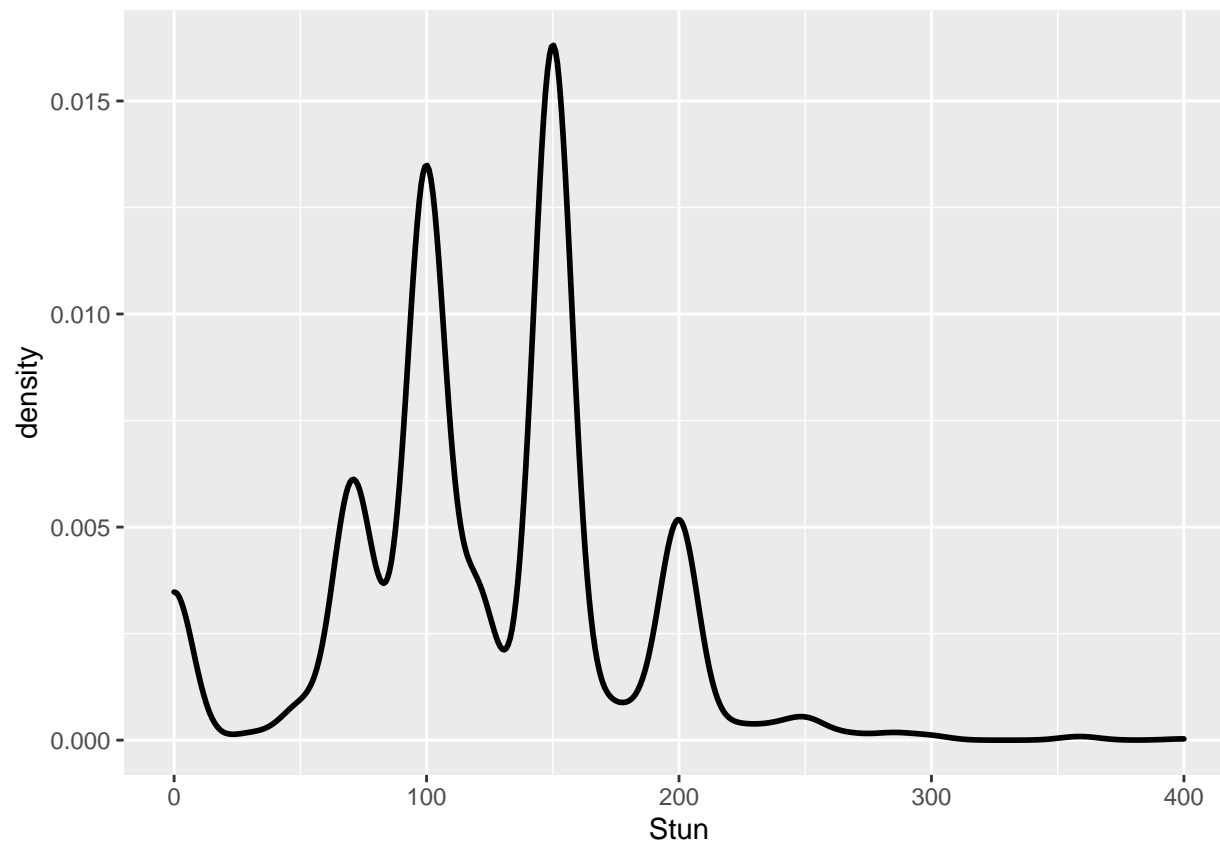
```
ggplot(df, aes(Damage)) +  
  geom_density(adjust = 1, linewidth = 1, lineend = "round")
```



```
desc(df$Stun)
```

```
## [1] "Median: 120.00 | Mean: 122.21 | Standard deviation: 55.35"
```

```
ggplot(df, aes(Stun)) +  
  geom_density(adjust = 1, linewidth = 1, lineend = "round")
```



Attacks for each character

```
library(tidyverse)
```

Putting it all together

```
character_info <- function(datafile, char_name, img_path, kde_color) {
  df <- read.csv(datafile, stringsAsFactors = FALSE)

  # h1(char_name)
  # Counterclockwise on grid starting here, top left: display image
  # img(src = img_path)

  # Bottom left: KDEs
  desc <- function(variable) {
    sprintf(
      "Median: %.2f | Mean: %.2f | Standard deviation: %.2f",
      median(variable),
      mean(variable),
      sd(variable)
    )
  }

  print(desc(df$onBlock))
  # user will be able to adjust bandwidth with slider
```

```

print(ggplot(df, aes(onBlock)) +
  geom_density(
    alpha = 0.2, adjust = 1, linewidth = 1.6,
    lineend = "round", fill = kde_color, color = kde_color
  ))

print(desc(df$Damage))
print(ggplot(df, aes(Damage)) +
  geom_density(
    alpha = 0.2, adjust = 1, linewidth = 1.6,
    lineend = "round", fill = kde_color, color = kde_color
  ))

print(desc(df$Stun))
print(ggplot(df, aes(Stun)) +
  geom_density(
    alpha = 0.2, adjust = 1, linewidth = 1.6,
    lineend = "round", fill = kde_color, color = kde_color
  ))

# Bottom right: all attack attributes (9 columns)
print(head(df[c(1:7, 18:19)])) # head only temporary to see if working

# Top right: all character facts (10 columns but printed row-wise)
print(t(df[1, 8:17])) # same idea as earlier
}

```

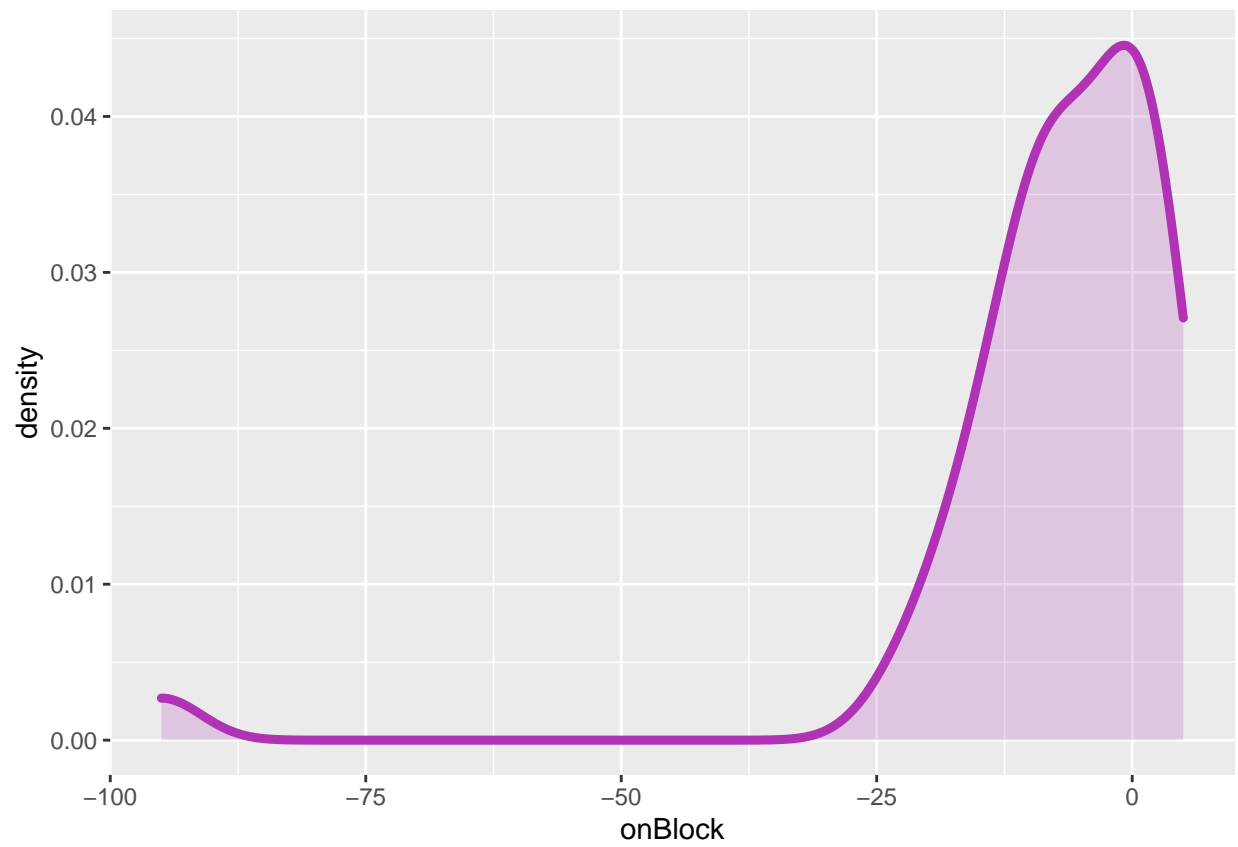
Let's test em out

```

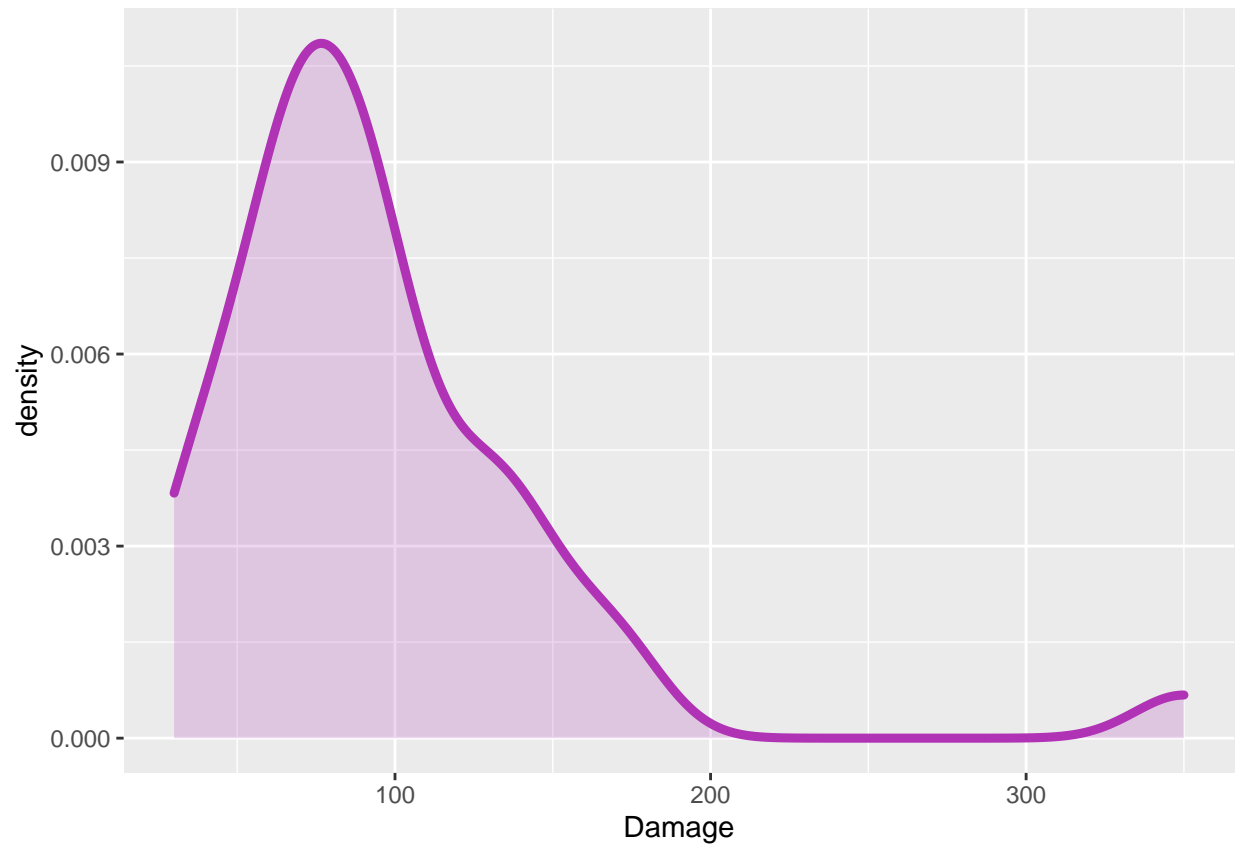
# used Pika app to pick colors from images
character_info(
  "data/characters/abigail.csv",
  "Abigail",
  "img/abigail.png",
  "#af33b4"
)

```

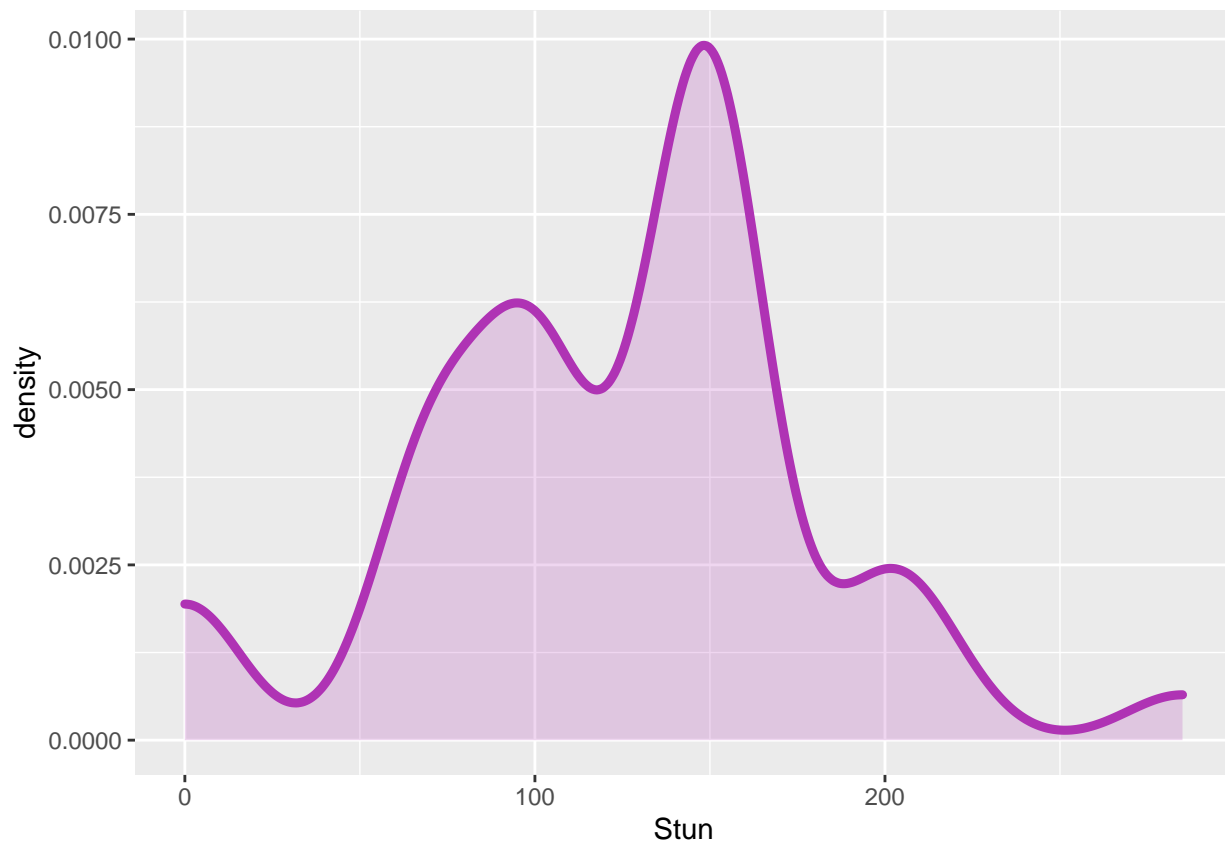
```
## [1] "Median: -6.00 | Mean: -7.92 | Standard deviation: 16.17"
```

```
## [1] "Median: 85.00 | Mean: 94.87 | Standard deviation: 56.00"
```



```
## [1] "Median: 141.50 | Mean: 123.32 | Standard deviation: 59.13"
```

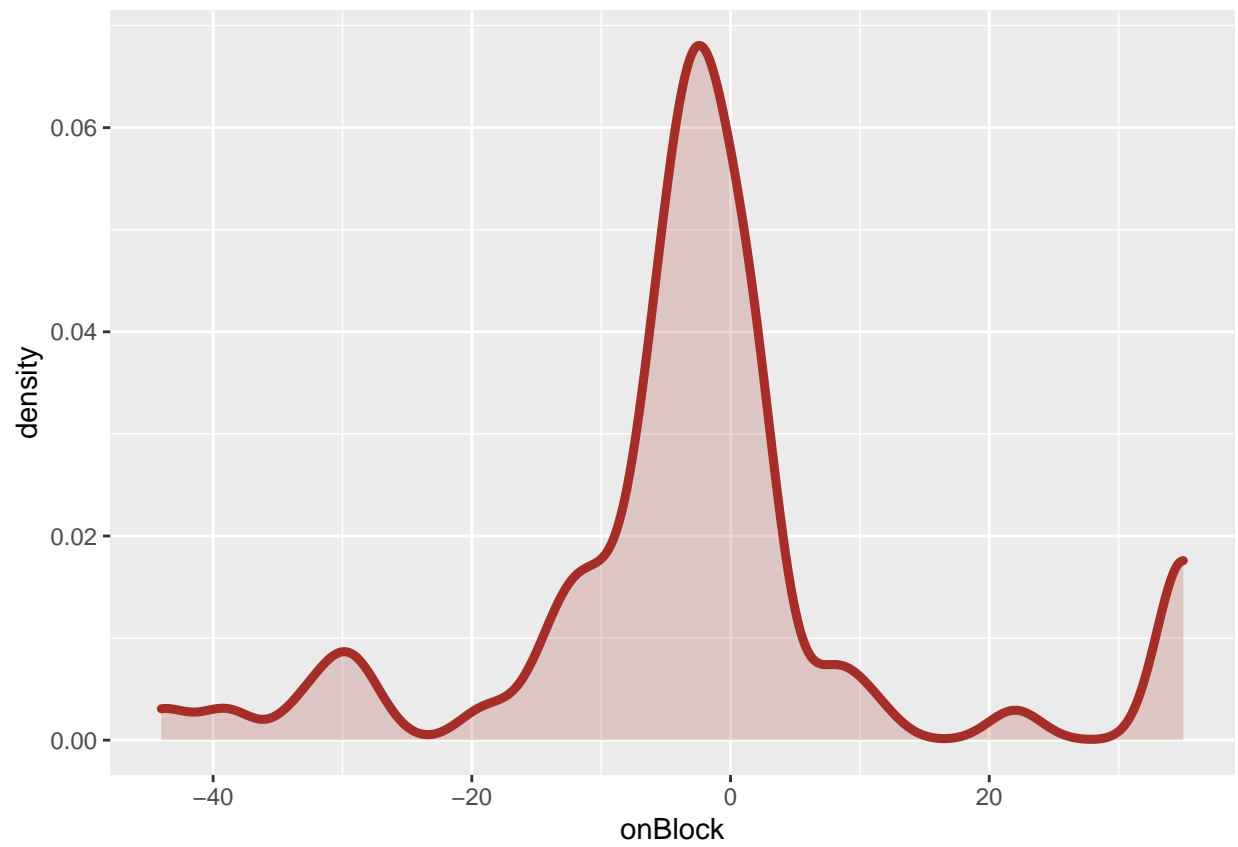


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False   False   normal    40   70
## 2 Stand MP      5      MP   False   False   False   normal    70  100
## 3 Stand HP     -3      HP   False   False   False   normal    90  150
## 4 Stand LK      3      LK   False   False   False   normal    50   70
## 5 Stand MK      0      MK   False   False   False   normal    80  100
## 6 Stand HK     -8      HK   False   False   False   normal    90  150
```

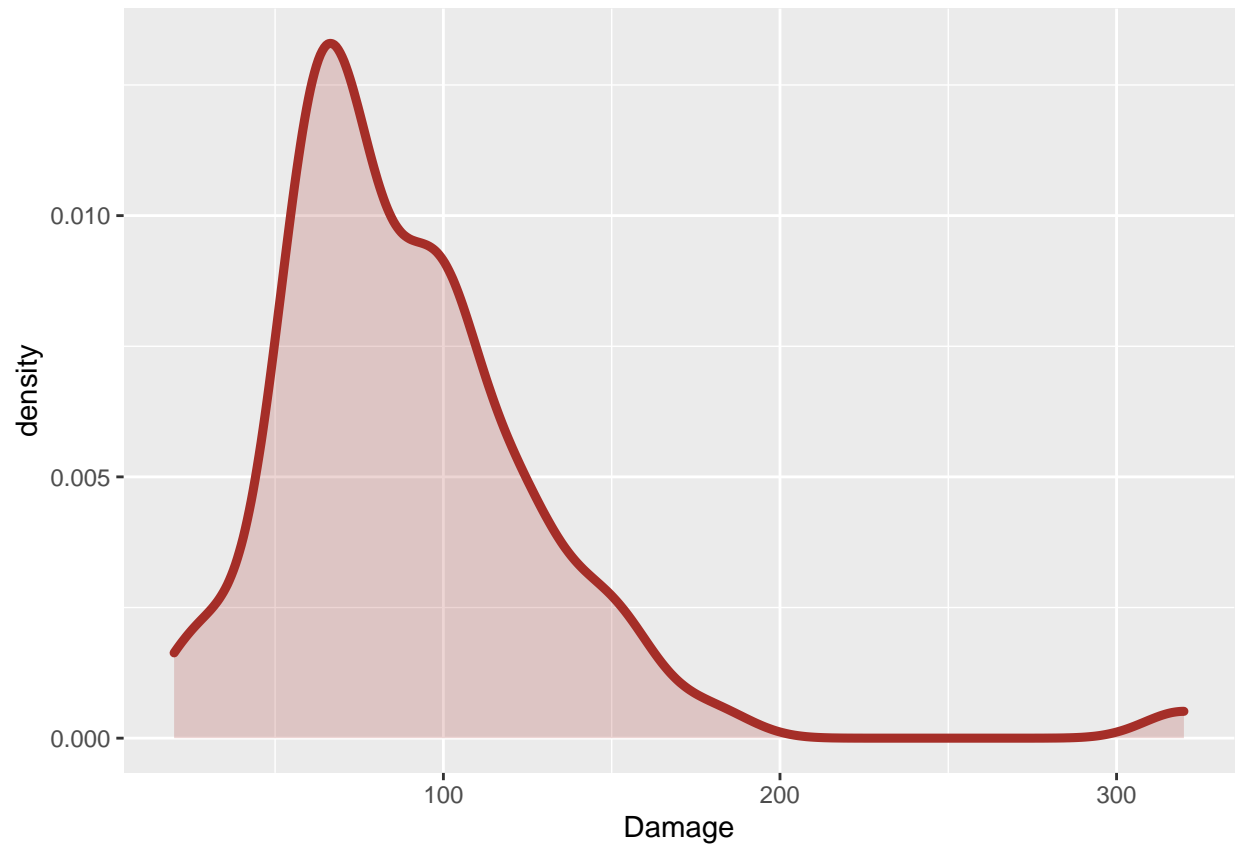
```
##      1
## health    1100.000
## stun      1050.000
## vgaugel    900.000
## vgaugel2   900.000
## fDash      25.000
## bDash      25.000
## fWalk      0.032
## bWalk      0.025
## throwHurt   0.400
## throwRange 0.900
```

```
character_info(
  "data/characters/akuma.csv",
  "Akuma",
  "img/akuma.png",
  "#a52e28"
)
```

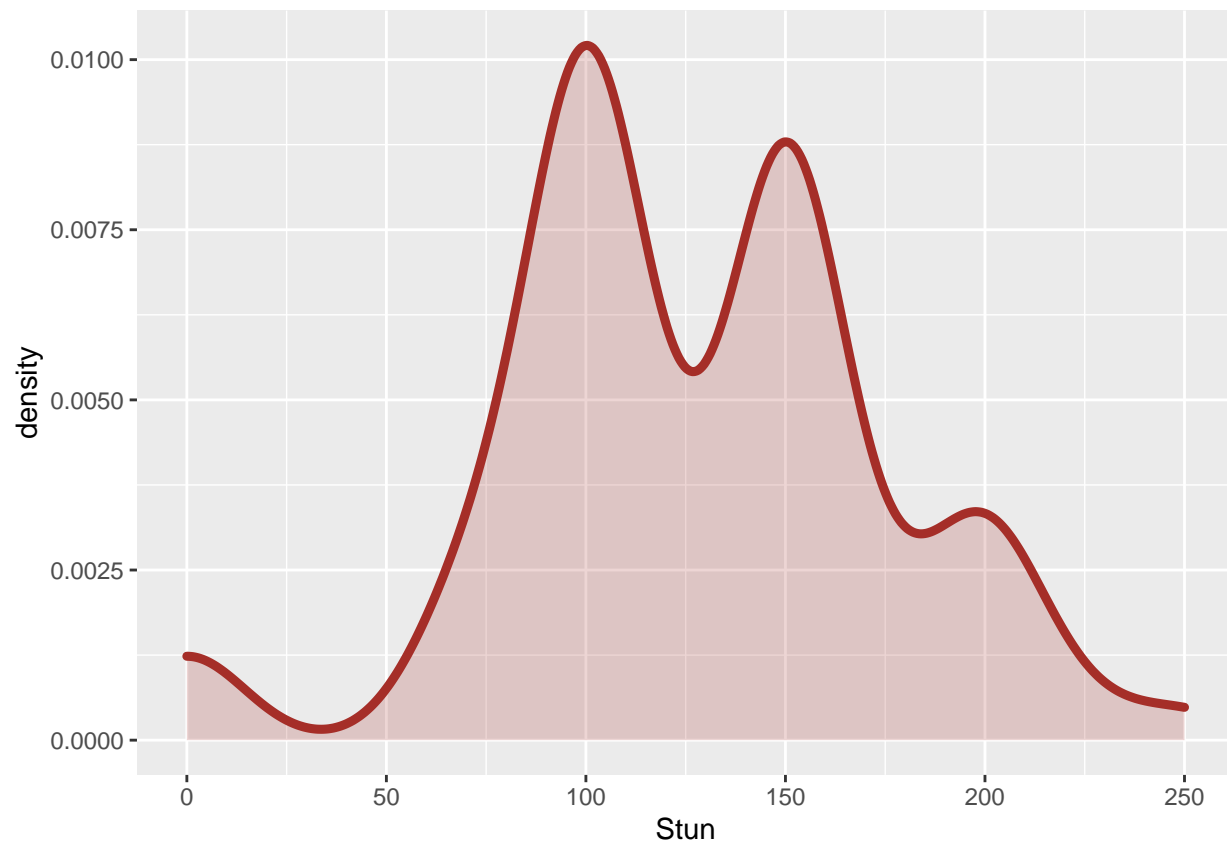
```
## [1] "Median: -2.00 | Mean: -2.03 | Standard deviation: 15.99"
```



```
## [1] "Median: 80.00 | Mean: 90.28 | Standard deviation: 43.72"
```



```
## [1] "Median: 120.00 | Mean: 127.09 | Standard deviation: 49.38"
```

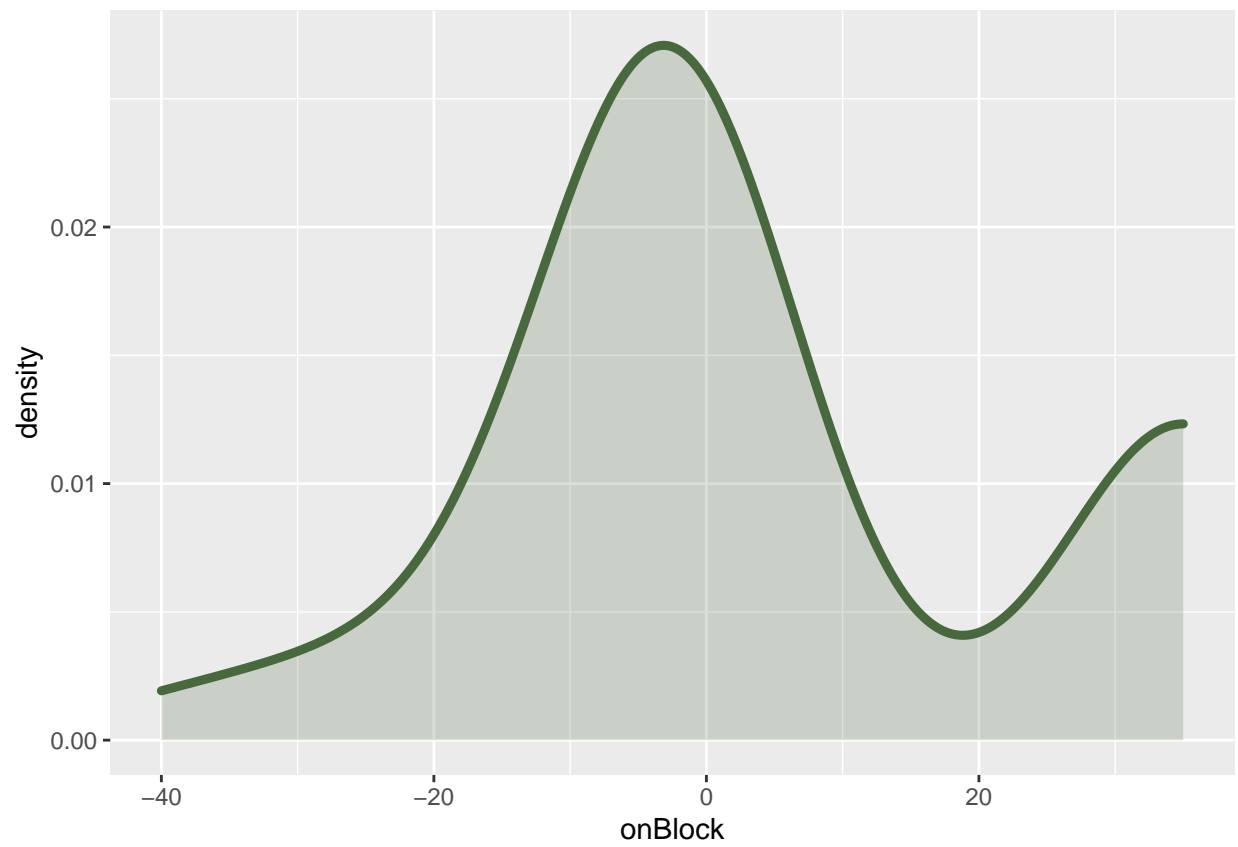


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2    LP   False   False   False   normal    30   70
## 2 Stand MP      1    MP   False   False   False   normal    60  100
## 3 Stand HP     -5    HP   False   False   False   normal    80  150
## 4 Stand LK      1    LK   False   False   False   normal    30   70
## 5 Stand MK     -4    MK   False   False   False   normal    60  100
## 6 Stand HK     -2    HK   False   False   False   normal    80  120
```

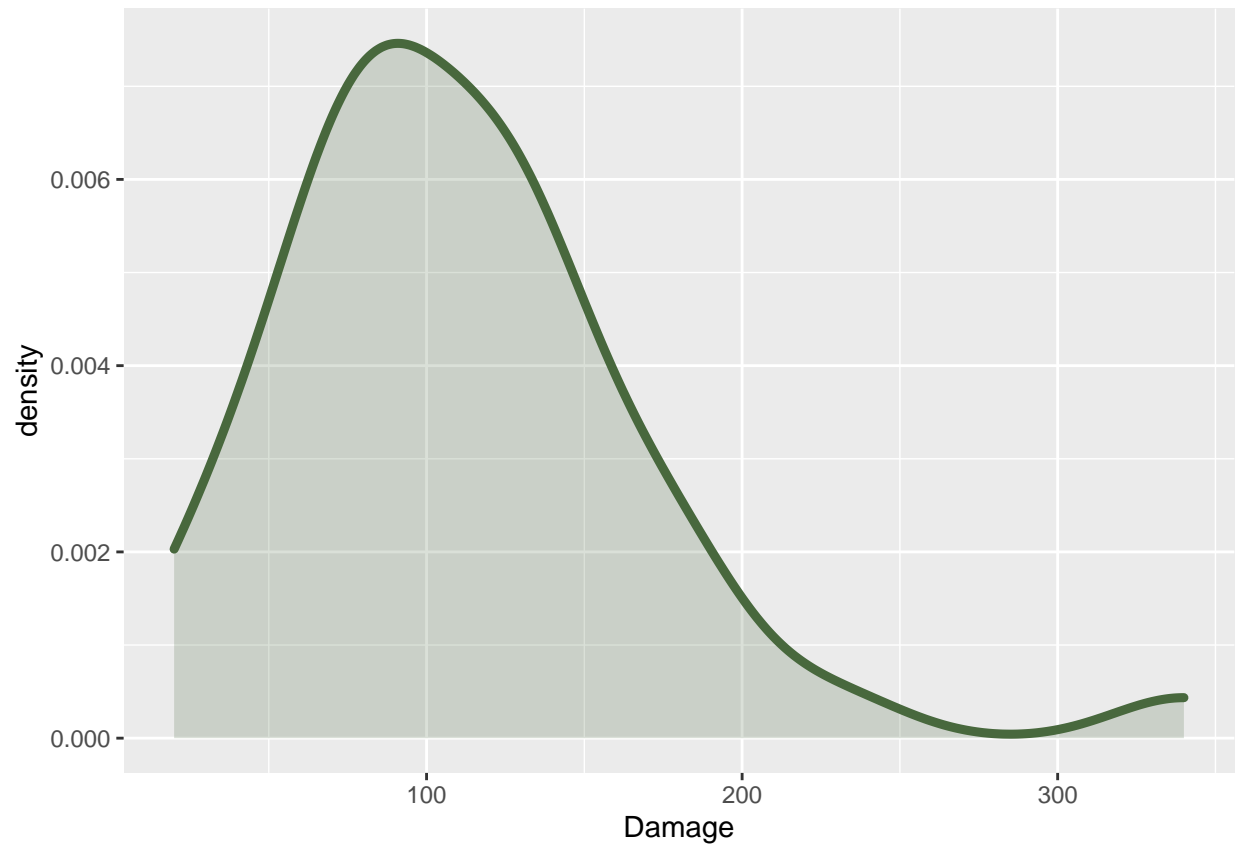
```
##      1
## health    900.000
## stun      900.000
## vgaugel    900.000
## vgaugel2   600.000
## fDash      16.000
## bDash      21.000
## fWalk       0.052
## bWalk       0.036
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/alex.csv",
  "Alex",
  "img/alex.png",
  "#48683d"
)
```

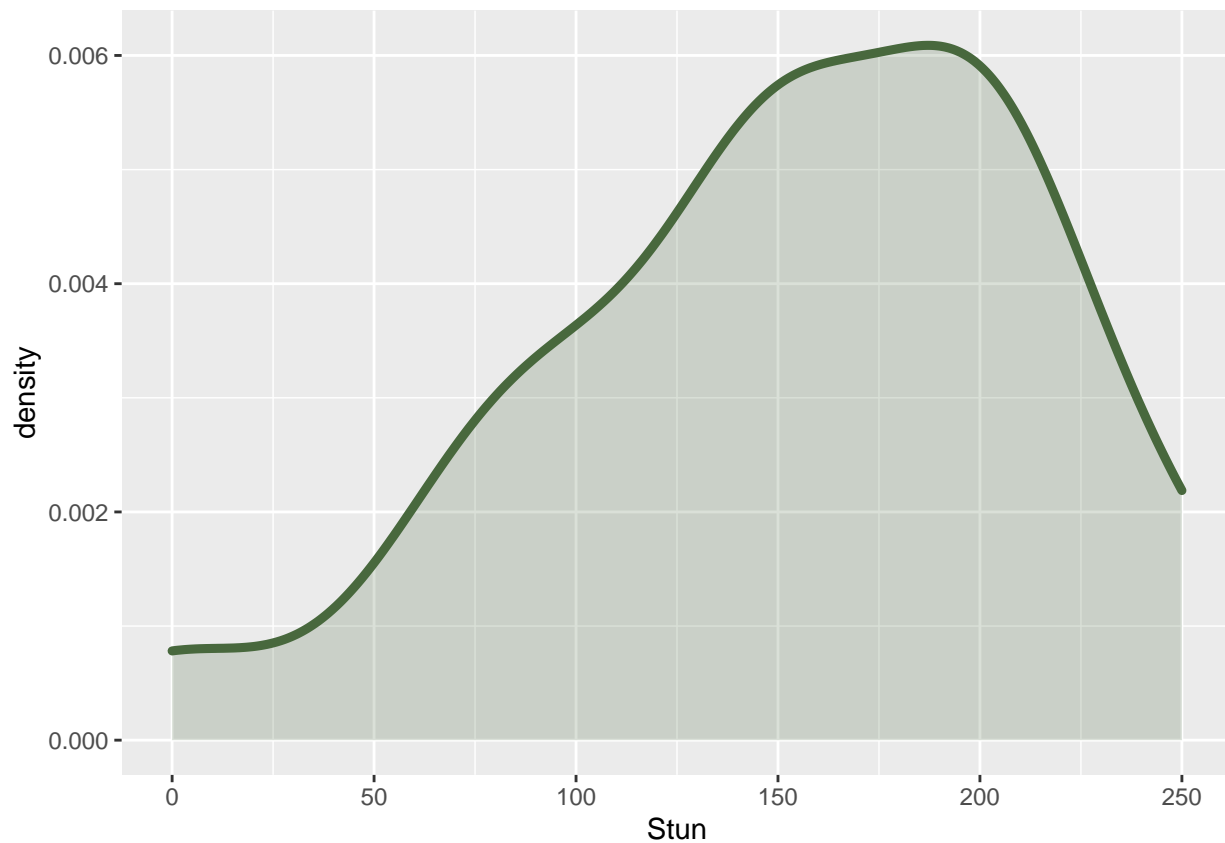
```
## [1] "Median: -2.00 | Mean: 4.83 | Standard deviation: 20.29"
```



```
## [1] "Median: 100.00 | Mean: 111.46 | Standard deviation: 59.40"
```



```
## [1] "Median: 150.00 | Mean: 153.17 | Standard deviation: 61.74"
```

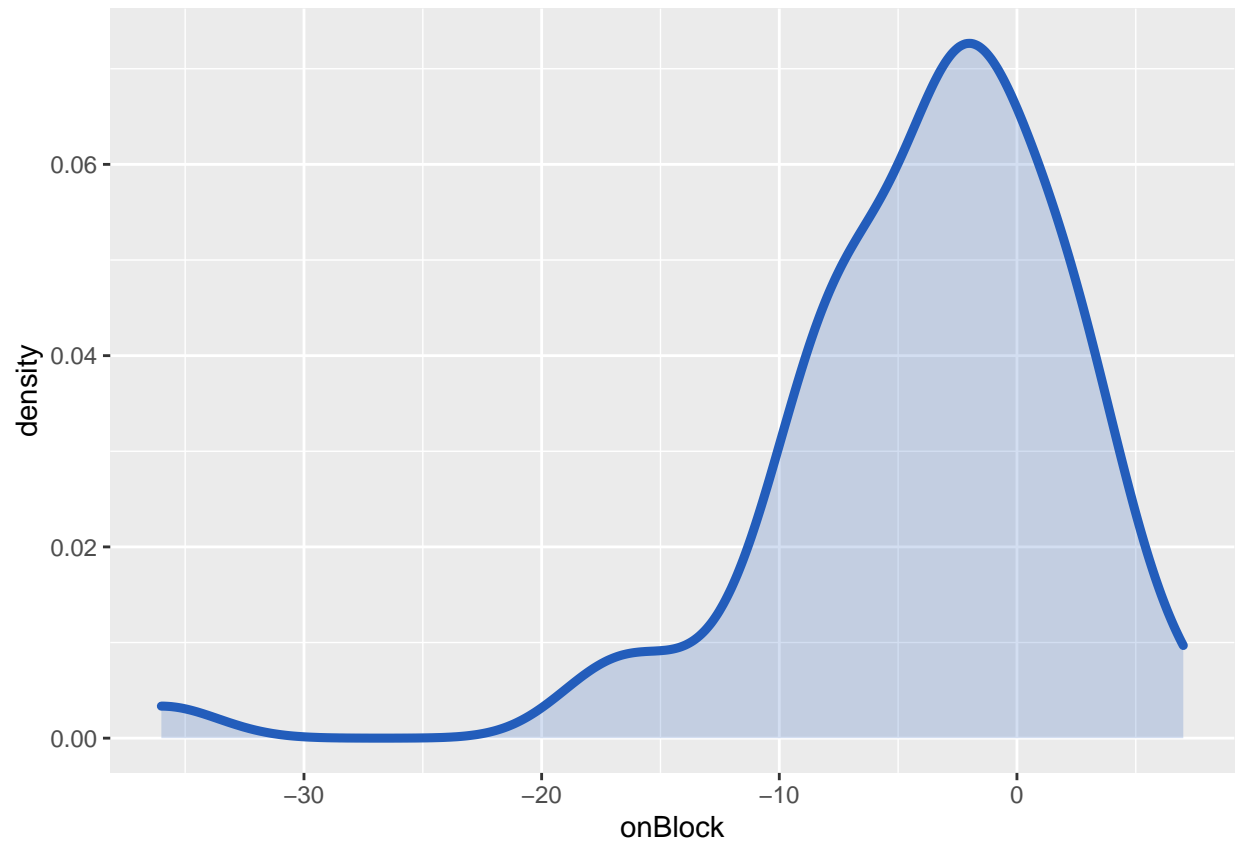



```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -3      HP   False   False      False   normal    90  150
## 4 Stand LK      0      LK   False   False      False   normal    40   70
## 5 Stand MK     -2      MK   False   False      False   normal    70  100
## 6 Stand HK     -4      HK   False   False      False   normal   100  150
```

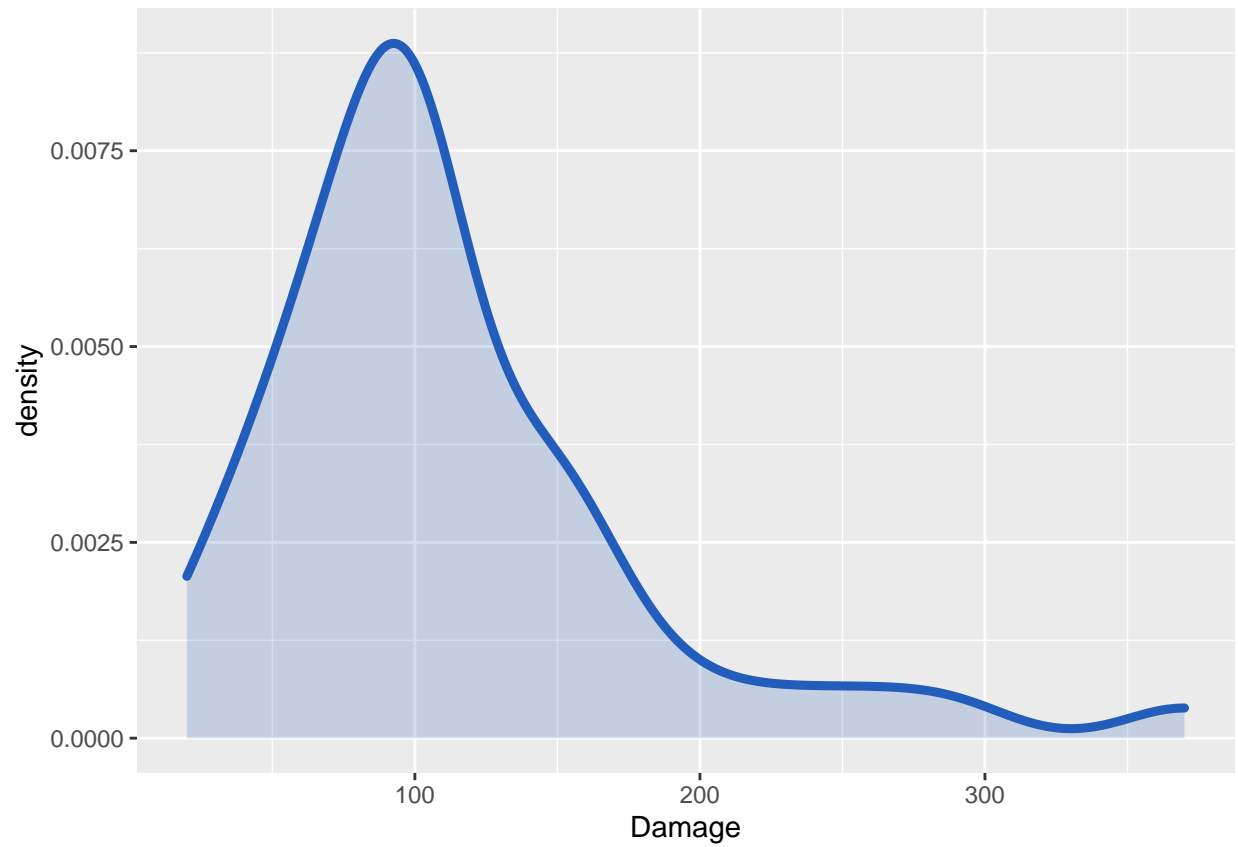
```
##      1
## health    1050.000
## stun      1075.000
## vgaugel    600.000
## vgaugel2   600.000
## fDash      19.000
## bDash      24.000
## fWalk      0.040
## bWalk      0.035
## throwHurt   0.450
## throwRange 1.000
```

```
character_info(
  "data/characters/balrog.csv",
  "Balrog",
  "img/balrog.png",
  "#235dbb"
)
```

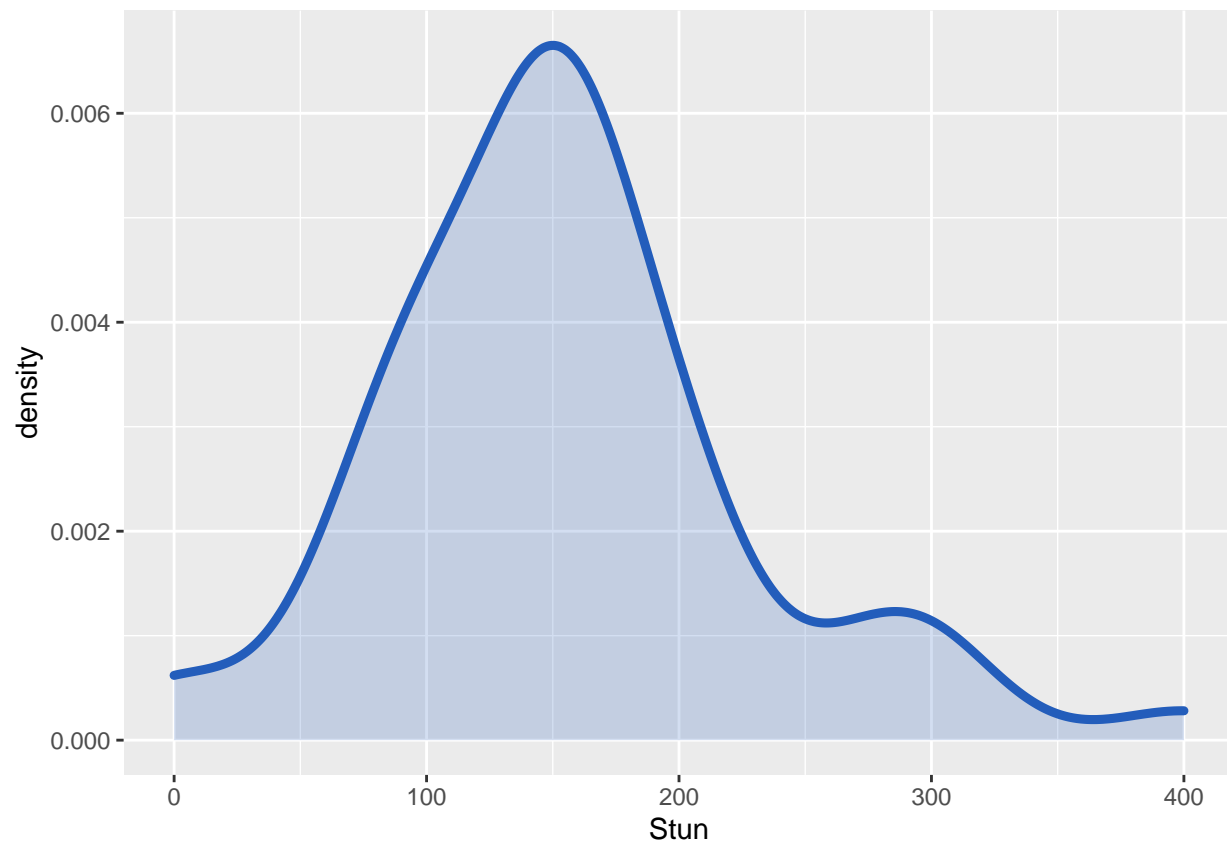
```
## [1] "Median: -2.00 | Mean: -4.10 | Standard deviation: 6.92"
```



```
## [1] "Median: 100.00 | Mean: 112.30 | Standard deviation: 66.97"
```



```
## [1] "Median: 150.00 | Mean: 155.40 | Standard deviation: 74.45"
```

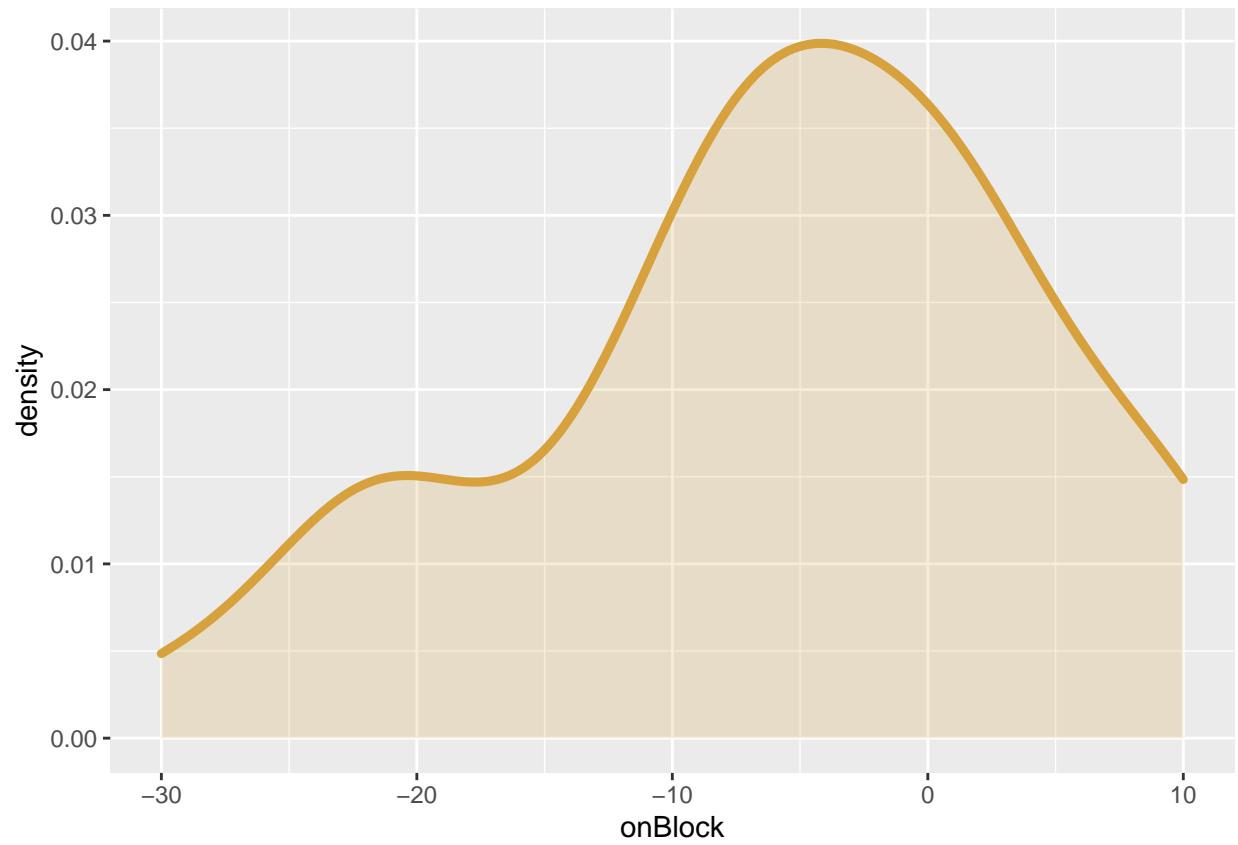


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False   False      False  normal   30   70
## 2 Stand MP      0      MP  False   False      False  normal   70  100
## 3 Stand HP     -3      HP  False   False      False  normal   80  150
## 4 Stand LK      1      LK  False   False      False  normal   30   70
## 5 Stand MK      2      MK  False   False      False  normal   60  100
## 6 Stand HK      3      HK  False   False      False  normal   80  150
```

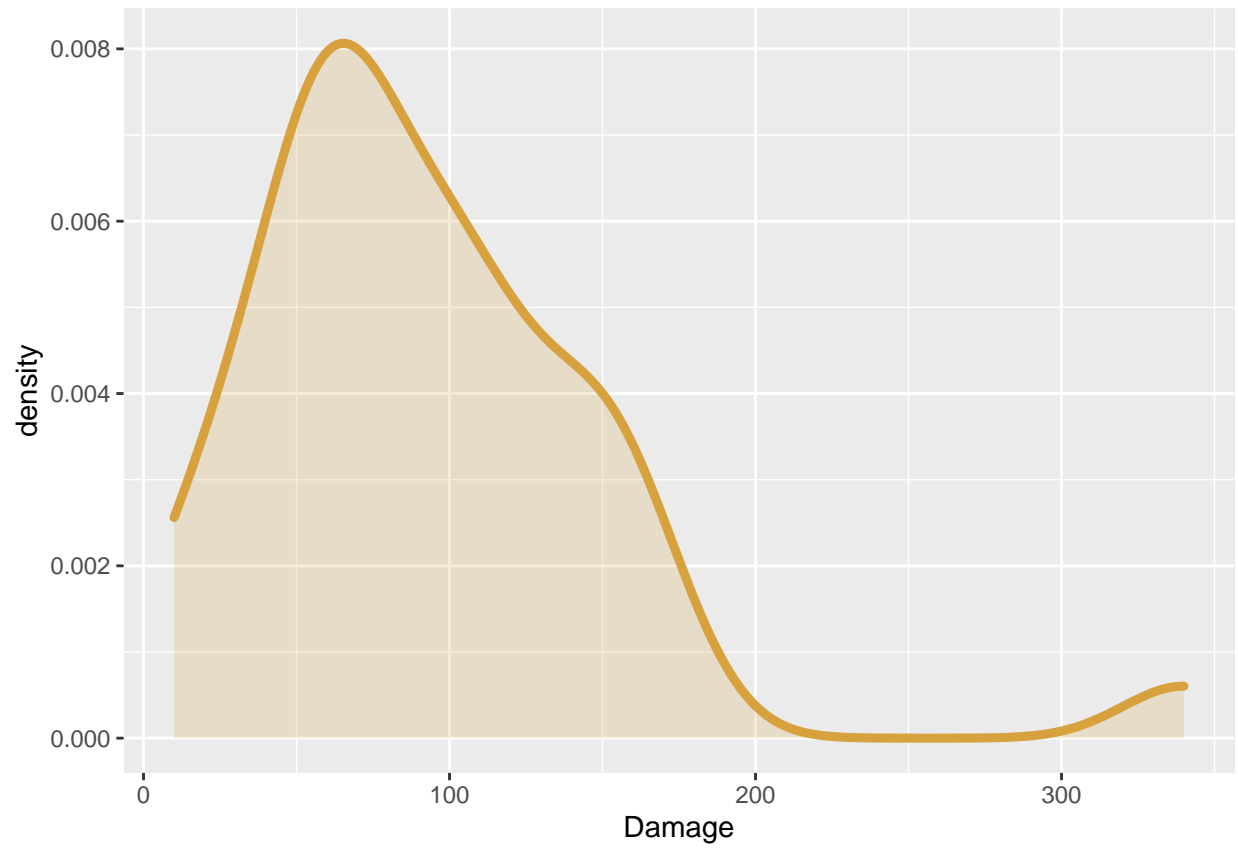
```
##      1
## health    1025.000
## stun      1050.000
## vgaugel    900.000
## vgaugel2   600.000
## fDash      17.000
## bDash      24.000
## fWalk      0.048
## bWalk      0.030
## throwHurt   0.350
## throwRange  0.850
```

```
character_info(
  "data/characters/birdie.csv",
  "Birdie",
  "img/birdie.png",
  "#d7a23e"
)
```

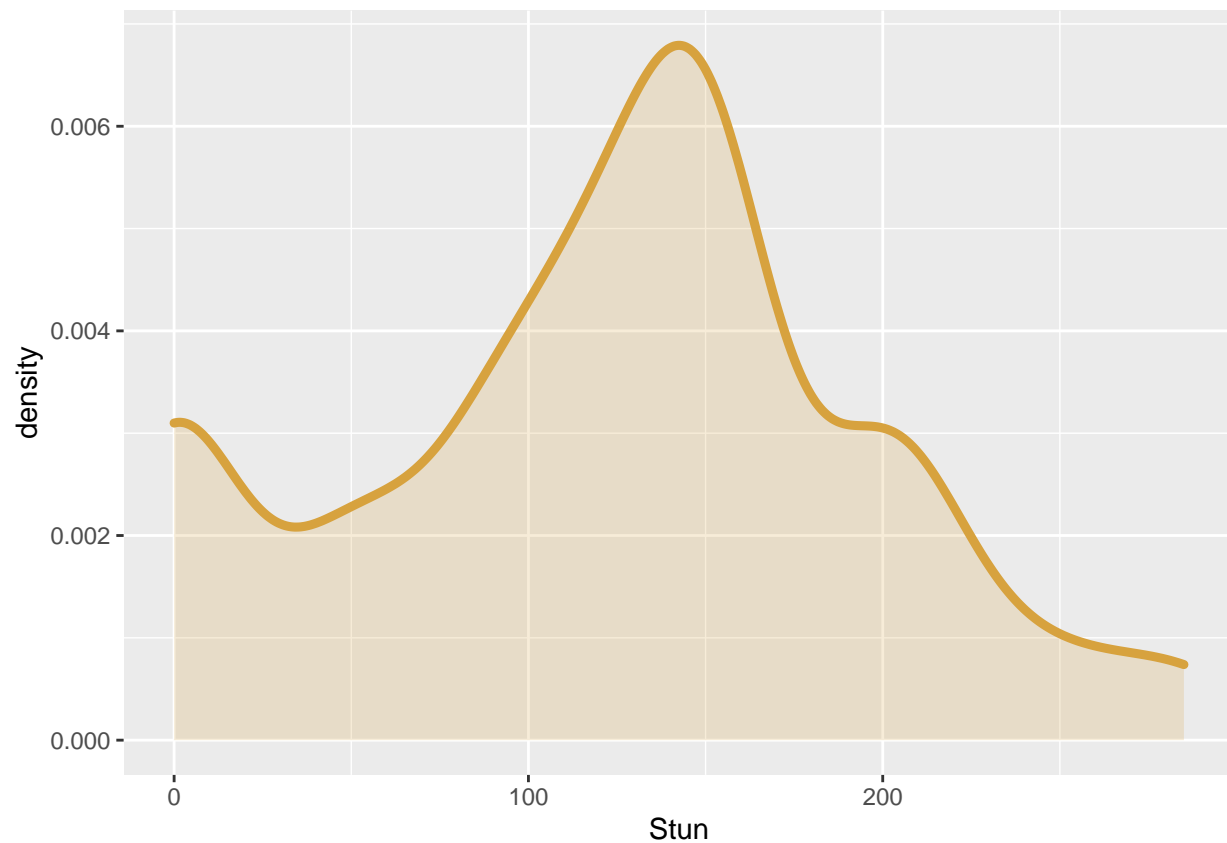
```
## [1] "Median: -5.00 | Mean: -5.91 | Standard deviation: 10.19"
```



```
## [1] "Median: 80.00 | Mean: 93.36 | Standard deviation: 62.02"
```



```
## [1] "Median: 120.00 | Mean: 121.67 | Standard deviation: 74.59"
```

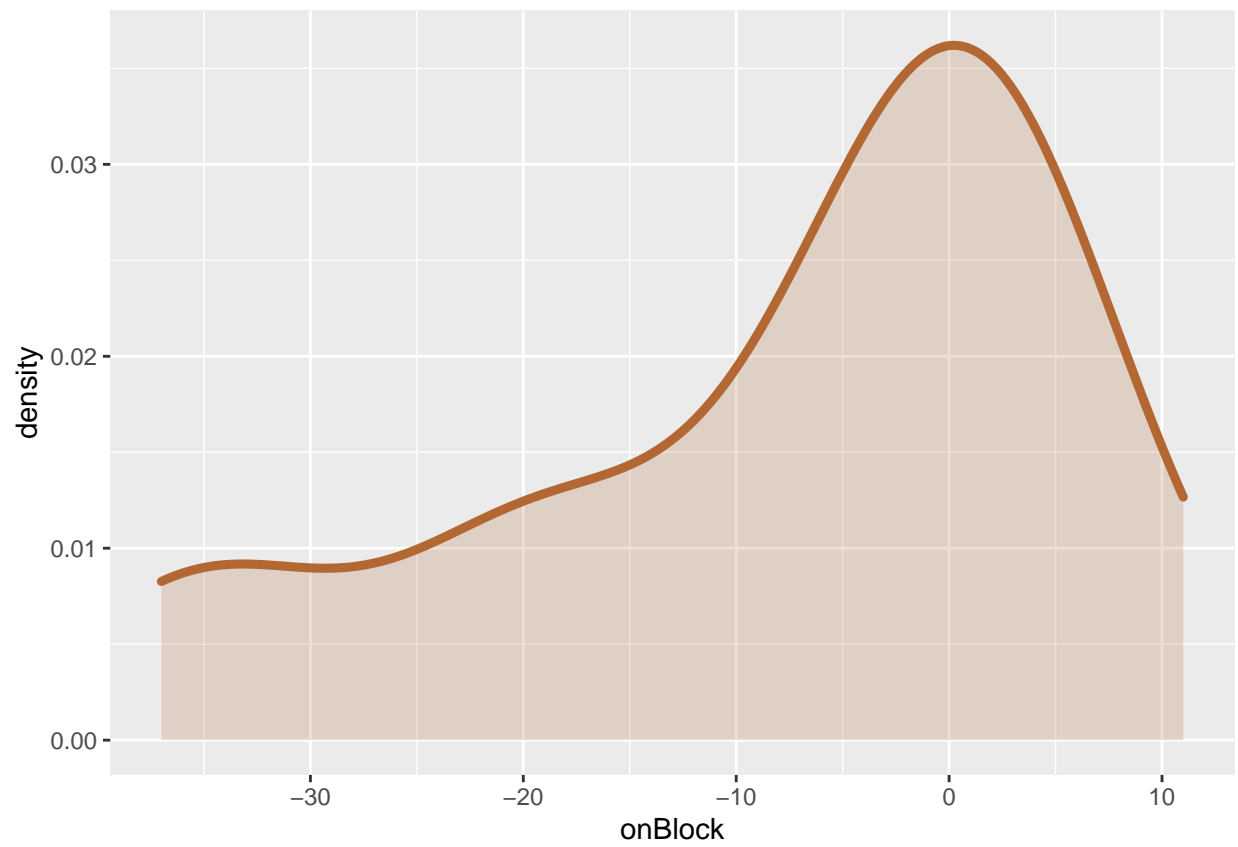


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    40   90
## 2 Stand MP      1      MP   False   False      False   normal    60  120
## 3 Stand HP     -6      HP   False   False      False   normal    90  150
## 4 Stand LK      3      LK   False   False      False   normal    30   90
## 5 Stand MK     -2      MK   False   False      False   normal    60  120
## 6 Stand HK      0      HK   False   False      False   normal   100  150
```

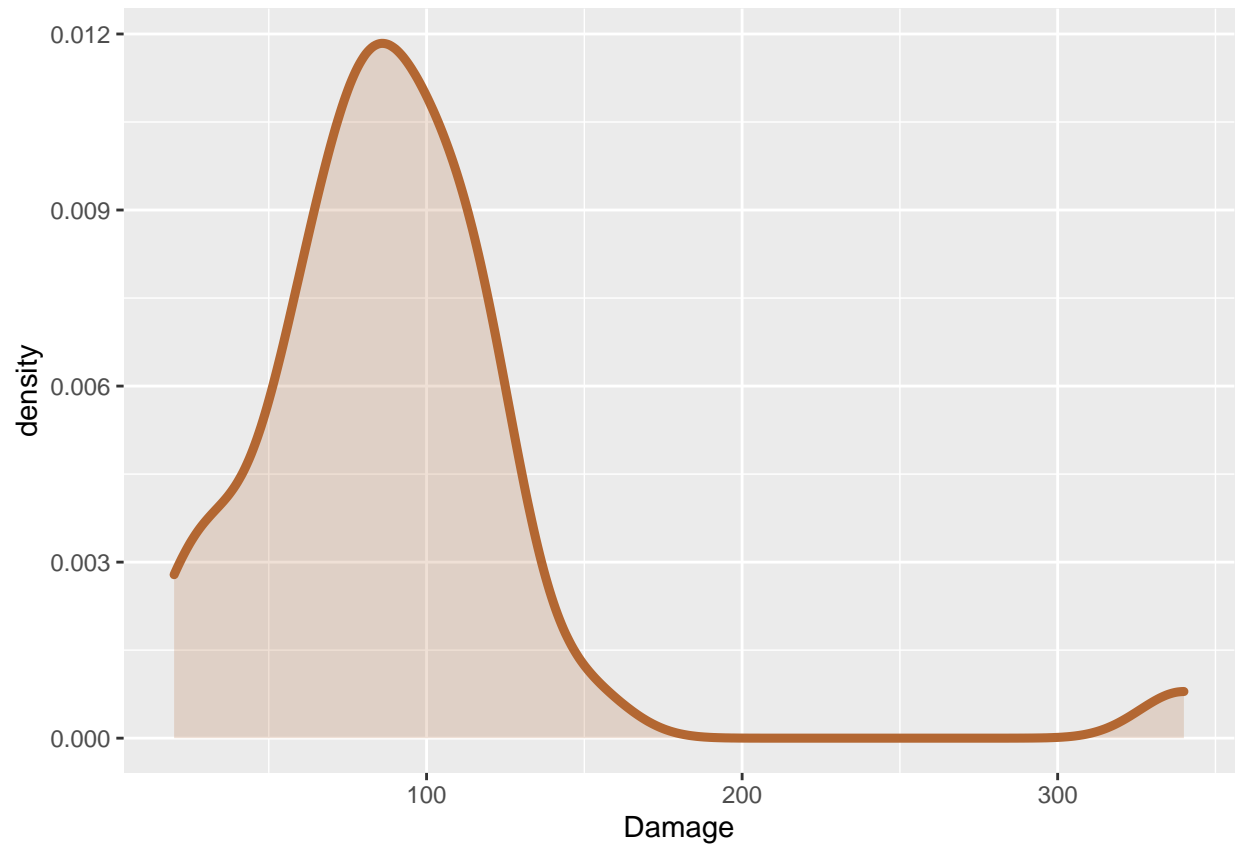
```
##      1
## health    1050.000
## stun      1000.000
## vgaugel    900.000
## vgaugel2   600.000
## fDash      23.000
## bDash      26.000
## fWalk       0.031
## bWalk       0.024
## throwHurt   0.300
## throwRange  0.900
```

```
character_info(
  "data/characters/blanka.csv",
  "Blanka",
  "img/blanka.png",
  "#b36732"
)
```

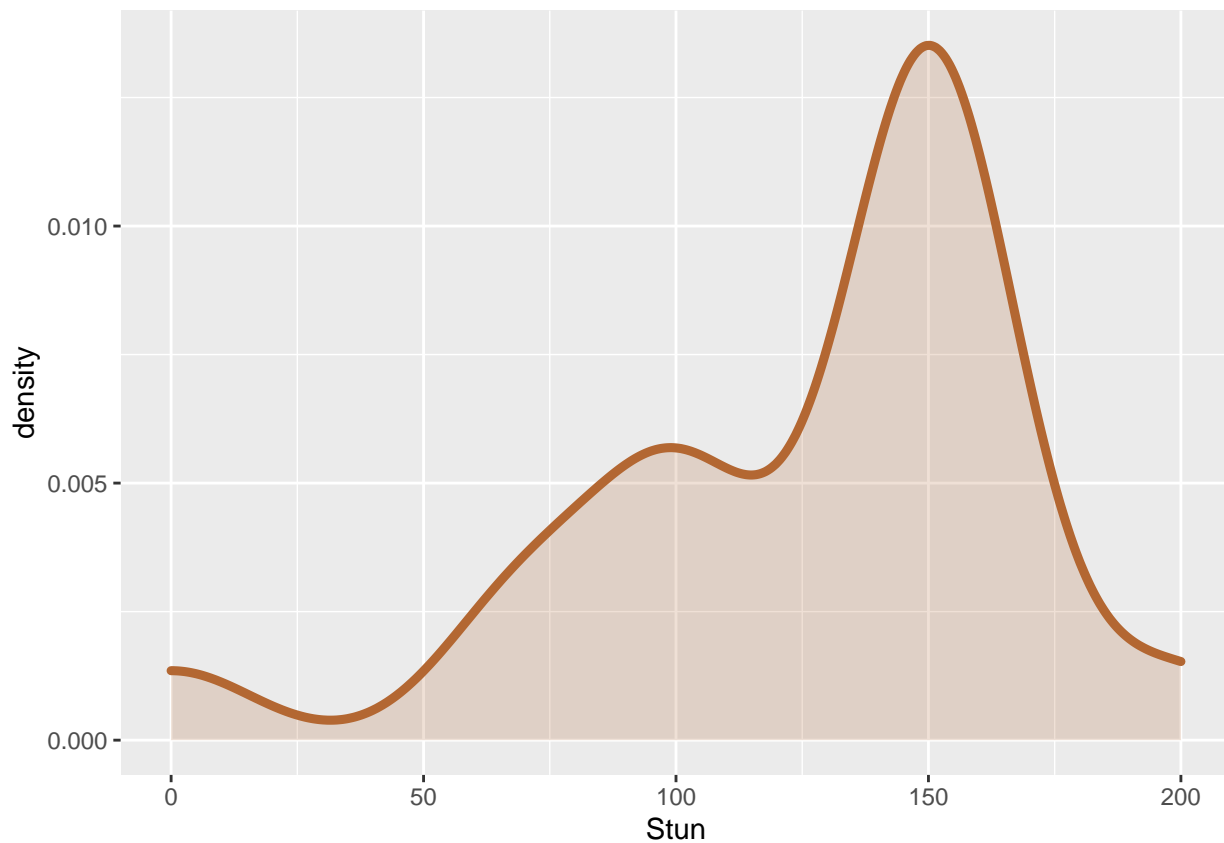
```
## [1] "Median: -3.00 | Mean: -8.08 | Standard deviation: 13.60"
```



```
## [1] "Median: 80.00 | Mean: 90.67 | Standard deviation: 52.14"
```

```
## [1] "Median: 150.00 | Mean: 125.36 | Standard deviation: 45.45"
```

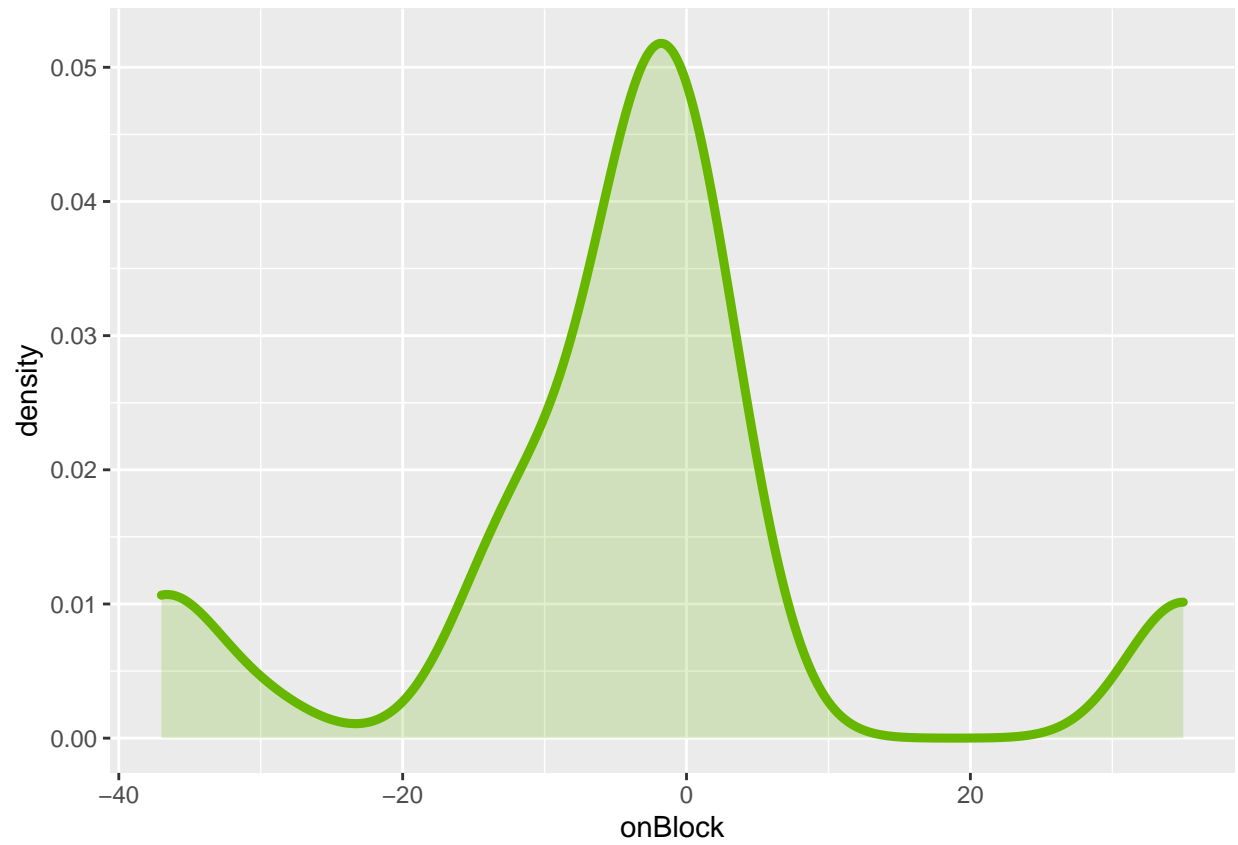


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False      False   normal    30   70
## 2 Stand MP      0      MP   False   False      False   normal    60  100
## 3 Stand HP     -6      HP   False   False      False   normal    80  150
## 4 Stand LK      3      LK   False   False      False   normal    30   70
## 5 Stand MK      2      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    80  150
```

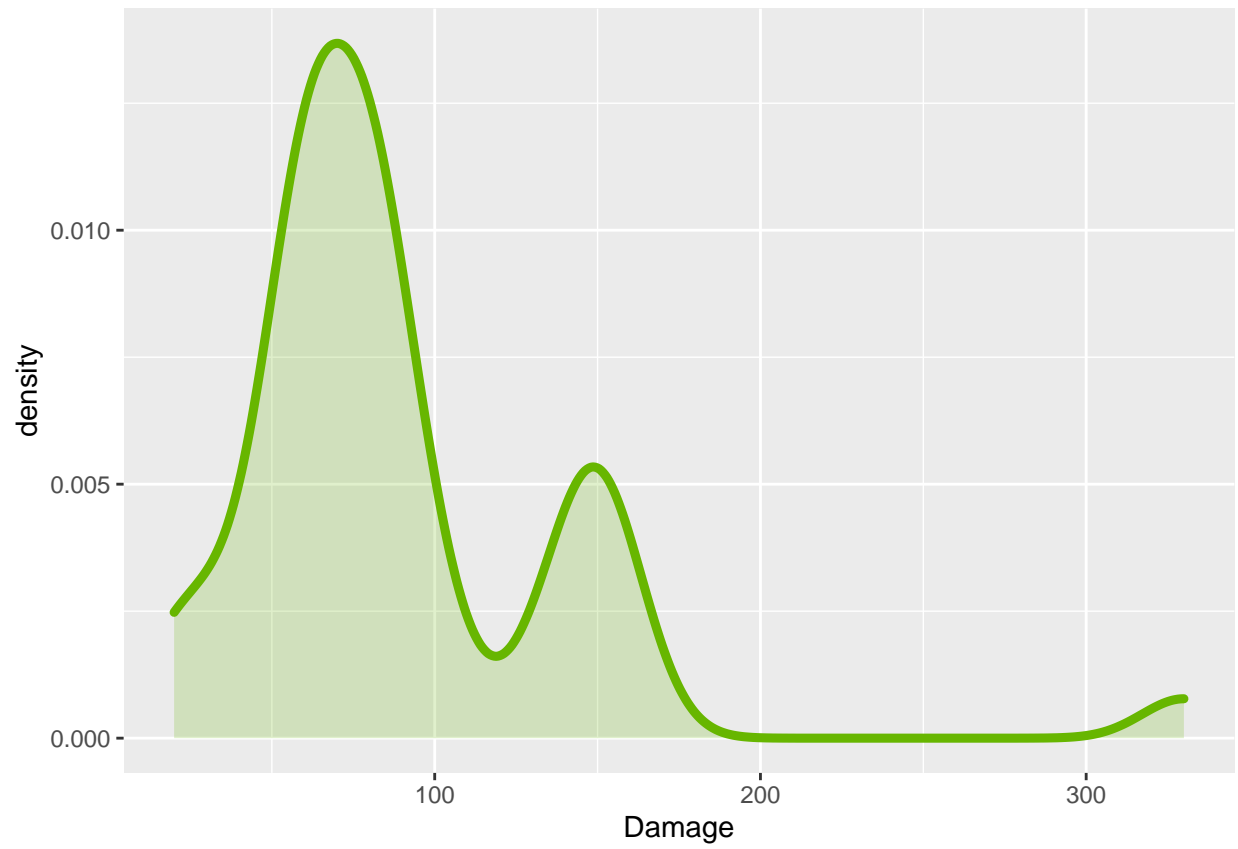
```
##      1
## health    1025.000
## stun      1050.000
## vgaugel    600.000
## vgaugel2   900.000
## fDash      16.000
## bDash      24.000
## fWalk       0.043
## bWalk       0.032
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/cammy.csv",
  "Cammy",
  "img/cammy.png",
  "#67b600"
)
```

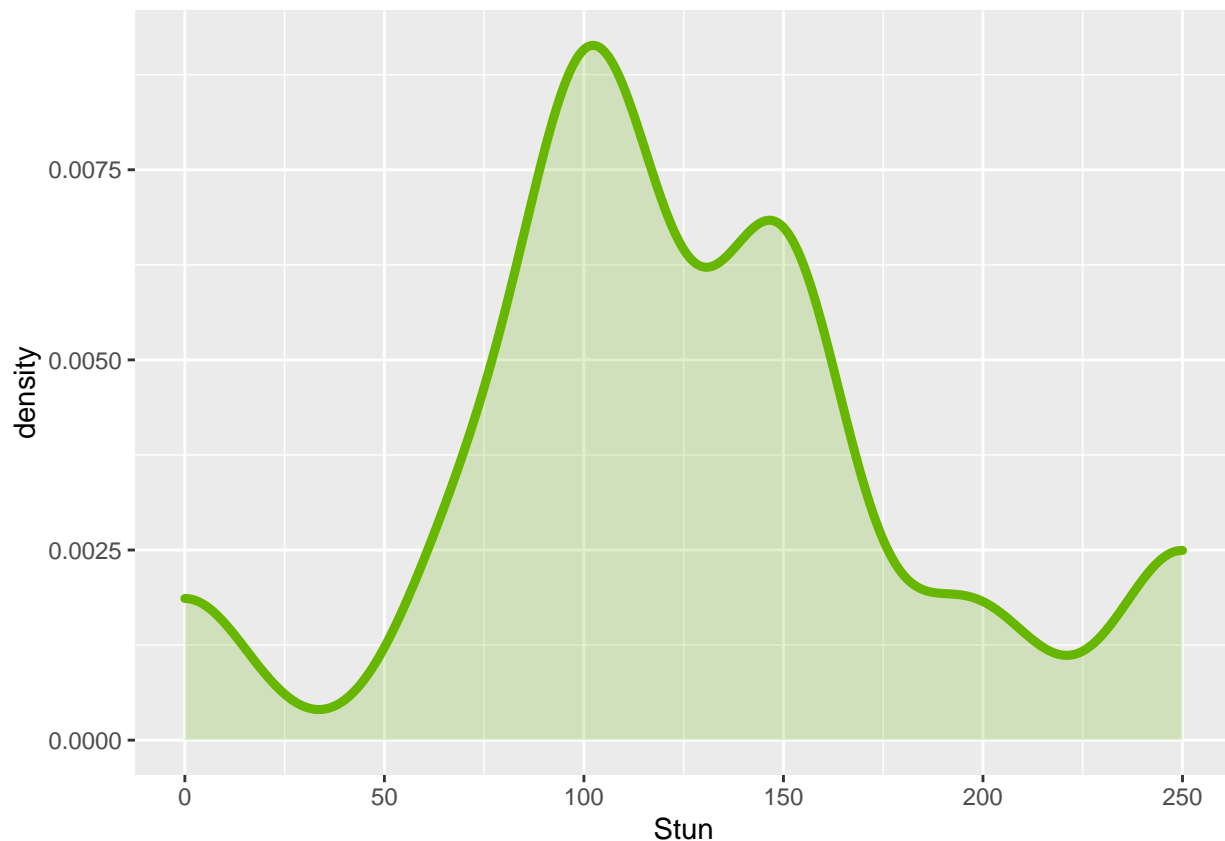
```
## [1] "Median: -2.00 | Mean: -3.80 | Standard deviation: 17.44"
```



```
## [1] "Median: 80.00 | Mean: 89.55 | Standard deviation: 54.01"
```



```
## [1] "Median: 120.00 | Mean: 126.25 | Standard deviation: 62.17"
```

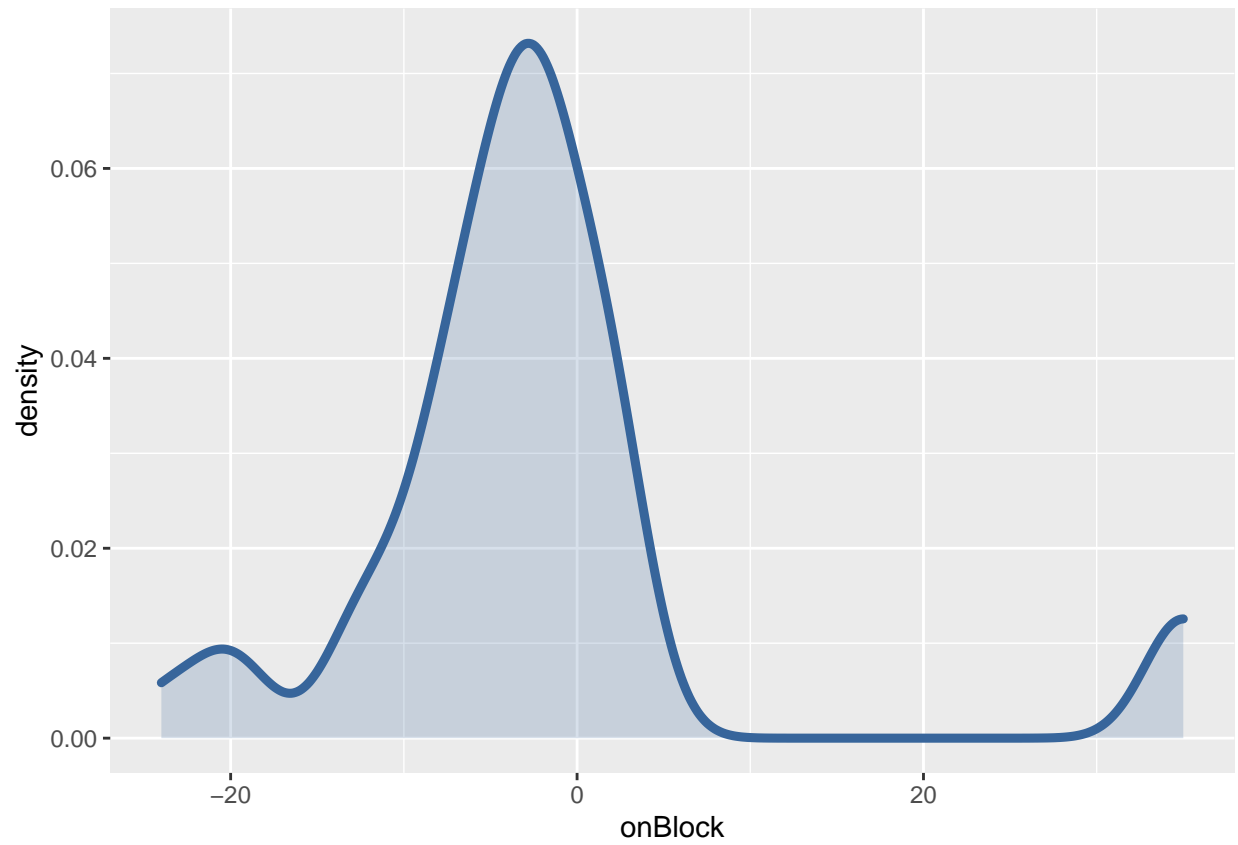


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False     False   normal    30   70
## 2 Stand MP      3      MP   False   False     False   normal    60  100
## 3 Stand HP     -3      HP   False   False     False   normal    80  150
## 4 Stand LK      1      LK   False   False     False   normal    40   70
## 5 Stand MK     -2      MK   False   False     False   normal    60  100
## 6 Stand HK     -2      HK   False   False     False   normal    90  150
```

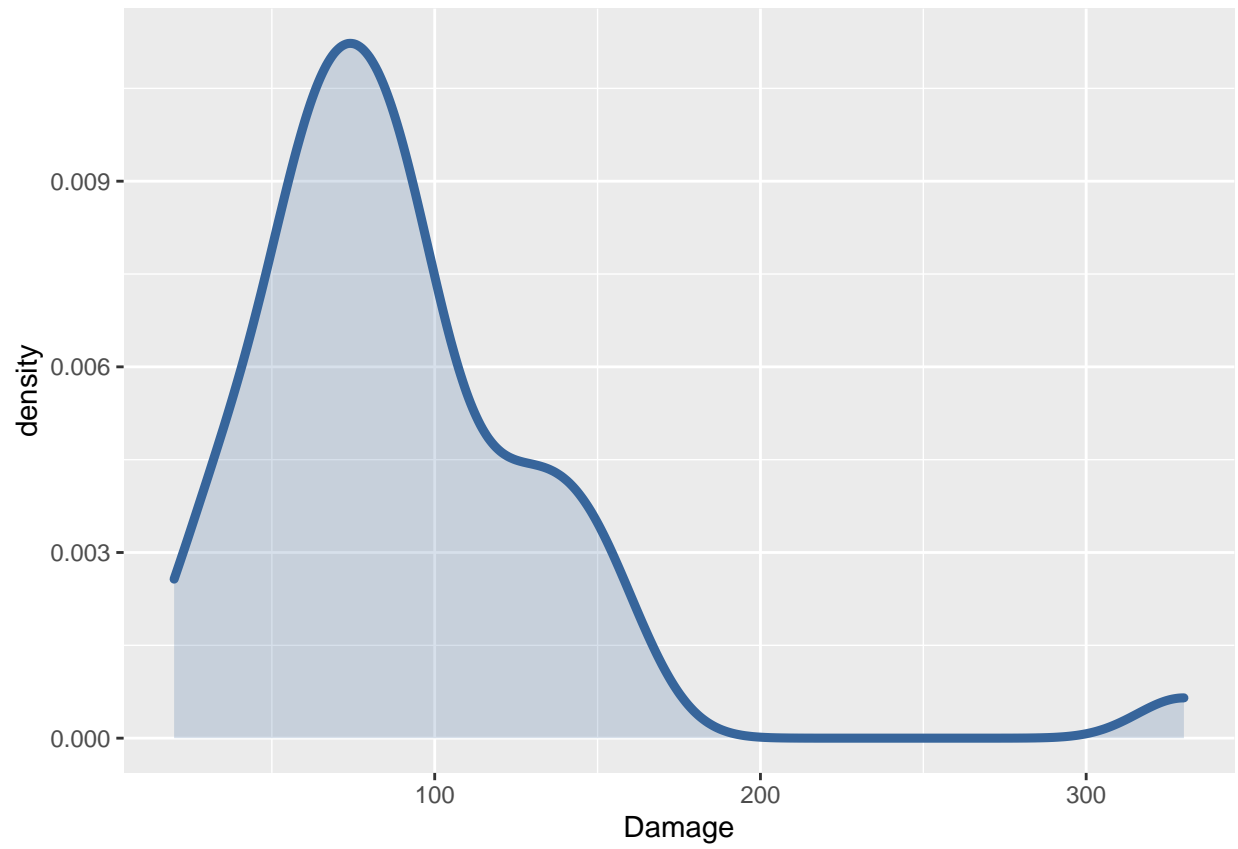
```
##      1
## health    925.00
## stun      925.00
## vgaugel   600.00
## vgaugel2  600.00
## fDash     16.00
## bDash     21.00
## fWalk      0.05
## bWalk      0.04
## throwHurt  0.25
## throwRange 0.80
```

```
character_info(
  "data/characters/chun-li.csv",
  "Chun-Li",
  "img/chun-li.png",
  "#37659b"
)
```

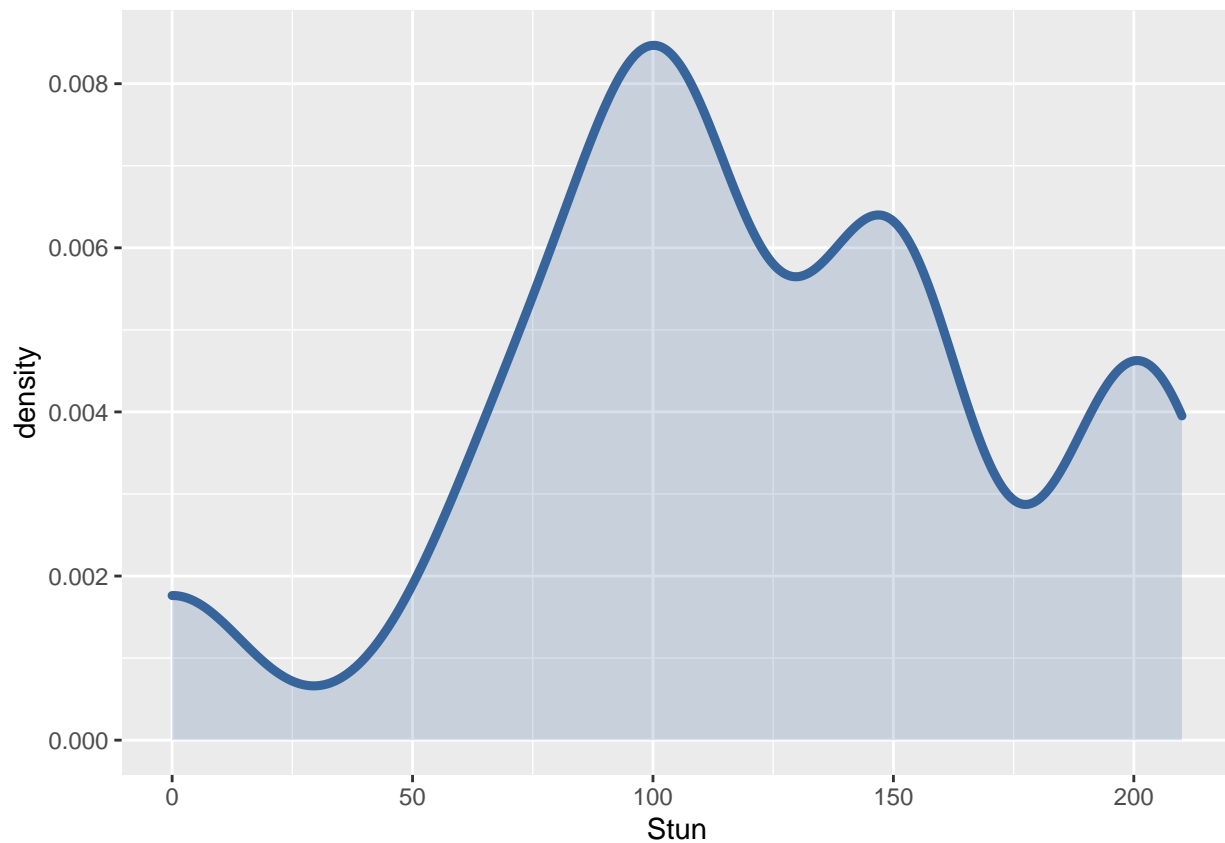
```
## [1] "Median: -3.00 | Mean: -2.14 | Standard deviation: 11.92"
```



```
## [1] "Median: 80.00 | Mean: 89.65 | Standard deviation: 51.25"
```



```
## [1] "Median: 120.00 | Mean: 120.47 | Standard deviation: 55.12"
```

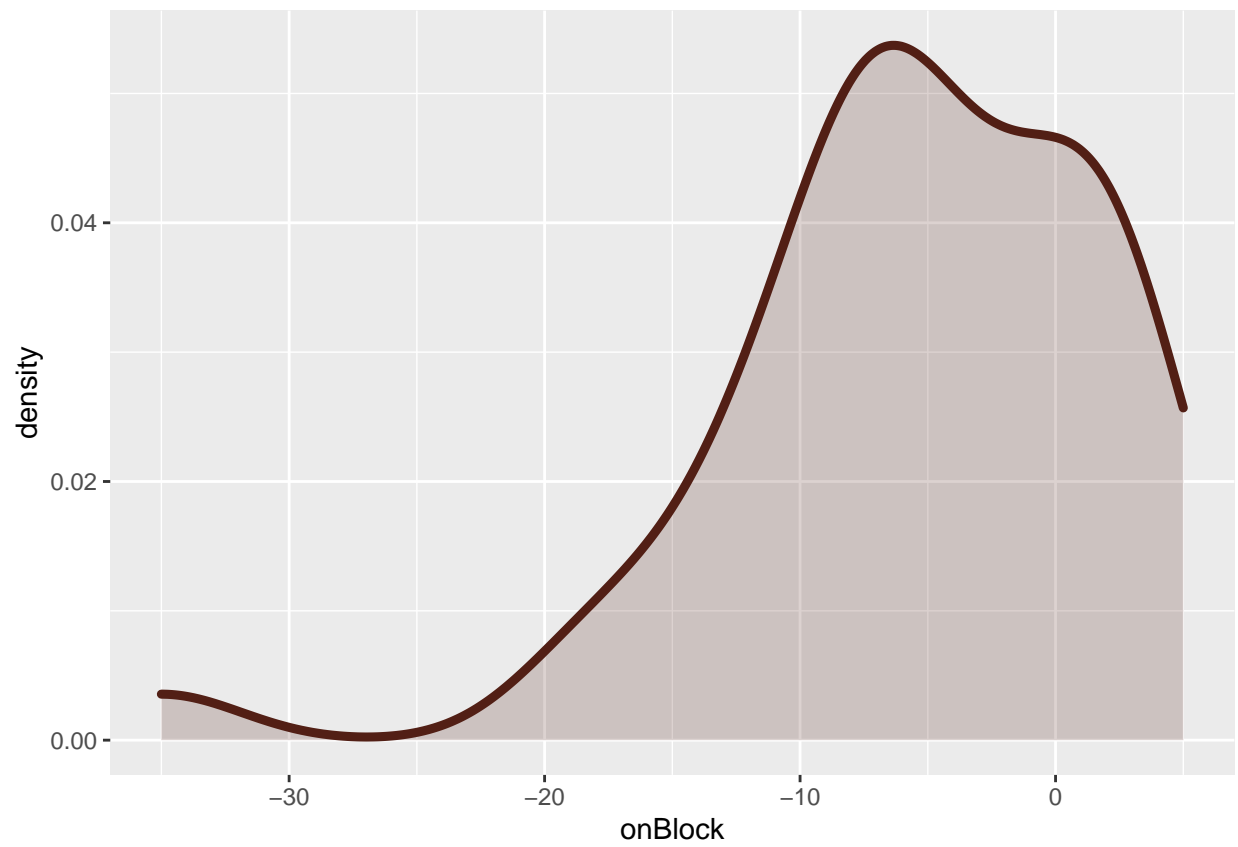


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False   False   normal    30   70
## 2 Stand MP      3      MP   False   False   False   normal    60  100
## 3 Stand HP     -4      HP   False   False   False   normal    80  150
## 4 Stand LK     -3      LK   False   False   False   normal    40   70
## 5 Stand MK     -2      MK   False   False   False   normal    70  100
## 6 Stand HK     -2      HK   False   False   False   normal    90  150
```

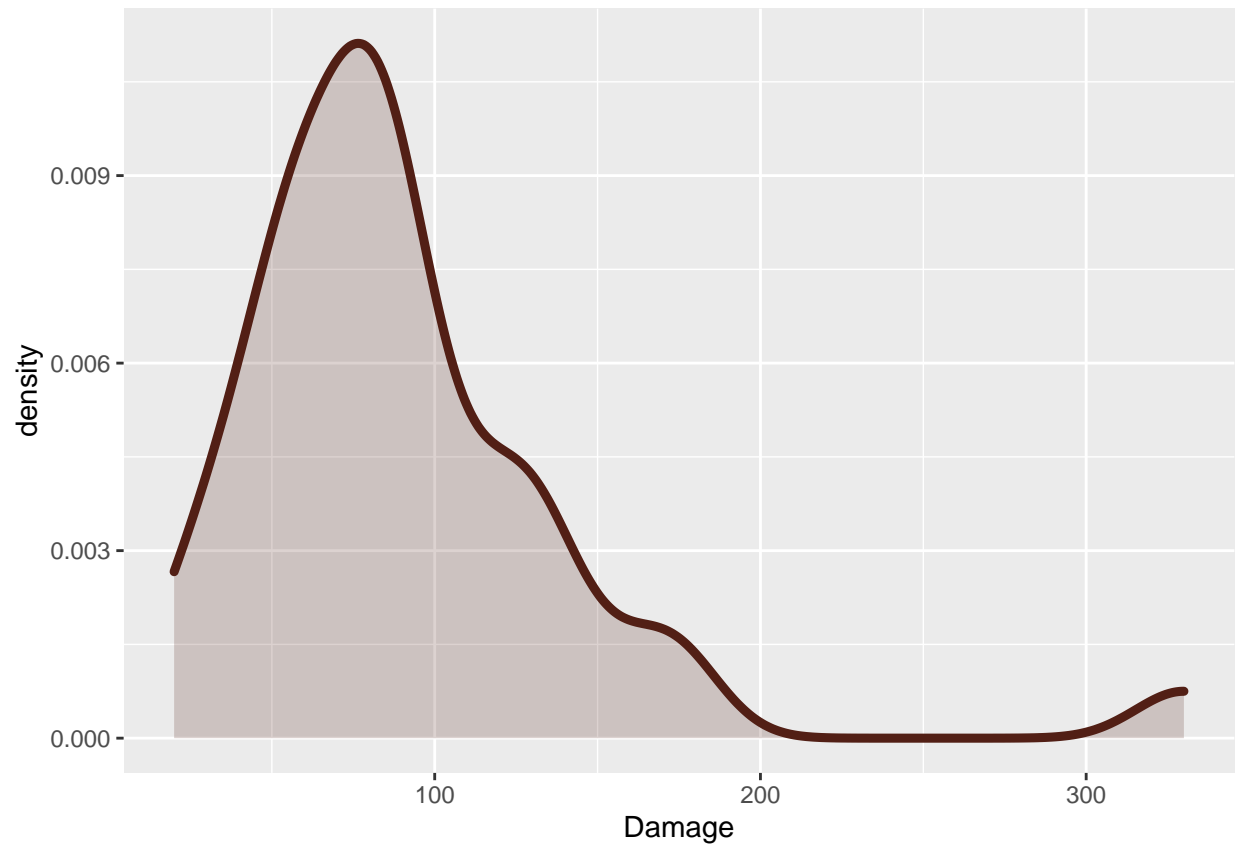
```
##      1
## health    975.0000
## stun      1000.0000
## vgaugel    600.0000
## vgaugel2   900.0000
## fDash      15.0000
## bDash      21.0000
## fWalk      0.0535
## bWalk      0.0340
## throwHurt   0.3511
## throwRange 0.8461
```

```
character_info(
  "data/characters/cody.csv",
  "Cody",
  "img/cody.png",
  "#521f15"
)
```

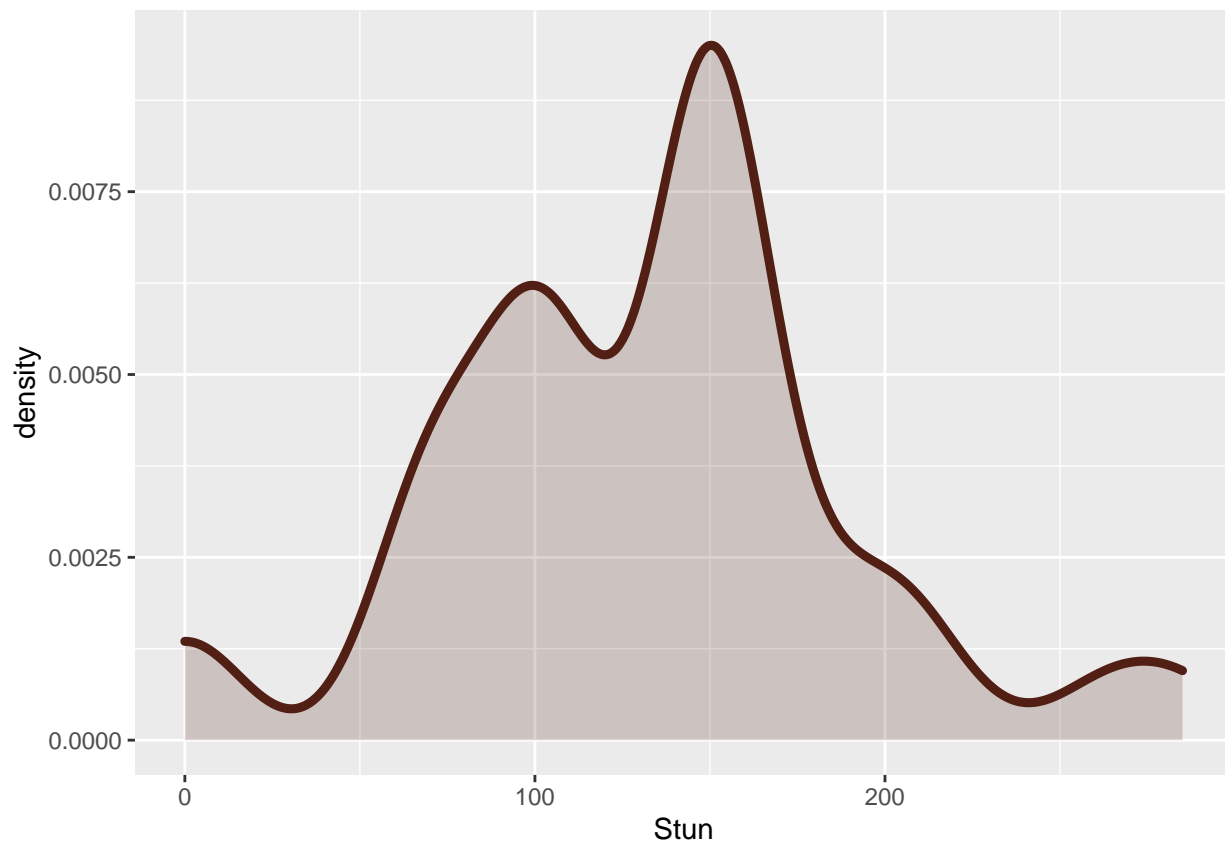
```
## [1] "Median: -6.00 | Mean: -5.72 | Standard deviation: 7.83"
```

```
## [1] "Median: 80.00 | Mean: 90.94 | Standard deviation: 55.26"
```



```
## [1] "Median: 150.00 | Mean: 131.81 | Standard deviation: 59.98"
```

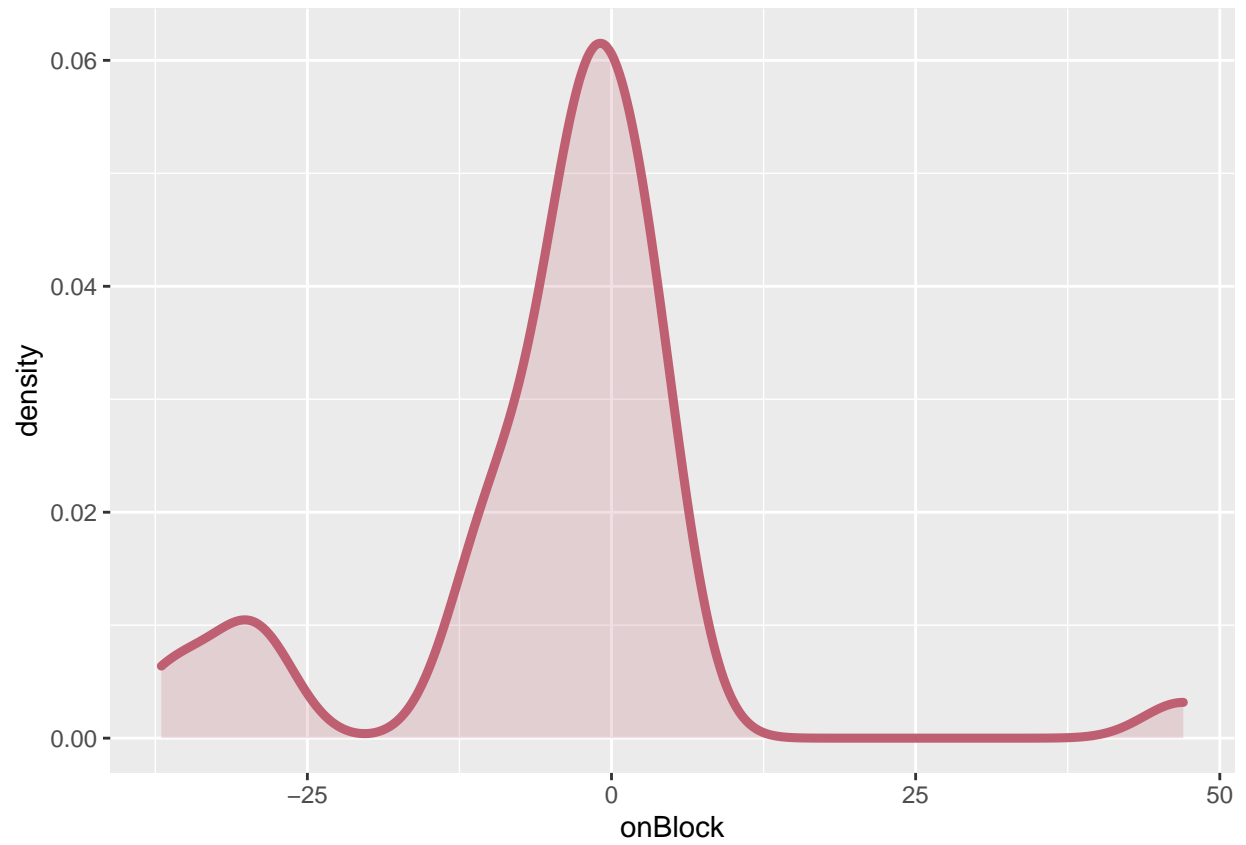


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP   False   False      False   normal    30   70
## 2 Stand MP      0      MP   False   False      False   normal    60  100
## 3 Stand HP     -10     HP   False   False      False   normal   120  170
## 4 Stand LK      3      LK   False   False      False   normal    40   70
## 5 Stand MK      3      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    80  150
```

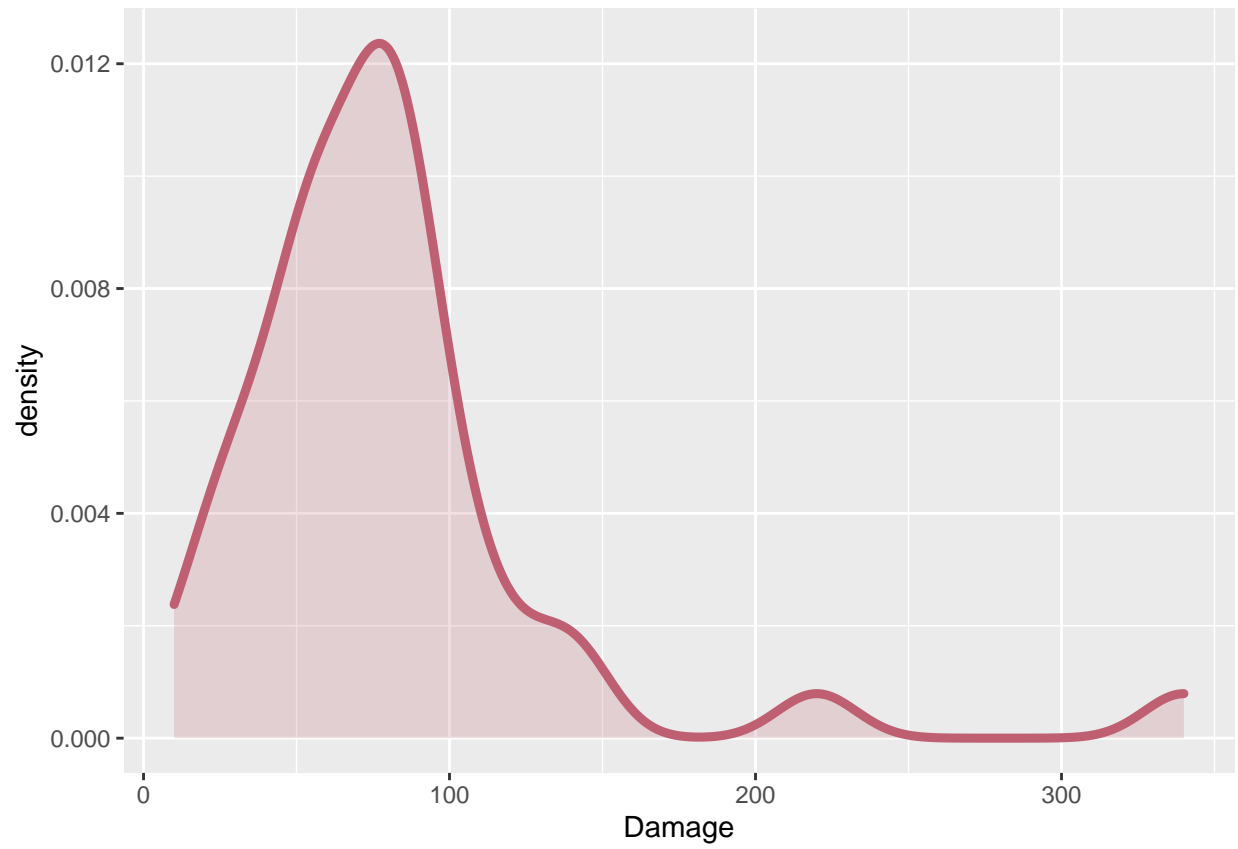
```
##      1
## health    1025.0000
## stun      1050.0000
## vgaugel    600.0000
## vgaugel2   600.0000
## fDash      17.0000
## bDash      23.0000
## fWalk      0.0470
## bWalk      0.0289
## throwHurt   0.2500
## throwRange 0.8000
```

```
character_info(
  "data/characters/dan.csv",
  "Dan",
  "img/dan.png",
  "#bf6072"
)
```

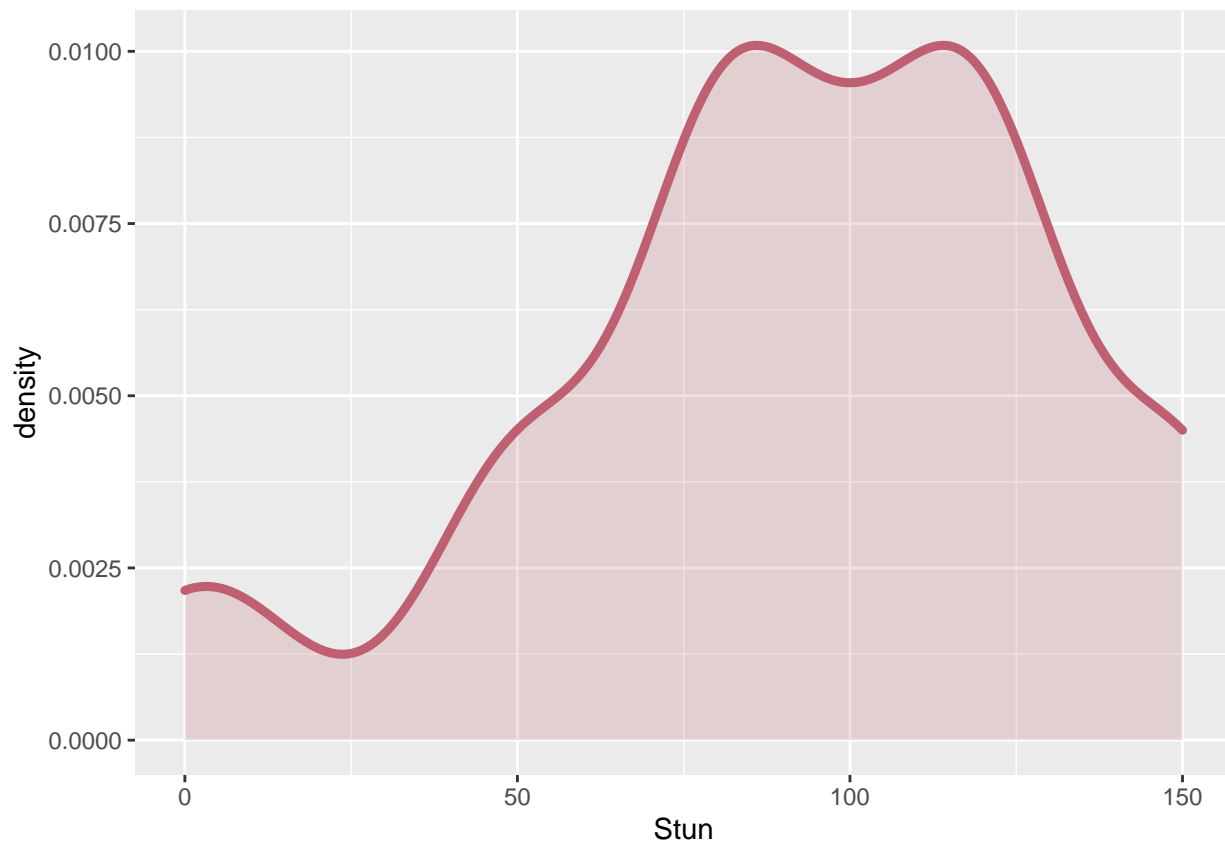
```
## [1] "Median: -2.00 | Mean: -4.74 | Standard deviation: 13.89"
```



```
## [1] "Median: 80.00 | Mean: 81.28 | Standard deviation: 57.09"
```



```
## [1] "Median: 100.00 | Mean: 92.56 | Standard deviation: 39.38"
```

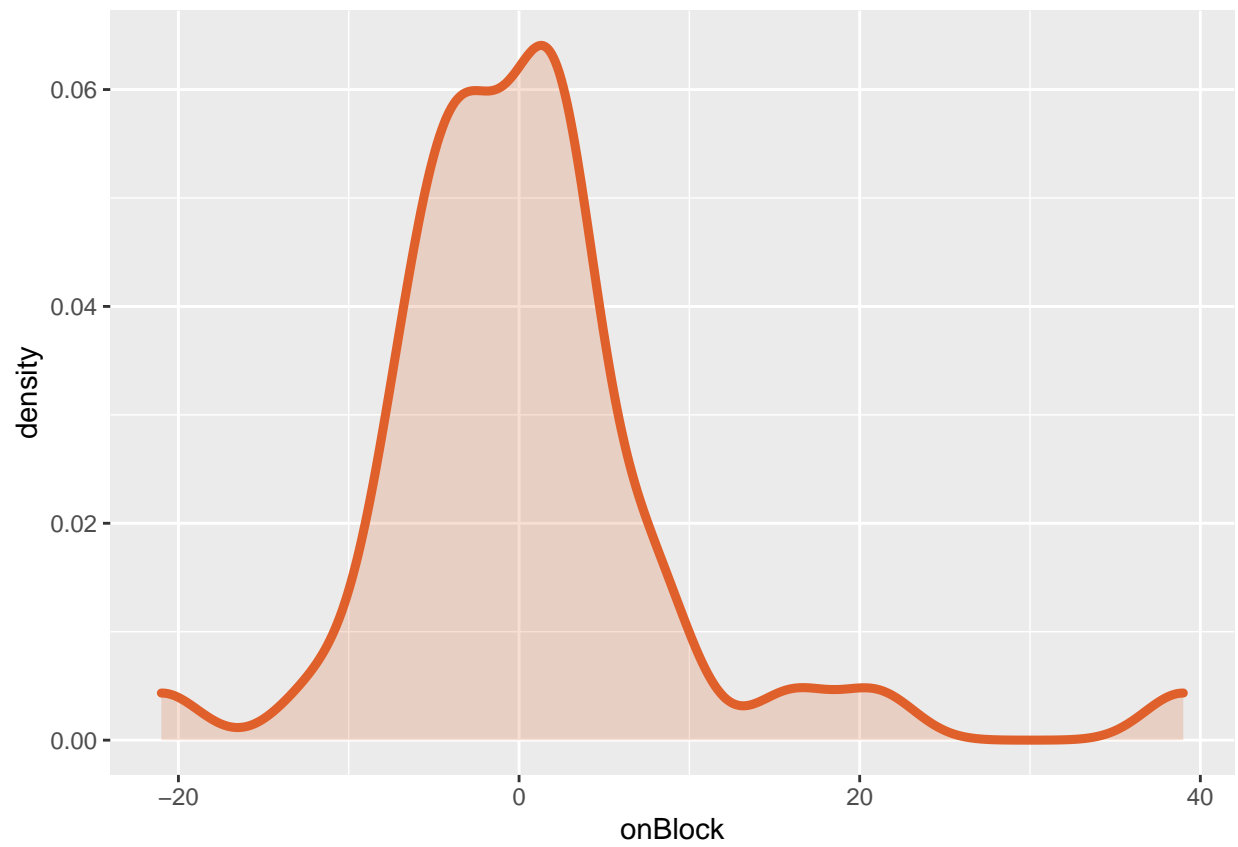


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   50
## 2 Stand MP      3      MP   False   False      False   normal    60   80
## 3 Stand HP     -2      HP   False   False      False   normal    70  120
## 4 Stand LK      0      LK   False   False      False   normal    30   50
## 5 Stand MK     -2      MK   False   False      False   normal    60   80
## 6 Stand HK     -4      HK   False   False      False   normal    90  120
```

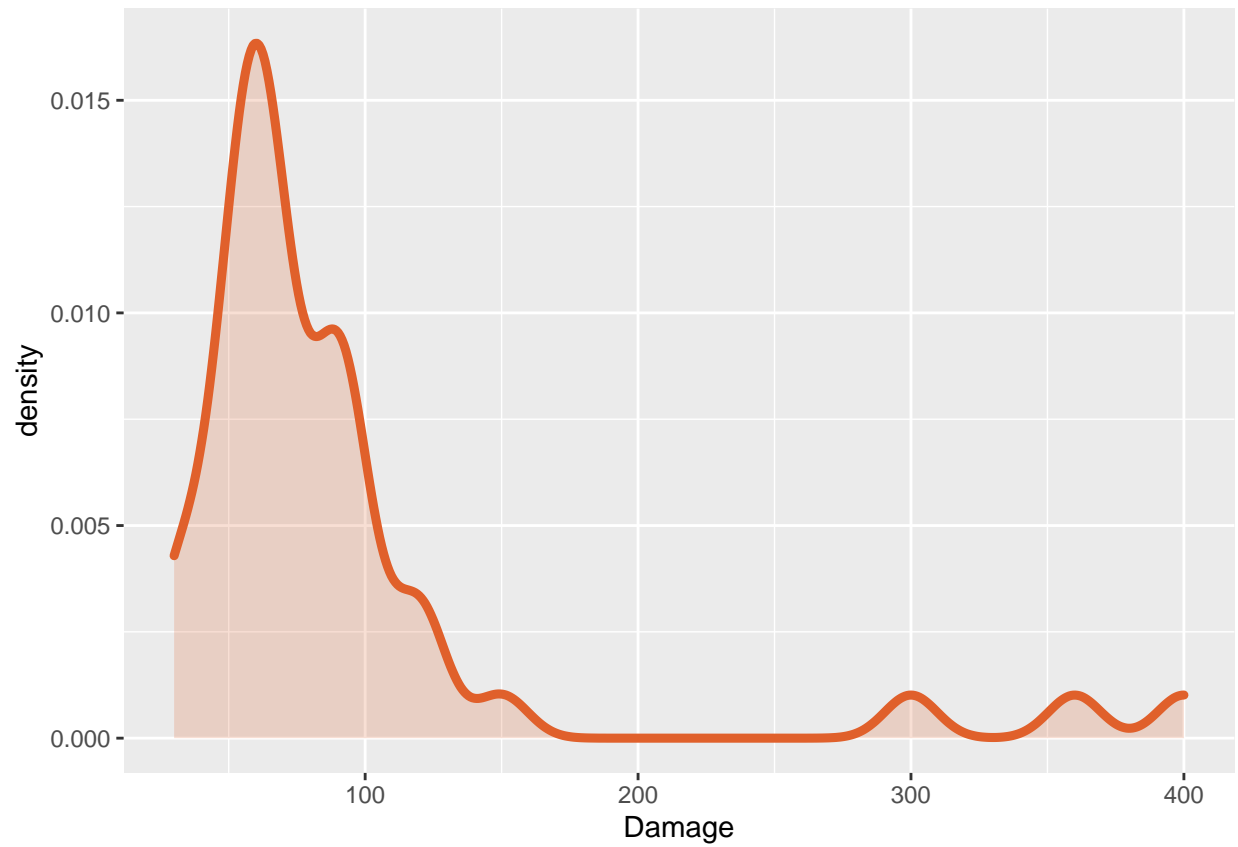
```
##      1
## health    1025.000
## stun      950.000
## vgaugel    300.000
## vgaugel2   600.000
## fDash      16.000
## bDash      21.000
## fWalk       0.047
## bWalk       0.032
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/dhalsim.csv",
  "Dhalsim",
  "img/dhalsim.png",
  "#e0602b"
)
```

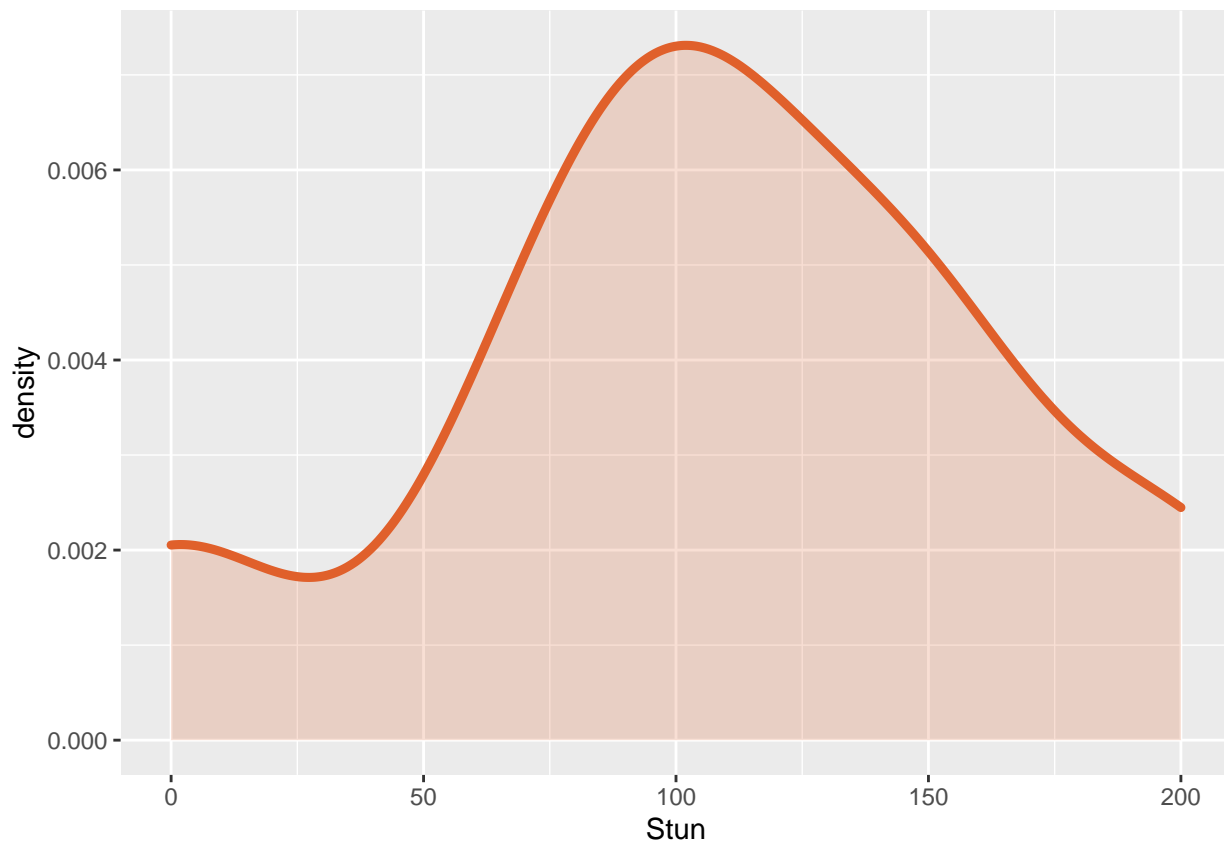
```
## [1] "Median: 0.00 | Mean: 0.61 | Standard deviation: 9.35"
```



```
## [1] "Median: 70.00 | Mean: 92.93 | Standard deviation: 79.32"
```



```
## [1] "Median: 100.00 | Mean: 107.80 | Standard deviation: 56.55"
```

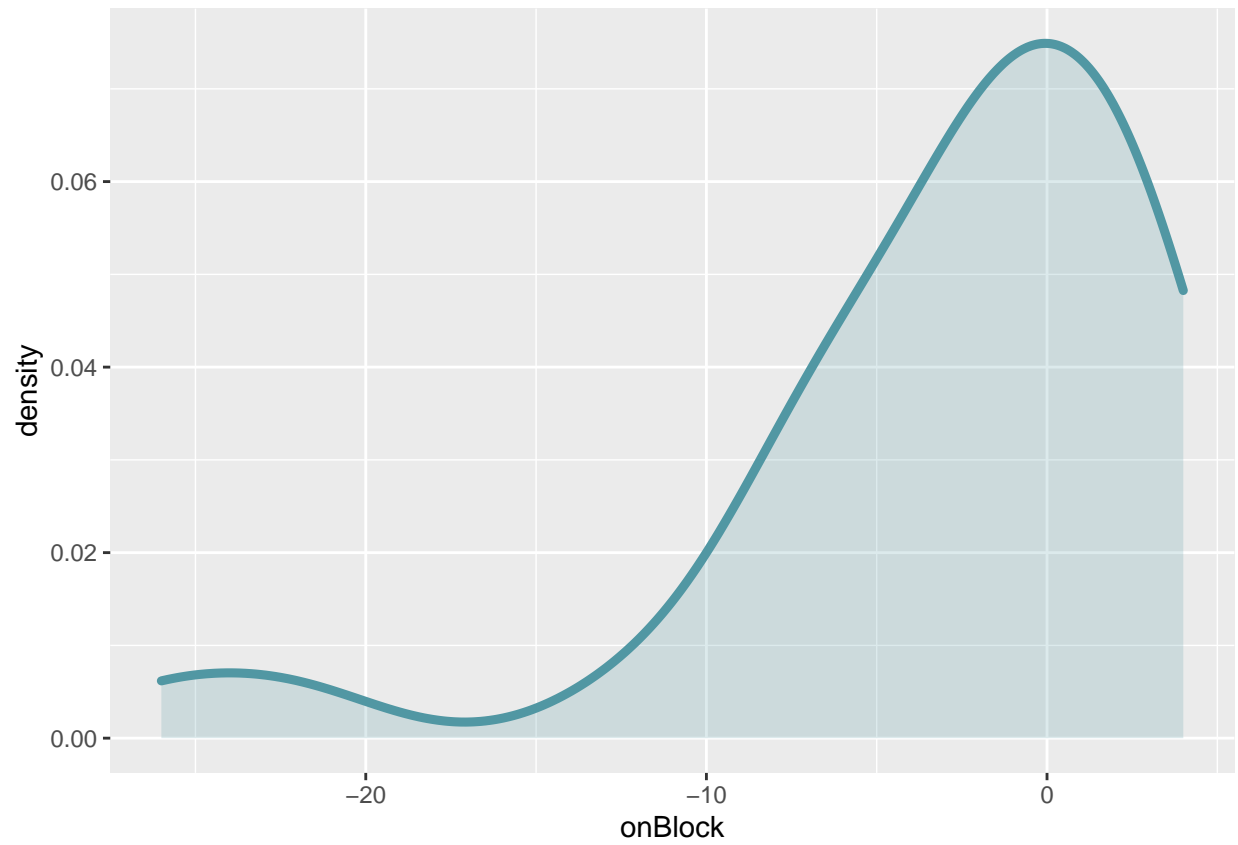



```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   70
## 2 Stand MP     -4      MP   False   False      False   normal    60  100
## 3 Stand HP     -6      HP   False   False      False   normal    90  150
## 4 Stand LK      2      LK   False   False      False   normal    40   70
## 5 Stand MK     -4      MK   False   False      False   normal    50  100
## 6 Stand HK     -4      HK   False   False      False   normal    90  150
```

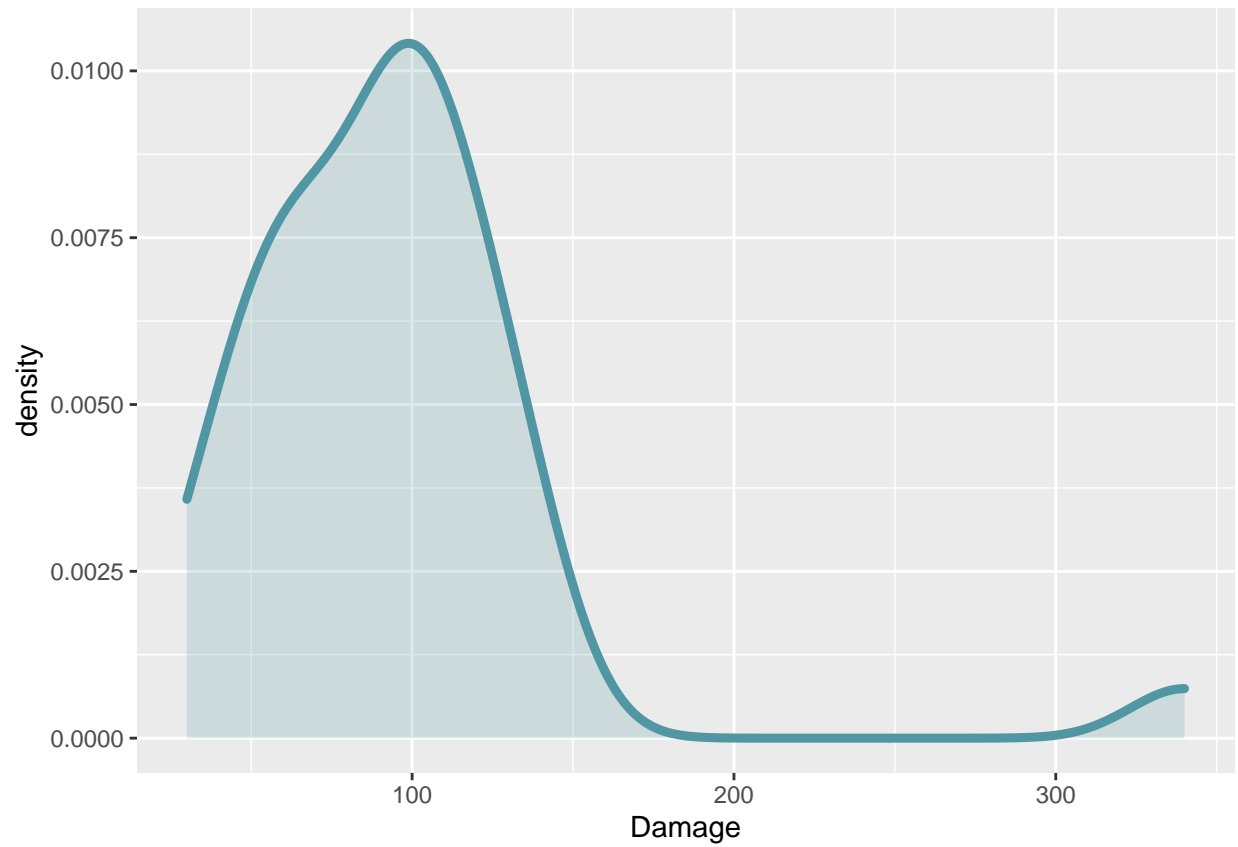
```
##      1
## health      950.000
## stun        950.000
## vgaugel      600.000
## vgaugel2     600.000
## fDash        21.000
## bDash        25.000
## fWalk         0.022
## bWalk         0.020
## throwHurt     0.250
## throwRange    0.850
```

```
character_info(
  "data/characters/e_honda.csv",
  "E. Honda",
  "img/e_honda.png",
  "#5197a3"
)
```

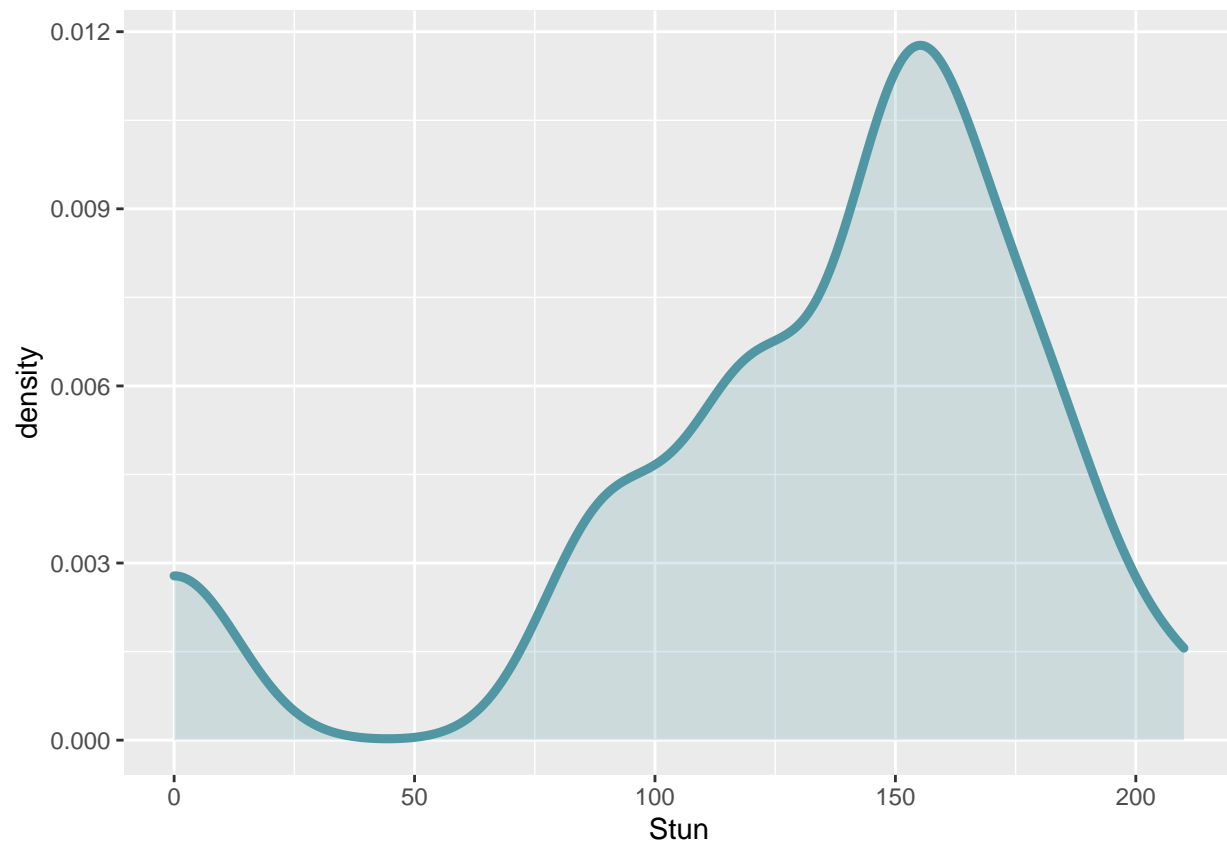
```
## [1] "Median: -2.00 | Mean: -3.06 | Standard deviation: 6.85"
```



```
## [1] "Median: 95.00 | Mean: 95.25 | Standard deviation: 53.83"
```



```
## [1] "Median: 150.00 | Mean: 131.56 | Standard deviation: 52.68"
```

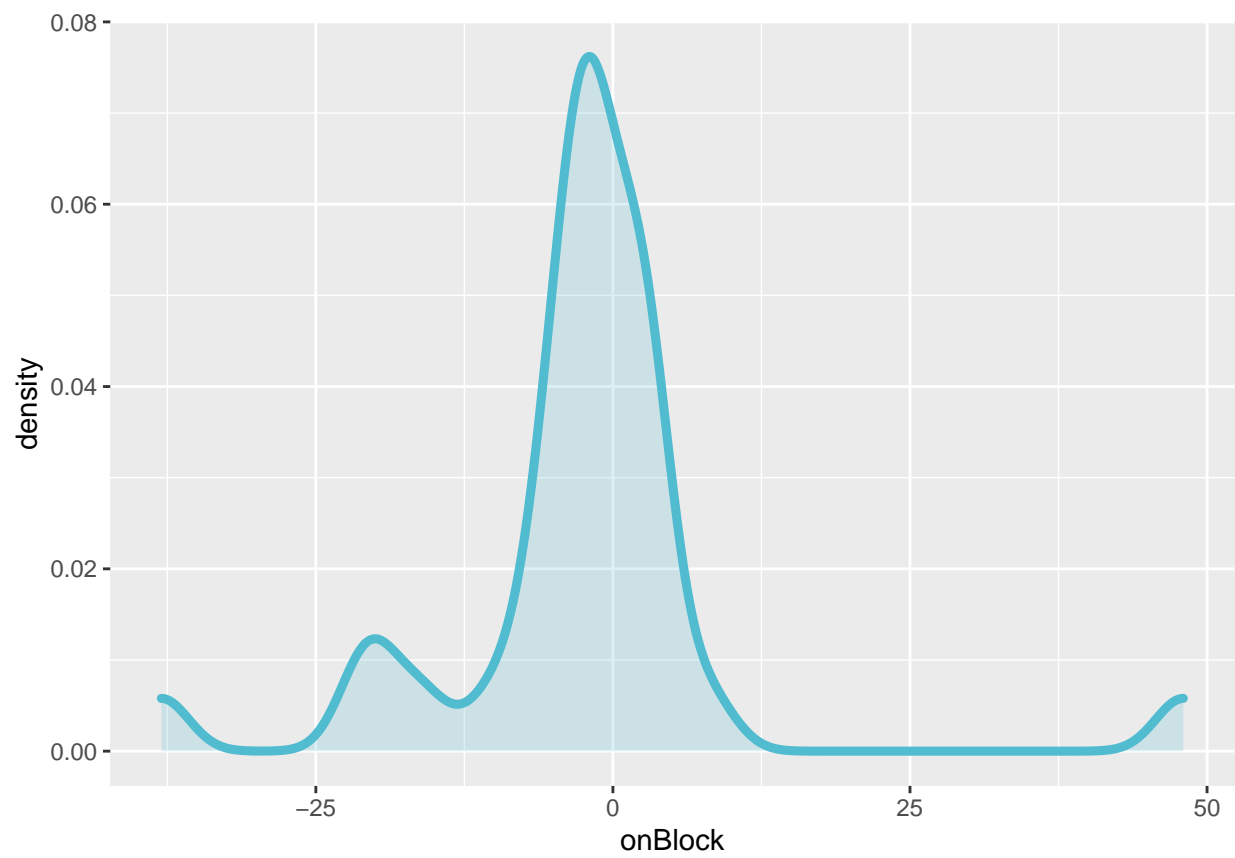


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False   False   normal    40   90
## 2 Stand MP      2      MP   False   False   False   normal    70  120
## 3 Stand HP     -7      HP   False   False   False   normal    85  150
## 4 Stand LK      2      LK   False   False   False   normal    40   90
## 5 Stand MK      4      MK   False   False   False   normal    60  120
## 6 Stand HK     -1      HK   False   False   False   normal    85  150
```

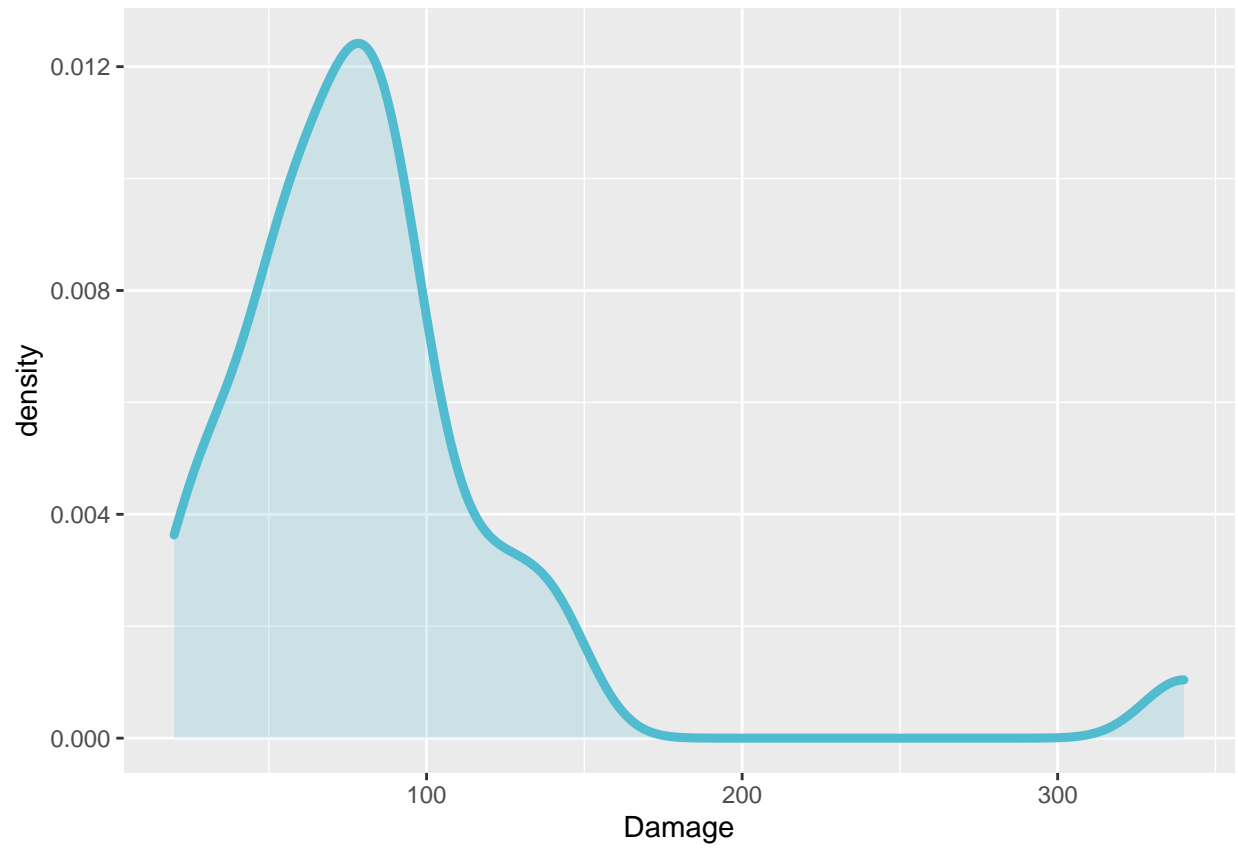
```
##      1
## health    1050.000
## stun      1075.000
## vgaugel    900.000
## vgaugel2   600.000
## fDash      20.000
## bDash      24.000
## fWalk       0.044
## bWalk       0.027
## throwHurt   0.250
## throwRange  0.900
```

```
character_info(
  "data/characters/ed.csv",
  "Ed",
  "img/ed.png",
  "#51bcd0"
)
```

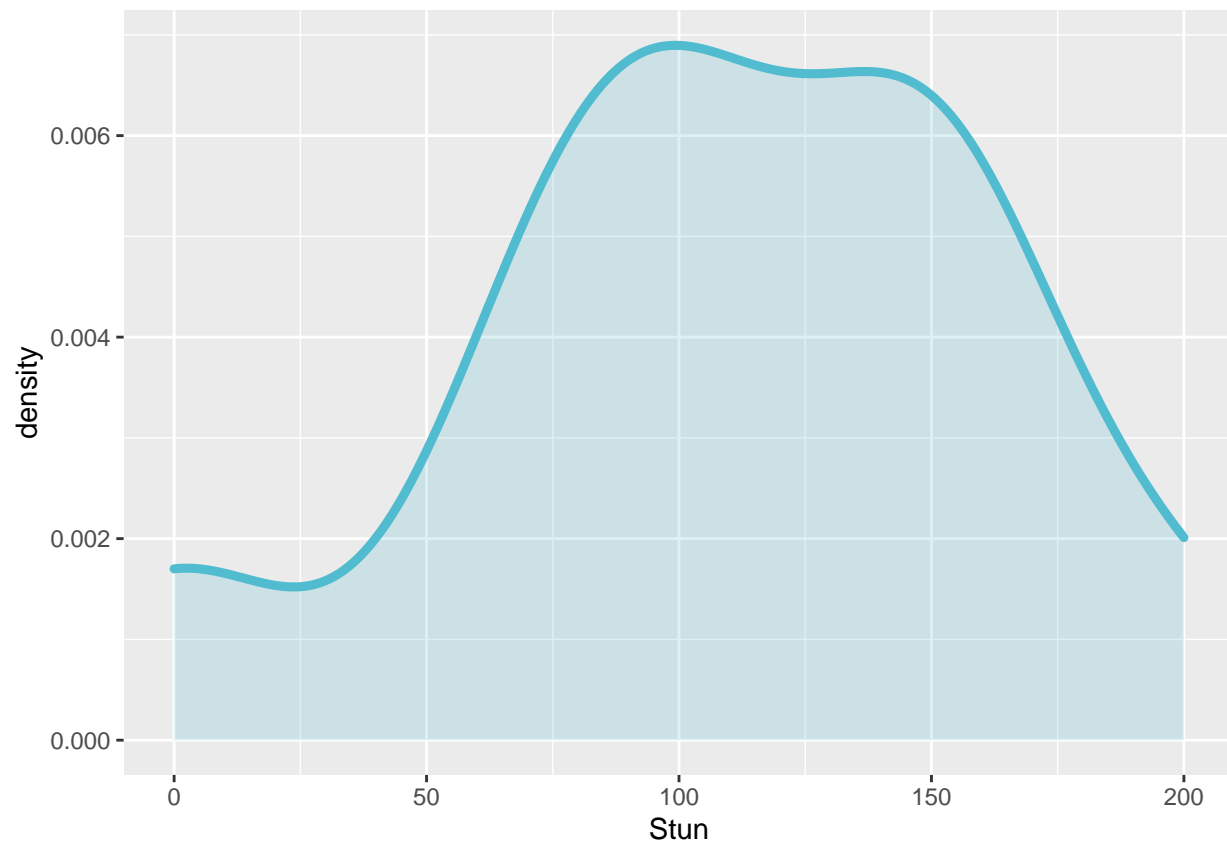
```
## [1] "Median: -2.00 | Mean: -2.43 | Standard deviation: 13.20"
```



```
## [1] "Median: 80.00 | Mean: 84.00 | Standard deviation: 57.21"
```



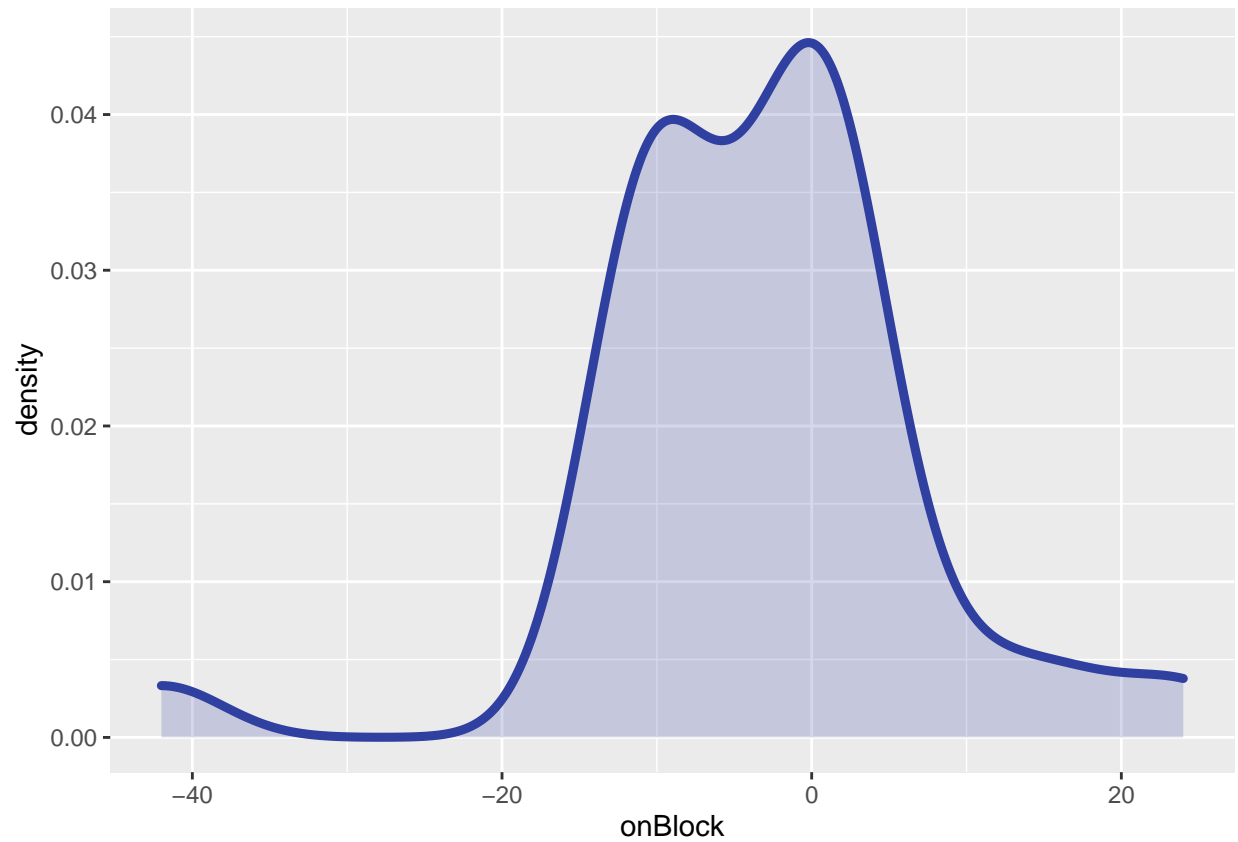
```
## [1] "Median: 100.00 | Mean: 109.83 | Standard deviation: 52.83"
```



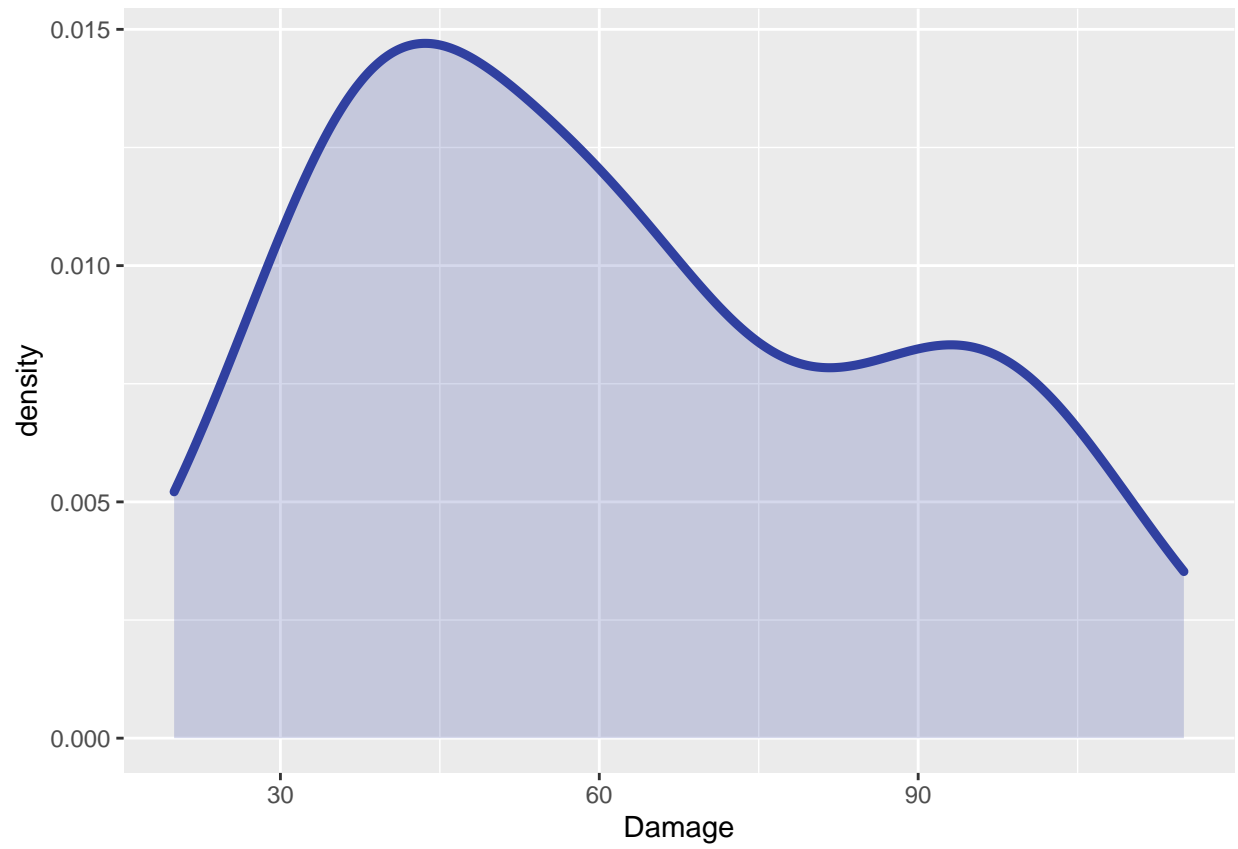
```
##          Move onBlock      plnCmd airmove followUp projectile moveType
## 1      Stand LP        3          LP   False   False      False  normal
## 2      Stand MP        3          MP   False   False      False  normal
## 3      Stand HP       -2          HP   False   False      False  normal
## 4 Stand HP (release)  -2 HP (release) False   False      False  normal
## 5      Stand LK        1          LK   False   False      False  normal
## 6      Stand MK        2          MK   False   False      False  normal
##  Damage Stun
## 1      30   70
## 2      60  100
## 3      90  150
## 4      90  150
## 5      30   70
## 6      70  100
##          1
## health    1025.000
## stun      1050.000
## vgaugel1   600.000
## vgaugel2   900.000
## fDash      16.000
## bDash      23.000
## fWalk       0.047
## bWalk       0.034
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(  
  "data/characters/f_a_n_g.csv",  
  "F.A.N.G",  
  "img/f_a_n_g.png",  
  "#3040a0"  
)
```

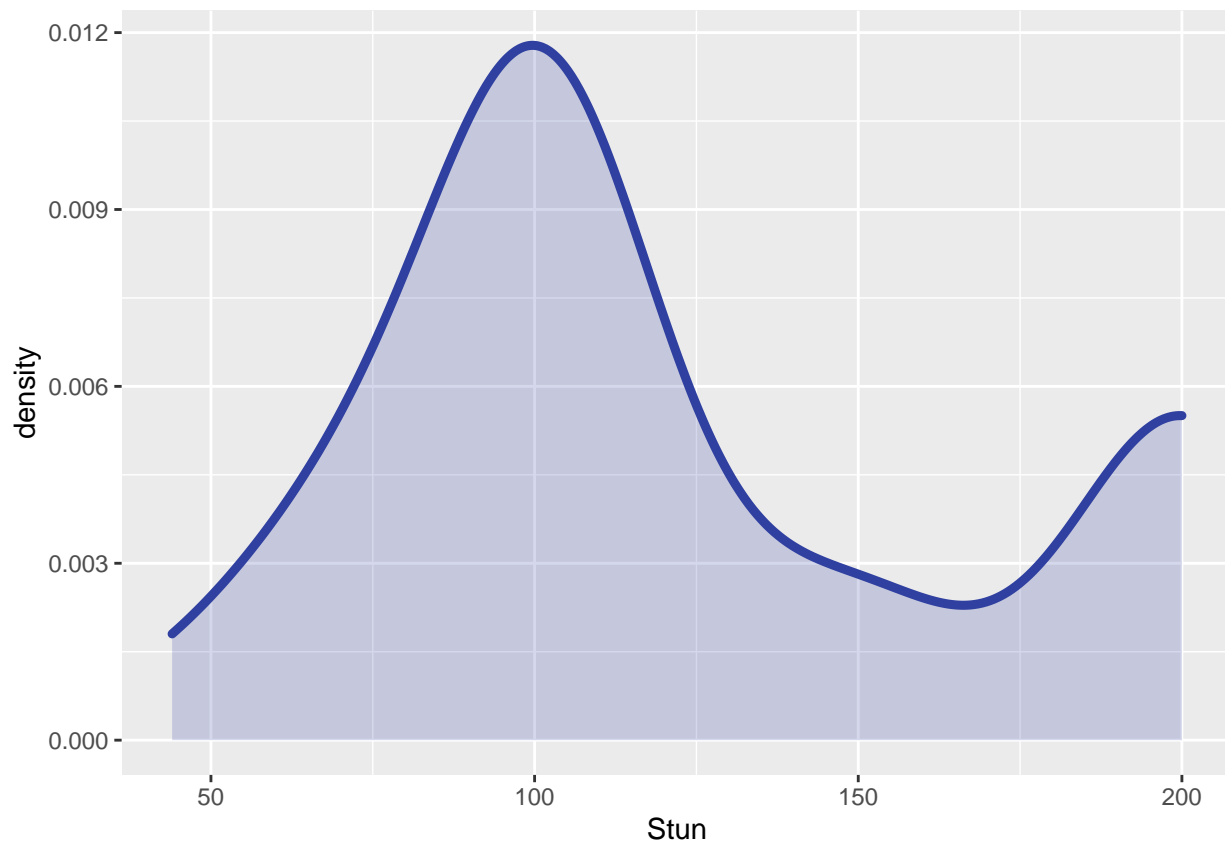
```
## [1] "Median: -2.00 | Mean: -3.50 | Standard deviation: 11.15"
```



```
## [1] "Median: 60.00 | Mean: 61.83 | Standard deviation: 26.08"
```

```
## [1] "Median: 100.00 | Mean: 123.63 | Standard deviation: 48.46"
```

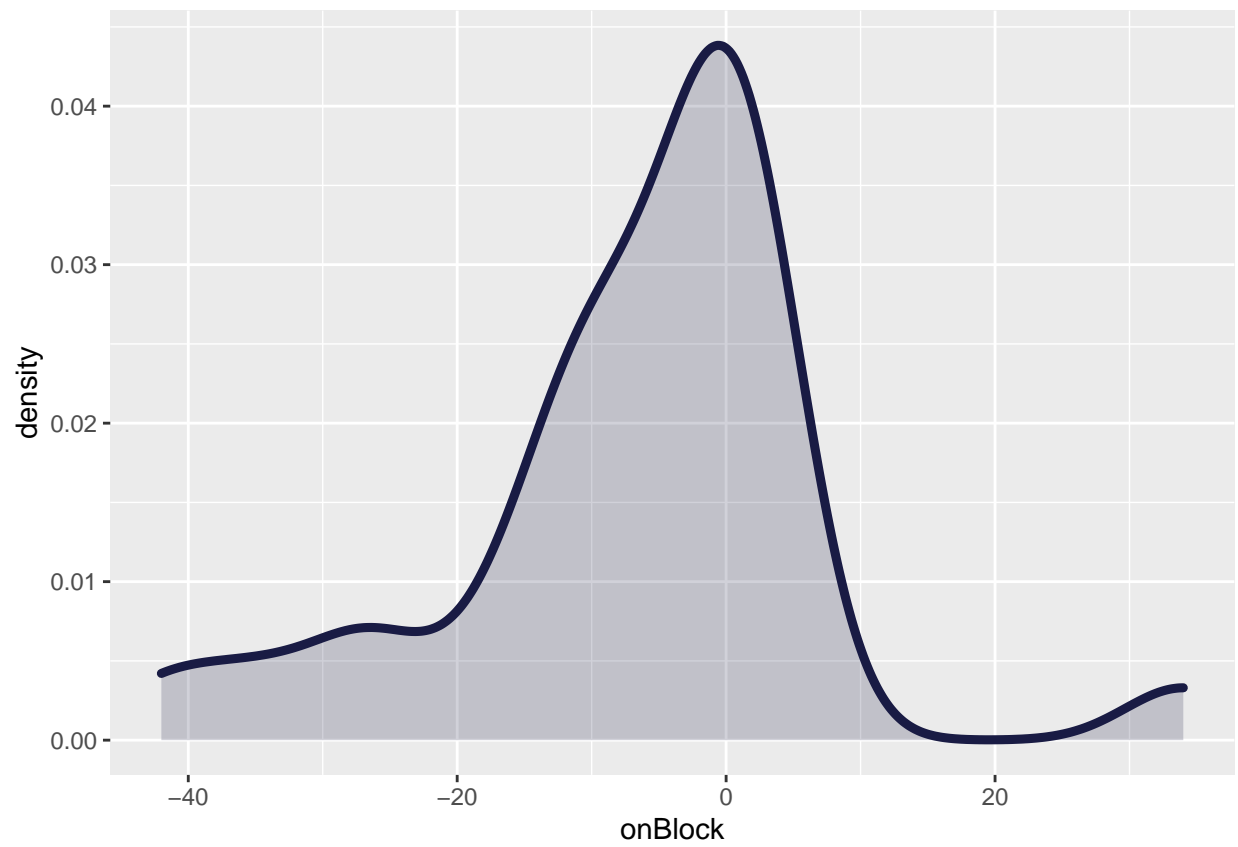


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False   False   normal    30   70
## 2 Stand MP     -3      MP   False   False   False   normal    60  100
## 3 Stand HP     -2      HP   False   False   False   normal    90  150
## 4 Stand LK      3      LK   False   False   False   normal    40   70
## 5 Stand MK      1      MK   False   False   False   normal    60  100
## 6 Stand HK      1      HK   False   False   False   normal   115  115
```

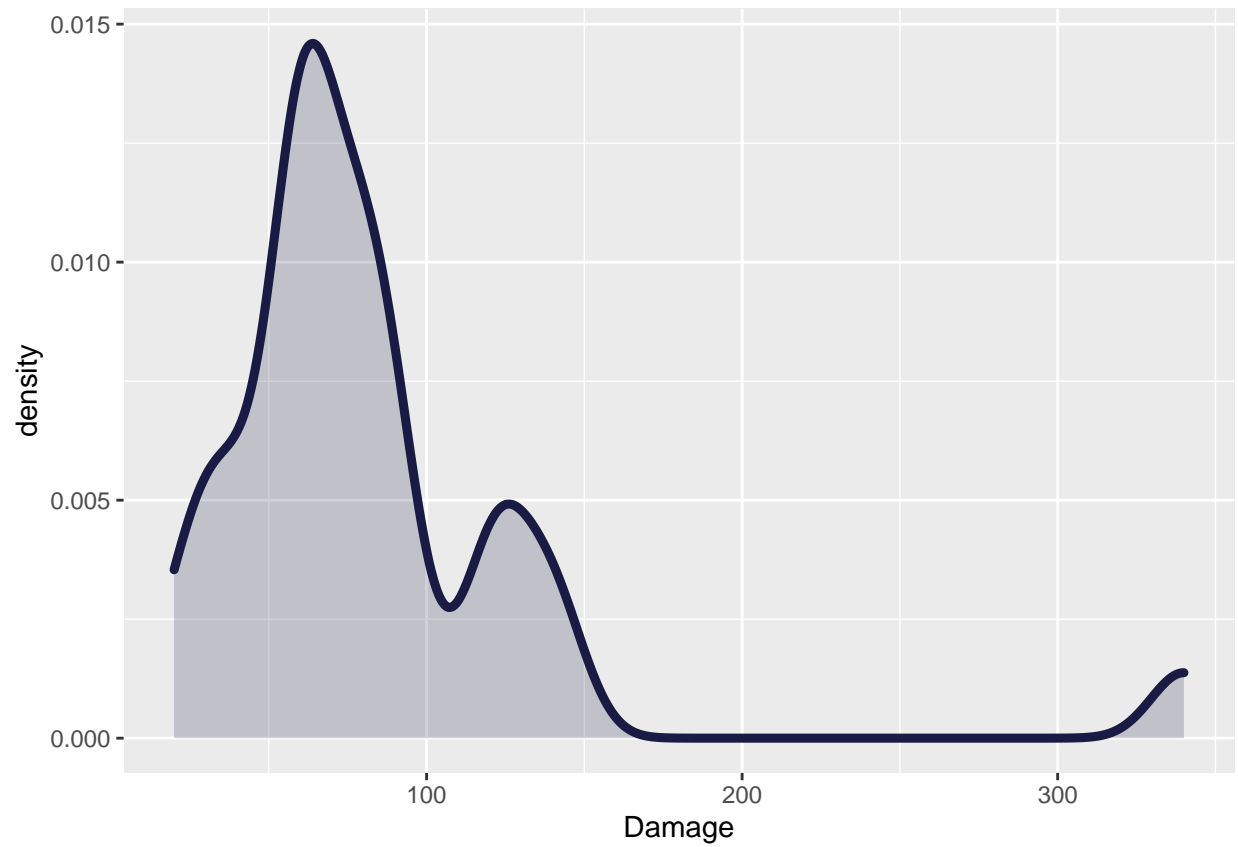
```
##
##      1
## health      975.000
## stun       1000.000
## vgaugel     600.000
## vgaugel2    900.000
## fDash       20.000
## bDash       24.000
## fWalk        0.032
## bWalk        0.028
## throwHurt    0.250
## throwRange   0.850
```

```
character_info(
  "data/characters/falke.csv",
  "Falke",
  "img/falke.png",
  "#191b44"
)
```

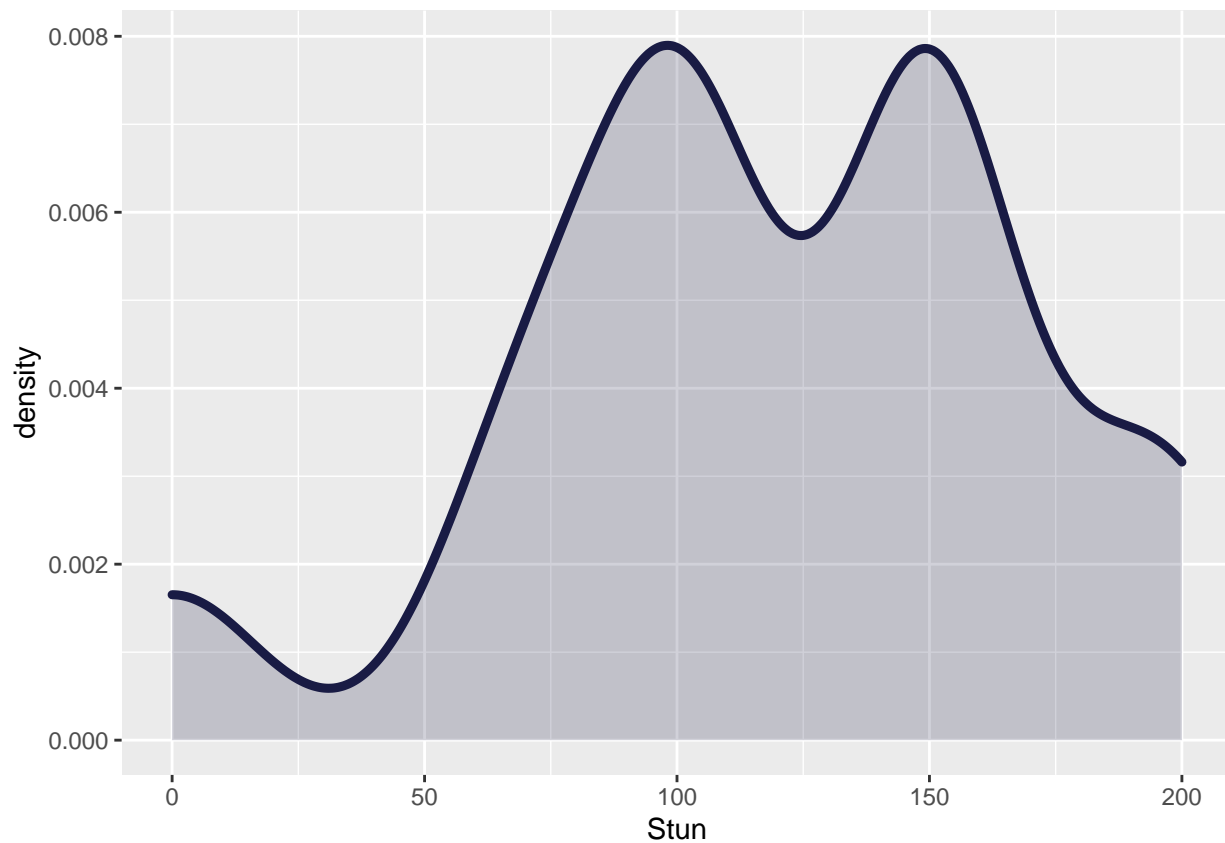
```
## [1] "Median: -3.00 | Mean: -6.71 | Standard deviation: 14.28"
```



```
## [1] "Median: 70.00 | Mean: 84.14 | Standard deviation: 59.35"
```



```
## [1] "Median: 110.00 | Mean: 118.93 | Standard deviation: 51.88"
```

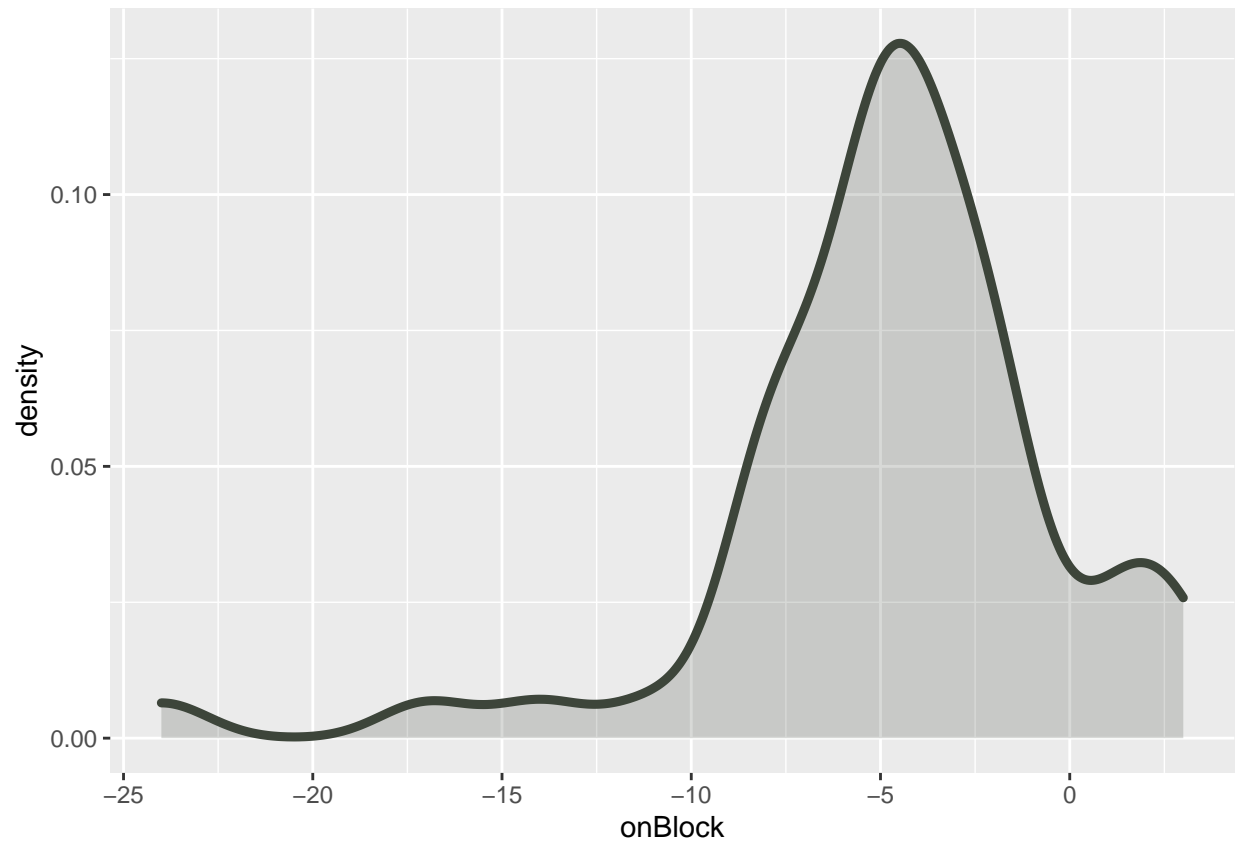


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -3      HP   False   False      False   normal    80  150
## 4 Stand LK      3      LK   False   False      False   normal    40   70
## 5 Stand MK     -2      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    80  150
```

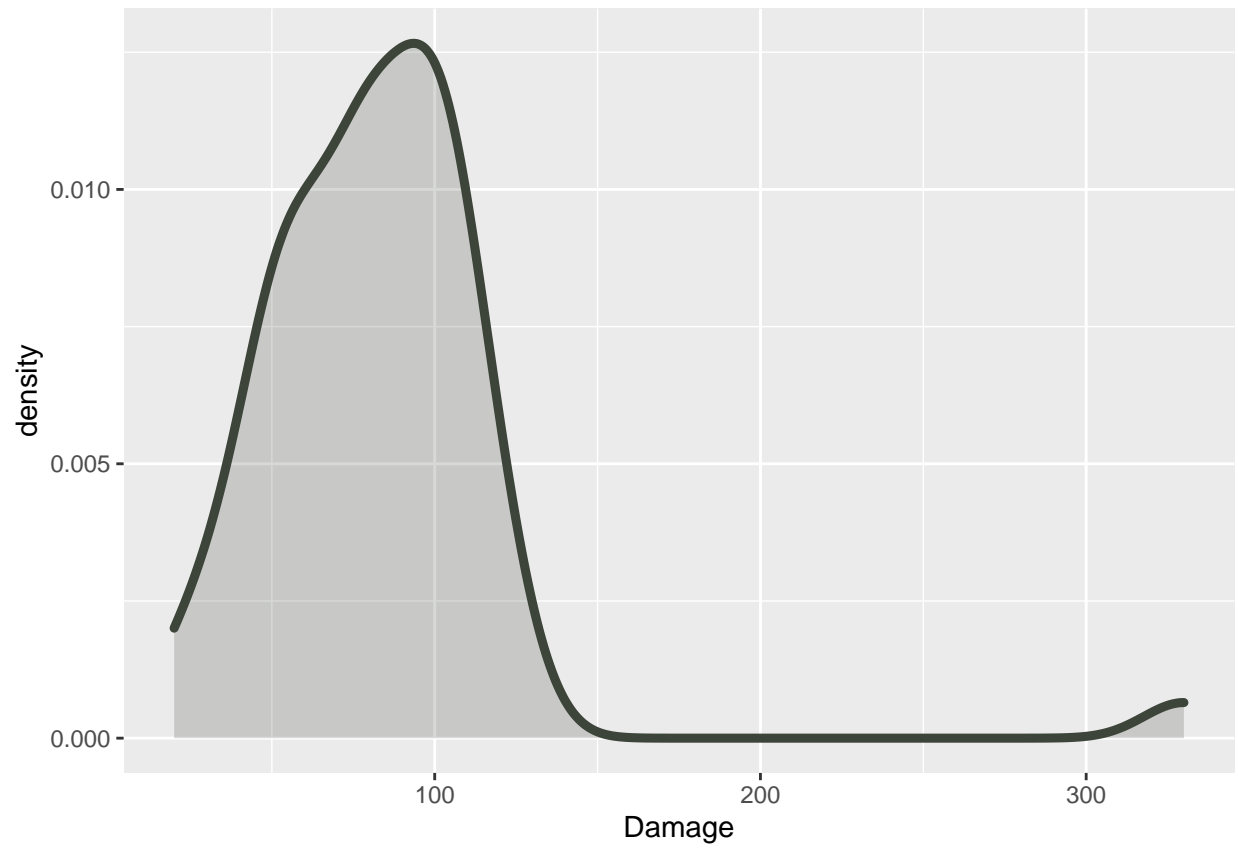
```
##      1
## health      975.00
## stun       1000.00
## vgaugel     600.00
## vgaugel2    600.00
## fDash       20.00
## bDash       25.00
## fWalk       0.04
## bWalk       0.03
## throwHurt   0.25
## throwRange  0.85
```

```
character_info(
  "data/characters/g.csv",
  "G",
  "img/g.png",
  "#3d453a"
)
```

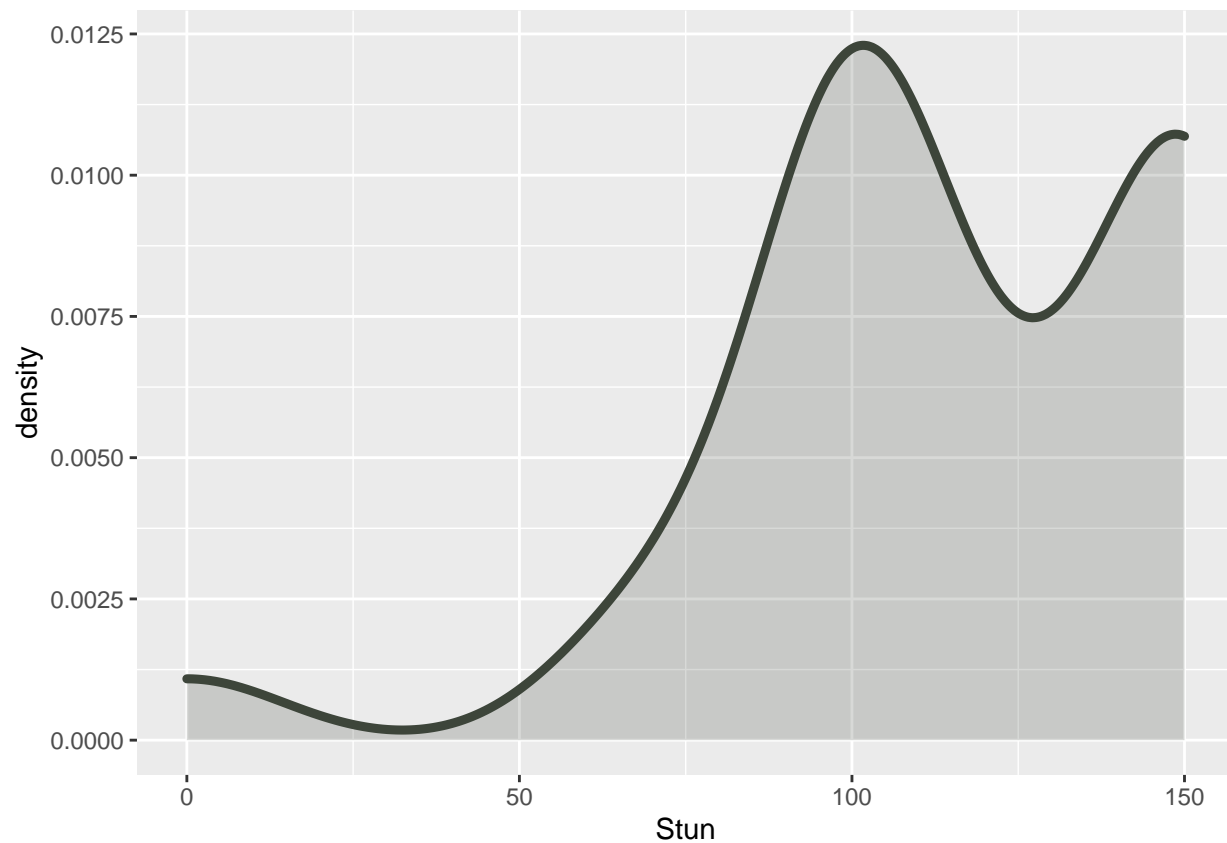
```
## [1] "Median: -4.50 | Mean: -4.86 | Standard deviation: 4.72"
```



```
## [1] "Median: 80.00 | Mean: 83.80 | Standard deviation: 43.70"
```



```
## [1] "Median: 100.00 | Mean: 114.60 | Standard deviation: 35.70"
```

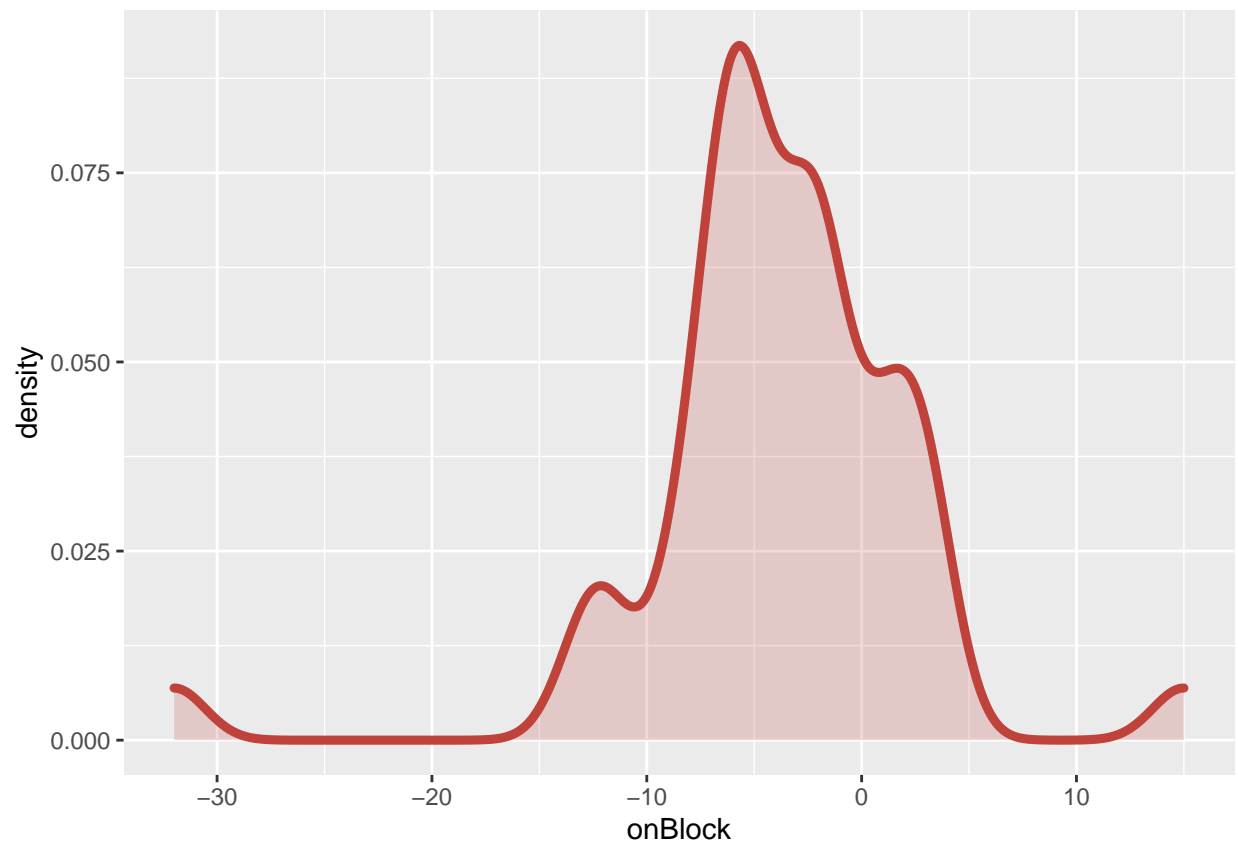


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -3      HP   False   False      False   normal    80  150
## 4 Stand LK      1      LK   False   False      False   normal    40   70
## 5 Stand MK     -2      MK   False   False      False   normal    60  100
## 6 Stand HK     -5      HK   False   False      False   normal    80  100
```

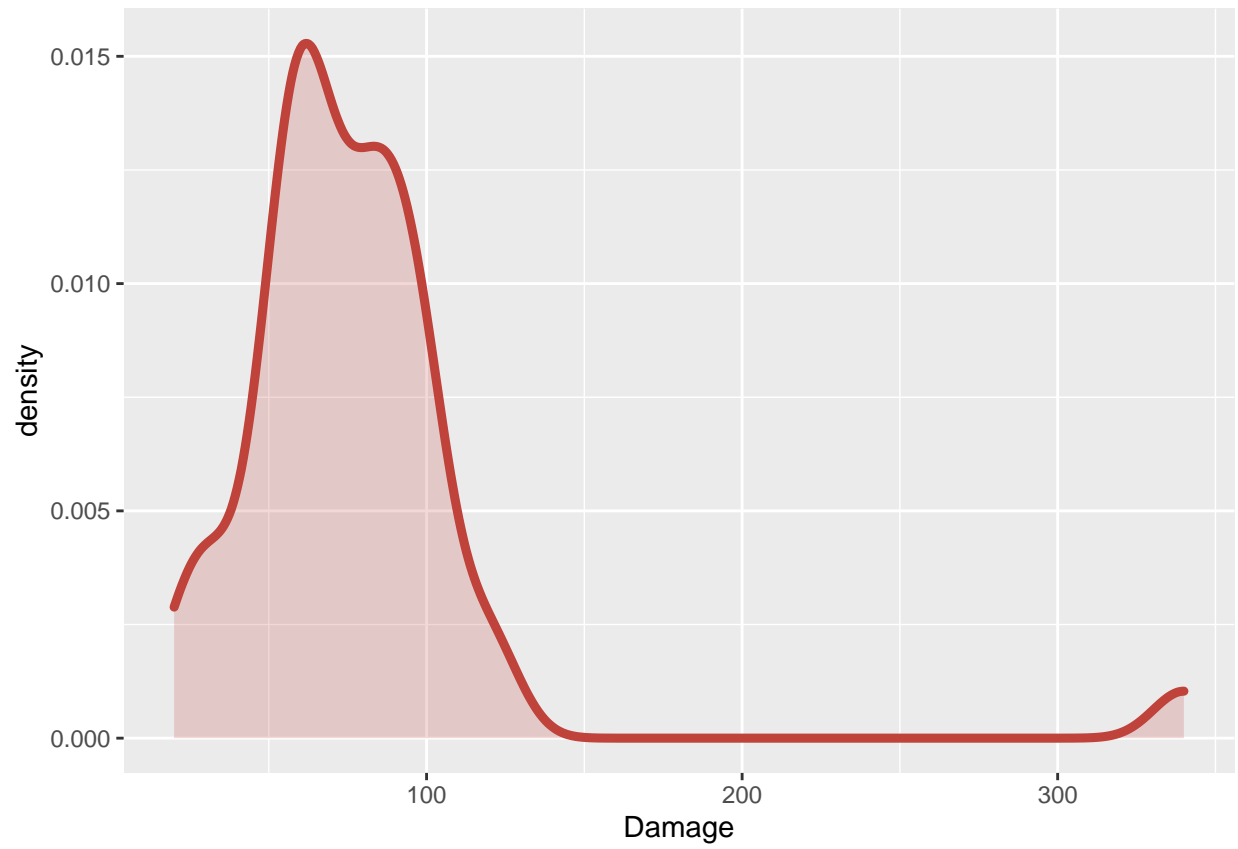
```
##      1
## health    1025.0000
## stun      1050.0000
## vgaugel    900.0000
## vgaugel2   600.0000
## fDash      19.0000
## bDash      25.0000
## fWalk      0.0377
## bWalk      0.0300
## throwHurt   0.2500
## throwRange 0.8500
```

```
character_info(
  "data/characters/gill.csv",
  "Gill",
  "img/gill.png",
  "#bf423b"
)
```

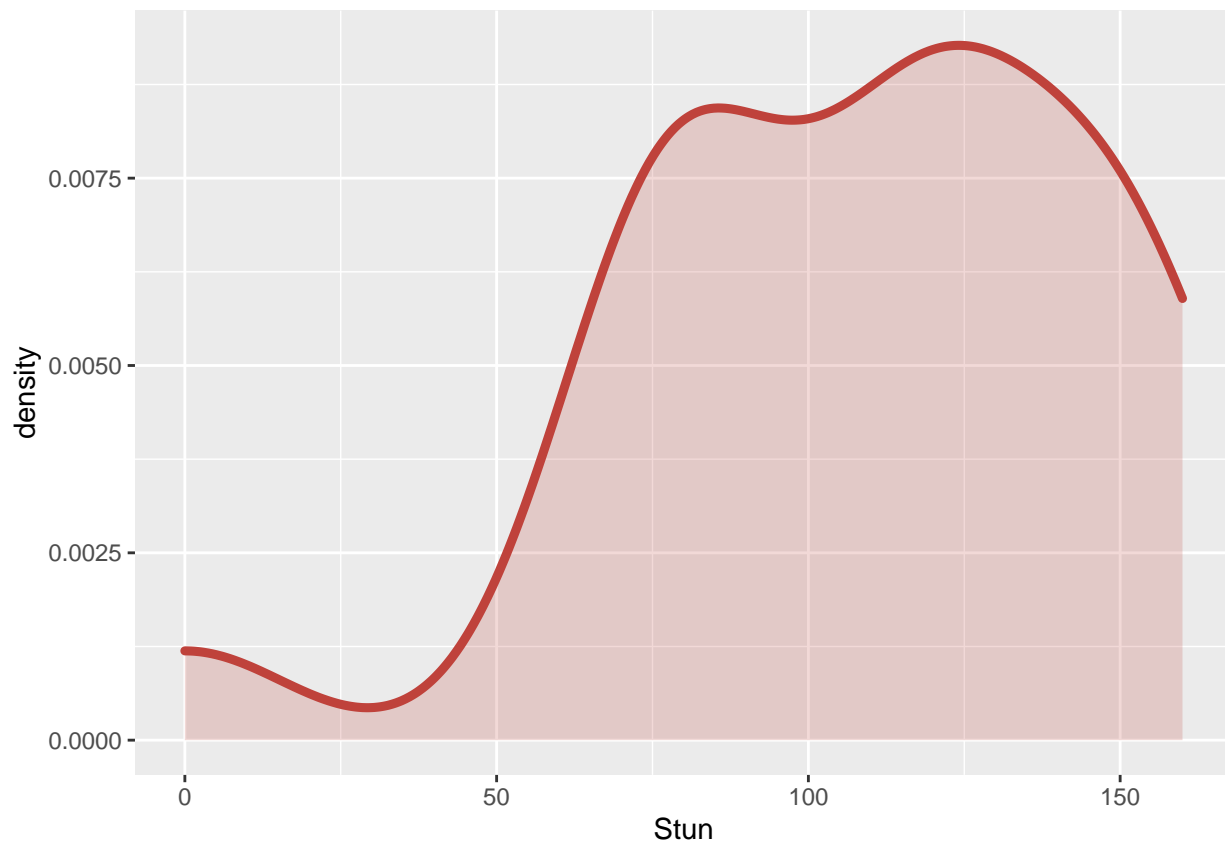
```
## [1] "Median: -4.00 | Mean: -4.00 | Standard deviation: 6.82"
```

```
## [1] "Median: 70.00 | Mean: 78.47 | Standard deviation: 48.58"
```



```
## [1] "Median: 120.00 | Mean: 108.00 | Standard deviation: 38.91"
```

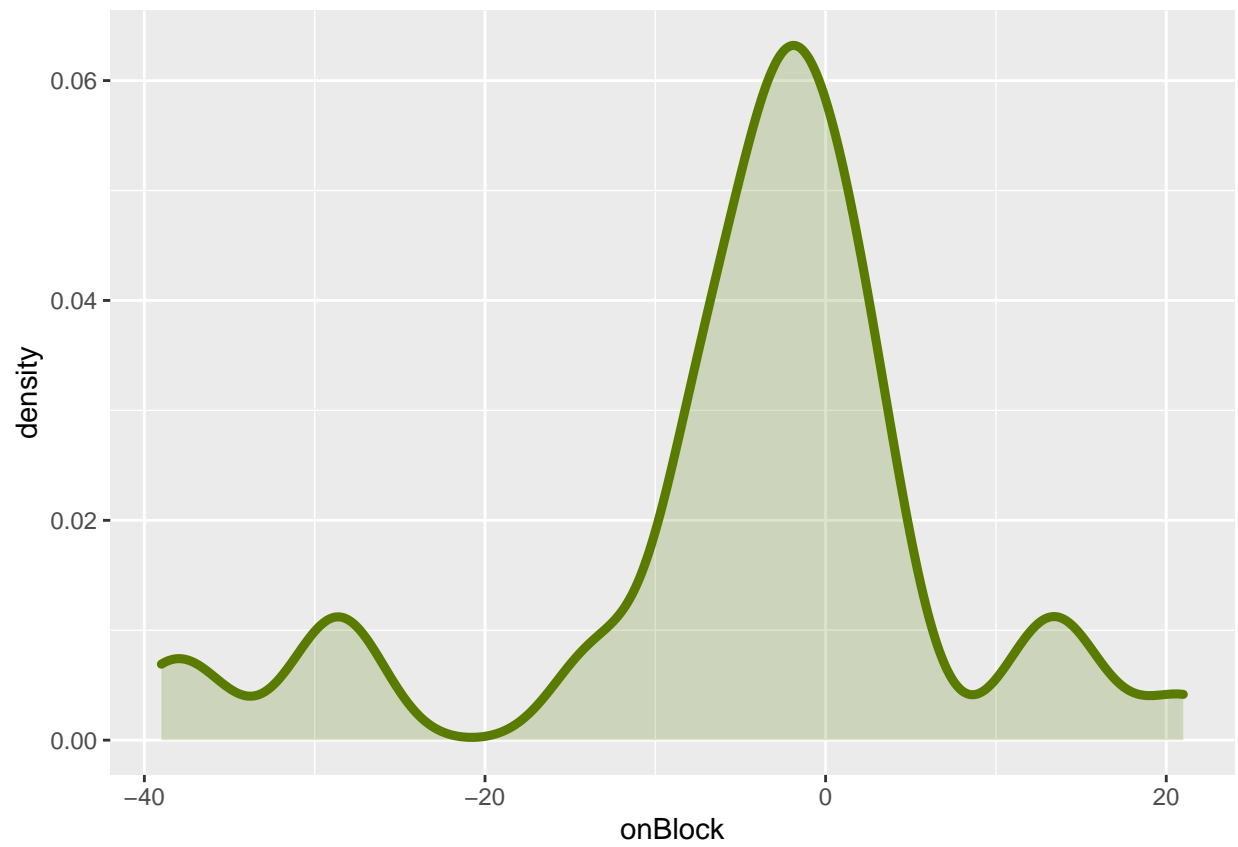


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False   False   normal    30   70
## 2 Stand MP      3      MP   False   False   False   normal    60  100
## 3 Stand HP     -2      HP   False   False   False   normal    90  120
## 4 Stand LK      3      LK   False   False   False   normal    30   70
## 5 Stand MK     -4      MK   False   False   False   normal    70  100
## 6 Stand HK     -4      HK   False   False   False   normal    80  150
```

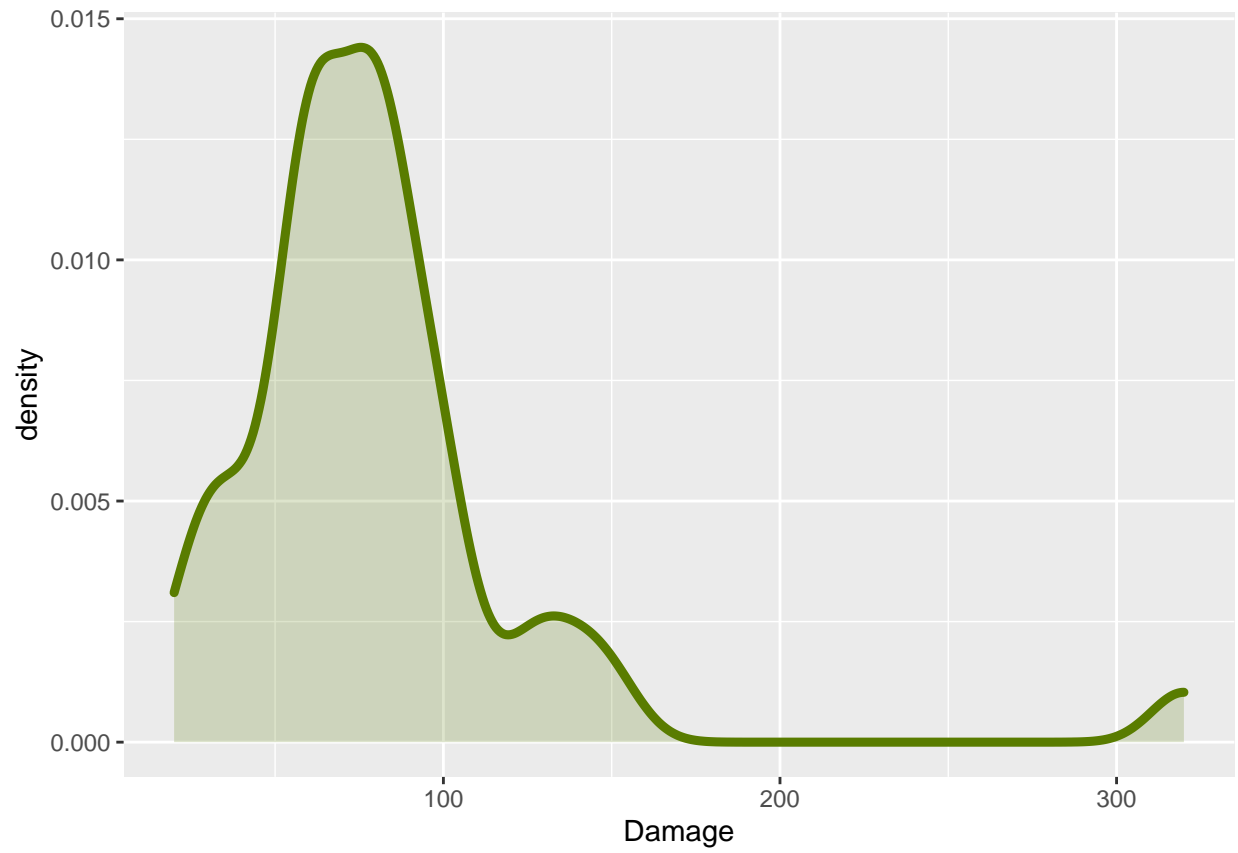
```
##      1
## health    1025.0000
## stun      1050.0000
## vgaugel    600.0000
## vgaugel    600.0000
## fDash      16.0000
## bDash      25.0000
## fWalk      0.0412
## bWalk      0.0273
## throwHurt   0.2500
## throwRange 0.8500
```

```
character_info(
  "data/characters/guile.csv",
  "Guile",
  "img/guile.png",
  "#597c00"
)
```

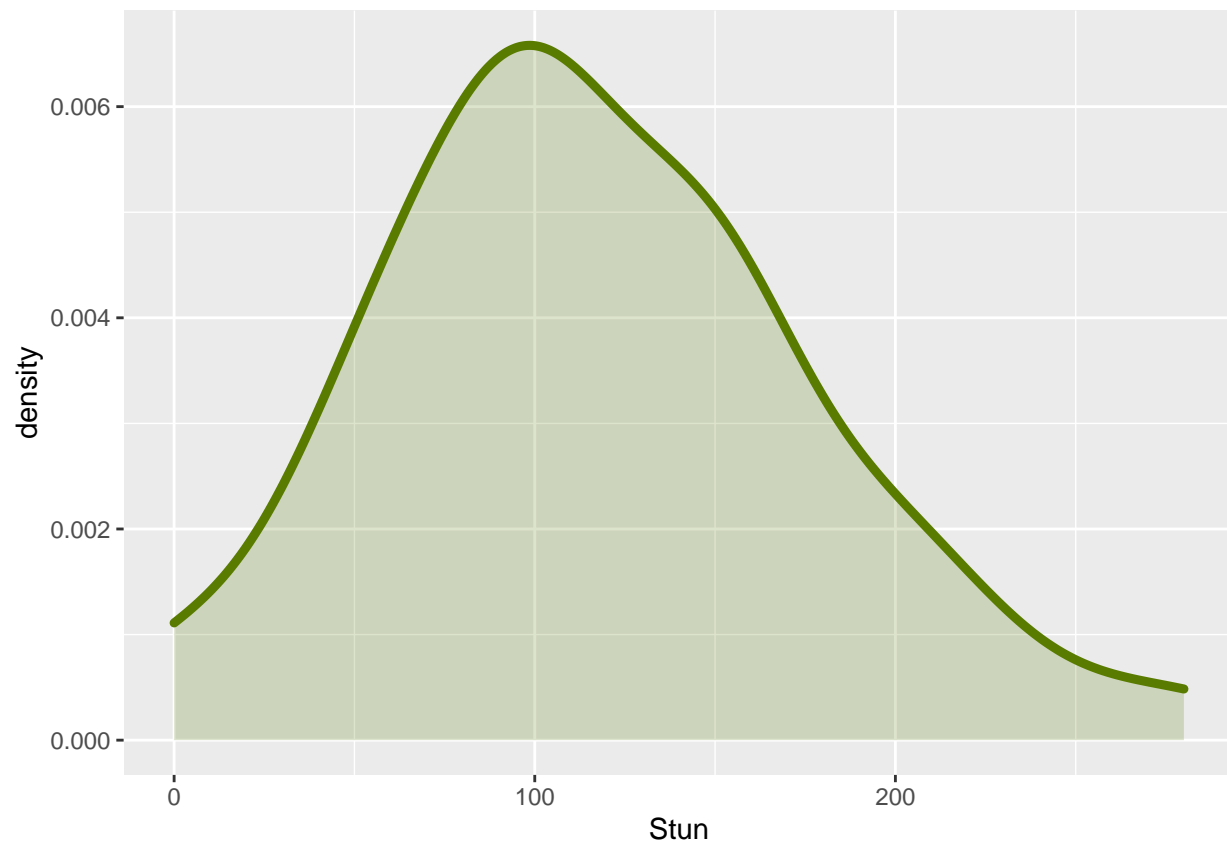
```
## [1] "Median: -3.00 | Mean: -4.83 | Standard deviation: 12.68"
```



```
## [1] "Median: 77.50 | Mean: 80.80 | Standard deviation: 48.49"
```



```
## [1] "Median: 100.00 | Mean: 116.80 | Standard deviation: 60.22"
```

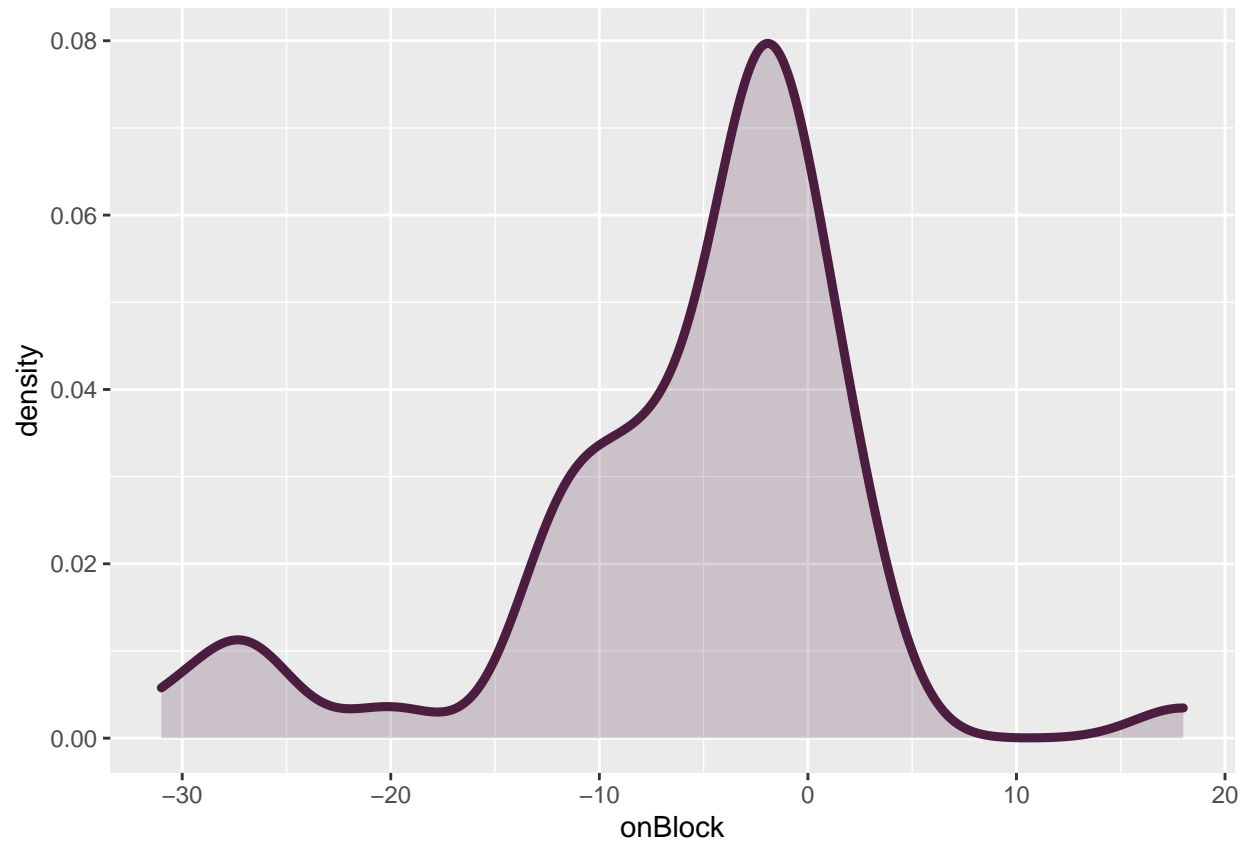


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -4      HP   False   False      False   normal    80  150
## 4 Stand LK      2      LK   False   False      False   normal    30   70
## 5 Stand MK     -1      MK   False   False      False   normal    70  100
## 6 Stand HK     -3      HK   False   False      False   normal    80  150
```

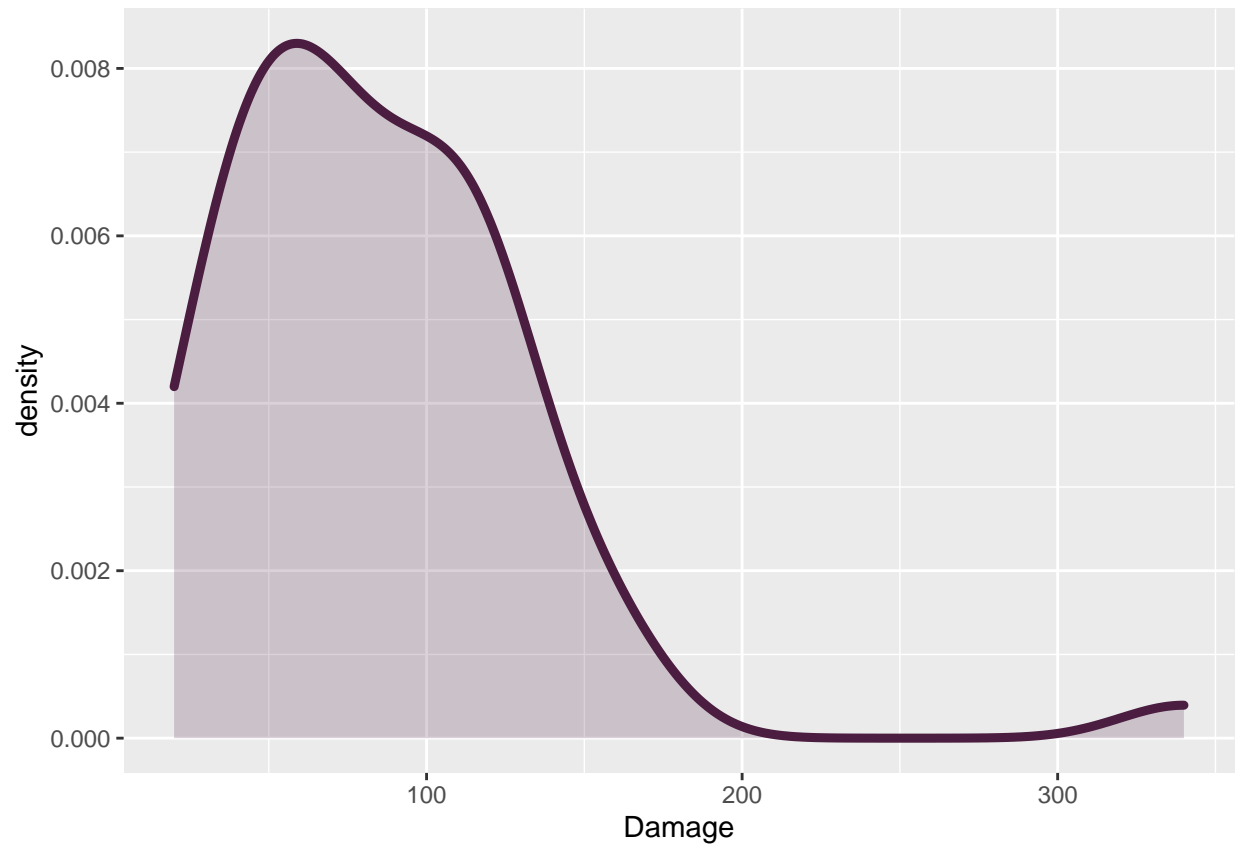
```
##      1
## health      975.000
## stun        975.000
## vgaugel     900.000
## vgaugel2    600.000
## fDash       18.000
## bDash       25.000
## fWalk       0.052
## bWalk       0.033
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/ibuki.csv",
  "Ibuki",
  "img/ibuki.png",
  "#4b1d40"
)
```

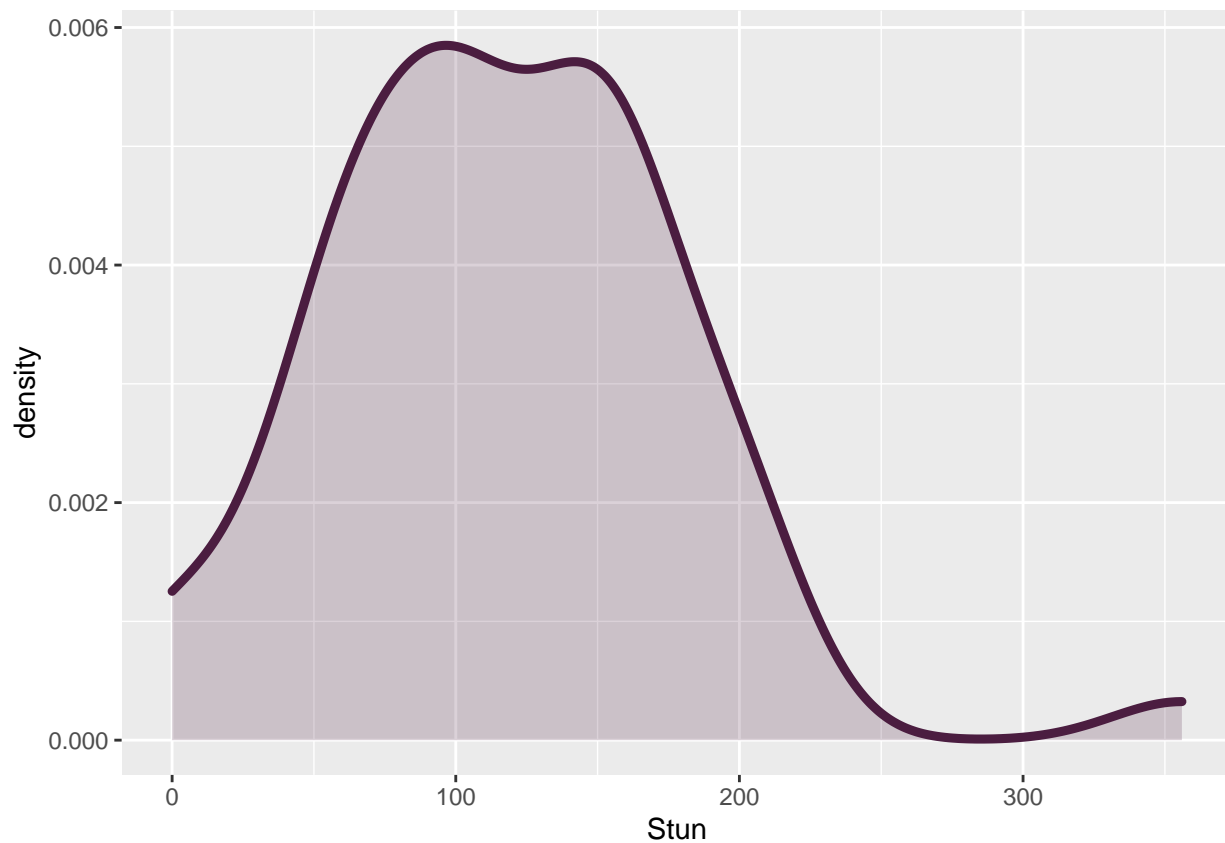
```
## [1] "Median: -3.00 | Mean: -5.80 | Standard deviation: 8.71"
```



```
## [1] "Median: 80.00 | Mean: 85.78 | Standard deviation: 52.49"
```



```
## [1] "Median: 107.50 | Mean: 117.62 | Standard deviation: 63.97"
```

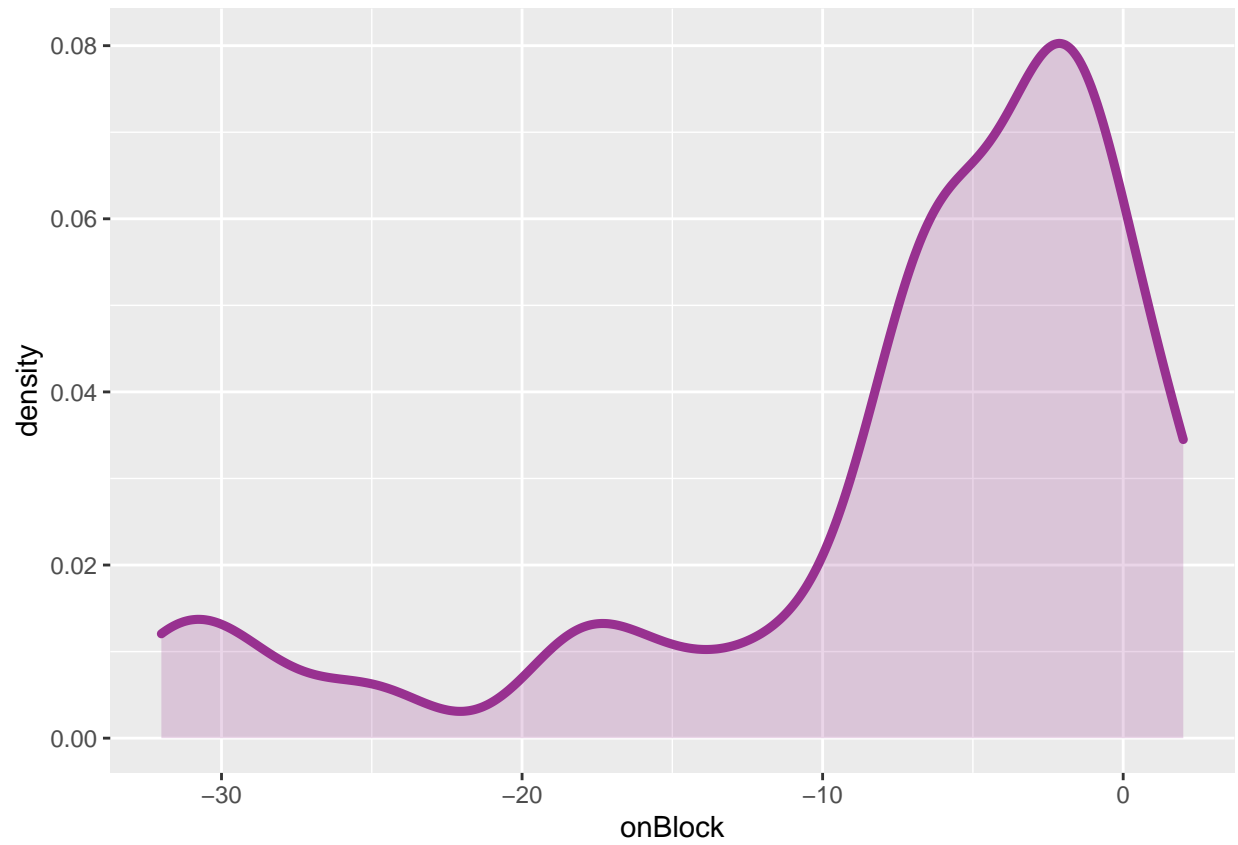



```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP   False   False      False   normal    30   70
## 2 Stand MP      2      MP   False   False      False   normal    60  100
## 3 Stand HP     -5      HP   False   False      False   normal    80  150
## 4 Stand LK     -2      LK   False   False      False   normal    30   70
## 5 Stand MK      2      MK   False   False      False   normal    60  100
## 6 Stand HK     -2      HK   False   False      False   normal    90  150
```

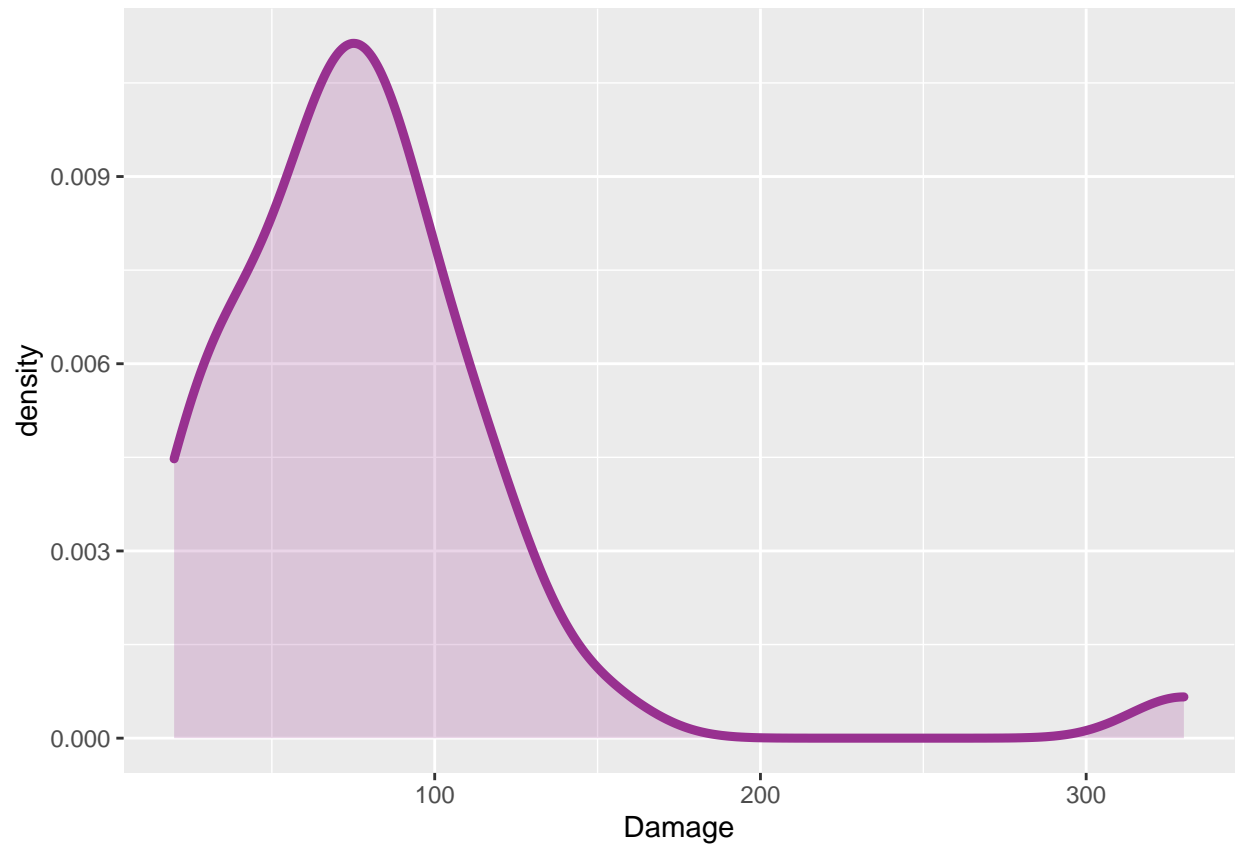
```
##      1
## health      925.000
## stun        950.000
## vgaugel     900.000
## vgaugel2    600.000
## fDash       16.000
## bDash       21.000
## fWalk        0.052
## bWalk        0.034
## throwHurt    0.250
## throwRange   0.800
```

```
character_info(
  "data/characters/juri.csv",
  "Juri",
  "img/juri.png",
  "#983190"
)
```

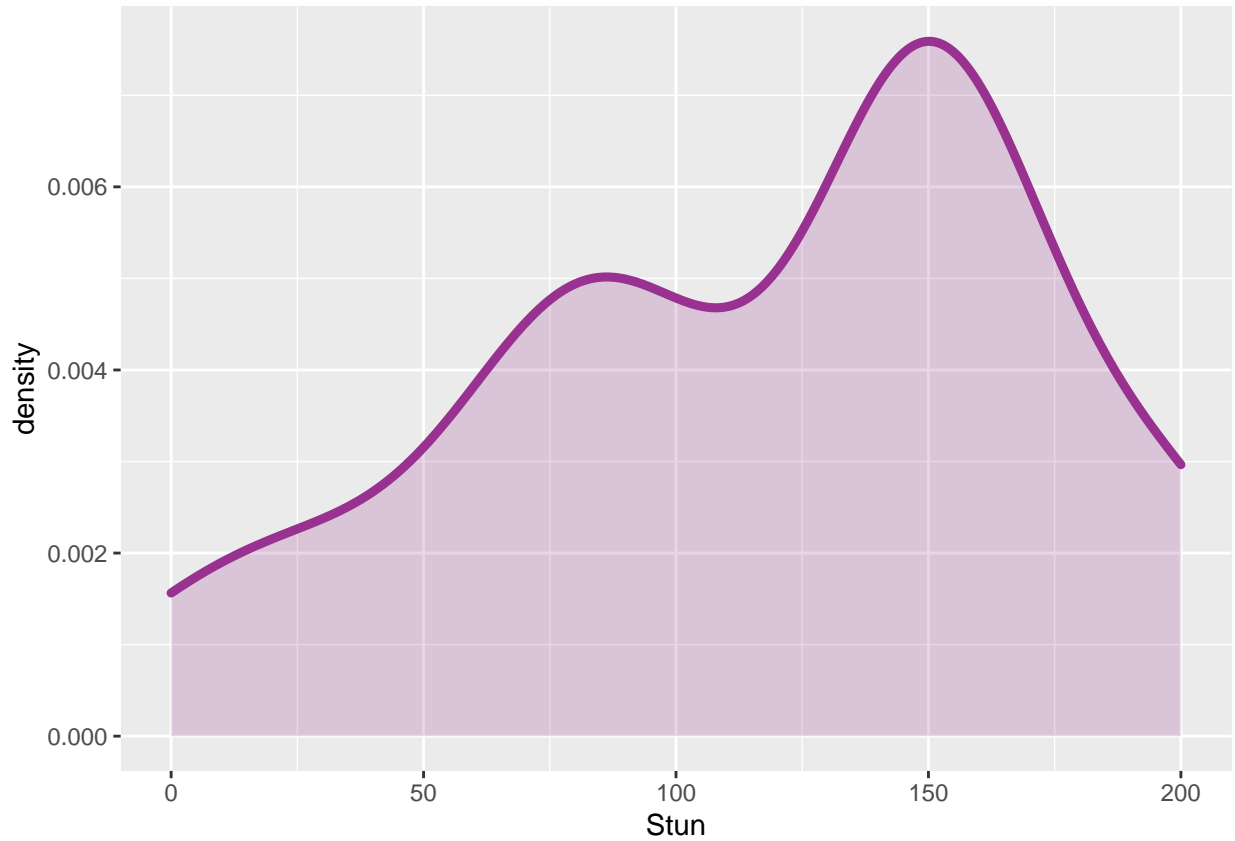
```
## [1] "Median: -5.00 | Mean: -7.41 | Standard deviation: 9.18"
```



```
## [1] "Median: 80.00 | Mean: 80.16 | Standard deviation: 52.33"
```



```
## [1] "Median: 150.00 | Mean: 117.57 | Standard deviation: 56.19"
```

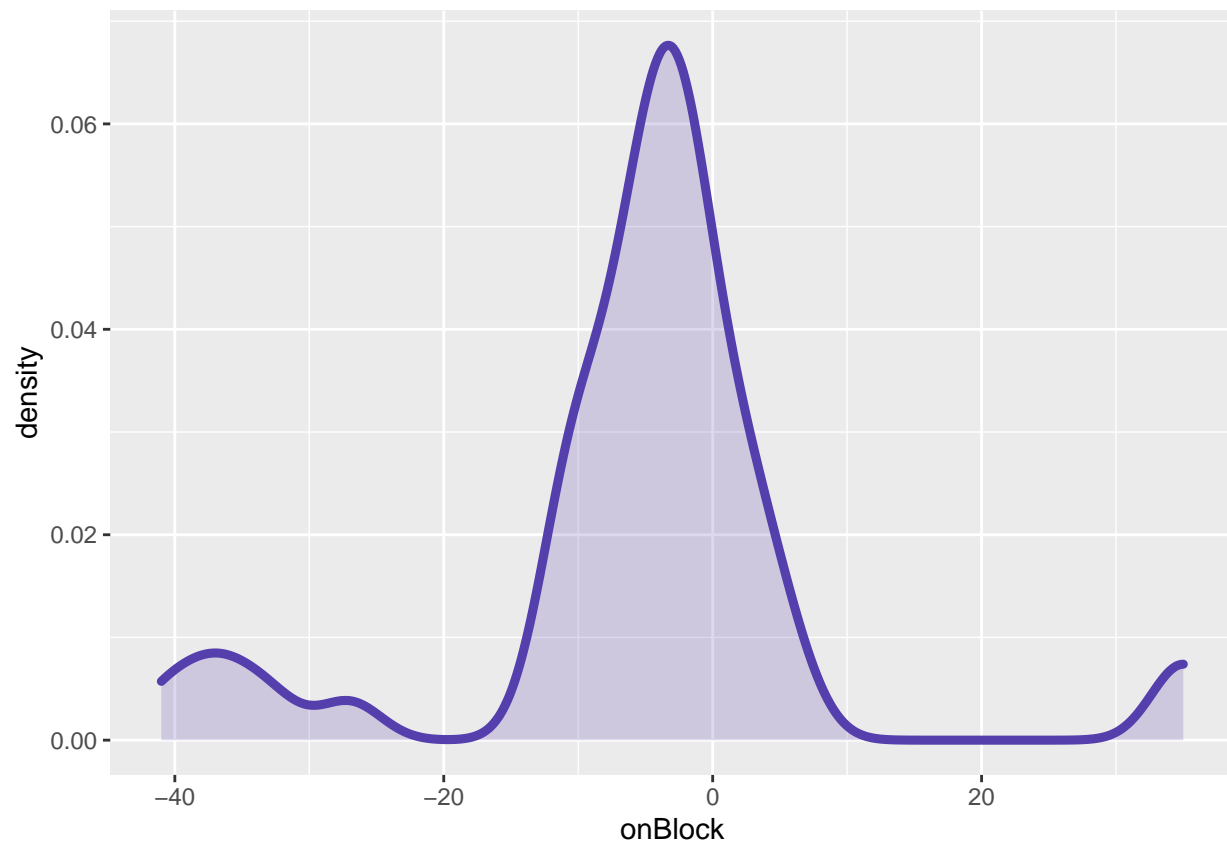


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2    LP   False   False    False   normal    30   70
## 2 Stand MP     -1    MP   False   False    False   normal    60  100
## 3 Stand HP     -6    HP   False   False    False   normal    80  150
## 4 Stand LK      1    LK   False   False    False   normal    30   70
## 5 Stand MK     -7    MK   False   False    False   normal    70  100
## 6 Stand HK     -7    HK   False   False    False   normal    80  150
```

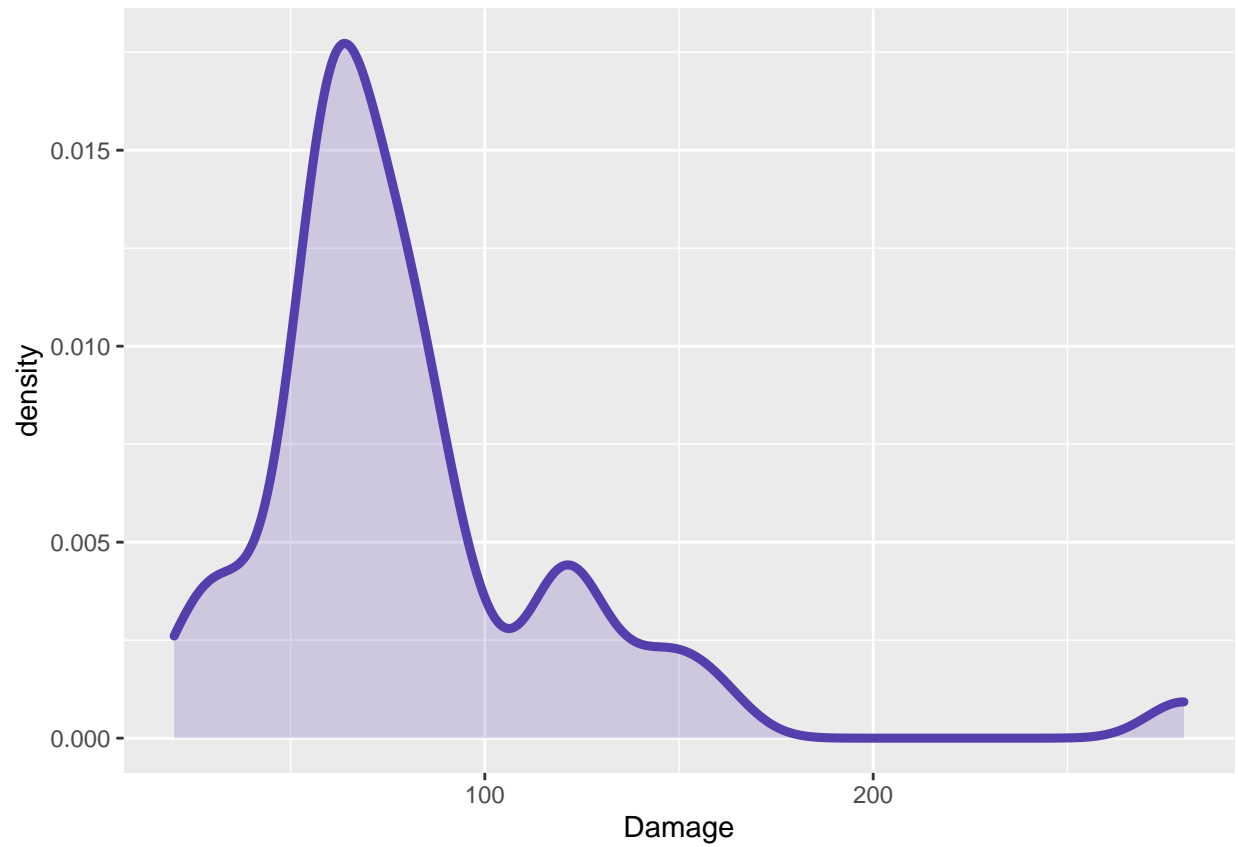
```
##      1
## health    975.000
## stun      1000.000
## vgaugel    600.000
## vgaugel2   600.000
## fDash      16.000
## bDash      24.000
## fWalk       0.050
## bWalk       0.033
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/kage.csv",
  "Kage",
  "img/kage.png",
  "#553fad"
)
```

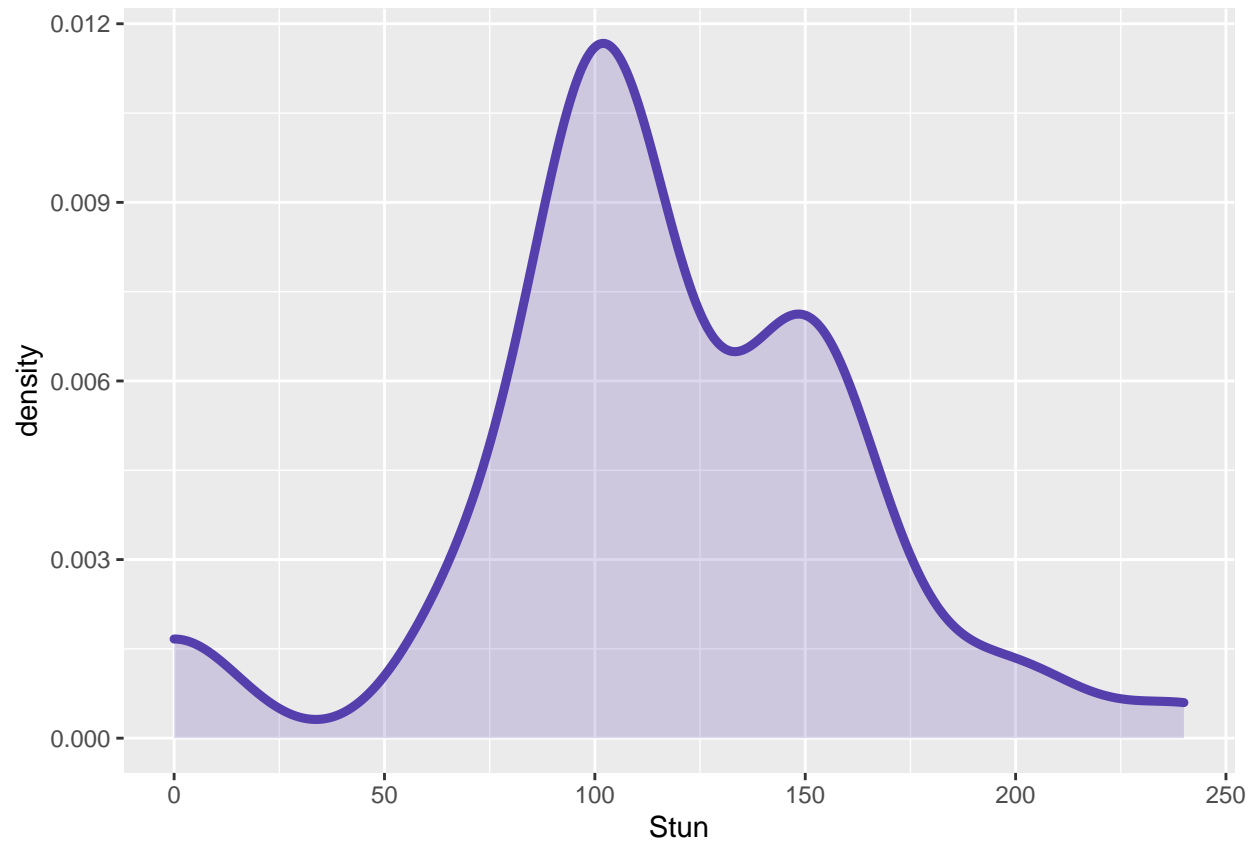
```
## [1] "Median: -4.00 | Mean: -5.35 | Standard deviation: 13.89"
```



```
## [1] "Median: 70.00 | Mean: 80.93 | Standard deviation: 43.49"
```



```
## [1] "Median: 100.00 | Mean: 115.43 | Standard deviation: 47.50"
```

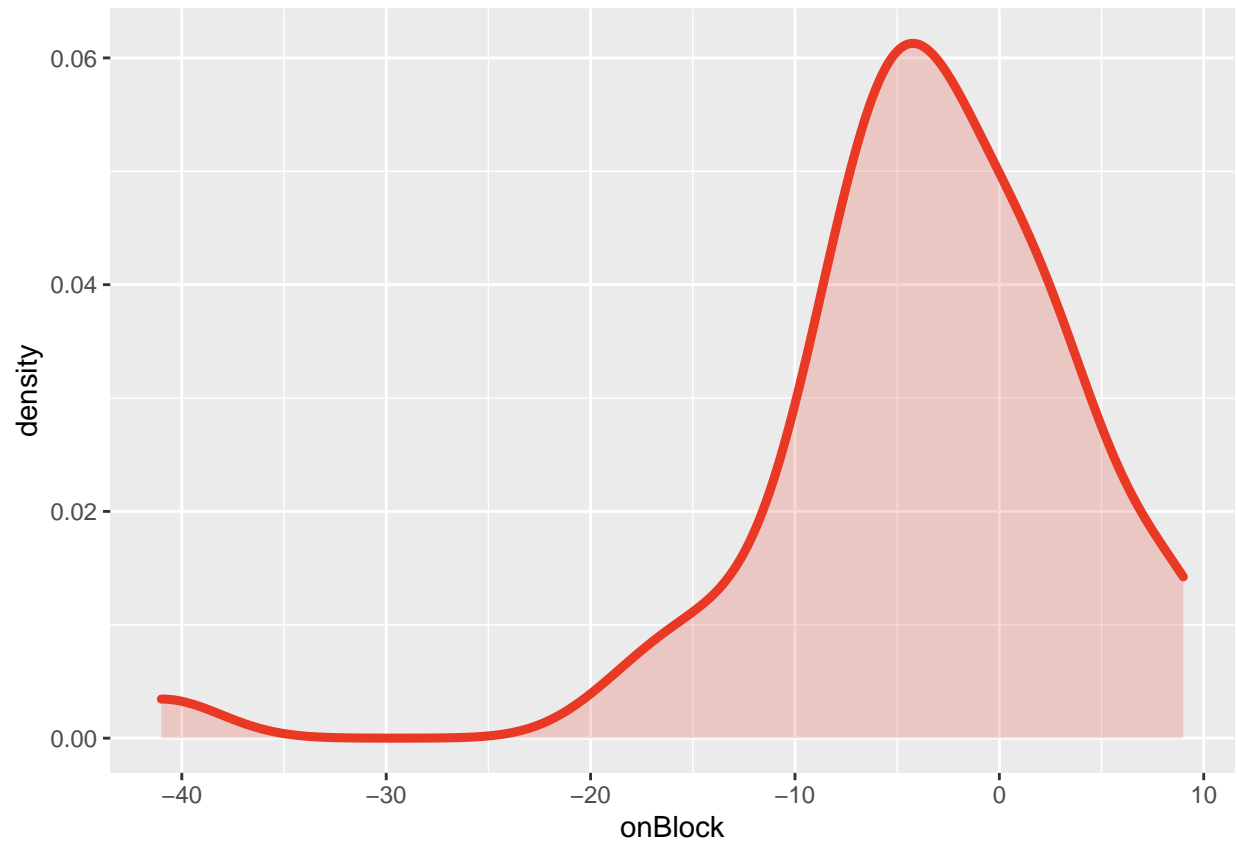


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   70
## 2 Stand MP     -1      MP   False   False      False   normal    60  100
## 3 Stand HP     -5      HP   False   False      False   normal    80  120
## 4 Stand LK      1      LK   False   False      False   normal    30   70
## 5 Stand MK     -3      MK   False   False      False   normal    70  100
## 6 Stand HK     -2      HK   False   False      False   normal    80  150
```

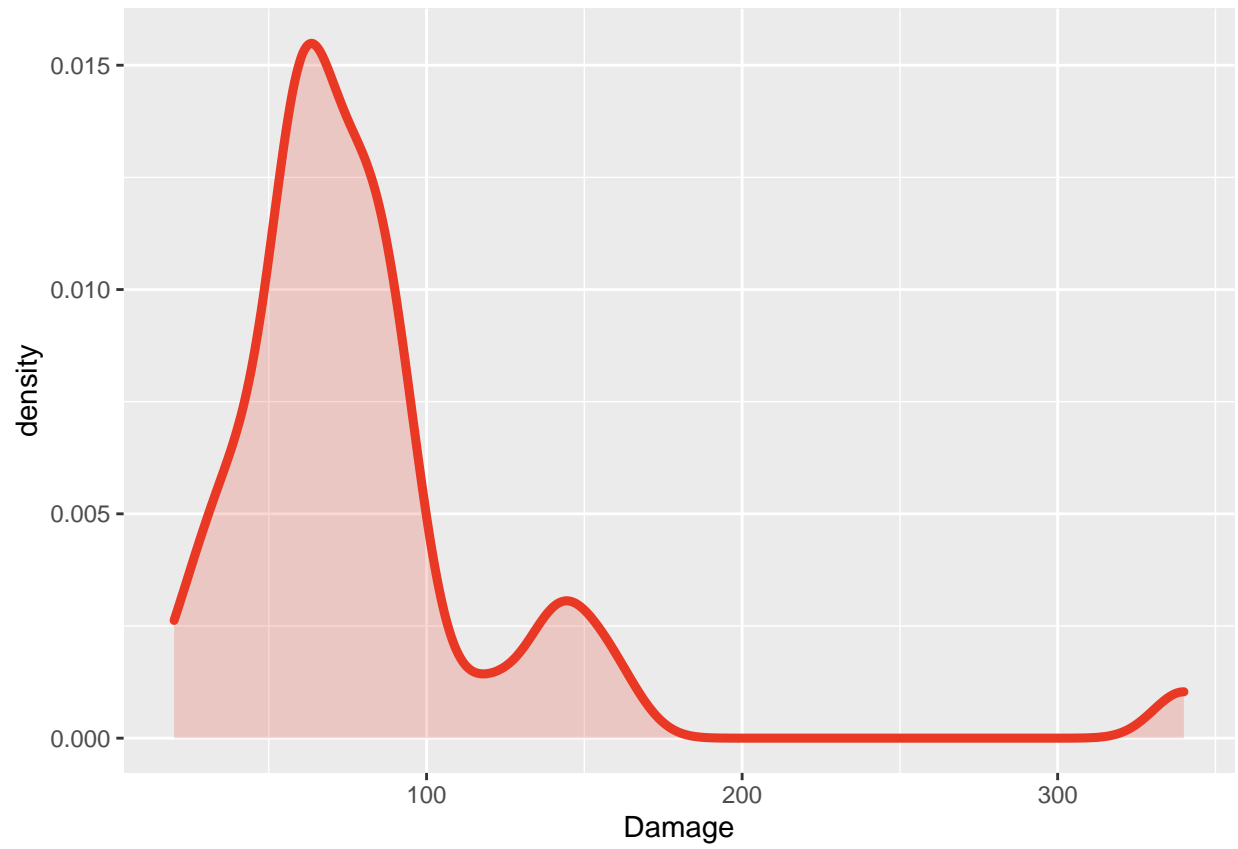
```
##      1
## health    925.000
## stun      950.000
## vgaugel    600.000
## vgaugel2   900.000
## fDash      16.000
## bDash      21.000
## fWalk      0.052
## bWalk      0.035
## throwHurt   0.250
## throwRange 0.800
```

```
character_info(
  "data/characters/karin.csv",
  "Karin",
  "img/karin.png",
  "#e93824"
)
```

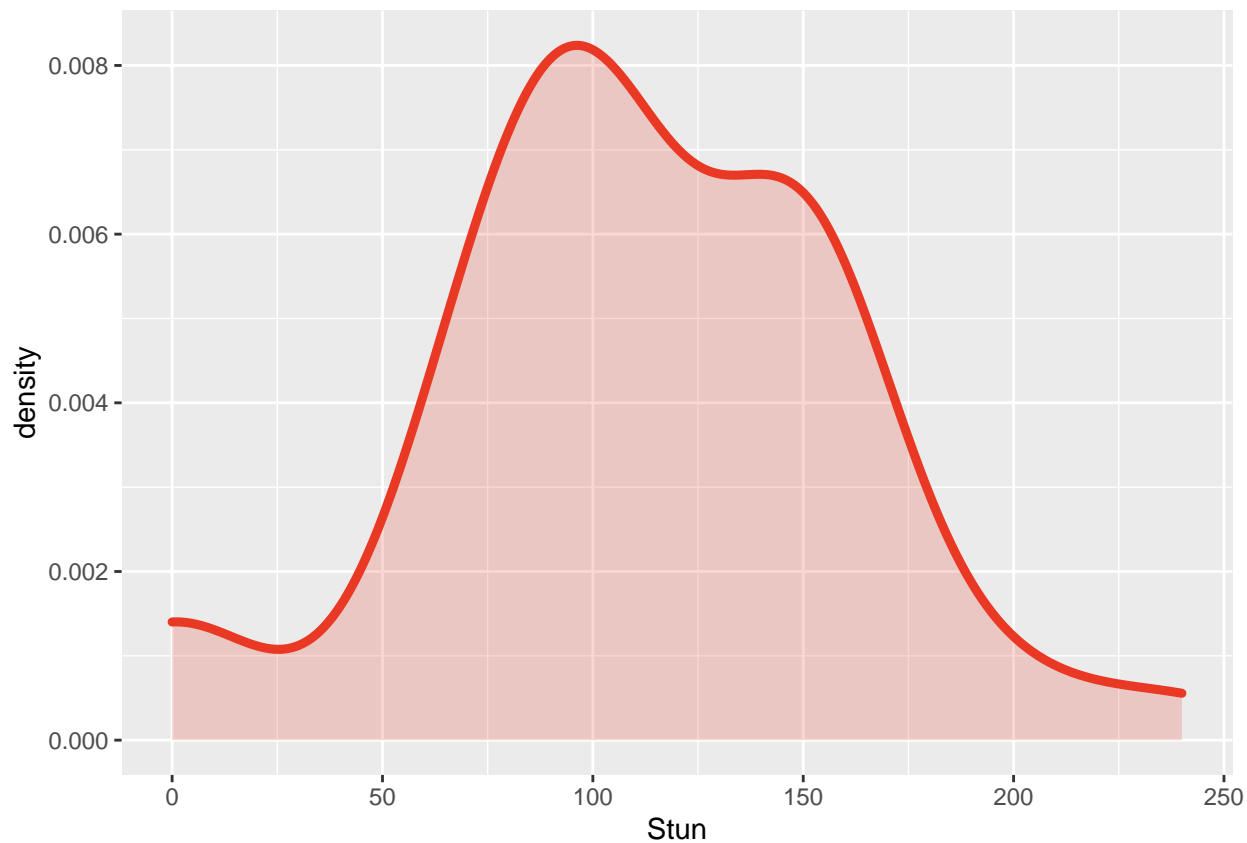
```
## [1] "Median: -4.00 | Mean: -3.92 | Standard deviation: 8.59"
```



```
## [1] "Median: 70.00 | Mean: 81.50 | Standard deviation: 52.65"
```

```
## [1] "Median: 100.00 | Mean: 111.00 | Standard deviation: 50.17"
```

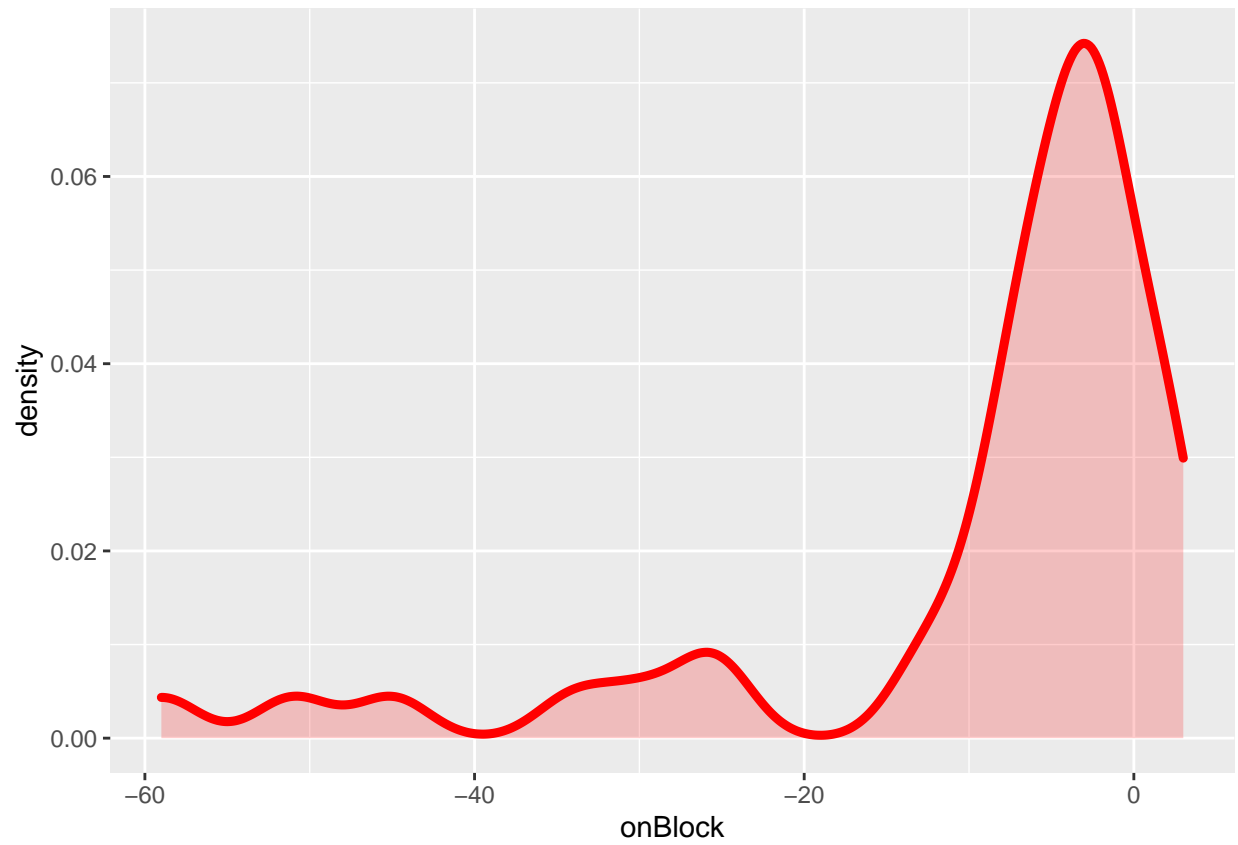


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False      False   normal    30   70
## 2 Stand MP      1      MP   False   False      False   normal    60  100
## 3 Stand HP     -5      HP   False   False      False   normal    80  150
## 4 Stand LK      2      LK   False   False      False   normal    40   70
## 5 Stand MK     -4      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    80  150
```

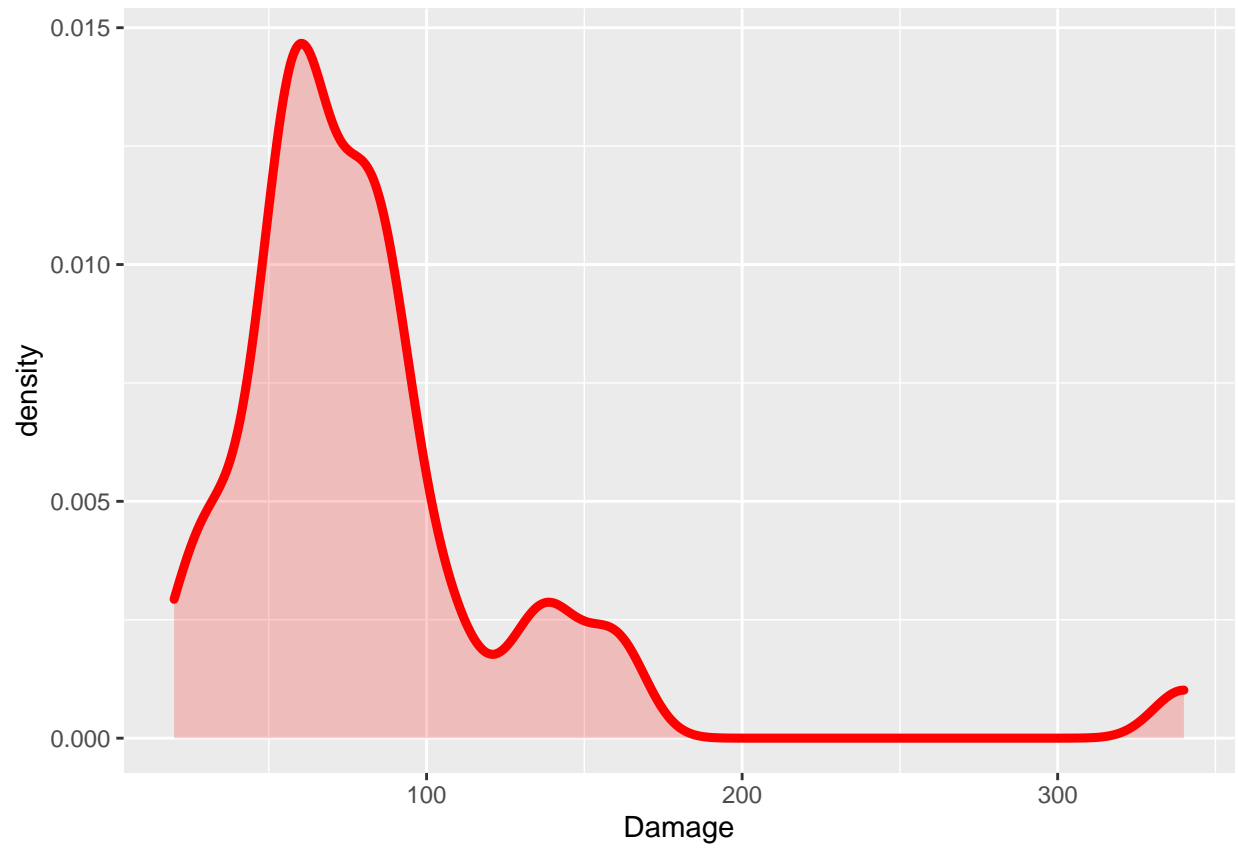
```
##      1
## health      925.000
## stun        950.000
## vgaugel     600.000
## vgaugel2    600.000
## fDash       16.000
## bDash       21.000
## fWalk        0.049
## bWalk        0.036
## throwHurt    0.250
## throwRange   0.850
```

```
character_info(
  "data/characters/ken.csv",
  "Ken",
  "img/ken.png",
  "#ff0000"
)
```

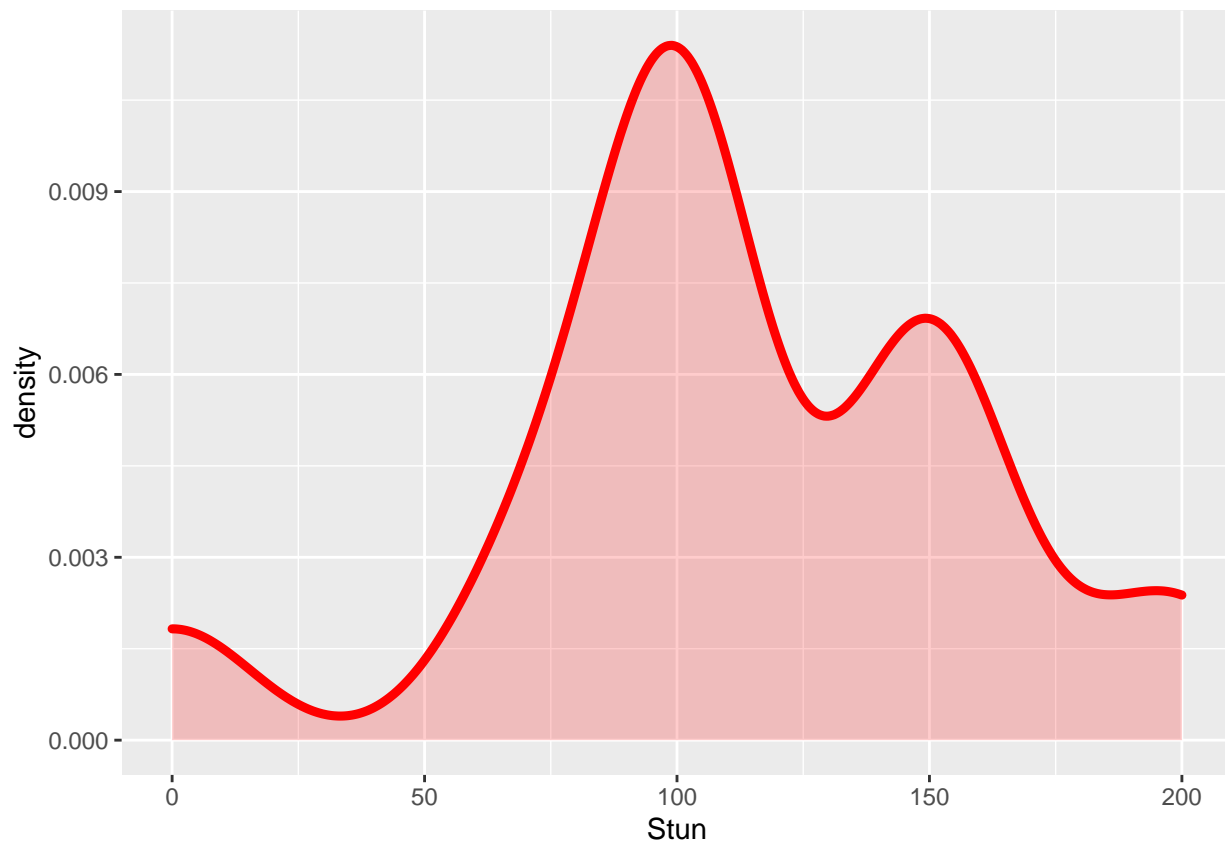
```
## [1] "Median: -4.00 | Mean: -9.54 | Standard deviation: 14.74"
```



```
## [1] "Median: 70.00 | Mean: 82.68 | Standard deviation: 53.02"
```



```
## [1] "Median: 100.00 | Mean: 112.73 | Standard deviation: 48.36"
```

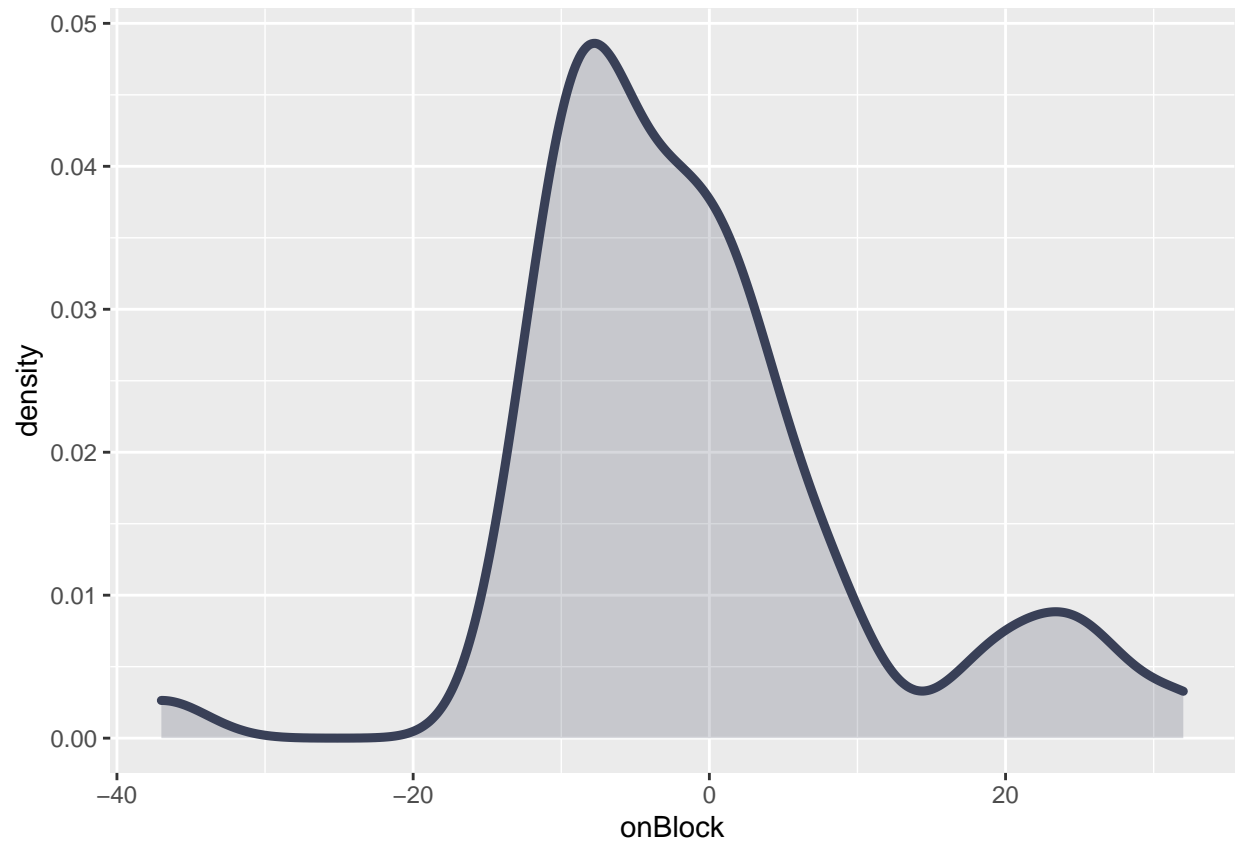


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False   False   normal    30   70
## 2 Stand MP      2      MP   False   False   False   normal    60  100
## 3 Stand HP     -3      HP   False   False   False   normal    80  150
## 4 Stand LK     -1      LK   False   False   False   normal    30   70
## 5 Stand MK     -2      MK   False   False   False   normal    60  100
## 6 Stand HK     -4      HK   False   False   False   normal    80  150
```

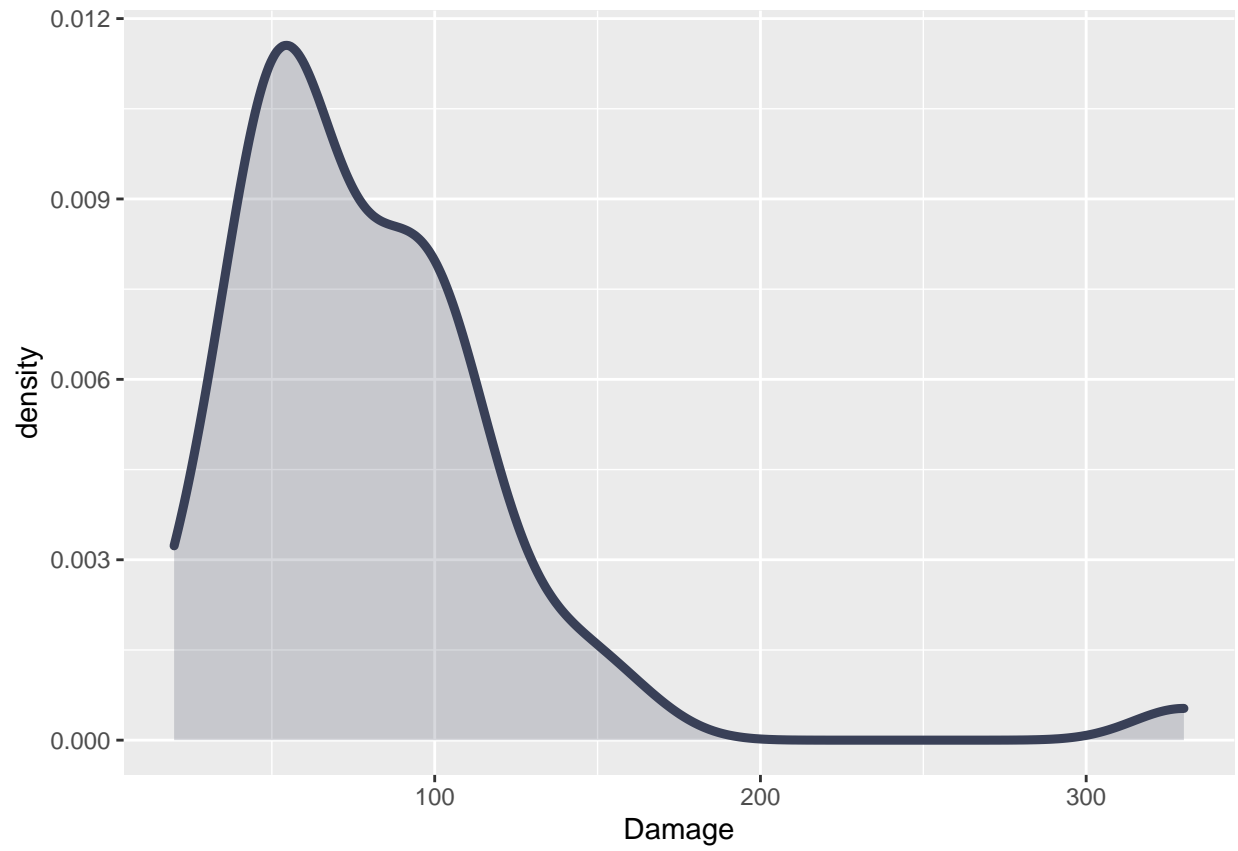
```
##      1
## health    1025.000
## stun      1050.000
## vgaugel    900.000
## vgaugel2   600.000
## fDash      15.000
## bDash      24.000
## fWalk       0.050
## bWalk       0.035
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/kolin.csv",
  "Kolin",
  "img/kolin.png",
  "#394057"
)
```

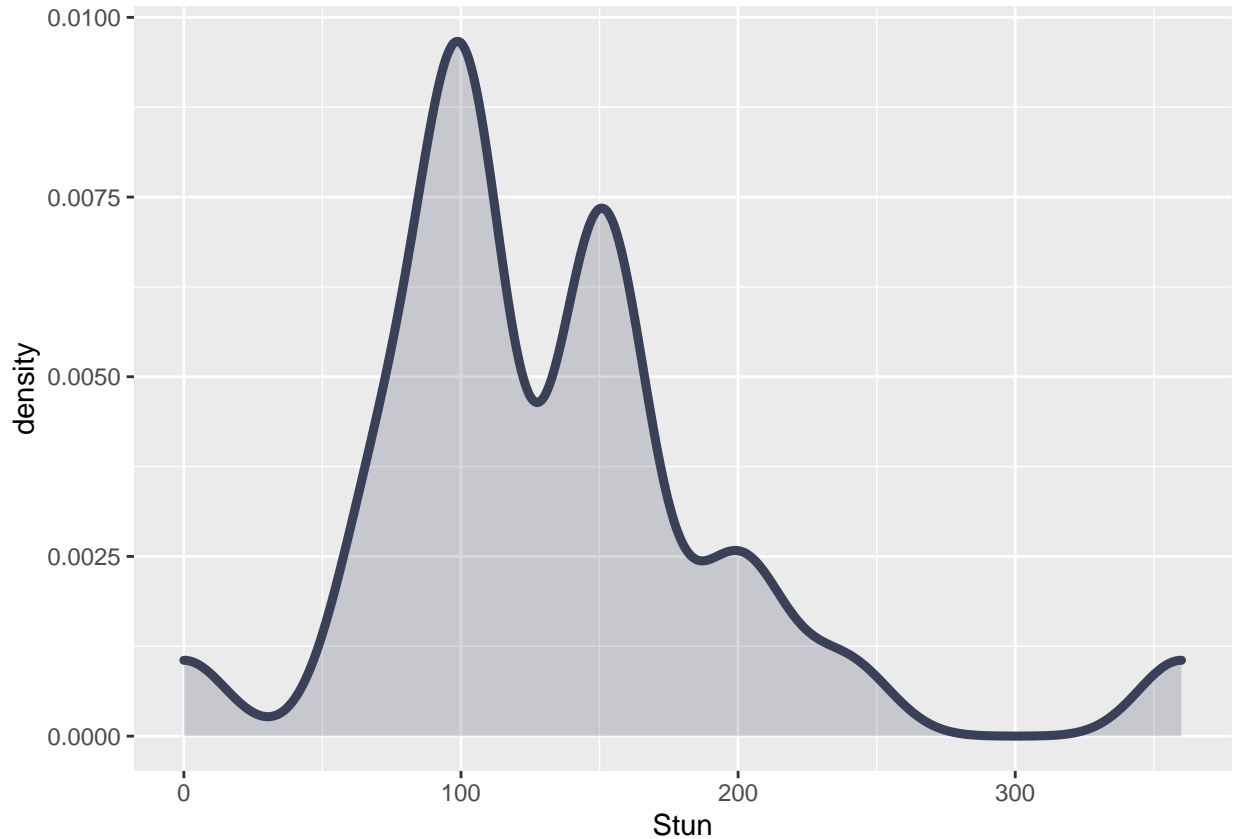
```
## [1] "Median: -2.00 | Mean: -0.94 | Standard deviation: 12.04"
```



```
## [1] "Median: 70.00 | Mean: 80.06 | Standard deviation: 48.53"
```



```
## [1] "Median: 100.00 | Mean: 133.94 | Standard deviation: 69.34"
```

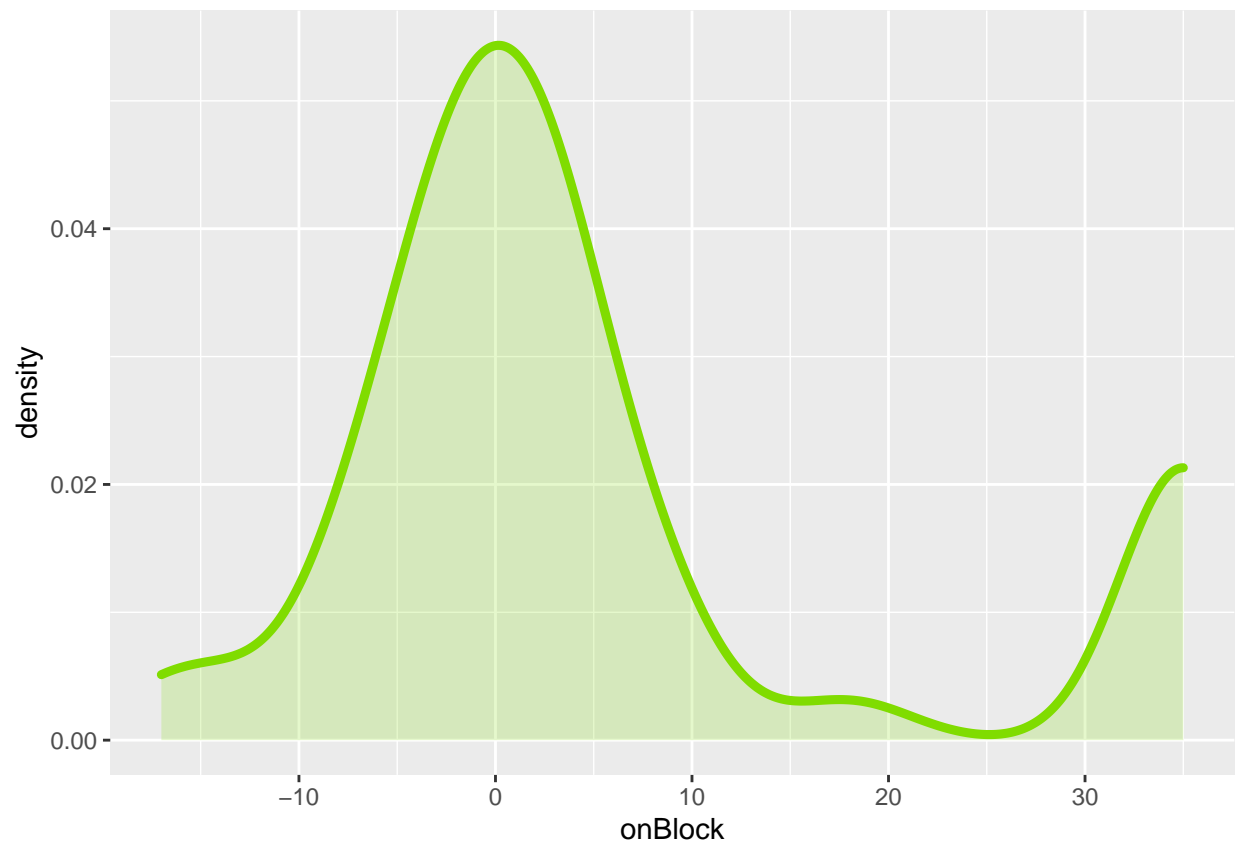


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False   False   normal    30   70
## 2 Stand MP      2      MP   False   False   False   normal    60  100
## 3 Stand HP     -4      HP   False   False   False   normal    80  150
## 4 Stand LK     -2      LK   False   False   False   normal    40   70
## 5 Stand MK     -2      MK   False   False   False   normal    50  100
## 6 Stand HK     -2      HK   False   False   False   normal    80  150
```

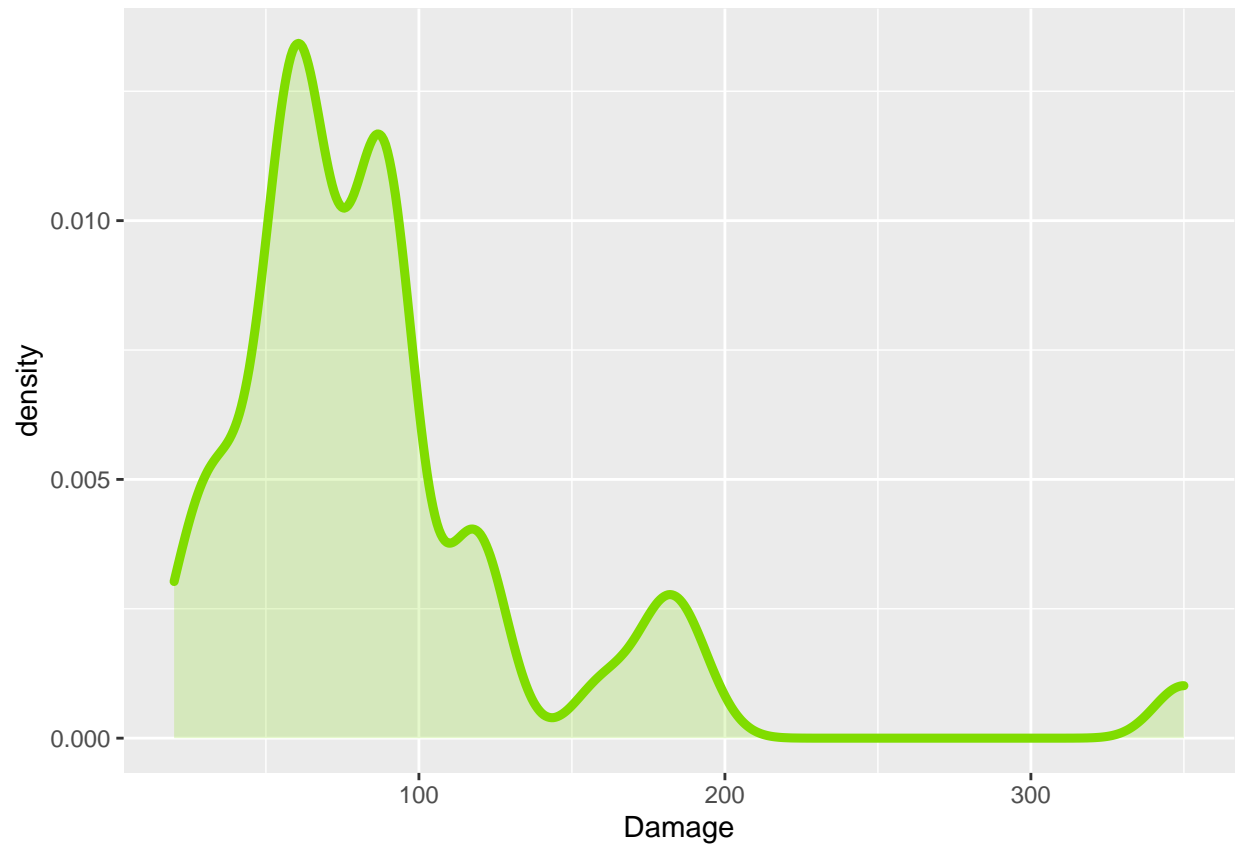
```
##      1
## health  1.00e+03
## stun    1.00e+03
## vgaug1  6.00e+02
## vgaug2  6.00e+02
## fDash   1.70e+01
## bDash   2.10e+01
## fWalk   4.13e-02
## bWalk   3.25e-02
## throwHurt 3.50e-01
## throwRange 8.50e-01
```

```
character_info(
  "data/characters/laura.csv",
  "Laura",
  "img/laura.png",
  "#80dc00"
)
```

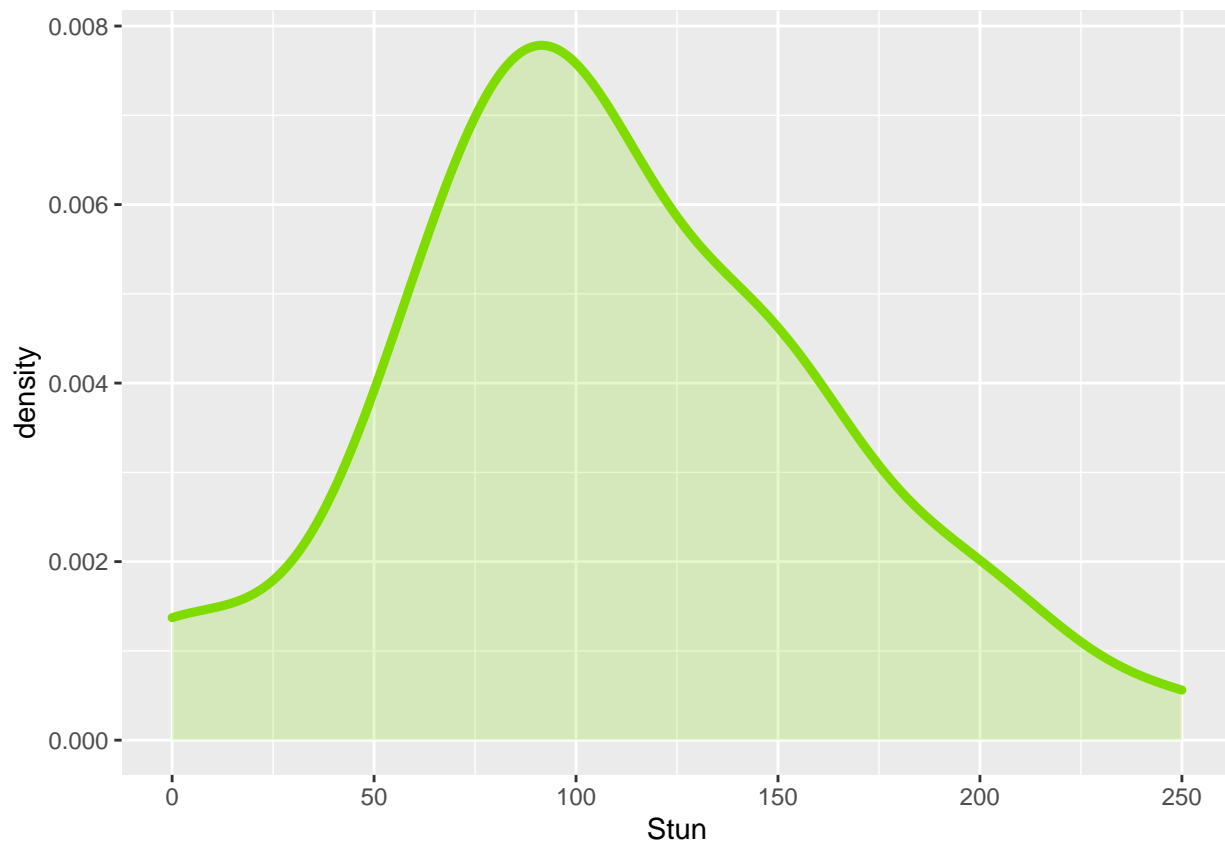
```
## [1] "Median: 2.00 | Mean: 5.78 | Standard deviation: 14.67"
```

```
## [1] "Median: 80.00 | Mean: 88.24 | Standard deviation: 58.21"
```



```
## [1] "Median: 100.00 | Mean: 108.29 | Standard deviation: 55.22"
```

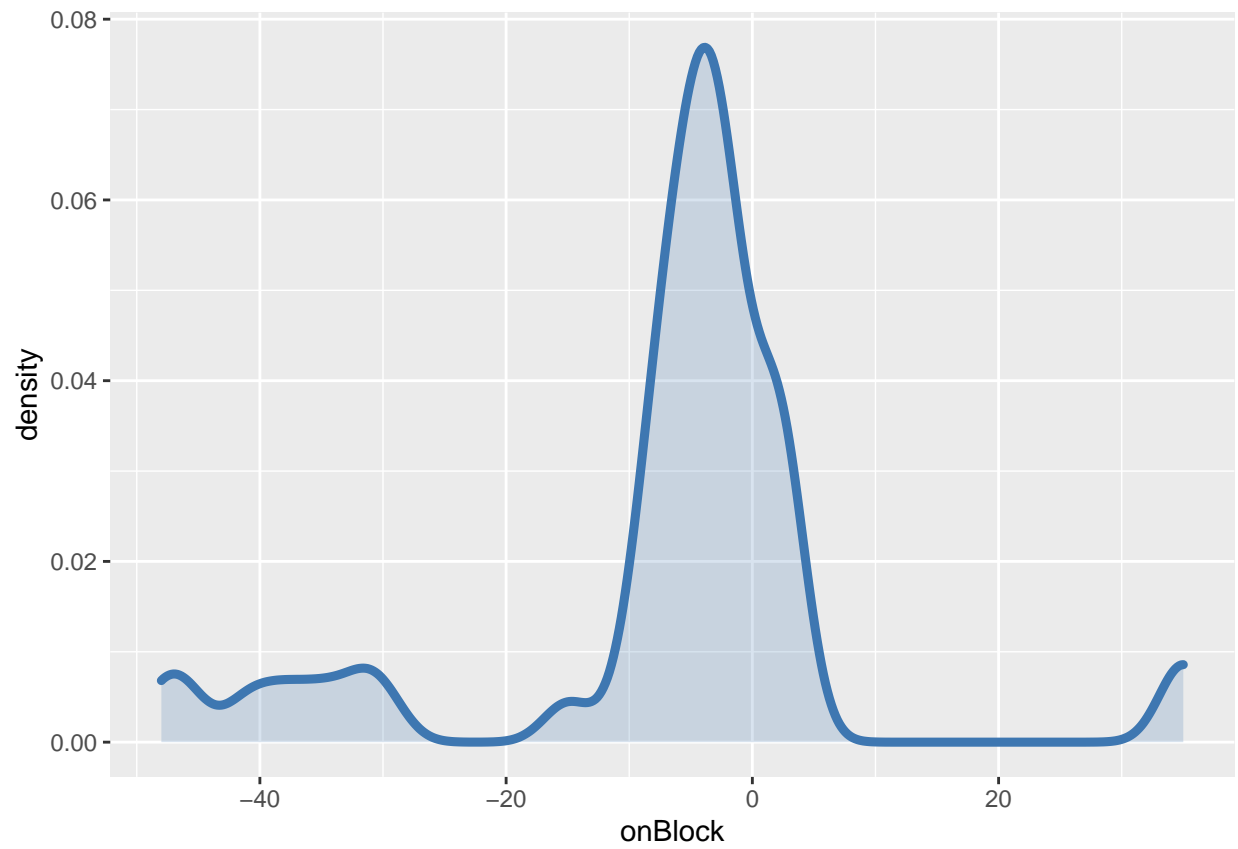


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -2      HP   False   False      False   normal    80  150
## 4 Stand LK      3      LK   False   False      False   normal    30   70
## 5 Stand MK     -2      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    90  150
```

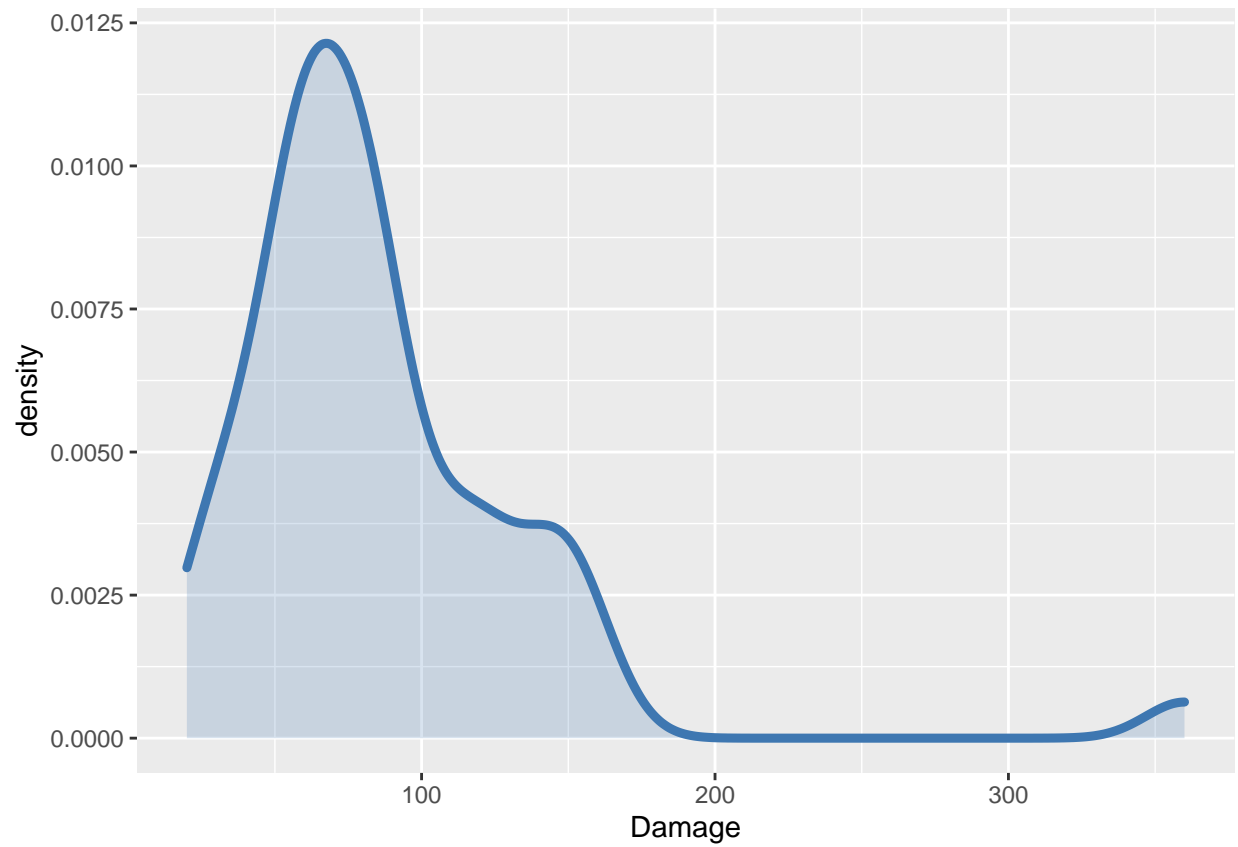
```
##      1
## health    1025.000
## stun      1000.000
## vgaugel    900.000
## vgaugel2   600.000
## fDash      17.000
## bDash      21.000
## fWalk       0.040
## bWalk       0.032
## throwHurt   0.410
## throwRange  0.850
```

```
character_info(
  "data/characters/lucia.csv",
  "Lucia",
  "img/lucia.png",
  "#3e77b1"
)
```

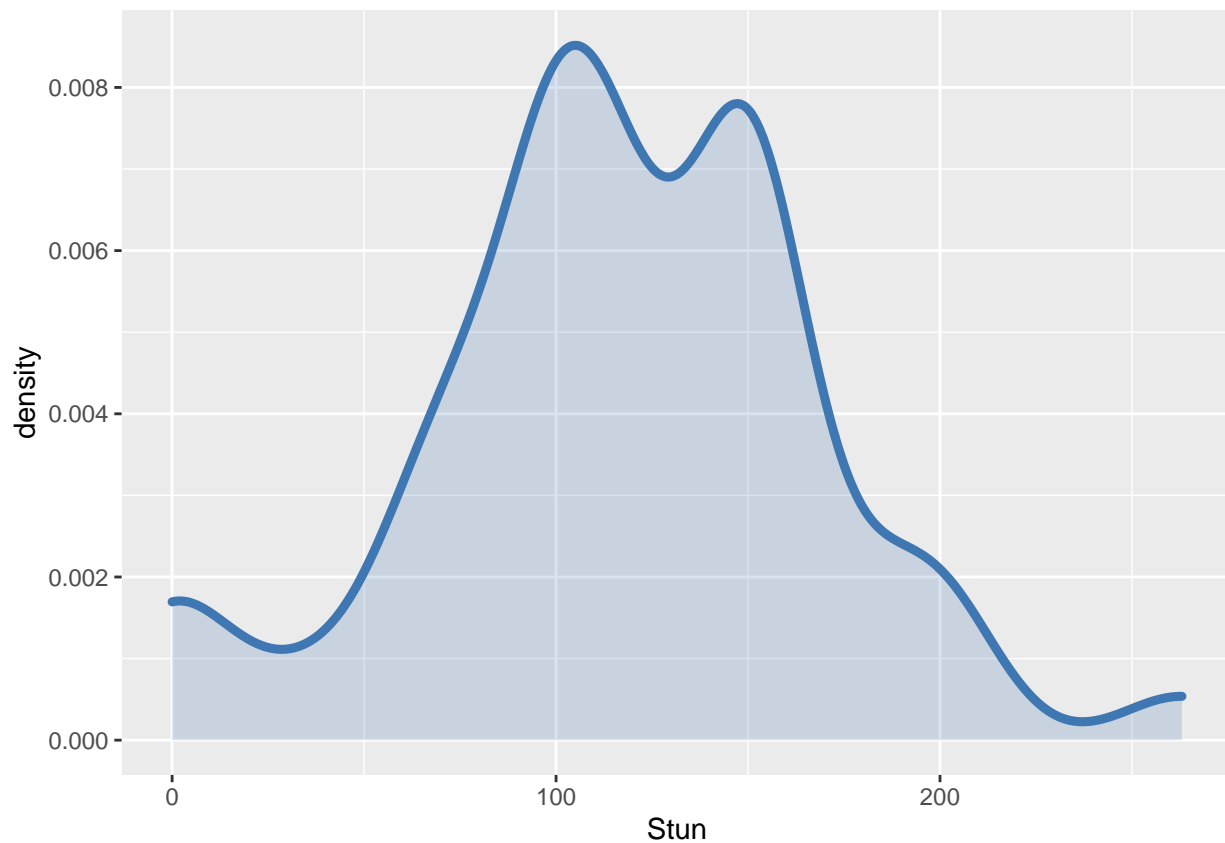
```
## [1] "Median: -4.00 | Mean: -6.94 | Standard deviation: 15.91"
```



```
## [1] "Median: 80.00 | Mean: 86.31 | Standard deviation: 53.77"
```



```
## [1] "Median: 120.00 | Mean: 117.02 | Standard deviation: 53.14"
```

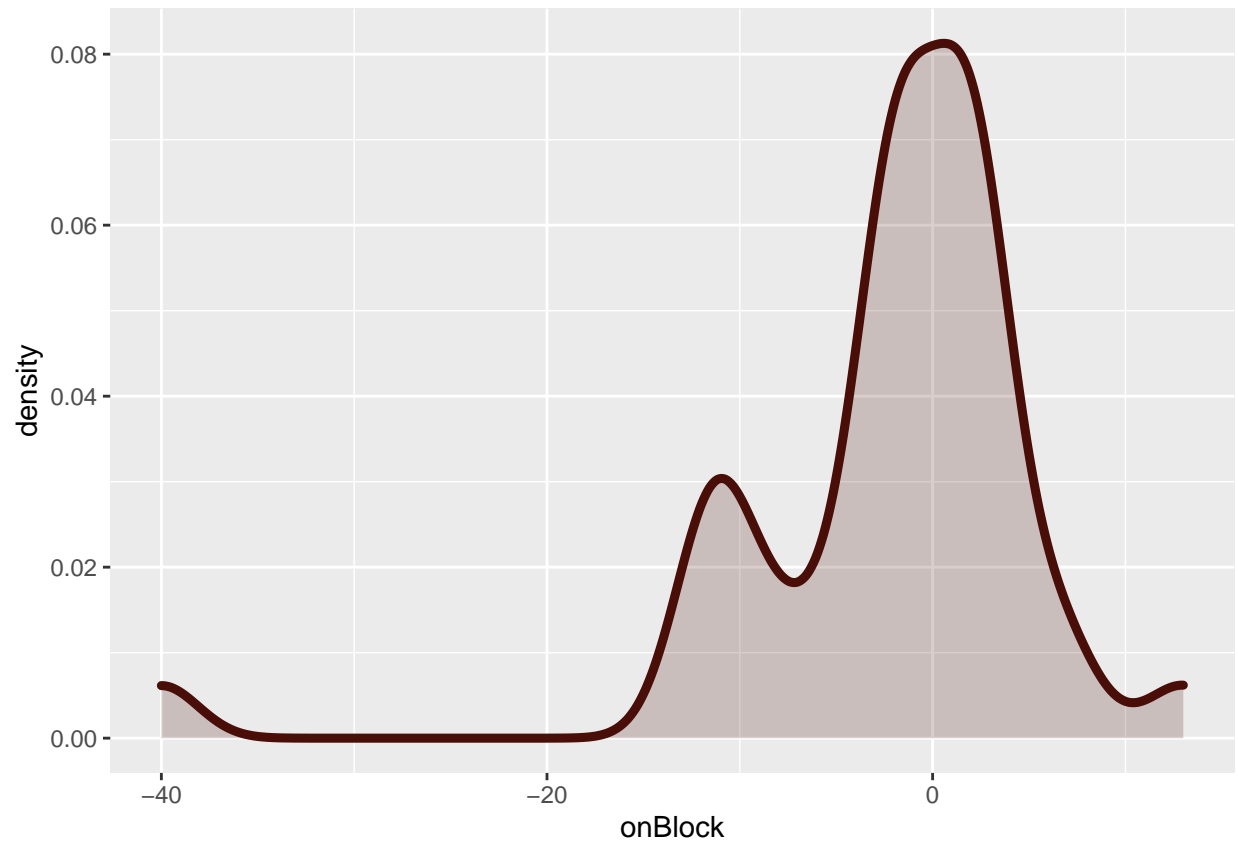


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False   False   normal    30   70
## 2 Stand MP      3      MP   False   False   False   normal    50  100
## 3 Stand HP     -2      HP   False   False   False   normal    80  150
## 4 Stand LK      1      LK   False   False   False   normal    40   70
## 5 Stand MK     -2      MK   False   False   False   normal    60  100
## 6 Stand HK     -4      HK   False   False   False   normal    90  150
```

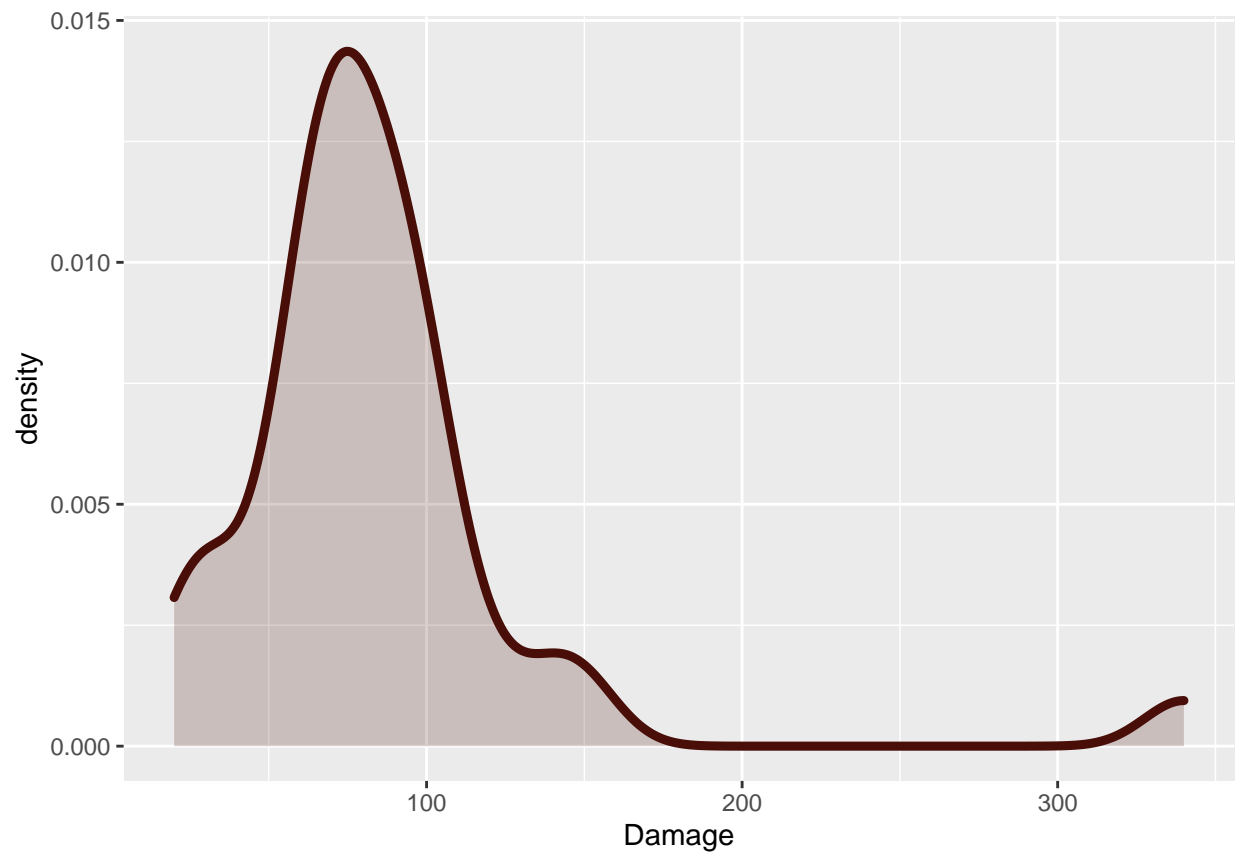
```
##      1
## health      975.00
## stun        1000.00
## vgaugel      900.00
## vgaugel2     600.00
## fDash        16.00
## bDash        21.00
## fWalk         0.05
## bWalk         0.04
## throwHurt     0.25
## throwRange    0.80
```

```
character_info(
  "data/characters/m_bison.csv",
  "M. Bison",
  "img/m_bison.png",
  "#480e07"
)
```

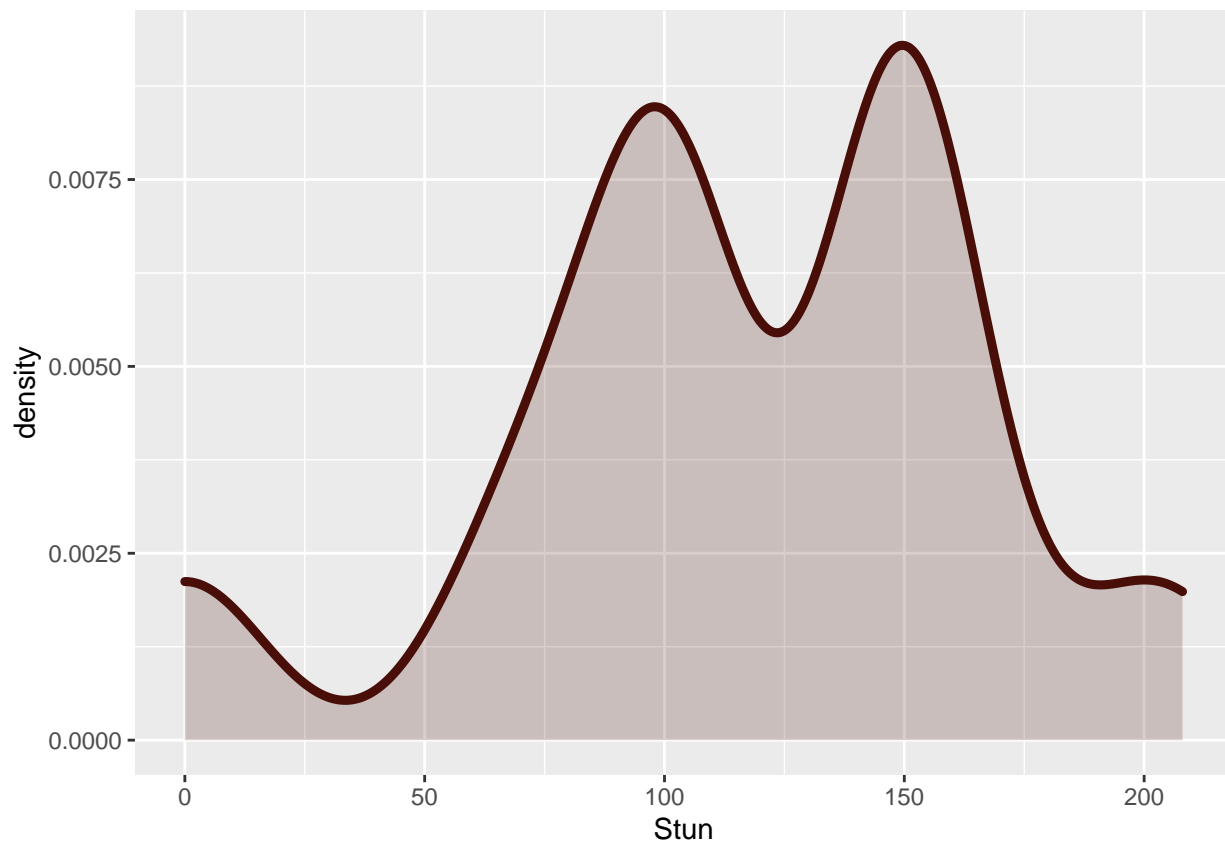
```
## [1] "Median: -1.50 | Mean: -2.44 | Standard deviation: 8.69"
```



```
## [1] "Median: 80.00 | Mean: 85.15 | Standard deviation: 53.38"
```



```
## [1] "Median: 100.00 | Mean: 115.82 | Standard deviation: 52.01"
```

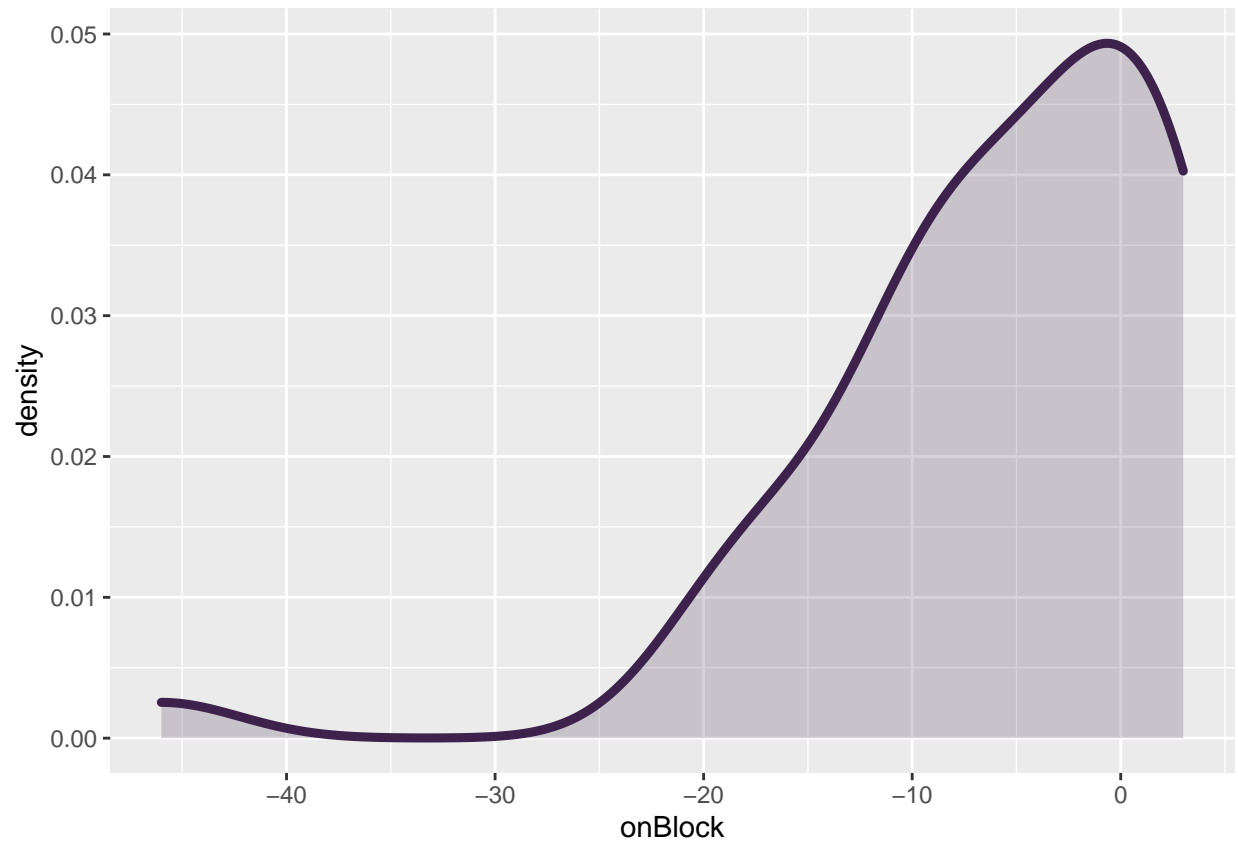



```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False   False   normal    30   70
## 2 Stand MP      2      MP   False   False   False   normal    60  100
## 3 Stand HP     -6      HP   False   False   False   normal    90  150
## 4 Stand LK     -2      LK   False   False   False   normal    30   70
## 5 Stand MK     -2      MK   False   False   False   normal    60  100
## 6 Stand HK      3      HK   False   False   False   normal    80  150
```

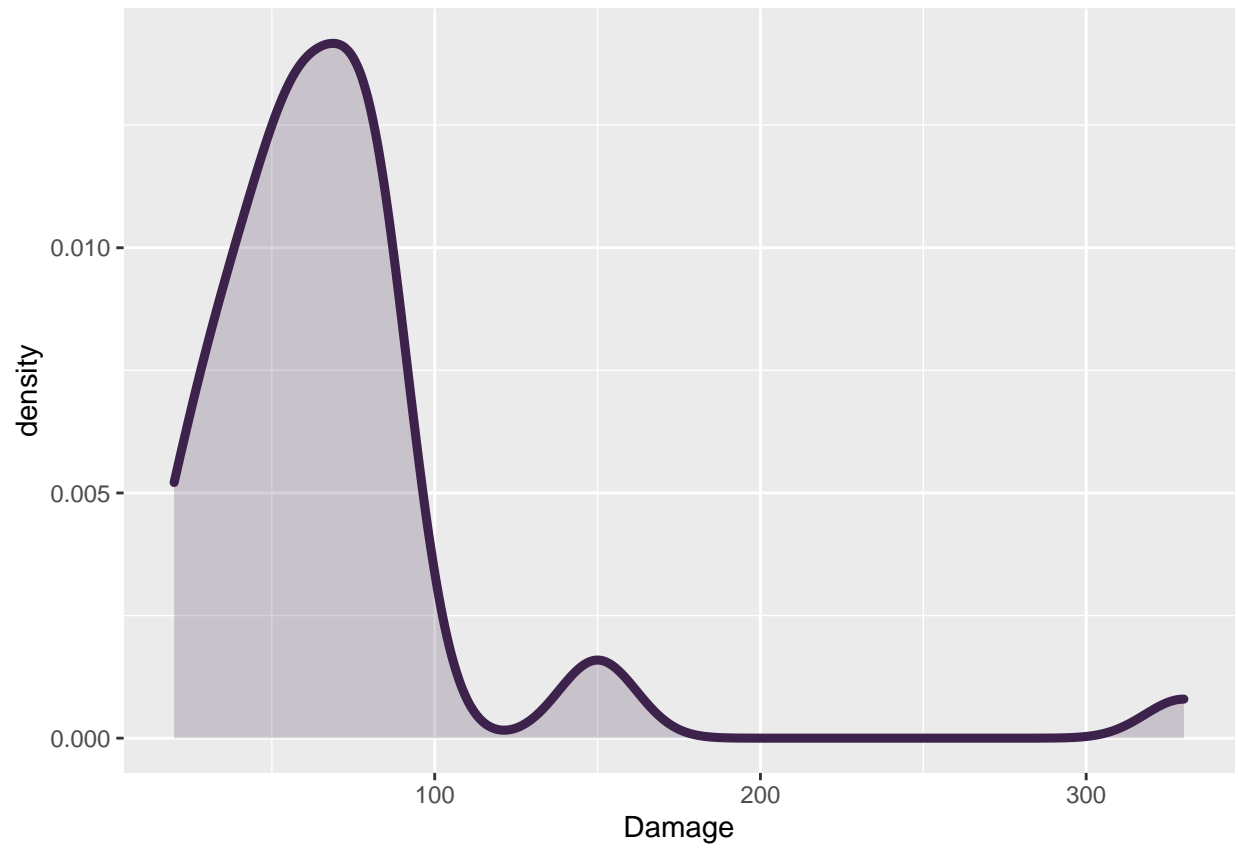
```
##      1
## health  1.00e+03
## stun    1.00e+03
## vgaugel 9.00e+02
## vgaugel2 6.00e+02
## fDash   2.20e+01
## bDash   2.20e+01
## fWalk   2.62e-02
## bWalk   2.30e-02
## throwHurt 2.50e-01
## throwRange 9.00e-01
```

```
character_info(
  "data/characters/menat.csv",
  "Menat",
  "img/menat.png",
  "#3d224b"
)
```

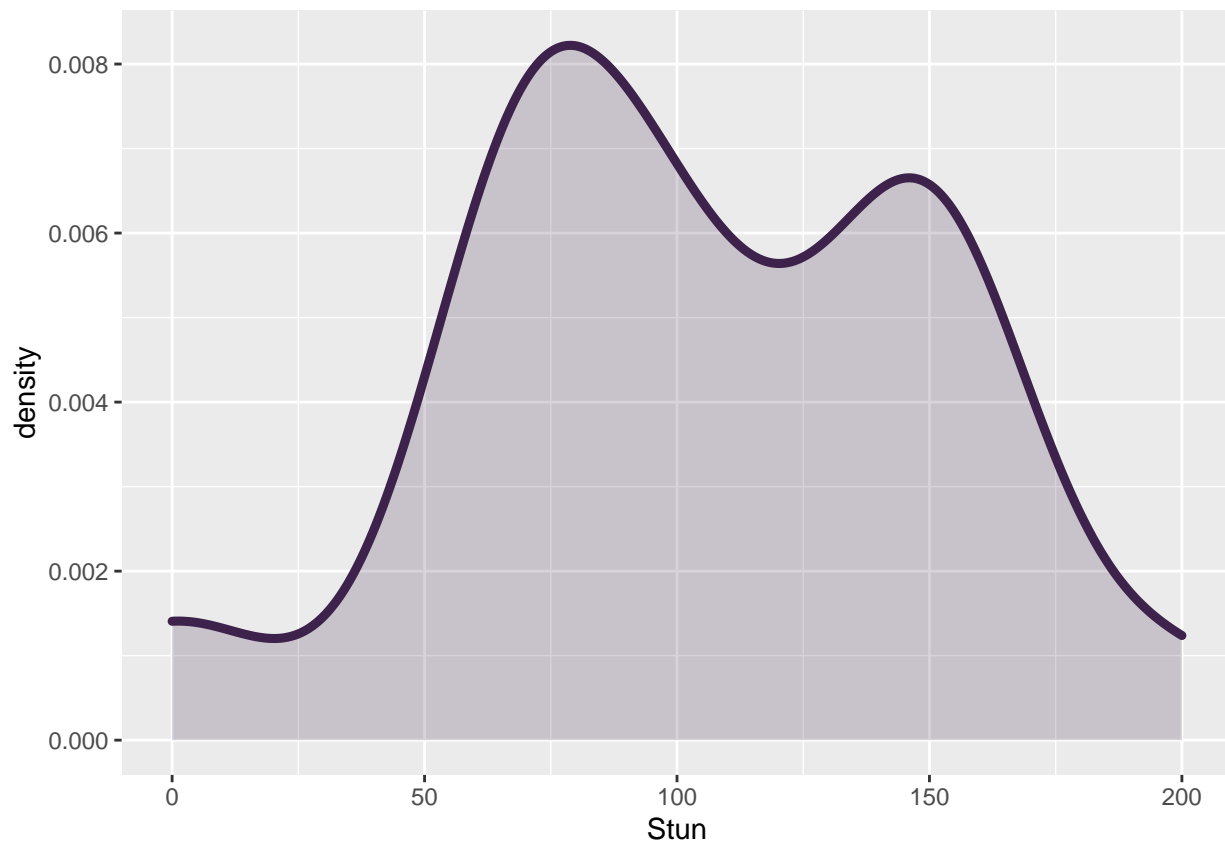
```
## [1] "Median: -3.50 | Mean: -6.05 | Standard deviation: 9.24"
```



```
## [1] "Median: 60.00 | Mean: 69.52 | Standard deviation: 49.78"
```



```
## [1] "Median: 100.00 | Mean: 104.05 | Standard deviation: 48.19"
```

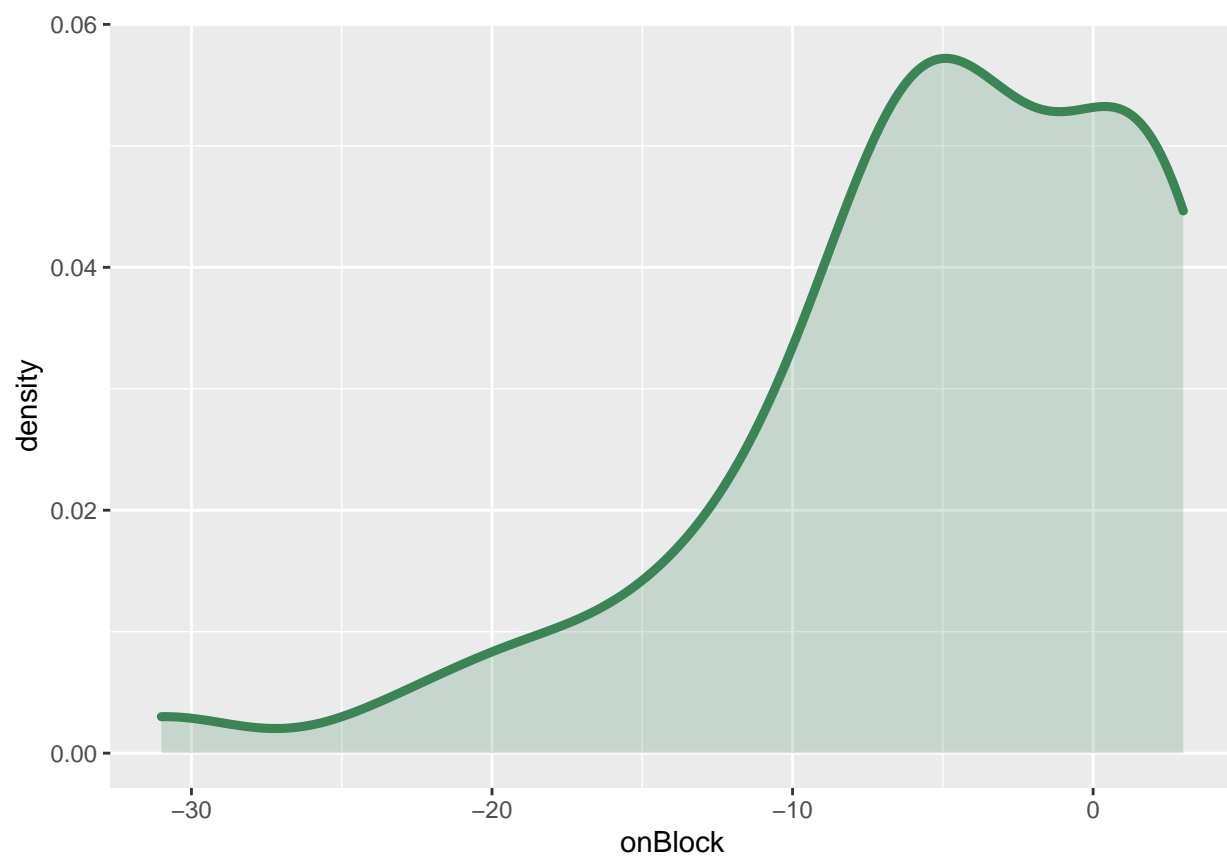


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1   Stand LP      3   LP   False   False   False   normal    20   70
## 2 Stand LP orb    3 LP orb False   False   False   normal    30   70
## 3   Stand MP      2   MP   False   False   False   normal    50  100
## 4 Stand MP orb   -8 MP orb False   False   False   normal    60  100
## 5   Stand HP      -2   HP   False   False   False   normal    80  150
## 6 Stand HP orb  -10 HP orb False   False   False   normal    80  150
```

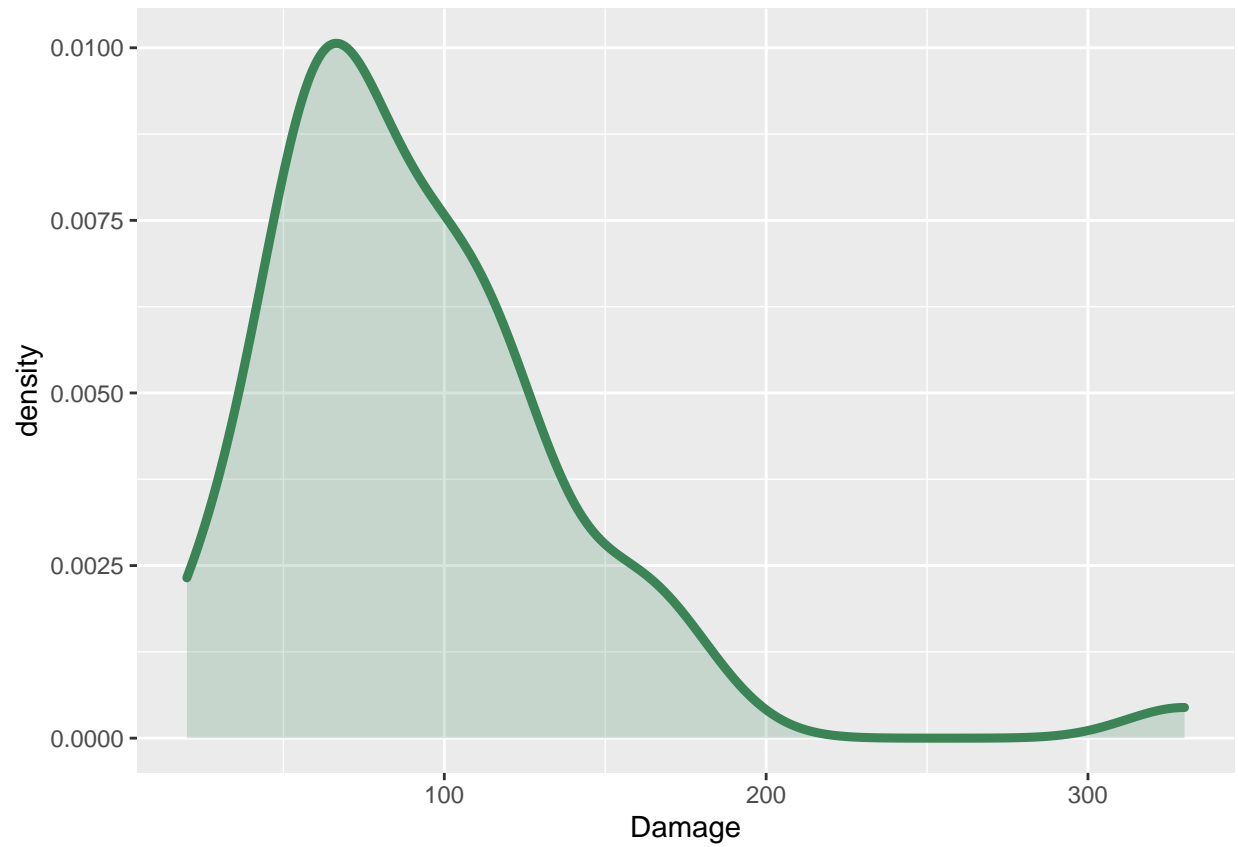
```
##      1
## health 950.000
## stun   950.000
## vgaug1  900.000
## vgaug2  600.000
## fDash   20.000
## bDash   24.000
## fWalk    0.040
## bWalk    0.032
## throwHurt 0.250
## throwRange 0.850
```

```
character_info(
  "data/characters/nash.csv",
  "Nash",
  "img/nash.png",
  "#3a8455"
)
```

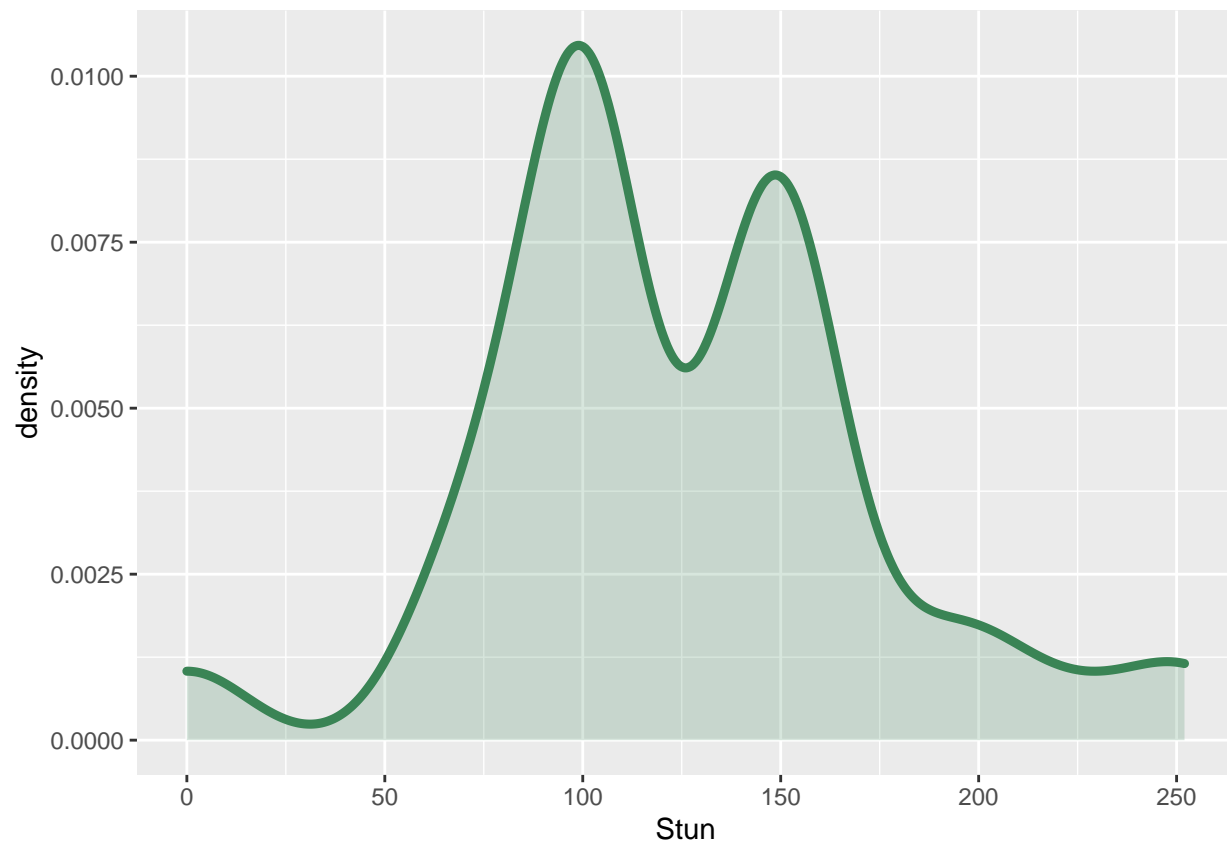
```
## [1] "Median: -5.00 | Mean: -5.28 | Standard deviation: 7.38"
```



```
## [1] "Median: 82.00 | Mean: 92.26 | Standard deviation: 50.95"
```



```
## [1] "Median: 100.00 | Mean: 124.60 | Standard deviation: 51.09"
```

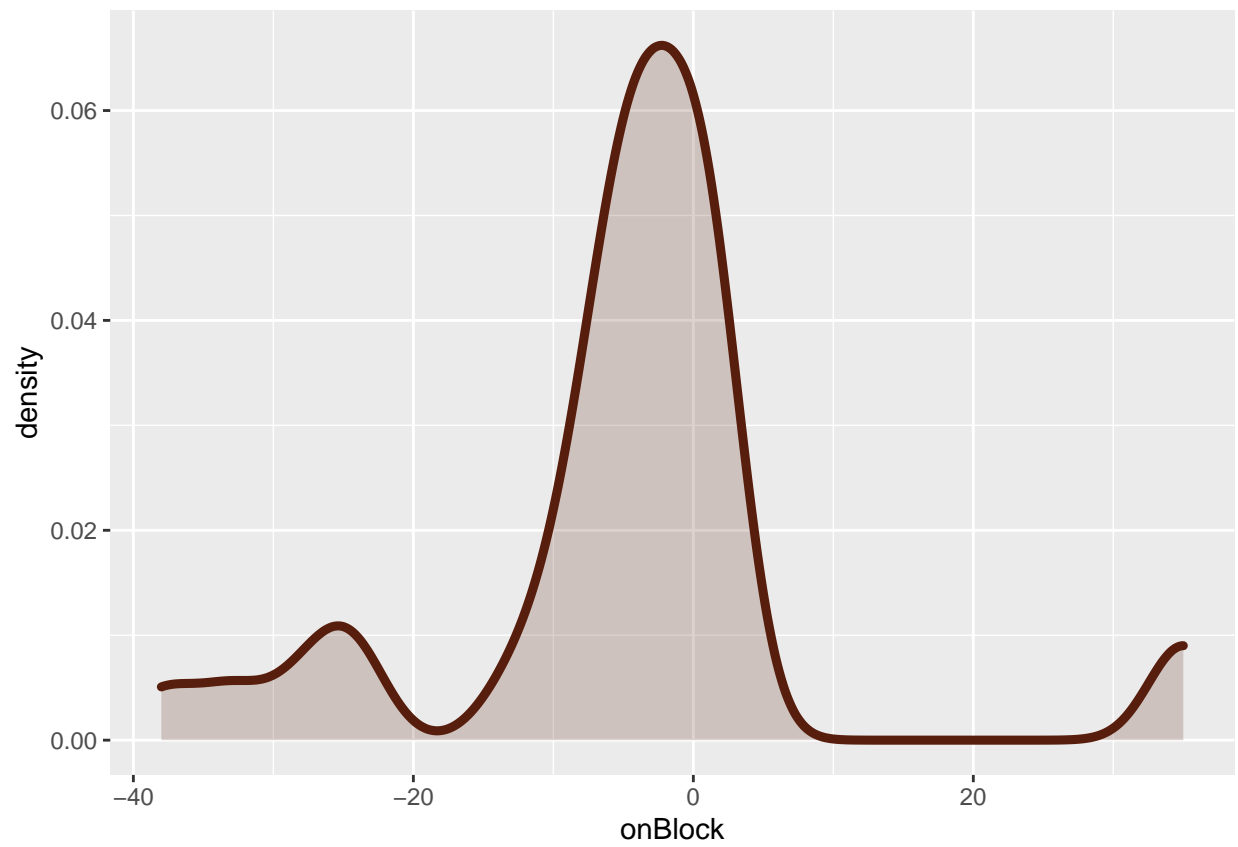


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3    LP   False   False     False   normal    30   70
## 2 Stand MP      0    MP   False   False     False   normal    60  100
## 3 Stand HP     -5    HP   False   False     False   normal    90  150
## 4 Stand LK      1    LK   False   False     False   normal    30   70
## 5 Stand MK      0    MK   False   False     False   normal    70  100
## 6 Stand HK     -2    HK   False   False     False   normal    80  150
```

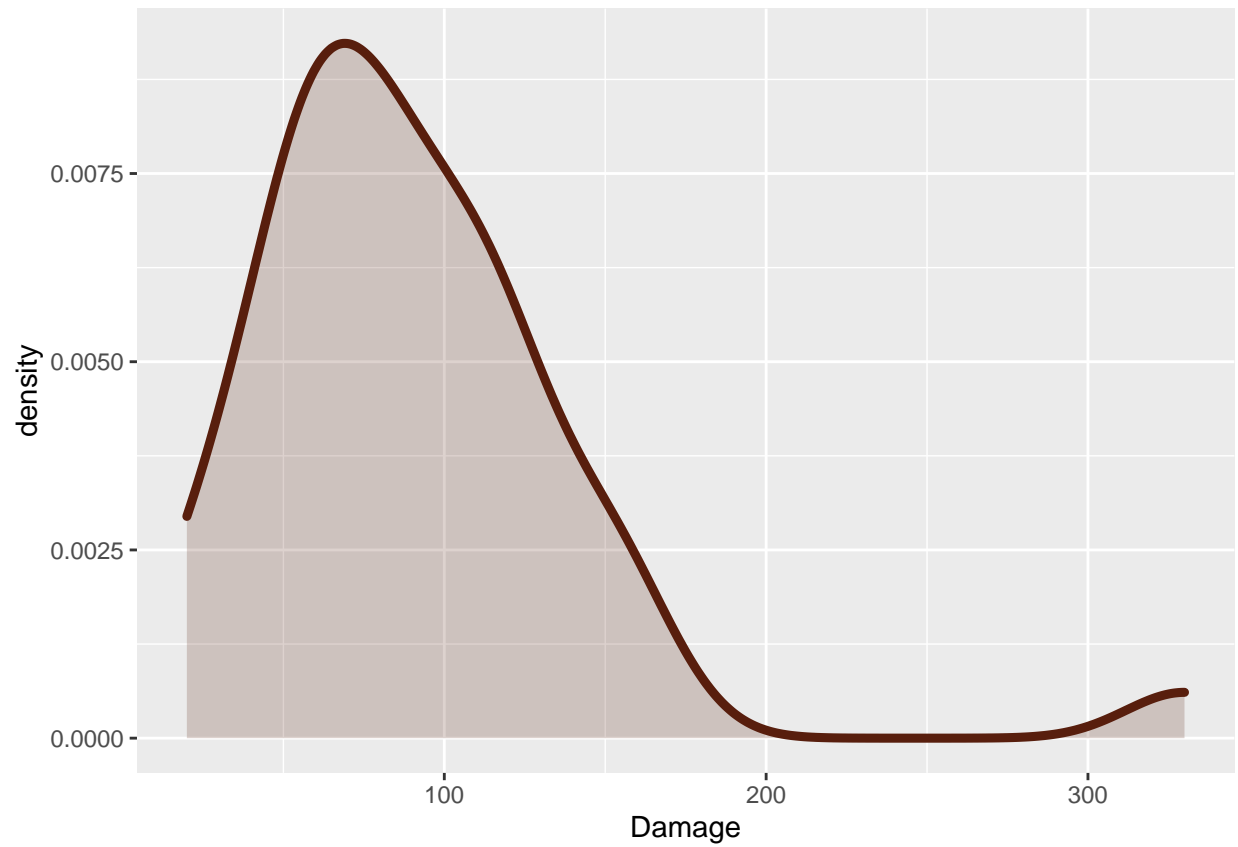
```
##      1
## health      975.000
## stun        1000.000
## vgaugel      600.000
## vgaugel2     900.000
## fDash        18.000
## bDash        24.000
## fWalk         0.027
## bWalk         0.027
## throwHurt     0.250
## throwRange    0.850
```

```
character_info(
  "data/characters/necalli.csv",
  "Necalli",
  "img/necalli.png",
  "#581e0d"
)
```

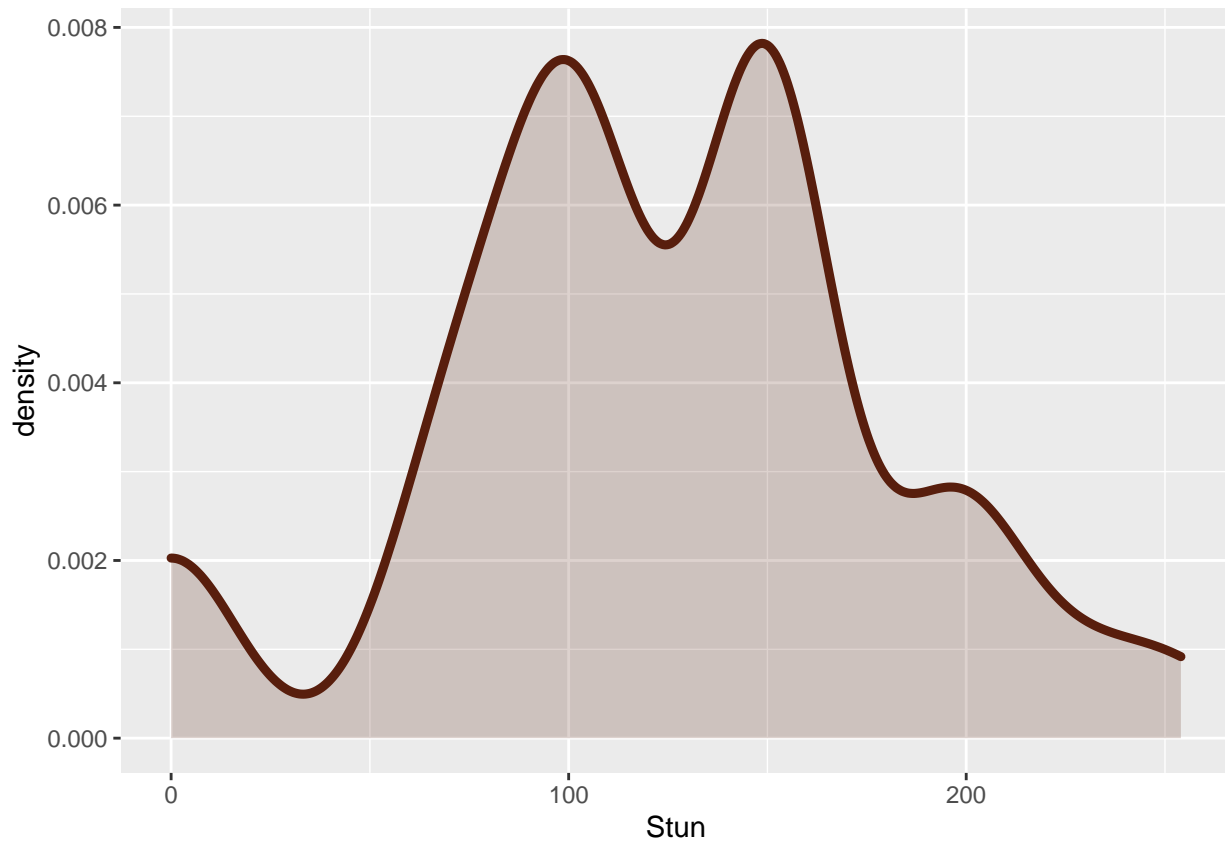
```
## [1] "Median: -4.00 | Mean: -4.69 | Standard deviation: 14.04"
```



```
## [1] "Median: 80.00 | Mean: 91.44 | Standard deviation: 54.99"
```

```
## [1] "Median: 120.00 | Mean: 122.89 | Standard deviation: 59.08"
```

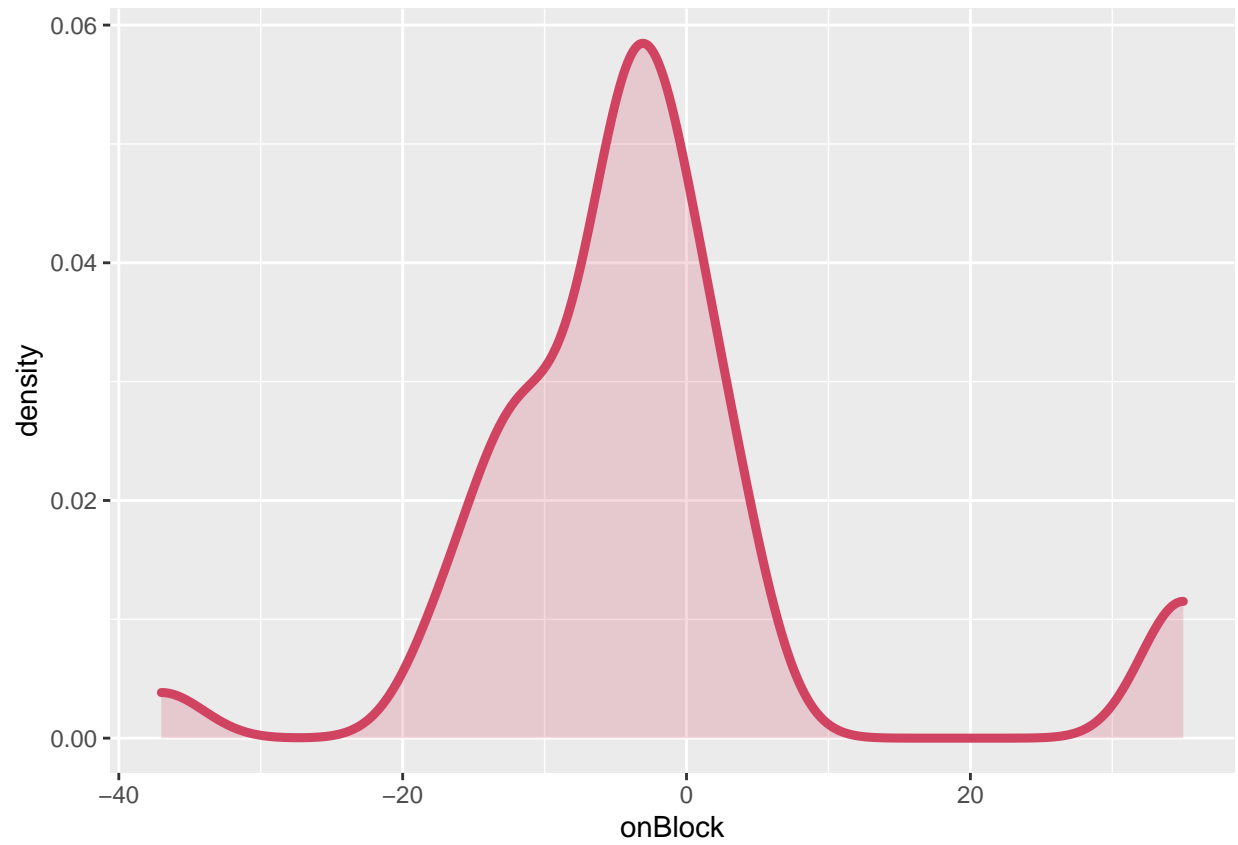


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1     LP   False   False     False   normal    30   70
## 2 Stand MP      0     MP   False   False     False   normal    60  100
## 3 Stand HP     -2     HP   False   False     False   normal    80  150
## 4 Stand LK      2     LK   False   False     False   normal    40   70
## 5 Stand MK      2     MK   False   False     False   normal    60  100
## 6 Stand HK     -4     HK   False   False     False   normal    90  150
```

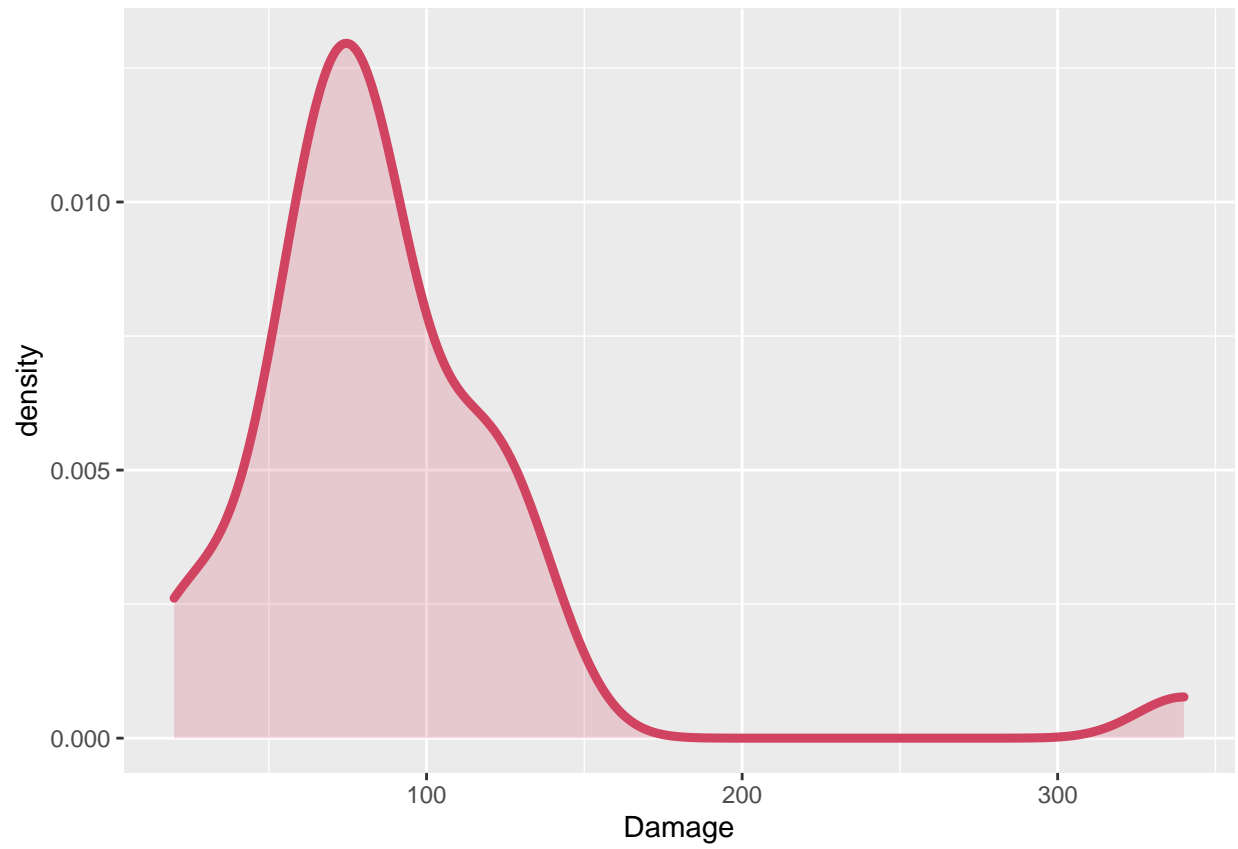
```
##      1
## health    1025.000
## stun      1050.000
## vgaugel    900.000
## vgaugel2   900.000
## fDash      17.000
## bDash      22.000
## fWalk       0.047
## bWalk       0.032
## throwHurt   0.324
## throwRange  0.814
```

```
character_info(
  "data/characters/poison.csv",
  "Poison",
  "img/poison.png",
  "#d14461"
)
```

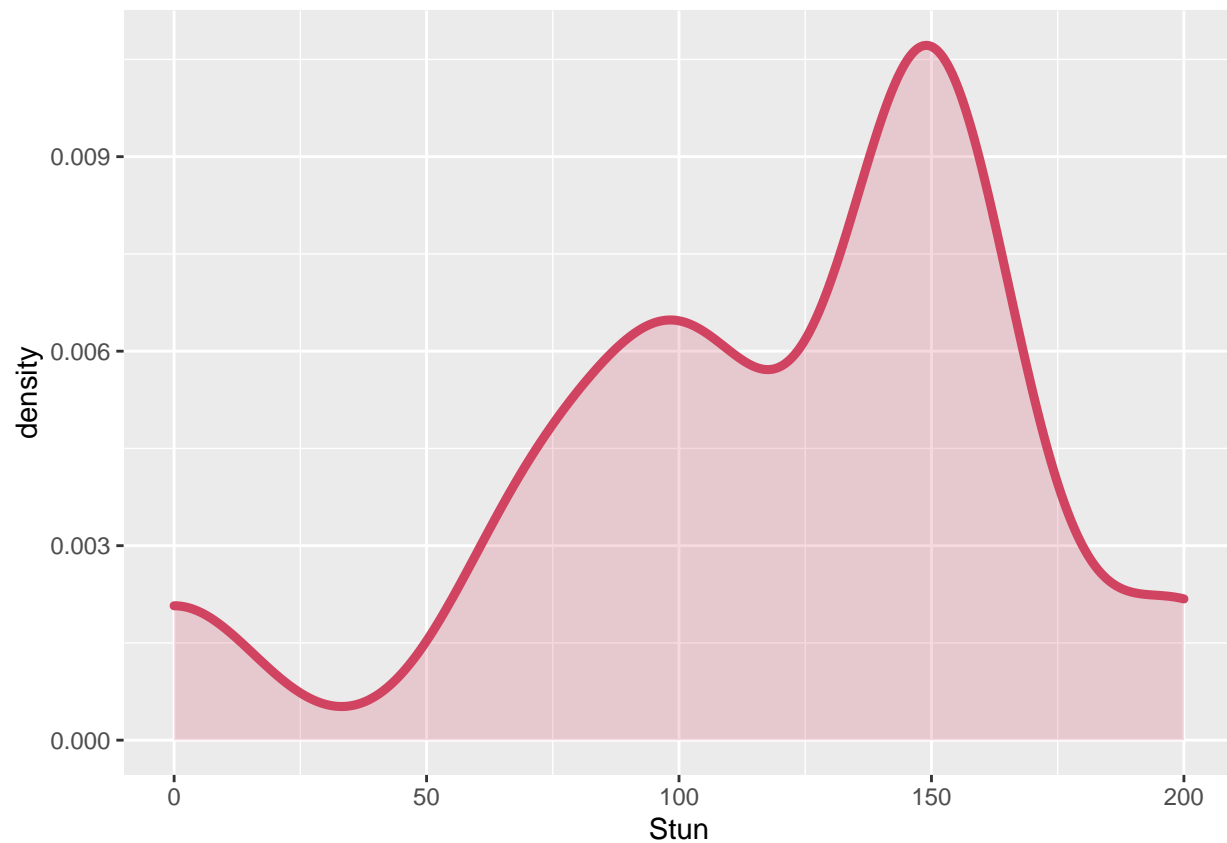
```
## [1] "Median: -4.00 | Mean: -2.63 | Standard deviation: 13.98"
```



```
## [1] "Median: 80.00 | Mean: 87.71 | Standard deviation: 53.09"
```



```
## [1] "Median: 150.00 | Mean: 118.57 | Standard deviation: 51.51"
```

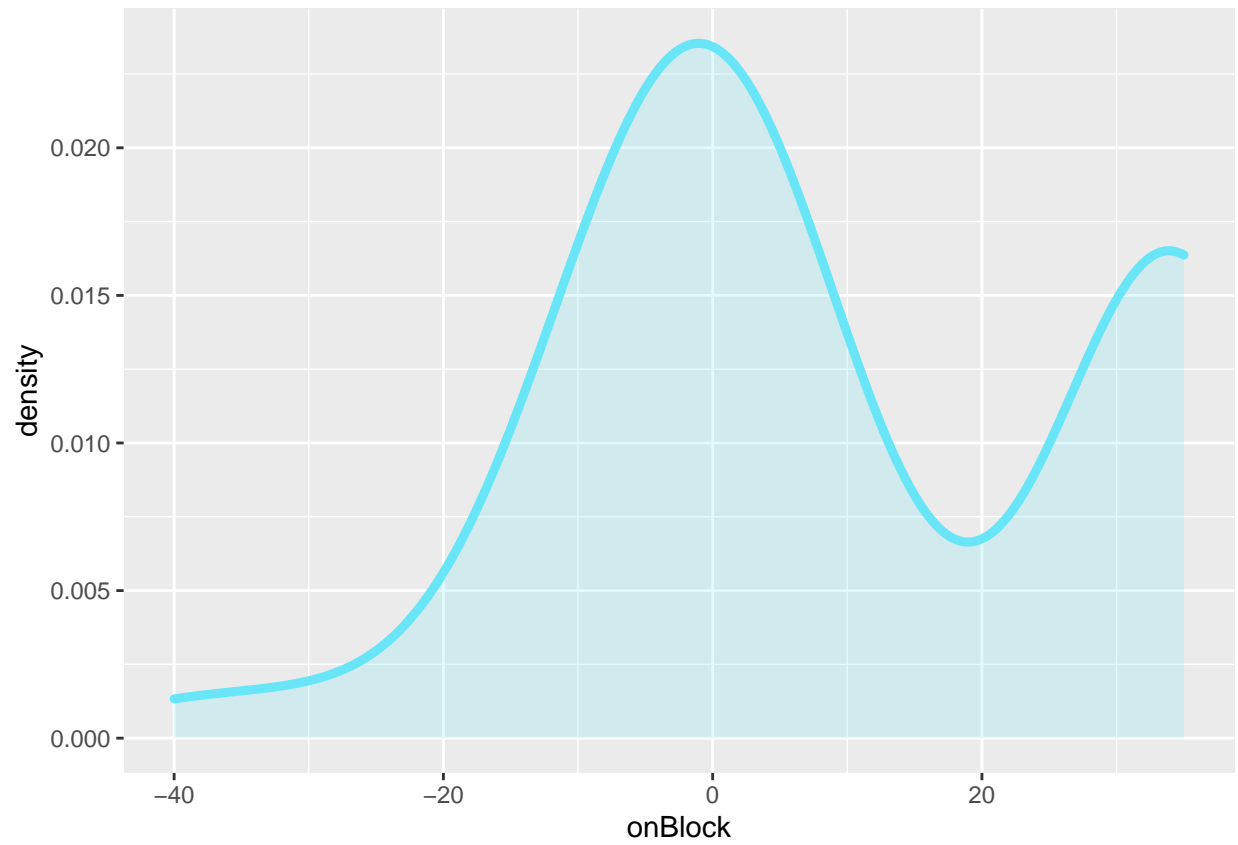


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False   False      False  normal    20   70
## 2 Stand MP      3      MP  False   False      False  normal    60  100
## 3 Stand HP     -6      HP  False   False      False  normal    80  150
## 4 Stand LK      1      LK  False   False      False  normal    40   70
## 5 Stand MK     -4      MK  False   False      False  normal    70  100
## 6 Stand HK     -4      HK  False   False      False  normal    80  150
```

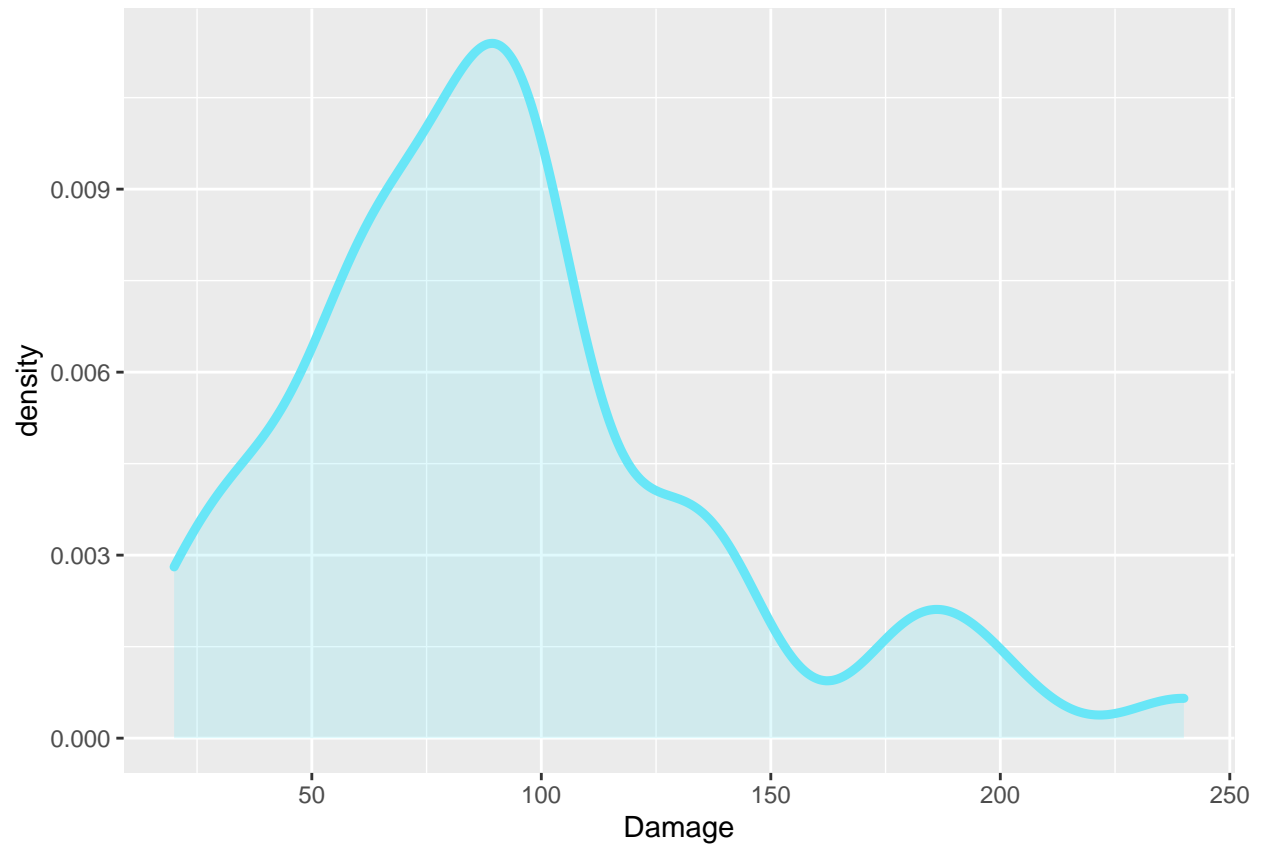
```
##      1
## health    975.000
## stun      975.000
## vgaugel   600.000
## vgaugel2  600.000
## fDash     18.000
## bDash     23.000
## fWalk      0.041
## bWalk      0.032
## throwHurt  0.250
## throwRange 0.850
```

```
character_info(
  "data/characters/r_mika.csv",
  "R. Mika",
  "img/r_mika.png",
  "#68e6f7"
)
```

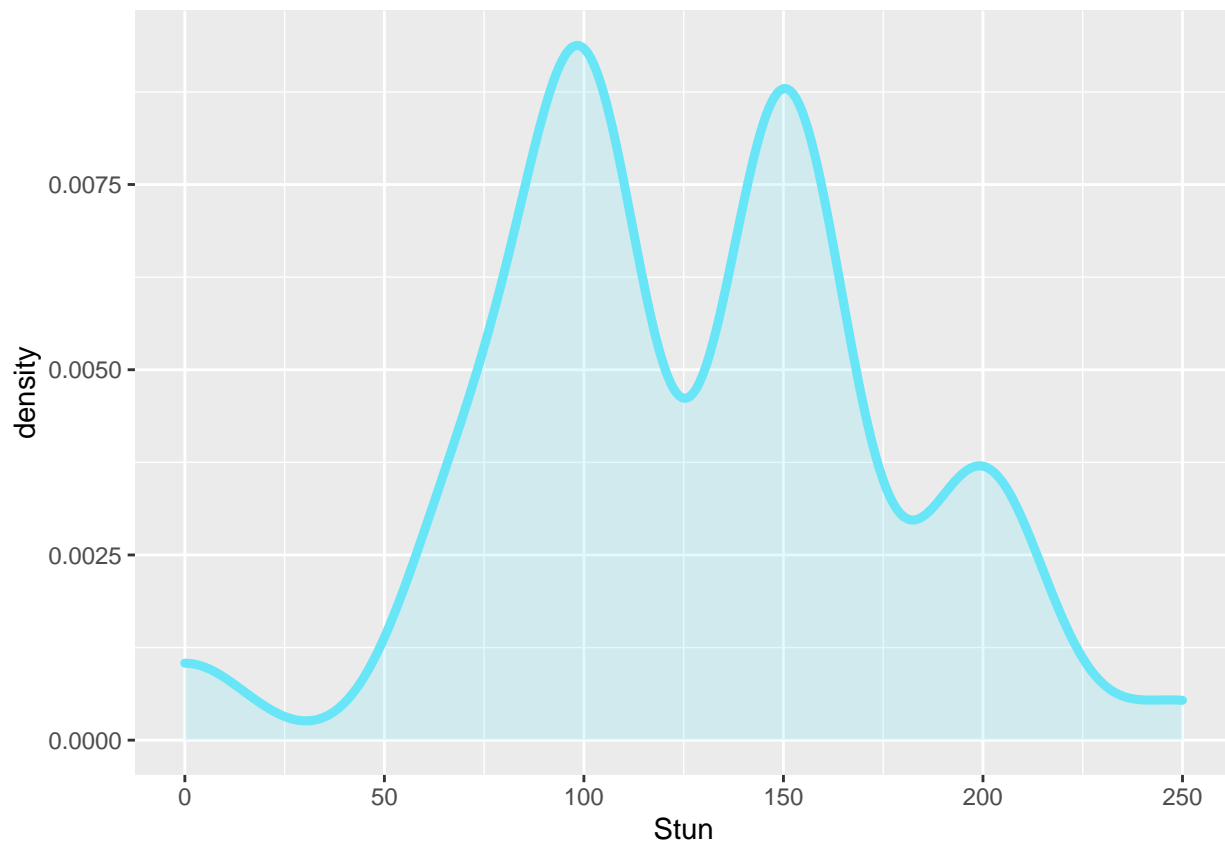
```
## [1] "Median: 3.50 | Mean: 9.32 | Standard deviation: 19.70"
```



```
## [1] "Median: 90.00 | Mean: 92.78 | Standard deviation: 46.90"
```



```
## [1] "Median: 125.00 | Mean: 126.60 | Standard deviation: 50.73"
```

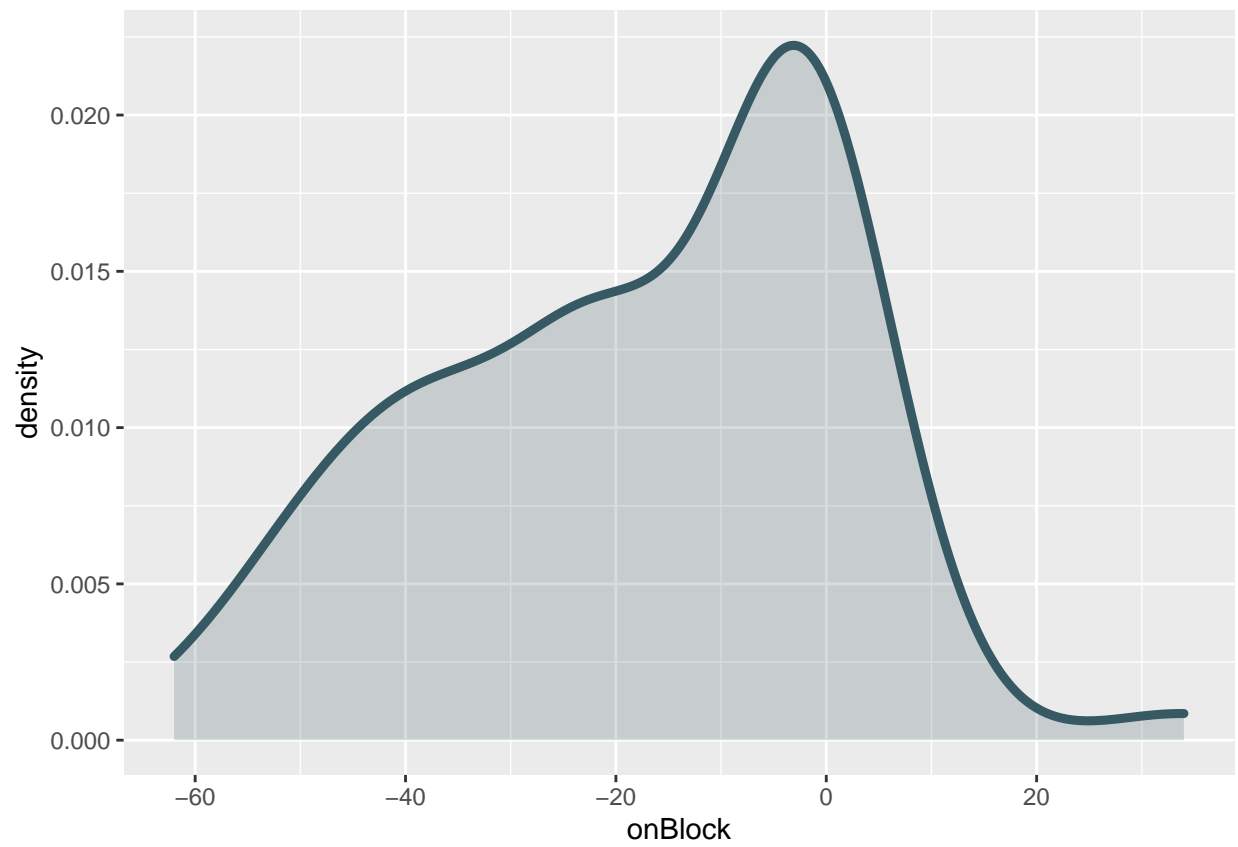


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False   False   False   normal    30   70
## 2 Stand MP     -2      MP  False   False   False   normal    60  100
## 3 Stand HP     -6      HP  False   False   False   normal    90  150
## 4 Stand LK      1      LK  False   False   False   normal    30   70
## 5 Stand MK     -2      MK  False   False   False   normal    60  100
## 6 Stand HK     -4      HK  False   False   False   normal    90  150
```

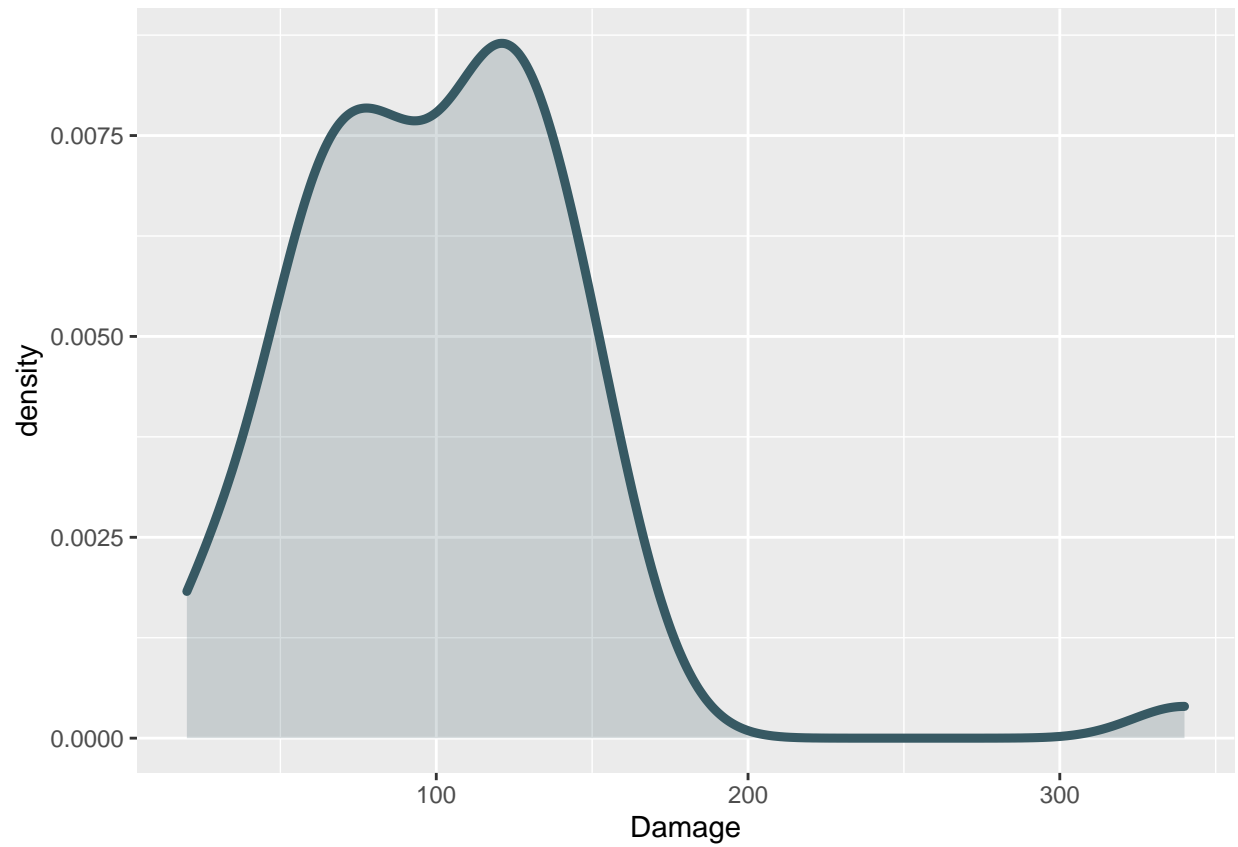
```
##      1
## health    9.5e+02
## stun      1.0e+03
## vgaugel   6.0e+02
## vgaugel2  9.0e+02
## fDash     1.8e+01
## bDash     2.4e+01
## fWalk     4.2e-02
## bWalk     3.0e-02
## throwHurt 2.5e-01
## throwRange 8.5e-01
```

```
character_info(
  "data/characters/rashid.csv",
  "Rashid",
  "img/rashid.png",
  "#375963"
)
```

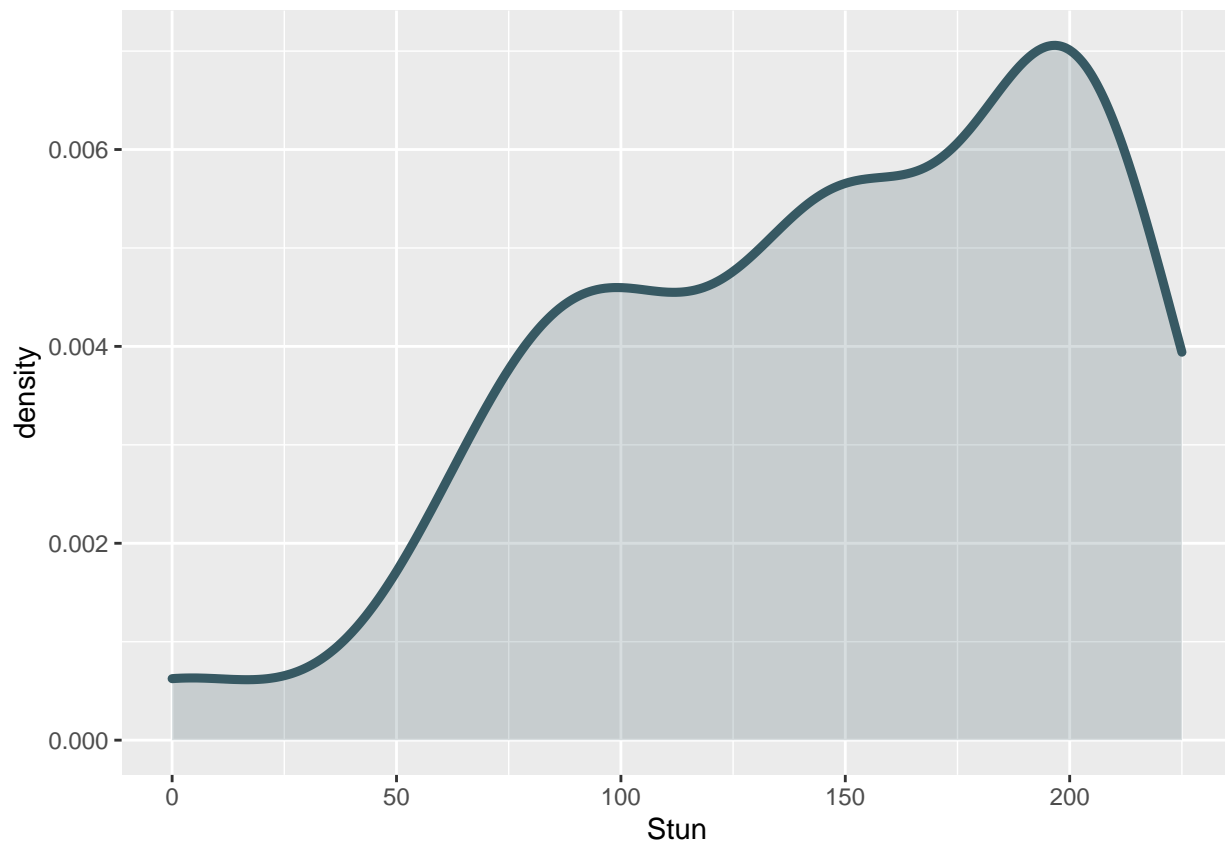
```
## [1] "Median: -20.00 | Mean: -18.00 | Standard deviation: 19.56"
```

```
## [1] "Median: 100.00 | Mean: 101.59 | Standard deviation: 48.02"
```



```
## [1] "Median: 150.00 | Mean: 146.15 | Standard deviation: 55.51"
```

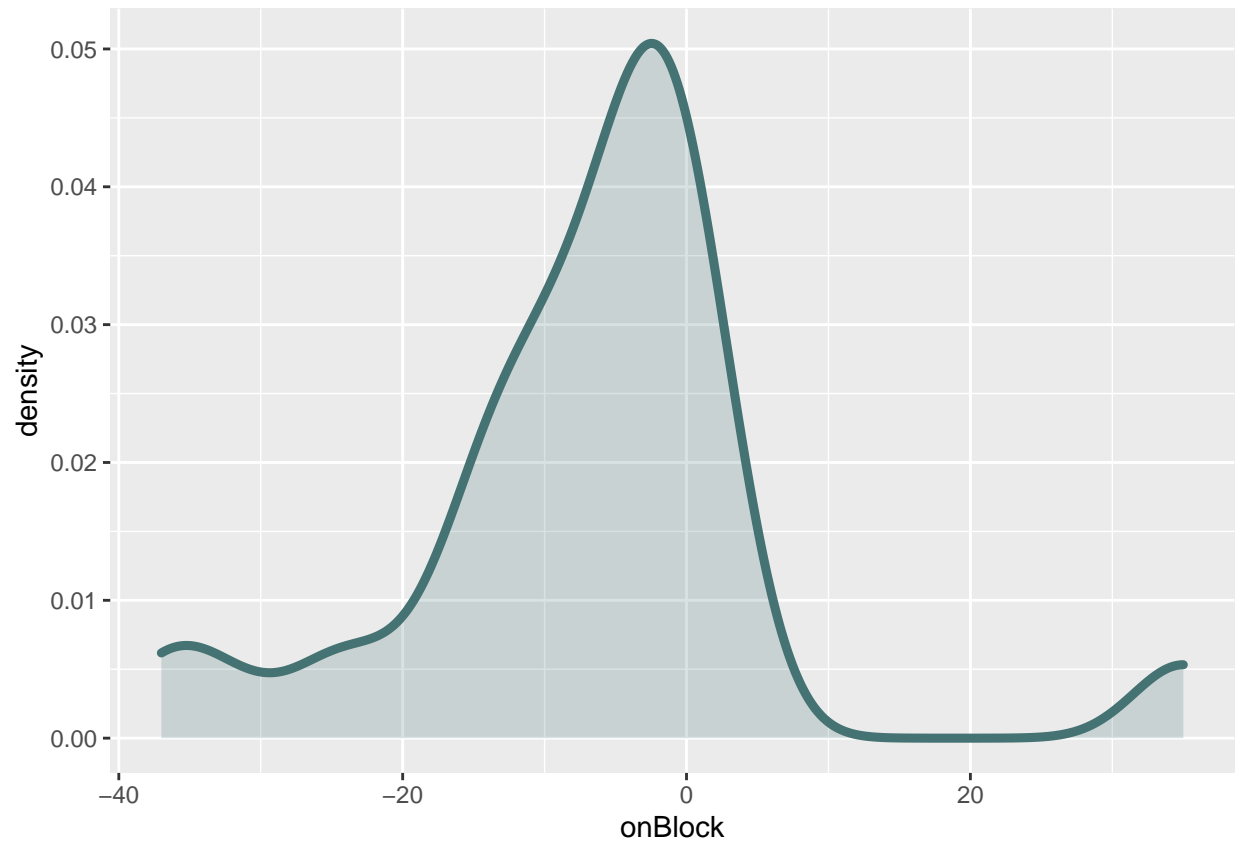


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -3      HP   False   False      False   normal    80  150
## 4 Stand LK      1      LK   False   False      False   normal    30   70
## 5 Stand MK     -4      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    90  150
```

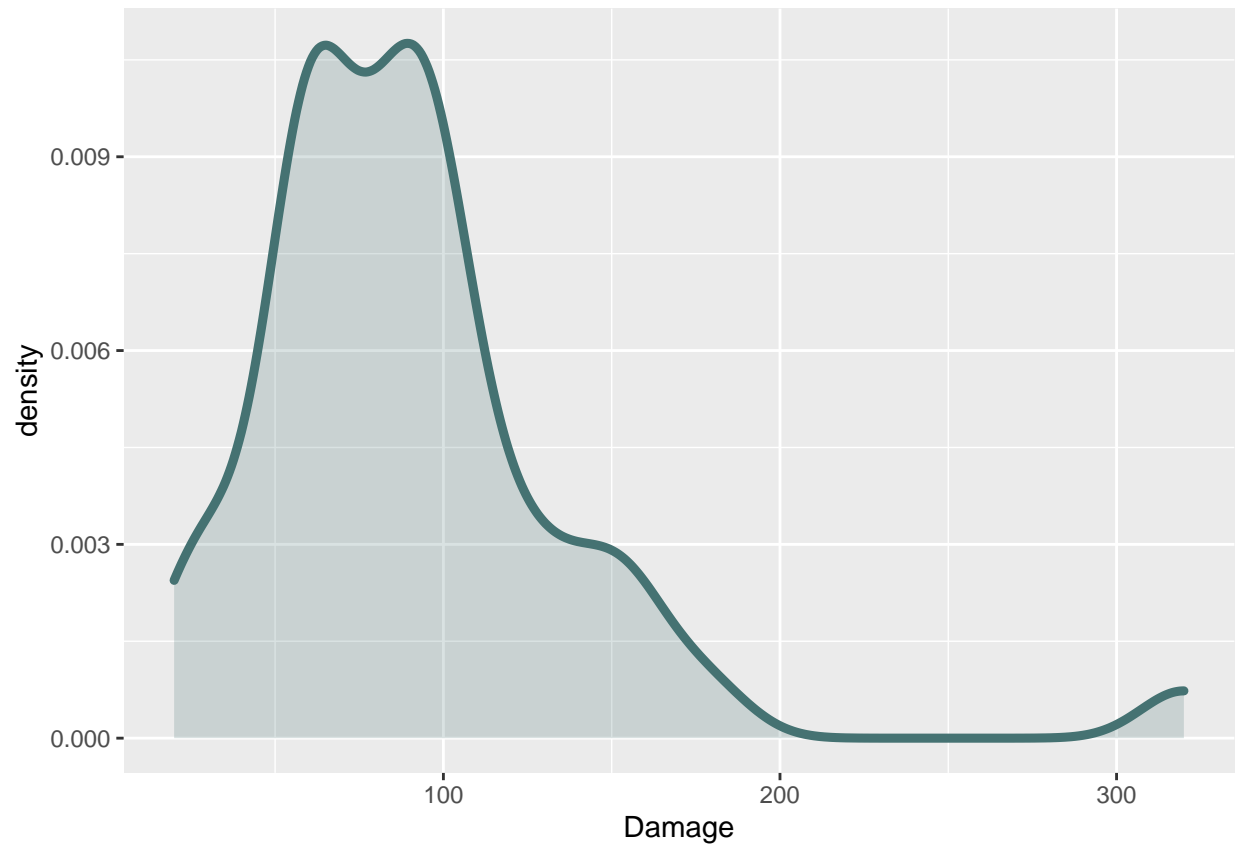
```
##      1
## health      950.000
## stun        950.000
## vgauge1     600.000
## vgauge2     600.000
## fDash       15.000
## bDash       24.000
## fWalk       0.040
## bWalk       0.036
## throwHurt   0.402
## throwRange  0.852
```

```
character_info(
  "data/characters/ryu.csv",
  "Ryu",
  "img/ryu.png",
  "#457272"
)
```

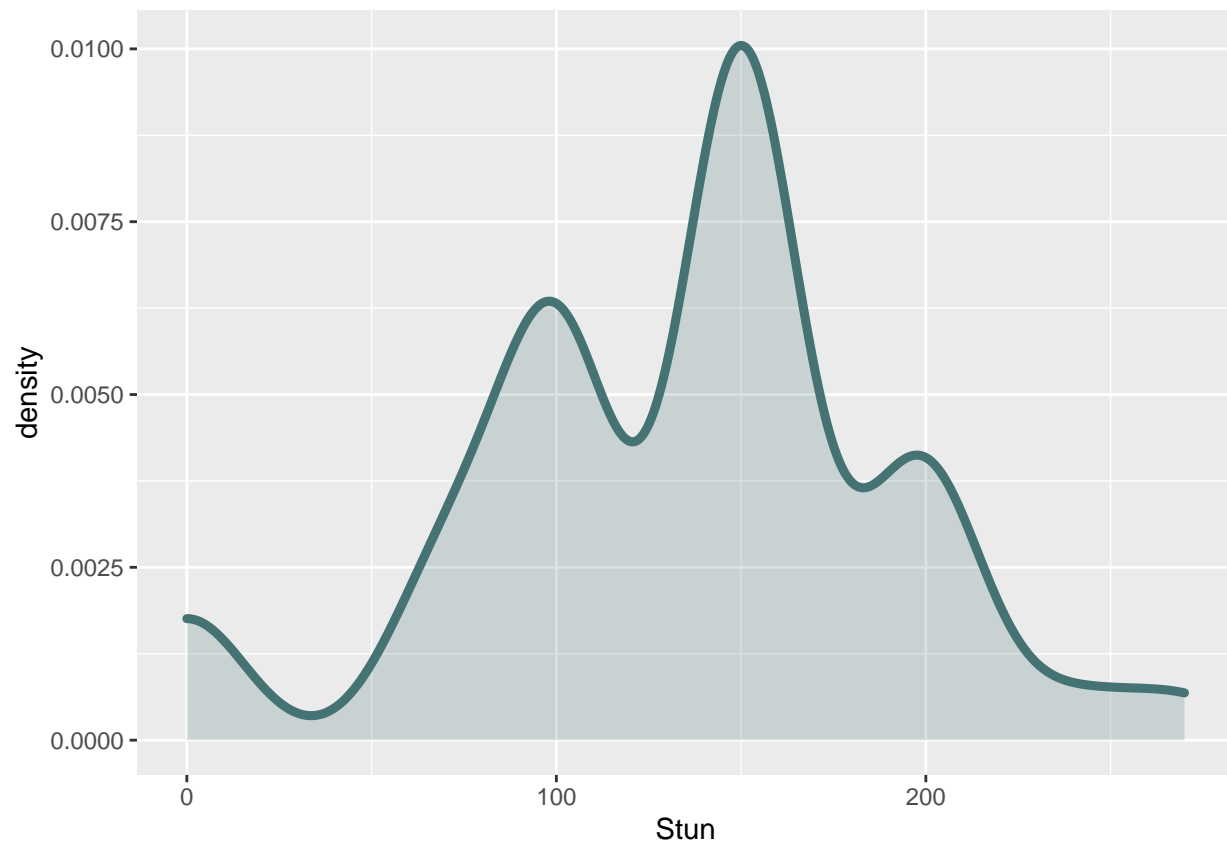
```
## [1] "Median: -6.00 | Mean: -6.56 | Standard deviation: 13.59"
```



```
## [1] "Median: 90.00 | Mean: 91.51 | Standard deviation: 50.78"
```



```
## [1] "Median: 150.00 | Mean: 133.26 | Standard deviation: 58.79"
```

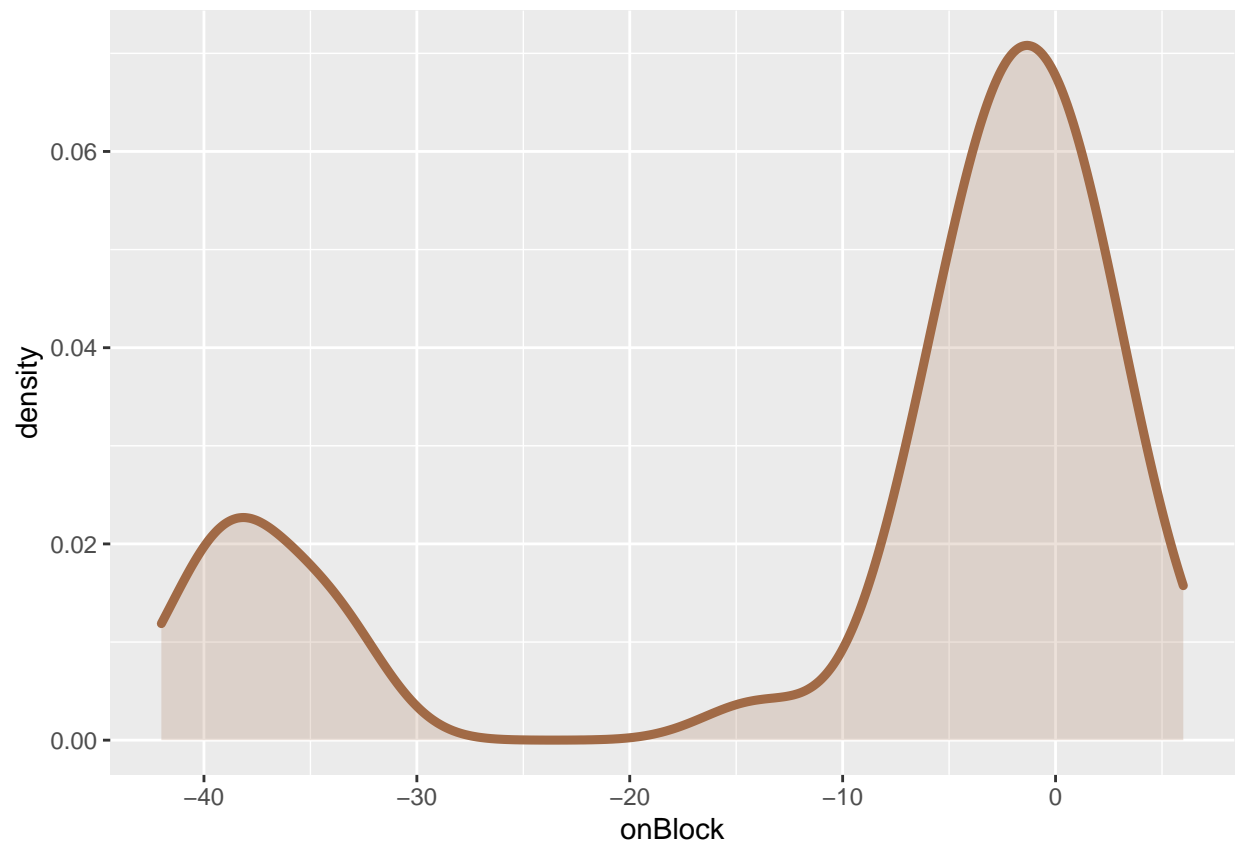


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False      False   normal    30   70
## 2 Stand MP      2      MP   False   False      False   normal    60  100
## 3 Stand HP     -1      HP   False   False      False   normal    90  150
## 4 Stand LK     -2      LK   False   False      False   normal    30   70
## 5 Stand MK     -2      MK   False   False      False   normal    70  100
## 6 Stand HK     -1      HK   False   False      False   normal    90  150
```

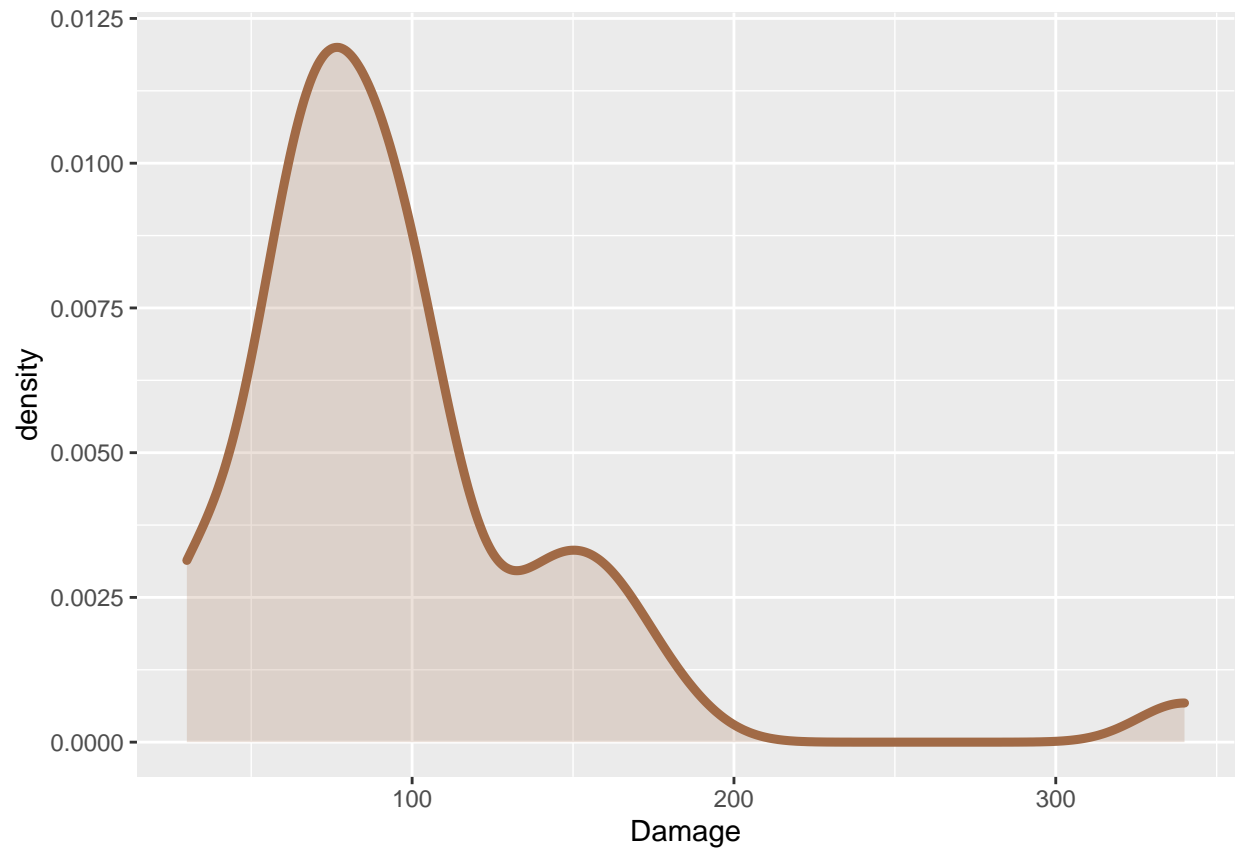
```
##      1
## health    1025.000
## stun      1050.000
## vgaugel    600.000
## vgaugel2   600.000
## fDash      16.000
## bDash      21.000
## fWalk       0.047
## bWalk       0.032
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/sagat.csv",
  "Sagat",
  "img/sagat.png",
  "#a16a46"
)
```

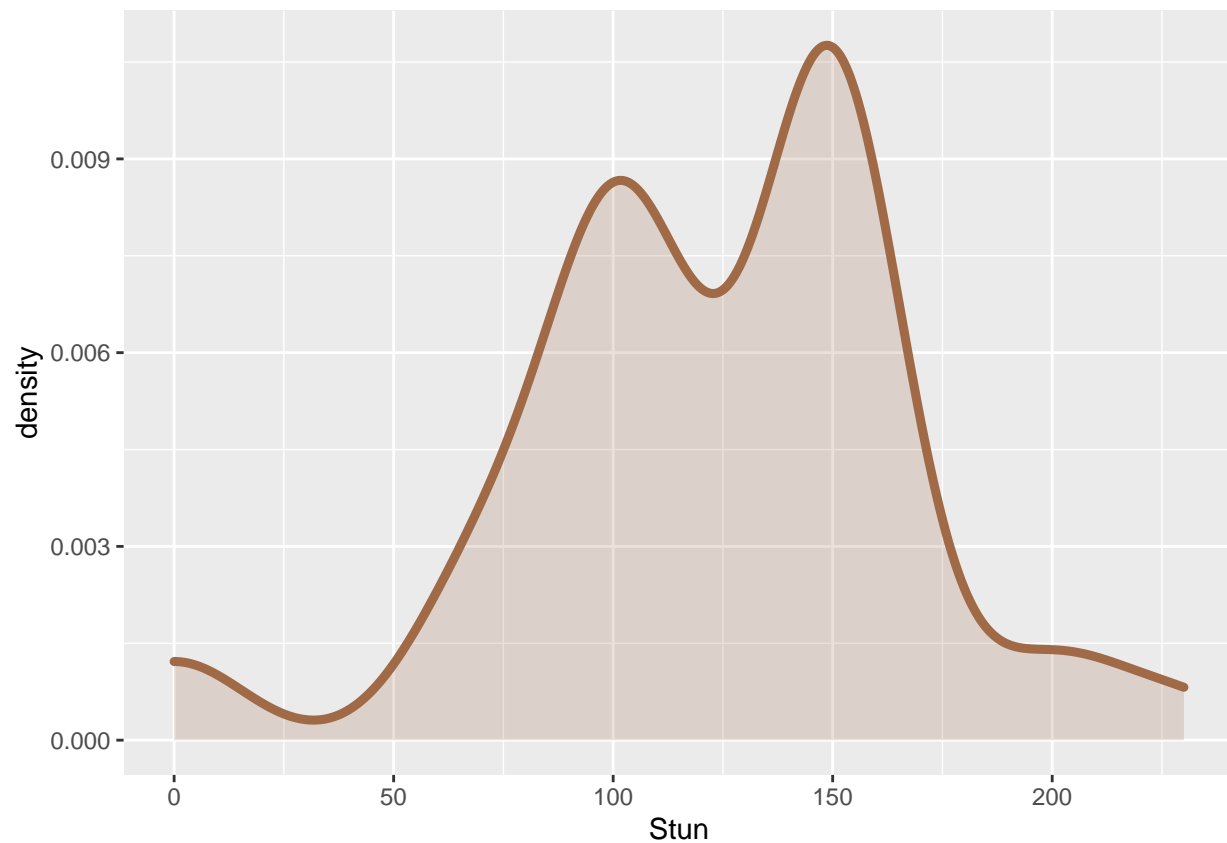
```
## [1] "Median: -2.00 | Mean: -9.56 | Standard deviation: 15.42"
```



```
## [1] "Median: 80.00 | Mean: 95.24 | Standard deviation: 53.64"
```



```
## [1] "Median: 120.00 | Mean: 122.46 | Standard deviation: 45.69"
```

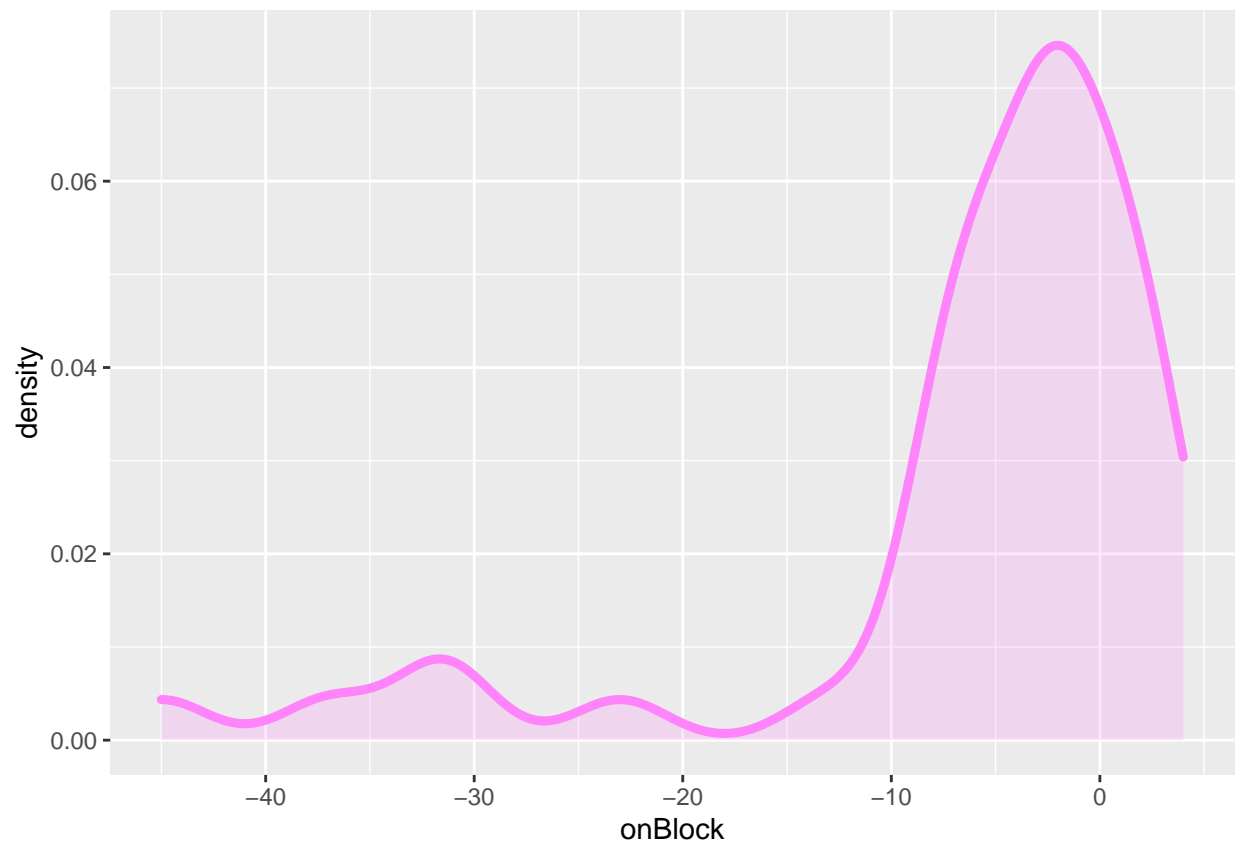



```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      4      LP  False   False      False  normal   30   70
## 2 Stand MP      3      MP  False   False      False  normal   60  100
## 3 Stand HP     -2      HP  False   False      False  normal   90  150
## 4 Stand LK      1      LK  False   False      False  normal   40   70
## 5 Stand MK     -2      MK  False   False      False  normal   70  100
## 6 Stand HK     -3      HK  False   False      False  normal   80  150
```

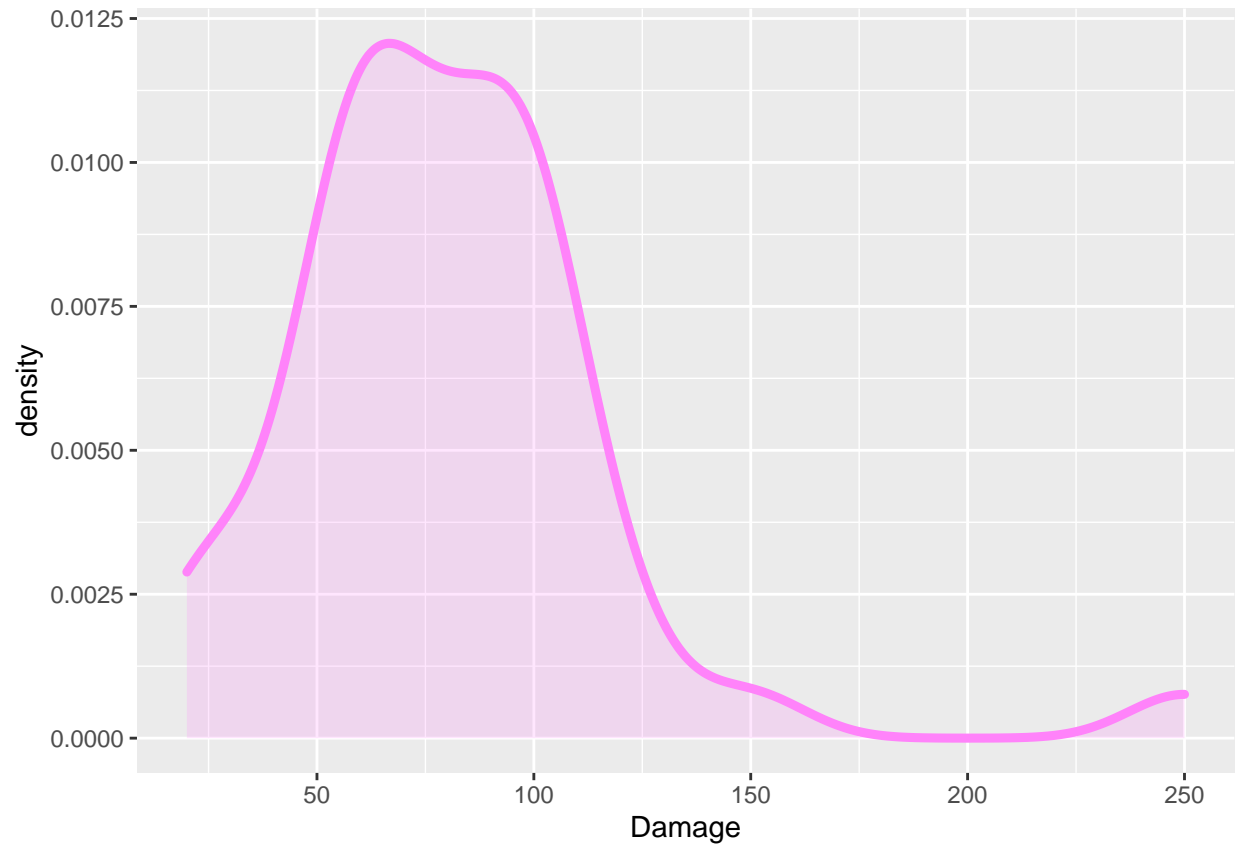
```
##
##      1
## health    1025.0000
## stun      1050.0000
## vgaugel    900.0000
## vgaugel2   600.0000
## fDash      20.0000
## bDash      24.0000
## fWalk       0.0365
## bWalk       0.0277
## throwHurt   0.2500
## throwRange  0.8500
```

```
character_info(
  "data/characters/sakura.csv",
  "Sakura",
  "img/sakura.png",
  "#ff83fa"
)
```

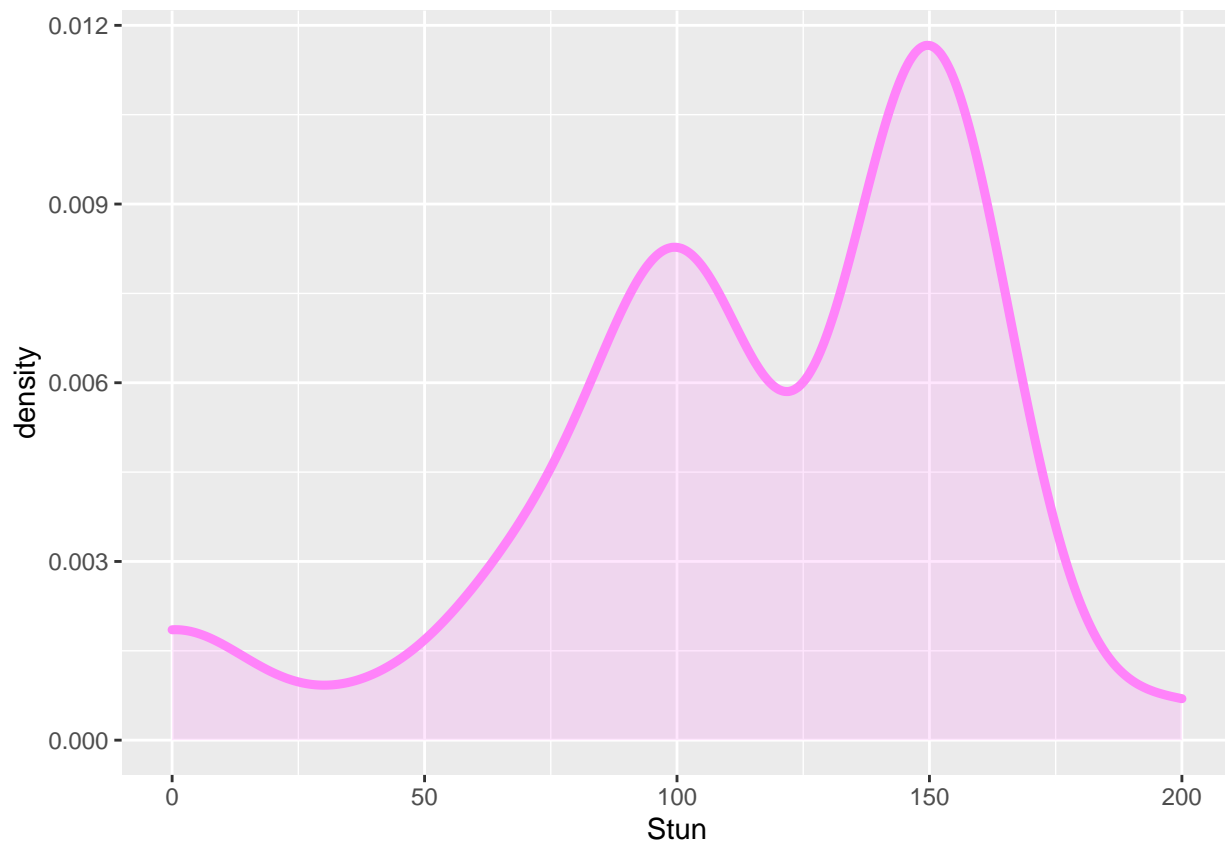
```
## [1] "Median: -3.00 | Mean: -6.44 | Standard deviation: 11.18"
```



```
## [1] "Median: 80.00 | Mean: 80.37 | Standard deviation: 38.99"
```



```
## [1] "Median: 112.00 | Mean: 114.20 | Standard deviation: 46.52"
```

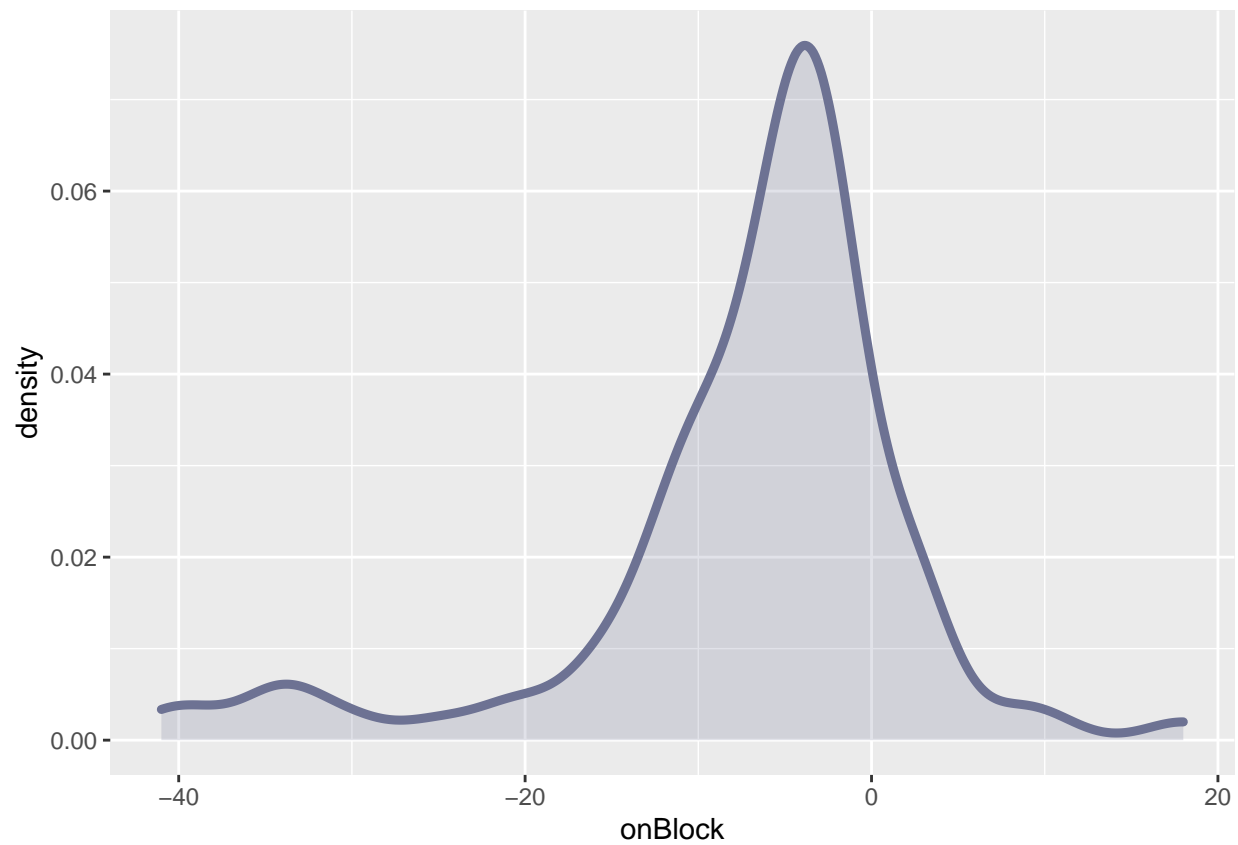


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False      False   normal    30   70
## 2 Stand MP      3      MP   False   False      False   normal    60  100
## 3 Stand HP     -2      HP   False   False      False   normal    80  150
## 4 Stand LK     -2      LK   False   False      False   normal    30   70
## 5 Stand MK      1      MK   False   False      False   normal    60  100
## 6 Stand HK     -4      HK   False   False      False   normal    80  150
```

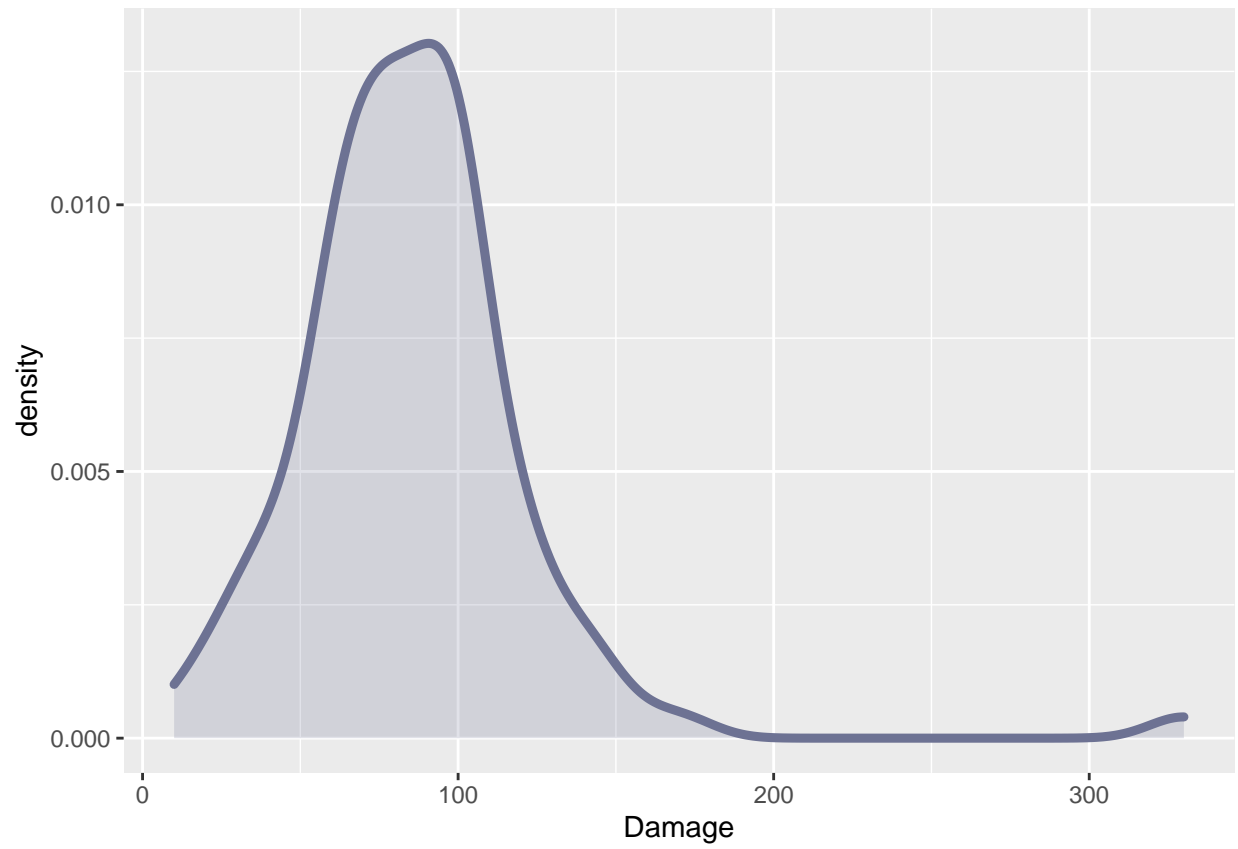
```
##      1
## health  9.75e+02
## stun    1.00e+03
## vgaugel 6.00e+02
## vgaugel2 6.00e+02
## fDash   1.60e+01
## bDash   2.30e+01
## fWalk   5.27e-02
## bWalk   4.70e-02
## throwHurt 2.50e-01
## throwRange 8.00e-01
```

```
character_info(
  "data/characters/seth.csv",
  "Seth",
  "img/seth.png",
  "#6d7293"
)
```

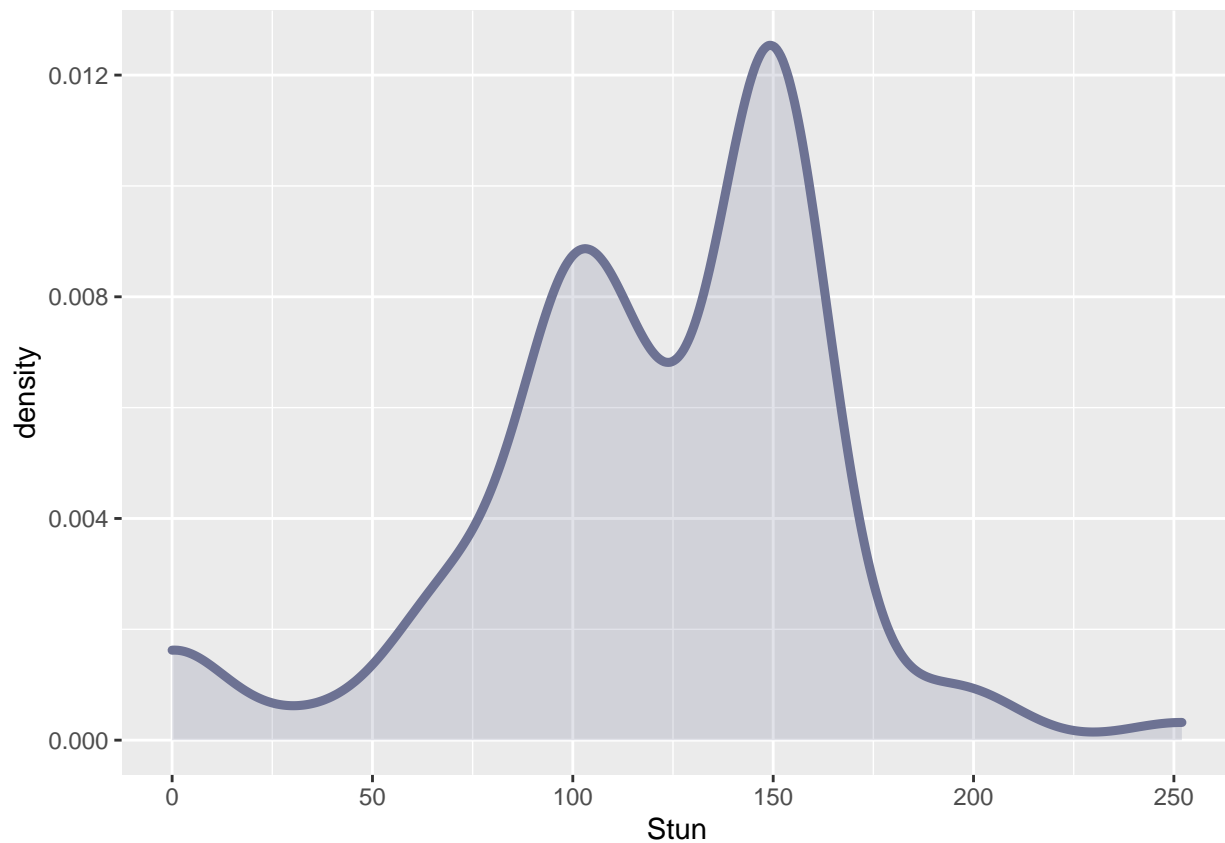
```
## [1] "Median: -5.00 | Mean: -7.16 | Standard deviation: 9.76"
```



```
## [1] "Median: 80.00 | Mean: 85.73 | Standard deviation: 39.05"
```



```
## [1] "Median: 120.00 | Mean: 119.17 | Standard deviation: 45.32"
```

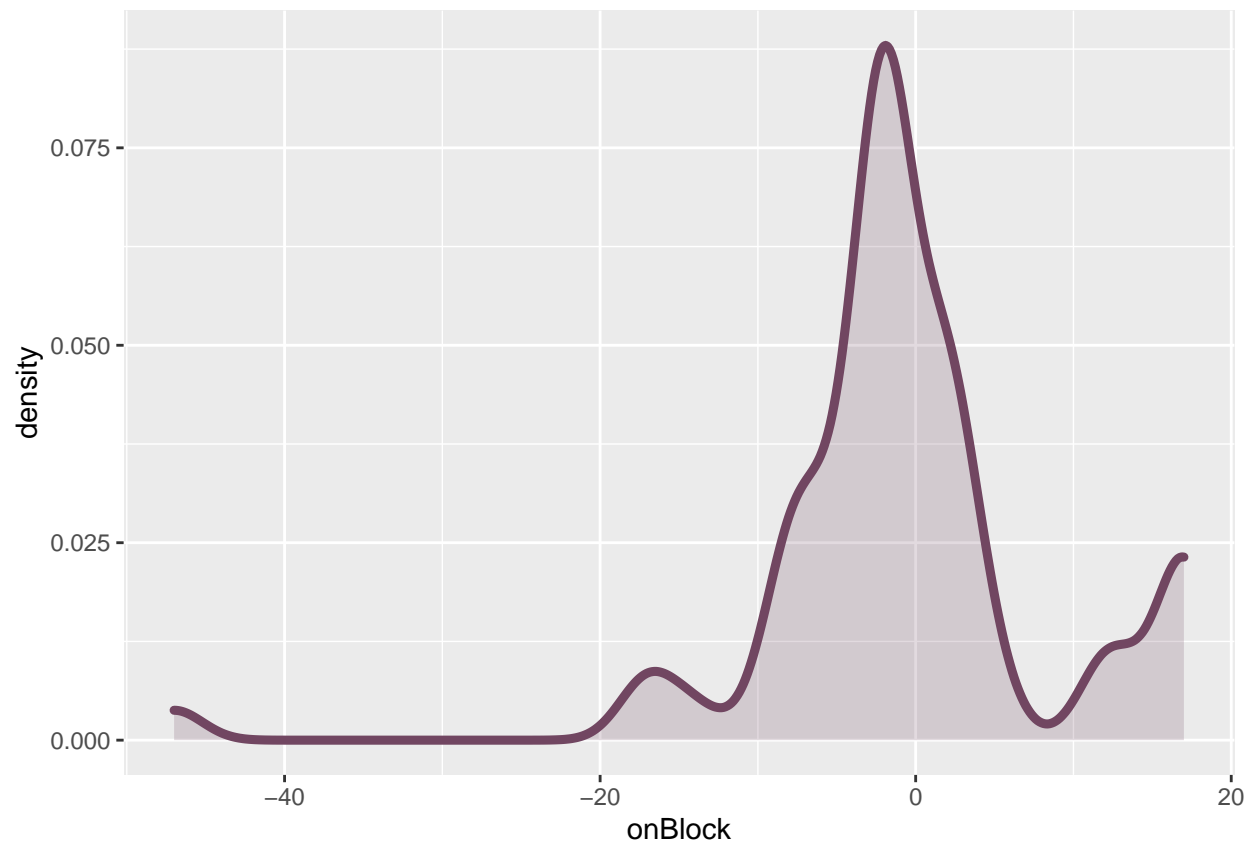


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30   70
## 2 Stand MP     -2      MP   False   False      False   normal    50  100
## 3 Stand HP     -4      HP   False   False      False   normal    80  150
## 4 Stand LK      3      LK   False   False      False   normal    40   70
## 5 Stand MK     -2      MK   False   False      False   normal    70  100
## 6 Stand HK    -10      HK   False   False      False   normal    80  150
```

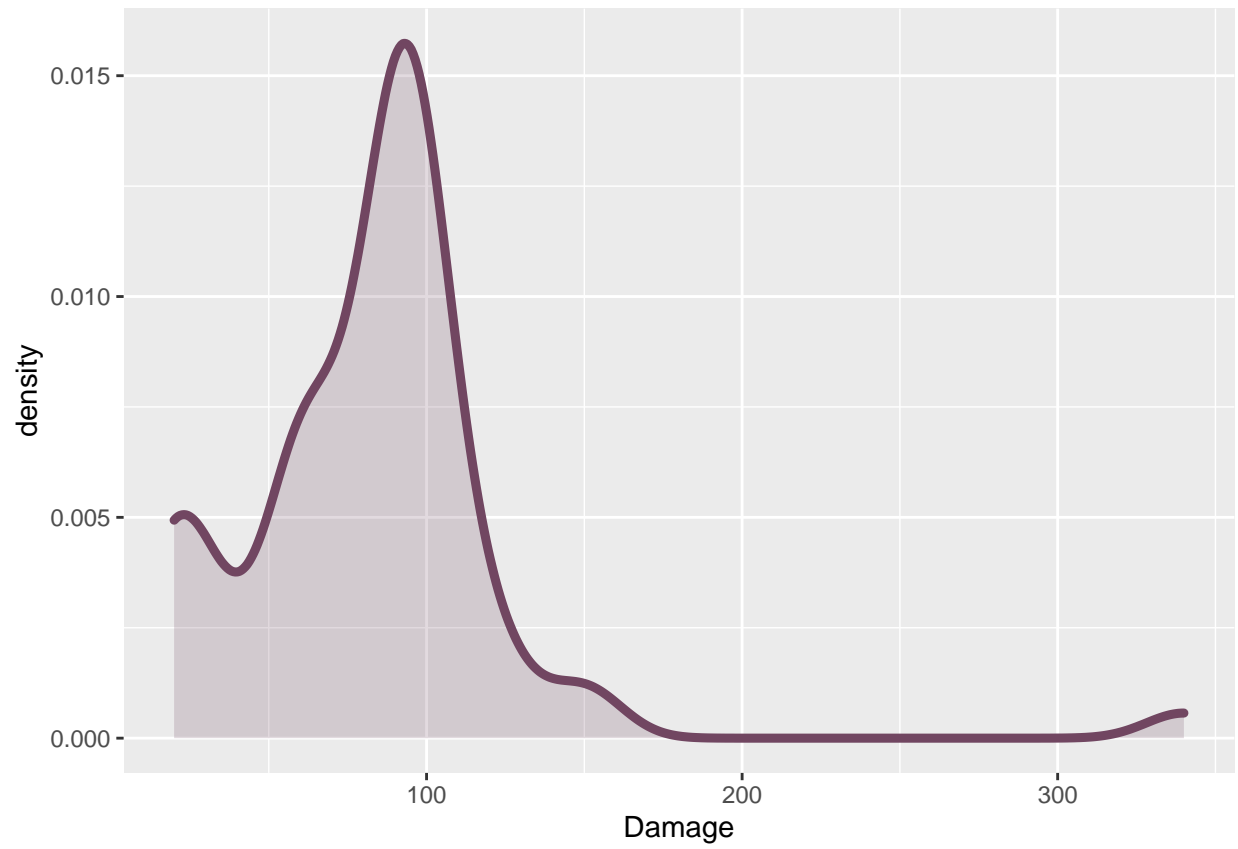
```
##      1
## health    900.000
## stun      900.000
## vgaugel   600.000
## vgaugel   600.000
## fDash     16.000
## bDash     23.000
## fWalk     0.047
## bWalk     0.032
## throwHurt 0.250
## throwRange 0.800
```

```
character_info(
  "data/characters/urien.csv",
  "Urien",
  "img/urien.png",
  "#714661"
)
```

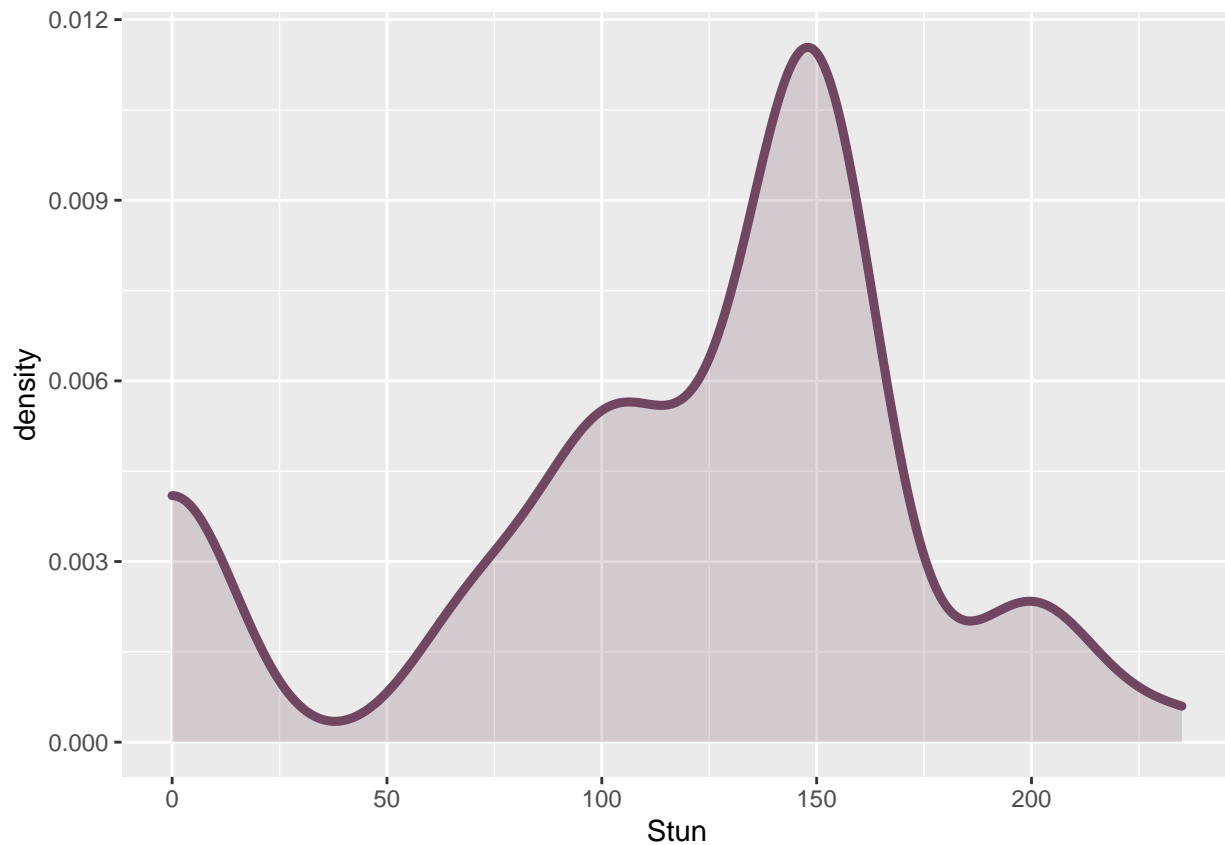
```
## [1] "Median: -2.00 | Mean: -0.69 | Standard deviation: 10.04"
```



```
## [1] "Median: 90.00 | Mean: 82.86 | Standard deviation: 46.45"
```

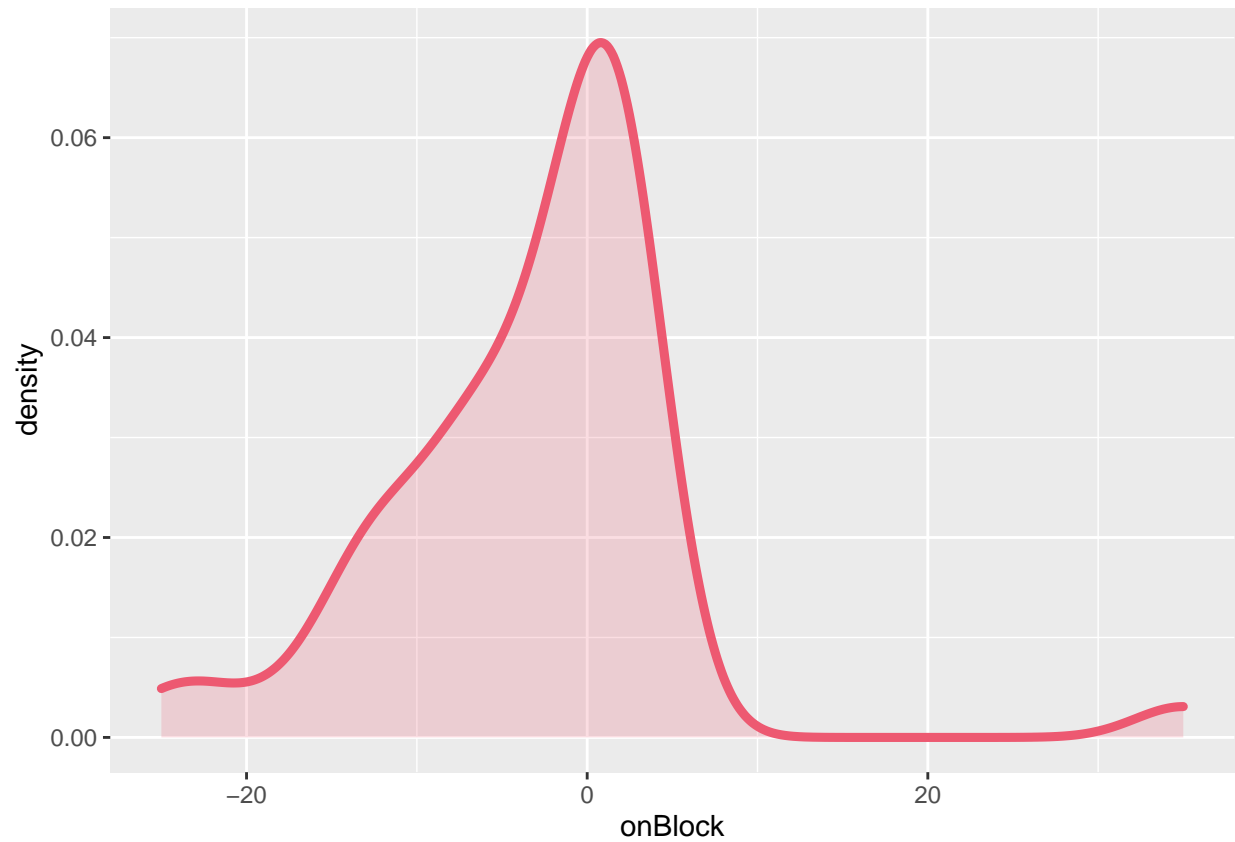
```
## [1] "Median: 140.00 | Mean: 115.54 | Standard deviation: 60.16"
```



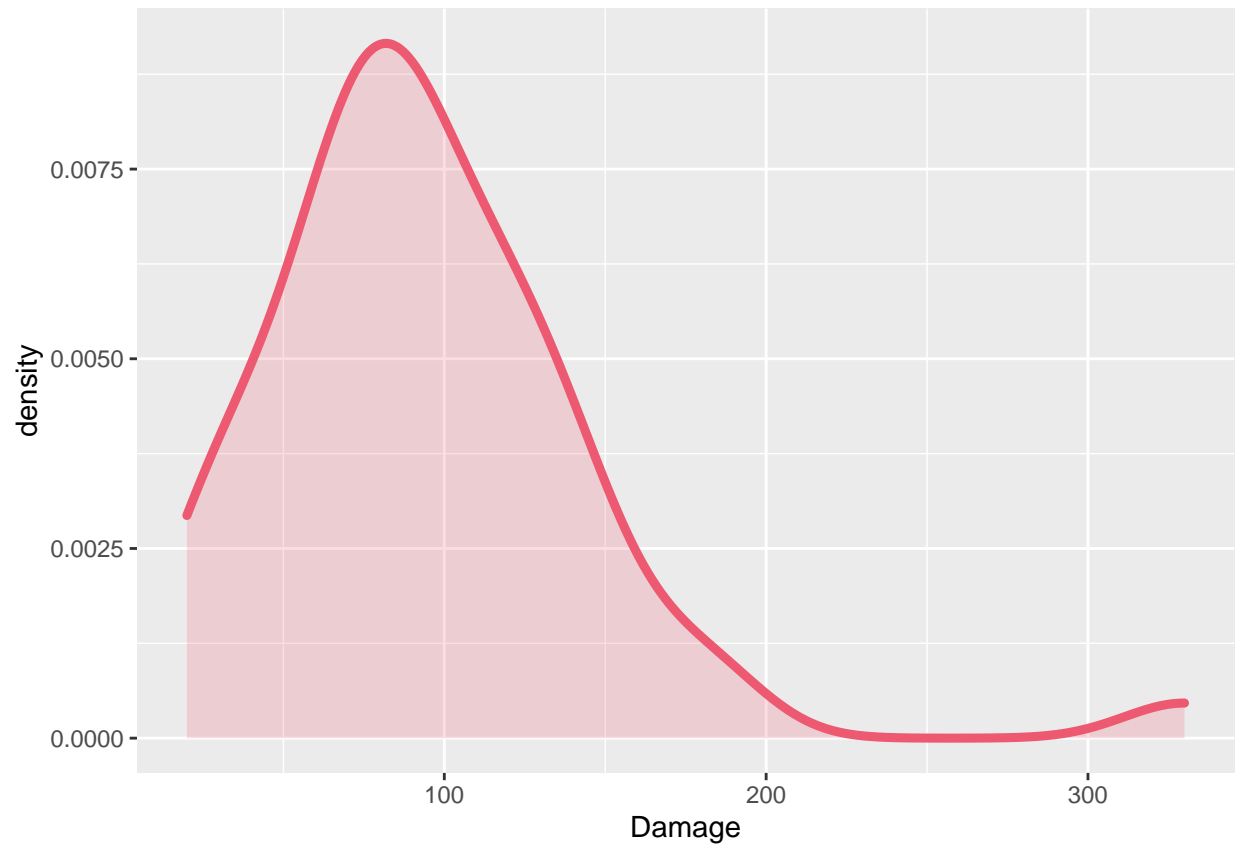
```
##          Move onBlock      plnCmd airmove followUp projectile moveType
## 1      Stand LP      2          LP   False   False     False   normal
## 2      Stand MP      3          MP   False   False     False   normal
## 3      Stand HP     -2          HP   False   False     False   normal
## 4  Stand HP (hold)    5  HP (hold)  False   False     False   normal
## 5 Stand HP (release) -2  HP (release) False   False     False   normal
## 6      Stand LK      3          LK   False   False     False   normal
##  Damage Stun
## 1      30  70
## 2      60 100
## 3      90 150
## 4     100 150
## 5      90 150
## 6      40  70
##          1
## health    1025.0000
## stun      1050.0000
## vgaugel    900.0000
## vgaugel    600.0000
## fDash      16.0000
## bDash      25.0000
## fWalk       0.0435
## bWalk       0.0300
## throwHurt   0.2500
## throwRange  0.8500
```

```
character_info(  
  "data/characters/vega.csv",  
  "Vega",  
  "img/vega.png",  
  "#ed5971"  
)
```

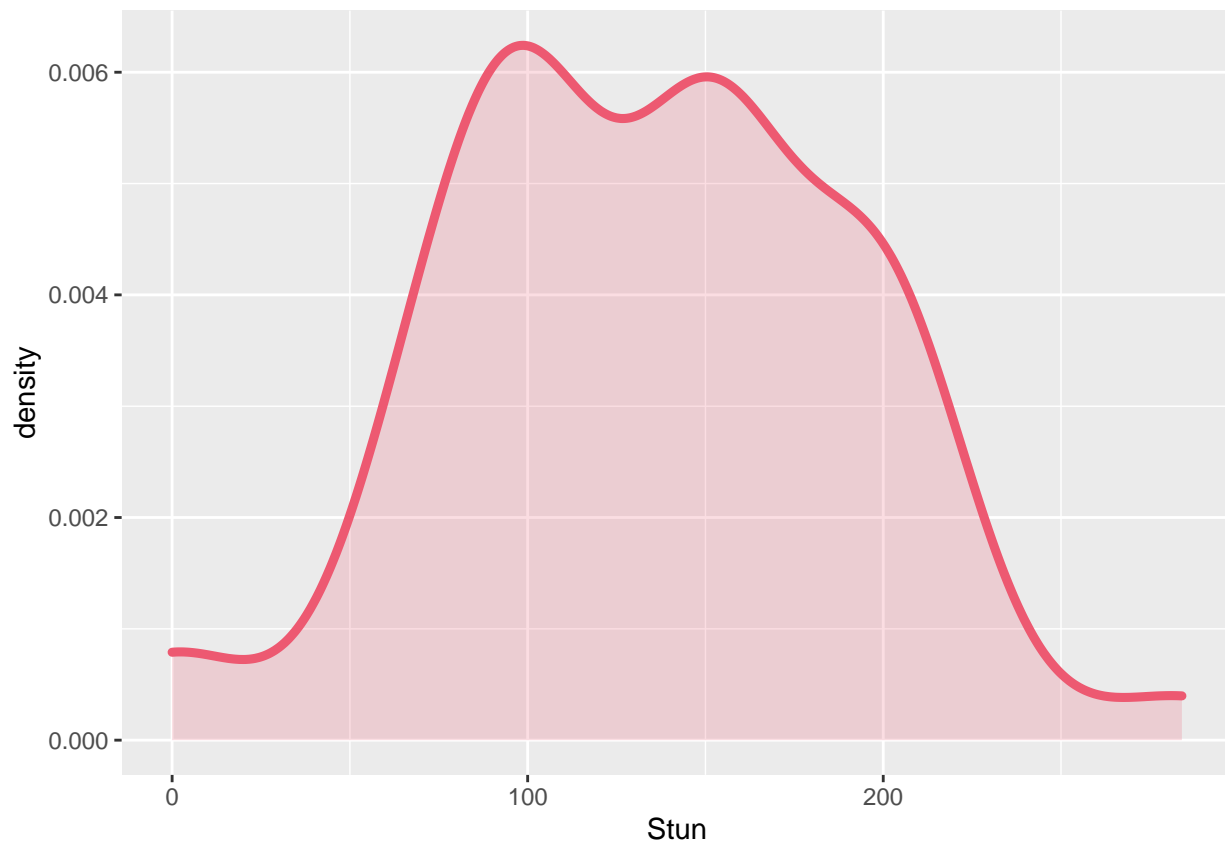
```
## [1] "Median: -2.00 | Mean: -3.17 | Standard deviation: 8.98"
```



```
## [1] "Median: 85.00 | Mean: 95.26 | Standard deviation: 52.89"
```



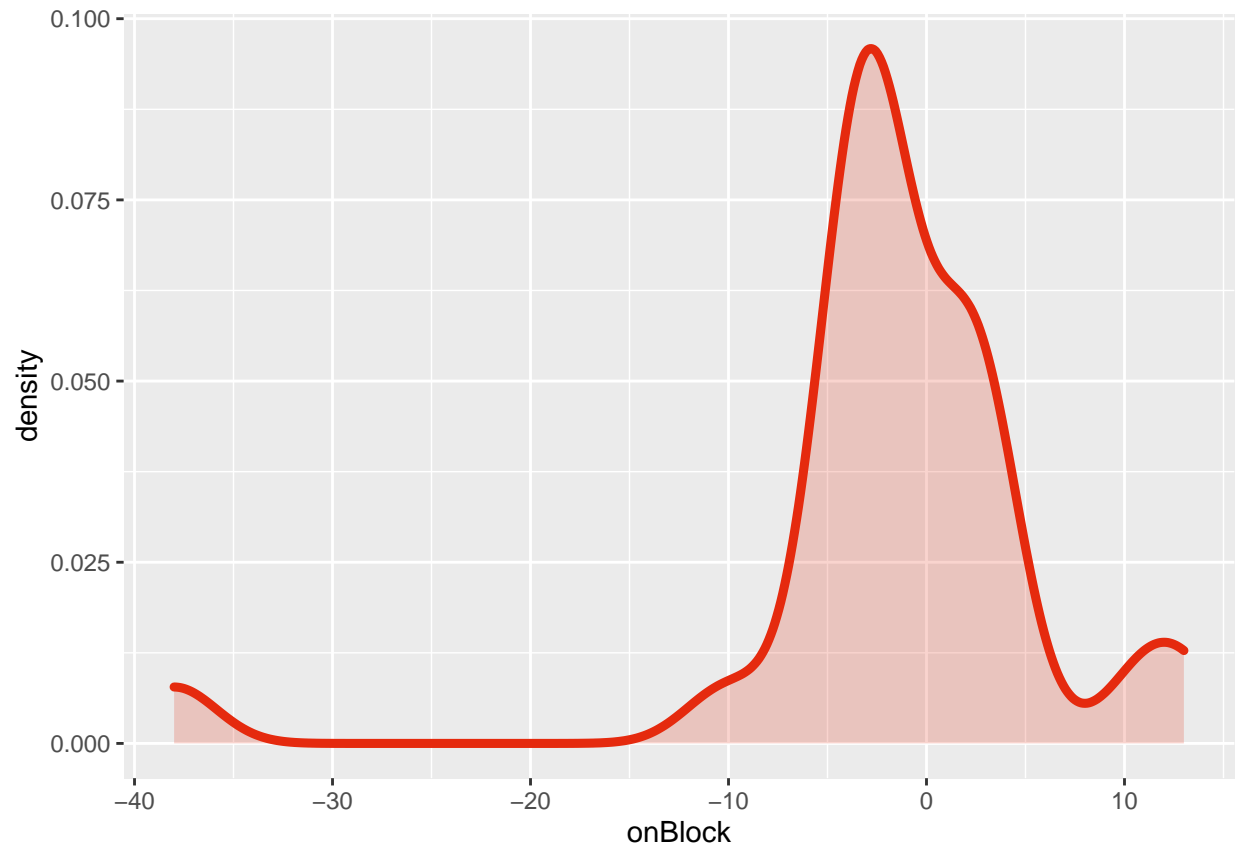
```
## [1] "Median: 150.00 | Mean: 134.57 | Standard deviation: 57.73"
```



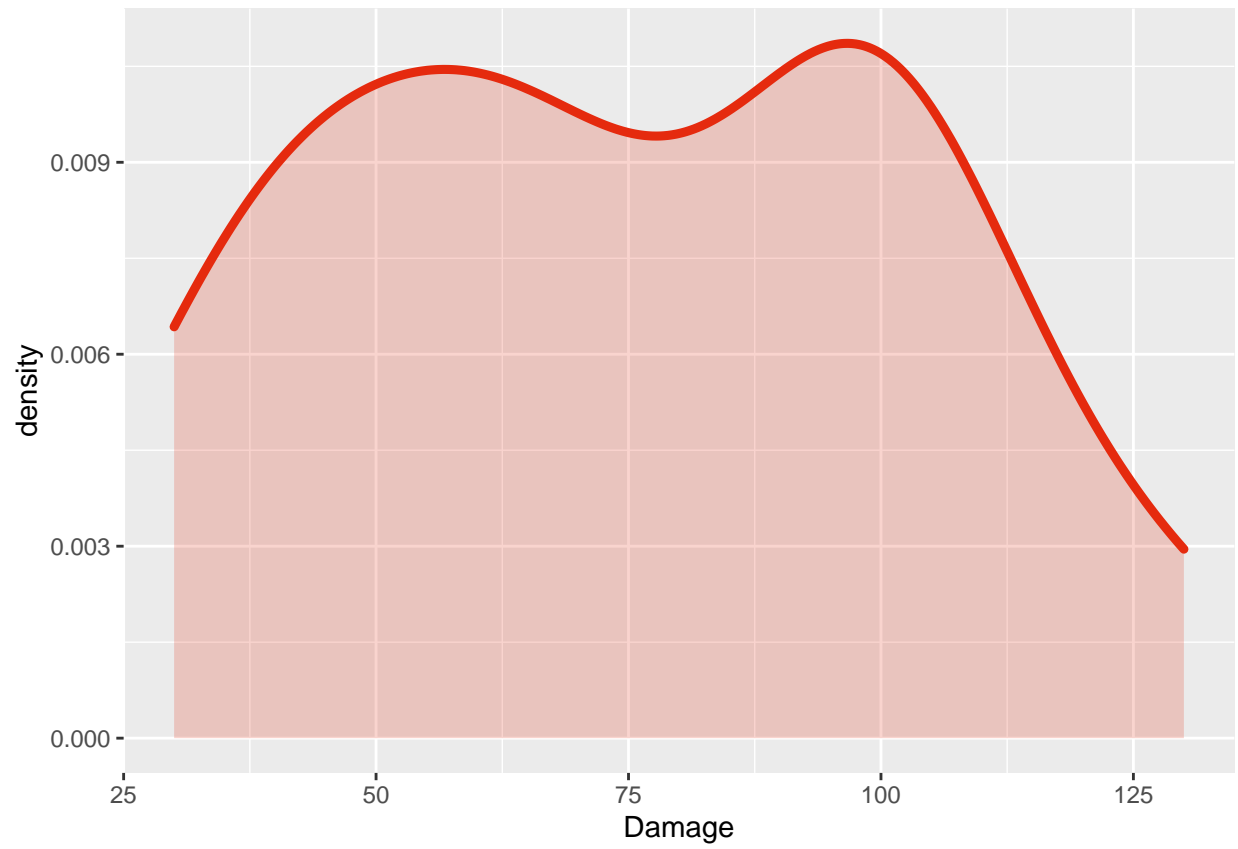
```
##          Move onBlock      plnCmd airmove followUp projectile moveType
## 1 Stand LP (no claw)      3 LP (no claw)  False    False      False  normal
## 2 Stand MP (no claw)      1 MP (no claw)  False    False      False  normal
## 3 Stand HP (no claw)     -1 HP (no claw)  False    False      False  normal
## 4   Stand LP (claw)       1   LP (claw)   False    False      False  normal
## 5   Stand MP (claw)       2   MP (claw)   False    False      False  normal
## 6   Stand HP (claw)      -2   HP (claw)   False    False      False  normal
##   Damage Stun
## 1    30   70
## 2    60  100
## 3    90  150
## 4    30   70
## 5    70  100
## 6    80  150
##          1
## health    1025.0000
## stun       975.0000
## vgauge1    600.0000
## vgauge2    600.0000
## fDash      17.0000
## bDash      21.0000
## fWalk       0.0550
## bWalk       0.0450
## throwHurt   0.4087
## throwRange  0.8557
```

```
character_info(  
  "data/characters/zangief.csv",  
  "Zangief",  
  "img/zangief.png",  
  "#e52a0e"  
)
```

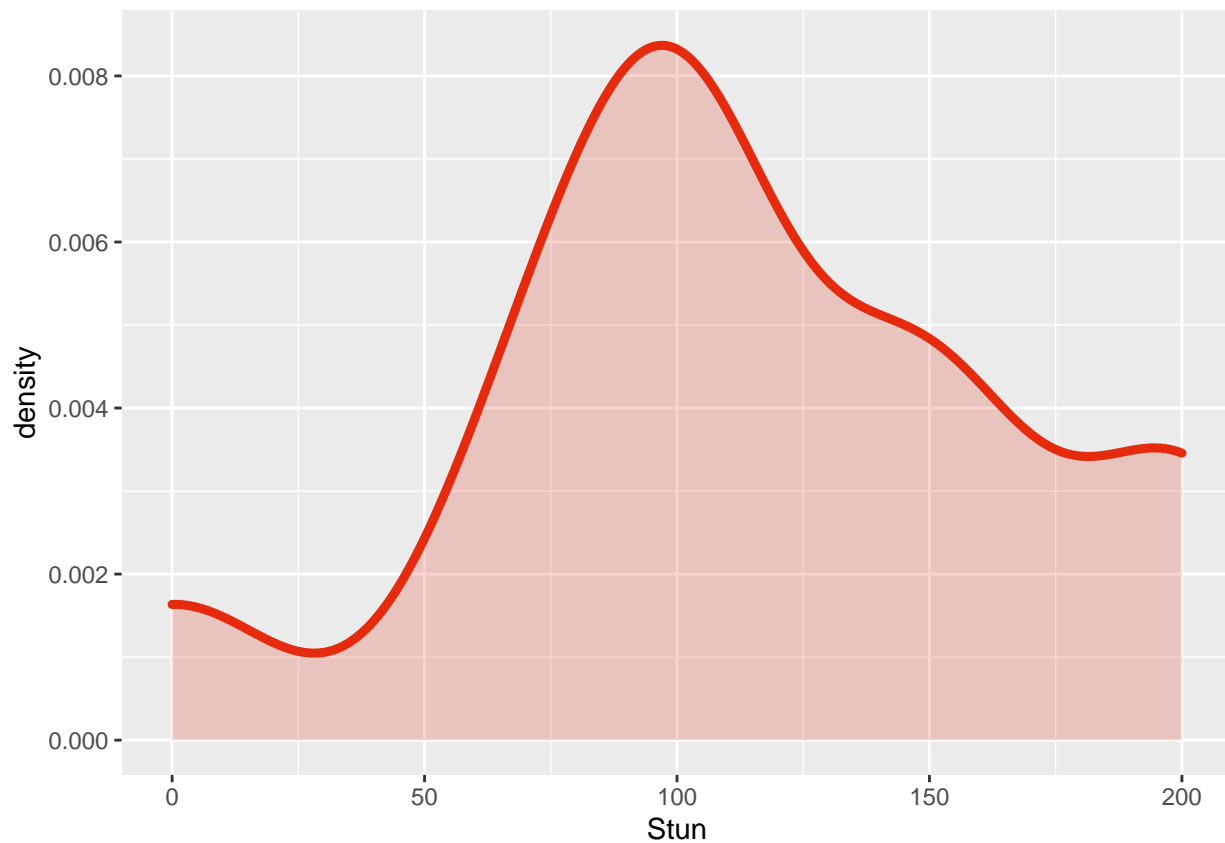
```
## [1] "Median: -2.00 | Mean: -1.92 | Standard deviation: 9.13"
```



```
## [1] "Median: 70.00 | Mean: 74.58 | Standard deviation: 29.04"
```



```
## [1] "Median: 100.00 | Mean: 114.58 | Standard deviation: 55.72"
```

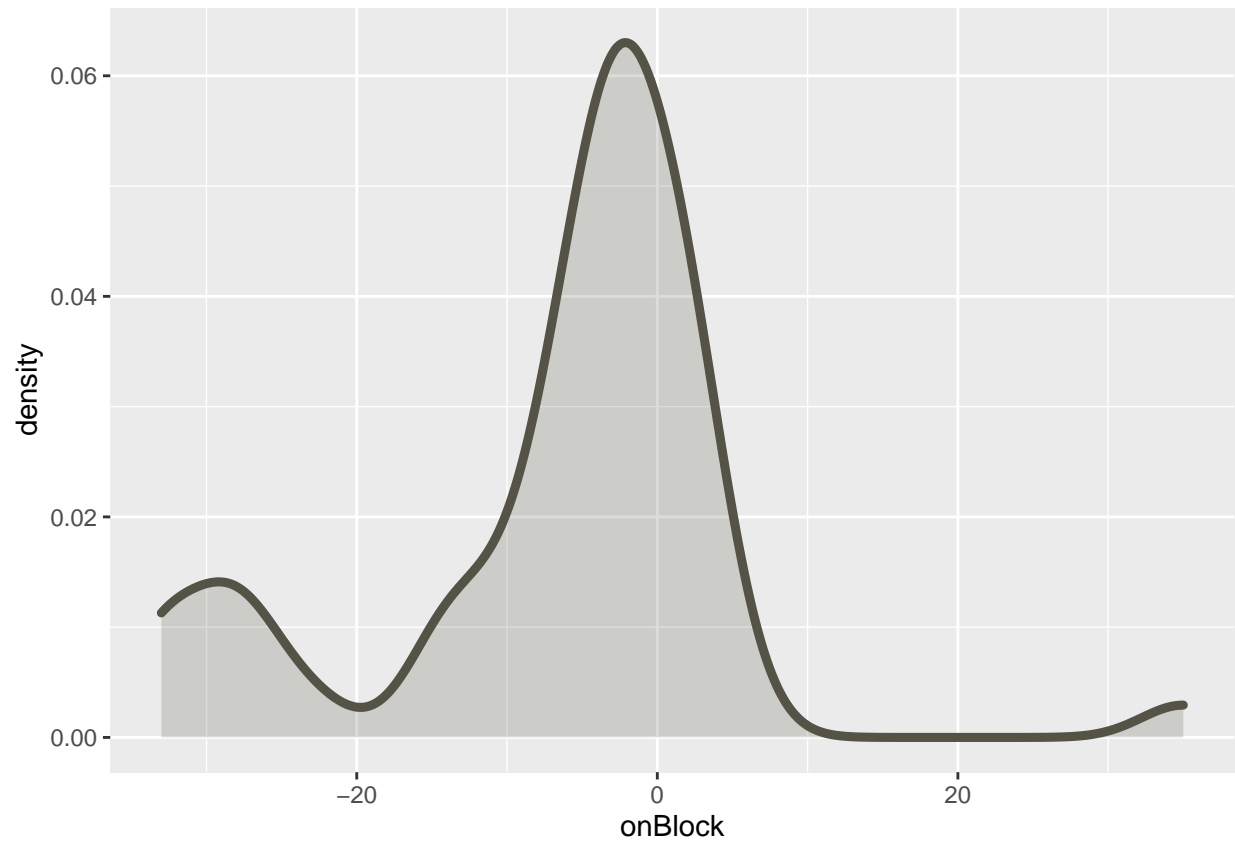


```
##          Move onBlock      plnCmd airmove followUp projectile moveType
## 1      Stand LP      3          LP   False   False   False   normal
## 2      Stand MP      2          MP   False   False   False   normal
## 3      Stand HP     -4          HP   False   False   False   normal
## 4  Stand HP (hold)    2  HP (hold)  False   False   False   normal
## 5 Stand HP (release) -4  HP (release) False   False   False   normal
## 6      Stand LK     -3          LK   False   False   False   normal
##  Damage Stun
## 1      40   70
## 2      70  100
## 3     100  150
## 4     130  200
## 5     100  150
## 6      30   70
##          1
## health    1075.0000
## stun      1100.0000
## vgaugel1   900.0000
## vgaugel2   900.0000
## fDash      25.0000
## bDash      25.0000
## fWalk       0.0305
## bWalk       0.0235
## throwHurt   0.4000
## throwRange  0.9000
```

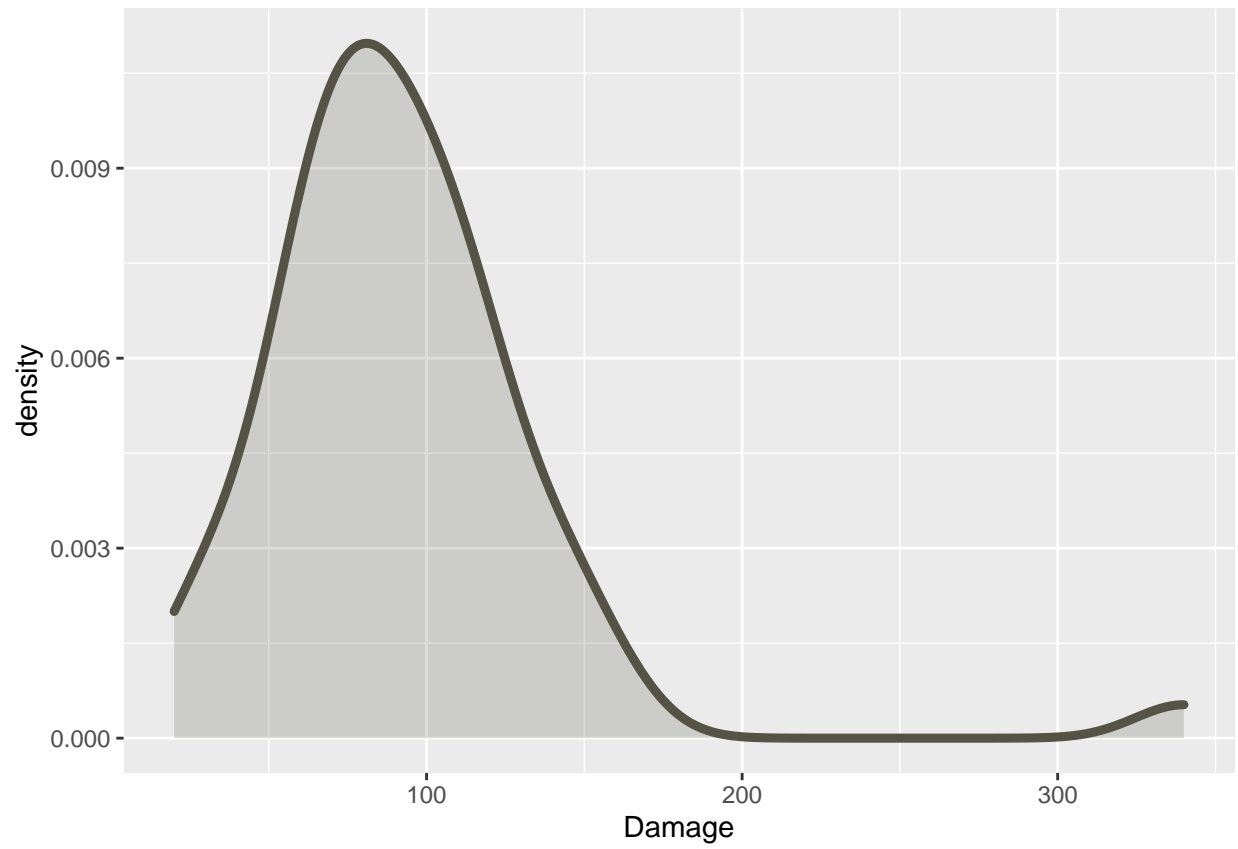


```
character_info(  
  "data/characters/zeku_old.csv",  
  "Zeku (Old)",  
  "img/zeku_old.png",  
  "#545345"  
)
```

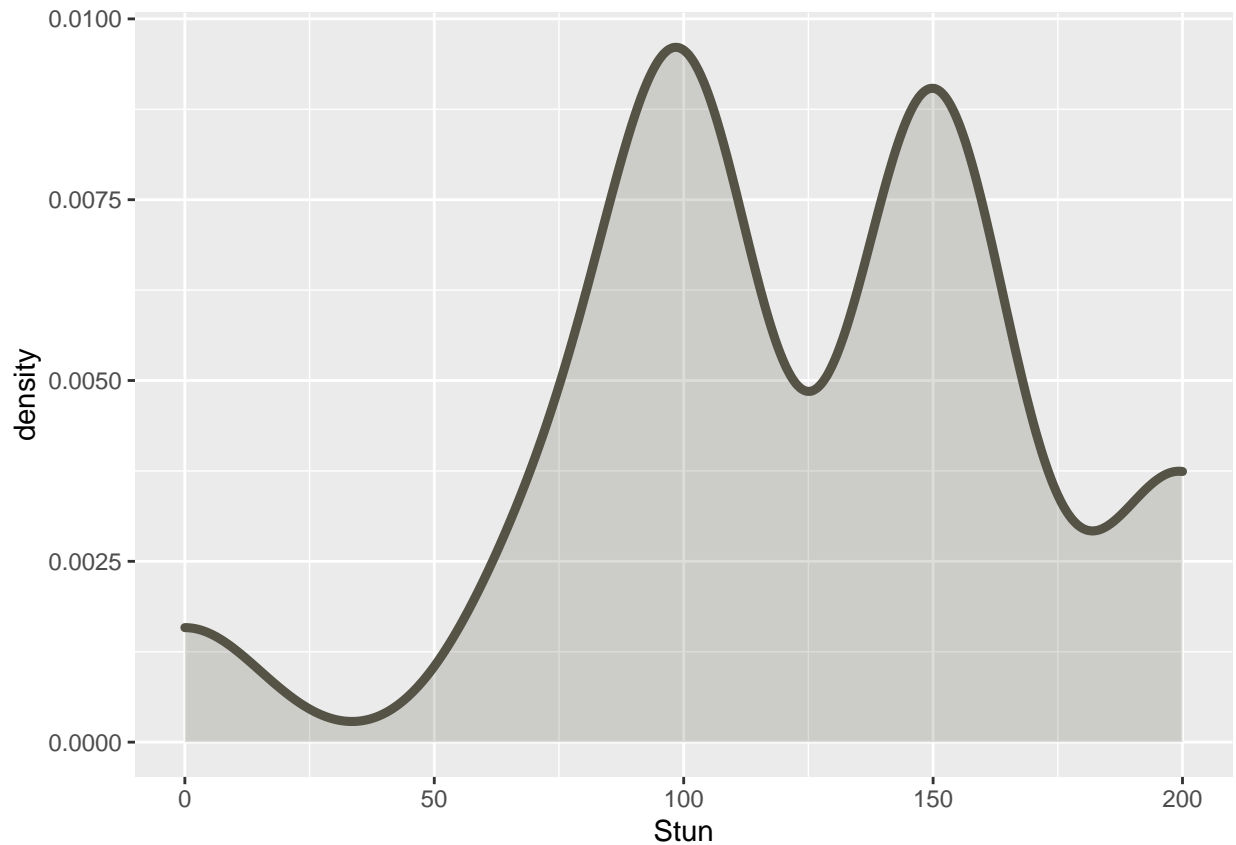
```
## [1] "Median: -4.00 | Mean: -6.67 | Standard deviation: 12.32"
```



```
## [1] "Median: 90.00 | Mean: 92.65 | Standard deviation: 48.17"
```



```
## [1] "Median: 100.00 | Mean: 122.65 | Standard deviation: 50.28"
```

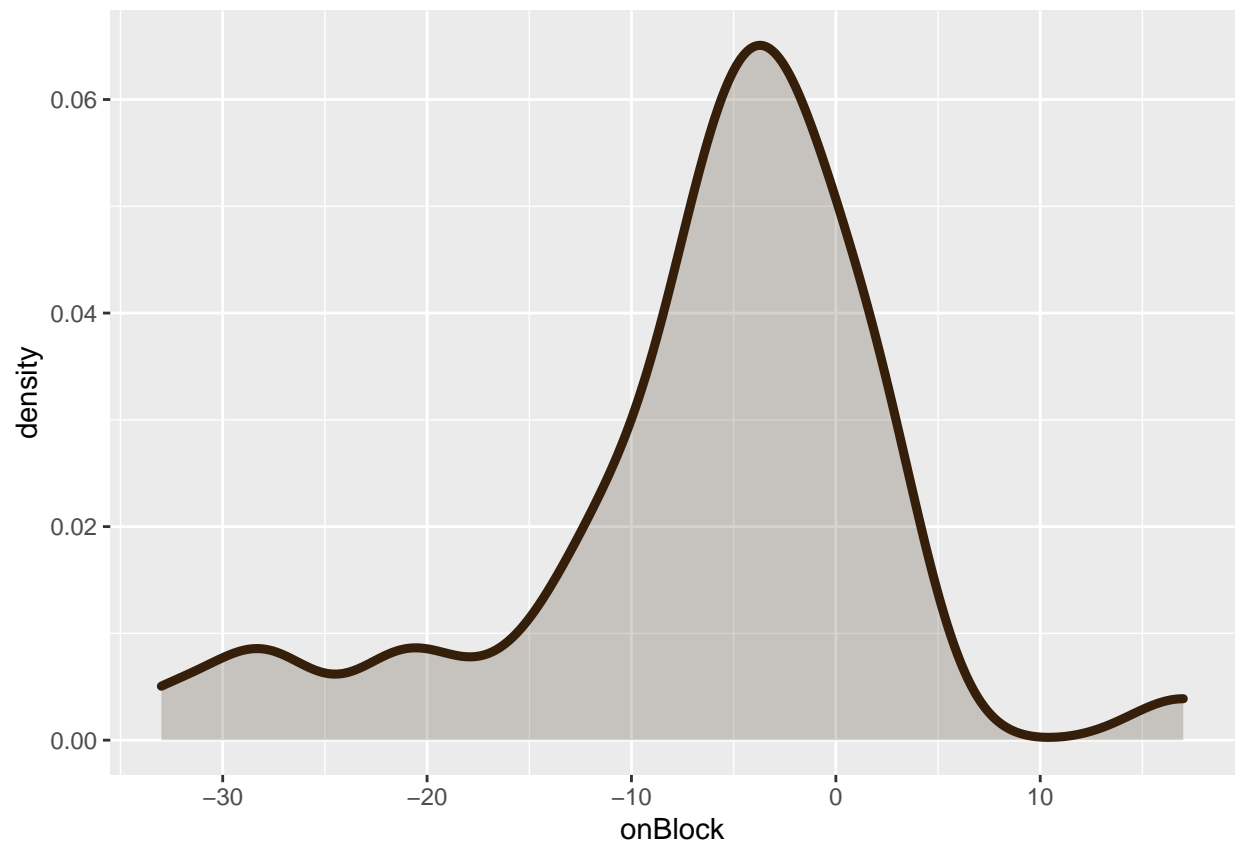


```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      3      MP  False    False    False   normal    60  100
## 3 Stand HP     -5      HP  False    False    False   normal    80  150
## 4 Stand LK      2      LK  False    False    False   normal    40   70
## 5 Stand MK      2      MK  False    False    False   normal    60  100
## 6 Stand HK     -2      HK  False    False    False   normal    90  150
```

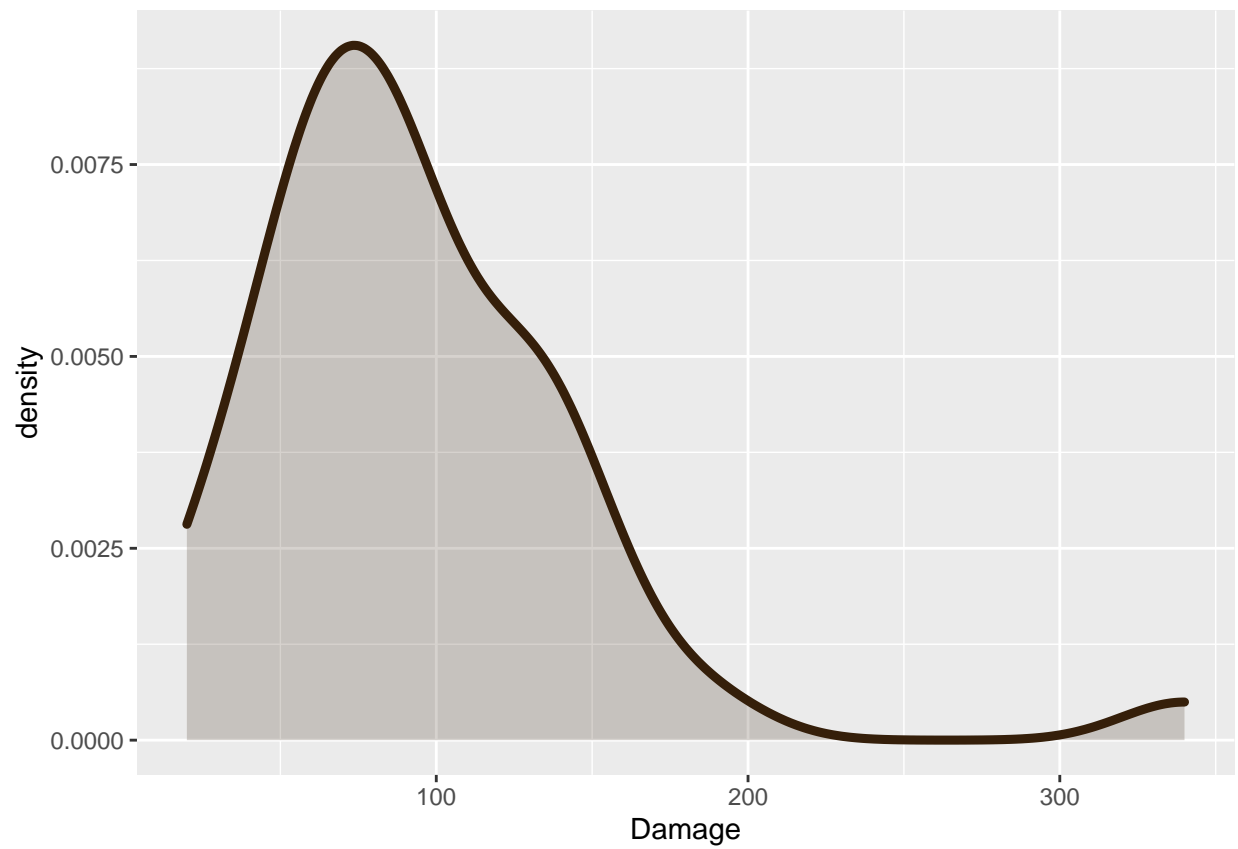
```
##      1
## health  1.00e+03
## stun    1.00e+03
## vgaugel 6.00e+02
## vgaugel 6.00e+02
## fDash   1.70e+01
## bDash   2.20e+01
## fWalk   4.35e-02
## bWalk   2.84e-02
## throwHurt 3.00e-01
## throwRange 8.00e-01
```

```
character_info(
  "data/characters/zeku_young.csv",
  "Zeku (Young)",
  "img/zeku_young.png",
  "#351f0a"
)
```

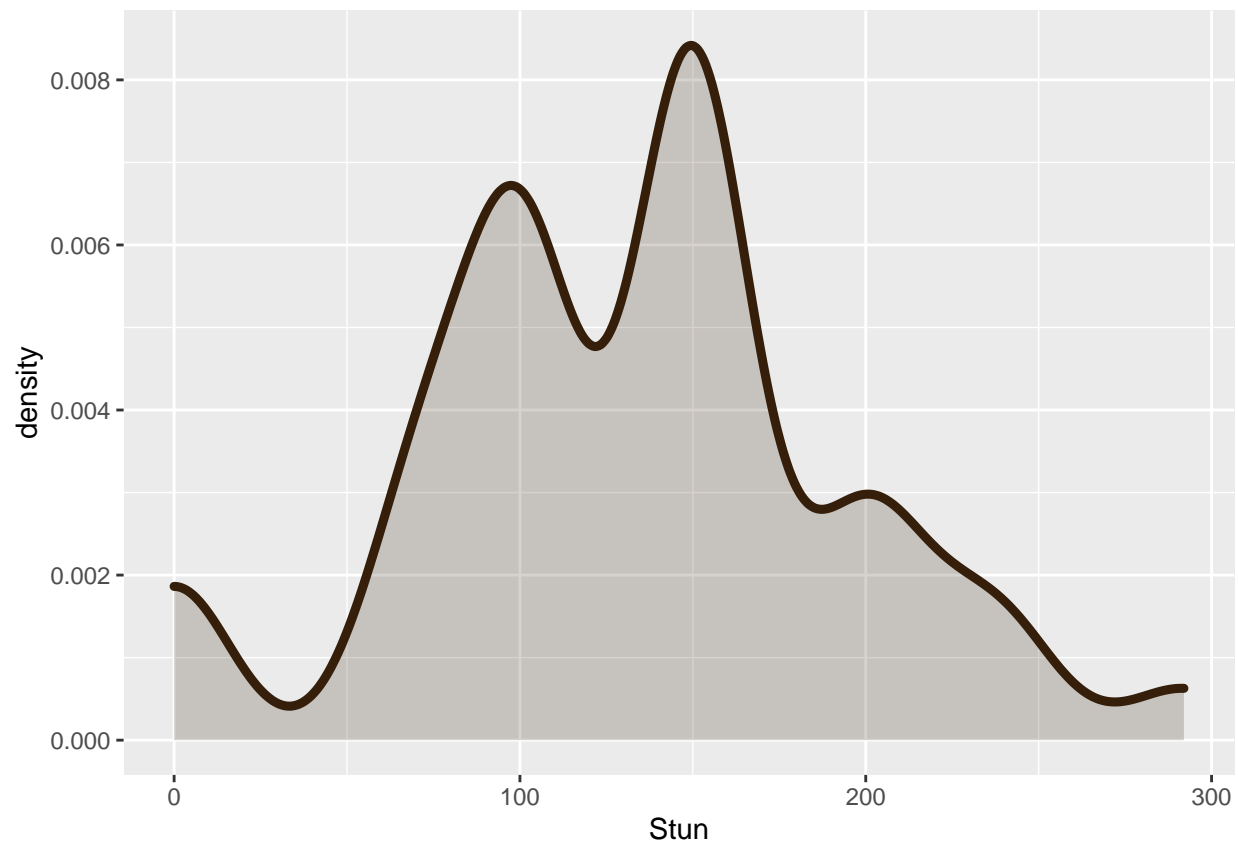
```
## [1] "Median: -5.00 | Mean: -6.53 | Standard deviation: 9.46"
```



```
## [1] "Median: 85.00 | Mean: 94.65 | Standard deviation: 55.96"
```



```
## [1] "Median: 150.00 | Mean: 132.20 | Standard deviation: 64.22"
```



```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP   False   False     False   normal    30   70
## 2 Stand MP      2      MP   False   False     False   normal    60  100
## 3 Stand HP     -3      HP   False   False     False   normal    80  150
## 4 Stand LK     -2      LK   False   False     False   normal    40   70
## 5 Stand MK     -3      MK   False   False     False   normal    60  100
## 6 Stand HK     -2      HK   False   False     False   normal    90  150
##
##      1
## health    1.0e+03
## stun      1.0e+03
## vgaugel   6.0e+02
## vgaugel   6.0e+02
## fDash     1.7e+01
## bDash     2.2e+01
## fWalk     5.4e-02
## bWalk     3.5e-02
## throwHurt 3.0e-01
## throwRange 8.0e-01
```

Module 2: Visualization

Are frames on block and damage+stun correlated? Let's find out.

```
library(tidyverse)
library(RColorBrewer)
df <- read.csv("data/all.csv", stringsAsFactors = FALSE)
```

Tilemaps

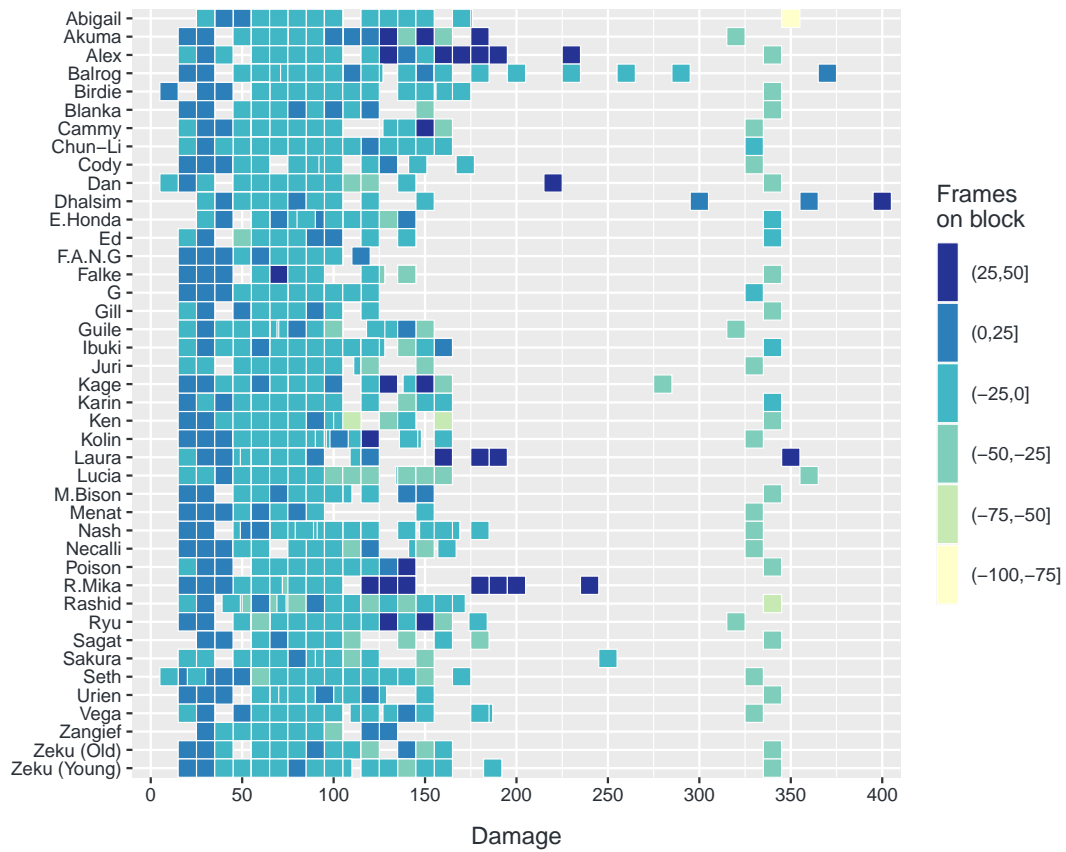
```
df_tile <- df %>%
  # convert to factor and reverse level order so it looks right on plot
  mutate(character_name = factor(Character,
    levels = rev(sort(unique(Character))))
  ) %>%
  # create intervals for plotting/colormap and similar to before, reverse order
  mutate(oB_bins = cut(onBlock,
    breaks = seq(from = -100, to = max(onBlock, na.rm = TRUE) + 2, by = 25)
  ) %>%
  mutate(oB_bins = factor(as.character(oB_bins), levels = rev(levels(oB_bins))))

# make sure the set of colors matches the number of bins
cmap_bins <- length(levels(df_tile$oB_bins))

tilemap <- function(responses, custompal) {
  print(ggplot(
    df_tile,
    aes(x = {{ responses }}, y = character_name, fill = oB_bins)
  ) +
    geom_tile(width = 10, color = "white", linewidth = 0.2) +
    coord_fixed(ratio = 10) +
    guides(fill = guide_legend(title = "Frames\nnon block")) +
    labs(y = "") +
    # removes extra space
    scale_y_discrete(expand = c(0, 0)) +
    # define new breaks on x-axis
    scale_x_continuous(
      expand = c(0, 0),
      limits = c(-10, 410),
      breaks = seq(from = 0, to = 400, by = 50)
    ) +
    scale_fill_manual(values = rev(brewer.pal(cmap_bins, custompal))) +
    # set a base size for all fonts
    theme_grey(base_size = 9) +
    # styling to make it my own
    theme(
      legend.title = element_text(color = "#292F36"),
      legend.text = element_text(size = 7, color = "#292F36"),
      legend.key.height = grid::unit(0.8, "cm"),
      legend.key.width = grid::unit(0.3, "cm"),
      axis.title.x = element_text(margin = margin(t = 8), color = "#292F36"),
      axis.text.x = element_text(color = "#292F36"),
      axis.text.y = element_text(color = "#292F36"),
      axis.ticks = element_line(linewidth = 0.4), # thickness of axis ticks
      plot.background = element_blank(), # rm background
      panel.border = element_blank() # rm outer border
    )
  )
}
```

```
}
```

```
tilemap(Damage, "YlGnBu") # will give user option to change to YlOrRd
```



```
tilemap(Stun, "YlGnBu")
```