R fyrir byrjendur

Myndræn framsetning

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Myndræn framsetning

Myndræn framsetning er mikilvæg á öllum stigum tölfræðiúrinnslu

- Við gagnagreiningu:
  - Besta leiðin til að kynnast gögnunum!
- Til að kanna hvort forsendur tilgátuprófa
  - Oft talsvert áreiðanlegri en tilgátupróf „í blindni"
- Við framsetningu niðurstaðna
  - Ein mynd segir meira en þúsund orð...

ggplot2

```
library(ggplot2)
```

- Gífurlega öflugur pakki til að búa til myndir
- Hluti af `tidyverse`
- Þróaður af Hadley Wickham
- Skilar gröfum á formi sem er birtingarhæft í öllum helstu tímaritum
- Ótalmargir möguleikar í boði

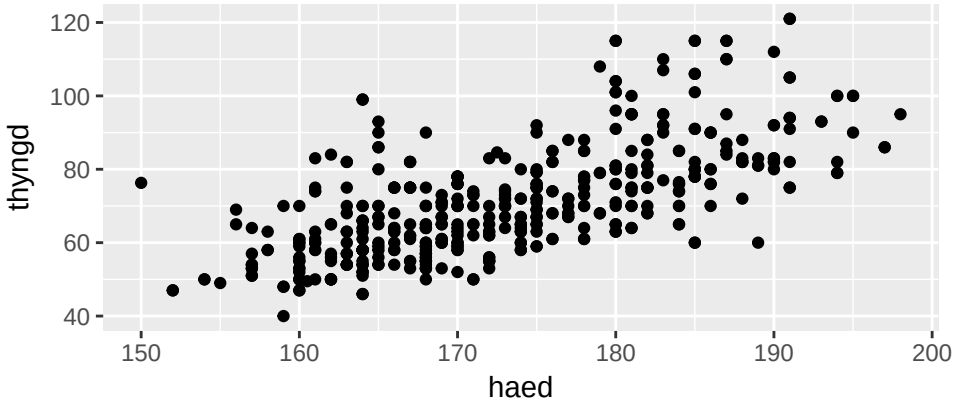
Uppsetning skipana í ggplot2

```
ggplot(gogn,aes(x=breyta1, y=breyta2)) + <geomfunction>(...) + ...
```

`gogn`	: Gagnataflan sem geymir gögnin okkar
`aes`	: Útlitsstilling sem tilgreinir breytur
`breyta1`	: Breytan á x-ás
`breyta2`	: Breytan á y-ás
`<geomfunction>`	: geom fall

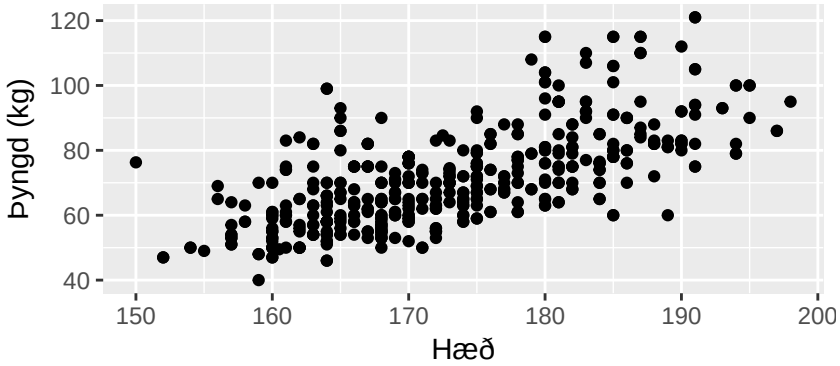
Teiknum punktarit: geom_point()

```
ggplot(puls,aes(x=haed, y=thyngd)) + geom_point()
```



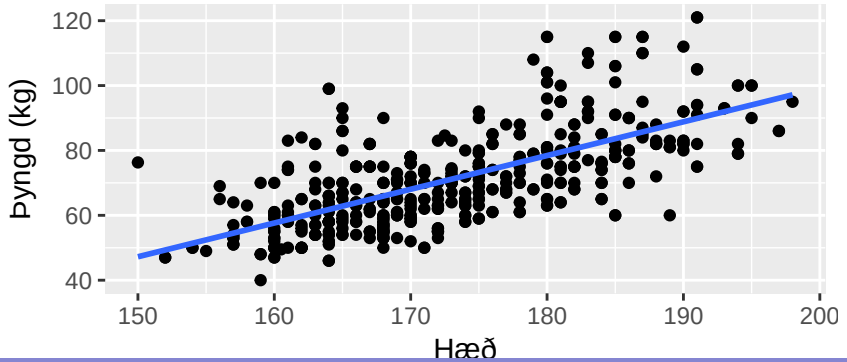
Merkjum ásana betur: xlab() og ylab()

```
ggplot(puls,aes(x=haed, y=thyngd)) + geom_point() +
  xlab('Hæð') + ylab('Þyngd (kg)')
```



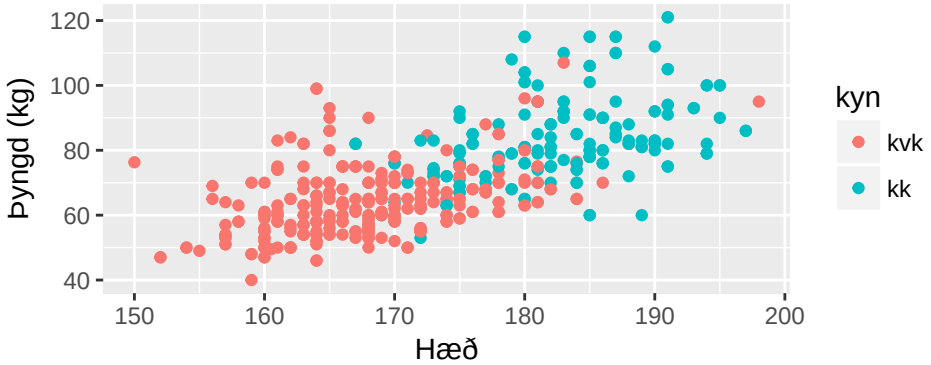
Teiknum aðhvarfslínu: geom_smooth()

```
ggplot(puls,aes(x=haed, y=thyngd)) + geom_point() +
  xlab('Hæð') + ylab('Þyngd (kg)') +
  geom_smooth(method='lm', se=F)
```



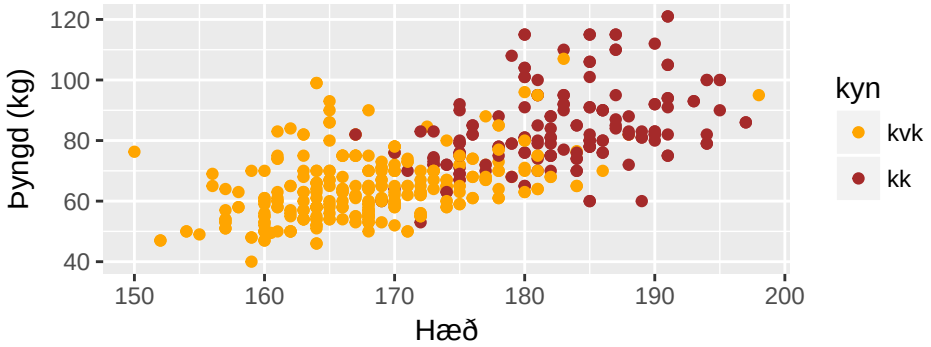
Litum ólíkt gildi á þriðju breytu: color=

```
ggplot(puls) + geom_point(aes(x=haed, y=thyngd, color=kyn)) +
  xlab('Hæð') + ylab('Þyngd (kg)')
```



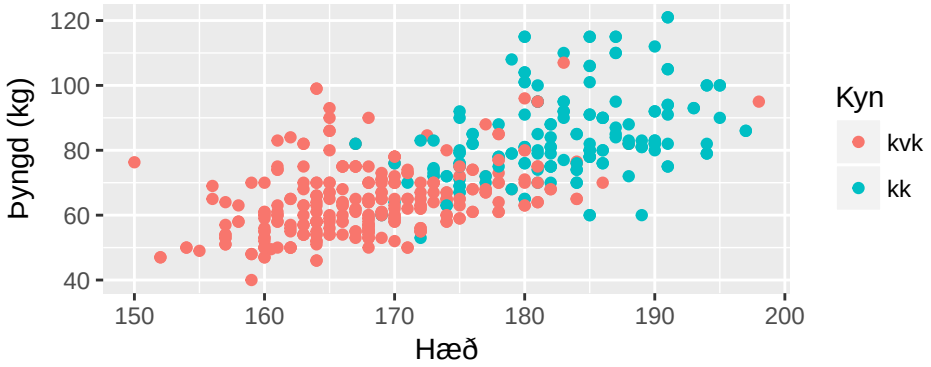
Breytum um lit

```
ggplot(puls) + geom_point(aes(x=haed, y=thyngd, color=kyn)) +
  scale_colour_manual(values = c("orange","brown")) +
  xlab('Hæð') + ylab('Þyngd (kg)')
```



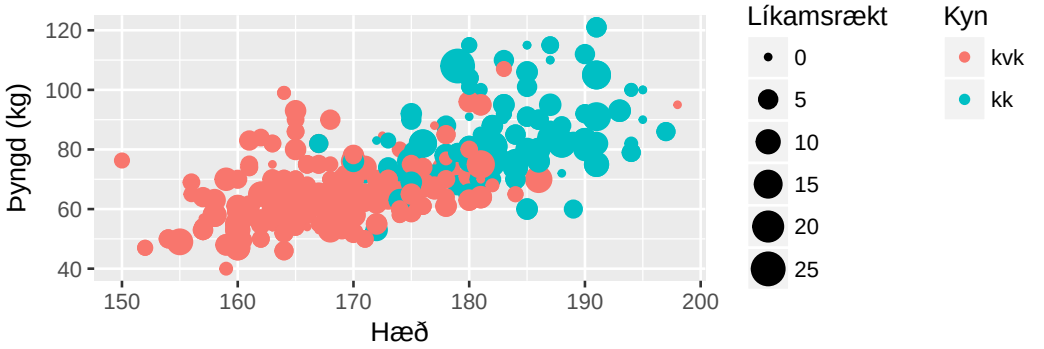
Merkingar: labs=

```
ggplot(puls) + geom_point(aes(x=haed, y=thyngd, colour=kyn)) +
  labs(x='Hæð', y='Þyngd (kg)', colour = "Kyn")
```



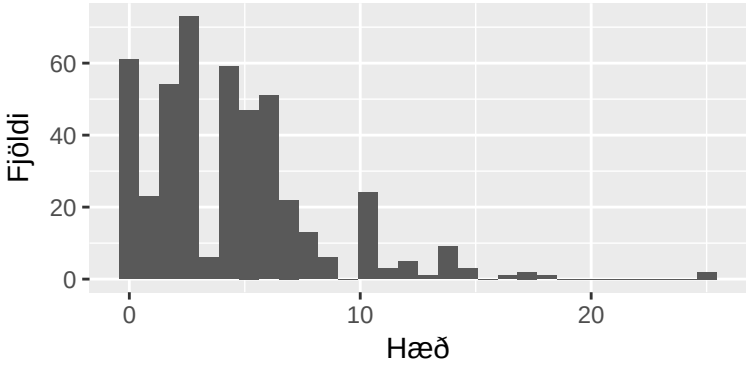
Stærð: size=

```
ggplot(puls) + geom_point(aes(x=haed, y=thyngd, colour=kyn,
      size = likamsraekt)) + labs(x='Hæð', y='Þyngd (kg)',
      colour = "Kyn", size = "Líkamsrækt") + theme(legend.box = "horizontal")
```



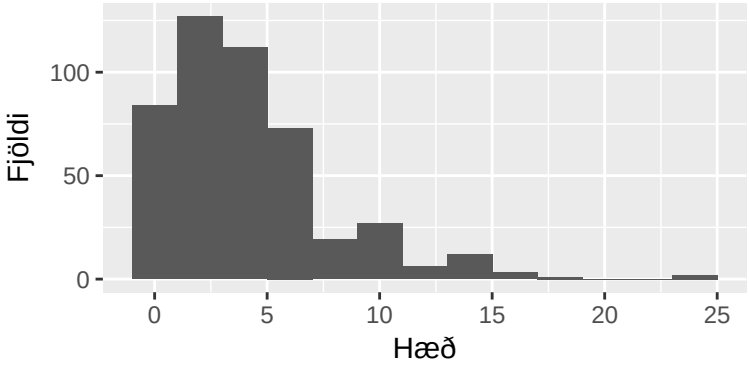
Stuðlarit: geom_histogram()

```
ggplot(puls,aes(x=likamsraekt)) + geom_histogram() +
  xlab('Hæð') + ylab('Fjöldi')
```



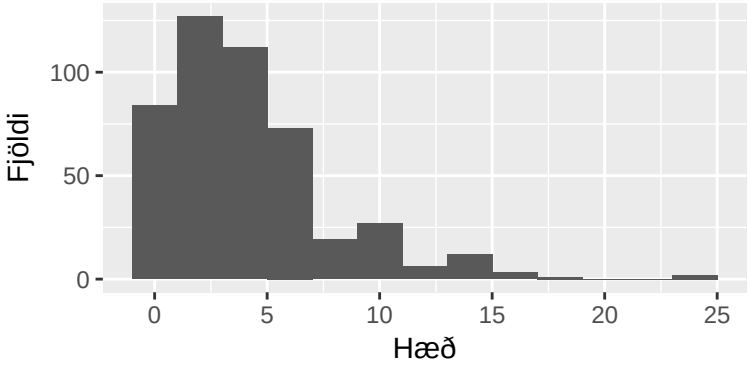
Stuðlarit: geom_histogram()

```
ggplot(puls,aes(x=likamsraekt)) + geom_histogram(binwidth = 2) +
  xlab('Hæð') + ylab('Fjöldi')
```



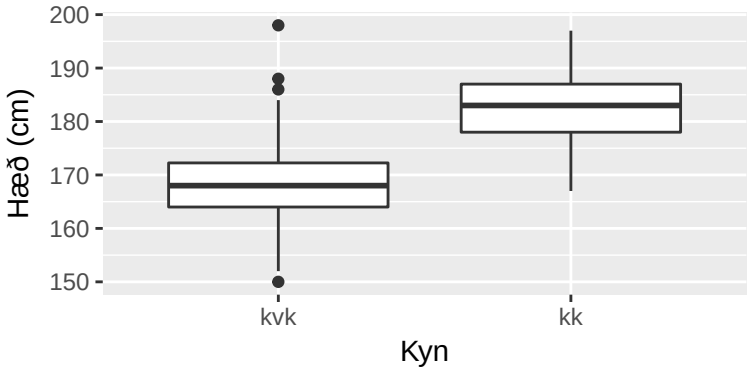
Stuðlarit: geom_histogram()

```
ggplot(puls,aes(x=likamsraekt)) + geom_histogram(binwidth = 2) +
  xlab('Hæð') + ylab('Fjöldi')
```



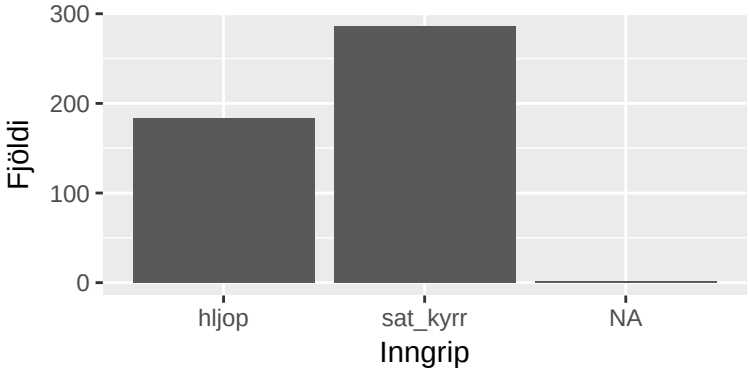
Kassarit: geom_boxplot()

```
ggplot(puls,aes(x=kyn, y=haed)) + geom_boxplot() + xlab('Kyn') + ylab('Hæð (cm)')
```



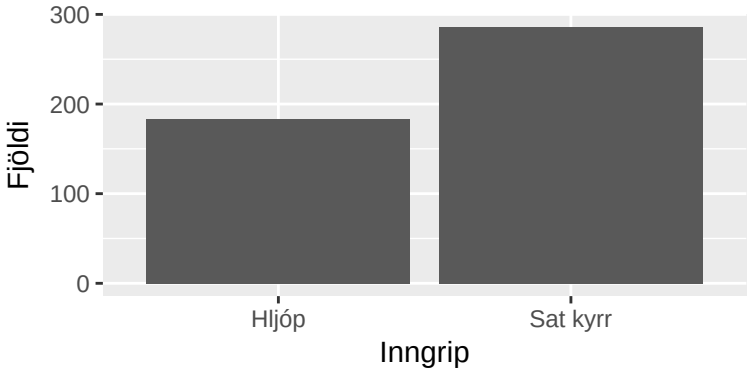
Stöplarit: geom_bar()

```
ggplot(puls,aes(x=inngrip)) + geom_bar() + xlab('Inngrip') + ylab('Fjöldi')
```



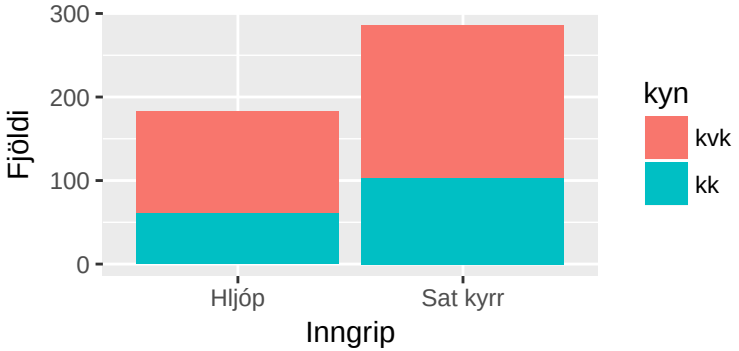
Stöplarit: geom_bar()

```
ggplot(filter(puls, !is.na(inngrip)),aes(x=inngrip)) + geom_bar() +
  xlab('Inngrip') + ylab('Fjöldi') + scale_x_discrete(labels=c("Hljóp","Sat kyrr")
```



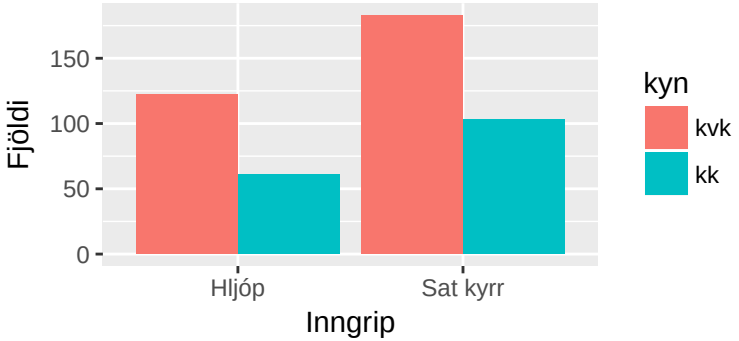
Bætum við flokkabreytu: `fill`

```
ggplot(filter(puls, !is.na(inngrip)),aes(x=inngrip, fill = kyn)) +
  geom_bar() + xlab('Inngrip') + ylab('Fjöldi') +
  scale_x_discrete(labels=c("Hljóp","Sat kyrr"))
```



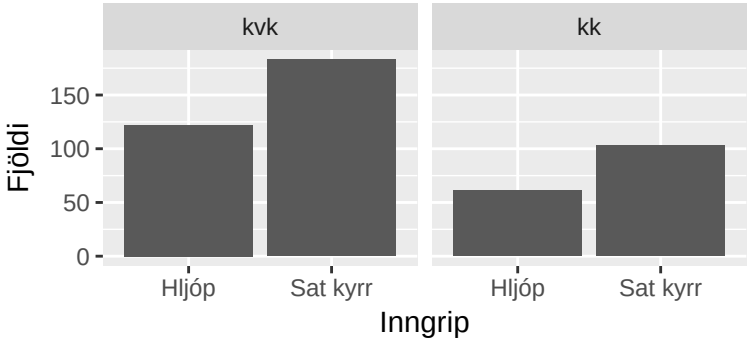
Bætum við flokkabreytu: position='dodge'

```
ggplot(filter(puls, !is.na(inngrip)),aes(x=inngrip, fill = kyn)) +
  geom_bar(position='dodge') + xlab('Inngrip') + ylab('Fjöldi') +
  scale_x_discrete(labels=c("Hljóp","Sat kyrr"))
```



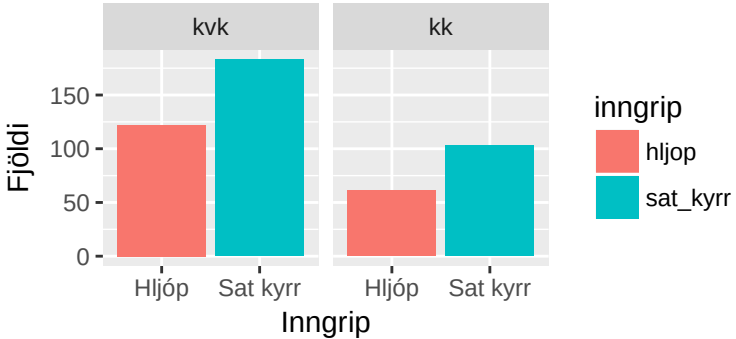
Skiptum grafi upp í reiti: facet_grid()

```
ggplot(filter(puls, !is.na(inngrip)),aes(x=inngrip)) +
  geom_bar() + facet_grid(~kyn) + xlab('Inngrip') + ylab('Fjöldi') +
  scale_x_discrete(labels=c("Hljóp","Sat kyrr"))
```



Skiptum grafi upp í reiti: facet_grid()

```
ggplot(filter(puls, !is.na(inngrip)),aes(x=inngrip, fill = inngrip)) +
  geom_bar() + facet_grid(~kyn) + xlab('Inngrip') + ylab('Fjöldi') +
  scale_x_discrete(labels=c("Hljóp","Sat kyrr"))
```



Vista myndir: ggsave()

```
p <- ggplot(filter(puls, !is.na(inngrip)),aes(x=inngrip, fill = inngrip)) +
  geom_bar() + facet_grid(~kyn) + xlab('Inngrip') + ylab('Fjöldi') +
  scale_x_discrete(labels=c("Hljóp","Sat kyrr"))
ggsave("stoplarit1.pdf", p, width = 20, height = 10, units = "cm")
```

Næstu skref

- Þetta er bara nasaþefurinn
- **Fiktið ykkur áfram!**
- Litir, bakgrunnur, kvarðar, staðsetning á skýringartexta, ...
- The ggplot2 book: `https://github.com/hadley/ggplot2-book`
- Mjög notendavæn síða: http://www.cookbook-r.com/Graphs/
- Allar ggplot2 stillingarnar: http://docs.ggplot2.org/current/