

# Physical Measures

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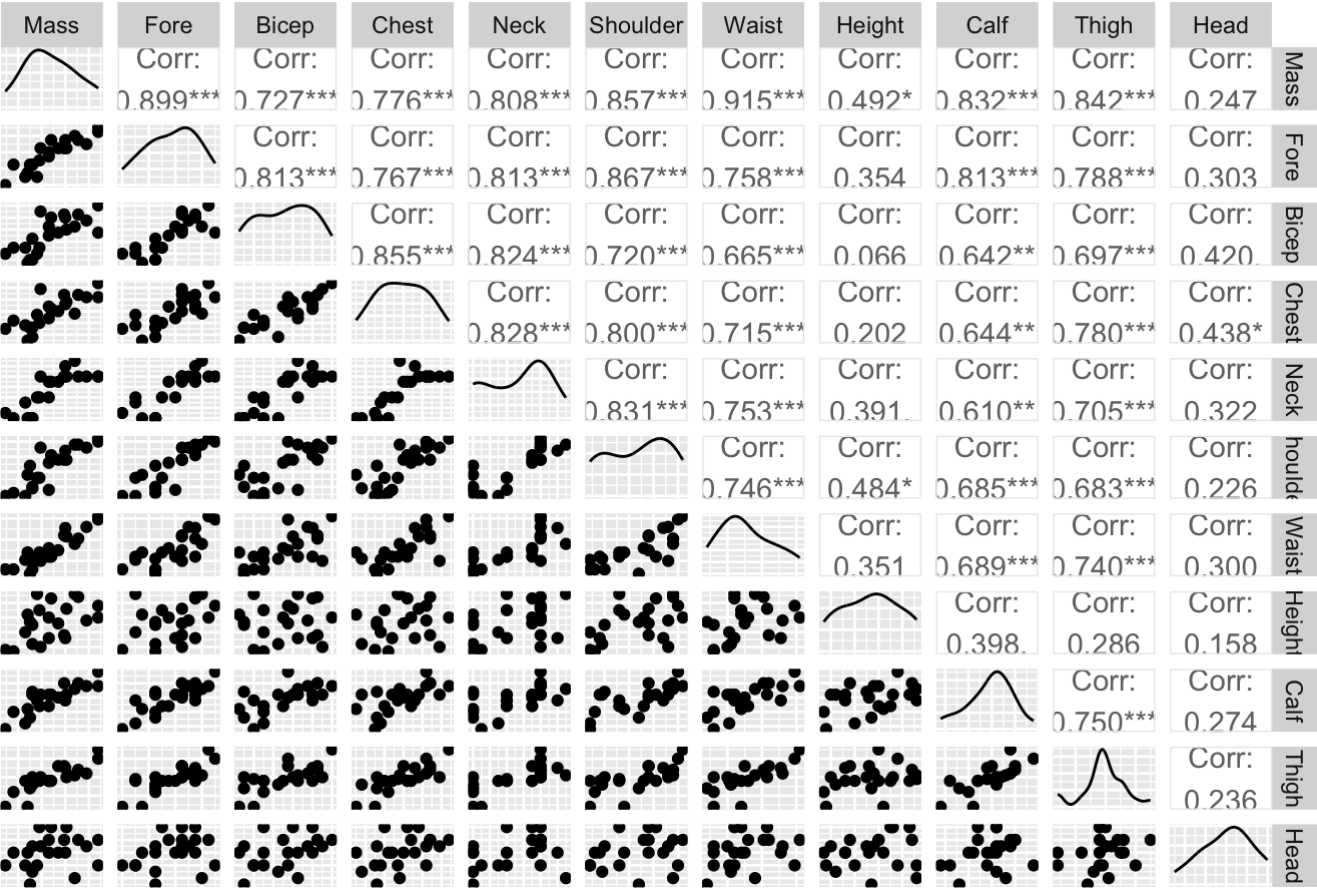
## Scatterplot Matrix

```
library(GGally)
ggpairs(PhysicalMeasures, axisLabels = "none",
        title = "Scatterplot Matrix of Physical Measures")

# corr codes
```

## Scatterplot Matrix

Scatterplot Matrix of Physical Measures



## Polynomial Model of Mass with Calf and Calf^2 as the Predictors

```

Calf2 = (PhysicalMeasures$Calf)*(PhysicalMeasures$Calf)
fit_calf_poly <- lm(Mass ~ Calf + Calf2, data = PhysicalMeasures)
summary(fit_calf_poly) # does not have VIFs included like SAS

```

```

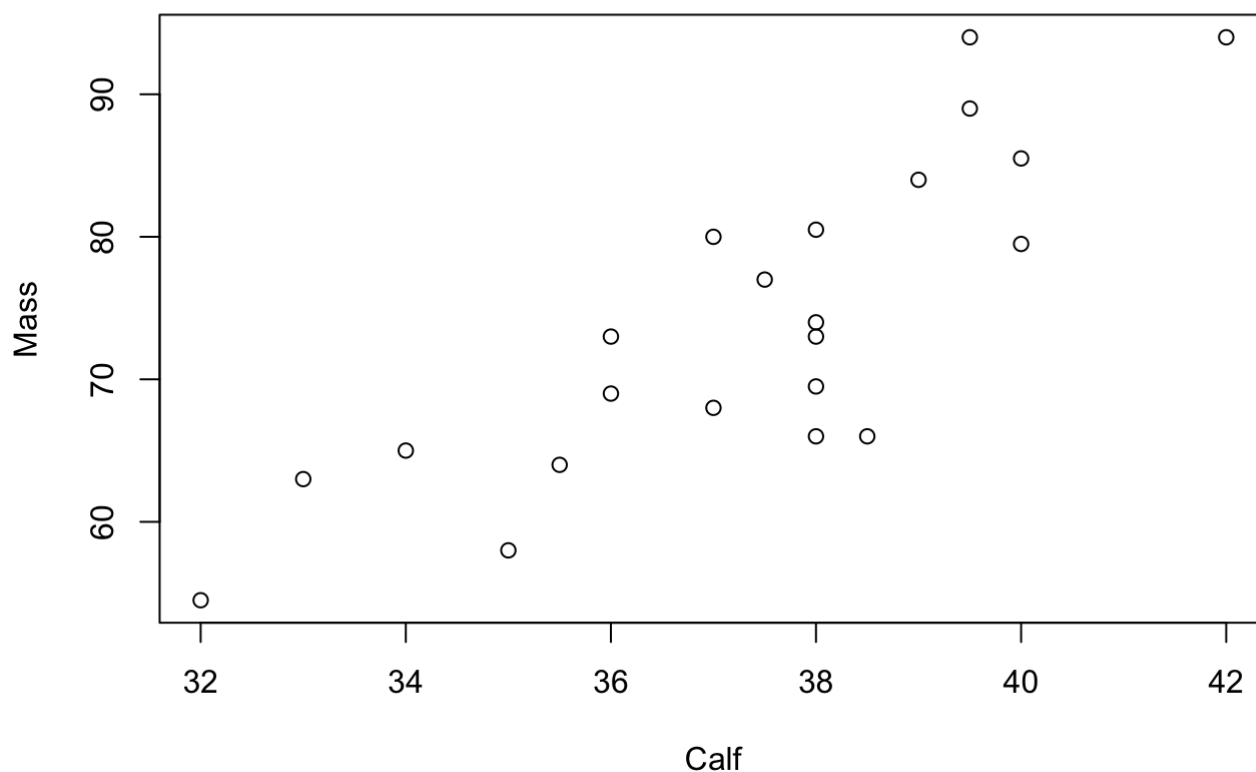
##
## Call:
## lm(formula = Mass ~ Calf + Calf2, data = PhysicalMeasures)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -11.7009  -3.2970  -0.4267   3.9438  11.6485
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  203.8382   248.0478   0.822   0.421
## Calf         -11.0025    13.4970  -0.815   0.425
## Calf2          0.2007     0.1831   1.096   0.287
##
## Residual standard error: 6.201 on 19 degrees of freedom
## Multiple R-squared:  0.7105, Adjusted R-squared:  0.68
## F-statistic: 23.32 on 2 and 19 DF,  p-value: 7.681e-06

```

```

plot(Mass ~ Calf, data = PhysicalMeasures)

```



# Multiple Regression Model of Mass with Bicep and Height as the Predictors

```
fit_multi <- lm(Mass ~ Bicep + Height, data = PhysicalMeasures)
summary(fit_multi) # does not have VIFs included like SAS
```

```
##
## Call:
## lm(formula = Mass ~ Bicep + Height, data = PhysicalMeasures)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -13.6179  -2.3658  -0.0997   2.5293  14.9339
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -154.2529    39.9167  -3.864  0.00104 **
## Bicep         2.6318     0.4536   5.802 1.37e-05 ***
## Height        0.7889     0.2126   3.710  0.00148 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.028 on 19 degrees of freedom
## Multiple R-squared:  0.7265, Adjusted R-squared:  0.6977
## F-statistic: 25.24 on 2 and 19 DF,  p-value: 4.475e-06
```

```
plot(Mass ~ Bicep + Height, data = PhysicalMeasures)
```

