

Powerlifting:

Powerlifting is a strength sport that consists of three attempts at maximal weight on three lift: squat, bench press, and deadlift. Best bench is also known as a bench press which is an upper-body weight training exercise in which the trainee presses a weight upwards while lying on a weight training bench with their feet on the ground.

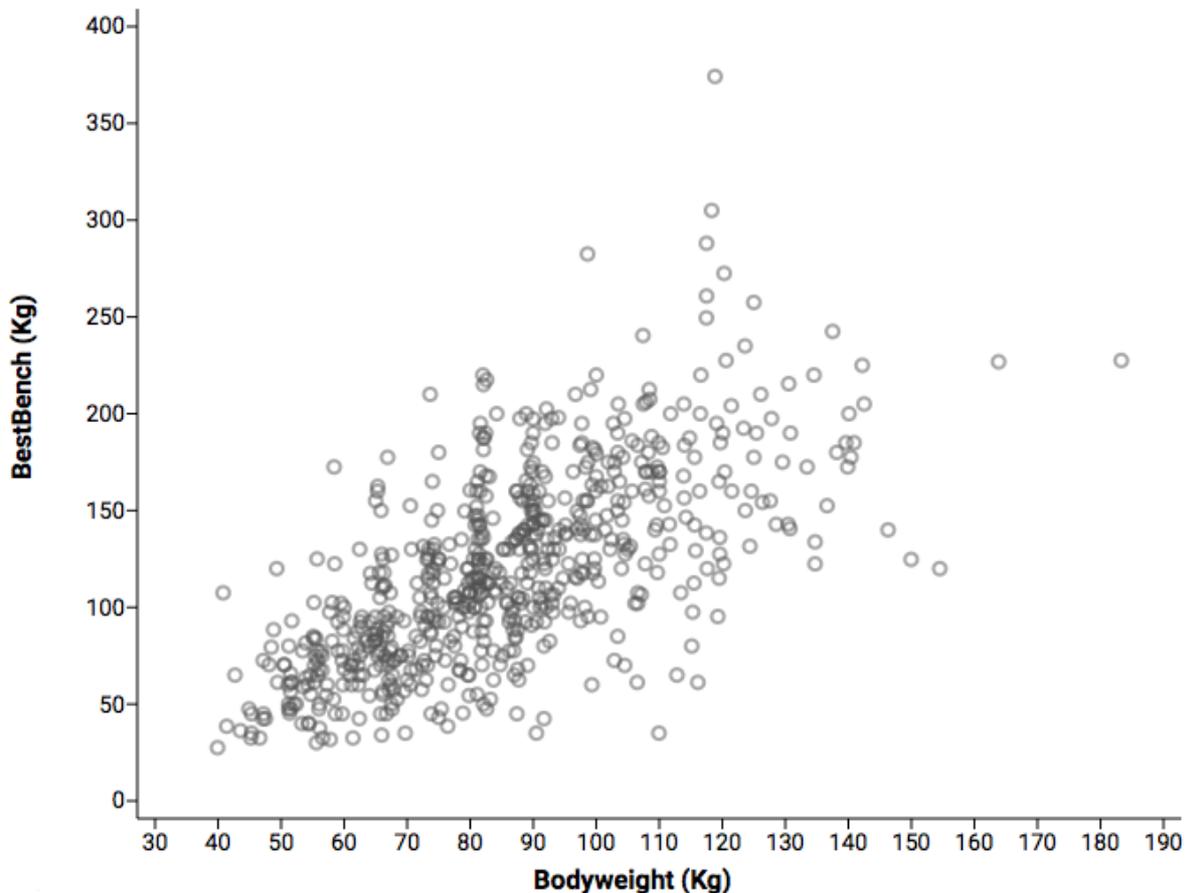
<https://en.wikipedia.org/wiki/Powerlifting>
https://en.wikipedia.org/wiki/Bench_press



Is there a relationship between the bodyweight (kg) of a powerlifter and the best bench (kg), and if so, what is its nature? ①

I will be looking for a relationship between the bodyweight and best bench of a powerlifter. The data I have used is from the powerlifting database on the Kaggle website. The body weight will be measured in kilograms and the best bench measured in kilograms. My explanatory variable is the body weight of a powerlifter. The response variable is the best bench of a powerlifter.

Relationship between Bodyweight and Best Bench of Powerlifters



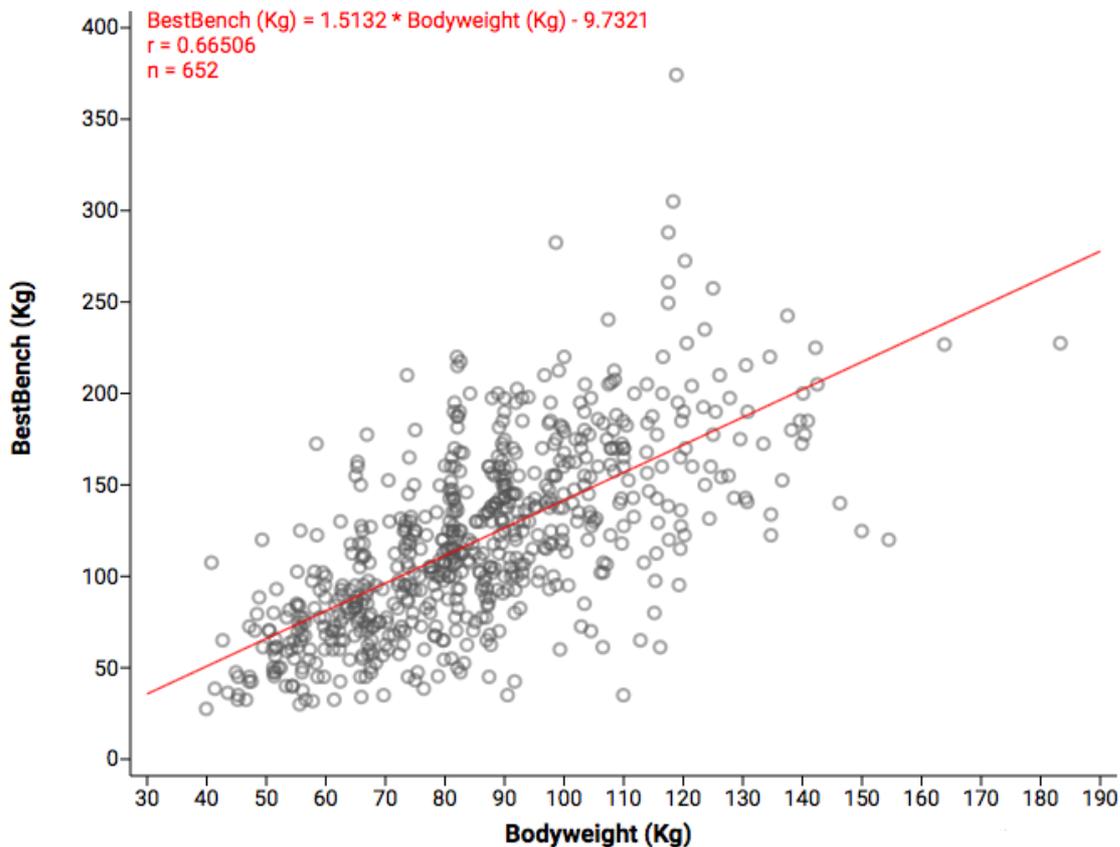
From the graph I can see that the scatter is distributed from bottom left to top right and it looks like it could be modelled by a straight line. So there is a positive linear relationship ⑤

between the bodyweight and best bench of a powerlifter. This means that the heavier powerlifters tend to have a better best bench.

Equation: $\text{BestBench (Kg)} = 1.5132 * \text{Bodyweight (Kg)} - 9.7321$

4

Relationship between Bodyweight and Best Bench of Powerlifters



2

The strength of the relationship between the bodyweight and best bench of a powerlifter is moderate. The graph shows that most of the points aren't either too close to the regression line nor are they too far away. There appears to be two unusual features which are outliers (118.84, 374.1) and (183.3, 227.5).

5

The scatter appears to be pretty consistent for body weights below 90 but above this the scatter is more spread.

3

Prediction:

I predict that if a powerlifter has the body weight of 52 kg they will have a best bench of 68.95 kg. This comes from my equation:

$$\begin{aligned} \text{BestBench (Kg)} &= 1.5132 * 52 - 9.7321 \\ &= 68.95 \end{aligned}$$

6

I predict that if a powerlifter has the body weight of 111 kg they will have a best bench of 158.23 kg. This comes from my equation:

$$\begin{aligned} \text{BestBench (kg)} &= 1.5132 * 111 - 9.7321 \\ &= 158.23 \end{aligned}$$

In conclusion I think there is a positive linear relationship between the bodyweight and best bench of a powerlifter – heavier powerlifters tend to be able to do a heavier best bench.

7