



Introduction

B Banerjee

Hight-Weight

Obesity

Computing 'g'

Treatment Effect

Definition

SLR

Least square

Estimation

Prediction

Regression Analysis What and Why ?

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Example: Hight-Weight chart

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What is Considered the Right Weight for My Height?

**The table below has been updated to show both Metric and Imperial measurements i.e. Inches/Centimeters - Pounds/Kilograms.*

Adults Weight to Height Ratio Chart		
Height	Female	Male
4' 6" (137 cm)	63/77 lb (28.5/34.9 kg)	63/77 lb (28.5/34.9 kg)
4' 7" (140 cm)	68/83 lb (30.8/37.6 kg)	68/84 lb (30.8/38.1 kg)
4' 8" (142 cm)	72/88 lb (32.6/39.9 kg)	74/90 lb (33.5/40.8 kg)
4' 9" (145 cm)	77/94 lb (34.9/42.6 kg)	79/97 lb (35.8/43.9 kg)
4' 10" (147 cm)	81/99 lb (36.4/44.9 kg)	85/103 lb (38.5/46.7 kg)
4' 11" (150 cm)	86/105 lb (39/47.6 kg)	90/110 lb (40.8/49.9 kg)
5' 0" (152 cm)	90/110 lb (40.8/49.9 kg)	95/117 lb (43.1/53 kg)
5' 1" (155 cm)	95/116 lb (43.1/52.6 kg)	101/123 lb (45.8/55.8 kg)
5' 2" (157 cm)	99/121 lb (44.9/54.9 kg)	106/130 lb (48.1/58.9 kg)
5' 3" (160 cm)	104/127 lb (47.2/57.6 kg)	112/136 lb (50.8/61.6 kg)
5' 4" (163 cm)	108/132 lb (49/59.9 kg)	117/143 lb (53/64.8 kg)



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Adult Male and Female Height to Weight Ratio Chart ¹

Author: Disabled World : Contact: www.disabled-world.com

Published: 2017-11-30 : (Rev. 2020-03-05)

¹Ref: <https://www.disabled-world.com/calculators-charts/height-weight.php>



Weight-Hight regression

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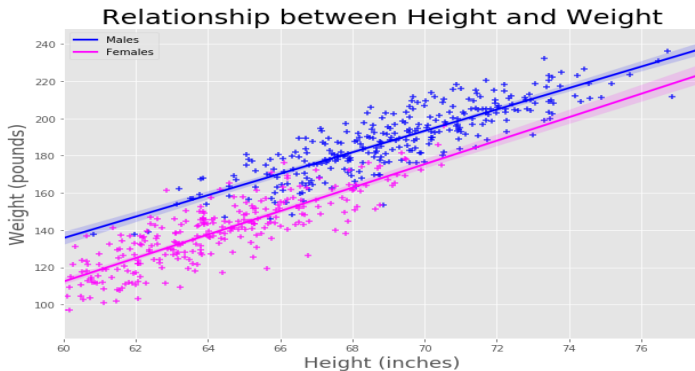


Figure: Weight vs Hight



Example: Obesity

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- Worldwide, at least 2.8 million people die each year as a result of being overweight or obese, and an estimated 35.8 million (2.3%) of global DALYs are caused by overweight or obesity.²
- What are obesity and overweight ?
Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health.
- For adults, WHO defines overweight and obesity as follows:
 - overweight is a BMI greater than or equal to 25; and
 - obesity is a BMI greater than or equal to 30.
- Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2).

² Ref: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>



Example: Obesity chart for girls (5-19yr)

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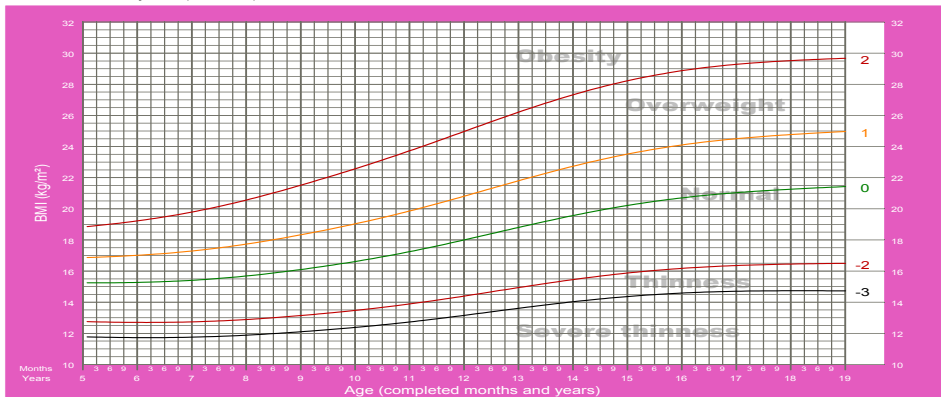
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BMI-for-age GIRLS

5 to 19 years (z-scores)





Example: Obesity chart for boys (5-19yrs)

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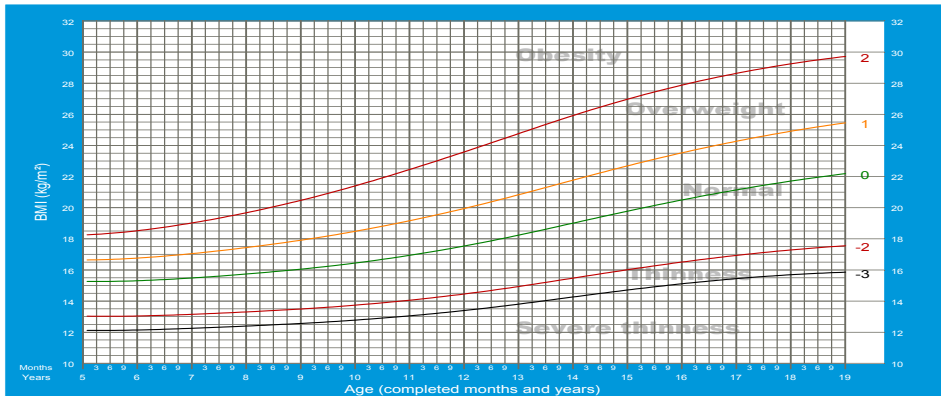
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BMI-for-age BOYS

5 to 19 years (z-scores)





What is the value of 'g' ?

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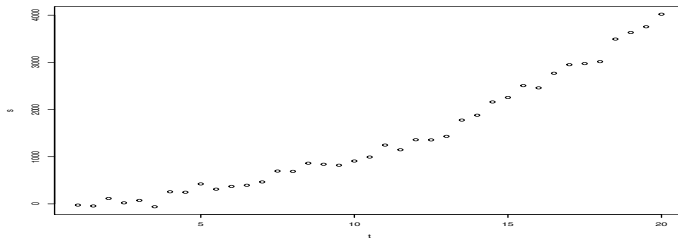


Figure: Free fall

$$S = ut + \frac{1}{2}gt^2$$



Two treatment comparison

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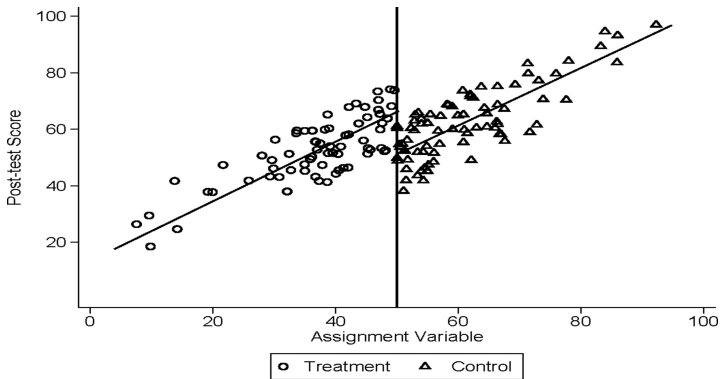


Figure: Linear Treatment effect model



Why regression?

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- Regression is a very natural attempt to answer many queries that come in human mind and scientific work.
- The information we gather about a natural phenomena or a controlled experiment are often incomplete.
- Regression is one of the ways to make these information complete based on the available data.
- In other words, it an attempt to access beyond than that has been already observed.



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