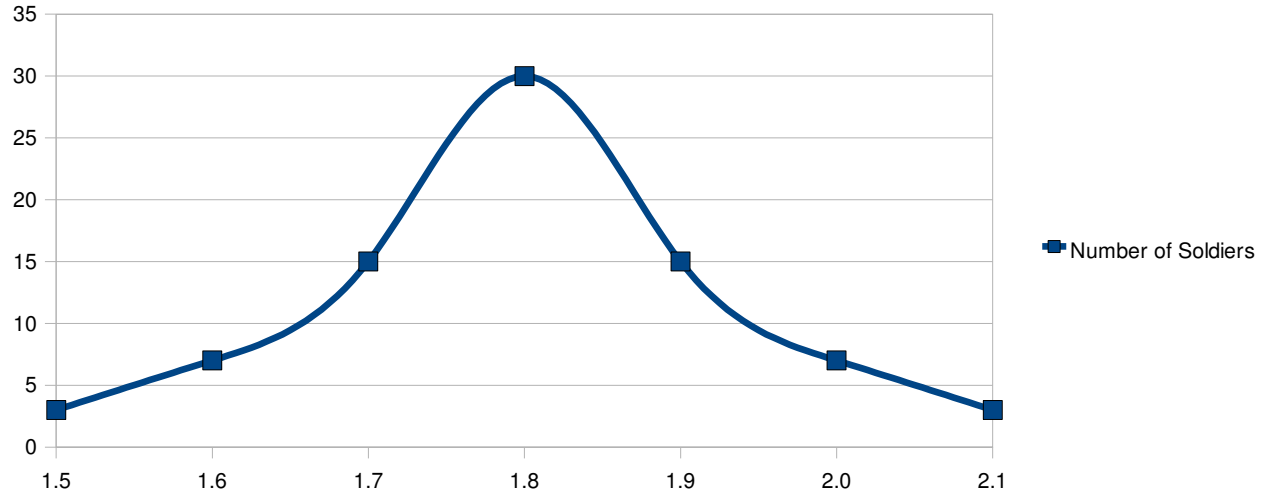
Normal Distribution

Let's move away from accident statistics for a moment and look at other statistical information. One of these might be **anthropomorphic data** used to design workstations, car seats, kitchen units, nuclear power station control panels, aeroplane cockpits, the sizes of overalls and shoes, and many other things. There are line graphs that you should look out for, usually showing a distribution of some sort.
One of these if the “bell curve” or normal distribution curve. Shown below is a graph showing the heights of 38 year old males in a group of 1000 randomly selected soldiers.



In a bell shaped graphical representation the modal value (the highest value – most common value) is the same as the mean (average) value, represented by the greek character μ and the steepness of the line is related to a value called the standard deviation represented by the greek character σ
For reasons of simplicity you do not need to understand how to work out standard deviation (if you are interested have a look at http://stattrek.com), you just need to know the following about how it related to normal distribution curves (bell curves).

Additionally, every normal curve (regardless of its mean or standard deviation) conforms to the following "rule".

- About 68% of the area under the curve falls within 1 standard deviation of the mean.
- About 95% of the area under the curve falls within 2 standard deviations of the mean.
- About 99.7% of the area under the curve falls within 3 standard deviations of the mean

This means that you can predict where most people will fall in a scale and use that information to make equipment / clothing of the appropriate sizes in the appropriate amounts, provide adjustments on seats to cover 3 standard deviations from the mean so that almost everyone is catered for.