

Corpulent Governance

*A regime of eating habits, philosophies and practices by which
body fat is managed and controlled*

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The parallels between corpulent and corporate governance are uncanny. Essentially both ensure accountability, fairness and transparency for their respective stakeholders. The subtle difference is that a corporation may have many shareholders whereas body fat has just one – YOU!

Anthropometry and body mass

Any form of governance needs monitoring to mitigate against unnecessary risks and to ensure the shareholders' interests are not misrepresented or fraudulently manipulated. But as constant monitoring is often impractical, measures or benchmarks are used by shareholders to judge if all is well. However, such metrics can be complicated to calculate and more significantly, tricky to analyse meaningfully. A popular metric for corpulent governance is the index for body mass.

The **Body Mass Index** (BMI) or "*Quetelet index*" was devised by Belgian astronomer Adolphe Quetelet (1796–1874). In 1835 he proposed using it as a means of judging public health. Despite now being 180 years old, the concept is still in use. It measures the relative size of an individual using just their weight and height:

$$\text{BMI} = \frac{\text{bodyweight in kilograms}}{(\text{height in metres})^2}$$

For example, someone 1.72 metres tall and weighing 90 kilograms has a BMI of $(90/1.72^2)$ or **30.4 kg/m²**. For imperial based heights and weights a conversion factor of 703 is needed.

Over the years many tools and aids have been developed to make using the index easier - for example, the white plastic **BMI Calculator** shown in *Figure 1*. The "*BMI Maßband*" label on the accompanying black cardboard box suggests German origins but there are many resellers of this English language version of the calculator. The main body of the device (Ø 72 x 31mm) houses a retractable tape measure. The calculator for BMI on the top is cleverly calibrated for either **metric** or **imperial** (but not mixed) units of measure. Rotating the top disc, a height and weight combination is easily lined-up. The resulting BMI value is found under the arrowhead ▼ in the cut-out window.



Figure 1. BMI Calculator and retractable tape measure

What is good BMI?

Like many governance measures or benchmarks, taken at face value a BMI calculation is meaningless. A series of BMI's may provide insight and show fluctuations in an individual's body fat over time but still gives no indication to what is desirable or even healthy. Thankfully the United Nation's *World Health Organisation* (WHO) maintains a database on BMI and publishes a classification system for over and underweight adults.

Classification	Cut-off points per kg/m ²
Underweight	<18.50
Severe thinness	<16.00
Moderate thinness	16.00 - 16.99
Mild thinness	17.00 - 18.49
Normal	18.50-24.99
Overweight	≥25.00
Pre-obese	25.00 - 29.99
Obese	≥30.00
Obese class I	30.00 - 34.99
Obese class II	35.00 - 39.99
Obese class III	≥40.00

Table 1. WHO International BMI Classification & Cut-off points

However, other compilations with adjusted BMI cut-off points do exist. There is one for children and versions for different ethnic groups. Such versions claim to better reflect the differing body shapes and build in different parts of the world. For example, the government authorities in both America and Japan issue their own country specific versions of Table 1.

Does your waist shape up?

The automatically retracting (small button on the back of Figure 1) tape measure part of the calculator is easily overlooked. Not only is it useful for measurement taking but like the BMI part, it incorporates an innovative body fat management feature based on just the circumference of the waist. The measurement should be taken just above the navel at the widest point **without** holding the stomach in. The tape measure is gender specific - one side for males, ♂, and the other for females, ♀.



Figure 2. Part of the tape measure showing the colour banding for Males

Both sides of the 150 cm long measure have “traffic light” colour coded bands for adults. For men the **green** band runs from 69 to 94 cm. The **amber** band runs from 94 to 102 with the rest being in the **red** band – the latter suggesting a higher risk of developing a chronic disease such as diabetes or heart complications. For women the corresponding coloured bands are 60-80, 80-88 and 88-150. This simple gender-based colour coded banding gives a visual assessment of the health risk (or strain) based purely on the girth of an individual’s stomach.

A further refinement of the **Waist Circumference** measure for abdominal body fat is the **Waist-to-Hip** ratio. For this the waist circumference is divided by hip circumference - measured at the widest point of the derriere. According to the WHO a ratio of more than **0.9** for males or more than **0.85** for females indicates abdominal obesity. Interestingly it has proved better than BMI or Waist Circumference as an effective indicator of health in old age.



Figure 3. “Healthy Snacking”

BMI critics

Many attempts have been made to tweak the formula for BMI by mitigating for extra factors such as gender and for age. The latter is important when measuring BMI in children and can also help partly redeem those of us of a certain age with signs of “*middle-aged spread*”. However, the most telling criticism of BMI is that it does not account for where (over)weight is concentrated or differences in the human frame. For example, a lower BMI may unfairly flatter individuals with short torsos and long legs compared to individuals with longer torsos and shorter legs but weighing the same. Probably the best known example of such differences is the female “*apple*” and “*pear*” shaped body types. However, the simplicity of the two-measurement philosophy behind the BMI is probably why it has endured so long and is still hugely popular.

Modern day

Over the years a myriad of analogue and later digital BMI calculators have come onto the market. In its heyday even the ubiquitous slide rule could have doubled as a BMI calculator. However, many were just simple but effective and colourful slide charts or nomograms.

Obesity has more than doubled worldwide since 1980. So it is perhaps not surprising that the popularity and usefulness of the index for body mass is growing! Indeed the BMI Calculator shown in Figure 1, and many similar such models, are still for sale. However, today online BMI calculators are also offered on many health-related websites or as a downloadable app for a smartphone or a tablet-style device.

Confession

Most articles end with a conclusion. On this occasion a confession seemed a more apt way to finish.

Since retiring from competition squash my corpulent governance has slipped and like my age, my BMI has steadily crept up. Currently it is 31.8 kg/m². This shamefully pushes me past *overweight* and just into the WHO *obese* category. Oh, all right I am also in the **red** band when it comes to my waist circumference. But whenever challenged if I am “in shape” by any member of the medical profession, I always proudly respond: “*round is a shape!*”

Acknowledgments and Bibliography

I was given the BMI Calculator by friend and fellow collector, Peter Holland. With it came the challenge to write an article that showed my weight was fine ... I am obviously just too short.

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