

# How many cells are there in the human body?

Posted by [Greg Laden](#) on November 28, 2011



The other day, Amanda, who is currently teaching AP Biology, noted that among the various sources she had at hand, including a couple of textbooks, the number of cells that make up human body seemed to range from about five trillion to fifty trillion with a scattering of numbers in between. It is not clear why this number matters but I suppose if we want to impress students with the smallness of cells and the complexity of life it is worth pointing out, and if it is worth pointing out it might be worth getting it right. So, how many are there?

I believe the correct answer is in the upper end of the range Amanda cited, and here's why. According to various sources, the following is more or less true:

Adult people (for our present purposes) weigh between 60 and 90 kg. (I'm ignoring small populations here because this is mainly for American Audiences.) The amount of bone in a body ... the non-cellular part ... is between 14 and 20 percent. The amount of blood that is not cellular (i.e, that is water) is about 5% of the total body mass. The mass of a typical body cell is about one gram times ten to the negative nine, or one nanogram.

... do the math ...I get about 46 to 68 trillion.

Bigger people (using these weight ranges) would have a larger proportion of lean mass in bone, and if some off that extra mass in the range of human weights is increased fat percentage, then some of that mass is accounted for by either more fat cells or enlarged fat cells. For these and other reasons, as mass goes up the rate of additional cells goes down, so the higher end of that range is probably an exaggeration. There are other things in the body that need to be subtracted as well, including connective tissue that has very few cells in it, bacteria welcome and unwelcome alike, etc. etc.

Which brings us to a comfortable estimate of "about 50 trillion, give or take a few trillion."