

1. Guide to detailed calculations in supplementary spreadsheet

The S1 Data spreadsheet includes several tables that give details for the resources collected and calculations made throughout this study. Each tab provides calculations regarding one subject. Sheets are divided to several groups, as follows:

B:H Summary tabs:

- TotalBacteria - Derivation of total number of bacteria in the colon and the B/H ratio.
- BacterialConc - Summary of bacterial concentration in stool samples from the literature.
- ColonVolume - Derivation of colon volume value from the literature.
- B2HRatio - Calculation of the B/H ratio between the total bacteria number and the number of human cells.

Sanity check for the colon content:

- DailyFecal - Calculation of the mean daily fecal output from three literature sources.
- CTT - Derivation of colonic transit time (CTT) from [1].

Derivation of average bacterium mass from [2] is given in AvBacteriaSize tab.

Human cells count summary, integrating past calculations [3] and ours:

- HumanCellsSummary - Summary of the number of human cells in the body by tissue.
- HumanNucCellsSummary - Summary of the number of human nucleated cells in the body by tissue.
- TissueMass - Summary of cell mass and cell numbers in the main tissues.

Derivation of total RBC number, using blood volume and RBC counts:

- [RBCcount](#) - Calculation of the mean RBC count.
- [BloodVol](#) - Derivation of blood volume in the reference man according to four sources.
- [RBC](#) - Calculation of the number of red blood cells in the human body.

Revised calculation for several key cell types:

- [DermalFib](#) - Calculation of the number of dermal fibroblasts in the human body.
- [Endothl](#) - Calculation of the number of endothelial cells in the human body.

Variation in the ratio of bacteria to human cells across population segments:

- [PopulationSegment](#) - Summary of the effects of gender, age and obesity on the B:H ratio.
- [GenderEffect](#) - The effect of gender on the B:H ratio.
- [AgeEffect](#) - The effect of age on the B:H ratio (for infants and elderly).
- [Obesity](#) - The effect of obesity on the B:H ratio.

Additional tabs detailing past estimates for the number of human cells:

- [Bianconi, 2013](#) - Summary of cells number and cell mass by tissues based on [3].
- [HumanCell#ByDNA](#) - Details of the estimate of human cells number from DNA content, described in [4].

- [1] Southwell BR, Clarke MCC, Sutcliffe J, Hutson JM. Colonic transit studies: normal values for adults and children with comparison of radiological and scintigraphic methods. *Pediatr Surg Int* 2009;25:559–72. doi:10.1007/s00383-009-2387-x.
- [2] Stephen A, Cummings J. The microbial contribution to human faecal mass. *J Med Microbiol* 1980;13:45–56.
- [3] Bianconi E, Piovesan A, Facchin F, Beraudi A, Casadei R, Frabetti F, et al. An estimation of the number of cells in the human body. *Ann Hum Biol* 2013;40:463–71. doi:10.3109/03014460.2013.807878.
- [4] Baserga R. *The Biology of Cell Reproduction*. Harvard University Press; 1985.