**Exercise… your POWER**

Today, you will perform several power analyses, using G\*Power.

Please refer to the tutorial, “gpower-tutorial.pdf”. The tutorial is rather extensive, and we recommend that you read it in its entirety at some point. However, for today’s workshop, you can refer to page 14 for a list of tests for which G\*Power can perform power analyses. These pages provide tutorials for the examples you will encounter, below.

**I. Unpaired t-test, equal sample sizes, equal variance (standard deviation) between groups**

Guidance for this example can be found on p. 15 of the tutorial.

What sample sizes are required to detect a difference between two groups with means of 6.0 and 5.0, where the standard deviation of each group equals 0.7, with Power (i.e., 1-β) = 0.8? Assume that alpha (the critical p-value) equals 0.05.

**II 2-sample t-test, using data from a publication**

Schampel et al (PNAS 2017. E3295–E3304) studied the effects of Nimodipine treatment on spinal nerve fibre pathology. Using a 2-sample t-test, they report:

1. A significant difference in the number of normal appearing nerve fibres in the posterior funiculus of the spinal cord between Nimodipine treated (mean (SD) = 78534.0 (27205) fibres/mm2 , n=12) and untreated (61518.3 (19633), n=9) mice.
2. no significant difference in the number of normal appearing nerve fibres in the anterolateral funiculus of the spinal cord between Nimodopine treated (mean (SD) = 159722.2 (121083.2) fibres/mm2 , n=12) and untreated (136574.1 (108333.3), n=9).

Using the effect sizes and group sizes above, what sample sizes would be needed to achieve an 80% power at alpha=0.05