**Data portfolio 4 – Fish oil**

Many vitamin companies claim that fish oil supplements improve brain functioning. A researcher decided to put this claim to the test. He recruited 300 adults from the general population and randomly assigned them to take different dosages of a fish oil supplement (0mg [placebo], 1000mg, 2000mg, and 5000mg) daily for three weeks.

At the study baseline (before beginning the supplements), participants were administered a battery of neurocognitive tests including an IQ test and a cognitive processing task, which measured the time needed to complete a series of math problems and the accuracy of answers. Intracranial volume (ICV) was also measured. At the end of each of the three weeks of the study, cognitive processing was again measured using the same math task.

The resulting dataset can be found in the file “**fishoil.csv**”. *(Note: these data are simulated).* The file contains 13 variables that are described in the table below.

The researcher wants to know if fish oil does indeed improve brain functioning, and whether dosage is important in any such effect. He is also interested more broadly in how individual brain differences (e.g. IQ, ICV) affect one’s cognitive processing ability. What conclusions can you draw about the factors influencing cognitive processing based on this dataset?

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| **VARIABLE** | **DESCRIPTION** |
| ID | unique subject identifier number |
| group | variable distinguishing placebo group (0mg dosage; group=0) from fish oil group (1000-5000mg dosage; group=1) |
| dose | dosage of fish oil in daily supplement: 0mg (placebo), 1000mg, 2000mg, or 5000omg |
| ICV | intracranial volume (cubic cm) |
| IQ | total IQ score |
| time\_0 | time (ms) to complete cognitive processing math task at baseline |
| time\_1 | time (ms) to complete cognitive processing math task at the end of week 1 |
| time\_2 | time (ms) to complete cognitive processing math task at the end of week 2 |
| time\_3 | time (ms) to complete cognitive processing math task at the end of week 3 |
| score\_0 | score (% correct answers) of cognitive processing math task at baseline |
| score\_1 | score (% correct answers) of cognitive processing math task at the end of week 1 |
| score\_2 | score (% correct answers) of cognitive processing math task at the end of week 2 |
| score\_3 | score (% correct answers) of cognitive processing math task at the end of week 3 |