Intelligence and rhythmic accuracy go hand in hand

People who score high on intelligence tests are also good at keeping time, new Swedish research shows. The team that carried out the study also suspect that accuracy in timing is important to the brain processes responsible for problem solving and reasoning.

Researchers at the medical university Karolinska Institutet and Umeå University have now demonstrated a correlation between general intelligence and the ability to tap out a simple regular rhythm. They stress that the task subjects performed had nothing to do with any musical rhythmic sense but simply measured the capacity for rhythmic accuracy. Those who scored highest on intelligence tests also had least variation in the regular rhythm they tapped out in the experiment.

“It’s interesting as the task didn’t involve any kind of problem solving,” says Fredrik Ullén at Karolinska Institutet, who led the study with Guy Madison at Umeå University. “Irregularity of timing probably arises at a more fundamental biological level owing to a kind of noise in brain activity.”

According to Fredrik Ullén, the results suggest that the rhythmic accuracy in brain activity observable when the person just maintains a steady beat is also important to the problem-solving capacity that is measured with intelligence tests.

“We know that accuracy at millisecond level in neuronal activity is critical to information processing and learning processes,” he says.

They also demonstrated a correlation between high intelligence, a good ability to keep time, and a high volume of white matter in the parts of the brain’s frontal lobes involved in problem solving, planning and managing time.

“All in all, this suggests that a factor of what we call intelligence has a biological basis in the number of nerve fibres in the prefrontal lobe and the stability of neuronal activity that this provides,” says Fredrik Ullén.

Source: Karolinska Institutet