

Body, brain.....and ears

Recent investigations have shown that London 'black cab' taxi drivers have a portion of their brain larger than that of a similar group who do not drive taxis. We all understand that exercise will build body muscles, but it has not previously been known that exercising a portion of the brain may lead to its enlargement.

The taxi drivers' hippocampus, the part of the brain associated with spatial memory, is a few millimetres larger than a control group's. The training of traditional black cab drivers includes several years travelling around London on a motorbike, memorising detailed routes, so that they can recall how to travel between two points during tough oral examinations, which they must pass to become licensed. That is, they continuously exercise their hippocampus, the storage location for things consciously remembered, including navigational details. Test on animals with a damaged hippocampus show that they can no longer find their way around.

The assumption is that the hippocampus of taxi drivers grows during their training to accommodate all the additional information which they are required to absorb, whilst

measurements with a brain scanner showed that, the longer they had been a taxi driver, the bigger the hippocampus became.

Could a similar effect be an explanation for the increased sensitivity to low levels of noise, which appears to develop in some long-term noise sufferers? One suggestion to account for continuing annoyance and apparent audibility of noises which are no longer detectable, either by other listeners or by instruments, has been the development of an "acoustic memory". Perhaps continually exercising the relevant part of the brain near its lower limit of perception has developed this part to generate increased sensitivity in the listener, who continues to hear the noise, despite its apparent absence to others and failure to detect by investigators.

Have we been unfair in dismissing persistent complainants as cranks or simply tinnitus sufferers? The truth may be that they really do have an increased sensitivity and awareness to certain types of noises, brought on by prolonged exposure to low-level noises, often in the disturbing lower frequency range, and by which they have been sorely exercised.

Toy noise

A recent report from the American Society of Pediatrics suggests that among children 6 to 9, about 12% have inner ear cells damaged by loud noise. Research suggests that 20 year olds today hear like 50-year-olds of the previous generation. One suspected source is toys. As one expert commented "The proximity to the ear is what has been overlooked by the toy industry." Research shows that significant damage can result from brief, loud sounds, not just from those that reach the ear over long periods, experts said. Hearing specialists are also learning that damage potential varies widely among listeners. "Children are more vulnerable," said Dr. Michael Lotke, a pediatric hearing specialist at Mount Sinai Hospital in Chicago. An ear reflex that abates noise may not be as developed in children, Lotke said, and the "hair cells in kids may be more sensitive."