

# Playing with their minds

A lack of natural play in early childhood could be the cause of ADHD, Matthew Harvey explains

Are children diagnosed with ADHD simply suffering from play starvation? This disturbing possibility emerges from studies carried out in America over the past 10 years.

Scientists there have come to the conclusion that natural, unstructured play is vital to the development of young minds. This will come as no surprise to parents, nursery teachers and, indeed, anyone who has ever been a child. Strange, then, that the Government's new initiatives for pre-school education, as outlined in the Early Years Foundation Stage, will bring even more academic targets and less access to natural play than before.

The importance of play in child development was first suggested by scientists after one of the most beguiling discoveries of the century: that rats laugh. In the mid-1990s, Dr Jaak Panksepp, a neuroscientist, and his team noticed that their lab rats emitted high-frequency chirps when involved in rough-and-tumble play with each other.

This matched his theory that rats, like all mammals, experience a set of emotions that share a common evolutionary origin with our own. The rats' chirpy laughter can be compared directly to the delighted shrieks and squawks of children in natural play.

Years of play research and rat tickling later, the team came to some startling



conclusions. In 2003, they found that the rats they allowed to play went on to become less impulsive and more socially successful than their play-starved cousins.

Then last year, further investigation yielded physical proof: the rats who were allowed to play abundantly showed considerably greater development in the cortex of the brain, where the majority of higher mental functions originate. At this point, the links to ADHD in humans became more likely.

Although the exact physical cause of ADHD remains unknown, it has been shown that sufferers typically have 5 per cent less development of parts of their

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brain than other children (Castellanos & Tannock). The areas affected included the higher brain areas that Dr Panksepp and co saw being spurred on by play.

In other words, as ADHD can be described as the relative failure of the higher brain to control impulsive urges coming from the lower brain, then play, by stimulating higher brain development, may reduce the impact of a genetic tendency to ADHD.

When asked exactly what this "natural play" would look like, Dr Panksepp points to Plato's *The Republic and The Laws*, in which he insisted that children from the age of three to six should be allowed to play together, as they wish, in unstructured ways, with "nurses" looking on and intervening when necessary.

This form of play, Dr Panksepp explains, allows children to discover the unwritten rules of social conduct as they

## References

Panksepp, J. Can Play Diminish ADHD and Facilitate the Construction of the Social Brain? (2007) *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, vol. 16, no. 2

Panksepp, J. Neuroevolutionary sources of laughter and social joy: Modeling primal human laughter in laboratory rats. (2007) *Behavioural Brain Research* 182, 231-244, Elsevier

Castellanos, F.X. & Tannock, R. Neuroscience of attention-deficit/hyperactivity disorder: The search for endophenotypes. (2002) *Nature Reviews Neuroscience*, 3, 617-628

Baizer, J.S., Letina, D.J., Brazeau D.J. Effects of methylphenidate on gene expression: a DNA microarray analysis. Program No. 225.8. (2005) *Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2005.

make mistakes, are corrected by their peers and supervising adults and so learn better ways of relating to each other.

ADHD sufferers today, the majority of whom are boys between the ages of five and 14, are often treated with psychostimulants such as Ritalin. These are highly effective drugs that boost the higher brain and enable it to control impulses from the lower brain. These treatments are so successful one cannot help asking: "Why bother preventing ADHD if it is so easily treated with a pill?"

Parents who have had to consider the option of giving their child a powerful brain drug to modify their behaviour will tell you it is not an easy decision.

Natural instinct screams out that we should avoid pumping chemicals into a child's brain unless absolutely necessary. As if to confirm these instincts, a gathering cloud of research suggests that psychostimulants have long-term negative effects on the brain. In a study, rats given methylphenidate (the type of psychostimulant in Ritalin) suffered immediate changes to genes involved in brain development (Baizer et al).

In other words, ADHD pills could be slowing the development of precisely the areas of the brain that sufferers are deficient in to begin with. It is already well known that these medications dramatically reduce physical play in animals.

If Dr Panksepp is right, the relentless target setting in childhood brought about by wave upon wave of Government initiatives and the inevitable subsequent restrictions on natural play, could be pushing us towards an ADHD epidemic.

America is already heading that way, with the number of ADHD-diagnosed children reaching more than a million, and rising. We should learn the lessons, heed the research and stop blindly trudging down the same, misguided road ■

Matthew Harvey teaches in a secondary school in the South East