Neurofeedback in Children with ADHD

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The overall aim of our intervention study in children with ADHD was to compare the effects of theta/beta neurofeedback with methylphenidate, using physical activity as a semi-active control group to control for non-specific effects such as parental engagement and personal attention. If neurofeedback could be shown to be as effective in reducing symptoms of ADHD as medication, this would offer an alternative treatment option with less risk of undesirable side effects than seen with stimulant medication. It would have particular clinical significance if beneficial effects of neurofeedback could be shown to persist long-term. The study was carefully designed to provide robust evidence and also considered possible working mechanisms underlying the effects of neurofeedback.

The key finding from this study is that neurofeedback was less effective at post-intervention than methylphenidate in reducing symptoms of ADHD, according to both parent and teacher ratings of child behavior and neurocognitive measures. At six-month follow-up, the neurofeedback group had caught up to some extent as there was no longer a significant difference between the neurofeedback and methylphenidate intervention group on parent-, teacher and neurocognitive measures. In addition, we found no difference between the neurofeedback and the semi-active control group at post-intervention. At follow-up, we found similar results for our parent reports and neurocognitive measures. Interestingly, ratings by teachers at follow-up did show better outcomes for children receiving neurofeedback compared to the semi-active control group, physical activity. However, this finding needs to be treated with caution as some children had different teachers at follow-up.