

- KEY PUBLICATIONS

- Section 1: Neurofeedback, Closed-Loop Brain Training (CLBT), and personalized brain rehabilitation (PBR)
 - **Sterman**, M.B., Goodman, S.J. and Fairchild, M.D., 1976. Effects of CNS Manipulations on Seizure Latency Following Monomethylhydrazine Administration in the Cat.
 - This landmark paper marks the birth of clinical neurofeedback. Stermann demonstrates that cats can reduce their incidence of epileptic seizures by learning to increase their SMR spindles.
 - **Sitaram** R, Ros T, Stoeckel L, Haller S, Scharnowski F, Lewis-Peacock J, Weiskopf N, Blefari ML, Rana M, Oblak E, Birbaumer N. Closed-loop brain training: the science of neurofeedback. *Nature Reviews Neuroscience*. 2016 Dec 22.
 - This excellent review paper introduces CLBT and how it harnesses learning and brain plasticity to deliver effective digital therapies for the treatment of diseases of the central nervous system (CNS).
- Section 2: Neurofeedback in ADHD
 - **Lévesque**, Johanne, Beauregard, Mario, Mensour, Boualem. "Effect of neurofeedback training on the neural substrates of selective attention in children with attention-deficit/hyperactivity disorder: A functional magnetic resonance imaging study." *Neuroscience letters* 394.3 (2006): 216-221.
 - In this randomized placebo-controlled study, the authors demonstrate that only active NFB restores the normal functioning of the brain area that is essential to sustained attention (the anterior cingulate cortex); the study also provides compelling evidence that this improvement is mediated by changes induced deeper in the brain—more specifically at the Ventral Tegmental Area (VTA), one of the few dopaminergic brain areas, which is closely linked to the etiology of ADHD and also is targeted by methylphenidate.
 - **Cortese S**, Ferrin M, Brandeis D, Holtmann M, Aggensteiner P, Daley D, Santosh P, Simonoff E, Stevenson J, Stringaris A, Sonuga-Barke EJ. Neurofeedback for attention-deficit/hyperactivity disorder: meta-analysis of clinical and neuropsychological outcomes from randomized controlled trials. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2016 Jun 30;55(6):444-5
 - This is the latest and strongest meta-analysis on the efficacy of NFB for the treatment of ADHD; the study shows that not all neurofeedback solutions are alike; more precisely, high-grade NFB solutions that are compliant with a set of standard design rules, such as Mensia Koala, are found to be more efficacious (SMD=0.36, p<0.05 – pool of three RCT studies).
 - **Micoulaud-Franchi JA**, Geoffroy PA, Fond G, Lopez R, Bioulac S, Philip P. EEG neurofeedback treatments in children with ADHD: an updated meta-analysis of randomized controlled trials. *Frontiers in human neuroscience*. 2014;8.
 - The meta-analysis discussed in this study shows that the improvement of inattention in ADHD children is statistically significant, according to the assessment of their teachers, when the teachers are unaware of the treatment allocation of the children they are assessing (blind).
 - **Gevensleben**, H.; Holl, B.; Albrecht, B.; Vogel, C.; Schlamp, D.; Kratz, O.; Studer, P.; Rothenberger, A.; Moll, G.; Heinrich, H. Is Neurofeedback an Efficacious Treatment for ADHD? A Randomised Controlled Clinical Trial. *J Child Psychol Psc* 2009, 50, 780–789.
- Steiner** NJ, Frenette EC, Rene KM, Brennan RT, Perrin EC. In-school neurofeedback training for ADHD: sustained improvements from a randomized control trial. *Pediatrics*. 2014 Feb 1:peds-2013.

Gani, C; Birbaumer, N; Strehl, U Long Term Effects after Feedback of Slow Cortical Potentials and of Theta-Beta-Amplitudes in Children with Attention deficit/hyperactivity Disorder (ADHD). *Int J*, 2008.

- These studies investigate the long-term effect of NFB and show that the efficacy of NFB treatment tends to increase over time when compared to a semi-active control (computer game); follow-up studies at 1 year and 2 years might even prove equivalence to methylphenidate (MPH), which is known to be less and less effective over time.

○ Section 3: Personalized brain rehabilitation for Chronic Pain

- **Mayaud** Louis, Quentin Barthélemy, Yannick Delpierre, Hélène Wu, Patrick Favennec, Michel Ritz, Marco Congedo; Personalized Brain Rehabilitation (PBR) for the treatment of non-respondent patients with chronic back pain: a feasibility study with 6-month follow-up results; *ISNR*; Sept. 2017
 - This is a landmark study conducted by the Mensia team, in collaboration with one of the largest French insurance companies, demonstrating the effectiveness of PBR for the treatment of non-respondent patients with chronic back pain showing long-term effectiveness and a compelling mode of action.

○ Section 4: Neurofeedback for Mild Cognitive Impairment (MCI)

- **Wang, J.R. and Hsieh, S., 2013.** Neurofeedback training improves attention and working memory performance. *Clinical Neurophysiology*, 124(12), pp.2406-2420.
 - This paper describes a jewel of controlled experiments in neurofeedback research proposed by Wang et al., demonstrating convincingly that elderly people can gain control of their frontal midline theta (fmT) over time and that this is associated with increased cognitive performance.