EEG-NEUROFEEDBACK PROFILE

STOP PRESS

- NESTA (National Endowment for Science Technology & Arts) UK 3-year award to train novice musicians.
- COST (European Cooperation in Science & Technology) 4-year European wide initiative on EEG: theory, methodology, experimental/cognitive, neurofeedback validation. www.manu.edu.mk/costb27
- SAN Society for Applied Neuroscience – Turkey 29th August – 2nd September workshops, courses, symposia. www.applied-neuroscience.org

For an integrative overview of work including schizophrenia, EEG-biofeedback and hypnosis see:


A# Background Established a Neuro-Psychophysiology laboratory at Charing Cross Hospital in 1977 specialising in EEG recording and producing over 250 scientific publications on topics including brain functional lateralisation, attention and memory, schizophrenia, psychosis-proneness, stress, hypnosis, headache, energy medicine, and since 1997 neurofeedback.

B# Schizophrenia & Personality Disorders
- NF research began in 1996 with distinguished investigator grant award from NARSAD (National Alliance for Research on Schizophrenia & Depression), USA, and subsequently support of the Saugstad Fund, Norway.
- The aim was to explore the feasibility of shifting the balance of activity inter-hemispherically in schizophrenia. This followed a model of illness and recovery in schizophrenia (see Gruzelier, 1999, 2003).


- Interhemispheric training was first achieved in medical students. Inward looking (introverted, withdrawn) students were the better learners. This was then successfully demonstrated in schizophrenic patients, whose distractibility had been controlled by medication.
- Results have been presented at international conferences and with publications:


- Recent research has elevated mood in socially anxious, withdrawn students, supported by Brain Health, London.
Patients with borderline personality disorder are currently being investigated.

C# Optimal Function in Healthy Subjects:
- In 1999 studies began aimed at optimising function in music performance and cognitive function in students at the Royal College of Music, with the support of the Leverhulme Trust (1999-2002). Music performance, especially artistry on scales of musicality and creativity, was substantively improved by slow rhythm training, learning to elevate the theta/alpha ratio.
- Research on slow EEG rhythm training has been extended to ballroom dance performance and to mood elevation in medical students prior to exams with beneficial effects in both domains.
- In contrast faster EEG activity in ranges 12-15 and 16-20 Hz improved attention measured both by computerised vigilance tasks and cortical evoked potentials (P300).
- Furthermore verbal working memory was shown to be enhanced in medical students.
- This evidence has provided important scientific validation of neurofeedback, evidence which had been largely lacking despite the widespread application of NF.
- Results have been published as articles and commentaries in scientific journals, magazines, and have led to media interest on radio, TV, broadsheets and magazines.


topography of the healthy electroencephalogram, Clinical Neurophysiology115, 2452-2460.

Commentaries & Book Chapters:


Media: BBC Radio4 Today programme; BBC breakfast TV; BBC World Service; Australian BC TV; BBC4 Documentary on creativity and ageing with Joan Bakewell; BBC Music magazine; Muso – the music magazine that rewrites the score, December, 2003, 26-27. Financial Times; The Guardian; Der Spiegel; Reuters leading to worldwide newspaper coverage.

Current research is engaged in further exploring performance enhancement in healthy subjects:

- doctors training in eye surgery.
- professional singers through a grant 2005 from the DFG (Germany) in collaboration with Professor Niels Birbaumer and Boris Kleber to work with Stuttgart Opera and to incorporate fMRI assessments with Martin Lotze.
- novice musicians including school children, adolescents and adults through a grant from NESTA.
- modification of hypnotic susceptibility.
- components of attention.

**D# Attention Deficit Hyperactivity Disorder (ADHD).**

- In a collaborative study in Germany children allocated to either conventional stimulant therapy or neurofeedback on the basis of parental choice were equally successful in clinical recovery and measures of attention.


- Currently a randomised trial comparing neurofeedback with a computerised attention training task is being conducted in children with and without medication; supported by Cerebra, a UK children's head injury charity, the International Society for Neuronal Regulation, and in collaboration with Dr Clare Sturge and consultant colleagues at Northwick Park Hospital and with the University of Westminster. Funding supports two experienced neurofeedback practitioners Annie Frick and Tony Steffert, with Martin Batty, a postdoctoral researcher;

Dr Tobias Egner was awarded a PhD for his participation in the Zoning-In, RCM project, he won a student presentation award at the ISNR, 2002, and won the best student publication in the Journal of Neurotherapy for 2003.

Workshops have been given at the E-ISNR, 2003 at Udine, N.Italy; and at Winterthur, Switzerland, 2004; at ISNR, Houston, 2003 on multi modal training to include with neurofeedback, hypnosis and energy medicine; in association with the Royal College of Music at the Sydney Conservatorium, 2002 and the Lake Lugano conservatoria, 2002.

**F# Scientific Committees:** John Gruzelier is President of the Society for Applied Neuroscience.
www.applied-neuroscience.org