

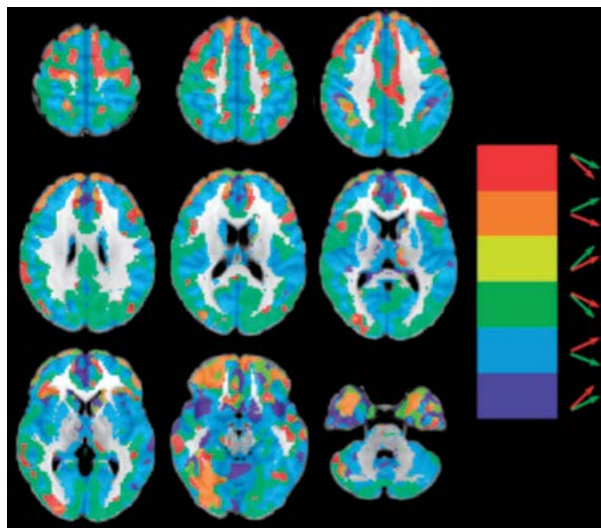
The FMRIB Software Library

Oxford Centre for the Functional Magnetic Resonance Imaging of the Brain Software Library

The FMRIB Software Library (FSL) is a comprehensive library of analysis tools used worldwide to quickly and effectively analyse complex brain imaging data.

The Oxford Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB) is a multi-disciplinary neuroimaging research facility, which focuses on the use of Magnetic Resonance Imaging (MRI) for neuroscience research, along with related technologies such as Transcranial Magnetic Stimulation, Transcranial Direct Current Stimulation and EEG. FMRIB is composed of research groups studying all aspects of brain imaging, including physics, analysis, basic science and clinical neuroscience.

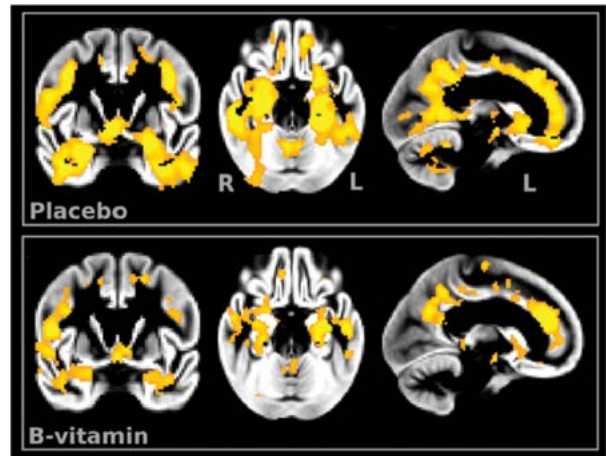
To assist researchers in the often complex and labour intensive analysis of MRI data, an innovative team, led by Professor Steve Smith, began developing the FMRIB Software Library (FSL) in 1998. Their algorithms worked robustly on a wide variety of real data, and they also generated leading-edge mathematical theory feeding into what was rapidly becoming a powerful standalone analysis pipeline.



Binarised representation of all the combinations of grey matter development over 2.5 years between healthy adolescents (green arrows) and the schizophrenic patients (red arrows). [Dauaud et al, 2009]

FSL was released in 2000 and has received over 2,500 citations. The latest version has been downloaded over 10,000 times and is used in nearly 1,000 hospitals and university labs.

This success has been hard earned. For over ten years the core team has continually developed, refined and extended FSL, as well as creating extensive documentation and training courses with over 1,000 attendees since 2002, and maintains an active user community through its email support list.



Regional loss of Grey Matter (GM) volume in placebo and B-vitamin groups. Placebo-and B-vitamin-treated groups showed significant reduction of GM volume over the 2-year period in similar regions. The extent and significance of volume loss appeared markedly greater in the placebo group compared with the B-vitamin group and is confirmed by direct statistical comparison. [Dauaud et al, 2013]

With the addition of a user-friendly graphical interface, and a high degree of automation, this robust, powerful and flexible analysis pipeline is now the recognised standard in academia for multi-modal MRI analysis. FSL is also commercially licensed to 7 of the top 10 global pharmaceutical companies and many others, whose activities range from drug discovery and clinical trials to neuromarketing, and even iPhone app development.



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