DynaSuite Neuro with NeuroQuant® - A Breakthrough Application

Invivo has partnered with CorTechs Labs to provide NeuroQuant quantitative analysis on its DynaSuite Neuro platform. Invivo is offering NeuroQuant as an option to complement the advanced applications of DynaSuite Neuro which include perfusion, diffusion and functional MRI (fMRI). Data is automatically processed and displayed in predefined layouts which are customizable for each physician's preference. A simplified user interface provides the neuroradiologist with the tools to analyze cases quickly and easily. Invivo offers extensive sales, service, and applications support to provide the comprehensive solution our customers expect.

Enhanced diagnostic capabilities for health care practitioners in the detection of Alzheimer’s disease and related neurological disorders.

“NeuroQuant provides me with the important volumetric MRI quantification that helps me to assess Alzheimer’s and other dementia patients. It is fully automated and is easy to add into a routine practice”

James Brewer, M.D., Ph.D.
Department of Radiology and Neuroimaging
University of California, San Diego

“NeuroQuant is a powerful tool that allows me to gauge whether a patient’s brain atrophy is abnormal for his or her age. This atrophy has been shown to be a sensitive marker of Alzheimer’s Disease.”

Michael K. Fuji, MD, PhD
Geriatric Memory Disorders Clinic
Assistant Professor of Neurosciences
Associate Medical Director, Alzheimer’s Disease Cooperative Study
Associate Clinical Professor, Alzheimer’s Disease Research Center
University of California, San Diego

Advances in processing of MRI data have lead to the development of applications that can automatically quantify the volume of key brain structures. These results can aid in the assessment and treatment of Alzheimer’s disease, epilepsy, and other neurological disorders.

NeuroQuant takes a high-resolution 3D T1-weighted, sagittal, non-contrast-enhanced MRI scan and automatically returns a new full-volume spatially corrected and anatomically labeled dataset along with two printable patient reports containing the absolute and relative volumes of the hippocampus, temporal horn, and other structures.

Age-Related Atrophy Report contains the absolute and relative volumes of the hippocampus and inferior lateral ventricles, structures that typically show significant atrophy in dementia patients. The resulting values are automatically compared to age-appropriate reference distributions.

“NeuroQuant is a breakthrough application that can make quantitative MRI measurement a routine part of clinical practice. It brings sophisticated, accurate, and fully automated MRI post-processing capabilities for the physician.

This software provides neurologists, radiologists, and clinical researchers with a convenient and cost-effective means of quantification.

General Morphometry Report provides the absolute and relative volumes for the right and left side of the following brain structures: Forebrain Parenchyma, Cortical Gray Matter, Lateral Ventricles, Inferior Lateral Ventricles, Hippocampus, Amygdala, Caudate, Putamen, Pallidum, Thalamus and Cerebellum. It also provides an Asymmetry Index (defined as the difference between left and right volumes divided by their mean).
Key Features Include:

- **Fully Automated Segmentation** of MRI exams of the whole brain and regional volumetric quantification of structures.
- **Automatic Correction** for image artifacts including gradient nonlinearities and RF field inhomogeneities.
- **Atlas-Based** image registration, anatomical segmentation, and volumetric quantification of the hippocampus, ventricles and other brain structures.
- **High Validity** – Automated segmentation shown to be highly consistent with that performed by human expert neuroanatomist.
- **High Reliability** – Making results ideal for longitudinal follow-up and tracking of disease.
- **Numerical Results** are automatically compared to normative data to highlight atrophy greater than expected from normal aging.
- **Medial Temporal lobe volumes** from NeuroQuant shown to be sensitive to MCI and early AD in multi-vendor, multi-site MRI data.

NeuroQuant provides two reports from its volumetric analysis, an age related report and a general morphometry report as shown below. DynaSuite Neuro provides special hangings for viewing each report with multi-planar images of the user’s choice.

For more information about DynaSuite Neuro with NeuroQuant or any of the Complete Solution products from Invivo, please call us at 1-800-331-3220, or visit our website at www.invivocorp.com.