Neuroscience in the courtroom

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Materials cited:


This study demonstrates a three-fold increase in neuroscience evidence in criminal cases between 2007 and 2012


Discusses the exclusion of testimony by Dr. Ruben Gur in the case of United States v. Montgomery, and the subsequent affirmation of this exclusion by The Eighth Circuit Court of Appeals.


Proposes a coherent set of rules to be used for the admissibility of evidence in the sentencing phase of a capital murder trial.


A simple exercise: Download the data, and convince yourself that if you measure enough body parts, everyone has at least one body part that is unusual.

The Daubert Standard — A rule of evidence used for Federal (and most State) trials to determine the admissibility of expert scientific testimony.
Background

Mr. Chism was referred for a neurobehavioral assessment by a quantitative analysis of structural neuroimaging. The MRI was performed on Mr. Chism at Brigham and Women's Hospital in Boston, Massachusetts, and I have reviewed and summarized my findings in a report dated 10/8/15. That analysis was done comparing Mr. Chism's brain to that of healthy adults. However, since Mr. Chism is still an adolescent, an analysis was performed to make a more valid comparison between Mr. Chism to 61 healthy adolescents, age 15-17. This analysis is summarized below.

Figure 1: Volumetric analysis of Mr. Chism's MRI. Volumes are expressed as z-scores (SDs from the mean) relative to healthy individuals.