***Imaging Concepts in the Suicidal Mind:  Neurosemantic Probes of Suicidal Risk***

**Marcel Adam Just, PhD**

 fMRI can be used to tell what you’re thinking, and also to tell whether your thinking has been altered by a thought disorder. This is possible because there is a fairly precise relation between a concept we think about (such as *apple* or *sadness*) and the activation pattern that occurs in our brains at that time.  Moreover, the activation pattern for a given concept is very similar across people, as long as the concept has not been altered due to a psychiatric condition.

This neurosemantic approach assesses the neural representations of individual concepts in individual participants, and can detect systematic alterations in concepts related to suicide in participants who report experiencing suicidal ideation. The alterations are such that a machine learning program that learns the activation patterns in a group of control participants and a group of participants with suicidal ideation can then classify a new participant as a control or ideator with 91% accuracy. This approach may provide a new way to detect suicidal risk. Moreover, the nature of the concept alterations may suggest targets for therapeutic interventions.