Title: “Why the Brain Prefers Certain 3D Shapes to Others”

Host: Dale Connelly
Specialists: Ed Connor, Ph.D.
Professor, Department of Neuroscience
Director, Krieger Mind Brain Institute

Dale: “From Johns Hopkins University Brain Science Institute”.

Dr. Connor: “Artists are actually intuitive neuroscientists. They’re playing with the brain…they’re playing a game with the brain, and if they’re great artists and they really succeed, then they are evolving into good neuroscientists, that is people who know how to stimulate the visual parts of the brain in a very compelling way.”

Dale: “Dr. Ed Connor is a professor of neuroscience at Johns Hopkins University. He’s helped to curate an exhibit called “Beauty and the Brain Revealed” at the American Association for the Advancement of Science in Washington, DC. The exhibit shows how the brain perceives shapes found in abstract sculpture.

Today on Brain Talk: why the brain prefers certain 3D shapes to others.

In Dr. Connor’s previous exhibit at the Walters Art Museum in Baltimore, visitors put on 3D glasses and looked at digitally altered versions of abstract sculpture. ‘Then’, according to Dr. Connor, ‘they picked their favorites.’”

Dr. Connor: “The intent with that exhibit and the intent with parallel experiments in the laboratory was, first of all, to try to figure out if there’s anything we could quantify and analyze scientifically about what it is that most people like about some 3D shapes. Like so much that they will pay a million dollars for a Henry Moore sculpture. Whereas, other abstract shapes might seem uninteresting or even ugly.”

Dale: “Dr. Connor’s current exhibit also lets people express what they like and dislike in sculptural shape. It also shows brain imaging done in the lab with people looking at similar shapes. Researchers measured the activity in areas of the brain that deal with 3D objects.”

Dr. Connor: “What we found was a rather striking correspondence between the responsiveness of these object-specific brain regions and preferences of individuals. That is the types of surface curvature, the types of abstract sculpture that turned the viewers on also turned these parts of the brain on.”

Dale: “It seems as if we humans prefer one type of surface curvature to another.”

Dr. Connor: “What we found was that highly preferred sculptures or morphs of sculptures tended to have an over representation of very shallow convex curvature, sort of like gentle smooth hills, whereas the types of
shapes that most of people did not prefer were shapes that had lots of sharp convex curvature, either double convex, sharp points, or convex crossed with flat, that is narrow cylinders."

Dale: “Dr. Connor speculates this preference for smooth, rounded curves over jagged ones is logical from an evolutionary standpoint.”

Dr. Connor: “Food is biological, potential mates are biological, potential predators are biological, and the shapes of biological things tend to be dominated by this sort of surface curvature. Cause biological things tend to be filled with liquid or a pliable tissue that’s bounded by a membrane, the skin, or the skin of a fruit, that’s under pressure and that liquid just automatically produces smooth curvature. So, smooth curvature itself is potentially inherently interesting because biological objects are so ecologically important to humans and other animals.”

Dale: “For more information about how the brain perceives shape, log on to brainscienceinstitute.org. From Johns Hopkins University, I’m Dale Connelly and this is Brain Talk.”

Learn More about Dr. Connor
Beauty and the Brain Revealed
The AAAS Gallery page on the exhibit
Mind/Brain Institute
The MBI is dedicated to the study of the neural mechanisms of higher brain functions using modern neurophysiological, anatomical, and computational techniques.

The Walters Art Museum

http://www.brainscienceinstitute.org