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Human Brain Made for Counting

Randolph Schmid,
Associated Press

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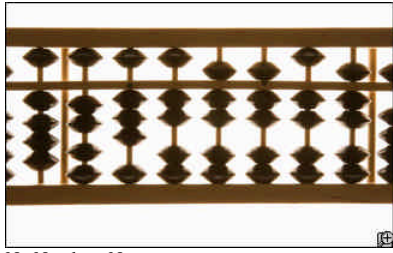
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No Numbers Necessary

Aug. 18, 2008 -- Answer this without counting: Are there more X's here XXXXXX, or here XXXXX? That's a problem facing people whose [languages](#) don't include words for more than one or two. Yet researchers say children who speak those languages are still able to compare quantities.

"We argue that humans possess an innate system for enumeration that doesn't rely on words," says Brian Butterworth of the Institute of Cognitive Neuroscience at University College London.

In an attempt to prove it, Butterworth compared the numerical skills of children from two indigenous Australian groups whose languages don't contain many number words with similar children who speak English.

All the groups performed equally well, his research team reports in Tuesday's edition of *Proceedings of the National Academy of Sciences*.

"Basic number and arithmetic skills are built on a specialized innate system," Butterworth said in an interview via e-mail. Using words for exact numbers is "useful but not necessary," the researchers concluded.

Co-author Robert Reeve of the University of Melbourne, Australia, agreed: "Our findings are consistent with the idea that we have an innate system for representing quantity ideas and that the lack of number words in a language should not prevent us from completing simple number and computation tasks."

Edward A. Gibson and colleagues in the department of brain and cognitive sciences at Massachusetts Institute of Technology aren't so sure.

It is a useful research program, but doesn't support the conclusion that the understanding of exact numbers does not depend on language, Gibson said in an interview via e-mail.

Butterworth's tests involved 13 English-speaking children from Melbourne, 20 Warlpiri-speaking children and 12 who speak Anindilyakwa. All the children were aged 4 to 7.

Warlpiri number words are limited to one, two and many, the researchers said. Anindilyakwa has words for one, two, three -- which sometimes includes four -- and more than three.

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