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Media Release

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Attention: News desk / News editor/ Features writers

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Folds in the Brain Could Predict Intelligence

A study by Melbourne scientists has provided the first direct evidence that differences in the way the surface of the human brain is folded could be an indication of how smart a person is.

The research by PhD student Alex Fornito from the Department of Psychology and Melbourne Neuropsychiatry Centre at the University of Melbourne, in collaboration with The Mental Health Research Institute, found that people with asymmetrical brains scored higher on tests of verbal and spatial skill.

The study focused on a specific part of the brain called the paracingulate (PC), which is located within a fold unique to the human brain, and tested the participants on tasks known to be performed by the left (verbal) or right (spatial) hemispheres.

Scans of the participants' brains – all right-handed males – revealed that some had more of the PC fold in the left hemisphere, in some it was more developed in the right hemisphere (asymmetrical), and others possessed it in similar amounts across both sides of the brain (symmetrical).

The researchers found that participants with a PC in the left hemisphere performed better than the other participants on the cognitive tests, regardless of whether the tasks were considered to be left or right brain driven.

Dr. Stephen Wood, one of the researchers involved in the study says the findings are important because they tell us something about the origins of individual differences in humans.

"We already know that there is variability in the folding of the brain, this research tells us that it is not just cosmetic but actually meaningful for behaviour," he says.

Mr Fornito adds, "Although our study only focused on problem solving and strategic thinking, the results indicate that similar variations in folding in other parts of the brain may be related to other intellectual abilities".

The researchers now hope to examine the implications of their recent findings, published this month in the *Journal Cerebral Cortex*, on the significance of asymmetry and variations in brain folding for psychiatric disorders, and the degree to which they are genetically determined.

Previous research by the group has found that people who suffer from schizophrenia are less likely to have a PC in the left hemisphere, and have more symmetric brains.

Dr. Murat Yücel, who is leading the research says, "It is likely that these folds are meaningful because they reflect differences in the way regions of the brain are connected to other parts and it may help to explain some of the common difficulties seen in patients with psychiatric disorders."

MEDIA OPPORTUNITY

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Members of the research group will present an interactive exhibition, including computerised cognitive tests and MR images used in the analysis, at the University of Melbourne 2004 Research and Innovation Fair on May 7.

Please contact Elaine Mulcahy, Media Officer on 8344 0181 or 0421 641 506 for more information.

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