Scientists lead rat race for better PET scan

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Lab rats currently have to be anaesthetised for most PET (positron emission tomography) scans, as any movement would distort the three-dimensional images used to study the functioning of organs.

But the drugs can change brain activity and prevent scientists from measuring what would have been the animals' normal behaviour.

Forcible restraint without anaesthesia, in turn, stresses the animals and may alter the brain function scientists are seeking to measure.

The study of rodent brains has been an important tool in neuroscience development and drug development.

"Many powerful experiments to study brain function and correlate it with animal behaviour would become possible if animals could be imaged whilst awake and unrestrained," study team member Andre Kyme told AFP.

To this end, the team has devised a non-invasive, "harmless and painless" method of tracking the motion of a rat's head and correcting for the movement, according to a report in the *Journal of the Royal Society Interface*.

All the data collected is adjusted on the basis of the motion measured, so that useful 3D images can be reconstructed, explained Kyme of the University of Sydney School of Physics.

"The present study provides further evidence that rats which are awake and unrestrained, especially those able to behave normally, can have their motion tracked relatively simply and inexpensively," he said.

"The conclusion is that compensating for the motion of awake rats, even those which are free to move and behave normally, is eminently feasible."

Routine PET imaging of awake, freely-moving rats "could become a reality in the next few years", said Kyme.