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- ▶ [UK News Summary](#)
- ▶ [Front Page](#) ▶ [UK News](#) ▶ [International](#) ▶ [City](#) ▶ [Money](#) ▶ [Sport](#) ▶ [Football](#) ▶ [Features](#) ▶ [Review](#)
- ▶ [Search](#) ▶ [Feedback](#) ▶ [Crossword](#) ▶ [Weather](#) ▶ [Matt](#) ▶ [Alex](#) ▶ [Opinion](#) ▶ [Obituaries](#) ▶ [Site Map](#)
- ▶ [Technology](#) ▶ [Books](#) ▶ [Travel](#) ▶ [Schools](#) ▶ [Teenagers](#) ▶ [Students](#) ▶ [Gallery](#) ▶ [Classified](#) ▶ [Jobs](#)



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New insight on impulsive behaviour

By Roger Highfield, Science Editor

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- ▶ [Science \[subscription required\]](#)
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SCIENTISTS have located the part of the brain that controls the desire to eat cream buns between meals and motivates addicts to seek out drugs.

The region responsible for instant gratification is the nucleus accumbens and is in each half of the brain, slightly above eye level and about an inch in front of the ear canal, says a team at the University of Cambridge's Department of Experimental Psychology.

The nucleus accumbens, part of the brain's emotion and motivation systems, responds to natural rewards such as food and sex, and drugs such as amphetamine and cocaine, through their effects on the messenger chemical dopamine.

The research, published in the journal Science, has shown that damage to the nucleus accumbens in rats results in a tendency to prefer immediate rewards over larger, delayed benefits. The team said the nucleus accumbens caused impulsive behaviour, rather than reacting to impulsive signals from other brain regions.

The findings shed new light on [Ritalin](#), the drug used to treat [attention deficit hyperactivity disorder](#). Rudolf Cardinal, a team member, said: "Its actions in the nucleus accumbens may be responsible for its beneficial effects."

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[Sport](#) | [Football](#) | [Rugby Union](#) | [Rugby League](#) | [Cricket](#) | [Golf](#) | [Tennis](#) | [Motor Sport](#) | [Other Sport](#)
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[Education \(Virtual School\)](#) | [Students \(Juiced\)](#) | [Teenagers \(T2\)](#) | [Obituaries](#) | [Opinion \(Daily Telegraph\)](#)
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