**Why older people take fewer risks: Falling dopamine levels make us less likely to gamble for big gains as we age**

* **25,000 took part in experiment using a game on a phone app**
* **People who are older were less willing to take risks for potential rewards**
* **When there was something to gain, those aged 18 to 24 gambled in 72 per cent of trials, but only 64 per cent in the 60 to 69 age group**

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Older people are often thought of as less willing to take risks than those who are younger and more 'care-free'.

Now a study has found the reason why.

Falling dopamine as we get older make us less attracted to big rewards, which in turn makes us less likely to make a big gamble. **LESS ATTRACTBIG REWARDS**

Older people were not more risk-averse overall, and they didn't make more mistakes than young people did.

Older people were simply less attracted to big rewards and this made them less willing to take risks to try to get them.

Scientists from University College London have found a drop in the neurotransmitting chemical makes older people more risk-averse.

'We know that dopamine levels decline with age and we knew from our previous research that giving young volunteers a drug that boosts dopamine levels specifically increases willingness to take risks for big rewards,' lead author, Dr Robb Rutledge told MailOnline.

'So we predicted that aging would have the opposite effect on risk taking and that's exactly what we found.'

'Lots of factors of course can affect people we take risks but the gradual decline in dopamine with age is the best explanation for the specific changes in the risk taking we see.

'If we had seen another type of risk taking change as people got older, that might have suggested something that does not have to do with dopamine that changes with age, but we only saw decreases in willingness to take risks for rewards.'

The study of over 25,000 people aged 18 to 69 found older people were less likely to choose risky gambles to win more points in a smartphone app called [**The Great Brain Experiment**](https://itunes.apple.com/us/app/the-great-brain-experiment/id611203774?ls=1&mt=8).

But they were no different to younger participants when it came to choosing risky gambles to avoid losing points.

While it is widely believed older people don't take risks, the study showed exactly what kind of risks older people avoid.

It found the steady decline in risky choices with age matches a steady decline in dopamine levels with them falling by up to 10 per cent every decade in adulthood.

Volunteers chose significantly more risky gambles to win more money when given a drug that boosted dopamine levels.

'As we age, our dopamine levels naturally decline which could explain why we are less likely to seek rewards,' lead author Dr Robb Rutledge said.

**HOW THE EXPERIMENT WORKED**

In the experiment the game involves gambling for points with each player starting with 500 points.

The aim is to win as many points as possible in thirty different trials where they must choose between a safe option and a risky 50/50 gamble.

In the 'gain' trials, players can either choose a guaranteed number of points or a 50/50 chance of winning more points or gaining nothing.

The 'loss' trials are the same in reverse, where players can lose a fixed number of points or gamble with a chance of losing more points or nothing.

In the 'mixed' trials, players can choose zero points or to gamble with a chance of either gaining or losing points.

On average, all age groups chose to gamble in approximately 56 per cent of the loss trials and 67 per cent of the mixed trials.

In the gain trials, 18 to 24 year olds gambled in 72 per cent of trials and this fell steadily to 64 per cent in the 60 to 69 age group.

'The effects we saw in the experiment may be due to dopamine decline, since age was associated with only one type of risk taking and mirrored the known effects of dopamine drugs on decision making.

'Older people were not more risk-averse overall, and they didn't make more mistakes than young people did.

'Older people were simply less attracted to big rewards and this made them less willing to take risks to try to get them.'

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The aim is to win as many points as possible in thirty different trials where they must choose between a safe option and a risky 50/50 gamble.

On average, all age groups chose to gamble in approximately 56 per cent of the trials where a loss was at stake and 67 per cent of the mixed trials.

In the trials where a gain was at stake, 18 to 24 year olds gambled in 72 per cent of trials, but only 64 per cent in the 60 to 69 age group.

'A loss of dopamine may explain why older people are less attracted to the promise of potential rewards,' Dr Rutledge added.

'Decisions involving potential losses were unaffected and this may be because different processes important for losses are not affected by ageing.

'Political campaigners often frame voting decisions negatively, for example saying that UK households would be £4,300 ($6,200) worse off if the UK decides later this month to leave the EU rather than £4,300 ($6,200) better off if the UK decides to remain part of the EU.

'They already know that negative messaging helps to persuade older people, whereas a more optimistic approach that emphasizes large potential rewards might appeal more to younger people who are less likely to vote.

'Our new findings offer a potential neuroscientific explanation, suggesting that a natural decline in dopamine with age might make people less receptive to the positive approach than they would have been when they were younger.'

'It's a great question what exactly dopamine has to do with making decisions about potential losses, and we don't know yet whether other brain chemicals are playing important roles. The big changes in the dopamine system that occur with age don't seem to affect willingness to take risks about losses,' Dr Rutledge added.

'One question we are addressing now is whether the brain chemical serotonin plays a bigger role in those decisions. '