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Music can help people recover from stroke

Given its power to move us, perhaps it's no surprise that a great deal of research has focused on whether or not music can help people with depression or anxiety. Now researchers in Finland have asked whether music can benefit people recovering from stroke. Their study is notable for its sound methodological quality, and the results are promising: music does indeed appear to make a difference to patients' cognitive recovery.

Soon after their hospitalisation, 60 stroke patients were allocated randomly to one of three groups. Those in the music group were provided with a portable CD player and asked to listen to their favourite music for at least an hour a day for two months. Patients in the audio book group spent at least an hour a day for two months listening to audio books of their choosing. A final control group were not given a listening task.

Compared to the patients who listened to audio books and the control patients, the patients who listened to music daily showed superior performance when tested three months and six months later on measures of verbal memory and focused attention. Crucially, the psychologists who performed these neuropsychological assessments were unaware of which groups the patients had been in - making this a single-blind, randomised, controlled trial. The music and audio book patients also showed reduced depression and confusion compared with the control patients.

Teppo Sarkamo and colleagues who conducted the research said that music may exert these benefits by virtue of its wide-ranging impact on brain activity. Neuroimaging studies have shown that listening to music "naturally recruits bilateral temporal, frontal and parietal neural circuits underlying multiple forms of attention, working memory, semantic and syntactic processing, and imagery," the researchers said. By contrast, the brain activity triggered by speech without music is less extensive and more focused on the language-dominant hemisphere (usually the left).

The new finding is consistent with research on animals showing that a stimulating environment can speed recovery after stroke. Yet the researchers noted with regret that many stroke patients are left in their rooms without much stimulation or interaction. "We suggest that everyday music listening during early stroke recovery offers a valuable addition to the patients' care," they concluded.


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“Just looking at a cake makes me feel fatter”

Have you ever caught yourself staring at sumptuously-formed cake, only to come away with the guilty feeling that the mere act of looking has led you to put on weight? If so, you’re not alone.

Following research showing that people with eating disorders are prone to these irrational thoughts, Jennifer Coelho and colleagues have now confirmed that people without an eating disorder experience them too, though to a lesser extent.

However, that was not the aim of their research. Coelho's group conducted this study because at least one expert has suggested that people with eating disorders displace their emotional problems onto their bodies, thereby experiencing increased fatness when they're distressed. To test this, Coelho's team investigated whether for people with eating disorders, it is specifically thinking about food that can lead to guilty feelings about weight gain, or if anxiety in general can have the same effect.

The researchers asked women with eating disorders and female university students without an eating disorder, to imagine eating a naughty food. As a control, other women with eating disorders and other female university students imagined giving a public presentation.

Imagining eating large quantities of a naughty food led the eating disordered participants, and to a lesser extent the university students, to experience guilt and feelings of weight gain. By contrast, the participants who imagined giving a public presentation did not report these feelings, thus undermining the idea that for people with an eating disorder, it is any kind of anxiety that leads to guilt and a sense of weight gain.

A further, counter-intuitive finding was that a subgroup of the university students - those who reported restricting what they ate - actually did not experience guilt or feelings of weight gain after imagining a naughty food. The researchers said this could be because this group deliberately suppress their food-related thoughts.

The researchers concluded that future research should examine whether it is beneficial for treatment approaches to target the kinds of irrational thoughts examined in this study, or if instead such thoughts will reduce naturally as people recover from their eating disorders.


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Little comedians

Toddlers as young as 19 months are able to distinguish jokes from mistakes - a skill that lays the groundwork for their later ability to recognise lies and false beliefs. That's according to Elena Hoicka and Merideth Gattis, who tested a large group of children aged between 19 and 36 months.

Children were asked to copy actions made by the researcher - for example stirring a spoon in a cup, or combing their hair. Next, the researcher performed a range of joke actions (e.g. putting a boot on their hand), which they did laughing, and mistakes (e.g. putting a lid on a sugar jar so that it was not quite in place), after which they said "oops!".

All the children, from 19 months upwards, copied the joke actions, but corrected the mistakes - a sign, the researchers said, that they were able to tell the difference between a mistake and a joke.

After this, things got trickier. The researchers performed actions that could either be interpreted as a mistake or a joke: for example, putting a hat on so that it covered their eyes, or brushing their teeth with the wrong end of the brush. Half the time the researchers laughed afterwards, the rest of the time they said "oops!". The idea is that the ambiguous nature of the actions meant that, to know if a joke or mistake had occurred, the children had to be able to interpret the researcher's vocal response.

This time an age-difference emerged. The proportion of occasions that the 19 to 24-month-olds copied or corrected these actions did not vary according to whether the researcher laughed or said "oops!". By contrast, the children aged 25 months and upwards, corrected more when the researcher said "oops!" and copied more when they performed the action laughing - a sign, the researchers said, that children of this age are able to distinguish humorous intent from mistakes.

Elena Hoicka and Merideth Gattis said this means that the ability to recognise humorous intent comes after the ability to recognise jokes, but before the ability to recognise pretence and lies. "We propose that humour understanding is an important step toward understanding that human actions can be intentional not just when actions are right, but even when they are wrong," they concluded.


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You might think that hand-held global positioning systems (GPS), which can provide a live update of your location and surroundings, would make the benefit of a paper map redundant. But in a new study, Toru Ishikawa and colleagues have shown that people using a GPS device make more errors and take longer reaching their destination than people using an old-fashioned map.

Sixty-six participants on foot attempted to find their way to six locations in an urban environment. The routes were relatively short (between 157 and 325 yards) and each involved three turns. Twenty-two participants used a mobile phone with a GPS capability, 23 used an A4-sized map, and the remainder were taken along the routes by a researcher, before having to find their way on their own.

Not only did the GPS participants make more stops, walk further and more slowly than the map users, they also demonstrated less knowledge of the routes when asked to sketch a map of them afterwards. The most proficient participants were those who’d been shown the routes by the researchers - they arrived at their destinations faster and stopped fewer times than both the GPS and map users.

So why was the use of GPS inferior to using a paper map? The researchers said part of the explanation might be a lack of familiarity with the technology. Also, unlike the paper map, the size of the GPS screen meant it wasn't always possible to see one's own location and the destination at the same time. Finally, using GPS, which constantly updates itself, encourages people to stare down at the screen, rather than looking around at their environment. "We believe that for the development of effective navigational aids, continued empirical research on these issues is needed," the researchers said.


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Why it matters if there is a flickering light in the courtroom

Aspects of the environment that indicate danger - from flashing lights to a mere exclamation mark - lead us to make faster and more extreme judgements about fairness.

Kees van den Bos and colleagues say this happens because when we sense a threat, and what they call the 'human alarm system' is activated, we tend to form faster and more extreme reactions, with justice-related decisions being no exception.

In one experiment, university students stared either at an exclamation mark for one minute, or at a line with a dot above it - the latter serving as a control condition. Next the participants played a computer-based task with what they thought was another participant, but was really just a computer programme. Afterwards, some participants were asked how lottery tickets - a reward for taking part - should be shared between themselves and their playing 'partner', based on their performances. The remaining participants were told the lottery tickets would be distributed without seeking their opinion. Finally, the participants were asked to indicate how fair this system of ticket allocation was.

Amazingly, the mere act of staring at an exclamation mark significantly affected the participants' reactions. The difference in fairness judgments between those who'd been given a say and those who hadn't was greater among the participants who'd previously stared at an exclamation mark than among the control participants - in other words their judgments were more extreme (those who'd been given a say responded more positively, those who hadn't, responded more negatively, relative to the control participants who had and hadn't been given a say).

Another experiment asked dozens of shoppers on the streets of Amersfoort in the Netherlands to imagine a scenario in which their colleague had either received the same or a larger bonus than they had. Half the shoppers were asked near to a flashing road-work light - their subsequent judgements on the fairness of the bonus allocation were more extreme than those asked with the light switched off.

The researchers concluded it is now up to future research to test the real-world applications of these findings. "For example, future research might assess how people react to fair and unfair treatment by their management, when the business context may make the human alarm system more vs. less active," they said.


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Existential angst can deter women from checking their breasts

American statistics show that breast cancer is the second leading cause of cancer-related deaths among women, and yet only a third of women regularly check their breasts for signs of the disease*.

Now research by Jamie Goldenberg and colleagues suggests existential angst could be a key factor that is putting women off self-checking.

In a morbid context, being reminded that we're made of flesh and bone, just like other animals, can exacerbate existential angst. In an initial study, Goldenberg's team showed that female university students who read an essay about the similarity of animals and humans, and who were asked to think about their own mortality, were subsequently less likely than a control group of students (who imagined a painful dentist visit) to say they planned to check their breasts.

Another experiment timed how long women checked their breasts for after they either read an essay about the similarity of animals and humans, or about the uniqueness of humans. There was a trend for the group who read about the similarity of animals and humans to spend less time self-checking.

There was a further twist to this last experiment. Earlier on, the women had been asked to taste a new proto-type health drink, with half of them told it was supposed to be calming and the other half told it was an energy drink, which may cause nervousness.

Among the women who read the essay about the similarity of humans and animals, and who were therefore expected to experience existential angst, only those who had drunk the calming drink spent a reduced amount of time checking their breasts. The researchers said this is because whereas all these women were presumably feeling uncomfortable, thanks to existential angst, those who'd tasted the energy drink were able to attribute their discomfort to the anticipated nervous effect of the energy drink, thus leading them to persevere longer with their self-checking.

"Applied health workers only stand to gain by considering whether interventions and instructional materials can be delivered in ways that reduce the likelihood of casting breast self-examination in a creaturely light [i.e in ways that don't remind women of their mortality]," the researchers concluded.


* In the UK, the NHS encourages breast awareness rather than routine self-examination. http://www.cancerscreening.nhs.uk/breastscreen/breastawareness.html

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