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HEALTH

Could Botox alleviate depression?

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by Ben Deighton

Botulinum Toxin A, or Botox, can be used to paralyse the muscles used for frowning and prevent people from physically expressing unhappiness. Image: Shutterstock/ tab62

Wrinkle-fighting Botox could help fight depression, and it's not just because a smoother complexion makes people feel more confident.

Researchers have injected it into the corrugator muscles between people's eyebrows so they find it hard to frown, and they've found it makes patients happier.

It's part of an emerging field of psychology that holds that our bodily movements and our emotions are intricately connected.

'People become less depressed as they cannot frown anymore,' said Dr Sander Koole, at VU University Amsterdam.

'It shows that things we think of as shallow and superficial actually might have a deep impact on our emotional functioning, which could have implications for how we treat people with emotional disorders.'

The Botox experiments fit into a theory known as embodied cognition, which holds that there is a feedback loop between emotions and body

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movements.

As part of the EMBER project, funded by the EU's European Research Council (ERC), Dr Koole and his team are developing this theory to devise ways of helping those with a short fuse to manage their anger – by adopting less aggressive body postures.

They conducted experiments where people were provoked, and then asked either to lean forward, or to lean backwards, and they found that the lean-ins behaved much more aggressively than the lean-backs.

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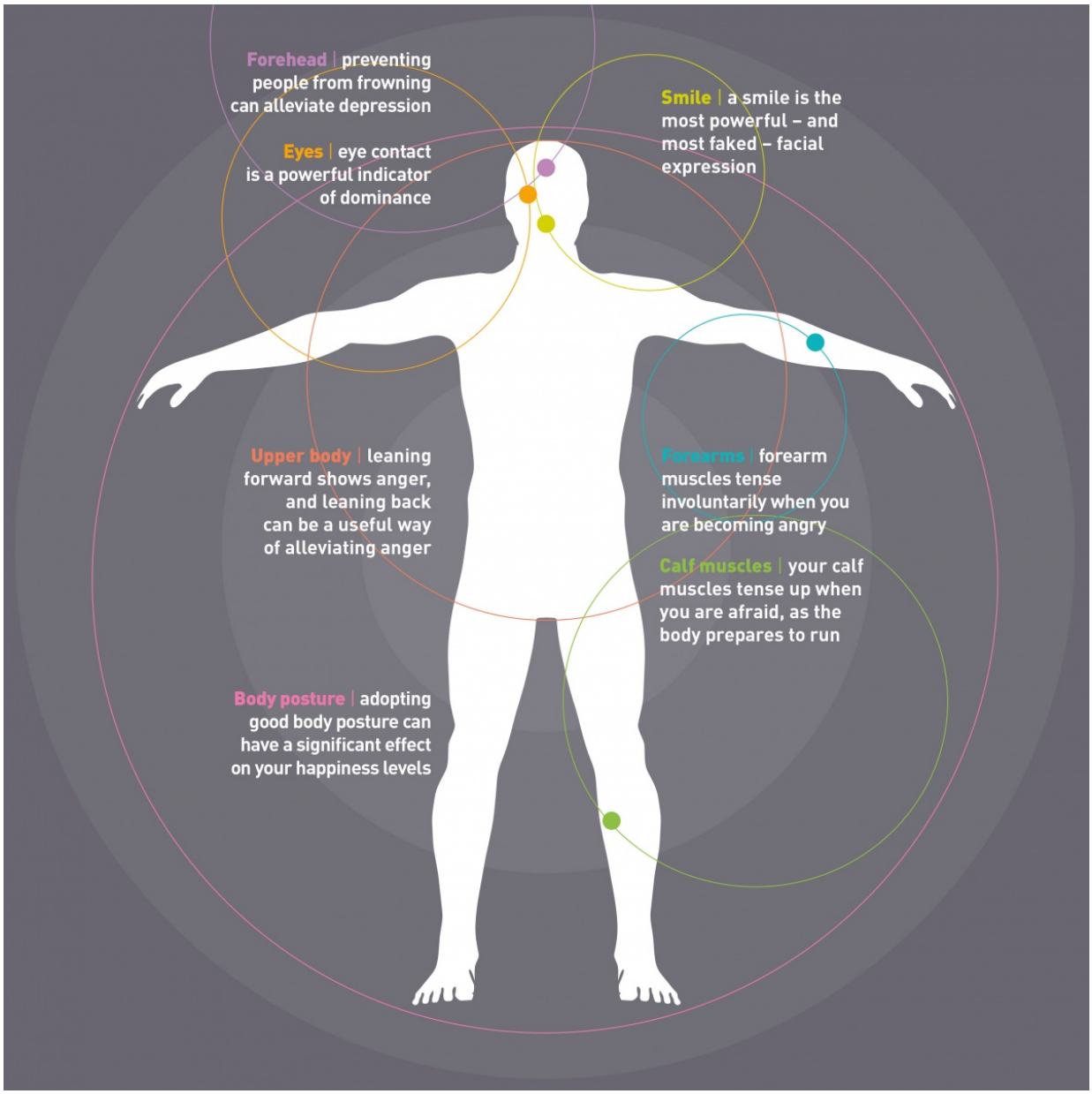
>
> *Dr Sander Koole, VU University, Amsterdam, The Netherlands*

They're even working on a smartphone game that could train people to manage their anger better by rewarding them for avoiding a frowning face, for example.



Body language has been linked to physiological changes, such as the release of testosterone and stress hormones.

'After this we want to add modules that add more bodily components,' said Dr Koole. 'With smartphones these days you can easily add sensors.' Although he added that he did not want to commercialise this product himself as he wanted to remain independent.

However, this research isn't just for those with aggressive behaviour. It can help everybody to improve their attitude. They've found, for example, that the way you sit can have a major impact on your mood.

‘Things like posture have a much more profound influence than we might think. It very systematically reduces sad feelings when you sit up straight versus being slumped,’ he said.

‘Given that we often think that our inner lives only exist inside our brains, we often don’t pay enough attention to our body.’

The link between body and emotion is a critical one, and in fact researchers are finding that our bodies react to emotions in ways that we're not even aware of.

Tensing up

At the University of Maastricht, in the Netherlands, researchers have started to associate specific muscles with emotions. For example, they’ve found that our forearm muscles can tense imperceptibly when someone becomes angry, while our calves get tighter when we are scared.

‘We have isolated some of the muscles that are important when somebody, without knowing, shows anger,’ said Professor Beatrice de Gelder, Principal Investigator of the EMOBODIES project, also funded by the ERC.

They can use this knowledge to help people to become aware of when they are getting angry, for example. Now they are testing a computer chip which is attached to the shoulder and can alert someone when they start to tense up because of anger.

From an evolutionary perspective, the point of displaying an emotion is often to show others that you are about to do something, and the next thing for Prof. de Gelder’s team is to look at how body language changes when people are part of a group.

They’ve already discovered that body language can become garbled when it crosses cultural divides.

‘We have found, for example, that Japanese people almost don’t recognise angry body postures,’ she said.

‘Different cultures might predispose you to focus on different parts of the body.’

Pen experiment

In 1988, researchers proved that there is feedback between our facial expressions and our emotions by using a pen.

They told their subjects that they were testing how people without hands or arms could do certain tasks, and asked them to hold a pen in their mouth. However, one group was asked to hold the pen in their teeth, while the other group was asked to hold the pen between their lips.

In fact, they were testing facial expression feedback, as by holding a pen between your teeth you are forced to smile, while by holding a pen between your lips you are forced to make a sad expression.

They showed a humorous cartoon to people afterwards, and the theory was proved correct – the teeth group found it significantly funnier than the lips group.

More info

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