

Lifestyle/ Health &amp; Wellness

## What knitting, painting and pottery do to your brain, and why they can make you happier and reduce stress

Rhythmic, repetitive activities that make use of your hands and deliver an 'effort-based reward' at the end could alter your brain chemistry by boosting serotonin, dopamine and oxytocin, US researchers say

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Amanda Chia always looks forward to her weekly pottery classes. The 43-year-old graphic designer says that working with clay on a potter's wheel makes her feel relaxed and grounded – relaxed because any worries she has are put on hold for those few hours, and grounded because the activity requires focus and awareness.

“When I first started pottery back in 1999, a more experienced potter commented that I was impatient and heavy-handed,” she says. “He was right, because I wanted instant results, which aren't possible in wheel-thrown pottery. So over time I had to learn to slow down and be more patient and present.”

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Agnes Gerrits-Lim feels the same way about one of her favourite activities: painting. “It’s more than a creative outlet,” says the 47-year-old freelance writer and translator. “Painting teaches me to be mindful because it involves concentration and attention to detail. It’s also therapeutic, because it takes my mind off the day’s worries.”



Amanda Chia says that working with clay calms her mind and reduces stress.

Nivedita Raj Ramanujam, a psychotherapist and hypnotherapist at Inner Compass in Hong Kong, vouches for the relaxing, grounding and meditative effects of activities that make use of our hands.

“Provided it is done regularly, in a quiet place, and mindfully, any creative therapy that requires rhythm, repetition, creativity, attention and contemplation can induce relaxation by lowering our heart rate and blood pressure,” she explains.

“Engaging in these activities gives us a break from the noise and worry that clutter our minds; it creates that ‘white space’ that’s so vital to our mental and physical wellbeing. Applying our creativity also makes us feel good as it boosts our confidence and silences our inner critic.”



Psychotherapist and hypnotherapist Nivedita Raj Ramanujam.

You may have experienced these positive effects yourself. But new research from the University of Richmond in the US has found that if your favourite hands-on activity delivers an “effort-based reward” at the end – like a finished painting or a piece of pottery, for example – it could alter your brain chemistry, not just lowering your stress and anxiety levels but making you happier, too.

Neuroscientist Dr Kelly Lambert led the laboratory-based study, which was conducted on rats, and discovered that “busy hands” alter brain chemistry in much the same way as medication.

“Drugs like psycho-pharmaceuticals alter our brain chemistry in an attempt to maintain healthy brain function,” she says “But research suggests that there may be ways to alter these chemicals through our behavioural responses as well.” Lambert calls these behaviours “behaviourceuticals”.



**If you experience a sense of self-control and feel less anxious after engaging in the activity then it's likely an effective, effort-based reward behaviourceutical**  
Dr Kelly Lambert

Knitting is a great example of a behaviourceutical. “For starters, the use of both hands activates a large component of the brain,” says Lambert, who is also the author of the upcoming book, *Well-Grounded: The Neurobiology of Rational Decisions*, which will be released this September. “Additionally, repetitive movements have been associated with an increased activation of serotonin, the neurochemical that many antidepressants target. If knitting produces a desired result – like a hat or gloves or a scarf, for instance – then the neurochemical dopamine is altered as a reminder that this is a relevant and important activity.

“Further, if the activity is done in the company of friends, then social conversation may boost another neurochemical known as oxytocin that reduces anxiety. In the absence of a social group, knitting alone may also distract one’s thoughts about stressful life triggers by directing attention toward counting stitches. Thus, overall, several neurochemicals may be altered to lower anxiety, enhance a sense of wellbeing and accomplishment, and calibrate moods in healthy ways.”



Chia with one of her pottery creations.

Lambert explains, though, that more research is necessary as all therapeutic approaches need to be evidence-based. She hopes that this area will receive the research attention it deserves in the future.

Interestingly, she adds that researchers are working on models of behavioural therapies as a way to protect against the onset of psychiatric illnesses, such as depression, just as lifestyle modifications are recommended to protect against the onset of cardiovascular disease.

But to reap the mental health benefits of behaviourceuticals, it is important to engage in an activity that produces valued outcomes. This may be gardening for one person, woodworking for another and organising closets for someone else.

“If you experience a sense of self-control and feel less anxious after engaging in the activity then it’s likely an effective, effort-based reward behaviourceutical that can be self-dosed during stressful times or used in maintenance doses to prevent future stress,” Lambert says.



A collection of Gerrits-Lim's paintings.

However, there are many activities that require the use of your hands that may not reduce stress or help you gain a sense of self-control. A trained pianist, for example, who is expected to give a flawless performance may feel stressed or frustrated while engaging in the activity because they are trying to avoid making mistakes.

Then there are activities that may not use the hands but do result in effort-based rewards, like some forms of exercise where movement is valued.

“It’s therefore important that the activities used for this purpose result in a sense of accomplishment and/or pride associated with the production of something that’s valued,” Lambert says. “The pianist may reach this point intermittently with regular practice, but from a mental-health perspective, he might be better off engaging in another activity that has an effort-based reward.”

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Since taking up painting five years ago, Gerrits-Lim says that her emotional wellbeing has improved.

“It’s connected me with fellow artists in my art club, which makes me feel more accepted socially. It’s also done wonders for my confidence and I feel more in control; if I make a mistake I just improvise or think of a solution. And whenever I complete a piece, I feel a great sense of joy and satisfaction. But perhaps the best thing is that all these positive effects have extended to other areas of my life as well.”