

# THE SCIENCE OF KINDNESS

## KINDNESS NOT ONLY MAKES YOU FEEL GOOD, IT MAY BE GOOD FOR YOU.

WORDS DR SANDRA L. J. JOHNSON

Kindness is an act where we reach out to help others and it invariably makes us feel good. And science backs this up. Studies now exist to show that acts of kindness stimulate neurochemicals in our brains that make us feel better. The qualities of kindness include friendliness, generosity and consideration. We can all recall moments when we have shown kindness to others that left us with a 'warm fuzzy' feeling. One can't help intuitively feeling, even without the science, that this must be a good thing.

## SO HOW DOES IT WORK?

Oxytocin is a powerful hormone released by the amygdala of the brain. The amygdala is a small almond-shaped gland situated near the hippocampus at about the level of our ears, at the frontal part of the temporal lobes of the brain. Oxytocin plays a role in social bonding and it makes us feel warmth and social connectedness to others. This neurochemical also plays an important role in maternal-infant bonding. When a mother breastfeeds, oxytocin release is stimulated through a feedback loop between the breast and the amygdala. Merely holding the baby has the same effect, and parents experience love, protectiveness and warmth towards the infant that they hold in their arms. This has an obvious impact on the survival of our species.

The way oxytocin works in the body could explain why kindness is good for you. A large number of oxytocin receptors are found in the amygdala, but there are also peripheral receptors in the heart and the vagus nerve. The vagus nerve controls heart rate, blood pressure, respiration and acid release in the stomach, in addition to many other important functions. A rise in oxytocin in our blood affects the receptors in the heart and the vagus nerve, which in turn reduces heart rate and blood pressure. A lower heart rate and blood pressure leads to lower anxiety. So, by increasing blood levels of this 'bonding' or 'empathy-inducing hormone', blood pressure is reduced, which is likely to have positive effects on our well-being and engender feelings of trust in others.

The Neuroscience Departments at Yale and the University of Pennsylvania have done studies with Rhesus monkeys that demonstrate the central function of the amygdala in acts of kindness and sharing. In their research, they showed that when monkeys gave their token rewards to other monkeys there was an increase in the neural activity in the amygdala. In another study in 2012, scientists at the Duke Institute for Brain Sciences observed that Rhesus monkeys showed greater trust and better social skills when they were given a whiff of oxytocin via a child-sized nasal nebulizer. They sat two monkeys side by side and asked them to tap a screen that gave them three choices: a reward for self, a reward for the other monkey, or no reward at all. When no reward was available for themselves, monkeys chose a reward for the other monkey over no reward at all. It seemed to take about half an hour for the oxytocin to take effect. Once it did, the monkey's gaze lingered on the other monkey for longer after donating the reward.

## THE ECONOMY OF KINDNESS

Paul Zak, neuroeconomist (yes, there is such a thing), has studied brain imaging and the effects of oxytocin in affecting the behaviour of trust between strangers. His article in the *Journal of Economic Behavior & Organization* in 2011 refers to a study in which participants reported both distress and empathy watching a 100-second highly emotional video of a father with his four-year-old son who had terminal brain cancer. He recorded a 157 percent increase in oxytocin among the observers. The change in oxytocin was associated with the subjective experience of empathy.

Zak is one of a number of scientists who think there could be a critical period in early childhood for the development of this kindness (which they call HOME, the Human Oxytocin-Mediated Empathy system). This has important implications for the early development and nurturing of children. Animal studies in 2003 and 2008 found that when parental nurturing is scarce or absent, it results in fewer oxytocin receptors in the brain of young animals, and these animals subsequently become socially withdrawn. It is not hard to extrapolate that poor outcome to humans, with all the potential negative consequences for the children, and for the cohesion of our society.

The concept of 'the greater good' is not new and it is encouraging to know that it's associated with positive benefits for all of us. The receiver benefits from our generosity, and so does the health of the giver. There is

no doubt in my mind that we are better off as a society when we care and reach out to help others. The love and nurturing of children is one of the greatest gifts that parents give their children. But this extends beyond the family unit. There is more than one kind of love. Love is reflected through acts of consideration and care by carers, teachers, extended family members and members of the community. Paul Zak suggests that an understanding of oxytocin circuits could play a part in public health and welfare policies, institutional and organizational design, and management of the economy.

## OUR POWER TO CHANGE THE WORLD

Epigenetics studies show us that the environment can impact on our genes. It is not too far-fetched to consider that it is essential for our genes to evolve in the best possible environment so that we can be the best humans we can become. Setting good examples for our children through modelling behaviours like kindness and generosity could result in a positive and more productive future for our children.

Kindness and empathy have an impact on young children as they model their behaviour on ours. The love that children experience renders them resilient to traumas that they are likely to face in their lives. Children who feel loved and respected often have greater self-confidence and self-esteem, which bodes well for their emotional future as adults and future contributors to our society.

Dr Sandra L. J. Johnson is a developmental paediatrician at Child Development Paediatrics in Pennant Hills, Sydney, and Clinical Associate Professor in Child & Adolescent Health, University of Sydney. Her website, [child-development.com.au](http://child-development.com.au), has helpful resources for kids with attention, behaviour, or visual or auditory processing difficulties. She is the author of *Your Child's Development*, about \$12.99 at Amazon and iBooks.