For doubting mothers and fathers, the data are in: responsive, sensitive parenting really does matter. Mother rats that tend to their pups by licking and grooming them frequently produce adult rats that are particularly resilient to stress. In humans, this could mean that responsive, caring parenting also produces healthy, resilient offspring.

GOOD NURTURING IS IMPORTANT

Alain Gratton, an associate professor of medicine at McGill University, studies the long-term impact of mother rats’ behaviour towards their pups, specifically with respect to the development of dopamine pathways in the prefrontal cortex of the brain, an area that plays an important role in interpreting and managing stressful situations. In human beings, this part of the brain is also known to undergo major changes throughout childhood and adolescence. Gratton and his colleagues are interested in learning about how development of the prefrontal cortex may contribute to the emergence of certain psychopathologies, such as attention deficit hyperactivity disorder (ADHD).

The investigators have found that adult male rats who were frequently nurtured by their mothers as newborns, through licking and grooming, exhibited brain development associated with resilience to stressful situations. Adult offspring of poor nurturers, on the other hand, had brain development associated with a highly emotional response to stress. “These are generally more anxious rats,” says Gratton.

This research may help explain why human children who receive poor maternal care appear to be more vulnerable to certain pathologies in adulthood. “I cannot stress enough that many, many things are involved in child development,” says Gratton. “If a child has a difficult first few years, he might be just fine. But we do know, however, that such a history makes him more vulnerable to a whole host of psychopathologies, such as depression, drug abuse and so on.”

PARENTING MATTERS

Megan R. Gunnar, a professor at the Institute of Child Development at the University of Minnesota, says that Gratton’s research helps elucidate how parenting affects the neural systems involved in the stress response. The challenge is determining what it means to be a nurturing parent in the human world. While premature babies have been shown to respond well to simple touch and cuddling, much as baby rats benefit from licking and grooming, an older human child’s needs are more complex. “By that time, there’s a well-established [parent-child] dance, so that intrusively [cuddling and touching] just won’t work,” she says. “It will be annoying.” The key lies in responding to babies’ particular needs: cuddling them when they want cuddles, feeding them when they’re hungry, or leaving them alone when they’d rather explore a new toy.

“All that time and effort that we put into taking care of our babies is fundamentally important,” says Gratton. By extension, therefore, if there are “disturbances in babies that make those relationships harder to establish, you should maybe get some help because there’s a lot that can be done if you get in there early. And you shouldn’t beat yourself up if everything’s not working out right.” In fact, other research findings from Gratton suggest that damage done early on from a poor nurturing environment can be turned around with enriched care later in life.