

# OUR EMOTIONAL BRAIN

## THE ROLE OF CHEMICAL MESSENGERS

The chemicals in our brain play important roles to help us manage our emotions and function well in the world around us. But for children whose worlds have been filled with stress and trauma, the roles of these chemicals in influencing their moods, thoughts, feelings and actions can be impacted for the worse. Understanding these chemicals and how to support healthy levels in children is therefore really important.

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### Cortisol – The stress hormone

When we experience stress or feel unsafe, our brain releases cortisol into our body with the aim to help calm us down by reducing our adrenaline levels.

This release though is weakened when a person is exposed to ongoing or prolonged stress. Children who experience cumulative abuse, trauma or neglect often remain on high alert with little ability to calm down. Abnormal cortisol levels can have several harmful effects, such as autoimmune disorders, challenging behaviours and reduced energy levels, all of which can affect a child's ability to learn and socialise.



#### What carers can do to support healthy cortisol levels

- ✔ Avoid giving foods high in sugar.
- ✔ Develop consistent, predictable and regular routines to help the child know what to expect – especially regular sleep routines.
- ✔ Create a safe, nurturing environment.
- ✔ Encourage meditation with child-friendly mindfulness apps like 'Breathe, Think, Do with Sesame' and 'Smiling Mind'.

### Serotonin – The happiness hormone

Serotonin has many roles in the body. In the brain it is a natural mood stabiliser that controls wellbeing and happiness. It helps regulate sleep, helps us think and controls arousal. It is also highly connected to food and lifestyle choices. Children who have been neglected and have low self-esteem are likely to have decreased serotonin levels. Low levels of serotonin are also associated with low mood, increased aggression and irritability, anxiety and depression.



#### What carers can do to support healthy serotonin levels

- ✔ Create spaces filled with natural light and spend time with the child outside in the sunshine.
- ✔ Encourage physical exercise, even gentle exercise like yoga.
- ✔ Engage in fun, age-appropriate play with the child that stimulates excitement, happiness and involves humour.

### Oxytocin – The bonding hormone

Oxytocin makes us feel love and trust. It helps us bond and build relationships, promotes empathy and is associated with sexual arousal. The brain releases oxytocin through touch, emotional warmth and food intake, including suckling. Children who have insecure attachments are more likely to have decreased oxytocin levels due to the lack of positive interactions in their life that stimulate the chemical's release. These children are also at risk of developing inflammatory responses in the body.



#### What carers can do to support healthy oxytocin levels

- ✔ Build rapport and trust with the child.
- ✔ Use value or process-based praise – 'You have used some interesting colours', 'That was very respectful', instead of 'good boy'.
- ✔ Spend regular one-on-one time with the child.
- ✔ Use appropriate forms of touch the child is comfortable with – a hug, gentle rocking.
- ✔ Use warm temperatures, such as a calming hot bath.

### Dopamine – Motivation and reward

Dopamine is important for both our brain and body. It stimulates emotional arousal, pleasure and the feeling of reward. Because it makes us feel good (the reward), it motivates us to repeat behaviours that previously made us feel good. Dopamine is also connected with movement, attention, memory and learning. Children who have high dopamine levels can display impulse behaviours, hyperactivity and seek instant satisfaction and gratification.



#### What carers can do to support healthy dopamine levels

- ✔ Support the child to practice gratitude.
- ✔ Play music to increase feelings of pleasure.
- ✔ Support the child to develop goals and steps to achieve them, and celebrate their successes with them.

*Note: The terms 'child' and 'children' also refer to 'young person' and 'young people'.*

**Here to help!** Come and talk to us if you'd like more practical ways you can be trauma informed.

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