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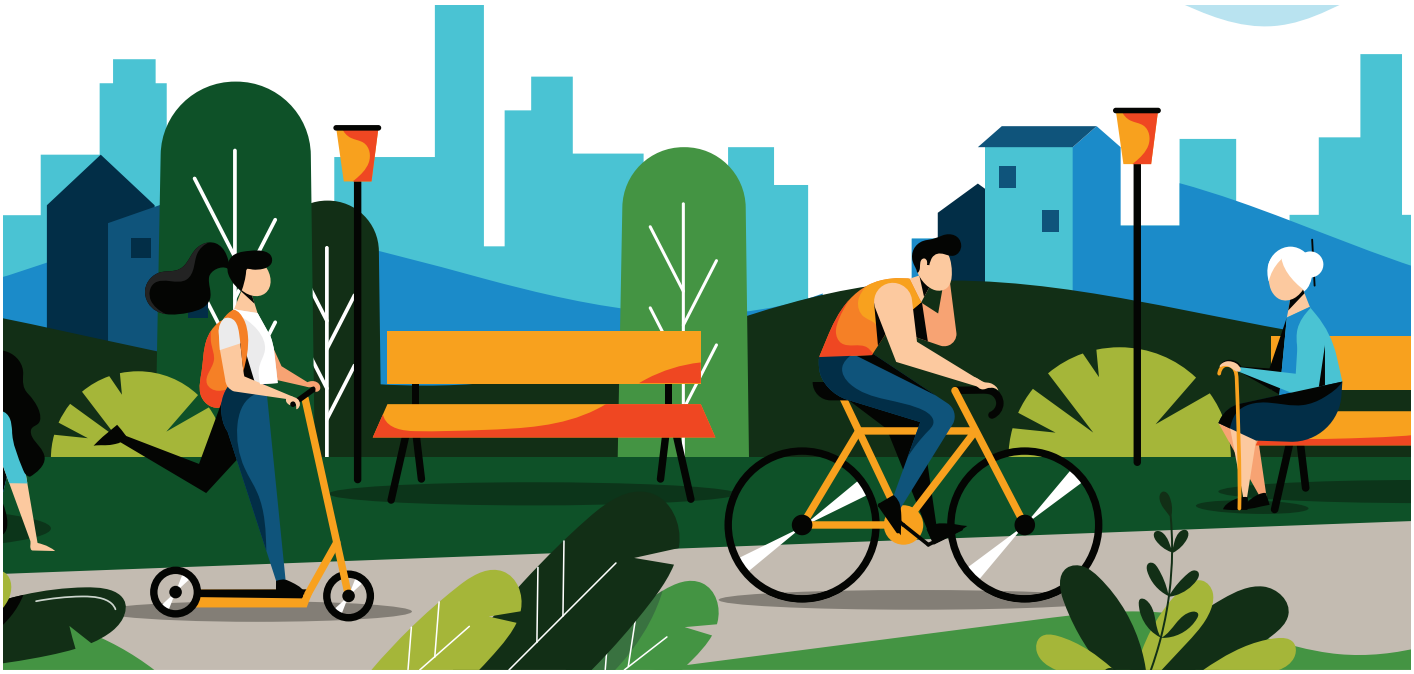


HEALTH BENEFITS OF GREEN SPACES

Manuela Callari, PhD, Science and Medical Writer

Urban living can offer children a better education and more employment opportunities compared to rural areas. In cities, children also have easier access to health care and good sanitation. Better opportunities, however, come with a cost. Higher exposure to noise, air pollution, and crowded environments can undermine people's health.

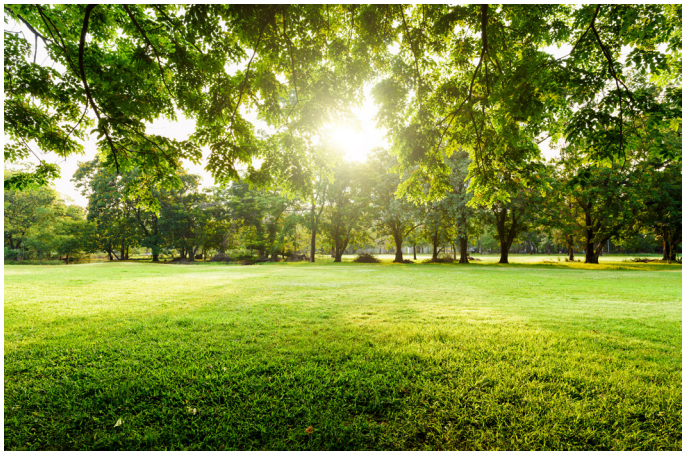
Cities can be like concrete jungles, exposing people to noise, air pollution and crowded environments.

Having green spaces in the urban environment can help alleviate the effects of these risk factors. But as the world's cities become increasingly congested, green space in urban areas is disappearing. In many cities, therefore, children have very little opportunity to interact with nature and wildlife.

It's important to address this, because a large body of research tells us that engagement with nature is an essential part of children's well-being and development.

Effect of urban green spaces on mental health

The amount of green spaces in the city you live in has a profound impact on the way you feel. In fact, there is increasing evidence that exposure to nature is not only important for physical health, it also has an effect on mental health. The presence of gardens or parks in your neighbourhood can improve your mood and lower your chance to experience mental health problems as you grow up. Researchers from a Danish University studied almost one million children and their surroundings. They found that children who grew up in parts of the country with the lowest levels of green spaces had a 55% higher risk of developing psychiatric disorders as adults. On the contrary, children who lived in greener areas were less likely to suffer from mental, eating or personality disorders, and even substance and alcohol abuse.



Parks and gardens are associated with better physical and mental health.

Although the benefits of urban nature on children's health and development have been observed in several studies, understanding the mechanisms involved is complex. People brought up in cities have higher neural activity linked to stress processing, which could lead to a higher risk of psychiatric disorders in adults. On the contrary, urban green space allows for a change of pace, an escape, or what researchers call psychological restoration. This has a positive effect on the brain and could mitigate negative impacts from the socially dense and noisy city environment that heightens stress.

Effect of urban green spaces on cognitive development

Observing different shades and colours of nature, the seasonal changes and the dappled light, hearing bird songs and the sound of the wind blowing through branches and leaves can help develop sensory abilities such as auditory and visual acuity. When you are in nature, you tend to slow down and explore your surroundings. Nature offers the opportunity to engage all your senses and spurs your imagination.

Living in a green neighbourhood improves spatial working memory. That is the ability to retain visual information long enough to process it and make use of it to solve problems. In different studies, researchers have also observed that attentiveness and academic performance of schoolchildren are higher in schools that offer access to greenery.

Children do better academically in schools with more greenery.

Playing in dirt from an area rich in biodiversity is good for gut bacteria and health.

Physical activity and obesity

Children who live in highly urbanised neighbourhoods have a higher risk of becoming overweight, especially those who live in poorer areas of the city. In fact, children who have access to parks and gardens tend to be more physically active. They also enjoy physical exercise more and spend less time watching TV. There is a difference between spending time outdoors, doing outdoor activities, and actually being in nature. You can be outdoors running and playing, but not necessarily surrounded by nature. When you exercise in nature, you not only have a physical benefit, but you can also improve your emotional well-being.

Biodiversity and immune system

The human body is like an ecosystem, and more than half of it is made up of microbes. Microbes are microscopic organisms, including bacteria, which can exist as single-cells or as a colony of cells and have a crucial role in health and particularly in the immune system. Microbes in our bodies come from our mother and from the environment we live in. Urban environments have low microbial biodiversity, which means that people who live in a city are exposed to a narrow variety of microbes. Researchers from the University of Adelaide have found that exposure to naturally diverse soil dust changes the gut microbiome and is associated with lower levels of anxiety in mice. It has even been linked to lower risk of depression.

To explain the link between the presence of green spaces in urban environment and human health and increase of diseases in urban areas, scientists have formulated the so-called “hygiene hypothesis”. According to this hypothesis, unclean conditions can be useful for a child’s immune system. Children who grow up in an extremely clean environment have a higher rate of hay fever, asthma and other conditions. Therefore, playing in the dirt, which means being in contact with soil microbial biodiversity, has positive effects on the immune system and overall health.

Managed vs unmanaged nature

Different types of urban green space provide children with different experiences. While small local parks are linked with emotional maturity, big district parks are related to social development. This may be because big parks that offer many facilities such as picnic areas, parking, cafes or big playground areas draw a more diverse crowd.

Whether the urban green space is managed or unmanaged makes a difference too. Well-equipped playground areas in the cities are undoubtedly great places for outdoor activities, play and social interactions. However, in a human-designed playground, children tend to have an ego-centred behaviour and try to grab parents’ attention showing off their ability to climb a ladder or go down the slide, for example. On the contrary, in unmanaged green space such as creeks, bush-walk kind of areas or lawns with fewer designed features, children tend to be more explorative and adventurous.

What is the recommended dose of nature?

Interaction with urban nature may involve going to the park and climbing trees, but even walking to the shops through tree-lined streets can expose people to nature. When greenery is well integrated in the city, it brings opportunities to hear birds, notice seasonal changes, see different colours and shades and smell the fragrance of flowers as people go about every day life.

The more exposed to nature people are, the more benefits they will get. But researchers have found that even a 20- to 30-minute daily dose of urban nature can benefit mood. Walking or sitting in a place where you feel surrounded by greenery for half an hour a day is a “nature-pill” that can lower your stress hormone levels.

How can green space be integrated in a city?

Not many cities in the world naturally have riparian areas like river banks or forests, and in increasingly crowded cities, it can be difficult to find room for parks and natural reserves. Fortunately, these are not the only ways to incorporate greenery in urban environments, and children benefit as much from sporting fields, greenways and trails, community gardens, vertical gardens or simply street trees. All these contribute to therapeutic experience of nature.

Figure 5: There are countless innovative ways to make cities greener.

Examples of innovative urban green space integration can be found around the world.

- In Danish cities, green space is never far out of reach. The city of Aarhus, for example, is planning to make urban green space accessible to 90% of the population within just 500 metres of their homes. The streets are rich with trees, buildings are dressed with wall and rooftop gardens, and community gardens can be found all over the city.
- In Philadelphia, USA, the Delaware River Waterfront Corporation is planning a park that would cap a stretch of the highway that cuts the city's waterfront neighbourhoods off from the river. The Park will connect the Old City with the Delaware River again, offering citizens about four acres of green space which will dim noise and pollution from the highway.
- In Australia, major cities are amongst the greenest cities of the globe and have plans to get even greener. Melbourne's council has recently approved a plan to build a living "skyfarm" in the city. They are planning to plant thousands more trees and cover buildings with gardens.
- Meanwhile, in Brisbane, a public golf course will be converted into a big central park in the heart of the city. In Sydney, the non-for-profit organisation Food Faith is building the B&B highway, a pathway of pollinating gardens at strategic locations throughout the city to attract birds, bees and butterflies.

Conclusion

Growing up in cities, interaction with nature can be scarce, because as cities become increasingly crowded, concrete replaces green areas. However, we know that engagement with nature is an essential part of children's well-being and development. Whether it is going to the park, walking through a leafy street or being part of a community garden, it all contributes to children's experience of nature.

Being able to access green outdoor areas encourages children to be more physically active and socialise while reducing time spent in front of screens. Nature has a calming and relaxing effect, enhancing their emotional well-being. It can spur children's curiosity and imagination, inviting them to explore and be adventurous.

When children interact with nature, their immune system strengthens by coming in contact with a wider range of microbes. A strong immune system supports general health and decreases risk of developing diseases.

The more opportunities children have to be exposed to nature the more benefits they get. But even a short daily "nature-pill" can have impact on health and development.

Student activities

1. In pairs, describe to each other your daily interactions with nature in your everyday life. Do you have a backyard, plants and flowers at home? Do you see many trees on your commute to school? Can you hear birdsongs from your classroom?
2. Draw a representation of the urban environment you live in. What are the colours that surround you?
3. What kinds of urban nature do you enjoy the most? What kind of activities do you like to do in urban green spaces? How do you feel when you spend time surrounded by nature?
4. What benefit of interacting with urban greeneries do you experience the most? Which benefit would you like to experience more? Discuss in pairs.
5. In groups, print a map of the city you live in and locate all green spaces. Are they homogeneously distributed? Are they managed or unmanaged spaces? Are there suburbs lacking green areas?
6. Then, imagine to be a team of city planners, how can you integrate more greeneries in your city?
7. With your classmates and teacher, walk to the school courtyard and identify all opportunities to interact with nature. What changes do you suggest to improve your nature experience at school?
8. How can interacting with urban nature benefit your school scores?
9. What is the recommended dose of nature? Do you think you are exposed enough to urban nature? How can you increase your daily dose of nature experience?
10. Can nature interaction impact on your mood?

References

Bradford, Alina. 2016. "What Is the Hygiene Hypothesis?" Live Science. 2016. https://www.livescience.com/54078-hygiene-hypothesis.html.

Dadvand, Payam, Mark J. Nieuwenhuijsen, Mikel Esnaola, Joan Forns, Xavier Basagaña, Mar Alvarez-Pedrerol, Ioar Rivas, et al. 2015. "Green Spaces and Cognitive Development in Primary Schoolchildren." *Proceedings of the National Academy of Sciences* 112 (26): 7937–42. https://doi.org/10.1073/pnas.1503402112.

Engemann, Kristine, Carsten Bøcker Pedersen, Lars Arge, Constantinos Tsirogiannis, Preben Bo Mortensen, and Jens-Christian Svenning. 2019. "Residential Green Space in Childhood Is Associated with Lower Risk of Psychiatric Disorders from Adolescence into Adulthood." *Proceedings of the National Academy of Sciences* 116 (11): 5188–93. https://doi.org/10.1073/pnas.1807504116.

Flouri, Eirini, Efstathios Papachristou, and Emily Midouhas. 2019. "The Role of Neighbourhood Greenspace in Children's Spatial Working Memory." *The British Journal of Educational Psychology* 89 (2): 359–73. https://doi.org/10.1111/bjep.12243.

News, Neuroscience. 2019. "20 Minute Contact with Nature Reduces Stress Hormone Cortisol." *Neuroscience News* (blog). April 4, 2019. https://neurosciencenews.com/nature-cortisol-stress-11001/.

Parletta, Natalie. 2019. "Playing in the Right Dirt Could Have a Calming Effect." Cosmos Magazine. 2019. https://cosmosmagazine.com/biology/playing-in-the-right-dirt-could-have-a-calming-effect.

Sanders, Taren, Xiaoqi Feng, Paul P. Fahey, Chris Lonsdale, and Thomas Astell-Burt. 2015. "The Influence of Neighbourhood Green Space on Children's Physical Activity and Screen Time: Findings from the Longitudinal Study of Australian Children." *International Journal of Behavioral Nutrition and Physical Activity* 12 (1): 126. https://doi.org/10.1186/s12966-015-0288-z.

Schalkwijk, Annemarie A. H., Babette C. van der Zwaard, Giel Nijpels, Petra J. M. Elders, and Lucinda Platt. 2018. "The Impact of Greenspace and Condition of the Neighbourhood on Child Overweight." *European Journal of Public Health* 28 (1): 88–94. https://doi.org/10.1093/eurpub/ckx037.

Spence, Andrew. 2019. "Rewilding Cities Will Improve Public Health." Australia Health News. March 27, 2019. http://theleadsouthaustralia.com.au/industries/health-and-medical/rewilding-cities-will-improve-public-health/.

Ward, Jonathan S., J. Scott Duncan, Aaron Jarden, and Tom Stewart. 2016. "The Impact of Children's Exposure to Greenspace on Physical Activity, Cognitive Development, Emotional Wellbeing, and Ability to Appraise Risk." *Health & Place* 40 (July): 44–50. https://doi.org/10.1016/j.healthplace.2016.04.015.

Wu, Chih-Da, Eileen McNeely, J. G. Cedeño-Laurent, Wen-Chi Pan, Gary Adamkiewicz, Francesca Dominici, Shih-Chun Candice Lung, Huey-Jen Su, and John D. Spengler. 2014. "Linking Student Performance in Massachusetts Elementary Schools with the 'Greenness' of School Surroundings Using Remote Sensing." *PLOS ONE* 9 (10): e108548. https://doi.org/10.1371/journal.pone.0108548.

HEALTHY RELATIONSHIPS: A NEUROSCIENCE PERSPECTIVE

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Life is relationships. Life is about reciprocity. We need to have eye contact, see each others' faces and feel accepted and supported, in order to feel connected and engaged. Relationships are integral to every area of our lives, including parents and families, friends, peers and teachers.

Relationships are important for us to feel connected and engaged.

In this current extraordinary climate of COVID-19, it is imperative that we "physically distance" from others to ensure our physical health. But it is also important that we continue to "socially connect" to increase our sense of belonging and reduce feelings of social isolation. Our cognitive, emotional and physical wellbeing depends on "social connection" and good relationships, even if this means, at the moment, connecting via online platforms rather than in person.

Good relationships help us feel connected and engaged, supported and understood, helping to manage challenges as well as celebrating and enjoying achievements. Neuroscience research explains why relationships are so important, offering insights about how to achieve optimum cognitive, emotional and physical health by cultivating healthy relationships.

Even if you can't see your friends or family in person, social media is a great way to connect.

Neuroscience Model of Wellbeing

The Neuroscience Model of Wellbeing, shown in Figure 1, follows the bottom up development of the brain where a sense of safety is most important for survival (survival state), which is achieved by firstly meeting basic needs for sleep, nutrition, exercise and good health.

Once basic needs are meet, we are more able to increase a sense of control, connection with others and motivation (emotional state) to achieve goals with confidence (executive state).

The brain is a very social organ, so we need to feel socially connected to others to achieve cognitive, emotional and physical health. When we are disconnected and isolated, all areas of health can become compromised because we internalise our worries, concerns and fears, which then activates the survival systems and emotional systems of the brain. This leads to the executive systems "going offline" and the brain systems becoming disintegrated.

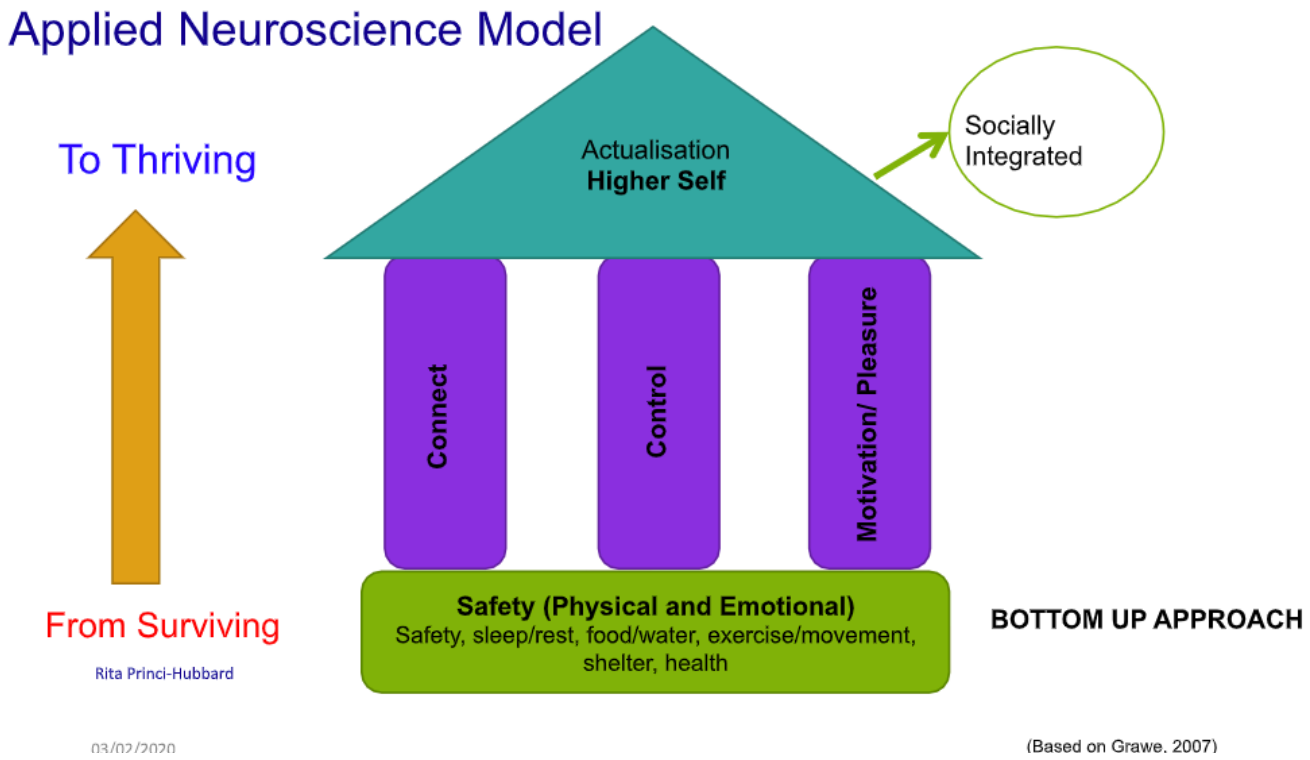

Figure 1: The Neuroscience Model of Wellbeing

As a result, negative thinking may increase and thinking errors are more likely to occur, for example, over-generalising (the belief that if one bad thing happens then many bad things will happen), catastrophising (the belief that a bad thing has significantly worse consequences than realistically expected), personalising (the belief that we are the cause of a bad thing even if there is no connection to us) and using black and white thinking (the belief that things are either good or bad with no shades of grey in between). A vicious cycle may then develop where self-criticism, self-doubt and over-analysing increase, and self-efficacy and self-esteem decrease as thinking errors continue to lower self-confidence.

As per the neuroscience model above, research emphasises that connecting to helpful others enables us to reach our true potential. In particular, the executive system needs to be activated and take control of the emotional and primitive systems for higher Emotional Intelligence (EQ) to develop so we can effectively connect and achieve good relationships. EQ is comprised of five qualities: self-awareness, self-regulation, empathy and compassion, social skills and motivation to pursue a passion or desired goal.

Emotional Intelligence or EQ

- Self-Awareness
- Self-Regulation
- Empathy and Compassion
- Social Skills
- Motivation and Passion for a desired goal

Stress can affect the development of EQ and lead to low resilience because the brain's survival systems override its executive systems. Stress can also interfere with the ways we interact with each other and negatively affect relationships. People can jump to conclusions or mis-interpret other's intentions, become easily frustrated with others' behaviour, or believe that parents, teachers or friends are less accepting and caring, which can lead to arguments or non-communication.

Neuroscience researchers discovered that our brains are designed to mirror other peoples' emotions and behavior to evaluate our level of safety. For instance, children and students mirror their parents' and teachers' behaviour and emotions and vice versa; friends also mirror each others' behaviour and emotions. During stressful times, we need to be aware of what we are mirroring to others and what is being mirrored to us. We can also mirror safety, calmness and happiness.

Neuroscience research shows that our brains are designed to mirror other people's emotions.

Relationships with Parents

What a teenager believes a parent or caregiver, educator or friend thinks about him or her will greatly impact his or her personal motivation, efficiency and general wellbeing. When people are connected and engaged, the brain releases dopamine and oxytocin, which increases motivation to continue performing an activity or complete study requirements. Wellbeing increases because people feel accepted and experience a sense of achievement and an increased sense of belonging.

Epigenetics is an *emerging* area of research that explains how the environment affects a child's genetic expression. During early development, DNA acquires chemical markers that determine to what extent the gene is expressed depending on the exposure a child has to different experiences. Both positive and negative relationships and experiences will leave a unique mark on genes. The early years' experience therefore will determine how these genes are expressed in the future for relationships, health, skills and resilience.

> Healthy environments facilitate pathways for neural health

In particular, research shows that children can learn from helpful others because the strength of the attachment between parent or caregiver and child generates trust and feelings of security. A relationship based on a secure attachment, best described as when a child feels accepted, protected and acknowledged for their efforts, will create an environment where children and teenagers understand that it is safe enough to learn. However, when insecure attachment occurs because a child or teenager feels unsupported by their parents or caregivers, they may be more likely to experience anxiety and self-doubt, and be at risk of experiencing depression, low self-esteem, relationship difficulties and higher vulnerability to grief and addiction.

Secure attachment between parent and child creates a safe learning environment

From the brain's perspective, research shows that when young people have a secure attachment to their parents or caregivers they have neural survival and growth, higher levels of neural growth hormones, more synapses and longer dendrites - pathways for chemical signaling in the brain - as well as being better equipped to manage grief. This means that the three key areas of the brain are integrated, leading to resilience and self-confidence.

While, at times, teenagers may avoid contact with their parents because they want time alone, want to communicate with friends via social media or complete their homework, it is also important that they spend time with their parents and siblings. Sometimes teenagers find the interactions annoying or frustrating, especially if parents ask too many questions or make too many perceived "demands", for example, "Clean your room", "Have you finished your homework?" and "Why haven't you emptied the dishwasher".

Therefore, it's important for teenagers to communicate with their parents about what is happening for them, especially about their needs. Of course, it is then very important for parents to listen. However, teenagers should also be aware that parents can feel stress and acknowledge that they are probably trying their best.

In that regard, as many families spend more time together as a result of COVID-19 restrictions, it is important that opportunities to share feelings are created by ensuring daily structure, routine and consistency to increase a sense of control. It is also imperative to have fun, smile and laugh, and talk about good things, even if it is about the family dog. While living through this challenging time, many of us will experience increased stress and anxiety; however, socially connecting will help boost resilience and ability to cope because when we become serious and frown we can also become more

anxious and depressed.

Teenagers often want to be alone, but still need open communication with parents.

Having fun with others, in person (as allowed) and online (safely), help increase levels of the brain chemicals serotonin (contributor to feelings of well-being and happiness), dopamine (plays a role in how we feel pleasure, helps us to think and plan and to strive, focus, and find things interesting) and oxytocin (released when we feel recognition, trust, anxiety and have a strong bond with others) and decrease cortisol (stress hormone), which will help to manage anxiety.

Exercising together is also highly recommended as the brain produces brain derived neurotrophic factor (BDNF), which increases neuroplasticity and neurogenesis, helping the brain adapt and learn, decreases stress and facilitates healthy wellbeing, especially when good sleep routine and healthy nutrition are also included. Taken together, these important ingredients will also help individuals to connect and engage with others.

Exercising together has multiple benefits for health and relationships.

Interestingly, research has shown that people or families who experienced stress and anxiety before the COVID-19 restrictions are sometimes more equipped to manage new challenges. Recently, the CEO of Beyond Blue, Ms Georgie Harman, explained that people who have experienced depression and anxiety could also be seen as “our teachers” during this critical time because they have learned ways to manage their symptoms and continue on with life.

Relationships with Teachers

All is not lost with insecure parent-child relationships. Research shows that if the relationship between parents (or caregivers) and children or teenagers is not secure, developing good relationships with teachers can change young people’s brains to become more like the brains of students who have secure attachments with parents (or caregivers). This phenomenon is why the relationship between teachers and students is very important.

It can be tricky though. The amygdala, located in the emotional system of the brain, never forgets and will store just one negative experience forever. Therefore, if a child never had a good connection with a parent family member or other trustworthy adult, they will not have receptors in the brain to engage with others, including teachers. This early learning experience is why some students do not respond to a teacher’s attempts to connect and why they may be suspicious of kind behavior.

Some children who have experienced trauma will either avoid or punish kind teachers, which may lead to the activation of the brain’s survival systems for both the student and teacher. As a result of this unconscious transfer from home to school, research has focused on the importance of building healthy consistent relationships with teachers, which is beneficial for the student and the teacher.

Teachers can make a big difference to students’ self-esteem.

Teaching styles

In the educational domain, there is growing interest in understanding the science to assist with informing teaching styles. Traditional “fear based” approaches focus on performance and achieving particular grades

or putting students on the spot. The heightened anxiety a student feels when they fail, suffer ridicule (real or perceived), or find themselves in a fearful situation causes a cascade of stress hormones to flow through the emotional system, which can impact on their learning and connection with teachers.

However, if teachers are aware of how stress and anxiety impact a student's emotions, intellectual ability and behavior, they can help the student calm the survival systems of their brain.

Researchers have described healthy relationships between teacher and students as a "dynamic phenomenon", where social interactions occur openly and subtly at many levels to increase wellbeing and performance for students. As a result, students increase their sense of belonging, which means they will feel more connected to the whole school environment, including teachers, friends and peers, and with their learning.

Learning that occurs in supportive and thriving environments provides the platform for children to reach their full potential, emotionally, socially, physically and academically. Therefore, it's important that four basic psychological needs are met: the need for a sense of belonging and attachment, control, pleasure – as opposed to hostile or fearful situations – and healthy self-esteem.

"Expert teachers" can optimise children's learning by creating a safe environment within which mistakes are accepted, questions are encouraged, and engagement and connection between teachers and students occurs. This helps students accept feedback and increase their self-confidence and self-efficacy as learners.

Relationships with Peers

Healthy friendships offer young people companionship, support, and a sense of belonging. Friends can encourage or strengthen healthy behaviors, for example, following healthy routines for sleep, nutrition, exercise and rest, and create a foundation for successful adult relationships, including romantic relationships.

Secure relationships at home and/or at school help children and teenagers to develop good social skills with a broad range of people. Positive relationships with parents, teachers and peers help teenagers learn to cooperate with others, communicate effectively, resolve conflicts, and resist negative peer pressure.

When young people have experienced insecure attachment, they will be more likely to form unhealthy relationships with incompatible people and even accept and tolerate bad behavior from friends and partners. Research has shown that low peer support for teenagers can result in more risk-taking behaviours.

These young people may also find break-ups very difficult to manage and continue to grieve long after the relationship has ended. Unhealthy relationships or being alone and isolated have also been shown to increase anxiety and depression, and affect immune systems as a result of continued HPA axis activation. This activation means that the brain interprets incoming information as unsafe. The hypothalamus, pituitary glands and adrenal glands prepare for fight (anger), flight (avoid), freeze (feel paralyzed) or fawn (submit to others). Constant stress and activation of the survival systems have been shown to decrease memory, concentration, planning and organisational skills, and lower the immune system's resistance to disease.

Validation

Validation is a critical element of wellbeing in relationships because when we feel acknowledged and recognised, listened to and heard, we are more able to express our feelings. Once we feel validated, we are usually more open to hear and accept others' problem solving strategies and advice. Validators also act as sounding boards – being given the opportunity to express feelings, by having them validated, helps people come up with their own solutions.

Effective communication can be taught by healthy relationships, whether with parents, caregivers or teachers, and equip teenagers with ways to practice being caring, honest, and trustworthy. This further enables the development of emotional intelligence by creating confidence in talking about personal problems, which is a way teenagers can develop closeness in friendships; using humour in appropriate ways, smiling and being able to listen and support others.

Listening to someone and validating their feelings is very powerful.

Social Media

While social media can be used for relaxation, stress relief and for connecting with others, it can also be used

to avoid study or other unpleasant tasks. However, social media can also increase stress when a student is constantly interrupted by notifications popping up intermittently. For example, the notifications may be about friends' posts in which the student is included, or friends' posts in which the student is excluded, or about local and worldwide events, such as COVID-19. Conversely, as we all try to manage the effects of COVID-19, social media can also be a physically and emotionally healthy way to connect when used sensibly.

Summary

Healthy relationships are essential to achieve mental and physical health. The neuroscience perspective emphasises the importance of good relationships with parents, teachers and friends for cognitive, emotional and physical wellbeing. This model highlights the importance of meeting basic needs for sleep, nutrition, exercise and good health. Once basic needs are meet, we are more able to increase a sense of control, connect with others and increase motivation in order to achieve goals with confidence. Consequently, healthy relationships are able to develop and strengthen, which then creates opportunities for young people to develop their self-identity by pursuing their goals, following their passions and increasing motivation to engage and connect with their academic responsibilities and be involved in extracurricular activities.

Healthy relationships are also especially important during challenging times because they offer a sense of belonging and assistance to manage and relieve depression, anxiety, and stress symptoms. In particular, close relationships with parents or caregivers, teachers and friends are linked to increased resilience, providing young people with confidence, empowering them to manage and recover from life challenges, and achieve good mental and physical health – which is extremely important at all times.

Student activities

1. What is the difference between physically distancing and socially distancing?
2. Why are good relationships important for our wellbeing?
3. Explain the Neuroscience Model of Wellbeing.
4. Who teaches us about safety? What is the difference between secure and insecure attachment?
5. Is all lost if children don't have a secure attachment with their parents? Why/why not?
6. Explain the benefits of healthy relationships with parents, teachers and peers.
7. What are the key elements of emotional intelligence?
8. What are some ways you can validate your own and other people's feelings?

Exercises

- Practice social connecting while physically distancing. Know the people who will listen to you. Follow a consistent, structured routine, even when socially isolating. Focus on sleep, healthy nutrition, exercise; smile, laugh, relax – have fun with family and friends. Learn to stay calm when you're anxious and reach out to others. When we connect with helpful others our sense of safety increases. Incorporate relaxing activities into your daily life. Be creative!

- Practice validating people's feelings and communicating your own effectively.

- Contact Beyond Blue, Kids Helpline or Lifeline, or seek counselling if everything becomes too overwhelming.

References

Allen, K. (2019). Making Sense of Belonging. InPsych. August, 2019. The Bulletin of the Australian Psychological Society Limited.

Battro, A.M., Calero, C.I., Goldin, A.P., Holper, L., Pezzatti, L., Shalom, D.E. and Sigman, M. The Cognitive Neuroscience of the Teacher–Student Interaction. 2013 International Mind, Brain, and Education Society and Blackwell Publishing, Inc., Volume 7—Number 3.

Beyond Blue https://www.beyondblue.org.au/media/media-releases/media-releases/beyond-blue-welcomes-funding-for-new-covid-19-support-service

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Cozolino, L. (2014a). Attachment-Based Teaching : Creating a Tribal Classroom WW Norton & Co, New York, USA.

Cozolino, L. (2014b). The Neuroscience of Human Relationships: Attachment and the Developing Social Brain (Second Edition). Norton Series on Interpersonal Neurobiology. W.W. Norton & Co, New York, USA.

Ferry, K. (2019). When life throws curve balls! An educators guide to assist children who have experienced situation of loss. The Inaugural Australasian Conference for Neuroscience, Learning and Well-being, Melbourne, 24 & 25 March, 2019.

Goleman, D. (1996). Emotional Intelligence: Why It Can Matter More Than IQ. Bloomsbury, London.

Graber, R., Turner, R., & Madill, A. (2016). Best friends and better coping: Facilitating psychological resilience through boys' and girls' closest friendships. *British Journal of Psychology, 107*(2), 338–358.

Grawe, K. (2007). Neuropsychotherapy. How the Neurosciences Inform Effective Psychotherapy. Taylor & Francis Group, LLC, New York.

Hattie, J. (2003). Teachers Make a Difference, What is the research evidence? Conference Archive. Australian Council for Educational Research (ACER) ACEReSearch

Hikaru Takeuchi, Yasuyuki Taki, Hiroshi Hashizume, Kohei Asano, Michiko Asano, Yuko Sassa, Susumu Yokota, Yuka Kotozaki, Rui Nouchi, and Ryuta Kawashima. The Impact of Parent–Child Interaction on Brain Structures: Cross-sectional and Longitudinal Analyses. The Journal of Neuroscience, February 4, 2015, 35(5):2233–2245

Juvonen, J., Espinoza, G., & Knifsend, C. (2012). The role of peer relationships in student academic and extracurricular engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 387-401). Boston, MA:Springer.

Long, E., Barrett, T. S., & Lockhart, G. (2017). Network-behavior dynamics of adolescent friendships, alcohol use, and physical activity. *Health Psychology*, *36*(6), 577–586.

Milroy, H. (2018). 3rd Biennial Childhood Trauma Conference, Melbourne, July 29 – August 3, 2018.

Rose, A. J., Glick, G. C., & Schwartz-mette, R. A. (2016). Girls' and boys' problem talk: Implications for emotional closeness in friendships. *Developmental Psychology*, *52*(4), 629-639.

Roth, T.L., Sweatt, J.D. (2011). Annual Research Review: Epigenetic mechanisms and environmental shaping of the brain during sensitive periods of development; Journal of Child Psychiatry and Psychology, 15 March 2011, https://developingchild.harvard.edu/resources/what-is-epigenetics-and-how-does-it-relate-to-child-development/

Telzer, E.H., Fuligni, A.J., Lieberman, M.D., Miernicki, M.E., and Galvan, A. The quality of adolescents' peer relationships modulates neural sensitivity to risk taking. Social Cognitive and Affective Neuroscience, 2015;10(3):389-398. Social Cognitive and Affective Neuroscience can be contacted at: Oxford Univ Press, Great Clarendon St, Oxford OX2 6DP, England. (Oxford University Press - www.oup.com/; Social Cognitive and Affective Neuroscience - scan.oxfordjournals.org)

Tokuhama-Espinosa (2011). Why Mind, Brain, and Education Scienceis the "New" Brain-Based Education. *New Horizons for Learning* is published by the Johns Hopkins School of Education and The Sheridan Libraries.

Van der Kolk, Bessel A. The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma. New York: Viking, 2014.

Willis, J. (2007). The Neuroscience of Joyful Education Brain research tells us that when the fun stops, learning often stops too. Educational Leadership. 2007 Summer | Volume 64

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