Many children and young people experience gut problems (such as pain, urgency, constipation and reflux) that have no known medical cause. These are sometimes known as ‘functional abdominal symptoms’ and can be caused by stress, worry and emotions.

We’ve written this factsheet to explain the link between the brain and the gut, sometimes known as the brain-gut link. We have also included some tips for reducing stress.

**What is the brain-gut link?**

There are many paths of communication between the gut and the brain. These include the brain, spinal cord, nervous system and stress hormones. Signals travel backwards and forwards from the brain to the gut. Gut symptoms are often caused by a ‘biopsychosocial’ response. This means that physical (‘bio’), emotional (‘psycho’) and social factors are all involved in the symptoms we experience. Gut symptoms often begin with a ‘trigger’ such as a virus or infection. Symptoms may then continue due to stress or worry. We hope this leaflet will help to explain how stress can affect our gut.

**Some common gut symptoms**

Here are some typical gut symptoms:

- Abdominal pain
- Constipation
- Irritable bowel
- Nausea or sickness
- Reflux or dyspepsia

**Why do gut symptoms happen as a result of stress?**

If the body's stress levels are high or if stress lasts for a long time, this can have a physical impact on the body. We may experience physical symptoms as a result of stress. Here’s how it works:

**Stress hormones**

The body responds to stress and illness by activating response systems in the brain. This releases a stress hormone called cortisol. Cortisol affects the movement of food through the gut, the sensitivity of the gut and the immune system.

**Nerve signals**

Nerve signals (neurons) travel between the brain and the intestinal wall via the spinal cord. This means that the brain (thoughts and emotions) has a direct impact on the gut.
Examples of the brain-gut link
You may have noticed the link between the brain and the gut if you have experienced:
- the feeling of ‘butterflies in your tummy’ when you are worried (this happens when the stomach muscles tighten as part of the body’s ‘fight or flight’ alarm system)
- a change in bowel habits when you are stressed (this is very common)
- feeling sick when you are worried about an exam or test

Tips for managing stress
Try these strategies to help manage your stress:

Breathe slowly (‘square’ breathing)
- Find a square in the room to focus on or imagine a square
- Use the square to guide your breathing, as shown in the diagram
- Repeat as many times as necessary, breathing as deeply as is comfortable.

Relax your muscles
- Sit comfortably, close your eyes and breathe calmly
- With each breath, tense and relax the muscles in the different parts of your body in turn.
- Work your way through your body, from your face, neck, shoulders, arms, hands, fingers, back, chest, stomach, thighs, calves, feet and toes.

Distract yourself
Distraction is a great way to take your attention away from stress or worries and stop your brain from focusing on negative thoughts.

For example, you could try:
- making a list of your five favourite films, songs or TV programmes
- remembering the words to your favourite song
- imagining the line up of a football team
- visualising your ideal house, thinking about every little detail

Positive ‘self-talk’
Sometimes it helps to remind yourself of your strengths and what helps you to cope with difficult feelings. You could write these on a piece of paper and keep it in your pocket, to look at when you notice you are feeling stressed. These are really personal things, so it might help to talk to a friend, a member of your family or a teacher to try and work out what your positive self talk could be.

Other people have used statements like:
- ‘I can cope, I’ve got through this before’
- ‘I won’t always feel like this, the feelings will pass...’
- ‘I can talk to mum about this later. Right now I can take a deep breath’

Exercise and sleep
Make sure you are getting enough sleep, eating well and exercising as these can all help to reduce stress.

It can be helpful to do the same ‘wind down’ routine an hour before you go to bed each evening. This may include brushing your teeth, reading or doing some colouring. A routine can help the body and mind know that it is time to get ready for sleep.

Doing some exercise in the day can also help reduce stress. Exercise doesn’t have to be hard work. Perhaps go for a short walk or join an exercise class with a friend.
Talk to someone

It's helpful to talk to a trusted friend or family member about how you are feeling. They may be able to offer support and advice, or just simply listen.

If your stress or gut symptoms persist, contact your GP or talk to someone from the gastro team. They can help you find the right support for you.

Useful resources

Websites

www.youngminds.org.uk
www.getselfhelp.co.uk
www.livinglifetothefull.com
www.moodgym.anu.edu.au
http://youth.anxietybc.com

Apps

You can find these by searching on Google Play or the Apple app store:

- BASE, provided by Solent NHS Foundation Trust
- Smiling Mind
- Headspace (good for teenagers)
- Mindshift
- SAM (self help for anxiety management)

If you need a translation of this document, an interpreter or a version in large print, Braille or on audiotape, please telephone 023 8120 4688 for help.

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