

# Stress

Prepared by Tracey Larsen



## Today we will cover

- What is stress?
- What happens in the body when it is stressed?
  - o The role of the Autonomic Nervous system
  - o Stress and ME/CFS/FM
  - o The Process of The Stress Response
- Symptoms of stress
- The Freeze response
- Some strategies to manage stress

## What is stress:

- The Definition of Stress

Oxford Dictionary states:

- Pressure or worry caused by the problems in somebody's life

Wikipedia states that stress is

- either physiological, biological, or psychological, is an organism's response to a stressor such as an environmental condition. Stress is the body's method of reacting to a condition such as a threat, challenge or physical and psychological barrier.

Another definition is offered by Walt Schafer:

- Stress is arousal of mind and body in response to demands made upon them (Walt Schafer 2000).

Schafer also comments that stress is a “universal feature of life and arousal is an inevitable part of living. We constantly think, feel and act with some degree of arousal. Stress cannot and should not be avoided. Rather, it is to be contained, managed, and directed”.

Stressors are ever present and adapting to change a continuous process. Most of the time people respond to the demands with ease and familiarity. Stressors are a fact of life often with no ill effect. But adjustment to changes can take a toll and cause wear and tear on the mind and body. Physical upset or emotional turmoil often results. When this happens, stress become distress.

- Three Types of Stress

Excessive chronic arousal (stress) can seriously threaten health, productivity, satisfaction, and relationships. Moderate occasional elevations of anxiety can help prepare one for events and can stir motivation towards achieving goals.

In other words, stress can be positive or negative.

**1. Positive Stress: \*\*\***

- Helps when responding to emergencies or preparing for deadlines
- Useful to when performing well under pressure
- Can add zest and variety to daily life
- Can help when pushing beyond comfort limits and can help with achieving personal growth

**2. Distress**

- Occurs when arousal is too high or too low

**3. Neustress** – this is a term given to when one responds to internal and external demands and mind and body arousal occurs but there is little impact from these demands in one way or another – meaning the stress is neutral – neither particularly helpful nor harmful.

“The challenge is to identify your own zone of positive stress and to maintain a perspective and lifestyle that will enable you to stay within that zone most of the time” (Schafer 2000)

**What happens in the body when it is stressed?**

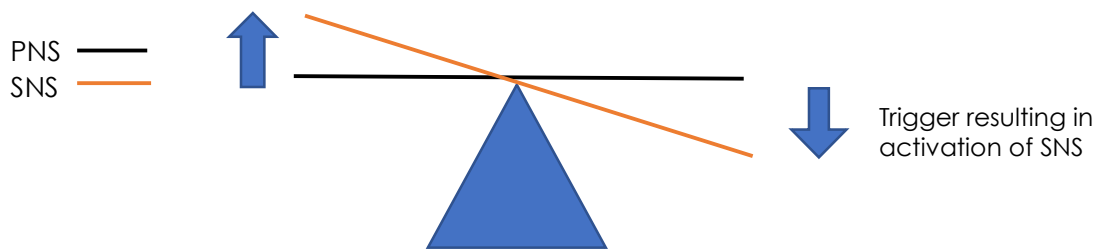
- The role of the Autonomic Nervous system (ANS)

The ANS is made up of the Sympathetic Nervous System (SNS) and the Parasympathetic Nervous System (PNS). The ANS is responsible for regulating and maintaining a constant internal temperature, regulating breathing patterns, and heart rate and keeping blood pressure steady. It is also involved in pupil dilation, sexual arousal, and excretion.

It functions automatically; meaning that we do not have to think about it, it just does what it needs to do...Isn't nature magical!!

When the SNS is aroused by stress, the fight or flight stress response occurs and can be likened to the accelerator of a car.

The PNS calms the body back to a balance state after the stressor or trigger has gone or as we get used to the new situation/adjust to change - often known as the rest and digest and repair system and acts much like the brake of a car.

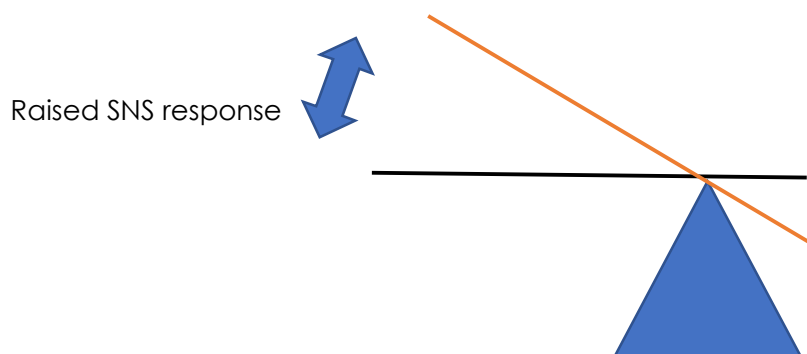


- Stress and ME/CFS/FM

With ME/CFS/FM research indicates that there is a dysfunction within the Autonomic Nervous System (ANS).

*“the activity of the ‘fight or flight’ (sympathetic nervous system) response is increased and/or that the activity of the ‘rest and digest’ (parasympathetic nervous system) response is decreased in ME/CFS and FM”. It further suggested, “That an overactive stress response system... has triggered the neuroinflammation in fibromyalgia (FM), chronic fatigue syndrome (ME/CFS) and similar disorders”.*  
<https://www.healthrising.org/blog/2020/06/05/fight-flight-neuroinflammation-fibromyalgia-chronic-fatigue-syndrome/>

A malfunctioning ANS meaning that the pivot point for the SNS and PNS is much more sensitive, meaning that a much smaller trigger results in a much higher and prolonged SNS response.



Let's back track a moment to Positive Stress\*\*\* mentioned above. Positive stress is all very well for the healthy living in this world, however for those living with ME/CFS/FM, the malfunctioning ANS could mean that simply standing up could trigger a stress response. Typically, over exertion of activity is usually what causes a stress response that leads to post exertion malaise, flare in pain or relapse, but so too can an emotional response of loss, grief and sadness, and even one of excitability cause a stress response that may exacerbate symptoms.

Typically, anxiety and depression are experienced by those with ME/CFS & FM, which also continually exacerbate the SNS and stops the PSN from activating to allow for relaxation rest and repair.

Mental and emotional triggers also = stress response

So too, a physical injury, or pushing beyond energy limits can cause a stress response in those with ME/CFS/FM

- **Process of the Stress Response**

The following example demonstrates how a stressor can trigger a wide-ranging response involving all of our body systems all without us even being consciously aware!

- **The Nervous system** which is the brain and spinal cord – registers a stressful situation, for example, perhaps you get a fright, maybe there was a loud unexpected bang outside that made you leap out of your seat. Information is sent from the external sensory nerves to the brain, which is your body's command centre.
- The brain activates the sympathetic nervous system to prepare for the 'fight or flight' response
- The nerves then send the message from the nervous system to the **endocrine system**. The endocrine system consists of glands which produce hormones and chemicals in response to this message that "there is an emergency". These hormones are adrenaline and cortisol and are instantaneously released into the blood stream.
  - Adrenaline's message is 'There is danger!', gives us a burst of energy so we can fight or run away,
  - Cortisol's message is 'There's a famine!', so the body responds by storing fat and breaking down muscle tissue for extra energy.
- These hormones are then carried through the **cardiovascular system** which comprises of the heart and blood vessels. The response here is of an increase in heartbeat, pulse rate and blood pressure.
- Blood is then pushed to the outer extremities and to the **muscular system** for fight or flight. The **integumentary system**, which comprises of the skin, is also affected by a slight rise in temperature and producing sweat.
- A message is also sent to the **respiratory system** which is the lungs. The message asks the body to take shallow breaths because this sends

more oxygen to the brain for a short time to increase alertness. Sight, hearing, and other senses become sharper.

- Adrenaline sends a message to the **pancreas** to release glucagon, which acts to raise blood sugar levels, giving us more energy and increased alertness.
- The **skeletal system** also receives the message to release nutrients and fat in order to supply energy to vital parts of the body.
- So while all this is going on, what do you think happens to the **immune system, digestive system, urinary, and reproductive systems?** They are not seen as important in times of crisis so are given the message to take a break and are temporarily suppressed.

Isn't it incredible how a stress response has such wide-ranging effects on every system of the body.

## Symptoms of Stress

So let's have a look at what happens when one is in a long term, chronically stressed state

- Long term shallow breathing results in lower amounts of immune cells. The body is then susceptible to contracting acute illnesses, and prolonging healing times. Shallow breathing can turn into panic attacks, cause dry mouth and fatigue, aggravate respiratory problems, and is a precursor for cardiovascular issues. When we breathe with our chests, we use the muscles in our shoulders, necks, and chests to expand our lungs, which can result in neck and shoulder pain and headaches.
- Persistent surges of adrenaline can create imbalances in blood sugar levels, which can lead to Hypoglycaemia, damaged blood vessels, increased blood pressure, and an increased risk of heart attacks or stroke. It can also result in anxiety, weight gain, headaches, and insomnia.
- Sight, hearing, and other senses become hypersensitive
- The immune system, digestive system, urinary, and reproductive systems can be significantly impaired and possibly can shut down completely.

**(Do you have digestive issues? Could stress be the cause?)**

## Other Physical symptoms include:

- Aches and pains.
- Chest pain or a feeling like your heart is racing.
- Exhaustion or trouble sleeping.
- Headaches, dizziness or shaking.
- Brain fog & poor concentration.
- Accelerated speech
- High blood pressure.
- Muscle tension – tight shoulders and/or jaw clenching.
- Stomach or digestive problems.
- Trouble having sex.
- Weakened immune system.

## Emotional and mental symptoms

- Anxiety or irritability.
- Depression.
- Panic attacks.
- Sadness.

Chronic stress can lead to maladaptive behaviours that can further induce a stress response, such as:

- Drinking alcohol too much or too often.
- Gambling.
- Overeating or developing an eating disorder.
- Participating compulsively in sex, shopping or internet browsing.
- Smoking.
- Using drugs.

## Stress-related disorders

- |                       |                         |
|-----------------------|-------------------------|
| - Migraines           | - Psoriasis             |
| - Colitis             | - Dizziness             |
| - High Blood Pressure | - Gastritis             |
| - Ulcers              | - Panic Attacks         |
| - Arthritis           | - Noncardiac chest pain |

## The Freeze Response

In a freeze state, the PNS and SNS engage at the same time. This is like pressing the accelerator and brake in the car simultaneously.

Freeze is immobility coupled with fear, which happens when the level of activation reaches a certain physiological threshold. The freeze state is when there is already significant SNS charge and then the PNS also activates and acts like a circuit

breaker that shuts down the physiology when it is overloaded. This can all happen in a split second and often there are no symptoms of SNS arousal first.

Characteristics of the nervous system in freeze response can be seen when:

- One shut's down,
- Feels sudden tiredness,
- Blankness,
- Can't think straight,
- Has numbness in the body,
- Feeling of paralysis or stuck-ness in the limbs and/or expression on the face.
- Confusion,
- Apathy,
- Indecisiveness,
- Procrastination,
- Hyperarousal
- and in some cases – disassociation, may result.

**Sound familiar?**

### Some Strategies to Manage Stress

But first, the following from The Healthy Work Place: Stress First Aid Kit, is worth mentioning.

*“One of the difficulties is that as humans, our heads take over and we create further stress by telling ourselves enticing stories of how awful something was or could be... we worry about things that haven't happened. Our heads, far from being the central control unit, are more like the central processing unit, which takes in signals from the around the body. So, the key to effective stress management is working with the body, not just the mindset. It is virtually impossible to use the head to talk yourself out of a stress response”*

How true is this last sentence?!! How often do we forget to put into practice good techniques when stressed? I can put my hand up too!! What I do notice though, is tension in my body. The above quote suggests that by relaxing the body, your mind and central nervous system will follow. Thinking will become clearer too.

- Limit or avoid alcohol and caffeine – not only dehydrating but can also activate SNS and producing a stress response.
- BREATHE! – Breathing is the only way we can consciously affect our ANS. Diaphragmatic breathing is excellence in helping circulate

blood and bring more oxygen into the blood. An excellent way to help calm an accelerated heart rate and also manage anxiety

- CONSCIOUSLY RELAX – If you can manage this pose, try it for 10 minutes several times a day to bring calm to the ANS. This also helps to realign the hips, spine and shoulders (make sure bottom is tucked well into the corner of the wall and floor).
- Maintain healthy dietary habit, sleep habits,
- Practice gratitude and maintain a positive outlook
- Adopting the right attitude can convert a negative stress into a positive one.
- Accept that you can't control everything. Find ways to let go of worry about situations you cannot change.
- Learn to say "no" to additional responsibilities when you are too busy or stressed
- Stay connected with people who keep you calm, make you happy, provide emotional support and help you with practical things. A friend, family member or neighbour can become a good listener or share responsibilities so that stress doesn't become overwhelming.
- Notice your dashboard lights and respond! Dashboard lights are the very first sign of a flare in symptoms – notice the first symptom, or the first niggles that indicates a flare and respond immediately by instilling relaxation and resting techniques
- INCORPORATE DAILY RELAXATION PRACTICES INTO YOUR CARE PLAN. A relaxed mind and body can cope much better when a stressful moment arises.



## References:

Cleveland Clinic. (2021). Stress. Retrieved from

<https://my.clevelandclinic.org/health/articles/11874-stress>

Harvard Health. (2020). *Understanding the stress response*.

<https://www.health.harvard.edu/staying-healthy/understanding-the-stress-response>

Jewell, T. (2018). *Diaphragmatic breathing benefits*. Retrieved from

<https://www.healthline.com/health/diaphragmatic-breathing#steps-to-do>

Schafer, W. (2000). *Stress Management for Wellness* (4<sup>th</sup> ed.). Thomson, Wadsworth.

The Healthy Workplace, (n.d). *Stress First Aid Kit*. Retrieved from

[https://www.grow.co.nz/site\\_files/17682/upload\\_files/THWStressfirstaidkit.pdf?dl=1](https://www.grow.co.nz/site_files/17682/upload_files/THWStressfirstaidkit.pdf?dl=1)

Weaver, L. (2013). *Beauty from the inside out*. Little Green Frog Publishing.

Vallings, R. (2020). *Chronic Fatigue Syndrome M.E: Symptoms diagnosis management* (2<sup>nd</sup> ed.). Calico Publishing.