

HOW TO:

BEAT BRAIN

FOG FOR GOOD:

CAUSES &

CURES

BY LANCE WANTENAAR

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PROLOGUE

Brain fog is not a medical condition per say. It is a descriptive term due to poor lifestyle choices which affect cognitive performance with the result being described as brain fog. The end result being that you feel lethargic, perform poorly with a lack of drive, direction or energy to complete tasks. Brain fog can impact your day to day life and can cause complications due to poor cognitive ability.

Learn to identify brain fog symptoms. You can begin to change your life by making simple changes. Consult your doctor or a medical professional in case you have a medical condition or there are other reasons which can have a negative effect.

WHAT IS BRAIN FOG

Brain fog is not a medical condition but a descriptive term used to describe the inability to think and perform with a clear head. Most often you will hear people say “I feel really foggy” or “I can’t think clearly” or use terms of fog or needing to “clear their head”

Most of the time brain fog can be described as mild cognitive impairment with a general feeling of being unmotivated with a lack of energy.

The challenge is that most people struggle with brain fog on a day to day basis and they don’t know why they are struggling.

There are a number of factors which can cause brain fog and this report is to provide a list of reasons that can be used to direct you into making changes to improve your gut health and in effect also your brain health.

There is very strong links between gut health and brain health and more research is supporting this very strong and crucial link.

People often use phrases of thinking with their gut using terms like “I had this gut feeling” or “my gut told me” other well known terms of “butterflies in my stomach” or “gut wrenching” when dealing with stressful situations are all indicators of this connection.

Brain fog is the result of either one of the conditions or even a combination of them and can be long term if not properly dealt with.

The experience of brain fog in most cases are feelings of confusion, struggling to make decisions, reacting emotionally or even over reacting to situations which can cause poor decisions. People often will use phrases that they cannot think and rub their heads as if to stimulate the brain into functioning. The lack of being able to think and process information to make a decision is another frustration.

Invariably what happens is that people start looking for ways to stimulate the brain to “wake it up” and this means

resorting to one of my favourite drinks which is coffee. If you are a smoker you tend to rely on cigarettes or vaping to stimulate the brain and although this does work it has a long term negative impact on breathing quality and health. Nicotine is a natural substance in the brain and it is effective in providing mental energy its the delivery mechanism which is very addictive and damaging.

Let's look at some well known causes which can result in brain fog which can be changed easily enough once you have established what is causing the majority of your symptoms.

Here are a list of symptoms

Lack of clarity

Indecisive

Poor concentration

Confusion

Little energy

Little motivation

Sluggish

Forgetfulness

Fatigue

Awareness gaps

Irritability

BRAIN FOG CAUSES

There are a number of causes to brain fog and in many cases they can be a combination of causes which can negatively impact your ability to think. The common causes will be listed and how they interconnect will be highlighted.

The list of brain fog causes are as follows;

- Lack of sleep
- Gut health
- Nutrition
- Hydration
- Breathing
- Stress
- Allergies
- Environmental causes
- Lack of Exercise
- Medication
- Menopause and pregnancy
- Injury

Lets briefly investigate each item to explain how they affect your thinking.

LACK OF SLEEP

This is one of the most common causes for brain fog and easiest to fix once you have identified how much sleep you need.

Each person's sleep demand is different. Some people get away with as little as 4 hours a day and others need a minimum of 8 hours.

The general consensus is 8 hours of sleep to help you function at your optimum. There is a very good reason for managing your sleep demand better.

Sleep as a function is critically important to the brain as it relies on this downtime to do maintenance on itself. The body

uses this lack of demand to flush out toxins from a the days active mental processing.

To get rid of toxins in the brain it uses a network of tubes called the glymphatic system that runs next to blood vessels and drains waste filled cerebrospinal fluid.

Think of it as your own brain waste disposal system which runs all the time but to get the most work done it needs you to sleep to be able to correct the imbalance between the waste and nutrition that feeds the brain. By not sleeping enough this brain waste builds up overtime and it starts causing more problems and can cause damage to the brain long term.

Think of a motor engine that has oil in it which lubricates the various parts. It prevent the parts from overheating and ceasing up. If the engine isn't maintained the oil becomes dirty and the particles of dirt can cause damage to the components. This gets worse as small metal filings are circulated through the engine causing more and more damage until it gets to a stage where parts break. If there is no oil in an engine it is catastrophic as it causes the engine to cease because of heat and friction and can cause an engine to blow up.

Sleep is critically important in maintaining mental health as it helps the body reduce stress. Serotonin is a brain neurotransmitter which is thrown out of balance by lack of sleep. This works with other parts in the brain which regulates stress and this brain chemical imbalance can have long term health implications like depression and anxiety.

Lack of sleep also affects your immune system and it can allow for increased infection or chances of becoming sick from colds or other common health issues.

Sleep deprivation affects your mental abilities and causes you to be moody and irritable causes emotional over reaction and poor decisions.

The best way I was able to correct my sleep was using a health monitor to understand how my training and work ability before lockdown was affected. I travelled into London and my regular routine was to go to gym in the mornings

before work. This meant getting up at 5:30 am to get into London to allow for some exercise time.

Although this was a good routine to have what I was not doing was allowing for enough sleep as I was trying to get the most out of my day and working till late in the evenings.

Once I started managing my time more strictly and going to bed at a specific time to get my optimum sleep it changed my ability to exercise better and I felt more awake during the day to deal with a challenging job working in cyber security.

By monitoring my bodies health using a fitness tracker I was able to correct behaviour as I could track the progress. This improved my life on a number of other levels not just cognitively but also physically in exercise output and work performance.

GUT HEALTH

This has become a big topic in improving brain health and the recent research which has been published is making more connections between gut health and brain health. It is now commonly referred to as the gut-brain axis and the impact of how healthy your gut is has direct correlation with brain and cognitive health.

The connection between the brain and the gut is via the Vagus nerve. This nerves primary function is to manage automated organ functions and provide feedback from the gut to the brain. Over 80% of the vagus nerve function is dedicated to sending nerve signals to the brain. This nerve also manages the balance between stress levels and feeds this information to the brain. Your gut health can affect how well this nerve functions. There is research which connects leaky gut to brain health as toxins leak from the gut into the body. This causes immune response reactions, to deal with infections the brain stem triggers various body functions to fight off infection. By continually having a gut which is unhealthy and leaking over time this continued infection

overloads the bodies ability to function. This knock on effect causes sleep issues, brain health issues and increased stress.

The biggest links to poor gut health is due to diet and nutrition. A Western diet is one of the biggest causes as the high levels of processed food cause poor gut health. The lack of diversity in food sources causes higher levels of food sensitivity. This can be seen in the amount of people who have food allergies due to being brought up on fast food, very high sugar soda drinks and overstimulation with combine uses of sugar and caffeine. Coffee in itself is a very healthy drink when used in moderation but its being used as a dependance drink due to caffeine's stimulation capability and that it can suppress appetite which changes your energy demand and can cause energy crashes. To correct this energy fluctuation people eat high energy foods which contain sugar and high fat levels - donut anyone....

To improve gut microbe biodiversity and improve gut health the quality of food determines your gut health and in effect brain health. Any modern food which has more than 5 ingredients and is stored long term can fall into processed food. I am not talking about pickled or preserved foods which are made at home with herbs and spices. Foods with processed ingredients and factory manufactured to help increase shelf life is where things start causing issues.

Another factor which affects gut health is alcohol. Regular use of alcohol has a number of negative effects and one of the areas is gut health. It changes the balance of bacteria in your gut and long term heavy use increases leaky gut problems. It can cause intestinal inflammation and in turn affects the immune system.

When I was monitoring my health using a WHOOP device I noticed alcohol had a major effect on sleep quality. It had a major impact on Heart Rate Variability (HRV). HRV is the variation in your heart beats which affects the quality of your sleep. This in turn negatively affects recovery during training. The biggest impact was sleep quality.

NUTRITION

I have highlighted the quality of nutrition already in the gut health section but will mention foods which are gut friendly and how you can improve gut microbiome.

Currently 75% of nutrition is made up of the following food sources

12 Crops

5 Animals

Crops

1. Wheat
2. Sugarcane
3. Corn
4. Soy
5. Potatoes
6. Palm Oil
7. Casava
8. Sorghum
9. Millet
10. Rice
11. Groundnuts
12. Sweet Potato

Animals

1. Beef/Buffalo
2. Goat
3. Chicken
4. Pig
5. Sheep

What I will add is that wheat and dairy and sugar are 3 of the most common ingredients in all processed foods and are commonly used in most fast food outlets. 90% or more of pre-prepared foods rely on these ingredients.

The most important thing about the diversity in diet is it allows for a balanced intake of nutrients which come in the various food forms. The additional benefit of fibre which comes from eating a varied diet. Increased fibre helps healthy gut microbe development as it forces the body to digest the food. Gut bacteria in turn help extract nutrients from food you eat. The better the quality of food you eat the better the gut microbe diversity and overall gut health. This has an impact of heart health and also weight management.

The Mediterranean diet has been proven to be the most diverse in food sources which allows for a healthy gut. Grated wine is part of the diet but this needs to be taken in moderation to allow for the improved diet and to not have a negative impact on gut health.

The combination of foods allows for interaction between gut microbes, polyphenols, prebiotics and short-chain fatty acids which come from ingesting fibre.

Here are some examples of gut healthy foods

Pre-biotic foods

- Lentils, chickpeas and beans
- Oats
- Bananas
- Jerusalem artichokes
- Asparagus
- Garlic
- Leeks
- Onions
- Nuts

Probiotic foods

- Sauerkraut
- Kimchi
- Kefir
- Kombucha
- Miso
- Tempeh
- Natural Live Yoghurt

Add in other ingredients like herbs and spices and this quickly adds up to a good source of gut healthy ingredients. The key is diversity and as many different types of food to give you the best nutrition.

HYDRATION

Drinking enough water is key to general good health. The benefits are well established and the reason for resolving brain fog in this regard has to do with blood plasma volume.

The brain is made up of 85% water and dehydration has a direct impact on brain function.

The brain cannot store water hence the dependance on the body to manage the volume. If the body doesn't have enough water the brain's executive functions dedicated to thought processing immediately suffers.

Fun Fact - the brain needs 2 x more energy than other cells in the body. Water is key energy provider for the brain to work properly.

Water is crucial to the body's day to day functioning. It needs it for lubricating joints and maintaining the correct blood pressure. It allows the heart to pump blood around the body easier. As soon as you are dehydrated the heart has to work harder to pump thicker blood through the body. Imagine oil and water. To pump oil around the body has to work really hard as the liquid is thick, compared to water which flows easier it means less strain on the heart.

Even mild dehydration can cause cognitive impact and impair thinking and decision making. This is even before you are feeling thirsty. Research found that women who were dehydrated made 12% more errors in complex card games. As soon as people drank more water their performance came back to normal.

Here are some interesting comparisons which research has found.

1% dehydration = 5% cognitive decline

2% dehydration = fuzzy short term memory, focus issues, poor math computation

Dehydration symptoms

Brain fog

Afternoon fatigue

Focus issues

Irritability/anger/depression

Emotional instability

Exhaustion

Headaches

Sleep issues

Lack of mental clarity

Dry mouth and lips

Dark yellow urine.

The brain relies on the water to remove waste products from day to day mental processing.

What is optimum? That has recently been heavily debated with the old rule of eight glasses of water a day. Newer research counts coffee and tea and other liquids as part of day to day hydration. Food is also counted as part of overall hydration especially fruit and vegetables.

Overall its better to make sure you drink better sources of liquid and reduce sugar drinks or soda due to the added ingredients. Stick to natural drinks and optimise for water as much as possible.

If you feel thirsty drink something. The indications are 2 litres of liquid a day is enough for general needs. When you exercise this increases due to sweating but don't drink too much.

There is a danger with over hydration or hyponatremia. This can cause sodium imbalances which can affect heart function and in cases cause serious health issues. Johanna Pakenham ran the 2018 London marathon which was the hottest on record. Her over hydration caused her to have a massive fit and stopped her heart. This was down the the sodium levels being out of balance with affected the hearts

capability to function and can cause memory loss. The best way to correct this is to use electrolyte tablets to balance the salt levels during strenuous exercise events.

BREATHING

This is one of my go to methods of changing how I think. Its the only way that you are able to interact with your vagus nerve directly to allow you to change your physiological reactions to stress and to signal to the body that you are safe, feel threatened and need to relax or prepare it for activity like fit or flight.

Breathing is intricately linked to the gut, the brain and rest of the body through the vagus nerve. The vagus nerve is known as the wandering nerve as it connects the brain the facial features, eyes, mouth, nose and ears with the heart lungs and gut.

Your breathing rate determines your stress level and the type of thinking. Correct breathing can have a major impact on energy levels and resolving brain fog.

The changes I have experienced when I started working on breath control is the positive impact on health and brain clarity. My level of positive energy that I feel when I practice this as part of my meditation is significant.

The different breathing methods affect the quality of oxygen available to the body. Stressed breathing is shallow chest breathing and triggers all the physical responses to deal with stress like increased heart rate, adrenaline and cortisol hormones and higher use of glucose to deal with the higher physical demand of stress. Chest paced breathing means you are creating dead space in the lungs and reducing the sections of the lungs you can use for oxygen exchange.

Dead space is oxygen which is not reaching unused parts of the lungs.

Relaxed breathing uses larger parts of the lungs and increases the amount and quality of oxygen the body can use. You are using a wider areas of your lungs and the dead space of chest breathing will now be used. This allows more of the alveoli to expand and contract to help exchange carbon monoxide and oxygen.

Relaxed breathing helps to balance the oxygen levels in the blood. This balance of oxygen is key as it affects performance, hyperventilation is bad as it increases the level of oxygen but it doesn't help improve cognitive function and can cause you to faint or blackout. Although chest breathing is a form of hyperventilation you are not using your full lung capacity and the balance of oxygen and CO₂ is correctly managed.

This balance of gases is crucial for correct brain function. With higher levels of CO₂ the brain and central nervous system is depressed. To correct this the body increases blood pressure and heart rate to circulate more blood in the body. This increases stress in the body which becomes a downward spiral of physical reactions as your body uses up more oxygen to deal with physical stress of more oxygen demand. The brain's ability to perform is reduced as the body needs more oxygen to deal with physical stress.

To allow the brain to work at full speed correct breathing allows it to perform well. The brainstem is the area that normally controls breathing when it is automated. By manually controlling your breathing through meditation you are able to affect how your brain performs and reacts to stress. Breathing in a controlled manner using up as much of your lung capacity allows for optimum gas exchange. This allows for a clear head and improved cognitive ability.

STRESS

Stress is a big factor in affecting how it changes the brain. The physical demand of stress has a secondary impact on the brain. You are using up mental resources dealing with stress

which can cause mental fatigue. The additional challenge is that mental demand can affect sleep patterns. Disrupted sleep is one of the biggest factors which impact ability to think clearly. The combination makes the effects of brain fog worse. Sleep is crucial in helping the brain flush toxins and repair and recover. It's also important to help process problems which have not been resolved in the background.

Additionally stress increases negative effects on the body and affects the immune system's ability to fight off infection.

Stress increases energy demand in the body and this depletion of glucose can cause energy crashes. By using up the energy you reach out for the foods which provide the highest level of energy. Most of the time this will be processed easily available junk food or snacks that are high in energy but low in nutrition. This solved the immediate energy demand issue but has a negative effect on gut health and gut microbe balance. Gut health is key in maintaining overall health and brain health. Long term stress means long term comfort eating which compounds the effect over time and can lead to serious health issues like diabetes, ulcers and a range of immune system issues.

Stress can be a cause of long term fatigue and this can be the case where you are not aware you are in a stressed condition. Most people think they cope but have not realised they are stressed until something breaks.

Think of the analogy of boiling a frog. If you throw a frog in hot water it will immediately jump out. Place a frog in cold or lukewarm water and increase the heat and it won't realise it is changing until too late.

This is what can happen with stress over time. Initially you cope ok but as time passes the stress accumulates until something breaks health wise.

Stress can cause you to use other coping mechanisms and this can lead to increase use of alcohol and other substances to find relief or to create breaks. The key to remember is that you are able to wind down and destress using breathing and other healthy methods which don't add to the health debt you are developing because of stress.

ALLERGIES/ENVIRONMENTAL CAUSES

My biggest challenges used to be from asthma when I grew up. I suffer with hay fever as well and summertime can cause a number of challenges and does affect my ability to feel clear headed. Although I have grown out of my asthma I am allergic to cats and they have a big impact on my ability to breath comfortably.

When my hay fever gets worse it causes me to feel confused, lack of energy and I struggle to think clearly. Make sure you also check your environment for potential toxins which can make this issue worse. There are strong links that environmental toxins affect brain function and this can be anything from pollution or even mould from dampness in houses. Do you have any carbon monoxide leaks from your boiler, is the office or home environment well maintained? Do you have fresh air to allow for improved oxygenation and ventilation. I have had good success drinking nettle tea during summer to reduce hay fever symptoms as it has anti-histamine qualities.

If you do have allergy issues find ways to improve your health to reduce the effect of them. Do whatever you can to improve your health and personal well being management to reduce your ability to perform.

EXERCISE

The link of exercise and brain health is well established and I will keep this section brief. Exercise has a big impact on stress relief and maintaining overall physical health. Any forms of exercise can help reduce stress levels, improve blood circulation and increase oxygenation.

Simple exercises like walking allows you to take a break and help recovery from demands. In many cases I found walking to work gave me enough time to have a break and add to my daly exercise routine. Exercise is any activity you

can take and a simple walk to post a letter or go to a shop counts. It doesn't have to be a long session of intense exercise, it could be something as simple as walking up a flight of stairs in the office or going for a coffee.

MEDICATION

Medication can be a big culprit that can affect how you feel and think clearly. Make sure you check any medication you are taking as the side effects can have an impact on feeling clear headed. I am not a medical professional and do not advise stopping medication. if you feel you are negatively affected by medication make sure to consult your doctor to identify better solutions to improve the impact on brain health.

Medication can have an impact on gut microbe balance and health. Medication like antibiotics work very well but they can be broad spectrum in how they affect sources of infection . The detrimental effect is that gut health is now out of balance which will impact how you are able to think and perform cognitively. There are some negative effects like nausea, diarrhoea and other gastrointestinal side effects.

The best time to correct intestinal health is after you have completed your medication treatment in the case of antibiotics. If you are on long term medication make sure you work with your doctor to find a solution. Antidepressants are known to have an impact on gut microbiota and research is shown there are connections between anxiety, depression and gut health.

MENOPAUSE & PREGNANCY

This is an area which I did not know anything about until I came across research about brain fog. Female hormones like oestrogen and testosterone play an important role in memory and cognitive function. The fluctuation of the hormone levels during menopause and pregnancy can have an impact of the

ability to think clearly and feel in control. These hormone changes affect mood, sleep patterns and this has an impact on how well a person can cope. Post-natal depression is a very serious issue a lot of woman struggle with and these all need to be taken into consideration.

When you add the stress of a busy lifestyle and now the COVID pandemic it changes things dramatically. Some people love the intimacy of the family and simplicity and cope well but for most people the lack of novelty and restriction creates stress without allowing for tension release that pre-COVID life allowed.

INJURY

Concussion is a major factor in affecting how you can perform and think clearly. Concussion is when the head moves back and forward very fast. It is also known as mild traumatic brain injury or mTBI.

This fast movement shakes the brain in the skull colliding with the sides. This can cause brain inflammation and bruising, This inflammation and bruising affects the communication between brain cells and the brain has to work hard to repair the damage and reduce inflammation which affects the brain's performance.

Concussion is normally due to car accidents, sport injuries or falls. Whiplash is a well known result of car accident and a concussion can result from this type of incident.

Self induced concussions can occur especially when doing head-banging listening to rock or metal music. In this I speak from experience as I am a keen rock and metal fan and did head banging when I was younger.

It mimics the mechanism of an accident or whiplash and this is why post party your neck is stiff and head feels all cloudy.

The knock on effects of concussions can be feeling more stressed and higher chances of anxiety and depression. Other side effects can be nausea due to incorrect breathing

which causes a build up of carbon dioxide which makes you feel sick. Because of the damage of concussion areas of the brain which is involved in hormone production and management can be affected. The pituitary gland and hypothalamus are two parts which are affected by brain injury. The pituitary gland works with the endocrine system that regulates energy, growth and stress response.

Other challenges like dizziness can be an issue as the brain manages spatial awareness and balance. If these areas are functioning badly then you can feel dizzy or have poor balance and co-ordination. The thalamus is the area which deals with sensory information and deals with feelings and emotional reactions.

The normal functioning of the brain is badly impacted by any brain injury and it has a number of side effects unless properly treated to manage the side effects. It is very important to seek medical help in any brain related injury.

EPILOGUE

Thank you for reading this information. Feel free to share this with other people who will find this information useful.

Make sure to connect with me to learn about my passion to help people think clearer and improve their thinking skillset and mental fitness management to get the best out of their brain.

Join me for a free 1-2-1 chat to learn more about how to think like a genius.

bit.ly/Featherbird-call



ABOUT THE AUTHOR

Lance Wantenaar is a podcaster and works in cyber security. He has become fascinated with improving his cognitive ability and to understand how people think. His research into psychology, neuroscience, persuasion, nutrition, and cognition has helped him make positive changes in his life to become a better version of himself.