Issue 2

Digestive Health
GastroLife
Magazine

FREE COPY

The Gut-Brain Connection

Tasty Low FODMAP Recipes

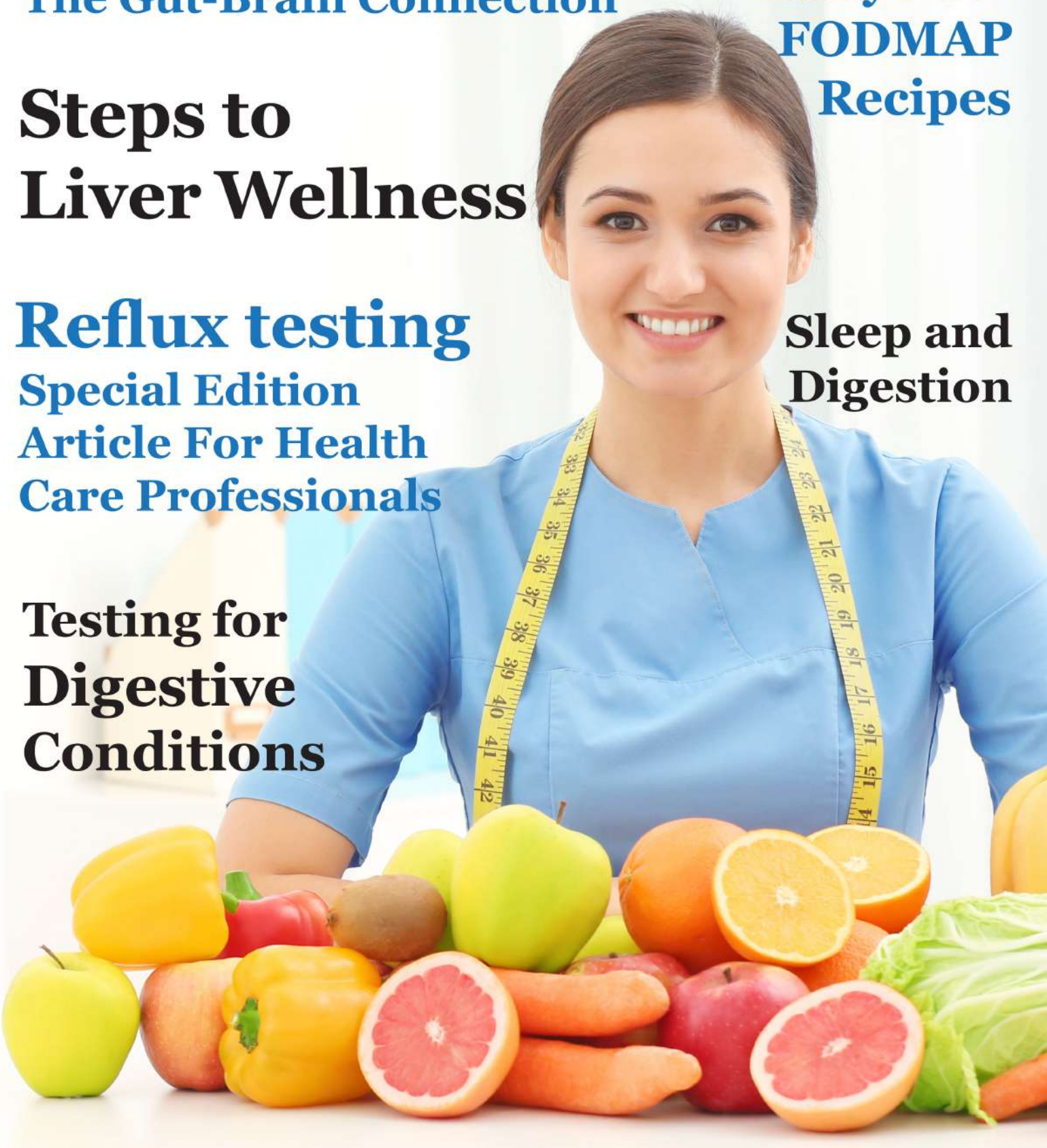
Steps to Liver Wellness

Reflux testing

Special Edition Article For Health Care Professionals

Sleep and Digestion

Testing for Digestive Conditions



CONTENTS

Welcome to edition 2 of our Digestive Health and Wellness magazine. You can read about the Low FODMAP Diet, IBS, and Liver Health as well as learning about what histamine intolerance is and how it can be affected by certain strains of bacteria. For the little ones, we have tips on nutrition. I know first-hand with two small boys how challenging this can be at times. Plus we have many more informative articles and tasty recipes. I hope you enjoy reading the magazine.

Melissa

GastroLife

Gastrointestinal Testing Clinic

Dublin Kildare Galway

www.gastrolife.ie

GASTROLIFE
Gastrointestinal Testing Clinic

GastroLife is a clinic that specialises in testing for digestive health. We provide testing for Lactose Malabsorption, Small Intestinal Bacterial Overgrowth, Fructose Malabsorption, Sorbitol Malabsorption, Sucrose Malabsorption and the Helicobacter Pylori infection.

SYMPTOMS


Bloating

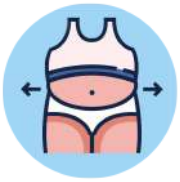

Belching


Nausea


Acid Reflux


Fatigue


Weight loss


Weight Gain


Diarrhoea


Constipation


Loose Stools


Altered bowel habit

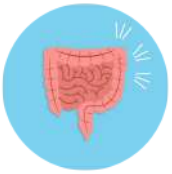

Abdominal cramps


Flatulence


Abdominal distension


Halitosis (bad breath)


Joint pain


Intestinal gurgling


Migraine


Acne Rosacea


Brain fog

Testing takes place in our Sandyford, Naas, and Galway clinics. GastroLife uses the latest advanced equipment and technology. If you are unable to attend our clinic, Hydrogen and Methane testing kits for Small Intestinal Bacterial Overgrowth and Lactose Malabsorption can be purchased from our website.

CLIENT TESTIMONIALS

'The service provided at Gastrolife is fantastic. I carried out a SIBO test there, and tested positive. After years of digestive issues, I am now finally on the mend after identifying the correct treatment. This has given me great relief. Melissa is a wealth of knowledge and is really at the cutting edge of science in diagnosing and treating digestive issues. The team in Gastrolife is always efficient, professional and very friendly, and I would highly recommend them.'

- Damien - Co. Clare

'I want to take this opportunity to say thank you to Gastrolife for the changes this test has made to my life. I first heard of this Test through my Dietitian. I had struggled with my symptoms for over three years before I took the SIBO test. Following treatment, the positive change in how I felt were quite amazing. Thank you Melissa for the part you played in conducting the Gastrolife Tests without which I feel I could still be going around in circles looking for answers.'

- Mrs S, Galway

'I decided to take the SIBO breath test with Gastrolife after suffering with IBS for more than 10 years. Melissa and all the staff were very knowledgeable and the test itself was very simple. I am glad I did, because the results were positive. My Gastroenterologist has since treated the SIBO and I am doing a lot better.'

- Conor - Co. Kildare

SMALL INTESTINAL BACTERIAL OVERGROWTH

WHAT IS SMALL INTESTINAL BACTERIAL OVERGROWTH?

Small Intestinal Bacterial Overgrowth (SIBO) occurs when there is too much bacteria in the small intestine. Normally the colon houses a large number of bacteria that plays a very important role in the digestive system, immune system, and overall health. The small intestine only contains a small amount of bacteria. When an overgrowth of bacteria occurs in the small intestine, the excess bacteria feed on food (particularly carbohydrates) that enter the intestine from the stomach. It can use up some of your vitamin B12 which may lead to a deficiency in this vitamin as well as other nutrient deficiencies. When the bacteria ferment or 'breakup' food too high up the intestinal tract, excess gases such as hydrogen, methane, and carbon dioxide are produced. These gases are used to measure the presence of a bacterial overgrowth in the small intestine.

WHAT ARE THE COMMON SYMPTOMS?

The presence of too much bacteria in the wrong place in the intestine can give rise to gastrointestinal symptoms and impaired nutritional uptake. Some people may experience one symptom (bloating, nausea, diarrhoea, constipation, abdominal distension, fatigue, mixed bowel habit, loose stools, flatulence, belching, reflux, joint pain, acne rosacea, brain fog, cramps, intestinal gurgling, weight loss/weight gain, slow intestinal transit, migraine) or can be affected by a combination of symptoms e.g. bloating and fatigue. As SIBO can result in the inability of the intestine to function properly, this may significantly affect the absorption of nutrients and damage the lining of the small intestine which may lead to leaky gut. Leaky gut is associated with immune reactions, autoimmune diseases, and generalised inflammation. There is a strong association between SIBO and Irritable Bowel Syndrome, Fibromyalgia, Acne Rosacea, Coeliac Disease, Crohn's Disease and Diabetes. For more information on SIBO association, go to page 12 where you can read about the SIBO-Coeliac connection.

WHAT CAUSES SIBO?

SIBO can develop for a number of different reasons. The main cause is a dysfunction of your normal intestinal motility. If there is slow or uncoordinated muscular contractions in the small intestine, stagnant or sluggish flow of intestinal contents can allow bacteria the opportunity to grow. The purpose of motility (migrating motor complexes) in the small bowel is to push debris and bacteria towards the colon. Motility dysfunction can be due to a number of different factors such as a history of food poisoning, diabetes, certain medications, nerve damage, or sometimes the cause is unknown. Other factors involved in the development of SIBO can include not having low enough stomach acid to kill off ingested microbes that enter the stomach with your food and drink, a weak valve that separates the small and large intestine (this can result in the back flow of bacteria from the colon into the small intestine), post gastrointestinal surgery, post radiotherapy, adhesions in the intestine, following bariatric surgery, inflammatory bowel disease.

HOW IS THE TEST PERFORMED?

The Hydrogen and Methane breath test is used to detect Small Intestinal Bacterial Overgrowth (SIBO). This is a simple and non-invasive investigation. A baseline breath sample is measured by blowing directly into the analyser. Following this, you will be given a testing solution to consume. You will then be called into the clinic room at regular intervals to repeat the breath samples. Between samples, you are free to read a book/ watch your tablet.

TAKING THE BREATH TEST

HOW CAN BREATH SAMPLES TELL ME WHAT IS HAPPENING IN MY INTESTINE?

If there is too much bacteria present in the small intestine, it will break up the test solution as it enters the intestine from the stomach. As a result of this breakdown, gases such as hydrogen and methane are produced. These gases can pass easily through the wall of the intestine and into your blood circulation. When your blood travels around to your lungs, gas exchange takes place, and these gases are detected from exhaled breath samples.

ARE THE SAMPLES SENT AWAY FOR ANALYSIS?

No. GastroLife has the latest state of the art analysing equipment. All our SIBO tests are performed and analysed on site.

CAN SIBO BE DETECTED WITH THE CAMERA TEST?

The camera that passes through your mouth only reaches the first part of the small intestine, if the bacteria is present in the mid or distal part of the small intestine, it is unlikely to be detected. A sample of fluid from the upper part of the intestine can be taken with the camera however, the samples for SIBO are often contaminated with oral and pharyngeal bacteria as the camera is withdrawn through the mouth. The sample would then have to be cultured in a lab which is quite expensive and not traditionally done in Ireland. The breath test can detect bacteria all the way through the proximal, mid and distal small intestine.

IS SIBO THE SAME AS THE HELICOBACTER PYLORI BACTERIAL INFECTION?

No. Helicobacter Pylori is an infectious bacteria that mainly affects the stomach and first part of small intestine. We do test for Helicobacter Pylori in the clinic upon request. SIBO is an overgrowth of the normal bacteria in the small intestine.

WHO PERFORMS THE TEST?

The test is performed and analysed by a fully accredited Gastrointestinal Physiologist.

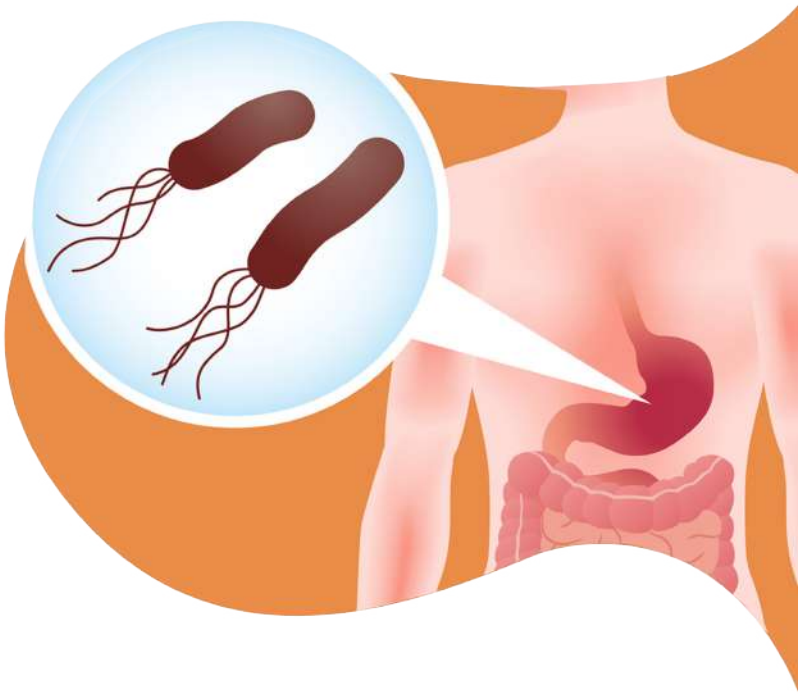
DO I NEED A REFERRAL?

No. You do not need a referral for a SIBO test. You can book directly online, by email, or by phone. This test can be performed in one of the clinics and results are available on the day of testing. SIBO testing kits can be purchased from the website www.gastrolife.ie if you are unable to attend one of the clinics.

HELICOBACTER PYLORI UREA BREATH TEST

Helicobacter Pylori is a very common infection that is thought to be a factor in the development of stomach and duodenal ulcers (peptic ulcers). It is a bacterium that can cause chronic gastritis (inflammation) of the stomach lining. Symptoms of peptic ulcers include loss of appetite, nausea, vomiting, abdominal pain/ discomfort. Some ulcers may bleed which can cause fatigue.

The bacteria can survive because it can penetrate the stomach lining and produce by-products that neutralise the gastric acid around it, thereby creating a protective environment. When a Helicobacter Pylori breath test is performed, the tablet that is consumed contains Urea. The bacteria breaks this Urea down releasing a carbon atom. The breath test measures this carbon for the presence of Helicobacter Pylori through the collection of breath samples which are then sent to a laboratory for analysis.



A blood test can only detect antibodies to Helicobacter Pylori and therefore cannot distinguish between a previous infection and a current infection as the antibodies for Helicobacter Pylori can remain in your body for some time. A blood test cannot be used to determine if your Helicobacter Pylori has been eradicated following treatment for this same reason. Post treatment a Helicobacter Pylori Breath Test or Stool Antigen test is often recommended.

If you are positive for Helicobacter Pylori, you will need to see your G.P who may prescribe you a combination of antibiotics (usually two antibiotics) and an acid reducing tablet (Proton Pump Inhibitor). This treatment is called triple therapy. Sometimes the Helicobacter Pylori infection is not eradicated with the first triple therapy treatment. To see if the bacterial infection has been successfully eradicated, a second breath test 'retest' may be performed following treatment.

LACTOSE MALABSORPTION TEST

Lactose Malabsorption occurs when there is an inability to fully digest the 'milk sugar'. Symptoms can begin soon after eating or drinking lactose containing food or drinks such as milk, yoghurt, ice-cream, butter, baked goods, cheese. Lactose is also used in the manufacturing industry as a bulking agent, and in the pharmaceutical industry for medication and inhaler production.

Lactose consists of two sugar units. An enzyme called lactase is required to split the lactose sugar into two single units for absorption. If you do not have enough lactase enzyme or if the enzyme does not work properly, lactose cannot be broken down and it travels to the large intestine where it is digested by bacteria in your colon. The products produced by this process can cause symptoms such as diarrhoea, gas, bloating, nausea, vomiting, upset stomach, or flatulence.

The Hydrogen and Methane breath test is used to detect lactose malabsorption. This is a non-invasive investigation. You will be asked to perform

a baseline breath sample by blowing into the analyser. Following this, you are given a lactose testing solution to drink. You will then be called into the clinic room at regular intervals to perform breath samples. If lactose is not absorbed, it travels to the large intestine. In the large intestine, the bacteria will break up the lactose and gases such as hydrogen, methane and carbon dioxide are produced. Hydrogen and methane gas can pass easily through the wall of the intestine and into the blood stream. When your blood circulates around your body to your lungs, these gases diffuse out of the bloodstream and are measured in your exhaled breath samples.

This test can be performed in one of the clinics and results are available on the day of testing. Lactose malabsorption kits can be purchased from www.gastrolife.ie if you are unable to attend one of the clinics.

FRUCTOSE MALABSORPTION TEST

Fructose can be present naturally in foods such as fruit and some vegetables, or found in many processed foods and drinks. Foods that contain fructose include oranges, apples, mangos, pears, prunes, melons, raisins, honey and fruit juices. Fructose malabsorption occurs when the small intestine fails to fully absorb this sugar. As a result, fructose is transported to the colon where it is broken down by bacteria in the colon. Hydrogen, methane and carbon dioxide gases are produced as a result of fructose malabsorption.

Some people can tolerate more fructose than others, so symptom severity can differ depending on the amount of fructose consumed. Symptoms include bloating, diarrhoea, constipation, nausea, or abdominal cramps. People with Coeliac Disease and IBS are at a higher risk of suffering from fructose intolerance. The Hydrogen and Methane breath test measures the gases produced by the bacteria in the colon to determine if the fructose sugar has not been absorbed properly in the intestine. This test is only performed in the clinic.

SUCROSE MALABSORPTION TEST

Sucrose is normally broken down in the small intestine by the sucrase enzyme. When Sucrose Malabsorption occurs, the sucrose is not properly broken down or absorbed in the small intestine. It travels to the colon where it is metabolised by colonic bacteria. Sucrose is also known as table or cane sugar.

Some people with genetic sucrase - isomaltase deficiency (GSID) are often misdiagnosed with IBS. People with GSID cannot digest sucrose and maltose (sugar found in grains) and can have difficulty digesting starch. Symptoms range from mild to severe.

The Hydrogen and Methane breath test is performed to test for Sucrose Malabsorption. This is a non-invasive test that is performed in the clinic.

GastroLife
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FOR MORE INFORMATION PLEASE VISIT

01-5242591

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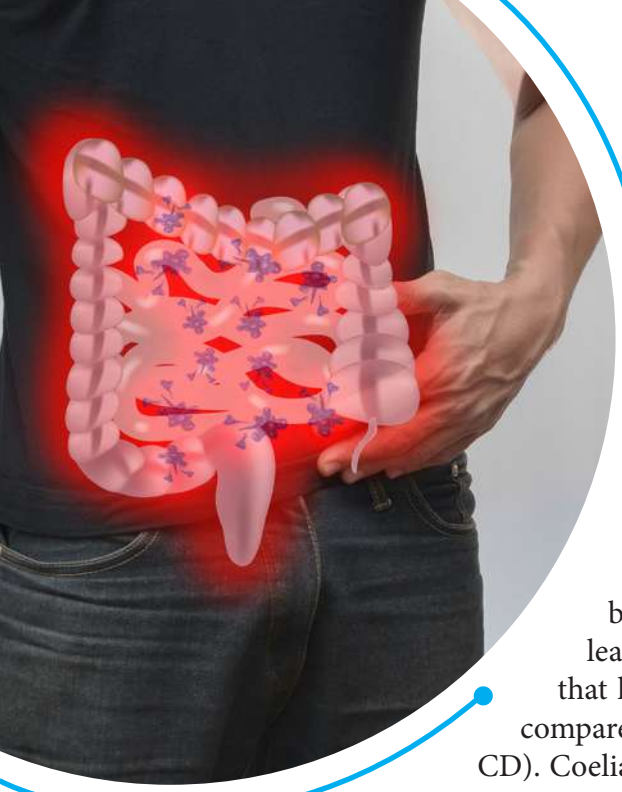


The SIBO – Coeliac Connection

There are some patients that despite adhering to a strict gluten free diet, still experience gastrointestinal symptoms. Sometimes it can be as a result of unknowingly eating small amounts of gluten, for others it can be as a result of an additional digestive condition. One such example is SIBO or Small Intestinal Bacterial Overgrowth.

SIBO occurs when there is too much bacteria in the small intestine. The bacteria interfere with how your food is broken down and absorbed in the small intestine. When this happens gases such as hydrogen, methane, and carbon dioxide are produced as well as short-chain fatty acids. These gases produced by the bacterial overgrowth can give rise to gastrointestinal symptoms and lead to impaired nutritional uptake. There has been a number of studies that have suggested a higher incidence of SIBO in those with CD when compared to control groups (It can be a common cause of non-responsive CD). Coeliac Disease and SIBO can occur at the same time and the symptoms are often quite similar. In fact, SIBO can also cause villous atrophy. CD is often diagnosed with a blood test and biopsies during a Gastroscopy whereas SIBO is diagnosed with a breath test. A breath test for SIBO is a simple and non-invasive investigation. A baseline breath sample is measured by blowing directly into the analyser. Following this, you will be given a testing solution to consume. You will then be called into the clinic room at regular intervals to repeat the breath samples. The gases that are measured will give information on the overgrowth of bacteria within the small intestine.

Unable to attend the clinic?

Testing takes place in our Dublin, Kildare, and Galway clinics. If you are unable to attend the clinic, you can perform the test at home and send the samples back to us by post. You can buy a testing kit directly from our website, or else you can contact us phone or email.

Home Testing Kits

Is the test easy to perform?

The testing kit that is posted out to you is designed to be performed at home/office. It involves a simple breath collection into a labelled collection sample bag. Breath samples are performed at regular intervals following the ingestion of a testing solution. Full graphical instructions are included with the testing kit. If you receive the kit and are unsure of how to perform the test, you can call or email us and we can provide more information to you.

How long will the samples be valid for in the collection bags?

Samples are valid for four weeks in the collection bags. We recommend that once you complete your testing kit, you aim to post it back to us as soon as possible.

I have heard about a new mobile digestive breath tracker on the market, is this the same thing?

No, tests performed at Gastrolife are clinical investigations. We measure BOTH hydrogen and methane gas (not just hydrogen). We also measure oxygen levels for each breath sample to validate each measurement and ensure accuracy of results. It is preferred to perform a SIBO test first before testing for 'FODMAP' sugars (lactose, fructose, sucrose, sorbitol). This is because, if SIBO is present, it can interfere with how these sugars are broken down and absorbed. Therefore, it may not be a 'FODMAP' sugar issue that is causing your symptoms. By excluding SIBO, dietary malabsorption testing for FODMAP sugars is more reliable. **SIBO or sugar malabsorption cannot be diagnosed accurately with a portable breath tracker device. Hydrogen and Methane testing performed at Gastrolife are clinical investigations.**

Is there any follow-up?

Yes, once your results have been sent back to you, we can provide a consultation and feedback on your results by phone or email if requested. There are no additional fees or charges for a follow up consultation.

For more information please visit

01-5242591 www.gastrolife.ie info@gastrolife.ie

Steps To Liver Wellness

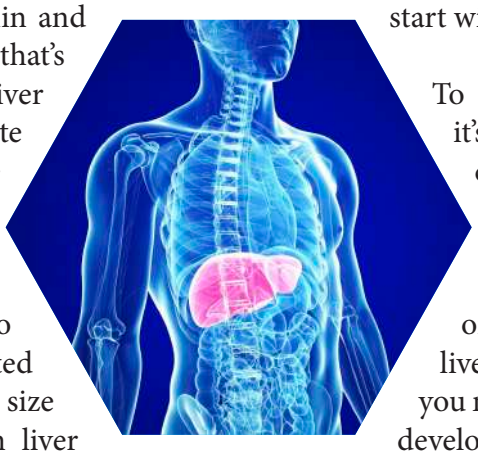
Prof Suzanne Norris is a consultant hepatologist/gastroenterologist at St James's Hospital and is Professor in Gastroenterology & Hepatology at Trinity College Dublin. A graduate of University College Dublin, she trained in hepatology at the National Liver Transplant Centre at St Vincent's University Hospital, Dublin, and the Institute of Liver Studies at King's College Hospital, and was appointed consultant in viral hepatitis and liver transplantation in 2000 at Kings' College. In 2002, Prof Norris returned as Consultant Hepatologist and Senior Lecturer at St James's Hospital/Trinity College Dublin, and subsequently was appointed Professor in Gastroenterology & Hepatology in 2008 at Trinity College Dublin.

Prof Norris is a former member of the National Consultative Council for Hepatitis C, former member of the governing board of the European Association for the Study of the Liver (2007-2008), EASL Scientific Committee (2005-2008), AASLD Education Committee (2007-2009) and former committee member of the British Society of the Study of the Liver (2000-2004). She was National Specialty Director for gastroenterology/ hepatology registrar training in Ireland from 2007- 2012 at the Royal College of Physicians in Ireland, and Vice-Dean of Postgraduate Specialist Training 2012-2015. Prof Norris is the co-founder and former chair of the Irish Hepatitis C Outcomes Research Network. Prof Norris was the first Clinical Lead to the HSE National HCV Treatment Programme.

In 2017, Prof Norris established Liver Wellness®, an innovative model of care to promote Liver Health and Wellness, and to provide a screening service for those individuals at risk of liver disease i.e. FibroScan®.

THE HEALTHY LIVER

The liver is a wonderfully resilient and complex organ that nurtures and protects your body day in and day out. It helps neutralize and dispose of toxins, feeds your body the energy it needs to function, fights off viruses and infections, and regulates sex hormones, cholesterol levels, vitamin and mineral supplies in your body. And that's only some of its 500 functions! The liver is the only organ that can regenerate itself thus making it possible for one person to donate part of their liver to another person. When a portion of the liver is transplanted, the donor's liver will regenerate back to its original size while the transplanted portion will grow to the appropriate size for the recipient. The first human liver transplant was performed by Dr Thomas Starzl in 1963 at the University of Colorado Medical School, USA, but was not successful due to lack of effective immunosuppressive (anti-rejection) drug therapy. Following the availability of more potent immunosuppressant anti-rejection drugs, the first successful liver transplant was performed in 1967. In Ireland, the first successful liver transplant was performed in 1993. The Greek word for liver is 'hepar', and medical terms related to the liver often start with the prefix 'hepato'- or 'hepatic'.



To safeguard your liver health, it's important to understand the critical roles that the liver plays in maintaining overall health and how activities that you may take for granted can help or hurt this vital organ. By learning more about your liver and how you can keep it healthy, you may actually help reduce your risk of developing not only liver disease but also other health conditions including diabetes and heart disease. To give an idea of the liver's critical roles, here is a partial list of its functions:

1. **Cleanses blood:**
- metabolising alcohol and other drugs and chemicals
- neutralising and destroying poisonous substances

2. **Regulates the supply of body fuel:**
- Carbohydrates (sugars), absorbed through the lining of the intestine, are transported through blood vessels to the liver and then converted into glycogen and stored. The liver breaks down this stored glycogen between meals, releasing sugar into the blood for quick energy to prevent low blood sugar levels (hypoglycemia). This enables us to keep an even level of energy throughout the day. Without this balance we would need to eat constantly to keep up our energy.

- The liver is vital in maintaining the body's protein and nitrogen metabolism. Proteins in foods can be broken down into amino acids in the intestine and delivered to the liver for use in making body proteins. Excess amino acids are either released by the liver and sent to the muscles for use or are converted to urea for excretion in the urine. Certain proteins are converted into ammonia, a toxic metabolic product, by bacteria in the intestine or during the breakdown of body protein. The ammonia must be detoxified by the liver and made into urea which is then excreted by the kidneys.

- Through the production of bile, the liver makes it possible for dietary fat to be absorbed. In addition, vitamins A, D, E and K, which are fat soluble, are dependent on bile from the liver for absorption.

3. **Manufactures many essential body proteins involved in:**
- transporting substances in the blood
- clotting of blood
- providing resistance to infection

4. **Regulates the balance of many hormones:**
- sex hormones
- thyroid hormones
- cortisone and other adrenal hormones

5. **Regulates body cholesterol**
- Produces cholesterol, excretes and converts it to other essential substances

6. **Regulates the supply of essential vitamins and minerals such as iron and copper**

7. **Produces bile which eliminates toxic substances from the body and aids digestion**

LIVER DISEASE

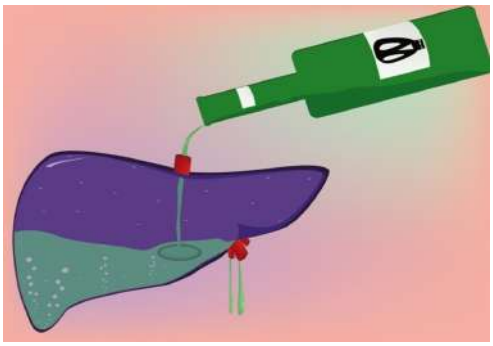
Although liver disease is commonly linked to alcohol or drugs, there are over 100 known forms of liver disease caused by a variety of factors which may affect everyone from infants to older adults. Cirrhosis results from permanent damage or scarring (fibrosis) of the liver, and is the end result of many different forms of liver disease. Patients with cirrhosis may lead full and very active lives (compensated cirrhosis) but are at risk of complications such as ascites (fluid in the abdomen), and hepatic encephalopathy (mental confusion), and liver cancer. The commonest liver diseases are generally caused by one of the following factors:

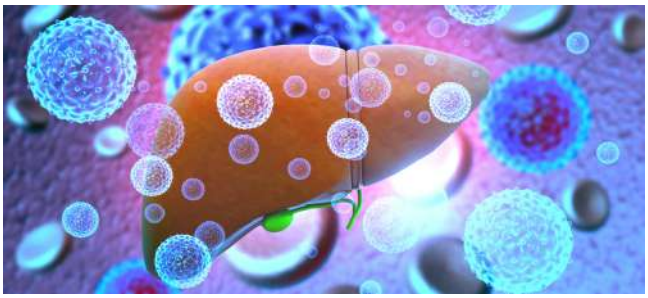
1. **Obesity:** Obesity, poor nutrition, and a sedentary lifestyle are all risk factors for non-alcoholic fatty liver disease (NAFLD). NAFLD is a major European health burden due to its high prevalence - NAFLD affects 1 in 4 people across the EU, with capacity to progress to liver cirrhosis and liver cancer, and it is associated with a greater risk of cardiovascular disease and other cancers. In addition to obesity, NAFLD has been linked to other risk factors, including type 2 diabetes, insulin resistance, hyperlipidaemia and high blood pressure. NAFLD may develop as:

- Simple steatosis (fat): the accumulation of fat in the liver without damage or inflammation. It may slowly progress to liver inflammation and scar tissue (fibrosis) over many decades.

- Non-Alcoholic SteatoHepatitis (NASH): the accumulation of fat in the liver causes inflammation, resulting in cellular damage to the liver cells, switching on fibrosis genes, resulting in liver scaring. NASH is considered to be the more progressive and aggressive subtype of NAFLD and can lead to the development of fibrosis and cirrhosis.

2. **Alcohol:** Factors such as gender, age, nationality, weight and health can affect how a person's liver metabolizes alcohol. When the liver has too much alcohol to handle, normal liver function may be interrupted leading to a chemical imbalance. If the liver is required to detoxify alcohol continuously, liver cells may be destroyed or altered resulting in fat deposits (fatty liver) followed by inflammation (alcoholic hepatitis), scar tissue formation (fibrosis) and/or permanent scarring (cirrhosis).





3. **Viral hepatitis:**
The most common forms of chronic viral hepatitis world-wide are hepatitis B and hepatitis C. Although hepatitis B can be prevented by vaccine, there is no vaccine for hepatitis C. In Ireland, approximately 15,000 people are known to be living with hepatitis C infection.

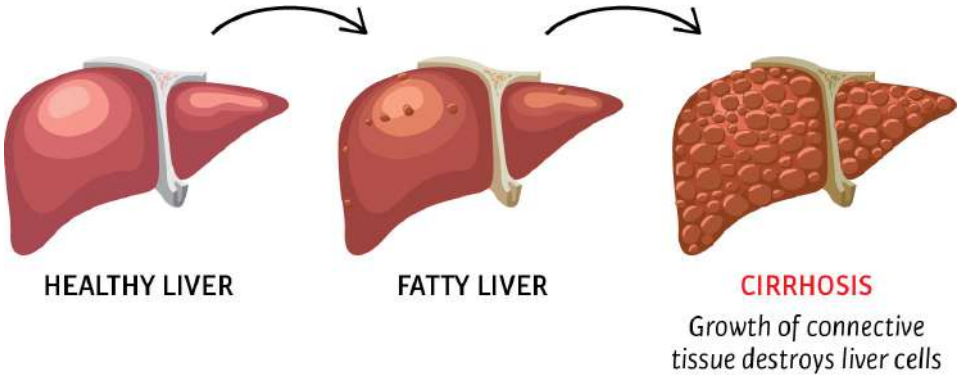
4. **Genetics:**
Several forms of liver disease are caused or thought to be caused, by defective genes. Examples include haemochromatosis (iron overload), Wilson's disease (copper overload), and alpha 1 antitrypsin deficiency. These liver diseases may not cause symptoms until later in life.

5. Autoimmune disorders:

The term "autoimmune disease" is used when the immune system begins to attack the liver cells or bile duct cells causing inflammation and scarring which may lead to cirrhosis in some cases. Examples of liver diseases believed to be caused by the immune system are primary biliary cholangitis (PBC), primary sclerosing cholangitis (PSC), and autoimmune hepatitis (AIH).

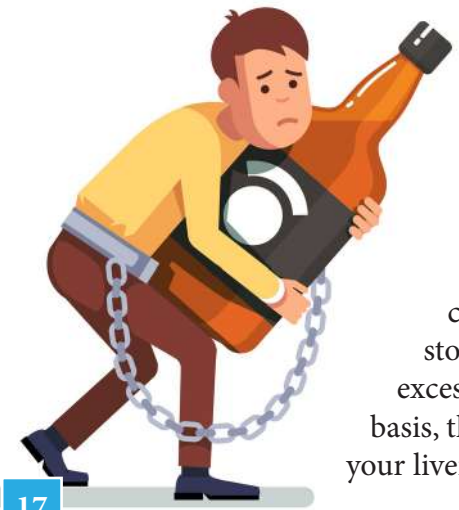
6. Drugs and toxins:

The liver is responsible for processing most of the chemicals and medications that enter the body, and in some cases, this may cause acute or chronic liver injury. Examples include acute liver injury due to overexposure to or over-consumption of drugs such as paracetamol, or chronic liver injury due to industrial toxins like polyvinyl chloride or carbon tetrachloride. In other cases, chemicals can cause an unpredictable reaction.



Stages of Liver Damage

Here are some steps to Liver Wellness:



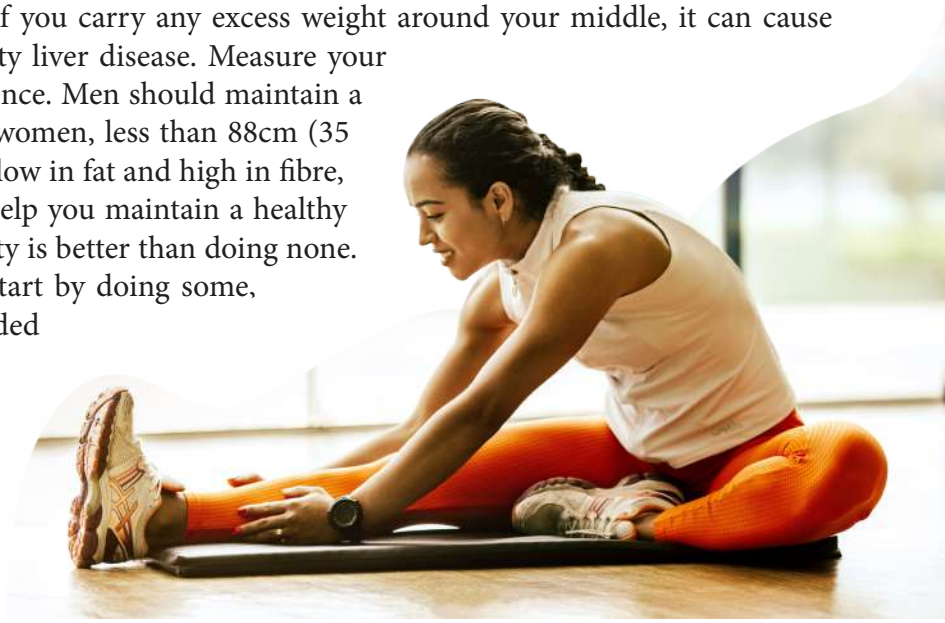
Don't drink too much alcohol

We are often told that too much alcohol is bad for us, and you may have wondered when sipping a glass of wine or beer how alcohol affects your liver. Your liver can cope with drinking a small amount of alcohol. However the liver can only handle a certain amount of alcohol at any given time, so if you drink more than the liver can deal with by drinking too quickly, or drinking too much over a short period of time, the liver cells (hepatocytes) struggle to process it. When alcohol reaches the liver, it produces a toxic enzyme called acetaldehyde which can damage liver cells and cause permanent scarring, in addition to other organs such as the stomach lining causing gastritis or peptic ulcer disease. If you continue to drink excessively, either through binge drinking or by having multiple drinks on a daily basis, the consequences include destruction of liver cells, a build-up of fat deposits in your liver (fatty liver), or liver inflammation (alcoholic hepatitis), permanent scarring

(cirrhosis) or even liver cancer. Guidelines for low risk weekly alcohol consumption suggest up to 11 standard drinks in a week for women, and up to 17 standard drinks in a week for men. Drinking no more than six standard drinks on a single occasion reduces the risk of alcohol-related injury arising from that occasion. Drinking more than six standard drinks on any one occasion is regarded as binge drinking. Don't choose your drinks based on the belief that one form of alcohol is not as harmful as another. Remember it is the amount of alcohol – not the type – is what matters. AskAboutAlcohol.ie is a HSE website that provides dedicated information about alcohol risk and offers support and guidance to anyone who wants to cut back on their drinking. Keep in mind that alcohol can have varying effects on you depending on; age, gender, mental health, drug use and medical conditions, so balance a glass of your preferred alcoholic beverage with some thought about the associated risks. As far as your liver is concerned, the safest amount of alcohol is no alcohol at all.

Maintain a healthy weight and get regular exercise

Research has demonstrated that more than 70% of Irish over-50 year olds are either overweight or obese. Of those classed as obese, approximately 30% will have fatty liver disease, putting them at high risk of liver scarring (cirrhosis), liver failure and liver cancer. If you carry any excess weight around your middle, it can cause insulin resistance which often leads to fatty liver disease. Measure your middle and keep it at a healthy circumference. Men should maintain a waist of less than 102cm (40 inches) and women, less than 88cm (35 inches). Exercising and eating a diet that's low in fat and high in fibre, vitamins, antioxidants and minerals will help you maintain a healthy weight and liver. Doing any physical activity is better than doing none. If you currently do no physical activity, start by doing some, and gradually build up to the recommended amount. Guidelines recommend 150 to 300 minutes (2 ½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1 ¼ to 2 ½ hours) of vigorous intensity physical activity each week. Aim to start with a brisk 30 minute walk each day.



Avoid fad diets

Fad diets that make your weight yoyo can put excessive stress on your liver. Avoid any products that promise large amounts of weight loss in an unrealistically short period of time. Aim to lose weight at a healthy rate of ½ -1kg per week. Liver cleansing and detox diets should also be avoided. Contrary to popular belief, no particular diet is liver cleansing, but a healthy diet improves wellbeing.

Have a regular MOT.

- A blood test is the best way to keep a keen eye on the levels of cholesterol and glucose in your blood – all of which are associated with fatty liver disease. Too much glucose can be an indication that you have impaired glucose tolerance or diabetes – in both cases you'll need to carefully control your blood sugar levels through diet, medications and/or weight loss. 70% of people living with T2DM develop NAFLD yet three quarters of T2DM patients with NAFLD have normal liver function tests. In this condition, blood tests are not sufficient to diagnose NAFLD and further tests such as FibroScan are advisable. International Clinical Practice Guidelines recommend that for type 2 diabetes patients, the presence of NAFLD should be screened irrespective of liver enzyme blood tests, since type 2 diabetes patients are at high risk of liver disease progression.
- Have you ever experimented with intravenous drugs? Did you have a blood transfusion, or organ transplant prior to 1992? If so, make sure you get tested for hepatitis C.
- Do you complain of chronic fatigue? Check your iron levels (serum ferritin). Haemochromatosis is a genetic condition very common in Irish people that causes slow gradual iron accumulation in the liver and other organs. Once diagnosed, treatment is very simple and regular ferritin blood checks can help to keep the condition under control.

Protect yourself

- Practice safer sex and protect yourself from hepatitis B. Unlike hepatitis B, hepatitis C is not classified as a sexually transmissible infection, but if there is a chance of blood to blood contact, you should practice safer sex.
- Less commonly, toothbrushes, razors and other personal care items can also transmit hepatitis B or C, so don't borrow, or share yours with anyone. Household contacts of people living with chronic hepatitis B should be offered the hepatitis B vaccine. There is no vaccine for hepatitis C.
- If you currently use intravenous drugs, don't share needles. Take advantage of a needle exchange program.
- Body art, piercings, and tattoos are all forms of self-expression. However, inadequately sterilised tools, reused needles or contaminated inks could expose you to hepatitis B or C infections. Because piercing and tattoo equipment can come into contact with blood, it is important to ensure your service provider takes the proper infection control precautions between clients.

Be aware of drug safety

With easy access to health information via the internet, you may be tempted to self-diagnose and treat your own health problems. But by not consulting a doctor, you may be putting yourself at risk for potentially hazardous side effects that can result when certain medications and/or supplements are combined. As the main organ that detoxifies most drugs, herbal remedies and vitamins, the liver is vulnerable to the toxic consequences of self-medicating. In recent years, herbal remedies such as kava have made headlines for their harmful effects on the liver, yet it is only one of many herbal remedies that can cause liver toxicity. There have also been concerns about the potential for accidental over-dosing with paracetamol when several products containing this drug (i.e. cold remedies and pain medication) are taken at the same time. People may not realize that any medication - herbal or pharmaceutical - undergoes important chemical changes when processed by the liver. While the original product might not be considered harmful, the resulting by-products may be toxic to the liver. Also, the interaction of one medication with other medications, or when combined with alcohol, may cause complications for otherwise healthy people. Those who already have liver problems have to be especially careful and may not be able to take even the most ordinary over-the-counter remedies to treat common ailments like headaches or colds. Always consult your doctor or pharmacist before taking new medication.

In summary, the key steps to maintaining Liver Wellness are:

- Choose to lead a healthy lifestyle.
- If you are overweight, strive for a gradual and sustained weight loss.
- Eat a well-balanced diet that is low in saturated fats and high in fibre.
- Minimize sugar consumption, reduce the intake of fried food
- Introduce exercise into your routine, at least four times a week. You can enjoy walking, swimming, cycling, gardening, stretching.
- Avoid alcohol.
- Have a regular MOT.

Professor Suzanne Norris, Consultant Hepatologist & Gastroenterologist, St James's Hospital and Liver Wellness®, Dublin. Professor of Hepatology and Gastroenterology, Trinity College, Dublin

A FibroScan appointment can be booked directly at a Liver Wellness® Clinic in the Beacon Hospital or Blackrock Clinic. Book online at **www.liverwellness.ie** OR phone **01-910 8901** OR email: **info@liverwellness.ie**

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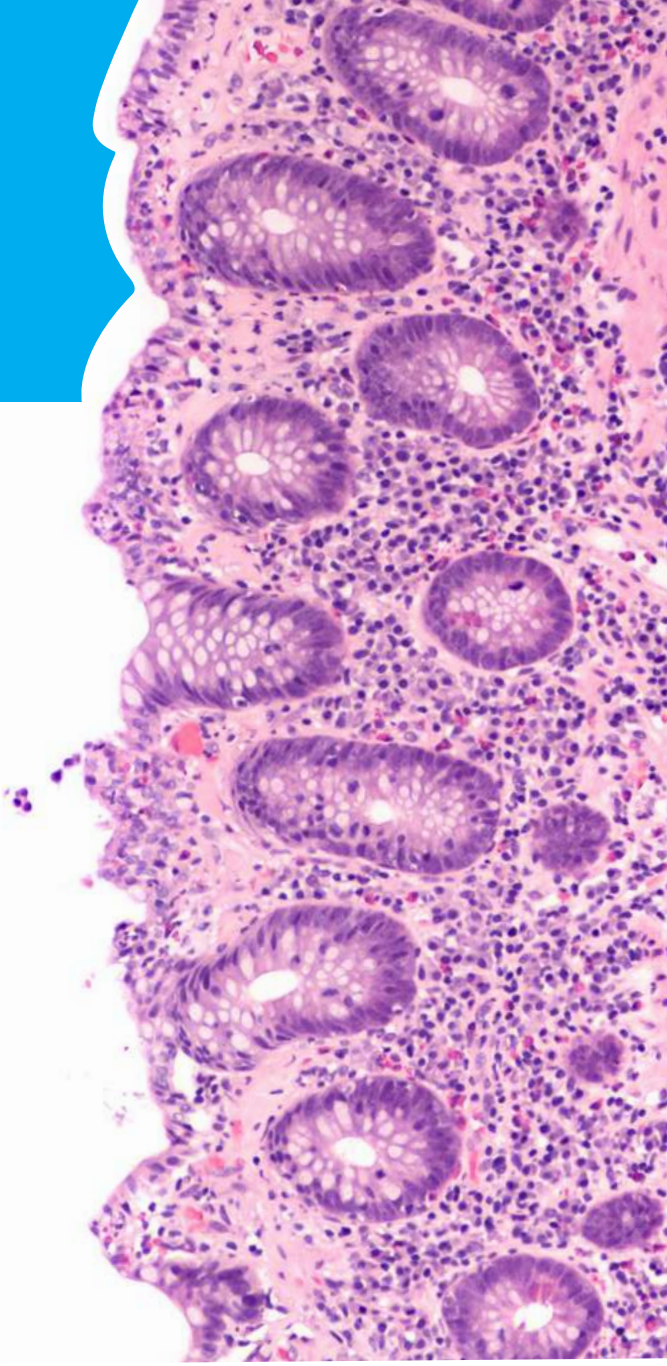
Are you suffering from ongoing watery diarrhoea? Could it be Microscopic Colitis?

Dr Andrew Jenkins (PhD, MPharm)

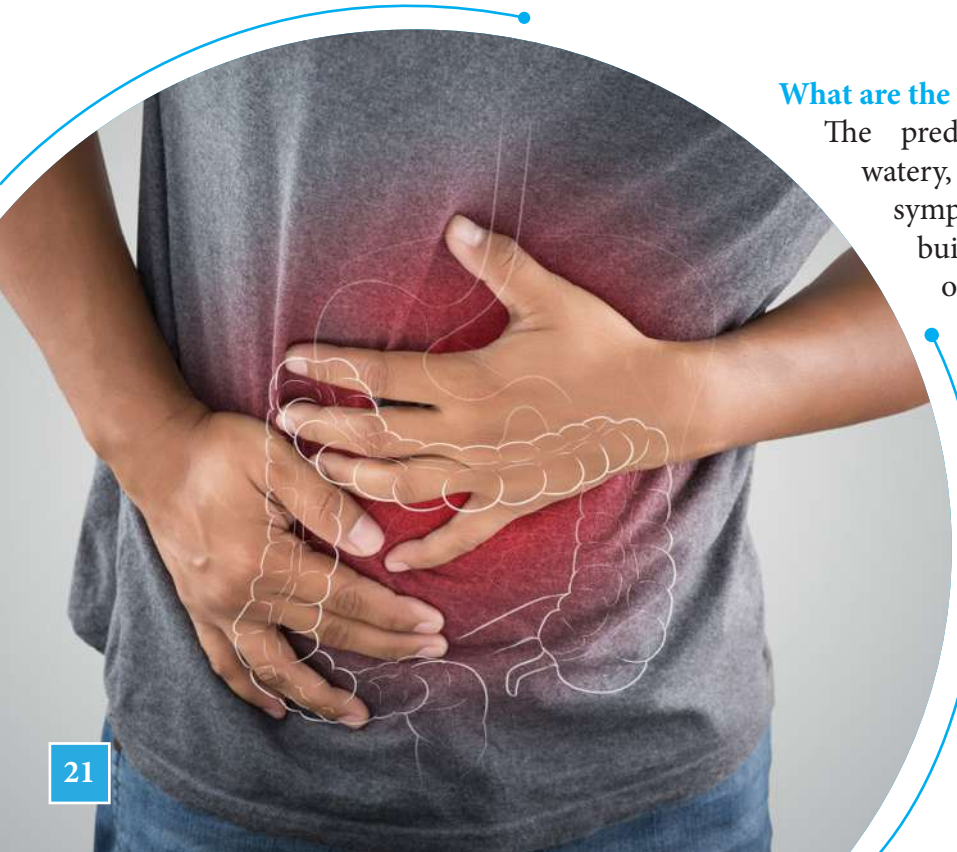


What is Microscopic Colitis?

Like Ulcerative Colitis and Crohn's Disease, Microscopic Colitis (MC) is recognised by Crohn's and Colitis UK as an Inflammatory Bowel Disease (IBD) [1]. Microscopic Colitis is a treatable condition which affects the large bowel (the final part of the digestive system including the colon and rectum) predominantly causing chronic (ongoing), frequent, watery, non-bloody diarrhoea[2].

A healthy large bowel absorbs around 90% of the water from left-over waste leading to the creation of solid bowel movements[3]. When MC is present this causes a microscopic level of inflammation (which can only be seen under a microscope and can't be seen by the eye) making the colon less efficient at absorbing water. The exact mechanisms which lead to MC are still largely unclear, however it is believed that a range of different factors cause fluid to build-up in the colon resulting in patients to experiencing a large volume of watery stools and diarrhoea[4].

There are two types of MC: lymphocytic colitis where there is an increase number of cellular lymphocytes and collagenous colitis where there is an increased collagenous band present [5]. These two types can only be distinguished under a microscope and although they are separate conditions, when conducting research they are treated and managed the same (as MC)[6].



What are the symptoms of MC?

The predominant symptom of MC is chronic, watery, non-bloody diarrhoea. The onset of symptoms can be either sudden or can gradually build up[6]. This can lead to urgency (in 70% of patients) or faecal incontinence (the inability to control bowel movements) seen in 40% of patients[8]. The majority of patients experience between 4 and 9 loose stools a day with some patients experiencing over 10 daily[6]. MC is a chronic and relapsing disease with patients often experiencing flaring symptoms over a long period of time[7]. As the inflammation is microscopic there is no blood in the stools unlike with Ulcerative Colitis and Crohn's Disease.

Other symptoms may include[7]:

- Abdominal pain (discomfort or cramping in up to 50% of patients)
- Weight loss in active disease (around 50% of patients)
- Nocturnal diarrhoea (needing to go at night)
- Fatigue (which may be caused by night-time diarrhoea)

Whilst these symptoms are different from other Inflammatory Bowel Diseases, they are very similar to diarrhoea prominent Irritable Bowel Syndrome (IBS) and this can lead to misdiagnosis. A recent publication highlighted the subtle differences, shown in Table 1. This overlap with IBS was highlighted in one study which found that 9.8% of those patients previously diagnosed as having diarrhoea prominent IBS actually had MC9.

Table 1 Differences in clinical history between patients with irritable bowel syndrome and those with microscopic colitis

Clinical history variable	Irritable bowel syndrome	Microscopic colitis
First occurrence of disease	Usually before 50 years of age	Usually after 50 years of age
Stool consistency	Soft–variable–hard	Watery/soft
Abdominal pain/discomfort	Obligatory	Variable
Nocturnal diarrhoea	Very unlikely	Possible
Feeling of incomplete bowel evacuation	Common	No
Weight loss	Rare	Common
Faecal incontinence	Rare	Common
Feeling of fullness/bloating	Common	Rare
Accompanying autoimmune disease	Rare	Common

Who is affected by MC?

The disease was first recognised around 40 years ago and since then the number of patients recognised with the disease has increased as practitioners have become increasingly aware of the disease and its diagnosis[4]. A study conducted in Nottingham also found that increasing levels of diagnosis correlated to the number of biopsies (tissue samples) taken[10]. Recent studies have found that 1 in 10 patients presenting with chronic watery diarrhoea have MC[2]. This number rose to nearly 1 in 5 in some studies[6]. It is now believed that there is a similar number of patients suffering from MC as those that suffer from Crohn's disease or Ulcerative Colitis[6], with 50 to 200 patients per 100,000 having MC[9].

Women (3 to 1 compared to men) of an older age (average age 65.8 years) are the most likely individuals to have MC[6], however it has also been found that 25% of cases occur in patients under the age of 45[7].

What causes MC?

The specific cause of MC is not currently known, with studies suggesting it could be a combination of several factors causing an inflammatory response[4]. There is also a general belief that it could be autoimmune related with the body attacking healthy cells for an unknown reason. This is supported by the observation that those patients with MC have a significantly increased likelihood of having other autoimmune conditions (such as coeliac disease, rheumatoid arthritis, thyroid disorders and type 1 diabetes) compared to the general population[6]. For example, the risk of developing either MC or coeliac disease is increased 50 fold in patients with the alternative condition[11].

A number of studies have shown a link between the use of medications and MC. This includes medications such as non-steroidal anti-inflammatory drugs (NSAIDs, including ibuprofen and diclofenac) used for pain, some proton pump inhibitors (PPIs, including omeprazole and lansoprazole) used to reduce stomach acid and selective serotonin reuptake inhibitors (SSRIs) used for depression[6]. Whilst there is some link to MC, these medications can also cause a side effect of diarrhoea and therefore the IBD team will assess all medications in patients with MC. Patients should not stop taking these medications until it has been discussed with their doctor or IBD team[1].

It has also been found that the risk of developing MC is higher in current and past smokers than non-smokers. Those who smoked more had an increased risk and the risk reduced when patients stopped smoking[12]. This association was seen to be stronger with collagenous colitis than lymphocytic colitis, with smokers developing collagenous colitis on average 14 years earlier than non-smokers[13], however patients with both types of MC are advised to stop smoking[12].

There is no evidence Microscopic Colitis increases the risk of developing colorectal (bowel) cancer, which differs from Ulcerative Colitis and Crohn's Disease where the risk is increased[6].

How is MC diagnosed?

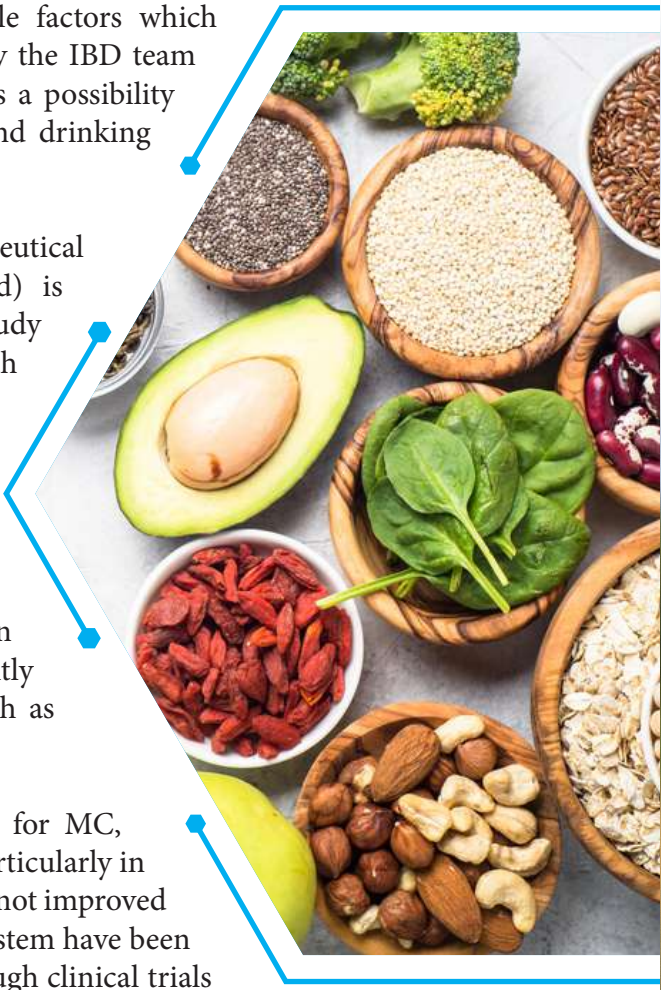
As the name implies Microscopic Colitis is a change that happens at a microscopic level. This means that in order to diagnose patients a number of tissue samples (biopsies) are painlessly taken from the lining of the colon during a colonoscopy (a telescopic camera inserted rectally to examine the lining of the colon)[2]. These samples are then assessed under a microscope by a specialist doctor (a histopathologist). This is the only method by which MC can be formally diagnosed and differs from Ulcerative Colitis and Crohn's Disease where visible inflammation seen during a colonoscopy can help achieve a diagnosis without the need for biopsies to be taken[9]. Other tests of the faeces may be done to identify inflammation through levels of faecal calprotectin, however this has been found to be an unreliable for the diagnosis of MC[14].

Specialists may also undertake blood tests to rule out other autoimmune diseases such as coeliac disease (gluten allergy)[11].

How is MC treated?

Compared to other IBDs, MC is a highly treatable condition[2]. The main goal of treatment is to achieve clinical remission (freedom from symptoms) and improve quality of life. Both types of MC (lymphocytic colitis and collagenous colitis) are treated in the same manner[6].

The first step of treatment is to eliminate (where possible) any known risk factors, such as smoking and certain medications (such as proton pump inhibitors, non-steroidal anti-inflammatory drugs, selective serotonin reuptake inhibitors)[2]. Other lifestyle factors which may aggravate MC and diarrhoea symptoms will be assessed by the IBD team including caffeine, artificial sugars and milk products (if there's a possibility of intolerance)[2]. Maintaining a nutritious and balanced diet and drinking sufficient fluids to stop dehydration is also important[1].



If this approach does not improve symptoms then pharmaceutical interventions may be explored. Budesonide (a corticosteroid) is currently recommended as the first line treatment[5]. A recent study found this is an effective treatment with 81% of patients with active MC achieving clinical remission[5]. Budesonide is often initially given for a short period of time to stop the symptoms, however a number of patients may require another course of the medication or to take the medication at a low dose for a long period of time. This is because a relapse of symptoms has been found to occur in 60-80% of patients once treatment had stopped[5]. Budesonide is a steroid formulated to act locally in the bowel and studies have shown this medication has significantly fewer side effects (around half) than conventional steroids such as prednisolone[15].

There is currently little evidence supporting other treatments for MC, however medications used in IBD are likely to play some role, particularly in those who cannot tolerate steroids or have symptoms which have not improved with first line treatments. Drugs used to suppress the immune system have been used in practice in these situations and may have a benefit although clinical trials showing benefit are lacking[5].

How can this information help me?

If you are suffering from the symptoms of MC which have not improved by IBS medications then it would be worthwhile discussing MC further with a qualified healthcare professional such as your General Practitioner (GP) or local IBD team.

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What are FODMAPs

Elaine McGowan is a CORU registered, Consultant Dietitian and Clinical Nutritionist, working within the private health care system. She has over 33 years' experience working closely with consultants and GPs, with over 27 years specialising in gastrointestinal symptoms such as diverticular disease, ulcerative colitis, Crohn's disease, coeliac disease, bowel cancer, irritable bowel syndrome (IBS) and small intestinal bacterial overgrowth (SIBO).

Elaine also has a specialist interest in Polycystic ovary syndrome (PCOS), underactive thyroid, difficult weight loss and functional gut symptoms associated with these conditions.

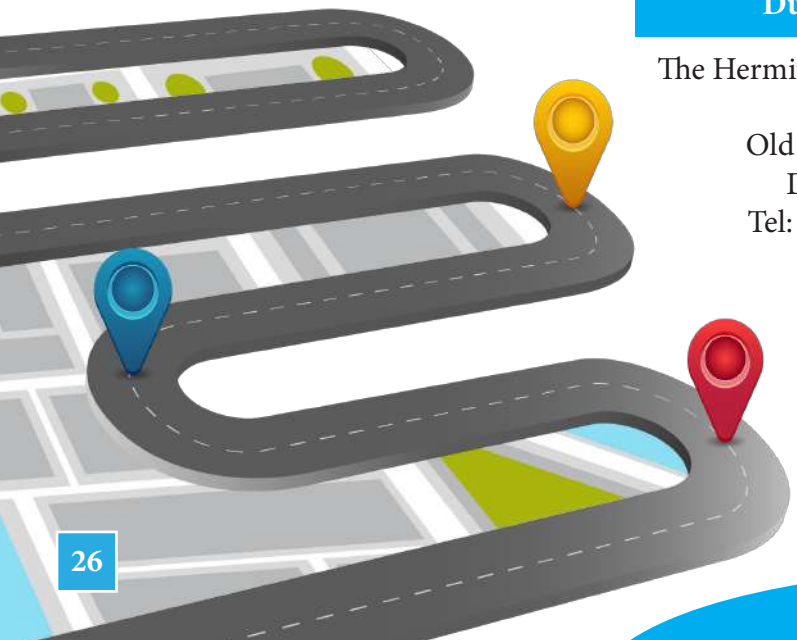
Elaine was one of the first Dietitians in Ireland to be trained in the use of the low FODMAP diet, in Melbourne, Australia, in 2010. This is a diet specifically designed to aid relief of symptoms such as bloating, abdominal pain and discomfort, excessive wind, belching, altered bowel motions (constipation and/or diarrhoea), in people with IBS.

As NICE (National Institute for Health and Care Excellence) guidelines suggest, the low FODMAP diet is not recommended to be used without appropriate support and guidance from a healthcare professional specifically trained in the diet. There are concerns for the adequacy of nutritional intake and unnecessary exclusions if carried out unsupervised, which can lead to health issues associated with long-term nutritional deficiencies. It is also important not to eliminate any specific food groups lifelong.

Elaine's specialist knowledge in the area of gastroenterology, as well as the close professional relationships with many of the leading Gastroenterologists in the country, enables Elaine to ensure all other possible causes of symptoms have been ruled out. Elaine can then work with the patient to provide individually tailored advice, including the low FODMAP diet, if appropriate.

Elaine has successfully used the low FODMAP diet and other dietary strategies to help thousands of patients in her clinics in Dublin (North and South), and Limerick. As Elaine is a registered member of CORU (DI018650), consultations may be covered in part, by your Health Insurance Company. Extent of cover is dependent on type of health care plan.

One size does not fit all when it comes to the low FODMAP diet, therefore to make an appointment for a low FODMAP dietary programme please contact your nearest Elaine McGowan Dietetic Clinic.



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Dublin 18
Tel: 01 285 3666

Limerick

Bons Secours Hospital at Barrington's
George's Quay
Limerick
Tel: 061 490 547

- FODMAP's are found in foods we eat. The word 'FODMAP' is an acronym referring to the following; Fermentable Oligosaccharides, Disaccharides, Monosaccarides and Polyols.

- The main FODMAP groups are fructose, fructans, galactans, polyols and lactose. In people with gastrointestinal symptoms, a diet high in FODMAPs can cause diarrhoea and/or constipation, bloating, wind, nausea and abdominal pain/discomfort.

- Temporarily removing foods high in FODMAPs from the diet is effective in improving symptoms of people with functional gut disorders like Irritable Bowel Syndrome.

- The FODMAP reintroduction process helps to identify specific symptom triggers, as each individual will respond to varying degrees with differing high FODMAP foods.

- The low FODMAP diet should not be followed long-term as it can lead to nutritional deficiencies, it is a short-term dietary exclusion which aims to achieve long-term control of symptoms.

- As per NICE guidelines, advice on exclusion diets such as the low FODMAP diet should only be given by a healthcare professional with expertise in dietary management, such as a registered dietitian.

Recipes

1. Low FODMAP - Roast Lemon Chicken

Full of appetite-satisfying protein, this chicken dish is very tasty and extremely easy to make. It can be served with steamed green beans or baby spinach. Or, if you prefer you can roast some vegetables with the chicken and potatoes; sweet potatoes, peppers or courgettes all work well.

Ingredients (Serves 4)

2 large lemons
2 tablespoons extra virgin olive oil
4 whole chicken fillets (preferably free-range or organic)
600g potatoes, scrubbed, cut into wedges, skin on
3 sprigs rosemary, leaves removed
400g steamed green beans, to serve

Method

1. Preheat oven to 200°c, gas mark 6.
2. Juice 1 lemon. Cut remaining lemon into wedges.
3. Combine lemon juice, olive oil, chicken, potato wedges and salt and pepper in a large bowl. Toss to combine. Arrange in a roasting pan.
4. Place lemon wedges over chicken and potatoes. Sprinkle with rosemary.
5. Roast for 45 minutes or until chicken is golden and lemons slightly charred.
6. Serve with steamed green beans or baby spinach.

2. Low FODMAP – Warming spicy tomato, basil and roasted vegetable soup

Ingredients (serves 4)

10-12 large tomatoes
2 medium red peppers, deseeded
2 carrots
1 red chilli, deseeded
2 stalks of scallions, green part only
2 tbsp olive oil
A few sprigs of fresh basil

Method

1. Preheat oven to 190°c, gas mark 5.
2. Cut tomatoes, peppers and carrots into chunks and finely dice the chilli.
3. Place all of the chopped vegetables, along with the stalks of scallion, into a large roasting tin.
4. Season generously with salt and pepper and toss together. Place in the oven for 35-45 minutes turning evenly every 15 minutes.
5. Place roasted vegetables in large saucepan, add 500ml boiling water and sprigs of basil. Bring to boil and simmer for 10 minutes.
6. Place soup in food processor and blitz until smooth.
7. Add extra boiled water until desired consistency is achieved.
8. Season to taste.

3. Low FODMAP - Roasted Vegetables

Ingredients (serves 4)

3 carrots
2 medium potatoes, cut into 1-inch pieces
3 parsnips, cut into 1-inch pieces
1 turnip
1 tbsp of olive oil
Pinch of thyme (fresh or dried)
Pinch of pepper, to taste

Method

1. Preheat oven to 200°c, gas mark 6.
2. Cut all vegetables into 1-inch pieces.
3. Place vegetables and thyme in a roasting tin and lightly cover with olive oil.
4. Roast for 45 minutes, turning the vegetables occasionally until tender
5. Serve on their own as a snack or warming lunch, or as an accompaniment to a meat, fish or chicken dish such as our Roast lemon chicken above!

4. Low FODMAP - Beef Provencal (recipe adapted from MasterChef, Hospitality Ireland)

Ingredients

2 tbsp rapeseed oil
500g lean stewing beef (diced)
Sea salt and cracked black pepper
1 large glass of red wine (Cabernet Sauvignon or Bordeaux)
3 spring onions, green part only (diced)
2 medium carrots (diced)
2 red peppers (cut into chunks)
1 bay leaf
2 red chilli's
1 x 400g tin of chopped tomatoes
1 tbsp tomato puree
500ml beef stock (ensure stock cubes are low FODMAP or make own low FODMAP stock at home)
1 large bunch fresh basil
1 tsp cornflour (dissolved in small amount of cold water)
Sugar to taste

Method

1. Heat a large non-stick pan, add 1 tbsp rapeseed oil, take half the beef, add to hot oil, season with a pinch of sea salt and cracked black pepper, brown all over, remove to a casserole dish and repeat with remainder of beef, deglaze with red wine and remove from pan to casserole dish.
2. Gently heat pan with 1 tbsp rapeseed oil, add spring onion, carrot and red pepper, sweat gently for 2 - 3 mins, add tomato puree, cook out for 1 min, add chopped tomatoes and bay leaf, pour onto sealed beef in casserole dish.
3. Cover with stock (making sure the meat is submerged), stir to mix, cover and place in oven at 160 °c for approx. 2 hours.
4. Check after 1hr 30mins, if the meat is still a little tough, return to oven, if stock has evaporated, add a little hot water.
5. When 2 hrs are up check again, if tender, remove from oven. If still a little tough return to oven for another 15 mins, or until you are happy the meat is tender.
6. When you are satisfied with the meat, it's time to correct and season the sauce, put the casserole back on a gentle heat, when simmering gradually stir in cornflour a little at a time until desired consistency is reached.
7. Chop fresh basil finely and add to dish, check for salt, pepper and if a little bitter add a small amount of sugar to taste.
8. Serve with creamy mash or long grain rice & enjoy!

Reflux Testing

An Article for Healthcare Professionals

Dr Jafari graduated from medical school in 2000 with an MD and a PhD in Neurogastroenterology in 2014 from Queen Mary, University of London. He has been Head of Upper GI Physiology at the Guy's and St Thomas' Foundation Trust Hospitals since 2014, performed and supervised more than 14,000 oesophageal High-Resolution Manometry and impedance-pH reflux monitoring, >8,000 Hydrogen-Methane breath tests, >1,200 wireless capsule reflux monitoring, numerous ambulatory small bowel manometry, sphincter of Oddi manometry, and C13 GI breath testing. Dr Jafari has published more than 130 research abstracts and articles. Special interests: Oesophageal motility disorders, gastroesophageal reflux disease, effect of prokinetics on oesophageal motility. In 2016, Dr Jafari founded GI Cognition providing oesophageal physiology services to offer testing without any capital investment across the UK.

GORD that is NOT GORD?!

"Eye don't trust my eyes anymore, they're easily deceived, too often led astray by things, that cannot be believed!" Trust In You; Album: Wayne Watson.

Dr Jafar Jafari MD PhD in Neurogastroenterology
Director of the GI Cognition Ltd., the mobile GI physiology service

Gastroesophageal reflux disease (GORD) is a common condition that develops when reflux of gastric contents causes troubled symptoms and/or complications. Heartburn and regurgitation are the 2 cardinal symptoms of GORD, although it may present with chest pain; pulmonary; or ear, nose and throat symptoms.

Don't get me wrong, I am not going to repeat what you already know or to talk about the times that heartburn or other GORD symptoms are not due to "acid" in the oesophagus. Here, the concern is when the symptoms are due to "high acid exposure" in the oesophagus and "objective" reflux monitoring also confirms this because the findings fulfil the criteria for diagnosis of GORD but, the condition is neither GORD nor requires treatment of GORD.

You may have noticed that despite all the mass of research published on GORD, still a group of patients poorly respond to treatment and the clinicians end up with using the terms "functional" or "stress related" which are perhaps a more medical-political term to express that " I don't know what is happening to you!".

Although there is a long list of genuine reasons for a patient remaining refractory to treatments of GORD, including post antireflux surgeries, I would like to emphasise again that the topic in this article is exactly for the times the GORD is "misdiagnosed". Misdiagnosis of GORD can occur generally for two reasons and some sub-reasons:

1. "Misinterpretation" of reflux monitoring data, either by the physiologist or by the clinician or both.
2. "Misuse" of reflux monitoring "method" i.e. using a wrong reflux testing tool.

Misinterpretation of reflux monitoring

Categorically, diagnosis of GORD is based on the patient demonstrating high acid exposure time (AET) - the most common parameter amongst all of the reflux monitoring data – or, high number of reflux events (regardless of amount of acid exposure time) or both. In recent literature, having a positive reflux-symptom association despite normal degree of acid exposure time is also considered as a variant of true reflux i.e. oesophageal hypersensitivity.

In summary, the diagnosis of GORD is generally based on (individual or in combination):

1. High acid exposure.
2. High number of reflux events.
3. Reflux-symptom positive correlation.

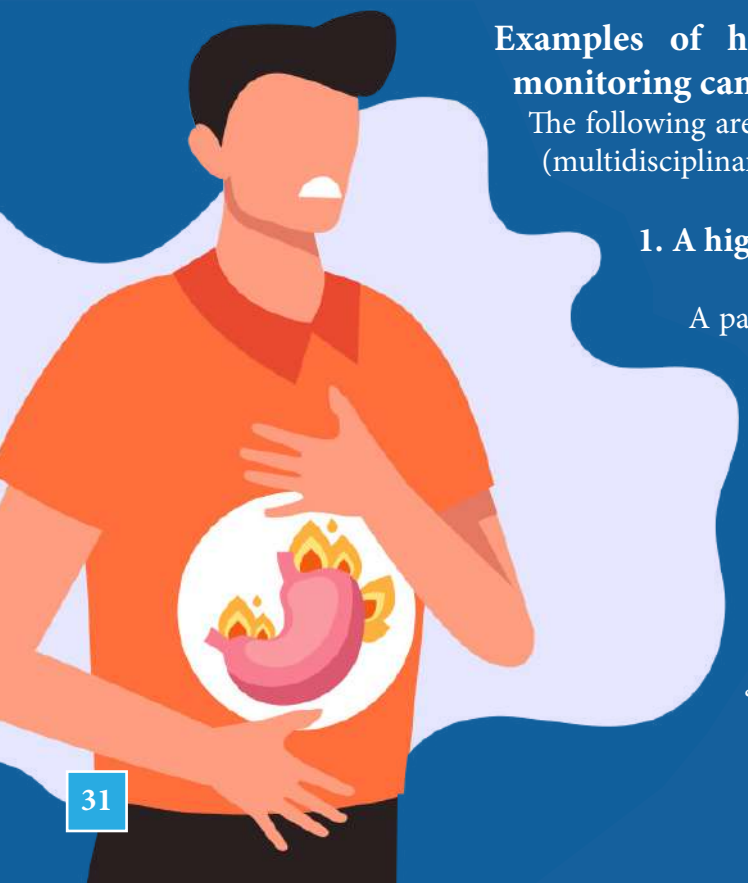
(Please see next section for examples and clarification)

Misuse of reflux monitoring test

The most common way of misusing a reflux monitoring test is to use wireless method on a patient who will most likely show high acid exposure erroneously. Using a catheter-based method with impedance-pH monitor is a much more appropriate choice in such cases. A pH-only system also does suffer from the same issue as in wireless reflux testing because both systems only have one pH sensor that cannot determine the direction of the flow leading to acid exposure nor they are able to detect gas events e.g. belch/supragastric belch which can indeed be the real pathology requiring treatment.
(Please see next section for examples and clarification)

Combination of above

Often, the misuse of reflux monitoring method and misinterpretation of the data go hand-in-hand and it will be difficult to categorise the reasons for falsely labelling a patient with positive GORD. To be honest, it does not matter what you "call" the error as it has become a trend these days for hot debates on what should or should not be named, what matters is how one can avoid them.



Examples of how misinterpretation and misuse of reflux monitoring can be avoided

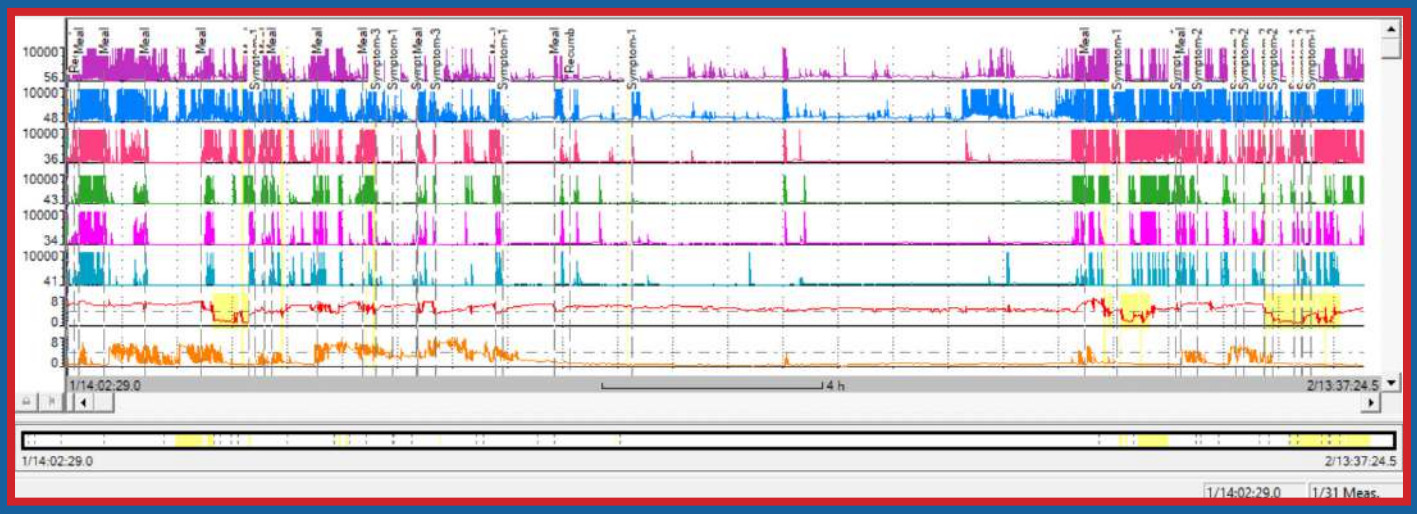
The following are a selection of real life cases discussed in MDT meetings (multidisciplinary team meeting):

1. A high acid exposure that is not GORD!

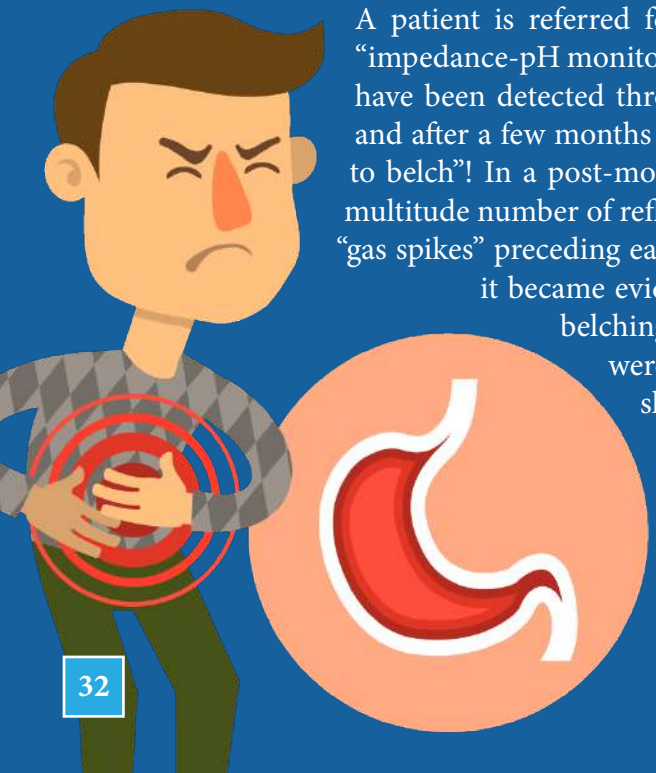
A patient is referred for reflux testing post achalasia treatment believing that the disruption of the LOS (lower oesophageal sphincter) now has led to heartburn or reflux-like symptoms i.e. GORD. The patient undergoes "wireless reflux monitoring" that demonstrates high acid exposure (daytime, nocturnal or both) and diagnosis of "GORD post achalasia treatment" is coined on the patient. The patient undergoes a complementary fundoplication to get rid of the "reflux symptoms" but…. shortly after surgery he/she returns to the clinic with "persistent GORD symptoms" with "added dysphagia".

Although a patient after treatment of achalasia may indeed develop GORD, the confirmation must not be done by wireless reflux monitoring nor the pH-only method. It is highly likely that there is still some remaining resistance after achalasia treatment at the LOS level leading to retention of acidic materials ingested. Also, even one or two true reflux events are prone to remain in the oesophagus for a prolonged period of time due to "poor clearance" of the oesophagus. If impedance-pH reflux monitoring was used instead of wireless method, it was possible to differentiate between retention of acidic material/ minimal refluxate versus true significant reflux and therefore, the patient would not have ended up for MDT review. Another less frequent but possible reason for falsely high acid exposure in such a patient could be fermentation of retained food material in the oesophagus which is also due to poor clearance of oesophagus. Fermentation of food in the oesophagus can be suspected when there is a gradual drift of the pH in the oesophagus nevertheless, this can be also confused by acid-only events or other artefactual causes of high acid exposure. Once again, using combined impedance-pH monitoring could far more easily differentiate between true and false high acid exposure ie. GORD and GORD when it is not GORD. As you can expect, treatment direction for high acid exposure due to poor clearance as opposed to true GORD are very much two opposing directions!

- *Impedance-pH reflux monitoring post **achalasia** treatment. Only x3 prolonged major acid exposure event; LOS relaxation pressure = 20mmHg. This high acid exposure is NOT GORD but "achalasia" requiring further reduction of LOS pressure!*



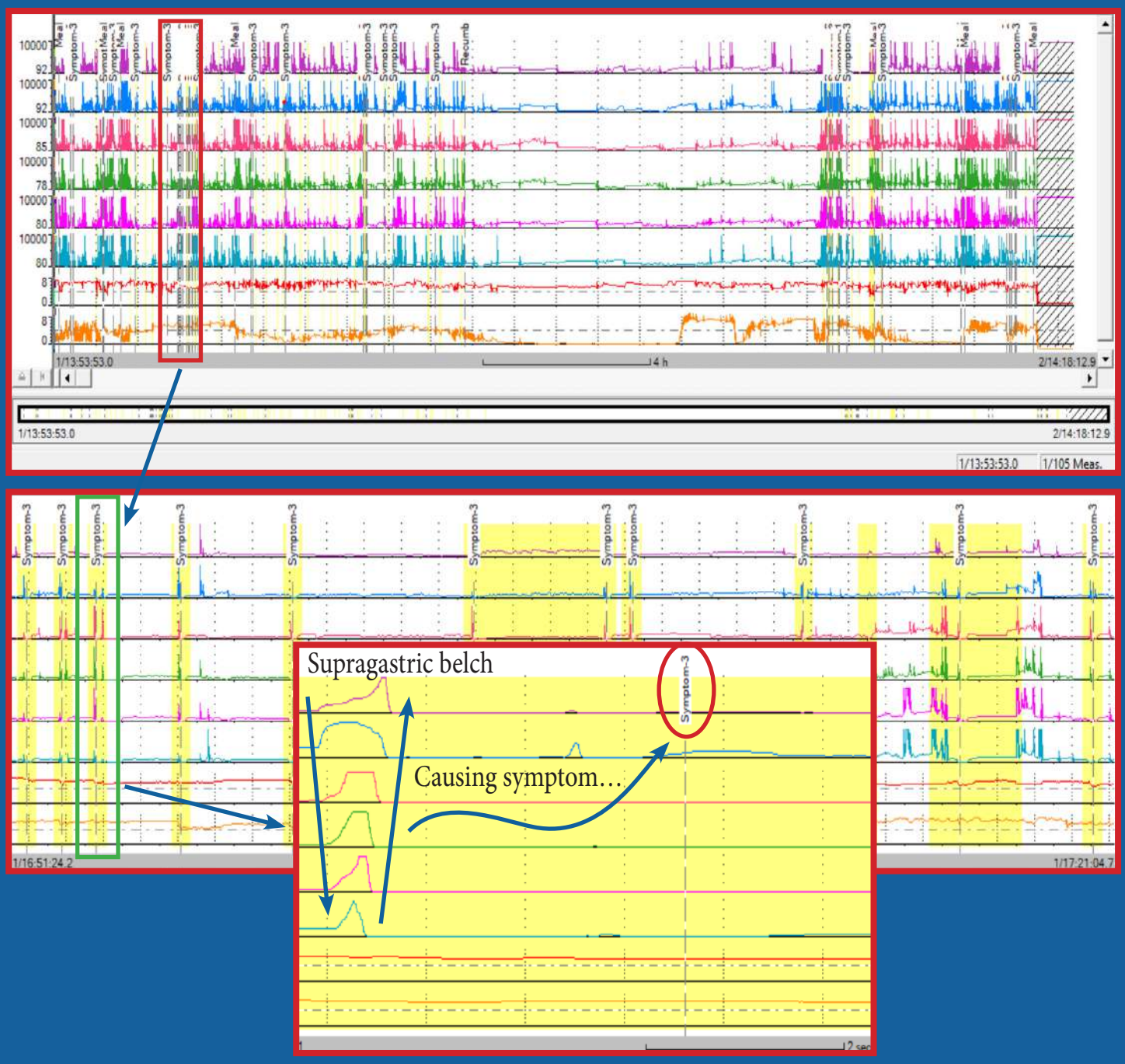
2. High number of reflux events which is not GORD!



A patient is referred for reflux monitoring due to refractory GORD symptoms. The "impedance-pH monitoring" is proudly used and excessively high number of reflux events have been detected throughout the study. The patient is referred for antireflux surgery and after a few months …..he/she is back with "dyspepsia symptoms" and "being unable to belch"! In a post-mortem investigation, it was found that the patient indeed showed multitude number of reflux events but the physiologist missed to pay attention to the little "gas spikes" preceding each and every reflux event. In further magnification of the spikes, it became evident that the majority of the gas spikes were indeed supragastric belching. So the patient did truly suffer from GORD and their symptoms were genuinely caused by these reflux events, but the condition should not be considered GORD (or at least a true-GORD). If the patient's supragastric belching was managed the patient would neither need an antireflux operation nor even PPIs. Besides the physiologist, the clinician could also identify supragastric belching by a careful history and examination. It is again evident that using pH-only systems such as wireless reflux monitoring would completely miss the condition all together!

There has also been cases where the patient suffers from true gastric belching that proceeded the majority of the reflux events. In such cases, it will be crucial to eliminate the cause for belching such as aerophagia, habit of drinking carbonated drinks, eating too fast, suffering from anatomical malformations in the palate etc. Why would a patient need an operation or life-long medication if the reflux can be eliminated without none of them?

- *Patient with **supragastric** belching, significantly high number of reflux events but normal acid exposure time; reflux-symptom association is strongly positive for nausea and regurgitation. This case is neither GORD nor hypersensitive oesophagus; this is a "supragastric belching" that requires appropriate treatment; neither operation nor lifelong PPIs.*



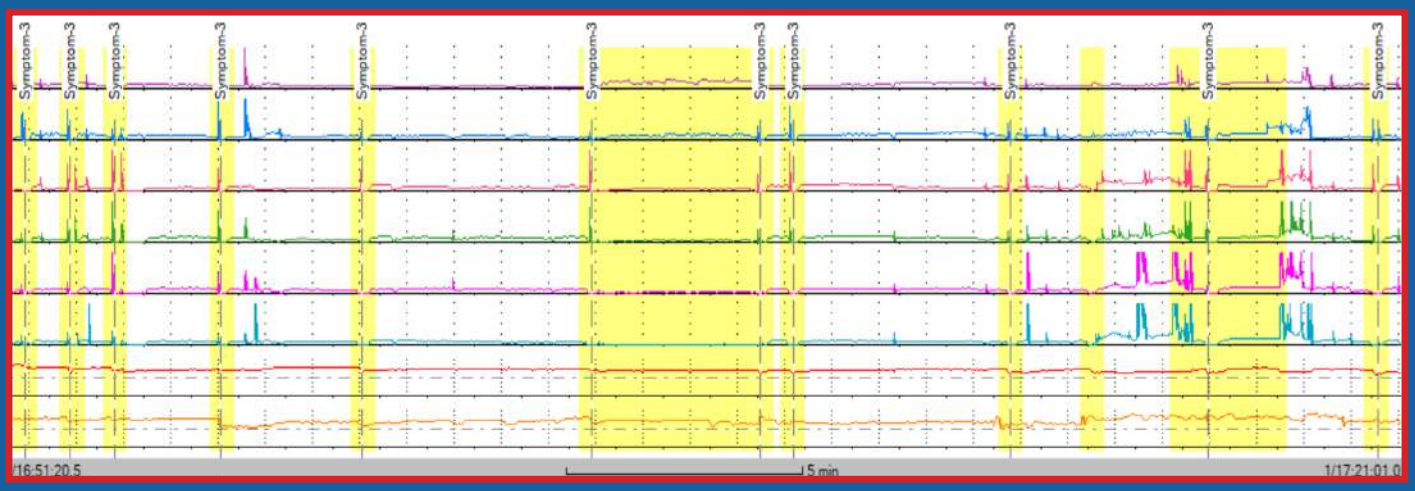
3. Reflux-symptom correlation which is not oesophageal hypersensitivity or GORD

A patient is referred for reflux monitoring following refractory symptoms post-antireflux surgery. The patient did have the correct testing system i.e. impedance-pH monitoring. The physiologist correctly reported that the patient does have significantly high acid exposure following reflux events and strongly positive reflux-symptom association. These all were which matching with the pre-operation findings in the same patient. However in this case, the number of reflux events were "minimal" but "prolonged" which was indicative of a

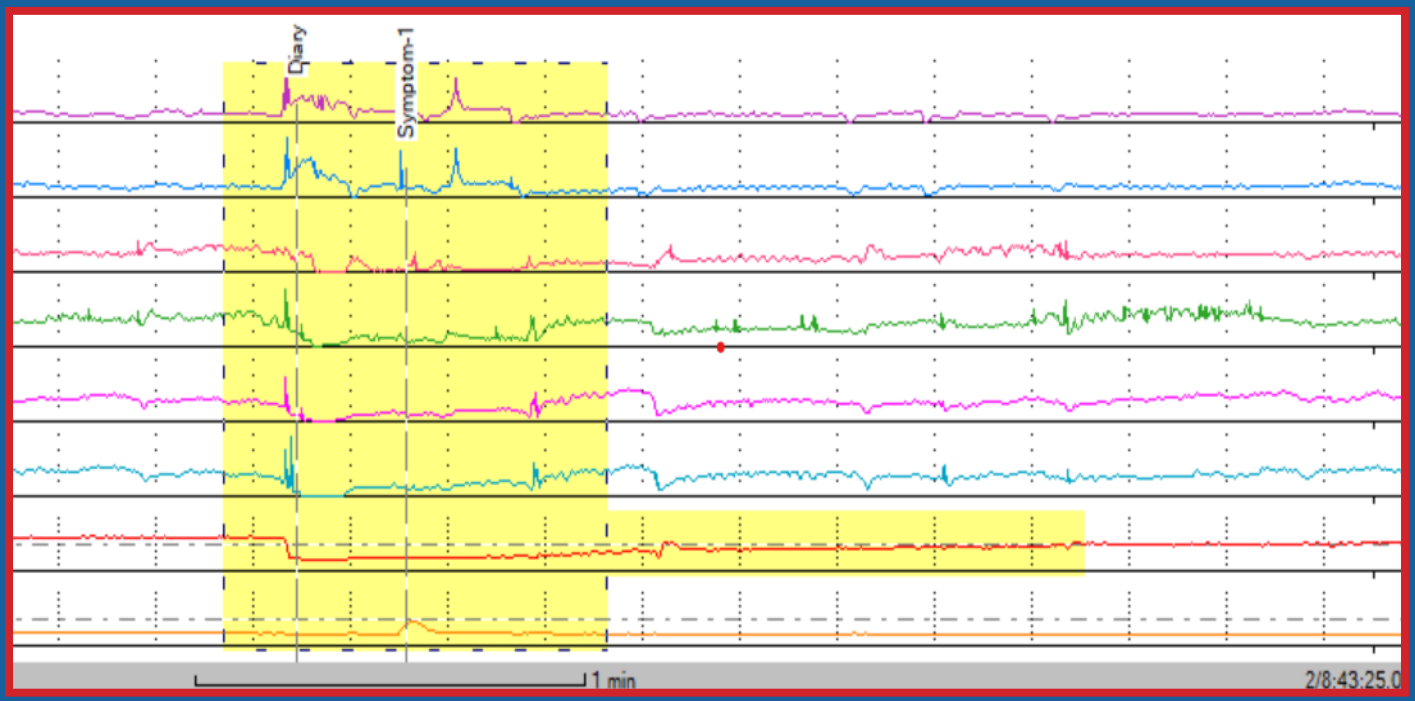
poor oesophageal clearance. Also, the LOS relaxation pressure (IRP) was reported to be at the higher end of normal range (14mmHg, normal <15mmHg), very close to the patient's baseline LOS pressure of 16mmHg. Nevertheless, the surgeon, believing that this is a "proper GORD", attempted a revised fundoplication. Of course the patient returned to the clinic shortly with persistent reflux symptom AND added severe dysphagia. The initial dysphagia the patient suffered from after the first fundoplication was tolerable and to some extent expected by both the patient and the clinician. A repeat reflux monitoring after second fundoplication showed a very high relaxation pressure (nearly twice the previous figure = 26mmHg).

Alternative scenarios of the above example were seen when the patient with reflux symptoms refractory to treatments is referred for pre-op reflux monitoring. The HRM confirmed the diagnosis of OGJ outflow obstruction and reflux monitoring demonstrated a high acid exposure.

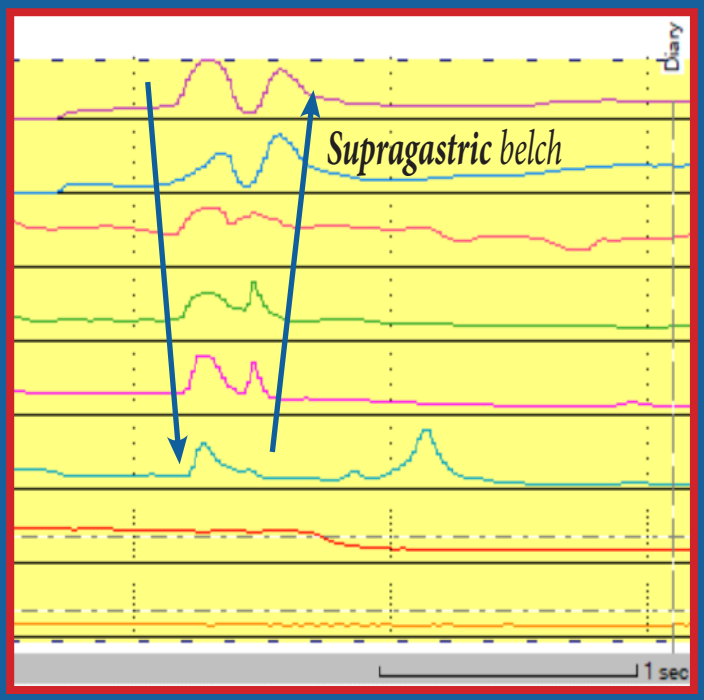
- *A patient with **supragastric belching** preceding their numerous non-acid reflux events. Air spikes should never been ignored. The patient precisely marks the events because they know when the events are happening. Obviously, reflux-symptom association is positive too. Why should this "GORD" be treated by surgery or PPIs? Why should this condition to be considered GORD to begin with?*

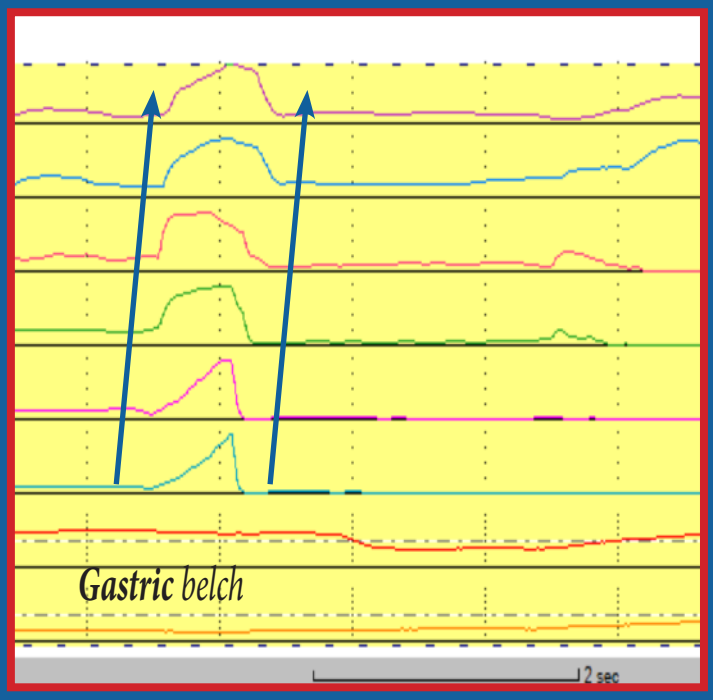


- *A magnified view of one acid reflux event triggered by **supragastric belching:***



- *Further magnification and comparison of supragastric belching with a true gastric belching. SGB = V shape movement of air, true belch = only upward movement of air.*





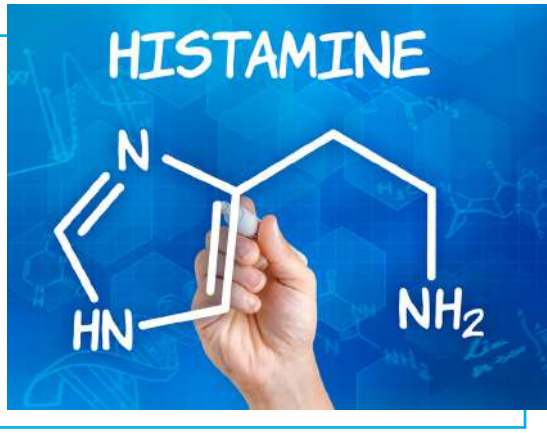
Take home message:

1. Use of combined impedance-pH reflux monitoring appears to be superior to pH-only techniques either wired or wireless.
2. The best use of the tools, does not guarantee the "best" outcome. Mindful analysis and interpretation of the result is required to avoid clinical complications and achieve success in treatment of reflux.

Histamine Intolerance or Allergies.

Written by Sarah Oboh, , OptiBac

Histamine intolerance or allergies?



Itchy, red, watery eyes? Runny nose? Sneezing? Well that's histamine for you! With the increase in the number of people diagnosed with hay fever, I'm sure many of us have experienced these symptoms at some point in our lives and this occurs as part of the body's natural allergic response. When we're exposed to an allergen, our immune cells release histamine which helps to open up the blood vessels, allowing our white blood cells to move to the affected areas and attack the allergen. Now this is great as it's part of the body's healing mechanism to restore health, however it does cause some uncomfortable and irritating symptoms.

What is histamine intolerance?

Now let's put allergies aside for one second and talk about histamine intolerance. Histamine intolerance is the accumulation of too much histamine in the body which occurs due to a number of different factors including foods high in histamine, various pharmaceuticals, alcohol, chronic gut issues and substances that block the activity of the enzymes which breakdown histamine. Histamine intolerance differs from an allergy as generally allergies tend to be more severe and consistent and can be more life-threatening. For example, if an individual consumes a food that they're allergic too, even in small amounts, an allergic reaction tends to follow soon after. However, in the case of histamine intolerance, an individual may consume a histamine-rich food in the morning, but they may present no symptoms until the histamine threshold is reached, which could happen at the next meal, or even days afterwards.

So think of histamine intolerance like a bucket full of water. When the bucket is full, symptoms occur. When the bucket is empty, the individual has no symptoms. High-histamine foods can act as cups of water filling the bucket and eventually, when the bucket is full, we experience the symptoms of histamine intolerance. These symptoms may not be as immediate as a true allergic reaction, making the specific trigger harder to identify and address.

Histamine intolerance symptoms

When the body reaches an abnormally high level of histamine, a wide range of symptoms can occur:

- Headaches or migraines
- Low blood pressure
- Muscle and joint pain
- Anxiety
- Itching
- Period cramps and dysregulation
- Difficulty breathing
- Nausea/Vomiting
- Hives
- Stomach pain

What causes histamine intolerance symptoms?

There are several factors which I mentioned earlier that can lead to histamine intolerance but one main factor that I'll discuss is poor gut health and how to address this.

Gut health and histamine intolerance

Friendly bacteria colonise our gut to provide a barrier of defence against bad bacteria or viruses. However, when there is an overgrowth of bad bacteria, this can lead to increased histamine production. If this is the case, you may want to consider Saccharomyces boulardii for its known ability to remove bad bacteria from the gut. Saccharomyces boulardii has been formally recognised as a probiotic due to the multiple mechanisms by which it confers benefits to its host, especially those suffering with chronic gut issues. It has been investigated for its effects in patients with inflammatory bowel disease and some clinical trials suggest that patients are less likely to suffer a flare up of their symptoms if they add Saccharomyces boulardii to their existing plan.

It is well known that 70% of our immune cells are located in our gut and fascinatingly our gut bacteria interacts with our immune system and is able to boost, stimulate or calm it. Lactobacillus paracasei CASEI 431, an extensively researched strain for immunity, has demonstrated the ability to support the immune system and it may help to produce a more balanced immune response. As histamine is produced by specific immune cells, a more balanced gut environment and immune response, may be beneficial for those suffering with histamine intolerance.

While some bacteria may be beneficial to those with histamine intolerance, some have the ability to produce histamine themselves. Based on the small amount of research available, it is thought that some of the bacteria used to ferment yoghurt and fermented foods could potentially exacerbate histamine production. Typically, these are strains of Lactobacillus casei and Lactobacillus bulgaricus. It is important to remember that not all strains of bacteria within these two species will have this effect, but if in doubt then avoid these species to be sure!

The role of gut health in the development of disease is becoming more and more significant and although our current understanding of histamine intolerance has much to be developed, restoring gut health can make a really big difference to histamine intolerance and allergy symptoms.

The information contained in this article is not intended to treat, diagnose or replace the advice of your health practitioner. Make sure you consult a qualified health practitioner if you have a pre-existing health condition or are currently taking medication. Food supplements should not be used as a substitute for a varied and balanced diet.

Nutrition for kids:
Separating Facts from Fiction

Niamh O'Connor, Cork-based freelance consultant dietitian and mum to two teenagers, shares her top tips for kids' nutrition.

1. Lead by example.

If you are a healthy eater yourself, and if you have encouraged your child to follow your lead from an early age, it should significantly reduce the risk of mealtimes being a battle ground as the child gets older. There are no guarantees, and kids can develop food fads and fussiness for a variety of reasons, but start as you mean to go on.

Remember - Monkey See! Monkey Do!

2. Don't stress about The School Lunchbox

It is understandable that parents often get over-whelmed at the challenge of the packing of the school lunch box, often aiming for perceived perfection in the form of an expensive, organic, nutritionally balanced meal which looks like an architectural work of art! There is no need to over-complicate the lunch box at all. The most important point to bear in mind is that ***the nutritional value of an uneaten school lunch is zero!*** So here are a few simple tips to remember:

- Allow some input and decision-making by the child
- All food groups should be included. Make a list of 20 items from each of the main food groups and ensure that one is chosen from each group (Protein, Carbohydrates/grains, fruit/vegetables & dairy)
- Don't get stressed about it. Overall, kids only consume approximately 10% of their total nutritional intake at school. You can make breakfast and afterschool meals more nutritious if the school lunch is regularly left uneaten. As a parent myself, I have noticed that kids often don't have enough time to eat all of their lunch, particularly in primary school, so be mindful of this as well, and put in foods that won't take too long to eat or peel.

3. Resist the temptation to force-feed

Forcing a child to eat something they dislike, or to clean their plate, is a road to disaster. These practices increase anxiety at mealtimes, for parents and for children, and research shows this is counter-productive as the anxiety often leads to reduced food intake by the child.

4. Encourage mindful, intuitive eating

Kids are not mini adults. It often surprises parents to hear that a child's stomach is only around the size of their fist, so bearing that in mind it makes sense that their little stomachs can't hold too much food at once, so little and often is the best approach.

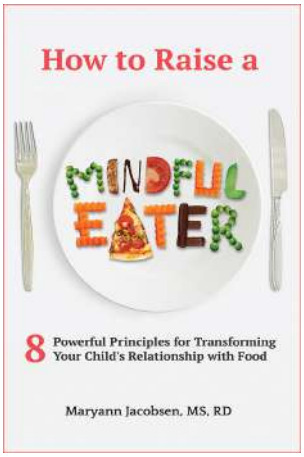
- Use child-sized plates, bowls, cups and cutlery
- Use the child's own clenched fist as guide for portion sizes: 2 fists of vegetables (the size of their fist, not a fistful), 1 fist of carbohydrates (rice, pasta, potato, noodles, cereal), 1 fist of protein (or the size of the palm of the child hand, or the size of deck of cards for older kids). Include a tooth-friendly drink (ideally milk or water), and

+ calcium (milk, cheese or yogurt)

- Parents should decide what and where the meal will be, but the child should decide the how much (if any) of it that they eat.

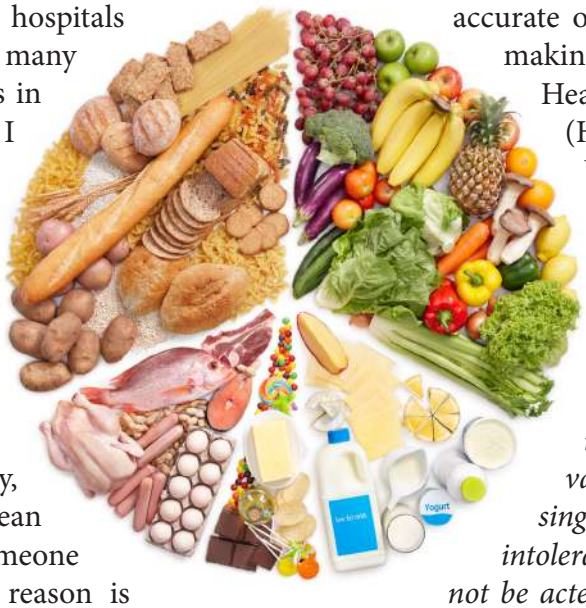
- You can't control high appetite by giving less food
- Use **The Hunger Scale** to teach kids about hunger, appetite and satiety

If you are interested in reading more about intuitive eating for kids, I would highly recommend this book: **How to Raise a Mindful Eater**, by Maryanne Jacobson RD



5. Whole groups of foods should not be excluded (unless under strict dietetic & medical supervision)

As a dietitian with 26 years' experience, I worked in paediatric wards in hospitals throughout Ireland for many years. I continue to see kids in my clinic every week, and I still come across cases where whole groups of foods have been excluded from a child's diet without a valid reason or diagnosis, and without medical or dietetic supervision. Reasons given for such exclusions include suspected food allergy, asthma, autism, bloating, clean eating, or advice from someone on social media. Another reason is due to the results of non-evidence based food intolerance tests performed by alternative health practitioners, nutritional therapists, self-title 'nutritionists'; these tests are also offered in many health foods shops. These tests are not necessary, accurate or valid. They are solely a money-making racket. In fact, in 2018 the Health Products Regulatory Authority (HPRA) and the Irish Pharmacy Union ruled that these tests were no longer to be performed by or sold in any pharmacy, such was the scale of the problem. The HPRA clarified that: *"The cause of food intolerance is unknown. Any test which claims to indicate an intolerance to food is of little clinical validity and confirms that there is no single test available to diagnose food intolerance. The results of such tests should not be acted on without expert advice from a medical doctor or registered dietitian"*



6. Don't use food as a reward or punishment

Does this sound familiar? *"Eat your broccoli and finish all of your dinner, otherwise you are not getting any ice-cream"*.

Most parents can probably recall using similar terminology, threats or tactics at some point, out of sheer frustration or a genuine hope of getting a larger amount of healthy food into their kids. But pitting foods against each other in this way makes one food look healthy and one food appear unhealthy. No food should be 'off limits'. There are no 'bad foods'. All foods are healthy, but it goes without saying that some foods should be eaten in greater quantities and others in smaller amounts. If a child is forced to eat a food they don't like, or forced to finish a meal when they are genuinely full already, this will lead to unnecessary anxiety at mealtimes, and negative thoughts for certain foods, which can lead to further issues such as over-eating, obesity and disordered eating. It's better to use positive affirmations and encourage children to recognise when they are hungry, satisfied, or full. Instead of asking "Are you finished? Or do you want more?" Instead, ask "What does your tummy say"?

Use the Hunger Scale. Place a copy on the fridge or a cupboard at the child's eye-level and refer to it regularly. Being just satisfied (number 6 on the chart) is the ideal target during a meal or snack.

Final thoughts…. Rewards and treats don't always have to be food.

Offer **Cuddles, not cookies!**

7. Aim for screen-free, family mealtimes, served at the table.

Recent research by Dr Brian Wansink of Cornell University New York and D. Ellen van Kleef of Wageningen University in the Netherlands found that families who ate dinner in the kitchen or dining room tended to have lower BMI – a measure of obesity. Parents with a higher BMI were more likely to eat with the television on, while boys who had more "sociable" family dinners tended to be slimmer – particularly in families where nobody left the table until everyone had finished eating.

Make a social occasion of mealtimes. Put away all phones and tablets and turn off the TV. This applies to parents as well as the kids! Use mealtimes to catch up on everyone's news from the day, and you may wonder why you didn't opt for screen-free family mealtimes sooner. Bon Appétit!

And finally… parents and guardians are gatekeepers for all aspects of a child's health.

If your child is happy, healthy (apart from normal childhood illnesses) and growing normally, there's usually no need to worry. If you are concerned about any aspect of your child's health, your GP should always be the first port of call. Seeking or following any medical or dietary advice from the internet or social media is not advisable and may cause serious harm to your child. If you need advice on nutrition, contact a registered dietitian, and ensure they are listed on the CORU state register. ***www.coru.ie***

- How to Raise a Mindful Eater, by Maryanne Jacobson RD
- Your Child's Weight: Helping without harming by Ellyn Satter RD
- Feed your child well, by Therese Dunne, Phyllis Farrell & Valerie Kelly (all the authors are specialist paediatric dietitians based in Dublin hospitals)

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Corporate enquiries: Please email info@corknutrition.ie

The Sleep - Digestion Connection

Motty Varghese is a sleep physiologist and runs Sleep Therapy Clinic (www.sleeptherapy.ie) where he offers non medication treatment for insomnia and other behavioral sleep disorders."

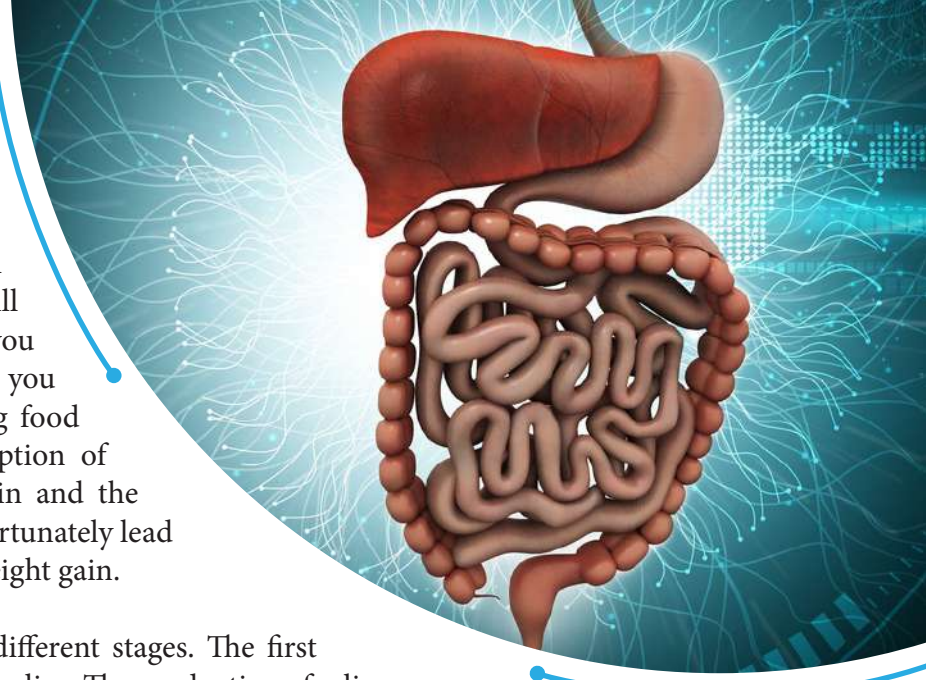
We know more about sleep, its benefits and the consequences of not getting enough sleep now, than at any point of time in human history. There are several organ systems and multitude of functions taking place in the human body and it is concluded unequivocally that there is not a function or organ that doesn't benefit from a good night's sleep. All these bodily functions, including sleep, takes place in a rhythmic fashion and the maintenance of these body rhythms determines the presence or absence of chronic health conditions.

Circadian rhythm is one among those and is controlled by our master body clock situated in the brain. It is a rhythm of great importance and controls our sleep-wake schedule. The result of this rhythm is sleepiness at night-time and alertness and wakefulness during daytime. The circadian rhythm also has an overarching effect on the human body and maintaining other bodily rhythms. Apart from one master body clock, different organs in our body also have organ clocks which determines the best time for each organ to carry out its function. For instance, the digestive system has its own organ clock, and a rhythm determined by it. It also maintains a bidirectional relationship with our sleep-wake pattern.

SLEEP THERAPY CLINIC

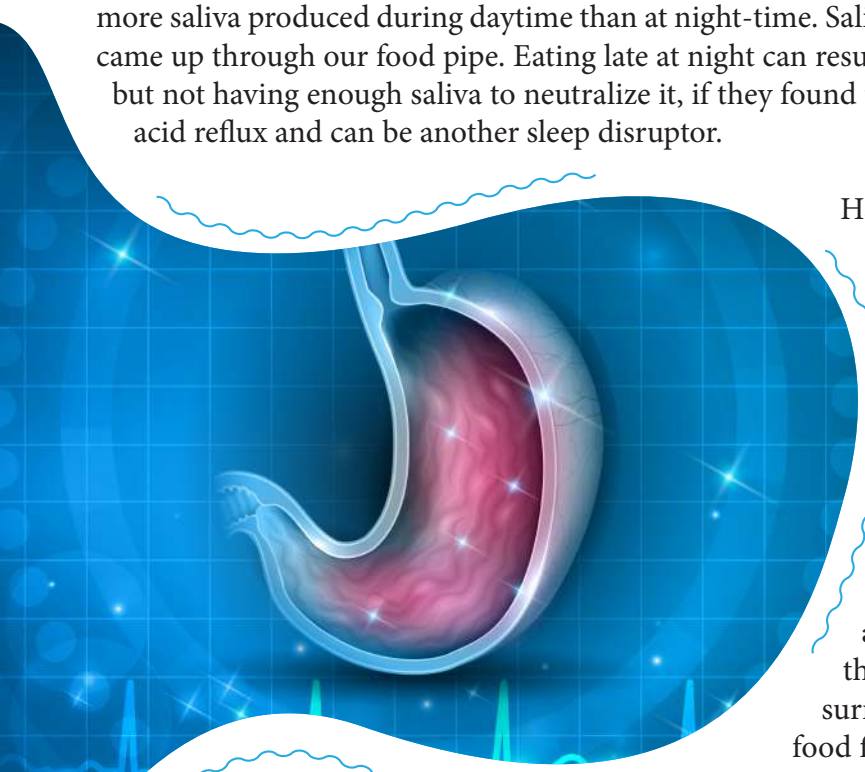
A cooler body temperature promotes sleep. You may have noticed that you slept poorly on a night when you ate late. Eating late at night affects our ability to fall asleep and maintain deep sleep. The digestive process leads to an increase in our core body temperature (temperature of internal organs) due to blood being rushed to the abdomen to aid in the digestive process and absorb nutrients. We sometimes tend to consider our digestive system as a boiler which should be able to function at any time of the day. But we forget that digestion is more effective at certain times of the day than others. Introducing food into your stomach closer to your bedtime is similar to you being called upon to do a few extra hours of work as you were getting ready for sleep and when you are least expecting it. So, avoiding food for 3 hrs before your bedtime will make it easier to fall asleep and maintain deep sleep.

Have you been trying to lose weight and not succeeding? It might be a good idea to look at your sleep patterns. Lack of sleep can lead to the imbalance of certain hormones that regulates your appetite and satiety. Ghrelin is the "hunger hormone" which is produced in our stomach, and it stimulates our brain for food intake. A sleep deprived individual



will have elevated ghrelin levels which will stimulate the person to eat more. On the other hand, Leptin is a "thinner hormone" and is produced in our fat cells. It signals to the brain that you had enough food. Unfortunately, sleep deprivation will lead to not having enough Leptin and you would not feel full until you eat more than you need. Often this can also mean consuming food closer to your bedtime and further disruption of sleep. The imbalance of Ghrelin and Leptin and the combination of two resulting processes unfortunately lead to overconsumption of food and result in weight gain.

The digestive process is also divided into different stages. The first stage occurs in the mouth where we produce saliva. The production of saliva begins with the thought of food and introduction of food into the mouth. The saliva is rich in digestive enzymes and makes it easy for the stomach to further break the food down for digestion. The stomach also starts producing gastric acids at this stage. Saliva production also follows a certain rhythm with more saliva produced during daytime than at night-time. Saliva also helps to neutralise the gastric acids if they came up through our food pipe. Eating late at night can result in gastric acids being produced in the stomach but not having enough saliva to neutralize it, if they found their way up the food pipe. This can often trigger acid reflux and can be another sleep disruptor.



Having the right level of gastric juices helps to facilitate proper digestion. Diminished gastric juices can lead to incomplete digestion of food and these undigested food particles can affect gut health. Damage to the gut lining is normally repaired with growth hormones that are produced during sleep. Insufficient sleep results in not having enough growth hormone for this repair work.

In the intestine, digestion is driven by enzymes and digestive juices. The movement of food in the intestine is done with the help of muscles that surround the intestine where it helps to squeeze the food further ahead. This squeezing of muscles also has a circadian component, where it is more active during the day and much slower at night. Eating a heavy meal at night and retiring to bed immediately after eating, will slow the movement of food down the intestine and can also lead to acid reflux. Working with gravity and taking a walk or standing up helps to prevent it and increases your chances of getting better sleep.

The argument made above is based on science and concludes that sleep and digestion have a bidirectional relationship and when good habits are adopted it complements each other. Understanding your body clock of sleep and digestion and altering our behaviours will help to obtain better sleep, ensure proper digestion and maintain a healthy body weight.

The Gut-Brain Connection: The relationship to emotions and managing stress

By Deirdre Madden, Counsellor and Psychotherapist MIAHIP

Deirdre Madden practices as a Humanistic and Integrative Counsellor and Psychotherapist in Dublin. She trained in the Tivoli Institute in Dún Laoghaire. Deirdre also offers classes and workshops. She is based in Mind and Body Works and Baggot Street in Dublin.

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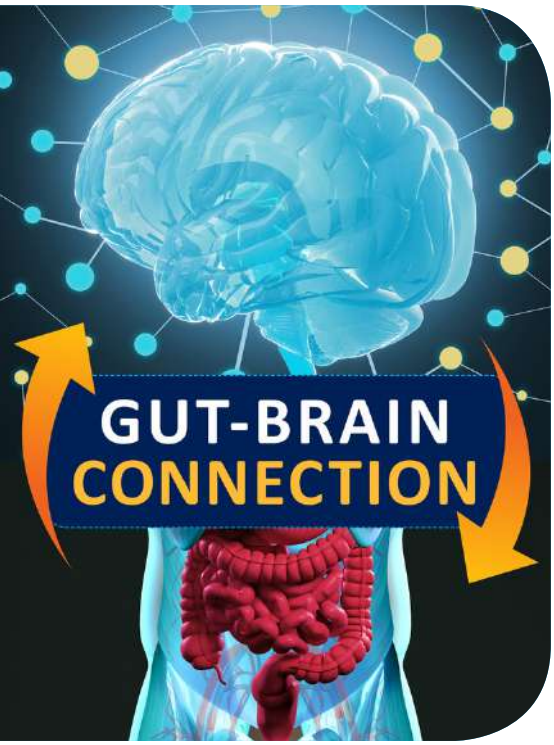
Introduction

The gut and the brain: two separate entities yet intimately connected. The gut is also referred to as the "second brain". It is an organ system which comprises of the mouth, oesophagus, stomach and intestines. It plays a major role, not only in our digestive health, but in the wellness of the entire body. The brain is the most complex organ in the human body. It produces our every thought, action, memory, feeling, and experience of the world.



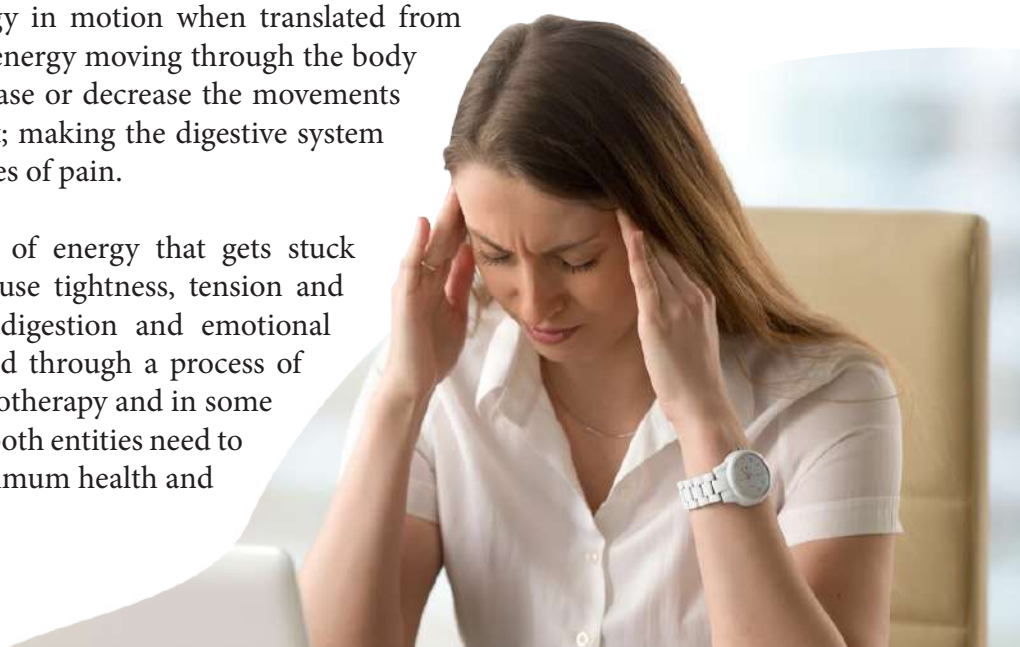
Researchers have discovered that the gut and brain are closely connected; and that this relationship serves an important function not only in managing emotions and stress, but also aiding digestion. Emotions are felt in the gut. Feelings such sadness, anger, nervousness, fear and joy can be felt in the gut. The term "feeling sick to the stomach" describes a situation which involves mental or emotional anguish which can produce stress in the mind and the body. We can also feel excitement in our gut which can be described as "butterflies" in our stomach.

An anxious mind can create stress in the body causing upset or disharmony in the gut. Similarly, problems in the gut can cause an imbalance in the mind. These two entities are continually in communication with each other. So the brain and gut are directly linked. It is important to address not just the physical body when identifying the cause of gut upset, but also to look at the role of stress and emotions.

Effects of Stress and Emotions on the Gut

Emotions such as fear, sadness, stress and anger can all affect our gut. The word emotion literally means energy in motion when translated from Latin. Emotion is the experience of energy moving through the body and these energy currents can increase or decrease the movements of the gut and the contents within it; making the digestive system susceptible to bloating and other types of pain.

Chronic stress is often a build-up of energy that gets stuck or lodged in the body. This can cause tightness, tension and contraction which can affect our digestion and emotional health. This build-up can be released through a process of rest, relaxation, counselling or psychotherapy and in some cases the support of medication. So, both entities need to be working effectively to achieve optimum health and homeostasis.

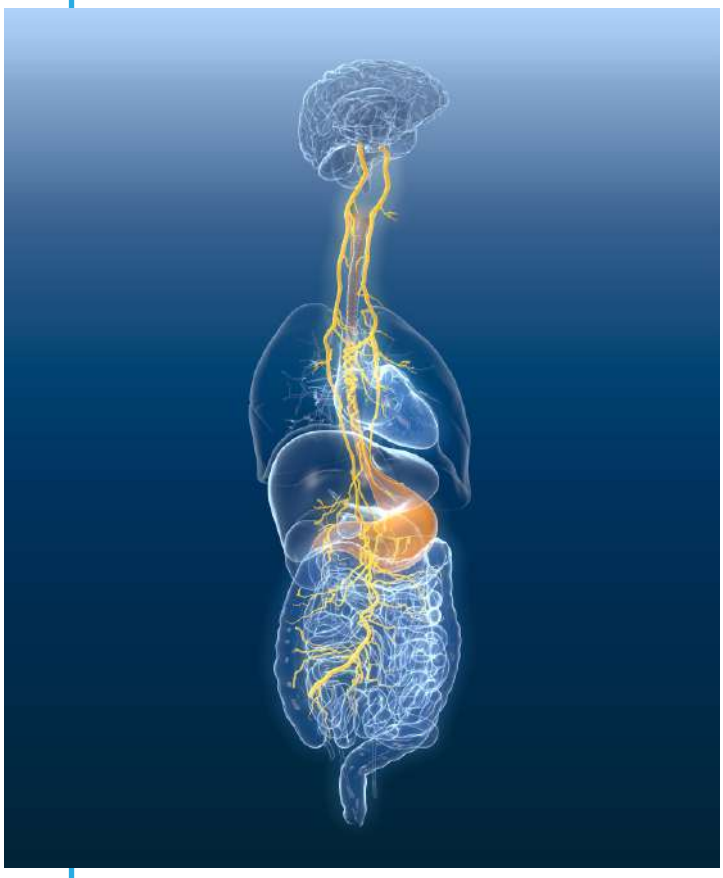


Emotional Body: The Role of the Gut in Intuition and Internal Body-Sensing

Our body is constantly giving us a reliable stream of information in the form of sensations, if we can access its wisdom. We live in a world that is constantly "thinking" and "doing" so we are less likely to tap into our "feeling" senses because of our conditioning and habits. Understanding the subtle signals we receive from our bodily sensations can access a powerful reservoir of knowledge.

The gut also plays an important function in our internal body-sensing and intuition. We have often heard of the expression to "trust your gut" and this speaks to the subtle signals we get from our gut to guide us or to avert danger. Another function of the gut is like an internal compass to support us with intuitive decision-making while also engaging the mind.

A healthy gut and digestive system can affect energy levels, motivation, clarity of thought and intuitive decision making. A brain or mind that has adequate stimulation, nutrients, and rest can support improved gut functioning. When both are healthy, our intuition or "feeling body" is more alert.



Role of Vagus Nerve

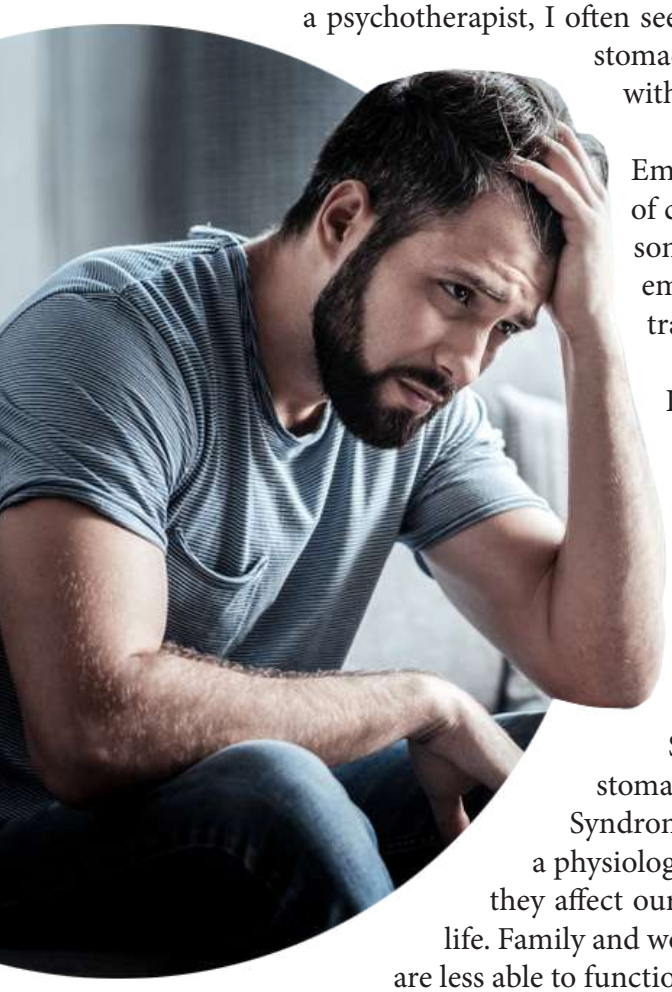
At the centre of this dialogue between the brain and gut is the vagus nerve, which conveys messages in both directions. The vagus nerve is the major neural connection between gut and brain. It connects the brain to the gut and other vital organs.

Signals are sent via the nerve into the brain and the brain transmits signals to the peripheral body and gut. Gut instincts and visceral sensations are transported up to your brain via the vagus nerve. It is the translator from the gut to the brain.

When we are stressed, we are in "fight or flight mode" and the body is under strain. The vagus nerve impacts the parasympathetic nervous system which manages our "rest and digest" response. Stimulation of the vagus nerve increases the vagal "tone", meaning your body can relax faster after stress reducing cortisol levels. Studies have shown that stimulating the vagus nerve could help people suffering from PTSD and in some cases depression.

Trauma: Effect on Nervous System and Gut

A study conducted by a Columbia University has discovered that traumatic childhood experiences can cause stomach or gut problems which may manifest in adulthood as mental or emotional issues. As a psychotherapist, I often see clients who feel grief, anger, sadness and anxiety in the gut or stomach. In order for us to heal, these emotions need to be felt slowly with mindful awareness so that they can move through us and pass.



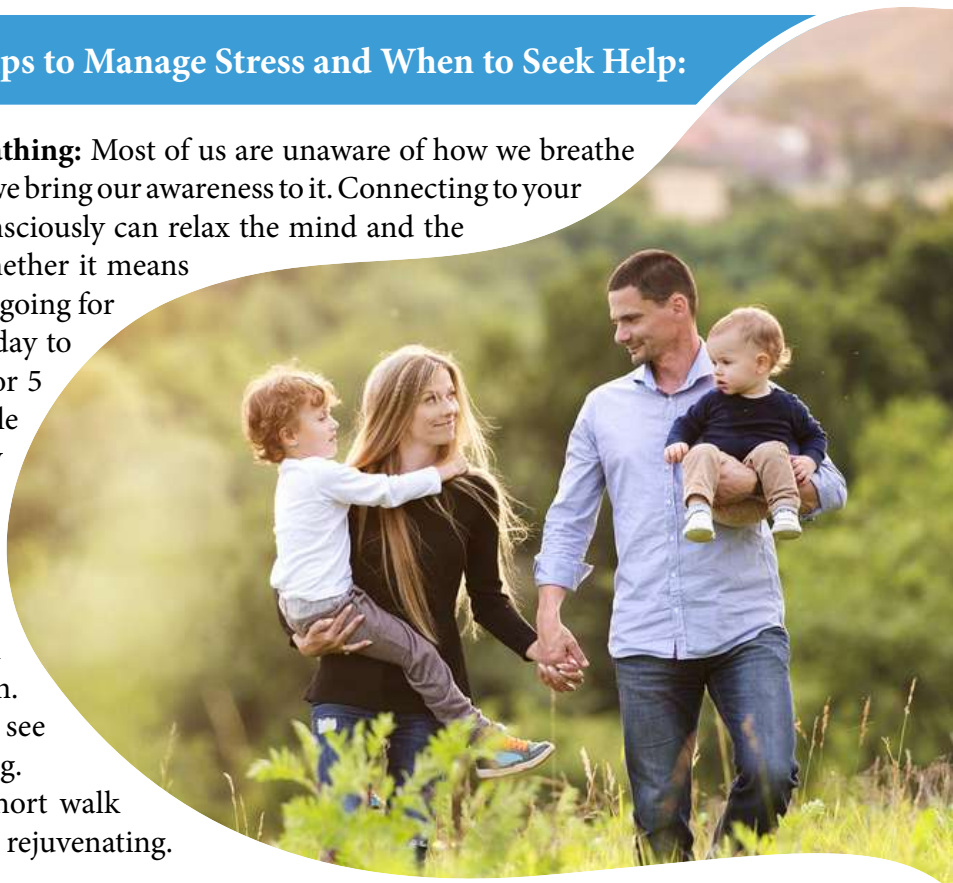
Emotions that arise are full of information and it is our body's way of communicating to us when something is wrong or "off" or when something is right. There is wisdom in the body. If there are old emotions which have previously been suppressed, they can become trapped or lodged in the body until they are ready to be released.

If we experienced traumatic experiences as a child or adult, we may have needed to dissociate or suppress our emotions in order to survive. Current experiences may trigger these emotions which may need to be worked through and released in order to heal. Challenging situations can also give rise to difficult emotions which can be overwhelming, but can be helped with the appropriate counselling or psychotherapy treatment or in some cases, medication.

Some symptoms of stress which may manifest in the gut include stomach cramps, diarrhoea, constipation, nausea, Irritable Bowel Syndrome (IBS) and stomach ulcers. These conditions can not only have a physiological impact but can also be a source of anxiety and depression as they affect our eating and drinking habits and therefore may affect our social life. Family and work life can be affected as a result as a consequence of stress as we are less able to function and manage our daily lives.

Tips to Manage Stress and When to Seek Help:

1. **Breathing:** Most of us are unaware of how we breathe unless we bring our awareness to it. Connecting to your breath consciously can relax the mind and the nervous system. Whether it means walking away from your desk in work, going for a walk at lunchtime, pausing in your day to stop and breathe. Closing your eyes for 5 minutes and allowing the body to settle and the breath to calm, can be a really simple yet highly effective tool.
2. **Boundaries:** Know your limitations and don't take on extra responsibilities. A suggestion before responding to something is to take 24 hours to think about it before reaching your decision. This can give you space to think and see how something feels before committing.
3. **Connecting with nature:** Taking a short walk in the park or beach can be highly rejuvenating.



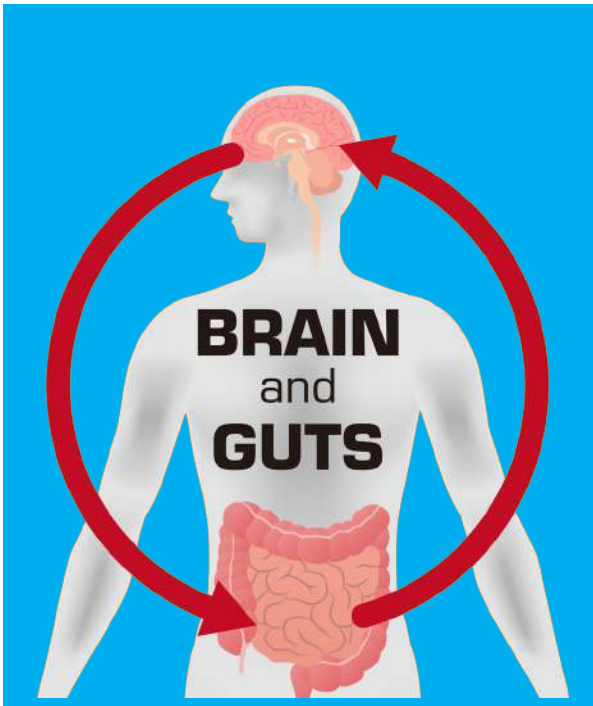
Maybe introducing more plants into your home to connect with nature.

4. **Exercise:** Physical activity can be a great stress reliever. Moving the body can get the heart pumping and oxygenate the blood. It also helps to clear the mind and can be a great way to shift your focus and allow the energy to move. The results can be increased energy and mental clarity; even 15 minutes of movement such as walking can be highly beneficial.
5. **Yoga:** Yoga is an excellent way to calm the mind and body. Stretching and opening the body can relieve tension and support stress reduction.
6. **Meditation:** Quietening the mind even for 5 minutes can be a fantastic way to reset. Sitting in silence and bringing focus to your breath can give your mind a chance to stop and reboot. In the same way we recharge our phones; we need to do the same to the mind and body.
7. **Diet:** Ensure that you are eating regularly and have proper meals with adequate nutrients to support your digestive health and wellness. Certain foods are known to irritate the stomach. If your stomach or gut symptoms are persistent, consult with your GP.
8. **Talk to a trusted friend, family member:** Talking about a problem or stressful situation with someone you trust can be extremely effective, as you get to share your concern(s) and have a listening ear.
9. **Counselling or Psychotherapy:** Seek out professional support if your problem is interfering with your life and daily functioning.

As every individual is unique, sometimes it is necessary to look at the physiological and psychological aspects to reduce symptoms to restore a healthy gut and mind.

Conclusion

The gut-brain connection explains why integrative treatments can help relieve digestive problems. The two entities 'talk' to each other, so treatments or therapies that help one may help the other. Our gut is like our "second brain" full of nerves which send signals and messages to the brain. This is our intuition. When we combine the logic of the mind and our intuition, we are in balance: similar to the concept of yin and yang. When we have too much yang energy, our systems are overworked and stressed. With too much yin, we can become demotivated and depressed.



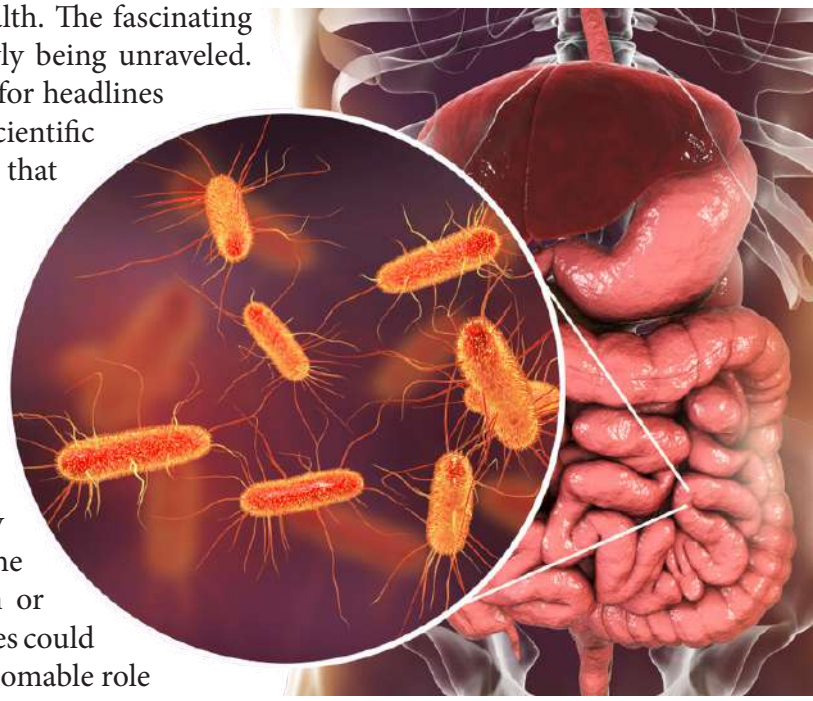
Our brain is responsible for thinking, processing and logic which also transmits information to the gut via the vagus nerve. Overexertion in the brain can cause stress as we have excessive information to process which has a direct effect on the gut and the body. Both the gut and the brain although separate entities, are interdependent systems which are in continuous communication with each other. To achieve and maintain a healthy gut and mind, both need to function effectively and in collaboration with each other; not separately or in isolation.

Say Hello to your Little Friends (Aka your Microbiome)

Lorraine Maher is a Specialist Gastro Dietitian at the Blackrock Clinic. She has a particular interest in the management of IBS and distressing gut health symptoms such as bloating, constipation and reflux. She runs the Gut Health Clinic, a clinic dedicated to the management of gut conditions through an individualised blend of diet and behavioural interventions. She is co-author of Gut Feeling, a Low FODMAP resource and recipe book.

Get in touch if you suffer with gut symptoms as getting the right dietary advice can help enormously! Call 01 206 4364 for more information or to book a consultation.

There is a rapidly building hysteria about gut health. The fascinating world of the microbes living in our gut is slowly being unraveled. Thankfully, the myriad of gut related stories jostling for headlines is complimented by an equally rapid rate of scientific discoveries and publications -so you can have faith that this is an authentic topic!



Your gut inhabitants, which include a complex ecosystem of trillions of bacteria, viruses, fungi and protozoa, often referred to as your microbiome, are being shown to play a commanding role in our health. For example, these gut microbes are now thought to play prominent roles in immunity, obesity, diabetes, heart health, cancer, allergies, inflammatory bowel disease and mental health. And that's not the exhaustive list. The future management, prevention or even cure's for some of this catalogue of chronic diseases could look a lot different if the gut does play such an unfathomable role in disease. Our future health foes getting punished by microbes – that is a battle we can approve of.

However, cart before the horse it can't be. This is science. The research jury are still discovering and deliberating these fascinating revelations. The arrows, however, keep pointing in the direction of these previously neglected gut inhabitants.

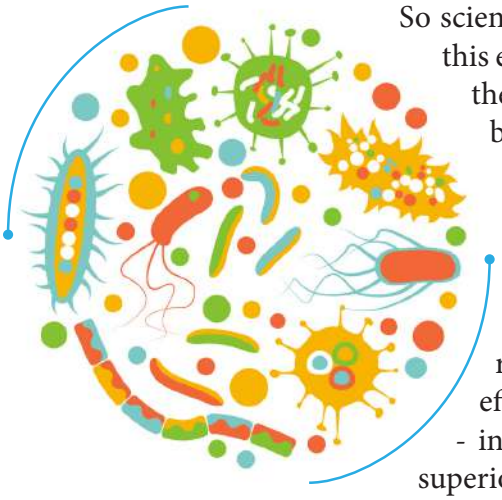
The key to how the microbiome exerts its effect has been pinned on having a more diverse and extended inventory of microbial families residing in your gut. So how can you optimize your own microbiome?

One way to begin is with a look at your diet (stress, smoking, alcohol, lack of exercise, poor sleep and medication use are others), and there are already some pretty convincing dietary directions to embrace. One particular lead stems from the results from the inspiring American Gut Project.

The American Gut Project is the largest study of its kind to look at how diet and lifestyle affects the human microbiome. The results revealed that people eating over 30 different plant based foods

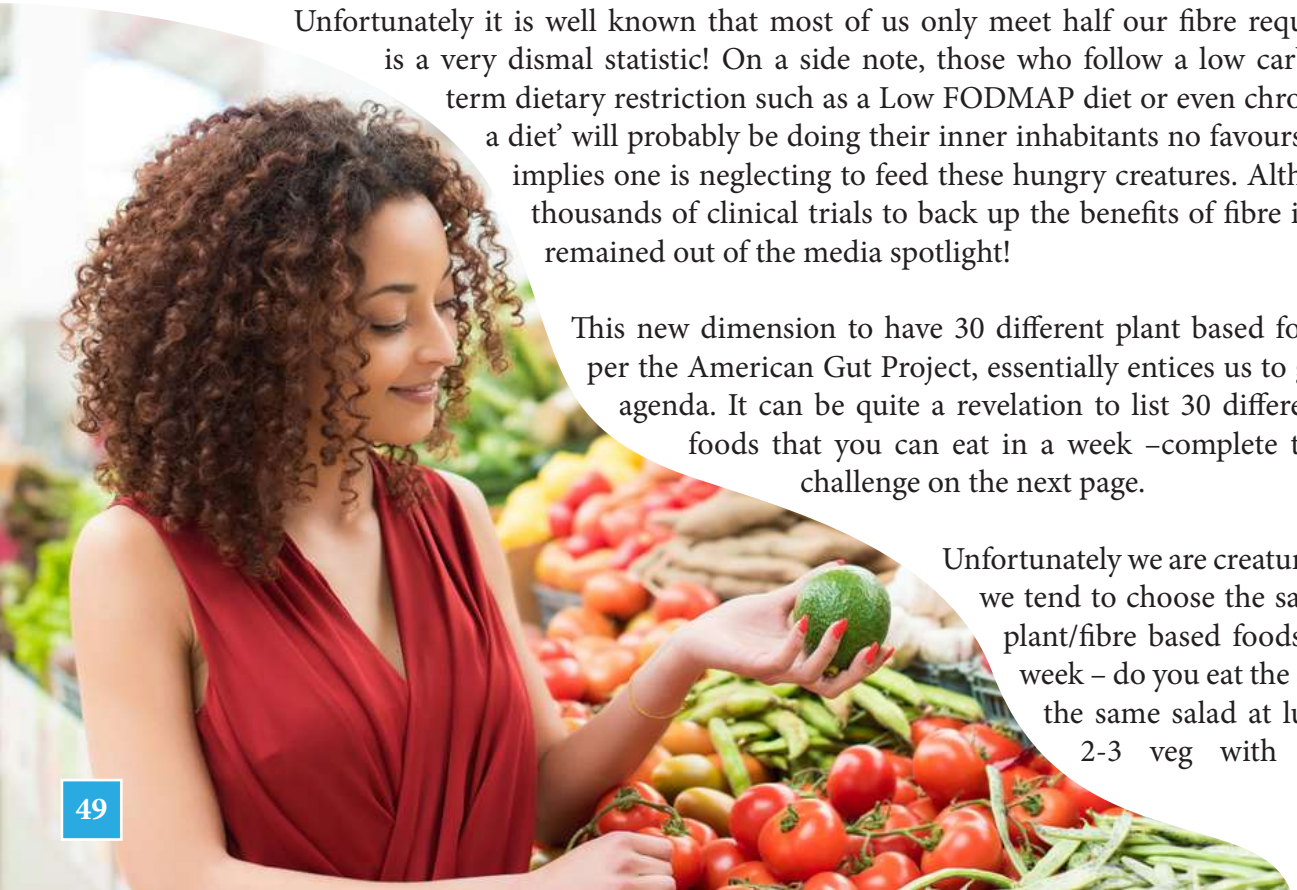
in their diet each week were more likely to have a more diverse microbiome, compared to say eating 10 or fewer different plant foods a week. This had been alluded to from human population studies which have previously shown that those with diets rich in fibre and carbohydrates have more diverse microbiomes and better health. For example, indigenous hunter-gatherer tribes (for example in South America, Africa and India), do not suffer with Western chronic diseases. That is a massive testimony and, at least partly, now thought to be due to a protective effect of a high fibre diet.

On the other hand, and somewhat terrifying, is that populations with long term high fat, high sugar and a low fibre diet may experience not only a decline in microbial diversity, but the actual extinction of entire microbial groups. In addition, other researchers have shown that high meat containing diets (and thus less plant based foods) can negatively change microbial composition in a matter of 24-48 hours. Mind-blowing!



So scientists are focused on trying to fully understanding how what you eat plays this executive role in determining your gut microbial diversity levels. And one of the most effective nutrients appears to be fibre, as it exerts its beautiful effects by feeding and managing your gut microbes.

We get fibre from all plant based foods, with each food having its own complex fiber identity, such as the prebiotic, polyphenol, fermentation and transportation characteristics they offer. Wholegrains, vegetables, fruit, beans and lentils, nuts and seeds are the foods that are plant based. Some researchers have coined a newer term to describe fibres that exert a positive effect on your gut microbiota - Microbial Accessible Carbohydrates or MAC's - indicating that we're getting closer to knowing who tops the league of gut superior foods.



Unfortunately it is well known that most of us only meet half our fibre requirements. This is a very dismal statistic! On a side note, those who follow a low carb, keto or long term dietary restriction such as a Low FODMAP diet or even chronically stay 'on a diet' will probably be doing their inner inhabitants no favours. Fibre scarcity implies one is neglecting to feed these hungry creatures. Although there are thousands of clinical trials to back up the benefits of fibre it has ironically remained out of the media spotlight!

This new dimension to have 30 different plant based foods a week, as per the American Gut Project, essentially entices us to get fibre on the agenda. It can be quite a revelation to list 30 different plant based foods that you can eat in a week –complete the Gut Health challenge on the next page.

Unfortunately we are creatures of habit, and we tend to choose the same varieties of plant/fibre based foods from week to week – do you eat the same breakfast, the same salad at lunch, the same 2-3 veg with your evening

meal? Who knows, you may avoid fruit as you think it's full of sugar or nuts because your think they're too high in fat!! Choosing the same slim pickings of plant based foods, week on week, appears to be a dietary weakness. The 'variety is the spice of life' phrase is now coveted for another reason.

The common denominator to achieve variety is to put plant foods as the focal point of the plate - move away from meat as the centre of the plate. Choose foods you enjoy and can sustain. Try more seasonal vegetables and fruits. Increase wholegrains, vegetables, nuts and seeds in meals such as salads, curries, stews, casseroles, pastas and stir-fries. Add more beans, peas and lentils to dishes such as in chillis, burritos and soups. Have more fruit and nut snack foods. Be adventurous and try some fermented foods e.g. Kefir, Kombucha, kimchi, sauerkraut. It shouldn't be more expensive but there are ways around this too. Think mixed: mixed seeds, mixed nuts, mixed frozen berries, mixed tinned beans, mixed frozen veg.

Remember plant based diets can take many forms. Becoming vegan it does not have to be. The very interesting thing about the American Gut Project was that people who ate meat and had 30+ plant based foods had the same enhanced diversity as vegetarians.

There is a caveat though- when increasing the number of plant based foods in your diet, do so slowly, one new food every couple of days or so. Eating lots more fibre without giving your digestive system time to adjust can give you undesirable side effects such as bloating or wind (which is natural and you haven't suddenly developed a bowel disorder!). Plus you've got to make sure you drink plenty of water as without fluid, fibre may struggle to create its magic.

Lastly, if you have IBS or a bowel condition like Crohn's or colitis, you may also wish to try and improve your gut microbiome but achieving an increase in plant based foods may aggravate your bowel condition. If this sounds familiar, seek advice from a gut health dietitian to help you find your tolerance levels. When it comes to diet, it's never generic!

30+ Plant Based foods per Week Challenge!

Use this diary to track how many DIFFERENT plant based foods you eat over a week. Each time you eat a plant food, write the name in the box on the day you eat it. Include foods from the 6 groups of plant based foods- grains, vegetables, fruit, nuts, seeds, pulses. Remember you can only count each food once – so eating apples three times a week is great but only gets recorded once. At the end of the week give yourself a total score. The aim is 30 or more!

If you don't have that many plant based foods in your diet, increase your intake slowly, one new food every couple of days or so. If you have a gut condition such as IBS, speak to your Gut Health dietitian about your fibre tolerance!

Monday	Tuesday	Wednesday	Thursday

Friday	Saturday	Sunday	Score

NOT SURE WHAT TEST TO BOOK?

Get in touch today and we can discuss testing options.

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