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# breakthrough

ME RESEARCH UK

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*Breakthrough* magazine is published by ME Research UK, a Scottish Charitable Incorporated Organisation with the principal aim of commissioning and funding high-quality scientific (biomedical) investigation into the causes, consequences and treatment of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS). We influence, inform and invest in ME research globally by identifying potentially important areas for future biomedical research, and by producing high quality professional reviews and reports. *Breakthrough* is an open-access publication and, apart from images and illustrations, the content may be reproduced free of charge, subject to the terms and conditions found at meres.uk/bt-terms.



**The Gateway, North Methven Street,**
**Perth, PH1 5PP, UK**
**Tel: 01738 451234, Email: contact@meresearch.org.uk**

# In this issue

# In the spotlight

What's happening in the world of ME research and funding

## Editorial

Welcome to our Spring 2022 issue of *Breakthrough*.

Since the last issue, we have closed out our financial year (which runs to 31 October), and I am delighted to report our biggest ever year of research grant funding. In 2021, we awarded almost £600,000 of new grants to four projects in three countries. This total is nearly three times the amount awarded in 2020.

We also have a healthy pipeline of grant applications under review that, if funded, would result in a further £1 million of much-needed biomedical research.

We are of course delighted to announce our first award for PhD-level research, supporting both the research and a new scientist at the start of her career. The full story from page 8 explains better than I ever could why we do what we do.

I am particularly heartened by the fundraising stories in this issue. Your support and commitment is vital to enable us to continue the work we do, and we remain determined to make every penny count.

Natalie Boulton has now released the final video in her series 'Dialogues for a Neglected Illness' (see page 4 for details), and are highly recommended viewing for anyone who has not seen them yet.

As I'm sure you are aware, the significant milestone of the new NICE Guideline being published was achieved late last year, but we are in no doubt that the hard work to see its comprehensive implementation and positive change will and must continue. We have provided a summary on pages 4 and 5.

As ever, this issue of *Breakthrough* provides a round-up of research across the globe, including a further and positive update from Dr Westermeier's ME Research-funded study – more details on pages 6 and 7.

We also have Cort Johnson's latest 'Postcard from Nevada', giving his, as ever, informed view on the history of ME's disease definition. The full article starts on page 12.

Thank you for your continued support, and I hope you enjoy this issue of *Breakthrough*.

Jonathan Davies
Chair, Board of Trustees

## Mega Miles

As part of Walk for ME (see page 20), during the month of May the 'Mega May Miles for ME' team will be running, walking, cycling and swimming as many miles as they can in a joint effort to raise awareness and funds for research into ME/CFS.

The team includes the parents, friends and family members of some amazing young people living with ME/CFS. And they are doing everything from sea swimming to the Three Peaks Challenge, all in aid of ME research.

You can join the team at bit.ly/35JD97E or donate by visiting bit.ly/3HTLyT0.

## Dialogues for a Neglected Illness

Natalie Boulton has released the final video in her series addressing different aspects of ME/CFS, and including interviews with and input from doctors, researchers, patients, carers and advocates.

This last major film, which Natalie has been working on over the last year, is called 'The Tangled Story of ME/CFS: Controversy, Denigration and Ignorance', and covers the history of the illness.

Visit the project's website at dialogues-mecfs.co.uk to see all of the videos in the series.

# New NICE guideline published

### *CBT downplayed and GET removed*

In October last year, NICE published its updated clinical guideline on 'Myalgic encephalomyelitis (or encephalopathy)/ chronic fatigue syndrome: diagnosis and management'. This marked a significant step in both the acceptance of ME as a physical illness and the recognition of appropriate treatment needs of those affected by the condition.

ME Research UK broadly welcomed this significant update and improvement to the previous 14-year-old document, but it is only the beginning of the transformation needed for ME to be more fully understood and, ultimately, for a cure to be found.

After many months of hard work by the guideline committee, as well as the input of stakeholders including ME Research UK, the new guideline was due to be published in August 2021, but was paused at the last minute because of concerns raised by some professional bodies. Following a roundtable discussion, NICE expressed confidence that "the guideline can be effectively implemented across the system," and it was finally published on 29 October 2021.

In their accompanying press release, NICE summed up the development process: "As well as bringing together the best available scientific evidence, we've also listened to the real, lived experience and testimony of people with ME/CFS to produce a balanced guideline which has their wellbeing at its heart."

NICE's recommendations highlight the need for research into diagnostic criteria and tests, as well as health-outcome meas-

ures, but these will not be fulfilled without researchers, healthcare professionals and funders working together to understand the causes of the illness and the effects it has on bodily systems.

Research from numerous studies informed the changes to the guideline, but it is clear that further progress depends on increased research and the availability of funding to make this work a reality. This is where ME Research UK stands ready, having already funded more high-quality biomedical research into ME than any other charitable body outside the USA.

We have summarised three of the most important changes to the guideline in the box on the right. You can find more detailed information on our website (meres.uk/TopTen), while the full guideline is available to download and read on NICE's website (bit.ly/3Cdi8Ox).

## NICE guideline: 3 key changes

**New ME/CFS diagnostic criteria introduced:**

- Patients must have all of the following symptoms for at least 6 weeks (4 weeks in children):
  - Debilitating fatigue that is worsened by activity and not relieved by rest.
  - Post-exertional malaise after activity.
  - Unrefreshing and/or disturbed sleep.
  - Cognitive difficulties.
- Patients' ability to engage in occupational, social or personal activities must be significantly reduced.
- Symptoms must not be explained by another condition.

**People with ME/CFS should not be offered:**

- Therapy based on physical activity or exercise.
- Generalised physical activity or exercise programmes, such as those for healthy people or other illnesses.
- Programmes using fixed incremental increases in physical activity or exercise (e.g. graded exercise therapy).
- Physical activity or exercise programmes based on deconditioning and exercise intolerance theories.
- Advice to undertake exercise that is not part of a programme overseen by an ME/CFS specialist team.

**Cognitive behavioural therapy (CBT). Doctors told to:**

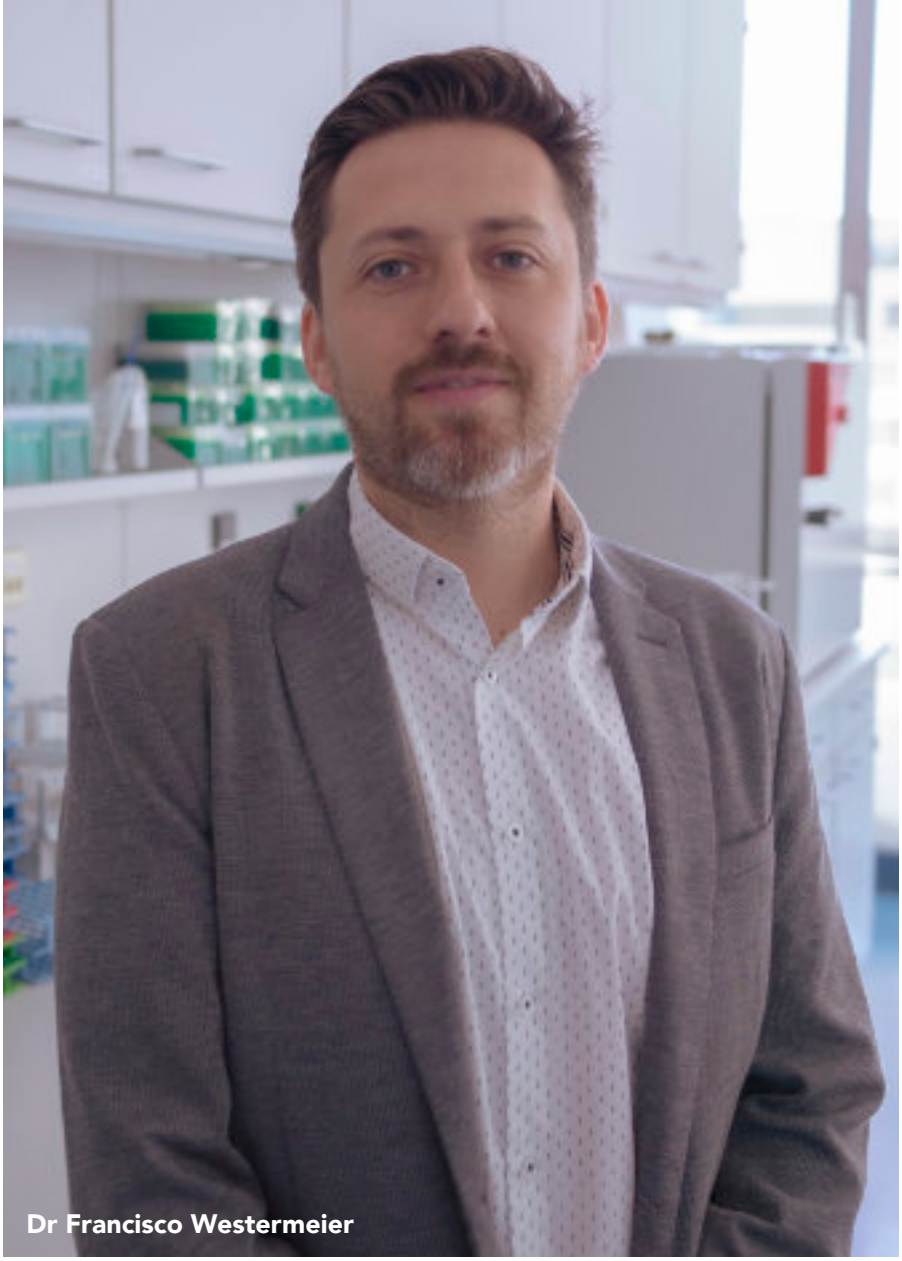
- Explain the principles of CBT to patients, and that it may help manage their symptoms but it is not curative. Explain the potential benefits and risks.
- Only offer CBT to people with ME/CFS if they would like to use it to support them in managing their symptoms.
- Explain that CBT for people with ME/CFS aims to improve their quality of life and to reduce the distress associated with having a chronic illness. It does not assume abnormal beliefs and behaviours as an underlying cause of their illness.

## Facebook

One of the best ways you can quickly and easily raise funds for ME Research UK is via a birthday fundraiser on Facebook (see bit.ly/36d6o3h for guidance).

It's a great way to ask friends and family to help celebrate your birthday by donating to a cause that's close to you.

The best bit? There are no fees for donations made to charities on Facebook, so all the money goes direct to the cause you are supporting.



Dr Francisco Westermeier

# Reduced production of nitric oxide

## *More new findings from Francisco Westermeier's project*

In the last issue of *Breakthrough*, we reported on the first publication from Dr Francisco Westermeier's ME Research UK-funded project looking at endothelial function in ME/CFS.

Dr Westermeier's group at FH Joanneum University of Applied Sciences in Austria had analysed blood samples from people with ME/CFS, and found increased levels of five microRNAs, all of which are involved in the control of the vascular endothelium and the generation of nitric oxide (NO).

The team has continued this work with a new article written by Dr Romina Bertinat (who is based at the University of Concepción in Chile) and published in the journal *Vascular Pharmacology* in April. And this time they have been looking more directly at the production of NO.

To recap, the endothelium is a layer of cells lining every blood vessel, and is involved in controlling their opening and closing, and hence the amount of blood flowing through them. This ensures an adequate supply of blood and oxygen to tissues throughout the body. An important way in which the endothelium regulates blood flow is through the release of NO.

NO therefore plays a critical role in maintaining a healthy cardiovascular system, and decreased production of NO is a characteristic of many diseases, including hypertension, diabetes and heart failure.

The aim of Dr Bertinat's

## The Big Thank You

The Big Give Christmas Challenge ended at midday on the 7th of December 2021, and thanks to the tremendous generosity of ME Research UK supporters, a total of £7,600 was raised for the charity and will be invested in ME research globally.

We are very grateful to our Pledgers whose funds were used to match the first £1,900 of donations, as well as the Hospital Saturday Fund which matched the next £1,900.

The funds raised through the Big Give will allow us to support even more projects, as we continue to fund research into the causes and consequences of ME/CFS.

Thank you so much to all of our supporters who donated via the Christmas Challenge and helped raise this amazing total. We're looking forward to this year's Challenge!

study was to investigate whether endothelial cells exposed to plasma from people with ME/CFS would be impaired in their ability to generate NO. (Plasma is the liquid portion of blood which carries red and white blood cells, and platelets.)

Endothelial cells were incubated with plasma from people with ME/CFS (obtained from the UK ME/CFS Biobank) or with plasma from healthy control subjects. The cells were then exposed to proteins that are known to stimulate the production of NO, including insulin, bradykinin, histamine and acetylcholine.

Importantly, the endothelial cells exposed to ME/CFS plasma generated significantly less NO than did the ones exposed to healthy plasma, and this was the case for all four of the stimulatory proteins tested.

> ***"NO synthase may represent a potential target for therapy"***

Another important finding is related to the enzyme responsible for producing NO in the endothelium (NO synthase). The activity of this enzyme was also reduced in the presence of plasma from ME/CFS patients, raising the possibility that it may represent a potential target for treatment.

There are still questions about how these findings relate to the symptoms of ME/CFS, and Dr Westermeier discusses these issues in a recent interview with CureME (the team that runs the UK ME/CFS Biobank), which you can read at bit.ly/3IhKXea.

He suggests that impaired NO production might lead to defective vascular function following exercise, which could indicate a role for NO in post-exertional malaise. But NO is also involved in metabolism and the immune system, raising more intriguing possibilities.

For now, the team plans to look at several other biochemical pathways and metabolites involved in NO production, and we very much look forward to seeing what they uncover next.

# Investing in the future

We have made our first award for PhD-level research, aimed at supporting a new scientist at the start of her career

In spring of this year, ME Research UK was delighted to announce our first award for PhD-level research. This is for a project being conducted at the University of Edinburgh by PhD student Gemma Samms under the supervision of Professor Chris Ponting.

Encouraging researchers at an early stage in their career is one of the most effective ways we can attract more scientists into ME/CFS research. And this is why ME Research UK established our programme of PhD-level research funding: to invest in the ME/CFS researchers of the future by helping institutions provide this crucial step for students interested in the illness.

Working in the MRC Human Genetics Unit at the University of Edinburgh, Prof. Ponting's main area of research is genomics. This is the study of the body's genes as a whole (the genome): how they are expressed, how they interact and how they affect the body's function, including how genetic changes influence the development of disease.

## DecodeME

Prof. Ponting is well known in the ME/CFS world as the principal investigator of DecodeME, a genome-wide association study (GWAS) which aims to find the genetic causes of the illness by analysing DNA samples from

Prof. Chris Ponting

Gemma Samms

20,000 people with ME/CFS.

GWAS look at small differences in DNA between people, and they have led to a better understanding of the causes of several other diseases including rheumatoid arthritis, inflammatory bowel disease and Alzheimer's disease. This is also the hope for ME/CFS.

DecodeME will look for locations on the genome with DNA changes that are significantly different between ME/CFS patients and healthy control subjects, and which may therefore be associated with an increased ME/CFS risk.

But that is only the start, and the aim of Gemma's PhD project in Edinburgh will be to tackle the next job: to identify which specific genes are involved, what types of cell are affected by those genes, and how those changes may lead to alterations in cellular function in people with ME/CFS.

## Phase 1

In the first part of her project, Gemma will use computerised statistical methods to analyse the huge amount of data expected to be generated from DecodeME.

Her aim will be to identify which dysfunctional genes highlighted by the GWAS are most likely to contribute to the risk of ME/CFS.

## Phase 2

Gemma will then investigate the impact of these genetic changes in more detail by looking at their effects on the function of the cells involved. For example, if the affected genes are found to be re-

lated to the mitochondria, then experiments can be designed to measure aspects of mitochondrial function that might be altered, such as their consumption of oxygen.

Fortunately, Prof. Ponting's group has access to the wide range of resources and potential collaborators that may be needed for this phase, because it is obviously impossible to predict exactly which areas of biology will prove to be relevant.

It is fitting that the first of our PhD research funding awards should be to support Gemma, because she has a very personal interest in ME/CFS, having being diagnosed with the disease when she was 18 years old.

Despite the huge changes this brought to her life, Gemma's passion and dedication have seen her through two degrees and a postgraduate research project, and given her the drive to pursue this PhD. "I fundamentally believe in addressing the cause of disease… and genetics provides the perfect opportunity."

ME Research UK is delighted to be able to support this very exciting project and to help enable the next steps of Gemma's research career.

## Andrew Williams

With the approval of his family, ME Research UK dedicates this PhD-level funding award to Andrew Williams, a remarkable young man who, but for ME/CFS, would have loved to continue his own studies in genetics at the University of Edinburgh.

Having started his course in 2013, Andrew became ill towards the end of his second year. He never fully recovered and was eventually diagnosed with ME/CFS. When his illness progressed, he had no option but to leave the course he loved and return home.

"He was so brave, determined and uncomplaining," say his family, "but there are some things that can't be beaten." Andrew sadly died in 2019, at the age of 23, a passing which deeply affected all who knew him.

# Postcard from Nevada


In his latest postcard, **Cort Johnson** explores the complex history behind the defining and redefining of ME

*Last year's update to the NICE guideline and its revised diagnostic criteria prompted us to ask Cort for his perspective on what he calls the "tangled path of defining ME".*

In 1991, Dr David Bell published *The Disease of a Thousand Names: CFIDS – Chronic Fatigue/ Immune Dysfunction Syndrome*. It had been six years since Bell found himself in the middle of the 'Lyndonville Outbreak', but he already knew the disease – called CFIDS at the time – had a long and turbulent history.

The many names to which it had been referred reflected both the mysterious nature of the disease and the conflicting views of it. ME had always been a medical battleground where different groups had attempted to control its narrative by naming or defining it in different ways.

The definition was particularly important as it would determine who would and who would not be able to participate in the research studies which, in turn, would determine what the disease was.

## Control

For all the neglect of ME research, the fight to control its definition was surprisingly fierce. A 2020 review shows that from 1986 to 2015 no fewer than 25 definitions were proposed.

In 1991, the definition in the UK was on solid ground. Melvin Ramsay had died a year before, but left behind decades of experience and a clear description.


Cort Johnson

Ramsay's rather sweeping 1986 definition informs how we view ME today. Ramsay, an acute clinical observer, and later Elizabeth Dowsett were the first to focus on the key role that exertion plays in differentiating ME from other diseases.

Across the Atlantic, the USA began the first of many stumbles by creating a definition that didn't work and, even worse, put ME under a cloud. Failing to show that Epstein-Barr virus was the cause, the committee that created the 1988 Holmes definition reverted to the lowest common denominator, calling the disease 'chronic fatigue syndrome', and setting up the ME community for decades of derision and neglect. The name stuck, but the rather cumbersome definition did not.

A counter to the Ramsay definition emerged in the UK with the Oxford criteria. In 1990, Michael Sharpe gathered a group of psychiatrists, doctors, infectious disease specialists and others, who would, over the course of a day, create a definition that would dominate and skew ME research in the UK for decades.

## Focus on fatigue

The Oxford criteria's near complete focus on fatigue and few exclusionary criteria opened a gaping hole through which people with depression and other illnesses could gain entry into ME studies. That hole would end up providing plenty of fodder for the proponents of cognitive behavioural therapy and graded exercise. However, in 2014 the Oxford criteria would suffer the rather ignominious distinction of being disavowed by two National Institutes of Health groups in the USA. It is rarely used today.

*"the Canadian Criteria are now the most commonly used"*

Just four years after the Holmes definition, the CDC brought together 24 people to create a definition that would, while downplaying the key characteristic of the disease, nevertheless dominate ME research for the next 15 years.

The 2004 'Fukuda definition' emphasised new-onset fatigue but relegated post-exertional malaise to a secondary symptom which a CFS patient need not have to meet the criteria.

That same year, a small but experienced group of ME researchers and doctors in the UK created a simple five-part definition that would lay the basis for how ME is considered today. The London Criteria focused on post-exertional fatigue and cognitive problems, as well as autonomic and immune symptoms.

With the London Criteria a pattern was set. Academics associated with major universities and institutions would propose a definition, only to be met with pushback from experienced doctors who felt it bore little resemblance to the condition they were seeing every day in their offices.

## Progress in Canada

The scene next shifted to Canada where a truly groundbreaking definition was produced. Under the direction of Vancouver MD Bruce Carruthers, ME/CFS experts produced the yang to the Fukuda definition's yin in the 2003 Canadian Consensus Criteria.

Designed to be used by doctors, the landmark 115-page tome not only required that fatigue, post-exertional malaise, sleep problems, pain and cognitive problems be present, but also introduced a series of helpful tests, treatment recommendations, suggestions for workplace accommodations, and more.

In 2005, the CDC embarked on its third attempt in twenty years to get an ME/CFS definition right – and produced possibly its greatest failure. CDC head Bill Reeves brought together an international assortment of ME experts, but then inexplicably turned to his small CDC team to produce a definition that ME researchers overwhelmingly rejected.

The Empirical Definition of ME/CFS was later shown to have problems with two crucial aspects: correctly identifying people with ME, and correctly excluding people without ME.

The failure of the Empirical Definition opened the door for the Canadian Consensus Criteria – originally created for doctors – to be used in research. Despite two amendments, it is the 2003 version that is still most often used in research studies.

In 2015, the USA tried the committee approach again when ME/CFS experts laboured for a year and a half to set the disease on a new footing. Emphasising the severity of the illness and highlighting post-exertional malaise, fatigue and unrefreshing sleep, *Beyond Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Redefining an Illness* did almost everything the ME community would want, but made the fatal error of trying to introduce a symptom-based name: 'Systemic Exertion Intolerance Disease' or SEID. The swift reaction to the name ended up tanking the definition as well, and it has rarely been used.

The Ramsay/Dowsett vision of ME as an exertion-intolerant disorder has largely prevailed over definitions produced by committee. A review of the last 30 ME studies indicated that ME/CFS is now overwhelmingly used to refer to this 'disease of a thousand names', and that the Canadian Consensus Criteria are now the most commonly used criteria, with the Fukuda definition still playing a major role.

## What next?

The advent of long COVID and the immense funding coming with it will bring exciting new opportunities to define ME. The biomarker-based criteria that will surely result will open up similar possibilities for ME, letting it replace the troublesome symptom-based criteria that have dogged it for so many years, and in so doing redefine the disease altogether. In other words, the best is yet to come.

# Research bites

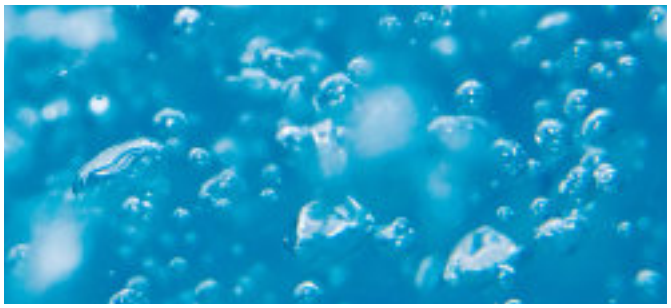
Our round-up of recent research from around the world

## Magnetic resonance

***Godlewska et al., Psychopharmacology, 2022***

Magnetic resonance imaging is a very powerful technique for obtaining images from inside the body. A person is placed inside a strong magnetic field, which lines up the protons in the water molecules in their tissue. Pulsed radio waves knock these out of alignment, and when the protons realign they generate radio signals which provide information about the tissue. A stronger magnetic field means more detailed images, and we are currently supporting Leighton Barnden in Australia to investigate brain-stem dysfunction in ME/CFS using a scanner with a 7-Tesla magnet.

Magnetic resonance spectroscopy (MRS) is similar but can be used to study the metabolism of cells by measuring the concentrations and properties of the molecules produced. A team in Oxford has used 7-Tesla MRS to look at the concentrations of neurometabolites in the brains of people with ME/CFS compared with healthy control subjects. The team found reduced levels of glutathione, which indicates the presence of oxidative stress. They also reported reduced creatine levels, which may be related to mitochondrial dysfunction, as well as reduced myo-inositol levels, which are associated with glial dysfunction. These are certainly intriguing findings, and may help suggest possible treatments, but the authors emphasise that they need to be replicated in a larger patient group.



## Extracellular vesicles

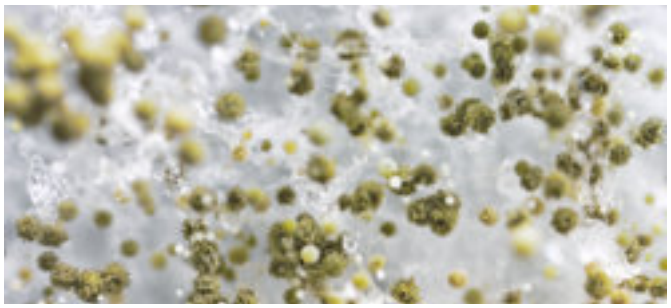
***Bonilla et al., Frontiers in Immunology, 2022***

Extracellular vesicles (EVs) are small particles used by cells to communicate with one another. They carry a number of components, including proteins which can represent markers for disease. Scientists in California analysed EVs in the plasma of people with ME/CFS, and found that those with severe disease had higher levels of EVs derived from B cells (involved in immunity) and from platelets (involved in blood clotting). If these findings can be replicated, this may help reveal disrupted chemical pathways in ME/CFS.

## Salivary biomarker

***Jason et al., Fatigue, 2021***

Could one develop a biomarker for ME/CFS based on a simple saliva sample? This is what researchers from Chicago looked at in this study of 59 children and adolescents with ME/CFS. Saliva samples were obtained by 'passive drool' and analysed for concentrations of two peptide fragments thought to be related to fatigue levels. The resulting fatigue biomarker index was lower in participants with ME/CFS (particularly those with severe disease) than in control subjects and, with validation, could perhaps serve as a biomarker for the disease.



## Mold-derived toxins

***Wu et al., Int. J. Environ. Res. and Pub. Health, 2022***

Many people develop ME/CFS after infection with a virus or bacteria, and researchers in Florida have been investigating the prevalence of different toxins in the urine of ME/CFS patients who report long-term exposure to mold (such as in water-damaged buildings). Toxins were detected in almost all of these people. The most common was ochratoxin A, which derives from the common mold *Aspergillus*, and was found in 80% of cases. The authors suggest that more research is needed to determine whether exposure to these toxins can contribute to the onset or progression of ME/CFS.

## Natural history

***O'Boyle et al., Frontiers in Medicine, 2022***

In this article, scientists at the London School of Hygiene & Tropical Medicine and other centres have proposed a new approach to defining the stages of ME/CFS according to its natural history or progression. (This contrasts with subtyping patients based on their presentation of the disease.) These stages include the period before onset of disease, a prodromal period (0 to 4 months), early disease (4 to 24 months) and established ME/CFS (2 years and over). They argue that these definitions will help optimise treatment, rehabilitation and research into ME/CFS.

# Post COVID-19 and ME/CFS

***Sukocheva et al., J. of Advanced Research, 2021***

Much has been made of the similarities between a post COVID-19 condition (i.e. the long-term effects of the disease) and the symptoms of ME/CFS. A proportion of patients experience severe fatigue and other symptoms that persist for several months after the infection. In fact, a paper highlighted in last issue's Research Bites listed biological abnormalities that have been reported in both conditions. Now, an international group of researchers has completed a systematic comparison of the two conditions, highlighting the overlap between them.

They conclude that many of the abnormalities observed in people with a post COVID-19 condition are shared with or similar to those seen in ME/CFS patients, including changes in the immune, cardiovascular, metabolic, gastrointestinal, nervous and autonomic systems. As well as similarities in symptoms, cellular immunological changes have also been reported in both conditions. It is suggested that many people with a post COVID-19 condition will eventually meet diagnostic criteria for ME/CFS. But there are still a lot of questions to answer about the pathological mechanisms involved, and potential measures for prevention and treatment.

## Ginseng...

***Yang et al., Glob. Adv. Health and Med., 2022***

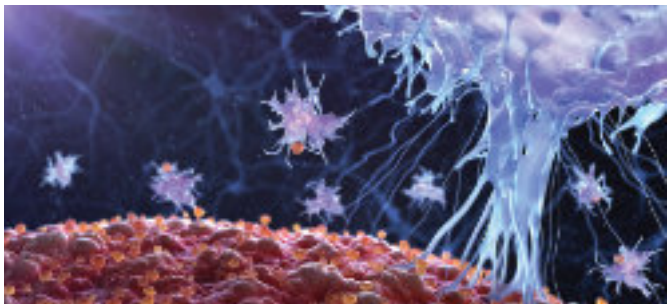
With a lack of conventional treatments for ME/CFS, many people with the disease have reported trying traditional remedies such as herbal medicine. Ginseng is believed to improve energy and physical health, but is there any research evidence that it actually works in ME/CFS? A recent review found only two eligible studies of ginseng in a total of 68 patients. While some participants did report improvements in their fatigue, unfortunately these studies had a number of weaknesses, not least poor safety reporting, and the authors could not draw any firm conclusions.

## ...or ginkgo?

***Kan et al., Frontiers in Nutrition, 2021***

Ginkgo is another traditional medicine which has been suggested to improve some of the symptoms associated with ME/CFS, including cognition and memory. Researchers in China conducted a randomised trial in which 190 ME/CFS patients received either a product containing ginkgo and cistanche or a placebo tablet for 60 days. While a number of measures of quality of life and patient-reported symptoms were improved with ginkgo plus cistanche, the effects were very small and unlikely to be clinically meaningful. The authors suggest that larger and longer trials are needed.

*"immune changes have been reported in both conditions"*



## B-cell patterns

***Sato et al., Brain Behavior and Immunity, 2021***

More evidence of immune abnormalities in people with ME/CFS comes from a group in Tokyo, Japan, which has been looking at the pattern of B-cell receptors in patients' blood samples. B cells are white blood cells involved in immunity, and each one is activated when an invading antigen binds onto its receptor. The group's analyses showed differences in the patterns of various families of B-cell receptors between ME/CFS patients and controls. They suggest that these differences could provide a useful immune biomarker for diagnosing the disease.

## Gut microbiome

***König et al., Frontiers in Immunology, 2022***

The microbiome is the collection of micro-organisms such as bacteria that inhabit our body. These organisms can be helpful or harmful depending on their relative distributions. The gut microbiome has been implicated in ME/CFS, and a recent review attempts to sum up our current knowledge in this area. One of the hypotheses presented is the intriguing idea that antibiotic use throughout life may alter the composition of the microbiome, making some people more prone to developing ME/CFS. The authors also discuss the potential role of faecal microbiota transfer as a treatment for the disease.

# Fundraising stories

Recent fundraising activities by our supporters.
To support ME Research UK, please visit our website for ideas.

## On top of the world

Scott Buchanan is now well into his training regime for this year's Mont Blanc Marathon. The 42-km 'mythic trail' takes place on 26 June, and takes in the slopes of the Aiguillette des Posettes before finishing on the Place du Triangle de l'Amitié in the heart of Chamonix. The reason he's taking part, says Scott, is his frustration that ME sufferers are still not being treated seriously. "I believe ME Research UK has the right approach to this tough condition." We wish Scott all the best as he trains for the race, and you can support him by visiting his JustGiving page: bit.ly/3NPdGuh.

## Walk for ME

ME Research UK is grateful once again to be chosen as one of the featured charities to benefit from 2022's Walk for ME scheme. Now in its tenth consecutive year, the scheme has encouraged supporters to walk, run, swim and ride – in places as diverse as Ireland, Spain, New Zealand, Australia, Malaysia, Israel and the USA, as well as here in the UK – for two ME biomedical research-focused charities. Since it started in 2013, Walk for ME has raised well over £200,000 for charity. Wherever you are, we hope you will become involved this year. There are no targets, and you can decide when to walk and which charity to support. You can find out more on our website: meres.uk/Walk2022.

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03

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**01 Eloise Down**'s hair was donated to the Little Princess Trust

**02 Walk for ME** is open to all ages

**03** Bake a cake for **Blue Sunday**

**04 Scott Buchanan** realises what he's let himself in for

## Blue Sunday

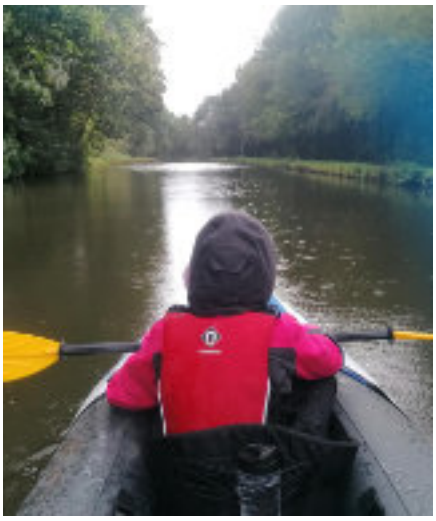
The tenth annual 'Blue Sunday' Tea Party For ME takes place on Sunday 15 May. This online tea party was started in 2013 as a way of "coming together and breaking the isolation so many of us experience because of ME," says creater Anna Redshaw. Bake a cake, invite your friends over, and donate the price you'd pay in a café. "I hope you'll join me on 15 May for a chat online over tea and cake." You can find more details and make a donation on JustGiving: bit.ly/3Kb5Zwz.

## Hair today...

We are very grateful to Eloise Down who in November last year very generously decided to sacrifice her locks in aid of ME Research UK. Friends and family donated via her JustGiving page (bit.ly/3pt1hCk) and she also gave the tresses to The Little Princess Trust. This charity gives "hair and hope to children and young people by providing real hair wigs" to young people who have lost their hair through illness, "and funding vital research into childhood cancers." Huge thanks to Eloise and everyone who supported her fundraising.


01


02



03

**01 Simon Phillips** jumps out of a perfectly good plane

**02** The Kiltwalk is back

**03** Paddling to Goole

## Coast to coast

Terry Smith has been paddling the 162 miles from Liverpool to Goole by canoe, raising money for ME Research UK on the way. He has been completing the trail over several weekends, accompanied mostly by his daughter Poppy. Terry's wife Aimee suffers with ME, and, as well as giving her some rest at home, the purpose of this epic adventure has been to raise funds for the biomedical research that is so essential. You can follow the trip and make a donation via JustGiving: bit.ly/3hs1fGm.

## Kiltwalk 2022

The Kiltwalk has been raising much-needed funds for Scottish charities and projects since 2016, with all donations topped up by 50% from the Hunter Foundation. There are a several events around Scotland (and virtually), with distances ranging from 6 to 25 miles, so there's one for everyone. Get more information at: thekiltwalk.co.uk.

## Si-Dive

On top of his other fundraising for ME Research UK, Simon Phillips fought off his fear of heights to do a skydive in October last year. "It was phenomenal, actually. Incredible! I've never experienced anything like it. I'd like to take this opportunity to thank everyone for your donations and kind words of support." And we'd like to take this opportunity to thank Simon for all *his* support and money raised – fantastic stuff!

# Standing Order Form

To support our work, please consider setting up a standing order by completing this form and sending it to: **ME Research UK, The Gateway, North Methven Street, Perth, PH1 5PP**

☐ Please tick this box to indicate you are happy for us to collect and store your personal information, in accordance with our Privacy Policy at meresearch.org.uk.

**Name of account holder(s)**

**Instruction to your Bank or Building Society**

To the manager, Please arrange to debit my/our account with the amount detailed below, once every month until further notice.

**Account number**

**Branch sort code**

**Address and postcode**

**Debit amount (£)**

**Payment date each month**

**Telephone number**

**Date of first payment**

**Name of Bank or Building Society**

**Pay to:** Virgin Money, St John's Centre, Perth, PH1 5UH, UK, Account: ME Research UK, a/c no: 50419466, Branch code: 82-67-09

**Branch address and postcode**

☐ **Tick** if you would like us to treat this, any future donations to ME Research UK (SC036942), and all payments in the previous 4 years, as Gift Aid donations, meaning your donation can increase in value by a quarter at no extra cost to you. You confirm that you are a UK taxpayer and understand that if you pay less Income Tax and/or Capital Gains Tax than the amount of Gift Aid claimed on all your donations in that tax year it is your responsibility to pay any difference. Please notify us if you wish to cancel this declaration, change your name or home address, or no longer pay sufficient tax on your income and/or capital gains. If you pay Income Tax at the higher or additional rate and want to receive the additional tax relief due to you, you must include all your Gift Aid donations on your Self-Assessment tax return or ask HM Revenue and Customs to adjust your tax code.

**Signature**

**Date**