

BLOOD TESTS FOR ME/CFS AND LONG COVID EXPLAINED

UNDERSTANDING THE IMPORTANCE
AND PROCESS OF BLOOD TESTS



What blood tests measure

Searching for a diagnostic biomarker
for ME/CFS

Blood tests to be conducted before diagnosing
ME/CFS

Blood tests and children

Interpreting blood test results



Blood tests for ME/CFS and Long Covid explained was written by **Dr Charles Shepherd**, Trustee and Hon. Medical Adviser to The ME Association.

DISCLAIMER

We recommend that the medical information in this leaflet is discussed with your doctor. It is not intended to be a substitute for personalised medical advice or treatment. You should consult your doctor whenever a new symptom arises, or an existing symptom worsens. It is important to obtain medical advice that considers other causes and possible treatments. Do not assume that new or worsened symptoms are solely because of ME/CFS or Long Covid.



BLOOD TESTS FOR ME/CFS AND LONG COVID EXPLAINED

CONTENTS

- [3](#) **Summary of key points**
- [4](#) **Introduction: What does a blood test measure?**
 - Red Blood Cells (RBCs)
 - White Blood Cells (WBCs)
 - Platelets
 - Plasma
- [5](#) **Is there a diagnostic blood test for ME/CFS?**
- [5](#) **The search for a diagnostic blood test for ME/CFS and Long Covid**
- [7](#) **Baseline blood tests that should be checked when a diagnosis of ME/CFS or Long Covid is suspected or needs to be confirmed**
- [8](#) **Private tests**
- [8](#) **Blood tests and children**
- [9](#) **Interpreting blood test results**
- [9](#) **When should blood tests be repeated or extended?**
- [10](#) **More information on the various baseline tests and others blood tests which may need to be checked**
- [17](#) **Further information**
- [13](#) **How we can help**



BLOOD TESTS FOR ME/CFS AND LONG COVID EXPLAINED

This MEA information leaflet covers all the baseline blood tests, and their interpretation, that are used in the assessment and diagnosis of ME/CFS and Long Covid.

While all the baseline tests apply to diagnosing ME/CFS, many of them also apply to diagnosing Long Covid. However, as Long Covid covers a wide range of symptoms and symptom clusters, some of which relate to organ damage to the lungs, liver, heart, etc, from a Covid-19 infection, other blood tests may also be required.

SUMMARY OF KEY POINTS

- Diagnostic blood tests for ME/CFS and Long Covid do not currently exist.
- Research is underway to try and find blood-based biomarkers that could be used as diagnostic tests for both conditions.
- Before a diagnosis of ME/CFS or Long Covid is made, some baseline blood tests should always be checked. These tests help to exclude other conditions that can cause similar symptoms to ME/CFS and Long Covid.
- If the results of any of these baseline tests are abnormally high or low, further assessment and investigations may be necessary.
- Conditions like hypothyroidism become more common in older age and can cause fatigue and other ME/CFS like symptoms. It may therefore be sensible to carry on checking these tests - especially where there is any deterioration in symptoms.



Human blood is composed of several key components, including red blood cells, white blood cells, platelets, and plasma.

INTRODUCTION: WHAT DOES A BLOOD TEST MEASURE?

Human blood is composed of several key components: red blood cells, white blood cells, platelets, and plasma.

■ Red Blood Cells (RBCs)

RBCs are responsible for transporting oxygen throughout the body. A deficiency or abnormality can lead to anaemia, which causes fatigue and weakness.

■ White Blood Cells (WBCs)

WBCs are a crucial part of the body's immune-system response to infections and allergies. They are divided into:

- **Basophils:** Involved in allergic responses.
- **Eosinophils:** Help to combat parasitic infections, contribute to allergic responses and help with tissue repair.
- **Lymphocytes:** Key players in immune responses, with T-cells and B-cells having specific roles in dealing with infections.
- **Neutrophils:** First responders to bacterial and fungal infections.

An increase in a specific type of WBC can indicate an ongoing allergic or infectious reaction whereas a significant decrease in the number of white blood cells indicates some form of immunodeficiency.

■ Platelets

Platelets are small cellular fragments that help to form clots and stop bleeding. A low platelet count can lead to excessive or prolonged bleeding from injuries. Higher than normal levels may indicate inflammation or other health concerns.

■ Plasma

Plasma is the fluid portion of blood which carries red and white blood cells and platelets around the body. It also contains:

- **Antibodies:** Also known as immunoglobulins - produced by the immune system to fight infections.
- **Electrolytes:** Include important substances such as sodium and potassium.

At present, there is no blood test available - either on the NHS or through the private medical sector - that can be used to diagnose ME/CFS or Long Covid.

WHAT DOES A BLOOD TEST MEASURE *(continued...)*

- **Hormones:** Chemical messengers that regulate numerous body functions.
- **Nutrients:** Including vitamins, minerals, sugars, and fats that are necessary for cellular function.

Recent advances in science allow researchers to explore specific proteins (proteomics), metabolites (metabolomics), and genetic factors (genomics) in the blood. These tests are particularly useful in understanding the cause of complex conditions like ME/CFS and identifying biomarkers that can aid in diagnosis.

IS THERE A DIAGNOSTIC BLOOD TEST FOR ME/CFS OR LONG COVID?



At present, there is no blood test available - either on the NHS or through the private medical sector - that can be used to diagnose ME/CFS or Long Covid.

Doctors must therefore diagnose ME/CFS and Long Covid through a process that involves carefully reviewing the person's medical history, evaluating their symptoms, carrying out a full physical examination and arranging blood tests to rule out other possible conditions that cause ME/CFS like symptoms.

THE SEARCH FOR A DIAGNOSTIC BLOOD TEST FOR ME/CFS AND LONG COVID

For a diagnostic blood test to be regarded as being reliable, it must be specific (i.e. not present in any other medical condition) and sensitive (i.e. present in a very high percentage, preferably 100%, of people with ME/CFS or Long Covid). Preliminary findings always need to be replicated in larger populations and by other independent research groups before any firm conclusions can be drawn.

In relation to ME/CS, several research studies are now making encouraging progress towards finding a reliable blood-based diagnostic biomarker for ME/CFS. These include three studies that are being funded by our Ramsay Research Fund.



The ME Association and ME Research UK are funding research at Brunel University of London focusing on a nanoelectronic assay to detect electrical impedance changes in white blood cells, building on previous studies.

THE SEARCH FOR A DIAGNOSTIC BLOOD TEST FOR ME/CFS AND LONG COVID *(continued...)*

There are also several research studies in progress that are trying to find diagnostic biomarkers for Long Covid – including the Rosetta Stone research at Imperial College in London that is funded by the MEA Ramsay Research Fund.

<https://meassociation.org.uk/5n3l>

Among the research that is currently taking place in the UK to find a diagnostic biomarker for ME/CFS are these studies:

Alamar Bioscience - NULISA technology: This research at University College London is being funded by the ME Association. It is analysing blood samples from people with ME/CFS, Long Covid, and healthy volunteers using a highly sensitive new technology that can measure hundreds of proteins linked to the immune system and the brain – including many that are normally too low to be detected with standard tests.

<https://meassociation.org.uk/nfaj>



The UK ME/CFS Biobank.
Image by Yas Crawford:
yascrawford.com

Electrical cell testing: The ME Association and ME Research UK are funding research at Brunel University of London focusing on a nanoelectronic assay to detect electrical impedance changes in white blood cells, building on previous studies.

<https://meassociation.org.uk/wohx>

EpiSwitch test: This research, using blood samples from the ME Biobank, claims to have identified a genomic blood test with 92% sensitivity and 98% specificity using epigenetic signatures in ME/CFS patients.

<https://meassociation.org.uk/7bnj>

Raman spectroscopy: Research funded by the ME Association at the University of Oxford is using artificial intelligence and Raman spectroscopy to map blood-cell molecular structure. Preliminary data has shown a 91% accuracy in distinguishing ME/CFS patients.

<https://meassociation.org.uk/xaky>





Before confirming a diagnosis of ME/CFS, several routine blood tests should be done to rule out other medical conditions that can produce fatigue and symptoms resembling ME/CFS.

BASELINE BLOOD TESTS THAT SHOULD BE CHECKED WHEN A DIAGNOSIS OF ME/CFS OR LONG COVID IS SUSPECTED OR NEEDS TO BE CONFIRMED

Before confirming a diagnosis of ME/CFS or Long Covid, several routine blood tests should always be checked to rule out other medical conditions that can produce fatigue and symptoms resembling ME/CFS or Long Covid:

- **Full blood count (FBC)** measures the levels of red blood cells (haemoglobin, haematocrit), white blood cells (total count and differential) and platelets.
- **Serum ferritin** measures iron levels in the body and helps to identify iron-deficiency anaemia.
- **ESR (Erythrocyte sedimentation rate) and CRP (C-reactive protein)** are inflammation markers. Elevated levels may indicate the presence of an infection or an autoimmune disease.
- **Biochemistry screen** checks the levels of electrolytes (sodium, potassium), calcium, phosphate and urea, which provides insights into kidney function.
- **Glucose and HbA1c:** for diabetes and evaluation of blood sugar control.
- **Coeliac disease screening** detects IgA anti-tissue transglutaminase antibodies, indicating gluten intolerance or coeliac disease.
- **Creatine kinase (CK)** assesses muscle health; elevated levels may indicate muscle damage or inflammation.
- **Creatinine** measures kidney health by evaluating waste product levels in the blood.
- **Liver function tests (LFTs)** assess the liver's health and function by measuring various enzymes and proteins.
- **Thyroid function tests** measure levels of thyroid hormones that regulate metabolism, growth, and development.
- **Adrenal function test (Cortisol):** Checking the level of 9am cortisol measures the output of this important hormone from the adrenal glands. A reduced level of cortisol may indicate Addison's disease - a condition where the production of cortisol becomes very low.

Urine testing for blood, sugar and protein should also be checked.

WHICH BLOOD TESTS SHOULD BE CONDUCTED BEFORE DIAGNOSING ME/CFS? *(continued...)*

Based on these test results and accompanying symptoms, additional tests may be needed to explore other potential causes of fatigue and ME/CFS-like symptoms. Examples include:

- **Infection screening** for pathogens such as HIV, hepatitis B or C, and Lyme disease which can cause persisting infections.
- **Autoimmune disease screening** for conditions such as lupus and Sjögren's syndrome, particularly if joint pain is present.
- **Vitamin deficiency testing** for vitamin B12 and vitamin D levels, especially if neurological symptoms or low sunlight exposure are factors.

All of these blood and urine tests (in section 1.2.3) are consistent with the recommendations in the section covering diagnosis of ME/CFS in the 2021 NICE guideline:

<https://meassociation.org.uk/2eom>

PRIVATE TESTS

There are also some private diagnostic tests for ME/CFS. Most are expensive and, in our present state of knowledge, are unproven. None can therefore be recommended.

The Acumen test, which is claimed to measure mitochondrial function, has not been shown to be reliable in research funded by the MEA.

<https://meassociation.org.uk/trry>

BLOOD TESTS AND CHILDREN

Recommended tests for children and adolescents may also include:

- **Viral studies:** To confirm infections such as Epstein-Barr virus (often linked with ME/CFS) and toxoplasmosis.
- **Testing for rare disorders:** Evaluating muscle or mitochondrial disorders that could lead to fatigue and weakness.



Testing in children is approached with caution. However, it is essential to rule out other causes of symptoms similar to ME/CFS before a diagnosis is confirmed.



INTERPRETING BLOOD TEST RESULTS

After blood samples are taken, they are analysed in a hospital laboratory. Most results should be available within a few days. Each test will yield a numerical value indicating the level of the measured substance in the blood.

Interpretation is as follows:



■ **Normal results:** levels within the normal range usually indicate no health concerns.

■ **Higher than normal:** slight elevations may require retesting to confirm results. A significant elevation often necessitates further investigation to understand why this is occurring.

■ **Lower than normal:** abnormally low values (e.g. low-thyroid hormones or haemoglobin) can signal serious conditions.

Monitoring and following up on abnormal results is crucial for early detection of other potential health problems.

After blood samples are taken, they are analysed in a hospital laboratory. Most results should be available within a few days. Each test will yield a numerical value indicating the level of the measured substance in the blood.

Severe and very severe ME/CFS:

Prolonged immobility, along with the possibility of malnutrition, in people with severe or very severe ME/CFS who are partially or totally bedbound can cause changes in some of the baseline blood tests. These include a lowered level of sodium (resulting from an impaired ability to regulate the body's fluid balance), potassium disturbance and a raised level of calcium (as a result of increased breakdown of bone).

Other blood tests may also be necessary to assess and monitor people who have severe or severe ME/CFS.

WHEN SHOULD BLOOD TESTS BE REPEATED OR EXTENDED?

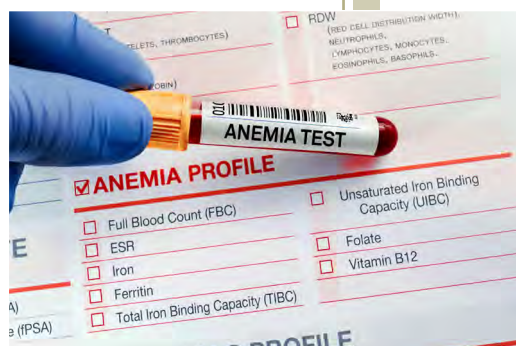
Once a diagnosis of ME/CFS or Long Covid has been confirmed, routine follow-up testing is generally unnecessary. However, new or worsening symptoms should not be automatically attributed to ME/CFS or Long Covid and may well require a repeat of some or all of the baseline blood tests.

For individuals over the age of 40 with a diagnosis of ME/CFS or Long Covid, it is advisable to repeat some of the routine tests - such as

WHEN SHOULD BLOOD TESTS BE REPEATED OR EXTENDED?

(continued...)

thyroid function - every few years. This is because conditions like anaemia, diabetes, and hypothyroidism are more prevalent as age increases and can develop gradually.



Anaemia is not part of ME/CFS or Long Covid. If anaemia is found it must be investigated further - as it always has a cause.

MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHERS BLOOD TESTS WHICH MAY NEED TO BE CHECKED

■ Full blood count and differential

This checks the level of haemoglobin (the substance in red cells that carries oxygen around the body), white blood cells and platelets as well as providing information on the size of the red blood cells and breaks down the white cell count into its cellular components.

Macrocytosis, where there is an increase the size of the red blood cells, must be investigated further as it can be a marker for vitamin B12 deficiency and thyroid disease.

Anaemia is not part of ME/CFS or Long Covid. If anaemia is found it must be investigated further - as it always has a cause. One fairly common cause is iron deficiency due to bleeding (sometimes menstrual). However, a number of conditions with ME/CFS-like symptoms can also cause anaemia. These include coeliac disease (where it can cause iron-deficiency anaemia) and low thyroid function (hypothyroidism). Anaemia can also be caused by dietary deficiencies, especially low iron. It may occur in adolescents, especially in teenage girls with ME/CFS following the onset of menstruation and who are not eating enough iron-containing foods. But it also occurs in boys.

A rise in the overall number of **white blood cells** usually indicates the presence of infection or inflammation somewhere in the body. A decrease in the white cell count may mean that your body isn't so good at fighting infections. Causes of a low white cell count include drug side-effects and diseases of the bone marrow, where white blood cells are made.

Minor abnormalities in the white cell count - including the presence of what are called atypical lymphocytes - are sometimes found in ME/CFS, especially in the very early stages when the illness follows a viral infection such as glandular fever. More persistent or significant abnormalities in the white cell count will need to be investigated, especially when accompanied by physical signs such as enlarged glands.

MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHER BLOOD TESTS WHICH MAY NEED TO BE CHECKED

(continued...)

The **platelet count** should be normal in ME/CFS and Long Covid. An increase in the number of platelets (thrombocytosis) must be properly investigated as it can be an early marker for inflammatory and infectious diseases that can also cause an ME/CFS-like illness.

■ Biochemistry screen

This checks the level of **salts/electrolytes** in the blood (i.e. sodium, potassium), **calcium**, **phosphate** and **urea**.

An increase or decrease in the level of **calcium** suggests that there may be another cause for symptoms. One condition that can cause a raised level of calcium is sarcoidosis. This would need to be considered if you also have a chronic cough and chest symptoms. Thyroid disease can also raise the level of calcium in the blood.

The levels of **sodium** and **potassium** provide vital clues as to how your body is dealing with fluid load and how your kidneys are functioning. An increased level of sodium could indicate lack of water intake (dehydration) or an unusual hormonal condition called diabetes insipidus.



A raised level of blood glucose indicates that you may have diabetes - an illness that can come gradually with increasing fatigue and urinary symptoms. If so, more specific tests will probably need to be arranged.

A decreased level of sodium could indicate an excessive water intake or Addison's disease, where there is a serious fall in the output of the hormone cortisol.

A decrease in the level of potassium could be caused by drugs (including diuretics, liquorice and carbonoxalone), diabetes, kidney problems or malabsorption of potassium in the gut.

The level of blood urea gives a rough guide to kidney function.

■ Blood glucose and HbA1C

A raised level of blood glucose indicates that you may have diabetes - an illness that can come gradually with increasing fatigue and urinary symptoms. If so, more specific tests will probably need to be arranged.

■ Creatine kinase (CK)

This is an enzyme that passes into the blood from damaged or inflamed muscle. Although CK is usually within normal limits in ME/CFS, there

MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHER BLOOD TESTS WHICH MAY NEED TO BE CHECKED

(continued...)

*As both
underactivity
(hypothyroidism)
and overactivity
(hyperthyroidism)
of the thyroid
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an ME/CFS-like
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thyroid function is
essential before a
diagnosis can be
confirmed.*

are occasional reports where it is raised, possibly due to muscle inflammation in the early post-infection stage of ME/CFS. A significant increase in the level of CK will need to be investigated, possibly with a muscle biopsy (where a small sample of muscle is removed for examination under the microscope) to exclude a primary muscle disease.

Research carried out at the ME/CFS Biobank has found that CK levels are reduced in some people with ME/CFS. The explanation is uncertain - it could be related to muscle inactivity and disease activity.

■ ESR and/or CRP (C-reactive protein)

These are two tests that pick up whether there is inflammation or infection somewhere in the body. Results of these tests should be within the normal range in people with ME/CFS and Long Covid but minor elevations are sometimes found. If the level of an inflammatory marker is significantly or persistently raised, further investigations are likely to be necessary.

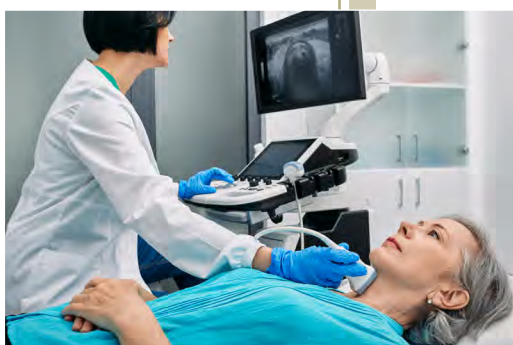
■ Hormone function tests

The only hormone levels that need to be routinely checked in people with ME/CFS and Long Covid are thyroid and adrenal gland function. The thyroid gland produces a vital hormone called thyroxine; the adrenal glands are where cortisol is produced.

If symptoms, or electrolyte results, are suggestive of Addison's disease - a very rare condition where the adrenal glands produce dangerously low levels of cortisol - this will require further hospital-based tests. The basic screening test for Addison's involves checking the morning level of cortisol. If the level is low then further investigation, including what is called a synacthen test to measure cortisol output when the adrenal glands are stimulated by another hormone called ACTH, will be arranged.

■ Thyroid function tests

As both underactivity (hypothyroidism) and overactivity (hyperthyroidism) of the thyroid gland can produce an ME/CFS-like illness, testing thyroid function is essential before a diagnosis can





Autoantibodies are antibodies that the body sometimes produces against its own tissues and this type of abnormal immune system response can sometimes follow an infection.



MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHER BLOOD TESTS WHICH MAY NEED TO BE CHECKED

(continued...)

be confirmed. The most sensitive test of thyroid function involves measuring TSH - thyroid-stimulating hormone. As the name suggests, this is a hormone whose function is to stimulate thyroid hormone (thyroxine) production.

If thyroxine output is low the TSH level rises to stimulate the gland. If too much thyroxine is being produced, the TSH level falls to compensate. Thyroid hormones that are measured in the blood are T3 (occasionally) and T4.

Some private doctors prescribe thyroid hormones to patients with ME/CFS who have normal thyroid function test results. This is inappropriate and potentially dangerous as even small unnecessary amounts of thyroxine can trigger serious heart rhythm disturbances.

In some circumstances, other hormones may need investigation. One possible example is serum oestradiol and FSH levels in women who have a significant exacerbation of ME/CFS symptoms during their period. This is because they may benefit from treatment with hormonal supplementation if levels are low.

Reference: Studd J and Panay N. Chronic fatigue syndrome. *Lancet*, 1996, 348, 1384.

■ Immune function tests

The white blood count gives a rough idea of how your immune system is functioning. There are also specialised tests of immune system function that show how the various different components of the immune system are functioning.

Although minor abnormalities do quite often occur in ME/CFS and Long Covid involving all the different components of the immune system orchestra - e.g. autoantibodies, cytokines, immunoglobulin levels, natural killer cells - the changes are not consistent enough to help with diagnosis or management. So they are of research interest rather than clinical use and a more comprehensive investigation of the immune system is not normally indicated.

Autoantibodies are antibodies that the body sometimes produces against its own tissues and this type of abnormal immune system response can sometimes follow an infection. This may explain why low levels of autoantibodies are sometimes found in people with ME/CFS.

MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHER BLOOD TESTS WHICH MAY NEED TO BE CHECKED

(continued...)

■ Liver function tests (LFTs)

These measure the level of various chemicals, proteins and enzymes that are produced in the liver. An abnormal liver function test result normally indicates that something is wrong with the liver, and the spread of results can provide clues to the nature of the problem. However, normal LFTs do not always mean that the liver is normal. People with early cirrhosis can still have normal LFTs.

Minor abnormalities in LFTs can occur in ME/CFS for a number of reasons. These include the type of infection that triggered the illness and drugs (e.g. antidepressants) or herbal remedies that affect liver function.

A benign condition of the liver called **Gilbert's syndrome** is reported to be more common in ME/CFS and this can cause an intermittent rise in the level of bilirubin - a pigment that causes jaundice.

Primary biliary cirrhosis, which can cause debilitating fatigue, should be considered when liver function is abnormal - especially where someone also complains of generalised skin itching without the presence of a skin rash.

Non-alcoholic fatty liver disease (NAFLD), recently renamed metabolic dysfunction-associated steatotic liver disease (MASLD), is a common condition caused by fatty build-up in the liver (not from alcohol), often leading to inflammation and damage. It is closely linked to obesity, type 2 diabetes, and high blood pressure. NAFLD causes an increase in the level of liver enzymes called serum transaminases.

Anyone with irritable bowel-type symptoms - i.e. abdominal pain, bloating, changes in bowel habit, mouth ulcers - must be properly checked for coeliac disease as this is a fairly common disorder that shares a number of symptoms with ME/CFS.



■ Screening for coeliac disease

Anyone with irritable bowel-type symptoms - i.e. abdominal pain, bloating, changes in bowel habit, mouth ulcers - must be properly checked for coeliac disease as this is a fairly common disorder that shares a number of symptoms with ME/CFS. An antibody screening test - the IgA anti-tissue transglutaminase - is a commonly used screening test. If the result suggests coeliac disease, a biopsy of the gut lining will probably be arranged. Coeliac disease symptoms, including the fatigue, normally respond to a gluten-free diet.

Antibodies, which are part of the body's immune system response to an infection, often remain in the blood for a long period of time after the acute infection has disappeared. However, their presence does not necessarily indicate that the infection is still present or active.

MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHER BLOOD TESTS WHICH MAY NEED TO BE CHECKED

(continued...)

■ Screening for infection

Antibodies, which are part of the body's immune-system response to an infection, often remain in the blood for a long period of time after the acute infection has disappeared. However, their presence does not necessarily indicate that the infection is still present or active.

Looking for antibodies to specific infections can normally only provide clues as to what triggered your ME/CFS in the past. So this sort of information isn't therefore usually of any help in either diagnosing or managing ME/CFS. These type of antibodies can also be present in perfectly healthy people.

Even so, there are some specific and treatable infections that do sometimes persist and need to be checked for if your clinical history suggests that one of them could be involved. Examples include hepatitis B and C, HIV, Lyme disease and Q fever.

■ Screening for rheumatic conditions

ME/CFS can produce joint pain. If this is severe, or accompanied by inflammation, swelling or deformity, you will need to be checked for some of the rheumatic diseases that can produce fatigue. This will involve immunological tests that are positive in conditions like lupus/SLE and Sjogren's syndrome.

■ Other blood tests that may be helpful

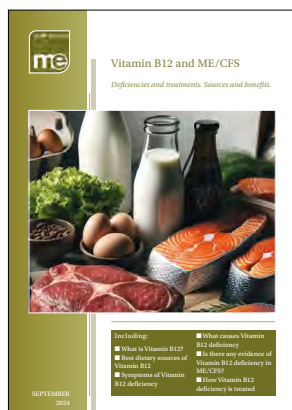
Once a diagnosis has been confirmed there are other tests that may be useful when it comes to on-going management.

Checking **Vitamin D levels** is useful in people who are largely or totally housebound and are not therefore producing vitamin D following exposure of the skin to sunlight - which is where 90% of the body's vitamin D is made. Vitamin D status is best determined by a blood test that measures the level of 25-hydroxyvitamin D. Those with severe deficiency (osteomalacia) have levels less than 25 nmol/L. A level between 25 and 50 nmol/L indicates vitamin D deficiency. The optimum level is 75 nmol/L or higher.

The MEA has an information leaflet covering all aspects of vitamin D and ME/CFS:

<https://meassociation.org.uk/jnts>





MORE INFORMATION ON THE VARIOUS BASELINE TESTS AND OTHER BLOOD TESTS WHICH MAY NEED TO BE CHECKED

(continued...)

Deficiency of **Vitamin B12**, also known as pernicious anaemia, can cause fatigue, weakness, cognitive dysfunction and other ME/CFS type symptoms. The level of vitamin B12 should be checked if there are other symptoms such as numbness, tingling, or a smooth sore tongue, that are characteristic of vitamin B12 deficiency.

The MEA has an information leaflet covering Vitamin B12 and ME/CFS:

<https://meassociation.org.uk/ibyw>

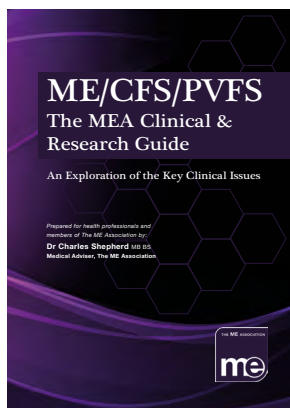
FURTHER INFORMATION

For more detailed information on all these tests, the MEA 'Purple Book', **ME/CFS/PVFS: The MEA Clinical & Research Guide**, is an excellent resource. We have funding available to supply free copies to any health professional who would like one. Health professionals can send a request to the MEA office. Or you can ask for a copy to be sent to your GP or hospital doctor.

<https://meassociation.org.uk/pbme>

Report from the UK ME/CFS Biobank, which discusses their findings on routine blood tests in people with ME/CFS:

<https://meassociation.org.uk/j870>



Use this QR code to link to the MEA's Clinical and Research Guide **ME/CFS/PVFS: An Exploration of the Key Clinical Issues** (The Purple Book).





"Thank you for producing such a helpful magazine.

The standard is consistently high and each edition is interesting and varied. I need all the help I can get and this magazine is consistently encouraging, realistic, and helpful."



THE ME ASSOCIATION

Changing attitudes and improving lives...

■ **COMMUNITY:** We provide a safe and welcoming community for people affected by ME/CFS and Long Covid who come together and benefit from sharing their experiences. We provide membership, an essential support service, excellent website resources and we host engaging discussions on the most popular social media channels. Knowing that you are not alone can be a great comfort and we are happy to answer your questions and share helpful tips.

■ **MEMBERSHIP:** We put the interests of members at the heart of everything we do. Your subscription means that we can support more people, campaign more effectively and fund more medical research. Members receive the exclusive ME Essential magazine which carries the latest news, medical information, personal stories, and feature articles. [Join us today.](#)

■ **SUPPORT:** ME Connect is the charity's support and information service. We listen and we understand. All our staff and volunteers have knowledge and understanding of these medical conditions. We provide a personalised service and we're here when you need us most. You can contact us via our telephone support line (this is a FREEPHONE number) or by email. Please see back page for more details. You can also join ME Connected (Discord online community). To view the ME Connect telephone support line opening hours, please visit: <https://www.meassociation.org.uk/me-connect>

■ **INFORMATION:** We produce reliable and timely information written by topic experts and have the **largest range of free literature covering all aspects of life with ME/CFS and Long Covid**. We can show you how to recognise and manage symptoms, get an accurate diagnosis, a referral to specialists, and to obtain the healthcare that you deserve. We also provide an **e-newsletter** and free access on the website to **Medical Matters** and other relevant information.

■ **RESEARCH:** We fund medical research via the **Ramsay Research Fund** and are especially interested in research that can find diagnostic markers, causes, and treatments. We support the UK ME/CFS Biobank and the Manchester Brain Bank, and have invested over £2m in medical research in the last 10 years.

■ **MEDICAL EDUCATION:** We arrange training for healthcare professionals, offer a medical magazine, ME Medical, and are working with the Government, NHS, Royal Colleges of Medicine, and Local Authorities to implement the recommendations of the 2021 NICE Clinical Guideline on ME/CFS – the successful result of 14 years lobbying and hard work.



“The MEA is doing exactly what it said it would by providing support, actively lobbying for recognition, improvements to health and social care, and funding biomedical research.”

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THE ME ASSOCIATION

Changing attitudes and improving lives...

■ **LOBBYING:** We campaign to raise awareness and bring about positive change. We believe in collaboration and work with the NHS and social care services, the Department of Health and Social Care, the British Association of Clinicians in ME/CFS (BACME), Forward-ME, the ME Research Collaborative (MERC), DecodeME, the All-Party Parliamentary Group (APPG) on ME, Physios4ME, the Chronic Illness Inclusion project (CII), Hidden Disabilities Sunflower, and Long Covid initiatives.

■ **HEALTH & SOCIAL CARE:** The charity works with healthcare providers to successfully implement the NICE Guideline recommendations on ME/CFS and Long Covid to ensure that everyone receives the very best healthcare, wherever they live in the UK. We want well-trained healthcare professionals providing excellent services because timely intervention can lead to better health outcomes and improved quality of life.

■ **DONATIONS:** In order to help more people and invest in medical research we depend on your generosity. If you feel able to make a donation or want to raise funds in other ways, please get in touch with the fundraising team: fundraising@meassociation.org.uk or you can [make a direct donation via the website](#).

WHAT ARE ME/CFS AND LONG COVID?

We answer key questions about these medical conditions and compare similarities and differences. You'll also find the NICE Guideline reproduced in full in an [easy-to-use database](#).

MEDICAL MATTERS

Medical Matters is an easy-to-use online supplement to the more detailed literature. The same topic experts provide answers to commonly asked questions: <https://meassociation.org.uk/medm>

NHS REFERRAL SERVICES

If you need to locate an ME/CFS specialist service or Long Covid Clinic, then we can help. We have listed all secondary care referral services in an [easy-to-use database](#).



THE ME ASSOCIATION



ME CONNECT

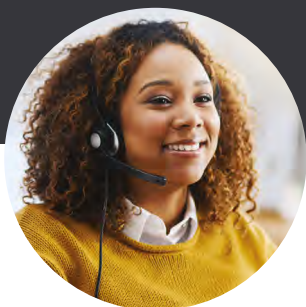
The Support and Information Service
for people affected by ME/CFS/PVFS
and Long Covid

HOW TO GET IN TOUCH:
by phone or email



Freephone
0808 801 0484

For opening hours visit:
meassociation.org.uk/mec



HERE TO LISTEN

We are here to listen,
validate and empathise
with any issues you might
be facing.



VITAL SUPPORT

We are here to help
you reach an informed
decision.



SAFE ENVIRONMENT

We provide a safe,
confidential and
understanding
environment where you
can be heard
and understood.

We're here for you!



meconnect@meassociation.org.uk

For all information relating to ME Connect visit: <https://meassociation.org.uk/mec>

meassociation.org.uk