Index of ME/CFS Published Research

An A-Z index of the most important published research

31st August 2020

The ME Association
Forward

Welcome to the ME Association Index of Published ME/CFS Research. This is an A-Z index of the most important published research studies and selected key documents and articles, listed by subject matter, on myalgic encephalomyelitis or chronic fatigue syndrome (ME/CFS). It is correct to 31st August 2020.

The Index will be updated at the end of each month and made available in the research section of the ME Association website. Each update will be accompanied by a website blog of that month’s published research abstracts to help keep you informed of the latest research developments.

The Index adopts the subject headings used in the ME Association’s clinical and research guide which provides a review of current clinical knowledge and research evidence.

This authoritative and popular guide is written by Dr Charles Shepherd, Hon. Medical Adviser to the ME Association and Dr Abhijit Chaudhuri, consultant neurologist at Queen’s Hospital in Romford.

The 2020 edition has now been published and is available to order from the website shop. We are pleased to be able to offer free hard copies to health professionals upon application.

The ME Association are very grateful to Dr Barbara de Barros, Charlotte Stephens, and Russell Fleming, for producing this Index which is proving a very popular and helpful resource.

Please support our vital work

We are a national charity working hard to make the UK a better place for people whose lives have been devastated by an often-misunderstood neurological disease.

If you would like to support our efforts and ensure we are able to inform, support, advocate and invest in biomedical research, then please donate today.

Just click the image opposite or visit our JustGiving page for one-off donations or to establish a regular payment. You can even establish your own fundraising event.

Or why not join the ME Association as a member and be part of our growing community? For a monthly (or annual) subscription you will also receive ME Essential – quite simply the best M.E. magazine in the UK today!
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The ME Association: Please support our vital work
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ME CONNECT
We’re here to help

Do you need to talk?
ME Connect is the telephone helpline service of the ME Association. It provides information and support for people with ME and those who live with or care for them.
ME Connect provides a safe and understanding environment for people with ME so that they know they are being heard and understood.

ME Connect is a member of the Helplines Partnership which promotes high standards.

CALL 0344 576 5326
10am-12noon
2pm-4pm, 7pm-9pm
every day of the year

“Thank you for being there, you provide a wonderful service”
“ME Connect gave me information, reassurance and the tools to cope”
“I just want to say thank you. You saved my life”

Calls cost the same as other standard landline numbers (starting 01 or 02).
If you have a call package for your landline or mobile phone then calls will normally come out of your inclusive minutes.
1. Nomenclature and definition

Link: https://www.ncbi.nlm.nih.gov/pubmed/25640602/

Brurberg et al. (2013) Case definitions for chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME): a systematic review. *BMJ Open* 4 (2). Link: https://bmjopen.bmj.com/content/4/2/e003973


Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3427890/

Link: https://jamanetwork.com/journals/jama/article-abstract/2118591

Link: https://www.ncbi.nlm.nih.gov/pubmed/7978722

Link: http://www.foodsmatter.com/me_and_cfs/cfs_me_causes_general/articles/goudsmit-me-clinical%20entity-10-12.html

Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5999262/


The ME Association, 7 Apollo Office Court, Radcliffe Road, Gawcott, Bucks, MK18 4DF
ME Connect Helpline: 0344 576 5326 Available every day of the year, during the hours of 10am-12noon, 2pm-4pm and 7pm-9pm. The ME Association is a registered charity number 801279.


2. Epidemiology


3. Co-morbidity


**4. Biomedical Research**

**4.1 Biobank UK ME/CFS**


**4.2 Biomarker Landscape Project**


### 4.3 Cardiac Function


Campen CM and Visser FC (2018) The Abnormal Cardiac Index and Stroke Volume Index Changes During a Normal Tilt Table Test in ME/CFS Patients Compared to Healthy Volunteers, are Not Related to Deconditioning, *Journal of Thrombosis and Circulation* 107. Link: [https://tinyurl.com/y5nb9dyr](https://tinyurl.com/y5nb9dyr)

Campen CM et al. (2020) Cerebral blood flow is reduced in ME/CFS during head-up tilt testing even in the absence of hypotension or tachycardia: a quantitative, controlled study using Doppler echography. *Clinical Neurophysiology Practise* [Epub ahead or print]. Link: [https://www.sciencedirect.com/science/article/pii/S2467981X20300044](https://www.sciencedirect.com/science/article/pii/S2467981X20300044)


### 4.4 Exercise physiology/testing


### 4.5 Gastrointestinal and microbiome


Kenyon J et al. (2019) A Retrospective Outcome Study of 42 Patients with Chronic Fatigue Syndrome, 30 of Whom had Irritable Bowel Syndrome. Half were treated with oral approaches, and half were treated with Faecal Microbiome Transplantation. Human Microbiome Journal 13. Link: https://tinyurl.com/y2cqzgf


### 4.6 Gene expression


Grabowska A et al. (2020) Review of the Quality Control Checks Performed by Current Genome-Wide and Targeted-Genome Association Studies on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome. *Frontiers in Pediatrics* 8: 293. Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7304330/?fbclid=IwAR2zEL0l6uAW1y9oXu6fPOk60mBLRL707wLBgFySpaMhYb8Qm8UcZhm5eU


4.6.1 Epigenetics


4.7 General reviews


### 4.8 Genetic predisposition


4.9 Immunology


https://ard.bmj.com/content/78/Suppl_2/1495.2.abstract


Groven N et al. (2020) MCP-1 is Increased in Patients with CFS and FM, whilst several other immune markers are significantly lower than healthy controls. *Brain, Behaviour & Immunity-health* [Epub ahead of print]. Link: 
https://www.sciencedirect.com/science/article/pii/S2666354620300326#


Hartwig J et al. (2020) IgG stimulated β2 adrenergic receptor activation is attenuated in patients with ME/CFS. *Brain, Behaviour and Immunity* [Epub ahead of print]. Link: 


Jonsjo MA et al. (2019) Patients with ME/CFS (Myalgic Encephalomyelitis/Chronic Fatigue Syndrome) and chronic pain report similar level of sickness behavior as individuals injected with bacterial endotoxin at peak inflammation. Health [Epub ahead of print]. Link: https://www.sciencedirect.com/science/article/pii/S2666354619300298


4.10 Infection


Asprusten T et al. (2019) EBV-requisitioning physicians’ guess on fatigue state 6 months after acute EBV infection. BMJ Paediatrics Open 3 (1). Link: https://tinyurl.com/y39pwy8r


4.11 Ion channels


4.12 Metabolomics


Tomas C et al. (2017) Cellular Bioenergetics is Impaired in patients with Chronic Fatigue Syndrome. *PLoS ONE* 12(10). Link: [https://doi.org/10.1371/journal.pone.0186802](https://doi.org/10.1371/journal.pone.0186802)


Yamano E, et al. (2016) Index markers of chronic fatigue syndrome with dysfunction of TCA and urea cycles. *Science Reports* doi: 10.1038/srep34990. Link: [https://www.nature.com/articles/srep34990](https://www.nature.com/articles/srep34990)

### 4.13 Miscellaneous


Melvin A et al. (2019) Circulating levels of GDF15 in patients with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome. *Journal of Translational Medicine* 17 (409). Link: [https://www.repository.cam.ac.uk/handle/1810/299333](https://www.repository.cam.ac.uk/handle/1810/299333)


Thakur V et al. (2020) Protective Effect of Hemin Against Experimental Chronic Fatigue Syndrome in Mice: Possible Role of Neurotransmitters. *Neurotoxic Research* [Epub ahead of print]. Link: [https://tinyurl.com/y8bloc4g](https://tinyurl.com/y8bloc4g)


4.14 Mitochondria and energy production


### 4.15 Muscle


4.16 Neurology: Autonomic nervous system (ANS) dysfunction


Lee J et al. (2020) Clinically accessible tools for documenting the impact of orthostatic intolerance on symptoms and function in ME/CFS. *Work* [Epub ahead of print]. Link: [https://content.iospress.com/articles/work/wor203169](https://content.iospress.com/articles/work/wor203169)

Li H, et al. (2014) Autoimmune Basis for Postural Tachycardia Syndrome. *Journal of the American Heart Association* 3: e000755. Link: [http://jaha.ahajournals.org/content/3/1/e000755](http://jaha.ahajournals.org/content/3/1/e000755)


4.17 Neurology: Central nervous system and neuroimaging


### 4.18 Neurology: Hypothalamic and neuroendocrine function


4.19 Neurology: Neuropsychology and cognitive function


4.20 Neurology: Neurotransmitter function


4.21 Pain


### 4.22 Phenotypes and sub-groups


4.23 Post-Exertional Malaise (PEM)


**4.24 Post-mortem research**


4.25 Sleep disturbance


4.26 Vision


5. Psychiatry and psychology


Thompson et al. (2019) Cognitive factors are associated with disability and pain, but not fatigue among physiotherapy attendees with persistent pain and fatigue. Physiotherapy [Epub ahead of print]. Link: https://tinyurl.com/yyep9zu8


6. Sociology


Murray R et al. (2019) Duvet woman versus action man: the gendered aetiology of Chronic Fatigue Syndrome according to English newspapers. Feminist Media Studies. Link: https://tinyurl.com/yyfayo7v


7. Future research recommendations


Tokunaga K et al. (2020) Inclusion of family members without ME/CFS in research studies promotes discovery of biomarkers specific for ME/CFS. Work [Epub ahead of print]. Link: https://content.iospress.com/articles/work/wo203177
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8. Clinical assessment, symptoms, and diagnosis

8.1 General


### 8.2 Investigations


### 8.3 Physical examination


8.4 Symptoms

Pain – see Biomedical Research, 4.21 above.
Post-Exertional Malaise – see Biomedical Research, 4.23 above.
Sleep disturbance – see Biomedical Research, 4.26 above.
Vision – see Biomedical Research, 4.28 above.

9. Management

9.1 Cognitive Behavioural Therapy (CBT)


9.2 Complementary and alternative therapies


9.3 Diet and nutrition


9.4 Exercise, Pacing and activity management


Vink M and Vink-Niese A (2020) Graded exercise therapy doesn’t restore the ability to work in ME/CFS. Rethinking of a Cochrane review. *Work* [Epub ahead of print]. Link: [https://content.iospress.com/articles/work/wor203174](https://content.iospress.com/articles/work/wor203174)


9.5 General management


Chu L et al. (2020) Environmental accommodations for university students affected by myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). Work [Epub ahead of Print]. Link: https://content.iospress.com/articles/work/wor203176


9.6 PACE Trial, The


9.7 Pharmacological treatment


Bolton MJ et al. (2020) Low-dose naltrexone as a treatment for chronic fatigue syndrome. *BMJ Case Reports* 13 (1). Link: https://casereports.bmj.com/content/13/1/e232502


Dunn KM and Hay EM. (2010) Opioids for chronic musculoskeletal pain. *BMJ* 341: 467-468. Link: [http://www.bmj.com/content/341/bmj.c3533](http://www.bmj.com/content/341/bmj.c3533)


Van Campen LMC and Visser FC (2019) The Effect of Curcumin in Patients with Chronic Fatigue Syndrome/Myalgic Encephalomyelitis Disparate Responses in Different Disease Severities. *Pharmacovigilance and Pharmacoepidemiology* 2 (1). Link: [https://tinyurl.com/qpvhgdm](https://tinyurl.com/qpvhgdm)


9.8 Pregnancy


10. Prognosis and quality of life

10.1 Age


### 10.2 Mortality


### 10.3 Prognosis and recovery


**10.4 Quality of life**


10.5 Severe ME


11. Vaccinations


12. Children and adolescents


Ascough C et al. (2020) Interventions to treat pain in paediatric CFS/ME: a systematic review. *BMJ Paediatrics Open* 4 (1). Link: https://bmjpaedsopen.bmj.com/content/4/1/e000617


Collin SM, et al. (2015) Chronic fatigue syndrome (CFS) or myalgic encephalomyelitis (ME) is different in children compared to in adults: a study of UK and Dutch clinical cohorts. BMJ Open 5(10): e008830. Link: http://bmjopen.bmj.com/content/5/10/e008830


Crawley E and Sterne JAC. (2009) Association between school absence and physical function in paediatric chronic fatigue syndrome/myalgic encephalopathy. Archives of Disease in Childhood 94(10): 752-756. Link: http://adc.bmj.com/content/94/10/752.info


Haig-Ferguson A, et al. (2009) Memory and attention problems in children with chronic fatigue syndrome or myalgic encephalopathy. *Archives of Disease in Childhood* 94(10): 757-762. Link: http://adc.bmj.com/content/94/10/757.info


Harland MR et al. (2019) Paediatric chronic fatigue syndrome patients’ and parents’ perceptions of recovery. *BMJ Paediatrics Open* 3 (1). Link: https://bmjpaedsopen.bmj.com/content/3/1/e000525


Loades ME et al. (2020) Do adolescents with Chronic Fatigue Syndrome (CFS/ME) and co-morbid anxiety and/or depressive symptoms think differently to those who do not have co-morbid psychopathology? Journal of Affective Disorders [Epub ahead of print]. Link: https://www.sciencedirect.com/science/article/pii/S0165032719334561


Neale FK et al. (2019) Illness duration, mood and symptom impact in adolescents with chronic fatigue syndrome/myalgic encephalomyelitis? *Archives of Disease in Childhood* 105 (9): 911-912. Link: [https://adc.bmj.com/content/early/2019/06/13/archdischild-2018-316720.long](https://adc.bmj.com/content/early/2019/06/13/archdischild-2018-316720.long)


Norris T et al. (2017) Natural course of chronic fatigue syndrome/myalgic encephalomyelitis in adolescents. *Archive of Diseases in Childhood* doi: 10.1136/archdischild-2016-311198. Link: [http://adc.bmj.com/content/early/2017/01/19/archdischild-2016-311198](http://adc.bmj.com/content/early/2017/01/19/archdischild-2016-311198)


Solomon-Moore E et al. (2019) Physical activity patterns among children and adolescents with mild-to-moderate chronic fatigue syndrome/myalgic encephalomyelitis. *BMJ Paediatrics Open* 3 (1). Link: https://bmjpaedsopen.bmj.com/content/3/1/e000425


13. Government Documents

13.1 Disability support


13.2 Economic cost to the UK


13.3 General reports, debates, and statements

**All-Party Parliamentary Group on ME.** (2020) Inaugural meeting to re-establish APPG led by Carol Monaghan MP with Dr Charles Shepherd and the MEA providing secretariat. Link: [https://www.meassociation.org.uk/2020/01/the-all-party-parliamentary-group-on-me-to-re-convene-please-invite-your-mp-to-attend-09-january-2020/](https://www.meassociation.org.uk/2020/01/the-all-party-parliamentary-group-on-me-to-re-convene-please-invite-your-mp-to-attend-09-january-2020/)


**House of Commons (2013) Debate.** 11 February col. 517W. Secretary of State re: ME/CFS WHO classification. Link: [https://publications.parliament.uk/pa/cm201213/cmhansrd/cm130211/text/130211w0003.html#13021150000045](https://publications.parliament.uk/pa/cm201213/cmhansrd/cm130211/text/130211w0003.html#13021150000045)

**House of Commons (2013).** Written evidence to Health Select Committee from the ME Association. Link: [https://publications.parliament.uk/pa/cm201415/cmselect/cmhealth/401/401vw11.htm](https://publications.parliament.uk/pa/cm201415/cmselect/cmhealth/401/401vw11.htm)


14. Healthcare


Cuesta A et al. (2019) Fibromyalgia, Chronic Fatigue Syndrome, and Multiple Chemical Sensitivity: Illness Experiences. *Clinical Nursing Research* [Epub ahead of print]. Link: [https://tinyurl.com/y68aa9ak](https://tinyurl.com/y68aa9ak)


The ME Association: Please support our vital work

We are a national charity working hard to make the UK a better place for people whose lives have been devastated by an often-misunderstood neurological disease.

If you would like to support our efforts and ensure we are able to inform, support, advocate and invest in biomedical research, then please donate today.

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Or why not join the ME Association as a member and be part of our growing community? For a monthly (or annual) subscription you will also receive ME Essential – quite simply the best M.E. magazine in the UK today!

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