Index of ME/CFS Published Research

An A-Z index of the most important published research

1st April 2022

The ME Association
Foreword

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 1st August 2021.

The Index is updated at the end of each month and we publish a weekly update of recent research publications that are also available on the MEA website and social media.

The Index adopts the subject headings used in the MEA Clinical and Research Guide which provides a review of current clinical knowledge and research evidence and is updated annually.

This authoritative and very popular book 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 latest edition is available to order from the MEA website shop. We are pleased to be able to offer free hard copies to health professionals upon application and it is also available on Kindle.

Please support our vital work

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

• Just click the image opposite for one-off donations or to establish a regular payment.
• You can even establish your own fundraising event on JustGiving.
• Or why not join the ME Association as a member and be part of our growing community?
• In return for an annual subscription from only £18, you will receive ME Essential – quite simply the best M.E. magazine in the UK today!
Contents

Foreword................................................................................................................................................. 1

1. Nomenclature and definition ................................................................................................................. 6

  1.1 Prevalence ........................................................................................................................................... 10

2. Epidemiology ........................................................................................................................................... 10

3. Co-morbidity ........................................................................................................................................... 13

4. Biomedical Research ............................................................................................................................. 16

  4.1 Biobank UK ME/CFS .......................................................................................................................... 16
  4.2 Biomarker Identification ....................................................................................................................... 17

  4.2.1 Biomarker Landscape Project ....................................................................................................... 18
  4.3 Cardiac Function ................................................................................................................................. 18
  4.4 Exercise physiology/testing .................................................................................................................. 23

  4.5 Gastrointestinal and microbiome ....................................................................................................... 25

  4.6 Gene expression .................................................................................................................................. 28

  4.6.1 Epigenetics ...................................................................................................................................... 32

  4.7 General reviews .................................................................................................................................. 33

  4.8 Genetic predisposition ........................................................................................................................... 37

  4.9 Immunology ....................................................................................................................................... 37

  4.10 Infection ........................................................................................................................................... 49

  4.11 Ion channels ..................................................................................................................................... 58

  4.12 Metabolomics ................................................................................................................................... 58

  4.13 Miscellaneous ................................................................................................................................... 61

  4.14 Mitochondria and energy production ................................................................................................. 64

  4.15 Muscle .............................................................................................................................................. 68

  4.16 Neurology: Autonomic nervous system (ANS) dysfunction ................................................................. 70

  4.17 Neurology: Central nervous system and neuroimaging ....................................................................... 74

  4.18 Neurology: Hypothalamic and neuroendocrine function .................................................................... 83

  4.19 Neurology: Neuropsychology and cognitive function ......................................................................... 86

  4.20 Neurology: Neurotransmitter function ............................................................................................... 88

  4.21 Pain ................................................................................................................................................... 89

  4.22 Phenotypes and sub-groups ............................................................................................................... 90

  4.23 Post-Exertional Malaise (PEM) ......................................................................................................... 92
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.24</td>
<td>Post-mortem research</td>
<td>95</td>
</tr>
<tr>
<td>4.25</td>
<td>Relapse and recovery cycles</td>
<td>95</td>
</tr>
<tr>
<td>4.26</td>
<td>Sleep disturbance</td>
<td>95</td>
</tr>
<tr>
<td>4.27</td>
<td>Vision</td>
<td>98</td>
</tr>
<tr>
<td>5.</td>
<td>Psychiatry and psychology</td>
<td>99</td>
</tr>
<tr>
<td>6.</td>
<td>Sociology</td>
<td>103</td>
</tr>
<tr>
<td>7.</td>
<td>Future research recommendations</td>
<td>104</td>
</tr>
<tr>
<td>7.1</td>
<td>Platforms to facilitate research</td>
<td>107</td>
</tr>
<tr>
<td>8.</td>
<td>Clinical assessment, symptoms, and diagnosis</td>
<td>107</td>
</tr>
<tr>
<td>8.1</td>
<td>General</td>
<td>107</td>
</tr>
<tr>
<td>8.2</td>
<td>Investigations</td>
<td>115</td>
</tr>
<tr>
<td>8.3</td>
<td>Physical examination</td>
<td>118</td>
</tr>
<tr>
<td>8.4</td>
<td>Symptoms</td>
<td>119</td>
</tr>
<tr>
<td>9.</td>
<td>Management</td>
<td>120</td>
</tr>
<tr>
<td>9.1</td>
<td>Cognitive Behaviour Therapy (CBT)</td>
<td>120</td>
</tr>
<tr>
<td>9.2</td>
<td>Complementary and alternative therapies</td>
<td>126</td>
</tr>
<tr>
<td>9.3</td>
<td>Diet and nutrition</td>
<td>131</td>
</tr>
<tr>
<td>9.4</td>
<td>Exercise, Pacing and activity management</td>
<td>133</td>
</tr>
<tr>
<td>9.5</td>
<td>General management</td>
<td>140</td>
</tr>
<tr>
<td>9.6</td>
<td>PACE Trial</td>
<td>145</td>
</tr>
<tr>
<td>9.7</td>
<td>Pharmacological treatment</td>
<td>147</td>
</tr>
<tr>
<td>9.8</td>
<td>Immunoadsorption/ Apheresis</td>
<td>160</td>
</tr>
<tr>
<td>9.9</td>
<td>Pregnancy</td>
<td>161</td>
</tr>
<tr>
<td>10.</td>
<td>Prognosis and quality of life</td>
<td>162</td>
</tr>
<tr>
<td>10.1</td>
<td>Age</td>
<td>162</td>
</tr>
<tr>
<td>10.2</td>
<td>Mortality</td>
<td>162</td>
</tr>
<tr>
<td>10.3</td>
<td>Prognosis and recovery</td>
<td>163</td>
</tr>
<tr>
<td>10.4</td>
<td>Quality of life</td>
<td>164</td>
</tr>
<tr>
<td>10.5</td>
<td>Severe ME</td>
<td>167</td>
</tr>
<tr>
<td>11.</td>
<td>Vaccinations</td>
<td>168</td>
</tr>
<tr>
<td>12.</td>
<td>Children and adolescents</td>
<td>171</td>
</tr>
<tr>
<td>13.</td>
<td>Government Documents</td>
<td>183</td>
</tr>
<tr>
<td>13.1</td>
<td>Disability support</td>
<td>183</td>
</tr>
</tbody>
</table>
13.2 Economic cost to the UK ................................................................. 183
13.3 General reports, debates, and statements ........................................ 185
14. Healthcare ..................................................................................... 187
14.1. NICE Guidelines ...................................................................... 190
15. Case studies .................................................................................. 191
16. Long-COVID ................................................................................. 191
16.1 Long-COVID and ME/CFS ......................................................... 191
17. Miscellaneous ............................................................................... 196
18. Master and Doctoral Theses ............................................................. 197
The ME Association: Please support our vital work ................................. 198
The ME Association Index of Published ME/CFS Research

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.
Please note: Research published after June 2020 (the date of the last update to the MEA Clinical and Research Guide or ‘Purple Book’) is highlighted in purple in the listing below.

1. Nomenclature and definition


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


1.1 Prevalence


2. Epidemiology


3. Co-morbidity


4. Biomedical Research

4.1 Biobank UK ME/CFS


Lacerda EM et al. (2017) The UK ME/CFS Biobank for biomedical research on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) and Multiple Sclerosis. Open Journal of Bioresources 4: 4. Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5482226/

4.2 Biomarker Identification


**Hanevik K et al.** (2022) No difference in serum levels of B-cell activating receptor and antibodies against cytolethal distending toxin B and flagellin in post-infectious irritable bowel syndrome and chronic fatigue syndrome after *Giardia* infection. *JGH Open* (2022):1-4. Link: doi.org/10.1002/jgh3.12724


4.2.1 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

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


Davenport T et al. (2020) Cardiopulmonary responses to exercise in an individual with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome during long-term treatment with intravenous saline: A case study. Work 66 (2): 353-359. Link: https://content.iospress.com/articles/work/ wor203214?fbclid=IwAR1cFTpQx7hm-0TqXrl9YG6f6ox30nU1AwOj-ayEA3RJp-pZjlQbeCJ6wc


4.4 Exercise physiology/testing

Baraniuk JN et al. (2021) Differential Effects of Exercise on fMRI of the Midbrain Ascending Arousal Network Nuclei in Myalgic Encephalomyelitis / Chronic Fatigue Syndrome (ME/CFS) and Gulf War Illness (GWI) in a Model of Postexertional Malaise (PEM). Preprints: 2021110420. Link: https://www.preprints.org/manuscript/202111.0420/v1


4.5 Gastrointestinal and microbiome


Hanevik K et al. (2022) No difference in serum levels of B-cell activating receptor and antibodies against cytolethal distending toxin B and flagellin in post-infectious irritable bowel syndrome and chronic fatigue syndrome after *Giardia* infection. *JGH Open* (2022):1-4. Link: doi.org/10.1002/jgh3.12724

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/y2cqxzgf


4.6 Gene expression

Blauensteiner J et al. (2021) Altered endothelial dysfunction-related miRs in plasma from ME/CFS patients. Scientific Reports 11: 10604. Link: https://www.nature.com/articles/s41598-021-89834-9#cites


Hajdarevic R et al. (2022) Genetic association study in myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) identifies several potential risk loci. *Brain Behavior, and Immunity* 102: 362-369. doi.org/10.1016/j.bbi.2022.03.010


4.6.1 Epigenetics

Almenar-Perez et al. (2019) miRNA profiling of circulating EVs in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS). *Journal of Extracellular Vesicles*, 7: 139. Link: https://tinyurl.com/y4b8durc


The ME Association Index of Published ME/CFS Research

4.7 General reviews


4.8 Genetic predisposition


4.9 Immunology


**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#I


Hornig M et al. (2015) Distinct plasma immune signatures in ME/CFS are present early in the course of illness. Science Advances 1(1): e1400121. Link: http://advances.sciencemag.org/content/1/1/e1400121


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


Marks DF (2021) Myalgic encephalomyelitis/chronic fatigue syndrome as a breakdown of homeostasis. Qeios. Link: https://www.qeios.com/read/FZ1Y68.2


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


Hanevik K et al. (2022) No difference in serum levels of B-cell activating receptor and antibodies against cytotoxic distending toxin B and flagellin in post-infectious irritable bowel syndrome and chronic fatigue syndrome after Giardia infection. *JGH Open* (2022):1-4. Link: doi.org/10.1002/jgh3.12724


4.11 Ion channels


Nguyen T et al. (2016) Impaired calcium mobilization in natural killer cells from chronic fatigue syndrome/myalgic encephalomyelitis patients is associated with transient receptor potential melastatin 3 ion channels. Clinical and Experimental Immunology 187 (2): 284-293. Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5217865/

4.12 Metabolomics


Maes M et al. (2021) Aberrations in the Cross-Talks Among Redox, Nuclear Factor-kB and Wnt/Catenin Pathway Signaling Underpin Myalgic Encephalomyelitis and Chronic Fatigue Syndrome: A Review and New Hypothesis Based on Results of Network, Enrichment and Annotation Analyses. Preprints 2021, 2021090201. Link: https://www.preprints.org/manuscript/202109.0201/v1


**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)


**Xiong R et al.** (2021) Multi-'omics of host-microbiome interactions in short- and long-term Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS). *bioRxiv*. [Epub ahead of print.] Link: [https://www.biorxiv.org/content/10.1101/2021.10.27.466150v1](https://www.biorxiv.org/content/10.1101/2021.10.27.466150v1)
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


4.13 Miscellaneous


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


Wu TY et al. (2022) Prevalence of Aspergillus-Derived Mycotoxins (Ochratoxin, Aflatoxin, and Gliotoxin) and Their Distribution in the Urinalysis of ME/CFS Patients. *International Journal of Environmental Research and Public Health* 19: 2052. doi.org/10.3390/ijerph19042052

Zhao H et al. (2020) Oxidative stress caused by a dysregulated Wnt/beta-catenin signalling pathway is involved in abnormal placenta formation in pregnant mice with chronic fatigue syndrome. *Zygote* Link: https://pubmed.ncbi.nlm.nih.gov/33054899/

4.14 Mitochondria and energy production


Schoeman EM et al. (2017) Clinically proven mtDNA mutations are not common in those with chronic fatigue syndrome. *MBC Medical Genetics* 18: 29. [Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5356238/]


### 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

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


Morrow AK et al. (2022) Long-Term COVID 19 Sequelae in Adolescents: the Overlap with Orthostatic Intolerance and ME/CFS. *Current Paediatric Reports*. Link: doi.org/10.1007/s40124-022-00261-4


Wheeler C et al. (2022) Cardiovascular Autonomic Regulation, ETCO₂ and the Heart Rate Response to the Tilt Table Test in Patients with Orthostatic Intolerance. Applied Psychophysiology and Biofeedback. doi/10.1007/s10484-022-09536-4


4.17 Neurology: Central nervous system and neuroimaging


**Baraniuk JN and Shivapurka N. (2017)** Exercise-induced changes in cerebrospinal fluid miRNAs in Gulf War Illness, Chronic Fatigue Syndrome and sedentary control subjects. *Scientific Reports* 7: 15338. Link: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5681566/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5681566/)

**Baraniuk JN et al. (2021)** Differential Effects of Exercise on fMRI of the Midbrain Ascending Arousal Network Nuclei in Myalgic Encephalomyelitis / Chronic Fatigue Syndrome (ME/CFS) and Gulf War Illness (GWI) in a Model of Postexertional Malaise (PEM). *Preprints*: 2021110420. Link: [https://www.preprints.org/manuscript/202111.0420/v1](https://www.preprints.org/manuscript/202111.0420/v1)


**Barnden LR et al. (2019)** Intra brainstem connectivity is impaired in chronic fatigue syndrome. *Neuroimage: Clinical* 24. Link: [https://tinyurl.com/y24xs8nk](https://tinyurl.com/y24xs8nk)


4.18 Neurology: Hypothalamic and neuroendocrine function


4.19 Neurology: Neuropsychology and cognitive function


4.20 Neurology: Neurotransmitter function


4.21 Pain


4.22Phenotypes and sub-groups


4.23 Post-Exertional Malaise (PEM)

Baraniuk JN et al. (2021) Differential Effects of Exercise on fMRI of the Midbrain Ascending Arousal Network Nuclei in Myalgic Encephalomyelitis / Chronic Fatigue Syndrome (ME/CFS) and Gulf War Illness (GWI) in a Model of Postexertional Malaise (PEM). Preprints: 2021110420. Link: https://www.preprints.org/manuscript/202111.0420/v1


Davenport TE et al. (2022) Lessons from Myalgic Encephalomyelitis/Chronic Fatigue Syndrome for Long COVID: Postexertional Symptom Exacerbation is an Abnormal Response to Exercise/Activity. *JOSPT*. doi.org/10.2519/jospt.blog.20220202


4.24 Post-mortem research


4.25 Relapse and recovery cycles


4.26 Sleep disturbance


4.27 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/yype9zu8


Van Deuren S et al. (2020) Fatigue-Related Cognitive-Behavioral Factors in Survivors of Childhood Cancer: Comparison with Chronic Fatigue Syndrome and Survivors of Adult-Onset Cancer. *Journal of Adolescent and Young Adult Oncology* [Epub ahead of print]. Link: https://www.liebertpub.com/doi/10.1089/jayao.2020.0094


6. Sociology


**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)


7. Future research recommendations


Ramiller A et al. (2021) You + ME Registry: A Research Platform to Facilitate Clinical and Therapeutic Discoveries in ME/CFS and Related Diseases. Preprints: 2021110478. Link: https://www.preprints.org/manuscript/202111.0478/v1


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/wor203177


7.1 Platforms to facilitate research


Ramiller A et al. (2021) You + ME Registry: A Research Platform to Facilitate Clinical and Therapeutic Discoveries in ME/CFS and Related Diseases. Preprints: 2021110478. Link: https://www.preprints.org/manuscript/202111.0478/v1

8. Clinical assessment, symptoms, and diagnosis

8.1 General


Newton JL et al. (2008) Fatigue in non-alcoholic fatty liver disease (NAFLD) is significant and associates with inactivity and excessive daytime sleepiness but not with liver disease severity or insulin resistance. *Gut* 57(6): 807-813. Link: https://www.ncbi.nlm.nih.gov/pubmed/18270241


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)


Albers E et al. (2021) Effectiveness of Internet-Based Cognitive Behavior Therapy (Fatigue in Teenagers on the Internet) for Adolescents With Chronic Fatigue Syndrome in Routine Clinical Care: Observational Study. Journal of Medical Internet Research 23 (8): e24839. Link: https://pubmed.ncbi.nlm.nih.gov/34397389/


9.2 Complementary and alternative therapies


Fangfang X et al. (2021) Can prolong life with nine turn method (Yan Nian Jiu Zhuan) Qigong alleviates Fatigue, Sleep quality, Depression and anxiety on Patients with Chronic Fatigue Syndrome: a Randomized, Controlled, Clinical Study? (ResearchSquare) [Epub ahead of print.] Link: https://www.researchsquare.com/article/rs-965010/v1


Xue K et al. (2021) The efficacy and safety of moxibustion for chronic fatigue syndrome: A protocol for systematic review and meta-analysis. Medicine, 100 (18): p e25742. Link: https://europepmc.org/article/med/33950958


9.3 Diet and nutrition


9.4 Exercise, Pacing and activity management


Clague-Baker N et al. (2021) Survey of people with Myalgic Encephalomyelitis (ME) to explore their use and experiences of physiotherapy services in the UK. *Physiotherapy* P076 113 (1): E101-E102. Link: https://www.physiotherapyjournal.com/article/S0031-9406(21)00164-4/fulltext#relatedArticles


The ME Association Index of Published ME/CFS Research


Thompson DP et al. (2017) Symptoms of chronic fatigue syndrome/myalgic encephalopathy are not determined by activity pacing when measured by the chronic pain coping inventory. Physiotherapy. Link: https://www.ncbi.nlm.nih.gov/pubmed/28843450


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


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


Froehlich L et al. (2021) Medical Care Situation of People with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome in Germany. Medicina 57, 646. Link: https://www.mdpi.com/1648-9144/57/7/646


9.6 PACE Trial


Vink M. PACE trial authors continue to ignore their own null effect. *Journal of Health Psychology* 22 (9): 1134-1140. Link: https://www.ncbi.nlm.nih.gov/pubmed/28805519


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


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/qpvhqdm


9.8 Immunoadsorption/ Apheresis


9.9 Pregnancy


10. Prognosis and quality of life

10.1 Age


10.2 Mortality


10.3 Prognosis and recovery


**Sharpe M et al.** (1992) Follow up of patients presenting with fatigue to an infectious diseases clinic. *BMJ* 305(6846): 147-152. Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1883193/


### 10.4 Quality of life


---

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.


10.5 Severe ME


11. Vaccinations


Hviid A et al. (2020) Association between quadrivalent human papillomavirus vaccination and selected syndromes with autonomic dysfunction in Danish females: population based, self-controlled, case series analysis. BMJ 370: m2930. Link: https://www.bmj.com/node/1033205.full


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](https://bmjpaedsopen.bmj.com/content/4/1/e000617)


**Brigden A et al.** (2018) Using the internet to cope with chronic fatigue syndrome/myalgic encephalomyelitis in adolescence: a qualitative study. *BMJ Paediatrics Open* 2 (1). Link: [https://bmjpaedsopen.bmj.com/content/2/1/e000299](https://bmjpaedsopen.bmj.com/content/2/1/e000299)


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](https://www.sciencedirect.com/science/article/pii/S0165032719334561)
Loades ME et al. (2020) Sleep Problems in Adolescents With CFS: A Case-Control Study Nested Within a Prospective Clinical Cohort. *Clinical Child Psychology and Psychiatry* [Epub ahead of print]. Link: https://tinyurl.com/ybmsmyvd


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


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


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/


**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.htm#13021150000045


14. Healthcare


14.1. NICE Guidelines


Flottorp SA et al. (2022) New NICE guideline on chronic fatigue syndrome: more ideology than science? Lancet 399 (10325): 611-613. doi.org/10.1016/S0140-6736(22)00183-0


NICE Clinical Guideline ME/CFS (NG206) (October 2021): https://www.nice.org.uk/guidance/ng206


15. Case studies


16. Long-COVID

16.1 Long-COVID and ME/CFS


Davenport TE et al. (2022) Lessons from Myalgic Encephalomyelitis/Chronic Fatigue Syndrome for Long COVID: Postexertional Symptom Exacerbation is an Abnormal Response to Exercise/Activity. *JOSPT*. doi.org/10.2519/jospt.blog.20220202


Morrow AK et al. (2022) Long-Term COVID 19 Sequelae in Adolescents: the Overlap with Orthostatic Intolerance and ME/CFS. Current Paediatric Reports. Link: doi.org/10.1007/s40124-022-00261-4


17. Miscellaneous


Tokumasu K et al. (2021) Idiopathic combined adrenocorticotropin and growth hormone deficiency mimicking chronic fatigue syndrome. BMJ Case Reports CP 14: e244861. Link: https://casereports.bmj.com/content/14/10/e244861


18. Master and Doctoral Theses

Asprusten TT (2022) Diagnosis of Chronic Fatigue Syndrome in Adolescents. [Doctoral dissertation, University of Oslo]. Link: https://www.duo.uio.no/bitstream/handle/10852/92148/PhD-Asprusten-2022.pdf?sequence=1


The ME Association: Please support our vital work

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

- Just click the image opposite for one-off donations or to establish a regular payment.
- You can even establish your own fundraising event on JustGiving.
- Or why not join the ME Association as a member and be part of our growing community?

In return for an annual subscription from only £18, you will receive ME Essential – quite simply the best M.E. magazine in the UK today!

ME Association Registered Charity Number 801279