Index of ME/CFS Published Research

An A-Z index of the most important published research

30th September 2020
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 30th September 2020.

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 2020 edition is now 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

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!
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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


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)


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-oyEA3RjJp-pZijQbeCI6wc](https://content.iospress.com/articles/work/wor203214?fbclid=IwAR1cFTpQx7hm-0TqXrl9YG6f6ox30nU1AwOj-oyEA3RjJp-pZijQbeCI6wc)


4.4 Exercise physiology/testing


4.5 Gastrointestinal and microbiome


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4.6 Gene expression


4.6.1 Epigenetics


4.7 General reviews


4.8 Genetic predisposition


4.9 Immunology


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### 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


Coffin JM and Stoye JP. (2009) A New Virus for Old Diseases? *Science* 326(5952): 530. Link: [http://science.sciencemag.org/content/326/5952/530](http://science.sciencemag.org/content/326/5952/530)


### 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


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


### 4.14 Mitochondria and energy production


**Bohne V and Bohne O** (2019) Suggested Pathology of Systemic Exertion Intolerance Disease: Impairment of the E3 Subunit or Crossover of Swinging Arms of the E2 Subunit of the Pyruvate Dehydrogenase Complex Decreases Regeneration of Cofactor Dihydrolipoic Acid of the E2 Subunit. *Medical Hypothesis* [Epub ahead of print] Link: [https://tinyurl.com/y6fbud4a](https://tinyurl.com/y6fbud4a)


Sweetman E et al. (2020) A SWATH-MS analysis of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome peripheral blood mononuclear cell proteomes reveals mitochondrial dysfunction. *Journal of Translational Medicine* 18 (365). Link: [https://tinyurl.com/y7rw58vq](https://tinyurl.com/y7rw58vq)


### 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


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)


Holtzman C et al. (2019) Assessment of Post-Exertional Malaise (PEM) in Patients with Myalgic Encephalomyelitis (ME) and Chronic Fatigue Syndrome (CFS): A Patient-Driven Survey. Diagnostics 9 (1). Link: https://www.mdpi.com/2075-4418/9/1/26


### 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/yype9zu8

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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/wor203177


8. Clinical assessment, symptoms, and diagnosis

8.1 General


Nojima N (2019) Paradox of diagnosis: the positive effects and limitations of diagnosis in myalgic encephalomyelitis/chronic fatigue syndrome (me/cfs) and fibromyalgia (fm) sufferers Osaka Human Sciences 5: 55-70. Link: https://tinyurl.com/y3yqn39o


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)


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9.2 Complementary and alternative therapies


9.3 Diet and nutrition


9.4 Exercise, Pacing and activity management


Brigden A et al. (2019) Results of the feasibility phase of the managed activity graded exercise in teenagers and pre-adolescents (MAGENTA) randomised controlled trial of treatments for...


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


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**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


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


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


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


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Loades M et al. (2020) How common are depression and anxiety in adolescents with chronic fatigue syndrome (CFS) and how should we screen for these mental health co-morbidities? A clinical cohort study. *European Child and Adolescent Psychiatry* [Epub ahead of print]. Link: https://pubmed.ncbi.nlm.nih.gov/32964335/

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**Nguyen CB, et al.** (2018) Associations between clinical symptoms, plasma norepinephrine and deregulated immune gene networks in subgroups of adolescent with Chronic Fatigue


**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


**Oliver L and Patel K.** (2012) Co-morbid conditions in children with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) – a retrospective case note review of a large cohort. *Archives of Disease in Childhood* 97(Supplement 1): A105. Link: http://adc.bmj.com/content/97/Suppl_1/A105.1


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](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

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**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

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14. Healthcare


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