“The label ‘chronic fatigue syndrome’ (CFS) has persisted for many years because of the lack of knowledge of the aetiological agents and the disease process. In view of more recent research and clinical experience that strongly point to widespread inflammation and multisystemic neuropathology, it is more appropriate and correct to use the term ‘myalgic encephalomyelitis’ (ME) because it indicates an underlying pathophysiology.

It is also consistent with the neurological classification of ME in the World Health Organization’s International Classification of Diseases (ICD G93.3). Consequently, an International Consensus Panel consisting of clinicians, researchers, teaching faculty and an independent patient advocate was formed with the purpose of developing criteria based on current knowledge.

Thirteen countries and a wide range of specialties were represented. Collectively, members have approximately 400 yrs of both clinical and teaching experience, authored hundreds of peer-reviewed publications, diagnosed or treated approximately 50,000 patients with ME, and several members coauthored previous criteria. The expertise and experience of the panel members as well as PubMed and other medical sources were utilized in a progression of suggestions/drafts/reviews/revisions. The authors, free of any sponsoring organization, achieved 100% consensus through a Delphi-type process. The scope of this paper is limited to criteria of ME and their application.

Accordingly, the criteria reflect the complex symptomatology. Operational notes enhance clarity and specificity by providing guidance in the expression and interpretation of symptoms. Clinical and research application guidelines promote optimal recognition of ME by primary physicians and other healthcare providers, improve the consistency of diagnoses in adult and paediatric patients internationally and facilitate clearer identification of patients for research studies.”

This paper was compiled by Wendy Boutilier, Canadian with Moderate to Severe M.E. ICC since 2009 for the National ME FM Action Network and the Ontario Task Force. Any errors and omissions are mine. Copyright 2018.

GAME: Global Advocates Myalgic Encephalomyelitis Global Advocates 4 M.E.

This paper is merely intended to provide a brief summary of some of the most important facts of ME. It has been created for the benefit of those people without the time, inclination or ability to read each of these far more detailed and lengthy references created by the world’s leading ME Experts. The original documents used to create this paper are essential additional reading however for any physician (or anyone else) with a real interest in Myalgic Encephalomyelitis. For more information see the references page.
The International Classification of Diseases (ICD) is the international "standard diagnostic tool for epidemiology, health management and clinical purposes". Its full official name is International Statistical Classification of Diseases and Related Health Problems.

The ICD is maintained by the World Health Organization (WHO), the directing and coordinating authority for health within the United Nations System. The ICD is designed as a health care classification system, providing a system of diagnostic codes for classifying diseases, including nuanced classifications of a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or disease. This system is designed to map health conditions to corresponding generic categories together with specific variations, assigning for these a designated code, up to six characters long. Thus, major categories are designed to include a set of similar diseases.

The ICD is published by the WHO and used worldwide for morbidity and mortality statistics, reimbursement systems, and automated decision support in health care. This system is designed to promote international comparability in the collection, processing, classification, and presentation of these statistics.

Like the analogous Diagnostic & Statistical Manual of Mental Disorders (which is limited to psychiatric disorders), the ICD is a major project to statistically classify all health disorders, and provide diagnostic assistance. The ICD is a core statistically based classificatory diagnostic system for health care related issues of the WHO Family of International Classifications (WHO-FIC).

The ICD is revised periodically and is currently in its tenth revision. ICD-10, as it is therefore known, is from 1992 and the WHO publishes annual minor updates and triennial major updates. ICD-11 was planned for 2017, but has been pushed back to 2018. The ICD is part of a "family" of guides that can be used to complement each other, including also the International Classification of Functioning, Disability, and Health which focuses on the domains of functioning (disability) associated with health conditions, from both medical and social perspectives.

The WHO recognizes M.E.

The ICD 10 classifies ME under Diseases of the nervous system. In other words the WHO states that ME is a neurological disease.

In the version of the ICD currently in use in most of the world (ICD 10) ME is classified as a neurological disease. (UK, Australia, Europe, Canada, and others). The ICD 10 is the responsibility of the who, Geneva. The USA ICD 10 CM is in place and also lists ME as a neurological disease and issued a billing code of G93.3.

In a world where the reality of ME is denigrated and denied by doctors, policy makers and the general public, the ICD 10 classification of ME as a neurological disease is an important instance of the disease being given appropriate official recognition by the medical and scientific establishment.

ME is classified in the current WHO International Classification of Diseases with neurological code G93.3. It has been included in the WHO ICD since 1969. It cannot be emphasized too strongly that this recognition emerged from meticulous clinical observation and examination.

Canada's ICD guideline or Provincial guidelines cannot cover two discrete entities with mutually exclusive WHO classifications (the neurological disease ME and Neurasthenia / Fatigue syndrome, a classified behavioural disorder) on the incorrect assumption that they are one syndrome of medically unexplained chronic fatigue which is deemed to be a somatisation (mental) disorder.
Moreover, it is mandatory for to use the WHO International Classification of Diseases (ICD) codes. A September 18th, 2002 letter from Anne Toni Rodgers is clear to the NICE (UK) “The ICD-10 classification has been used as a basis for the new Institute classification directed at the informed reader. ICD-10 is used within the acute sector of the NHS and classification codes are mandatory for use across England”.

By letter dated 16th October 2001, Dr B Saraceno from the WHO Headquarters in Geneva provided clarification: “I wish to clarify the situation regarding the classification of neurasthenia, fatigue syndrome, post viral fatigue syndrome and benign myalgic encephalomyelitis.

“Let me state clearly that the World Health Organisation (WHO) has not changed its position on these disorders since the publication of the International Classification of Diseases, 10th Edition in 1992 and versions of it during later years.

Post viral fatigue syndrome remains under the diseases of the nervous system as G93.3. Benign myalgic encephalomyelitis is included within this category.”

Neurasthenia remains under mental and behavioural disorders as F48.0 and fatigue syndrome is included within this category. However, post viral fatigue syndrome is explicitly excluded from F48.0”.

On 6th February 2009, Dr Robert Jakob from the WHO in Geneva re-confirmed the WHO’s classification as specified by Dr Saraceno, adding: “Again, there is no evidence for any change of the above to be made for ICD-11”.

The Psychiatric Collaborative have a long track record of attempting to re-classify ME/CFS as a mental disorder, for example, the UK WHO Collaborating Centre for Mental Health at the Institute of Psychiatry, London, misclassified the disorder as a mental (behavioural) disorder in the first edition of its “Guide to Mental Health in Primary Care”, using Simon Wessely’s own material on “CFS/ME” (30,000 copies of which were sold in the UK).

The letter dated 16th October 2001 from the WHO (referred to above) addressed the psychiatrists’ confusion: “It is possible that one of the several WHO Collaborating Centres in the United Kingdom presented a view that is at variance with the WHO’s position”.

An erratum was eventually issued over the Guide to Mental Health in Primary Care, whereupon the Psychiatric Collaborative then asserted that the WHO itself had classified the same disorder in two places, once in the Neurological section and also in the Mental (behavioural) section of the ICD. This misinformation was fed to Government Ministers, who in turn fed it to Members of Parliament, who then provided it as “evidence-based” fact to their constituents and others.

Yet again, the claims were repudiated by the WHO: on January 23, 2004 Andre l'Hours from the WHO in Geneva provided further written clarification:

“This is to confirm that according to the taxonomic principles governing the Tenth Revision of the World Health Organisation’s International Statistical Classification of Diseases and Related Health Problems (ICD-10) it is not permitted for the same condition to be classified to more than one rubric as this would mean that the individual categories were no longer mutually exclusive”.

Notwithstanding, the NICE Guideline Development Group (GDG) refused to accept the ICD classification of ME/CFS as a neurological disease (thus placing itself as a higher authority than the WHO) and it is the Psychiatric Collaborative beliefs about the nature of “CFS/ME” that underpin the NICE Guideline’s recommendations of behavioural management (cognitive behavioural therapy or
CBT and graded exercise therapy or GET) for “CFS/ME”.

The WHO ICD 10

- ME, Post Viral Fatigue Syndrome are both Viral caused Neurological diseases covered by G93.3
- Neurasthenia & Fatigue Syndrome which are not viral caused are covered by F48.
- Please for everyone’s sake, stop combining ME/CFS or even worse CFS/ME. It muddies the water. Treatment for mold induced CFS cannot help viral caused ME. If you must combine the two then use the CCC 2003 for ME/CFS but do not include those who meet the strict protocol of the ICC 2011
- CFS resulting from another underlying health issue such as cancer, liver disease, UTI, IBS, Lyme, Cardiac & Lung, Depression, etc........ is not ME.

Those who qualify for Myalgic Encephalomyelitis as listed in the WHO ICD G93.3 by using the ICC 2011 diagnostic tool should be diagnosed as soon as possible. Waiting 6 months to prove chronicity will exacerbate the patients symptoms and severity of these symptoms.

ICD-10 and 'CFS'

'CFS' is not classified in the Tabular list (the main body of the code listings) of ICD-10. 'CFS' is present in the Alphabetic index, published only in CD-ROM and book form, not online. 'CFS' has been listed in the index of ICD-10 since it was published in 1994 which was after the Americans misdiagnosed an obvious ME breakout in 1988.

'CFS' in the index is indexed to G93.3 clearly indicates that 'CFS' has some relationship to the diseases at G93.3, i.e. PVFS and Benign ME, but what is this relationship?

ICD-10 does not say that 'CFS' is synonymous with M.E. ICD-10 is silent as to the relationship between CFS, and PVFS and ME.

ICD-10 gives various possible relationships between a term in the Alphabetic index, and the term in the Tabular list to which it is indexed.

It may be:
- a synonym or a diagnostic term currently in use'
- an 'imprecise and undesirable term' or 'a rubric for ill-defined conditions' (all from Introduction to ICD-10 Vol.3, 2nd Edn.)
- 'a best coding guess' (correspondence from the WHO).

However, ICD-10 does not specify which of these possible relationships applies in the case of 'CFS.' Thus ICD-10 does not specify what relationship 'CFS' has with M.E..
CRUCIAL ISSUES THAT MUST BE ADDRESSED:

- ME or CFS is not caused by wrong thought, wrong belief nor is it an emotional disorder.
- An appropriate, biomedical not psychosocial Guideline for Myalgic Encephalomyelitis and another for Chronic Fatigue Syndrome.
- Abandon the psychosocial paradigm and the CBT/GET and graded activity management treatment pathways.
- Ensure that the Guideline Development Committee comprises biomedical clinical expertise.
- Must consider the health benefits, side effects and risks of any proposed interventions, when formulating recommendations;
- Ensure that the Systematic Review of Evidence will not exclude biomedical publications.
- Ensure there is specific identification and recognition of all symptoms including the most severe symptoms associated with ME and that they offer specific guidance on how to care safely for people with ME, especially the most ill, who are at tremendous risk of harm.
- Ensure that the opinions and expertise of people with ME or CFS and their carers, who almost uniformly reject the CBT/GET model upon which the debunked PACE Study was formulated, are fully taken into account.
- Honour in full the WHO 10 G93.3 classification for ME, this means a commitment to a clinical pathway that should include biomedical markers and biomedical tests, similar in depth and seriousness to other rare disease and neurological diseases, for example tests for muscle function, SPECT and PECT scans and other medical investigations, if tolerable.
Myalgic Encephalomyelitis, Chronic Fatigue Syndrome & Chronic Fatigue

The use of Graded Exercise Therapy must be removed from as a treatment for any of these illnesses. GET exacerbates symptoms and severity in ways that only a patient can explain.

The International Community Patient Stakeholders feel there is not enough being done to help promote treatment, diagnosing with the proper criteria in all countries. Research for Fatigue using the Fukuda 1994 does nothing for those with ME ICC 2011. Inflammation of the Brain & Spinal Cord cannot be listed as ME/CFS or CFS/ME because the World Health Organization does not accept this terminology. It is crucial that these patients be cared for using the exact disease or syndrome they have. Clumping it all together doesn't work.

Canada already has the criteria that could be implemented as a tool for our Health care. We have the CCC 2003 that could be used for CFS subsets and we have the ICC 2011 that can be used for Myalgic Encephalomyelitis. ME has been included in the WHO ICD as a Neurological Disease since 1969. CFS wasn't born until 1988 and it's attributes do not cover everyone's needs. Both of these criteria were written by Canadian Dr. Carruthers et al.

The use of telephone surveys to identify people with ME or CFS to quantify our numbers does not work. Too many issues with Co-morbidity that conflate the numbers. The lack of use of the Criteria we already have is preventing us from being diagnosed as soon as possible. There is a severe lack of understanding by medical professionals just how profound this disease is and patients are stigmatized. CFS & ME are not Fibromyalgia. Currently our billing codes only provide for the first visit under one code then every other visit is billed to Fibro. We propose a tighter control by using a universal billing code for ME ICC and another for CCC CFS.

Stonebird : free eBook

“Your world is turned upside down when you get Severe ME. And everything you know is altered. You cannot be part of anything you knew. You hurt all over. You get sick, you feel ill, you can't move, you cant breathe properly, your muscles stop working. You become paralysed. You physically shake. Your eyes don't work properly, you cant read or understand things anymore. You can’t hold anything large or small. It is a nightmare world you have come to exist in. Even the bed hurts to lie down in, you can find no rest, sleep is no comfort, nor is your beloved husband’s touch. There is nothing that does not cause pain.”

SEVERE ME : Aware CARE: A reminder of some of the issues you may face as a carer and some approaches that might be helpful, including taking care of yourself.” [http://stonebird.co.uk/buzz/index.html](http://stonebird.co.uk/buzz/index.html)

Maryann Spurgin, PHD, Severe M.E. Patient [https://www.meadvocacy.org/circulatory_impairment](https://www.meadvocacy.org/circulatory_impairment)

“When confronted with a disease as complex as ME, one must always keep an open mind. Some of the treatments from which I have benefited might sound unconventional, like low-dose oral interferon alpha at 1 IU per pound of body weight, or drinking 2 gallons of water a day (with electrolyte repletion of course) for circulation, or using Hawthorn and magnesium for diastolic heart failure, but conventional thinking never advanced science.

No one knows the cause, although all of us who suffer from it will tell you that it is caused by a virus or viruses. But many aspects of the pathophysiology are well explained. The original researcher-clinicians amassed a critical intuition and knowledge of the pathophysiology of ME. This knowledge could, if it is applied, form a vital core from which any further research projects could spring. The alternative would be a lengthy process akin to the rediscovery of Mendel.”
For a diagnosis of ME, symptom severity must result in a significant reduction of a patient’s premorbid activity level. Patients can score mid points on their level of severity ie; Mild to Moderate or Moderate to Severe depending on their actual symptoms. One might have enough low level energy to perform chair exercises but severe fluctuations cognitively preventing them from reading or studying. It is best to consult with your GP before taking part in any exercise program.

There may be marked fluctuation of symptom severity and hierarchy from day to day or hour to hour. Consider activity, context and interactive effects. Recovery time: e.g. Regardless of a patient’s recovery time from reading for ½ hour, it will take much longer to recover from grocery shopping for ½ hour and even longer if repeated the next day – if able. Those who rest before an activity or have adjusted their activity level to their limited energy may have shorter recovery periods than those who do not pace their activities adequately. Impact: e.g. An outstanding athlete could have a 50% reduction in his/her pre-illness activity level and is still more active than a sedentary person.

**Mild - an approximate 50% reduction in pre-illness activity level**
People with mild M.E. are mobile, can care for themselves and can do light domestic tasks with difficulty. They might be still working or in education, but to do this they have probably stopped all leisure and social pursuits. They often take days off, or use the weekend to cope with the rest of the week. Even in its mildest form, M.E. can have a significant impact on an individual’s life, and not just on their health. A lack of understanding and awareness about M.E. means patients can experience disbelief, and even discrimination, from friends, family, health and social care professionals and employers.

**Moderate - mostly housebound**
People with moderate M.E. have reduced mobility and are restricted in all activities of daily living, although they may have peaks and troughs in their level of symptoms and ability to do activities. They have usually stopped work, school or college and need rest periods, often sleeping in the afternoon for one or two hours. Their sleep at night is generally poor quality and disturbed.

**Severe - mostly bedridden**
People with severe M.E. are unable to do any activity for themselves, or can carry out minimal daily tasks only (such as face washing, cleaning teeth). They have severe cognitive difficulties and depend on a wheelchair for mobility. They are often unable to leave the house, or have a severe and prolonged after-effect if they do so. They may also spend most of their time in bed, and are often extremely sensitive to light and noise.

**Very Severe - totally bedridden and need help with basic functions:**
This patient is very sick, tube fed, catheter, lives in a dark room with no sound and cannot care for themselves.

**RISK ASSESSMENT IN VERY SEVERE ME**
It is a massive risk for anyone with Severe ME to let any medical professional into their life. Our painful experience has taught us that the importance of carrying out a Risk Assessment of the professional the person with Severe ME is about to trust potentially with their life, to make sure they really know about Severe ME and how fundamentally physically ill the person is.

[Http://stonebird.co.uk/Notes/Index.html](http://stonebird.co.uk/Notes/Index.html)
Criteria because results from fatigue research does not cover those with ME ICC

Figure 1: Diagnostic criteria for ME, CFS, ME/CFS and CF.

For a quick side by side chart at a glance at the differences in Criteria requirements for diagnosis
Criteria Analysis Fukuda, CCC, SEID, ICC
or
(the following has been shortened for this brief)
Fukuda 1994 for CFS
CCC 2003 for CFS subsets
SEID is for CFS subsets
ICC 2011 is specifically for M.E. only.
Note that the Americans added M.E to their ICD 10 in Oct. 2015 after the IOM published their study. This has a Country wide billing code of G93.3. Because ME is not included in SEID.

CFS Fukuda 1994 The presence of the following criteria: http://www.cfids-me.org/cdcdefine.html
6 plus consecutive months of illness & must not have predated the fatigue. Frequency & Severity Criteria not specified for the symptoms required in this case definition. Patients need to report frequency & severity scores of at least 1 for a symptom to be counted toward being clinically evaluated. Unexplained persistent or relapsing Chronic Fatigue. Fatigue that is new or definite onset is not the result of ongoing exertion and is not substantially alleviated by rest and results in substantial reduction reduction in previous occupational, educational, social or personal activities. The concurrent occurrence of 4 or more core symptoms, all of which have persisted at least 6 months in duration & at least 4 of the following symptoms:
* Impaired memory / concentration * Sore throat
* Tender Cervical/Axillary Lymph nodes
* Muscle Pain * Multi joint pain
* New type of headache
* Un-refreshing sleep
* Post exertion malaise

A patient with ME/CFS will meet the Criteria for fatigue, post exertion malaise and or fatigue. Sleep dysfunction, pain, 2 or more neurological cognitive manifestations and 1 or more symptoms from 2 of the categories of autonomic, Neuro-endocrine & immune manifestations and adhere to item 7.

1. Fatigue: Patient must have a significant degree of new onset, unexplained persistent recurrent physical & mental fatigue with significant reduction of activity level.
2. Post exertion malaise or fatigue. Loss of physical & mental stamina, rapid muscular & cognitive fatigability, pain & worsening of symptoms within the patient’s cluster of symptoms. Pathological slow recovery period of 24 or more hours.
3. Sleep Dysfunction; un-refreshed sleep or quantity, rhythm disturbances, reversed or chaotic diurnal sleep rhythms.
4. Pain: There is a significant degree of myalgia. Widespread migratory pain in the muscles and/or joints. Headaches of a new type, pattern or severity.
5. Neurological/cognitive: 2 or more of the following; confusion, memory lapse, disorientation, inability to focus vision. Noise emotional overload which may lead to a crash period or anxiety.
6. At least 1 symptom the following Categories;
   • Category 1: Autonomic Manifestations, Orthostatic Intolerance, Neuroly Mediated Hypotension, Postural Orthostatic Tachycardia Syndrome, Delayed Postural Hypotension; Lightheadedness, Extreme Pallor, Nausea, Irritable Bowel Syndrome, Urinary Frequency & Bladder Dysfunction, Palpitations with or without Cardiac Arrhythmias, Exertional Dyspnea.

# 7 The illness persists for at least 6 mths It usually has a distinct onset although it may be gradual. Preliminary diagnosis may be possible earlier. 3 months for Children.
ME/CFS SEID 2015 [https://www.medicinenet.com/chronic_fatigue_syndrome/article.htm](https://www.medicinenet.com/chronic_fatigue_syndrome/article.htm)
The IOM committee recommended the name be changed from ME/CFS to SEID.
Please Note: ME is exempt from this criteria & Added to the American ICD10 in October 2015 with a billing code of G93.3 as per the WHO ICD acceptance of the ICC2011.

- Profound fatigue & impairment not alleviated by rest & not the result of for-going excessive exertion.
- Must be accompanied by substantial reduction/impairment in prelevels of activities longer than 6 mths.
- PEM =worsening of symptoms/function following physical or cognitive exertion that were tolerated prior to illness.
- Un-refreshing sleep despite the absence of a specific objective alteration. Polysomomography is not required to diagnose SEID. It’s use can be used to screen for treatable sleep disorders. Diagnosis of a primary sleep disorder does not rule out SEID.
- Cognitive impairment in SEID is exacer-bated by exertion, stress or time pressure. Slowed information process & reduction in employment & social environment.
- Orthostatic Intolerance standing, bedside vital signs, tilt-test or patient reported exacerbation in day to day life as measured by objective heart rate & blood pressure abnormalities & physical findings during.
- Pain in many forms (headaches, anthralgia, myalgia.) However, there is no conclusive evidence that pain experienced by SEID patients can be distinguished from that of healthy people or those with other illnesses.
- Other symptoms that are reported less frequently but may support diagnoses such as: Gastrointestinal Impairments, Genitourinary Impairments, Sore Throat, Painful or Tender Axillary/Cervical Lymph Nodes, sensitivity to external stimuli such as foods, drugs, chemical (smell or taste).

ME-ICC case definition “operational Notes” for an ME diagnosis. Symptom & Severity must result in a significant reduction of patient’s pre-morbid activity level.

**Mild**: approx 50% reduction activity level
**Moderate**: mostly housebound
**Severe**: mostly bed bound
**Very Severe**: bed bound & help required for basic functions.

Marked fluctuation of symptom severity hierarchy from day to day or hour to hour. Crash from exertion recovery time, regard- less of a patient’s recovery time from reading for ½ hr, it will take much longer to Recover from grocery shopping for ½ hr & longer if repeated the next day-if able. A high functioning individual could have a 50% or more reduction pre-illness activity level.

Patient can be diagnosed before 6 months

- Symptom severity must result in a 50% or greater reduction of a patient’s premorbid activity level for diagnosis.*
- Neurocognitive impairments reported or Observed, become more pronounced with fatigue. Overload phenomena may be evident when multi-tasking. Abnormal accommodation responses of the pupils are common.
- Sleep disturbances are typically expressed by prolonged sleep, sometimes extreme in the acute phase & often evolve into marked sleep reversal in the chronic stage. Motor Disturbances may not be evident in mild or moderate cases but abnormal in moderate to severe.
- Patient must have at least 1 symptom From the following 4 categories; *Neurocognitive Impairments, *Pain,*Sleep Disturbance, *Neurosensory, *Difficulty Processing Perceptual & Motor disturbances.
- Immune, Gastrointestinal & Genitourinary Impairment. Must have 1 to 3 of the following 5 symptom categories; *Flu-like Symptoms, *Suseptibility to viral infections with prolonged recovery periods, *Gastrointestinal symptoms, *Sensitivities to food...
medications, odors or chemicals.

- The final category is energy production/Transportation impairments with at least 1 of the following 4 symptom categories must be present: *Cardiovascular, *Respiratory (laboured breathing), *Loss of thermostatic stability, *Intolerance of extremes of temperatures

The Ambiguous Term “ME/CFS”: Why ME and CFS Cannot Be Combined:
Written by Jerrold Spinhirne.

Increasingly, researchers, doctors, advocates, and patients are using the mixed term “ME/CFS” as if it had some clear, specific meaning and referred to some identifiable disease. In actuality, however, the mixed term “ME/CFS” is ambiguous, logically incoherent, and a major impediment for making progress in research of the neurological disease Myalgic Encephalomyelitis, ME, ICD G93.3.

Additionally, patients diagnosed with chronic fatigue syndrome, CFS, and not meeting the more specific diagnostic criteria for ME, are also adversely affected by the use of the mixed “ME/CFS” term in research. Non-ME CFS while combined with ME under a single term cannot rationally be researched to identify other coherent patient groups, which could then be renamed and removed from the more encompassing CFS group. This rational strategy for resolving the current impasse in research was called for in the 2011 ME International Consensus Criteria paper, published in the Journal of Internal Medicine, and the 2012 International Consensus Primer, based on the ME-ICC.

The ICC Primer states:
“The purpose of diagnosis is to provide clarity. The criterial symptoms, such as the distinctive abnormal responses to exertion can differentiate ME patients from those who are depressed or have other fatiguing conditions. Not only is it common sense to extricate ME patients from the assortment of conditions assembled under the CFS umbrella, it is compliant with the WHO classification rule that a disease cannot be classified under more than one rubric. The panel is not dismissing the broad components of fatiguing illnesses, but rather the ICC are a refinement of patient stratification. As other identifiable patient sets are identified and supported by research, they would then be removed from the broad CFS/CF category.”


2012 ICC Primer: MD, CM, FRCPC; www.name-us.org/DefinitionsPages/DefinitionsArticles/2012...

Patients can use this convenient guide, prepared by the MEadvocacy organization, to determine if they meet the ICC criteria for ME.
http://www.meadvocacy.org/the_international_consensus_criteria_what_is_it_do_i_fit_the_criteria

Dr Byron Hyde has established his 20116 criteria which is useful for clinical and tests diagnosis www.nightingale.ca
Scientific Researcher Frank Twisk 2015 : ME and subsets of CFS

Although Myalgic Encephalomyelitis (ME) and Chronic Fatigue Syndrome (CFS) are considered to be synonymous, the definitional criteria for ME and CFS define two distinct, partially overlapping, clinical entities. ME, whether defined by the original criteria or by the recently proposed criteria, is not equivalent to CFS, let alone a severe variant of incapacitating chronic fatigue. More references can be found here: https://artzstudios1.wixsite.com/globaladvocatesmeicc

CFS Subsets

Subject enrolment and clinical characterisation Patients with CFS/ME (n=108) were diagnosed according to Fukuda diagnostic criteria for CFS/ ME.

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0016872

UK 3rd Tier Tribunal orders university to release data from PACE chronic fatigue study
https://www.bmj.com/content/354/bmj.i4614
A tribunal has ruled that Queen Mary University of London must release data from a trial looking at treatment of chronic fatigue syndrome, which found that cognitive behavioural therapy and graded exercise therapy helped to alleviate the symptoms of the condition. The findings of the PACE (Pacing, graded Activity, and Cognitive behaviour therapy: a randomised Evaluation) trial, published in the Lancet in 2011, were questioned by some academics and patients, who argued that the PACE programme could harm patients.

The continued critiques of the PACE trial highlight how differing beliefs about the causes of chronic fatigue syndrome still influence how scientific studies in this area are accepted and evaluated. Causal beliefs about chronic fatigue syndrome and a modern version of Cartesian dualism are important in understanding the reaction to the PACE trial. The continued debate on the PACE trial seems to miss the fact that science is incremental. An unfortunate outcome of the PACE controversy and intimidation of researchers may be less research in the area. It is time to move on from criticism and collect more data on effective treatments.

The Troubling Case of the PACE Chronic Fatigue Syndrome Study: 21 October 2015
By David Tuller, DrPH
All of David Tuller's Blogs can be found here: http://www.virology.ws/mecfs/

David Tuller, DrPH, is academic coordinator of UC Berkeley's joint masters program in public health and journalism. He was a reporter and editor for 10 years at the San Francisco Chronicle, served as health editor at Salon.com and frequently writes about health for The New York Times.
The International ME Community crowdfunded him for 2017/18. We are currently crowdfunding for 2018/2019.

“A few years ago, Dr. Racaniello let me write about the CDC’s persistent incompetence in its efforts to address the devastating illness the agency itself had misnamed “chronic fatigue syndrome.” Now I’m back with an even longer piece about the U.K’s controversial and highly influential PACE trial.

The $8 million study, funded by British government agencies, purportedly proved that patients could “recover” from the illness through treatment with one of two rehabilitative, non-pharmacological interventions: graded exercise therapy, involving a gradual increase in activity, and a specialized form of cognitive behavior therapy. The main authors, a well-established group of British mental health professionals, published their first results in The Lancet in 2011, with additional results in subsequent papers.

Much of what I report here will not be news to the patient and advocacy communities, which have produced a voluminous online archive of critical commentary on the PACE trial. I could not have written this piece without the benefit of that research and the help of a few statistics-savvy sources who talked me through their complicated findings. I am also indebted to colleagues and friends in both public health and journalism, who provided valuable suggestions and advice on earlier drafts. Today’s Virology Blog installment is the first half; the second half will be posted in two parts. I was originally working on this piece with Retraction Watch, but we could not ultimately agree on the direction and approach.”
SUMMARY
This examination of the PACE trial of chronic fatigue syndrome identified several major flaws:

- The study included a bizarre paradox: participants’ baseline scores for the two primary outcomes of physical function and fatigue could qualify them simultaneously as disabled enough to get into the trial but already “recovered” on those indicators—even before any treatment. In fact, 13 percent of the study sample was already “recovered” on one of these two measures at the start of the study.

- In the middle of the study, the PACE team published a newsletter for participants that included glowing testimonials from earlier trial subjects about how much the “therapy” and “treatment” helped them. The newsletter also included an article informing participants that the two interventions pioneered by the investigators and being tested for efficacy in the trial, graded exercise therapy and cognitive behavior therapy, had been recommended as treatments by a U.K. government committee “based on the best available evidence.” The newsletter article did not mention that a key PACE investigator was also serving on the U.K. government committee that endorsed the PACE therapies.

- The PACE team changed all the methods outlined in its protocol for assessing the primary outcomes of physical function and fatigue, but did not take necessary steps to demonstrate that the revised methods and findings were robust, such as including sensitivity analyses. The researchers also relaxed all four of the criteria outlined in the protocol for defining “recovery.” They have rejected requests from patients for the findings as originally promised in the protocol as “vexatious.”

- The PACE claims of successful treatment and “recovery” were based solely on subjective outcomes. All the objective measures from the trial—a walking test, a step test, and data on employment and the receipt of financial benefits—failed to provide any evidence to support such claims. Afterwards, the PACE authors dismissed their own main objective measures as non-objective, irrelevant, or unreliable.

- In seeking informed consent, the PACE authors violated their own protocol, which included an explicit commitment to tell prospective participants about any possible conflicts of interest. The main investigators have had longstanding financial and consulting ties with disability insurance companies, having advised them for years that cognitive behavior therapy and graded exercise therapy could get claimants off benefits and back to work. Yet prospective participants were not told about any insurance industry links and the information was not included on consent forms. The authors did include the information in the “conflicts of interest” sections of the published papers.

Top researchers who have reviewed the study say it is fraught with indefensible methodological problems. Here is a sampling of their comments:

“To let participants know that interventions have been selected by a government committee ‘based on the best available evidence’ strikes me as the height of clinical trial amateurism.”
Dr. Bruce Levin, Columbia University

“I'm shocked that the Lancet published it. The PACE study has so many flaws and there are so many questions you’d want to ask about it that I don’t understand how it got through any kind of peer review.” Dr Ronald Davis, Stanford University
“Under the circumstances, an independent review of the trial conducted by experts not involved in the design or conduct of the study would seem to be very much in order.”
Dr Arthur Reingold, University of California, Berkeley

“It’s a mass of un-interpretability to me...All the issues with the trial are extremely worrying, making interpretation of the clinical significance of the findings more or less impossible.”
Dr Jonathan Edwards, University College London

“The PACE authors should have reduced the kind of blatant methodological lapses that can impugn the credibility of the research, such as having overlapping recovery and entry/disability criteria.” Dr Leonard Jason, DePaul University

Research Article

Open Access Rethinking the treatment of chronic fatigue syndrome. A reanalysis and evaluation of findings from a recent major trial of Graded Exercise and CBT
Carolyn E. Wilshire, Tom Kindlon, Robert Courtney, Alem Matthees, David Tuller, Keith Geraghty.

Rethinking the treatment of chronic fatigue syndrome—A reanalysis and evaluation of findings from a recent major trial of graded exercise and CBT (PDF Download Available).


BACKGROUND:
The PACE trial was a well-powered randomised trial designed to examine the efficacy of graded exercise therapy (GET) and cognitive behavioural therapy (CBT) for chronic fatigue syndrome. Reports concluded that both treatments were moderately effective, each leading to recovery in over a fifth of patients. However, the reported analyses did not consistently follow the procedures set out in the published protocol, and it is unclear whether the conclusions are fully justified by the evidence.

METHODS:
Here, we present results based on the original protocol-specified procedures. Data from a recent Freedom of Information request enabled us to closely approximate these procedures. We also evaluate the conclusions from the trial as a whole. RESULTS: On the original protocol-specified primary outcome measure - overall improvement rates - there was a significant effect of treatment group. However, the groups receiving CBT or GET did not significantly outperform the Control group after correcting for the number of comparisons specified in the trial protocol. Also, rates of recovery were consistently low and not significantly different across treatment groups. Finally, on secondary measures, significant effects were almost entirely confined to self-report measures. These effects did not endure beyond two years.

CONCLUSIONS:
These findings raise serious concerns about the robustness of the claims made about the efficacy of CBT and GET. The modest treatment effects obtained on self-report measures in the PACE trial do not exceed what could be reasonably accounted for by participant reporting biases.
For some time now, the officially recommended treatments for chronic fatigue syndrome (CFS) in many countries have been graded exercise therapy (GET) and cognitive behavioural therapy (CBT). In an effort to provide high quality evidence of the efficacy of these treatments, White and colleagues undertook a large randomised trial, informally referred to as the PACE trial. Reports from the PACE trial concluded that GET and CBT were moderately effective treatments for CFS, both leading to recovery in over a fifth of patients. The trial’s size and it’s promotion as a success have made it enormously influential in the attempt to treat CFS.

In conclusion, the various treatment effects reported in the PACE trial were modest, almost entirely confined to self-report measures, and did not endure beyond two years procedures used here, what pattern of results would we expect if these therapies did not produce genuine change the answer would be, “Modest, short-lived changes in self-report behaviour unaccompanied by objectively measurable changes”—a pattern much like the one obtained.

Given the size and power of the PACE trial, it seems unlikely that further research based on these treatments will yield more favourable results. Indeed, another large parallel trial that involved home-based therapy, described as PACE “sister trial”, also yielded null outcomes at its primary end point.

The time has come to look elsewhere for effective treatments. Current major NIH research initiatives include a large intramural study of post-infectious CFS, which aims to examine the pathophysiology of this phenotype specifically, and a systematic investigation of inflammatory markers (both peripheral and CNS) in CFS, and how they are influenced by exertion. Such initiatives have the potential to play a key role in generating new treatment paradigm.

NOTE: The UK Health Organization NICE is studying a redefinition for ME and the CFS subsets which should be completed by 2020.
Myalgic Encephalomyelitis (M.E.) has been recognized by the World Health Organization since 1969 as a distinct organic neurological disease. It can occur in both epidemic and sporadic forms.

ME is not medically unexplained or untestable and is not the same thing as the “I can't find anything wrong with you” category of 'CFS' (or 'ME/CFS'). Fatigue is a symptom of many different illnesses - but it is not a defining symptom of ME, or an essential symptom of ME. What defines ME. is a specific type of viral damage to the brain.

ME is a multi system disease which is characterised by post encephalitic damage to the brain stem; a nerve centre which controls all vital bodily functions - this is always damaged in ME, hence the name ME Inconsistent CNS function is undoubtedly both the chief cause of disability in ME and the most critical in the definition of the entire disease process. M.E. represents a major attack on the CNS by the chronic effects of a viral infection which targets the brain: an enterovirus.

ME has a sudden/acute onset that is often very dramatic. Many patients can tell you not just the day they became ill but the hour. ME is primarily neurological, but because the brain controls all vital bodily functions virtually every bodily system can be affected. ME is a loss of normal internal homeostasis. ME is secondarily a vascular disease and the vascular and cardiac dysfunctions seen in ME are also a major cause of much of the disability associated with ME. More than 60 symptoms have been authentically documented in M.E.

M.E. is associated with signs and symptoms including (but not limited to):

Neurological signs and symptoms:

- Inconsistent central nervous system function
- Vertigo, disequilibrium and proprioception difficulties (e.g. lack of sense of 'up' and 'down' with eyes closed).
- Temperature dysregulation and poor tolerance for hot or cold environments
- Hyperacusis (sensitivity to noise) and photophobia (pain/relapse on exposure to light)
- Pain and pressure at the back of the head (where the head meets the neck) and behind the eyes
- Blurred vision, blacked-out vision, nystagmus, wavy visual field, and other visual disturbances
- Stroke-like or coma-like episodes
- Seizures and 'sensory storms' (while conscious)
- Sleep paralysis, fragmented sleep, difficulty initiating sleep, lack of deep-stage sleep and/or a disrupted circadian rhythm

Many other varied neurological symptoms not listed

Vascular and cardiovascular signs and symptoms:

- A very high heart rate, chest pressure, heart pain and a fluttering/straining heart
- Very low blood pressure particularly when upright (e.g. 84/48 or less in an adult at rest)
- Orthostatic tachycardia/POTS and reduced circulating blood volume (up to 50%)
- Feet burning painfully and turning blue/purple on standing (Reynaud's phenomenon)
- Pain/discomfort/poor digestion following meals
**Muscular signs and symptoms:**
- Muscle weakness and paralysis (affecting all muscles including the heart, eyes, digestive system etc.)
- Muscle pain, twitching and uncontrollable spasms
- Difficulty breathing and air-hunger, difficulty swallowing/chewing
- Paresthesias, polyneuropathy or myoclonus

**Cognitive signs and symptoms:**
- Word-finding difficulty, scanning or disjointed speech, speech reversals, difficulty or an inability to speak
- Difficulty comprehending speech or delayed speech comprehension
- Handwriting changes, difficulty writing or comprehending text
- Difficulty with even basic mathematics (dyscalculia)
- Difficulty with simultaneous processing, concentration, spatial perception and with sequencing
- Difficulty making new memories, recalling formed memories and with immediate and delayed visual and verbal recall (e.g. facial agnosia). There is often a marked loss in verbal and performance IQ

**Other signs and symptoms:**
- Nausea, vomiting and feeling 'poisoned' and very ill
- Throat and gland pain/tenderness, chills and low grade fevers
- Food allergies, alcohol intolerance, hypoglycaemia and sensitivity to common drugs/chemicals
- Ghastly pallor of face with frequent lupus-like submaxillary mask or facial vasculoid rash
- Parkinsonian rigidity of facial expression

What characterizes M.E. every bit as much as the individual symptoms is the way in which people with M.E. respond to physical and cognitive activity, sensory input and orthostatic stress, and so on. It is unique in a number of ways and must be present for a correct diagnosis of M.E. to be made, and includes the following:

- People with ME are unable to maintain their pre-illness activity levels. This is an acute, sudden change. ME patients can only achieve 50% or less of their pre-illness activity levels.
- People with ME are limited in how physically active they can be but are also limited in similar ways with cognitive exertion, sensory input and orthostatic stress.
- When a person with ME is active beyond their individual limits, there is a worsening of various neurological, cognitive, cardiac, cardiovascular, immunological, endocrinological, respiratory, hormonal, muscular, gastrointestinal and other symptoms.
- The level of physical activity, cognitive exertion, sensory input or orthostatic stress (being upright) that is needed to cause significant relapse varies from patient to patient, but is often trivial compared to pre-illness tolerances and abilities.
- The severity of ME waxes and wanes throughout the hour/day/week and month.
- The worsening of the illness caused by overexertion often does not peak until 24 - 72 hours or more later.
- The effects of overexertion can accumulate over time and lead to disease progression or death.
- The activity limits of ME are not short term: an increase in activity levels beyond a patient's individual limits, even if gradual, causes relapse, disease progression or death.
- The symptoms of ME do not resolve with rest. There is also a base level of illness which can be quite severe even at rest.
• Repeated overexertion can harm the patient's chances for future improvement in ME. Patients who are able to avoid overexertion have repeatedly been shown to have the most positive long-term prognosis.
• Not every ME sufferer has 'safe' activity limits within which they will not exacerbate their illness: this is not the case for very severely affected patients.

30% of M.E. patients are house bound and/or bed bound and are severely limited with even basic movement and communication. Cognitive disability can be very pronounced in ME just as much as can physical disability.

This information is based upon an enormous body of clinical information and research. Although ME can cause many different symptoms the major features of epidemic and sporadic ME are distinct and almost identical from one patient to the next. M.E. is a severely disabling, distinct, easily recognizable and testable disease entity.

This website has become so large that its features can no longer all be taken in at a glance. In order for site visitors to find the information they need more quickly, the “information guides” page features guides relevant to each of the different types of visitors to the site including M.E. patients, doctors, ‘CFS’ misdiagnosed patients, friends and family of patients and so on.

The Humingbird Foundation
http://www.hfme.org/

Note that many different illnesses may share a percentage of the individual neurological, gastrointestinal or cognitive features of M.E., (and so on) but there is no other illness which encompasses each of the specific neurological, cognitive, immunological, gastrointestinal, cardiac and cardiovascular, endocrinological, respiratory, hormonal and other features and symptoms which make up M.E. This specific combination of symptoms/pathology is not seen in any other illness. There are also a number of characteristics of M.E. which are unique to the illness. The acute onset of M.E. also sets it apart from many other illnesses commonly associated with a gradual onset, as do many other characteristics.

CFS was created in a response to an outbreak of what was unmistakably ME, but this new name and definition did not describe the known signs, symptoms, history and pathology of M.E. It described a disease process that did not, and could not exist. All each of these flawed CFS definitions ‘define’ is a heterogeneous (mixed) population of people with various misdiagnosed psychiatric and miscellaneous non-psychiatric states which have little in common but the symptom of fatigue (a symptom seen in many illnesses but not a defining feature of ME nor even an essential symptom of ME.)

The disease category ‘CFS’ was coupled with ME and used in The PACE Trial Study to impose a false psychiatric paradigm of ME by allying it with various unrelated psychiatric fatigue states and post-viral fatigue syndromes (etc) for the benefit of various (proven) financial and political interests.

ME and ‘CFS’ are not synonymous terms. The terminology is often used interchangeably, incorrectly and confusingly. However, the DEFINITIONS of M.E. and CFS are very different and distinct, and it is the definitions of each of these terms which are of primary importance. The distinction must be made between terminology and definitions.
To Summarise

Chronic Fatigue Syndrome is an artificial construct created in the US in 1988 for the benefit of various political and financial vested interest groups. It is a mere diagnosis of exclusion based on the presence of gradual or acute onset fatigue lasting 6 months. If tests show serious abnormalities, a person no longer qualifies for the diagnosis, as ‘CFS’ is ‘medically unexplained.’ A diagnosis of ‘CFS’ does not mean that a person has any distinct disease (including ME). The patient population diagnosed with ‘CFS’ is made up of people with a vast array of unrelated illnesses, or with no detectable illness.

Myalgic Encephalomyelitis is a systemic neurological disease initiated by a viral infection which has been included in the WHO ICD since 1969. M.E. is characterized by (scientifically measurable) damage to the brain, and particularly to the brain stem which results in dysfunctions and damage to almost all vital bodily systems and a loss of normal internal homeostasis. Substantial evidence indicates that M.E. is caused by an enterovirus. The onset of M.E. is always acute and M.E. can be diagnosed within just a few weeks. M.E. is an easily recognizable distinct organic neurological disease which can be verified by objective testing. If all tests are normal, then a diagnosis of M.E. cannot be correct.

ME can occur in both epidemic and sporadic forms and can be extremely disabling, or sometimes fatal. ME is a chronic/lifelong disease that has existed for centuries. It shares similarities with MS, Lupus and Polio. There are more than 60 different neurological, cognitive, cardiac, metabolic, immunological, and other ME symptoms. Fatigue is not a defining nor even essential symptom of ME. People with ME would give anything to be only severely ‘fatigued’ instead of having ME. Far fewer than 0.5% of the population has the distinct neurological disease known since 1956 as Myalgic Encephalomyelitis.

The problem is not that ‘CFS’ patients are being mistreated as psychiatric patients; some of those patients misdiagnosed with ‘CFS’ actually do have psychological illnesses. ‘CFS,’ as a diagnosis, includes all sorts of fatiguing illnesses including psychiatric illnesses. ‘CFS’ is associated with psychiatric illness; for many patients this is inappropriate, but some patients misdiagnosed with ‘CFS’ actually do have psychological illnesses. The vast majority of patients misdiagnosed with ‘CFS’ do not have M.E.

Myalgic Encephalomyelitis can be specifically diagnosed by using the ICC 2011 or Dr Byron Hyde’s Criteria of 2016 meets the demands of the WHO ICD G93.3

The relevant criteria such as the Fukuda 1994, CCC 2003 and SEID 2015 are specifically for ME/CFS or CFS/ME which doesn't exist in the WHO ICD. The truth about the organic and distinct neurological illness ME must not be allowed to be buried under cover of ‘fatigue’ and ‘CFS’ for another 30 years.
The Description of Individual Symptoms of M.E.

Clinical Observations

http://www.hfme.org/themesymptomlist.htm

This list has been compiled using the highest quality resources available from the world’s leading ME experts, each of whom have been studying ME for more than 20 years and have each seen thousands of individual patients. The sources for this list are:

‘The Clinical and Scientific Basis of Myalgic Encephalomyelitis’ edited by Dr Byron Hyde
Papers on Myalgic Encephalomyelitis by Dr Byron Hyde
Papers on Myalgic Encephalomyelitis by Dr Melvin Ramsay
Papers on Myalgic Encephalomyelitis by Dr Elizabeth Dowsett
Papers/lectures by Dr Paul Cheney

Erica M. Verrillo was completing her doctorate before becoming ill with CFS in 1992.
Lauren M. Gellman was a vice president for a Fortune 500 Company before calling ill in 1987
https://www.amazon.ca/Chronic-Fatigue-Syndrome-Treatment-Guide/dp/1576260534

Symptoms are not presented as direct quotes from these sources, and are instead paraphrased, to aid readability.

Sections:
Cardiac & Cardiovascular Dysfunctions
Cognitive & Neurological Dysfunctions
Digestive Dysfunctions
Endocrine & Neuroendocrine Dysfunctions
Exercise, Exertion & Physical Activity
Headaches, Hearing, Vestibular & Speech Problems
Hypoglycemia
Immune System Dysfunctions
Joint & Muscle Dysfunctions
Oral Dysfunction
Pain
Reproductive Dysfunctions
Respiratory Dysfunctions
Seizures & Seizure Activity
Skin, Hair & Nails
Sleep Dysfunctions
Urinary Tract Dysfunctions
Visual Dysfunctions
Weather Sensitivities
Clinical Observations
http://www.hfme.org/themesymptomlist.htm

CARDIAC & CARDIOVASCULAR DYSFUNCTIONS
- Reduced maximum heart rate and/or an elevated resting heart rate
- Extreme pallor (usually just before or during a relapse)
- Odema (swelling of the hands and feet)
- Neuromediated Hypotension (NMH) low blood pressure (which causes the blood to pool in the extremities) this occurs due to an abnormal reflex interaction between the heart and the brain. This can also occur with Delayed Postural Hypotension (usually delays are around 10 minutes).
- Postural Orthostatic Tachycardia Syndrome - POTS (a heart rate increase of 30 bpm or more from the supine to the standing position within ten minutes or less) which can also occur with Delayed Postural Orthostatic Tachycardia Syndrome (usually delays are around 10 minutes)
- Orthostatic light-headedness and/or fainting or black outs
- Very low blood pressure (hypotension) on reclining, or high blood pressure on activity. Sudden low blood pressure may cause blackouts.
- Tachycardia and an exacerbation of symptoms on orthostatic challenge (maintaining an upright posture) beyond certain limits. Lying down markedly improves symptoms for M.E. patients. See section 3 for more information
- Sensations of chest pain, chest pressure or fluttering sensations in the mid-chest, palpitations (skipped heart beats), tachycardia (rapid heart beat – may be 170bpm or higher), premature atrial and ventricular contractions (early or extra heartbeats), various arrhythmias (abnormal heart rhythms), ectopic heart beats (a contraction of the heart that occurs out of its normal rhythmic pattern, it may feel like a thumping sensation in the chest) and sleep bradycardia (a slowing of the heart rate above what is expected with sleep) can all occur.

COGNITIVE & NEUROLOGICAL DYSFUNCTIONS
- A worsening of symptoms (including cognitive function) with cognitive exertion beyond a certain level.
- Problems with memory including; difficulty making and consolidating new memories (particularly short-term memories), difficulty recalling formed memories and difficulties with visual recall and with immediate and delayed verbal recall are common. Short-term memory problems may lead to people forgetting where they are or what they are doing, this can be so severe that patients are unable to finish a sentence. Facial agnosia may also occur (not being able to recognize faces, even those of close friends and family)
- Multi-tasking problems, an inability to learn to perform new tasks, forgetting how to perform routine tasks and a difficulty with simultaneous processing. There can be a difficulty with following step-by-step instructions, recipes or performing any tasks which require a series of separate actions. Sequencing dysfunction can also occur; inability to look words up in a dictionary, to look up phone numbers in a phone book or to organize files etc. Patients may also need extra sensory cues to complete tasks (for example, the patient may need to be able to see what they are doing to be able to complete a task where formerly the task could be completed using touch alone eg. turning on a light or operating the controls in a car)
- Cognitive slowing (tasks can take much longer than usual)
- Impairment of concentration; maintaining a reasonable level of concentration on a task for even a short period of time may become extremely difficult, or impossible. There is a need for mental micro-rests.
- Difficulty with visual and aural comprehension; difficulty following oral or written directions, trouble distinguishing figure from ground and speech comprehension difficulties. Greater difficulty with auditory comprehension than visual is common.
Word, letter and short term ordering problems, for example; transposition - reversal of letters or numbers, words or sentences when speaking or writing (pseudodyslexia)

Inability to locate the words for writing (Agraphia). Handwriting may also change completely with the onset of illness, may be deformed in a way consistent with brain damage (this may wax and wane with the severity of the illness)

Problems with reading (Alexia) or word blindness; patient can still read but what is read is not comprehended and cannot be compared with known information already stored. If reading is still possible, text may have to be read many times before it can be comprehended.

Difficulty or an inability to understand speech (Wernicke’s Aphasia); words are heard clearly, they are not garbled, but they make no sense. It is a loss of the ability to interpret normal language. When the input is aural, there seems to be a loss of the initial orienting information. The person is actively listening, but the information simply does not register at all or must be repeated several times before it registers.

Increased need for visual cues in understanding speech; visual or multisensoral cues are an important compensatory tool in M.E. (for example, a patient may not be able to understand the same conversation with the same person on the telephone that they understood perfectly well when conducted face-to-face).

In speaking, important elements are often left out of the sentence such as the verb or subject, sometimes the syntax is askew. At times speech makes no sense and/or does not relate to the question asked. Sometimes speech comprehension is delayed which can result in long pauses, interruptions, mistiming of responses and apparent non sequiturs. Patients themselves may or not be aware of these problems with their speech. Incorrect word selection (paraphasia) is common, such as using the wrong word from the right category or using a word that sounds similar to the correct word but has a different meaning. Commonly used words become hard to retrieve. These problems combined may result in a significant loss of communicative ability. There can also be a difficulty pronouncing words intelligibly (Dysarthria) or a complete inability to express language (Broca's Aphasia).

Dyscalculia; (loss of arithmetic skills) an inability or difficulty to do simple additions and other calculations, to count money, add up columns etc (irrespective of the quality of former mathematical abilities) is common. There may also be a difficulty or confusion with following timetables or keeping scheduled appointments.

Loss of verbal and performance intelligence quotient (IQ) (A 20 point loss is average, although for some people the loss is far more profound)

A loss the ability to block out extraneous and unwanted information and noise; M.E. patients lose of the ability to distinguish noise from required information and tend to shut down all intake after minimal prolongation of the information signal. For example, a person may not be able to understand speech when there is more than one person speaking, more than one conversation taking place, or when there is a TV or radio on in the background. (This receptive shutdown has alarming connotations for making memories and can also at times create real danger to the M.E. patient)

An exaggerated response to even small amounts of additional input or stimulus (light, noise, movement, vibration) is common, causing incoming messages to become scrambled or blurred resulting in distorted signals and odd sensations (ie. low level seizure activity). Even very low levels of light or noise etc. can also cause an exacerbation of other symptoms, or of the severity of the illness generally. See section 3 for more information

Polyneuropathy; a neurological problem that occurs when many peripheral nerves throughout the body malfunction simultaneously. Many polyneuropathies have both motor and sensory involvement and some have autonomic dysfunction. Hyperreflexia; overactive or overresponsive reflexes eg. twitching or spastic tendencies as well as the lessening or loss of control ordinarily exerted by higher brain centres of lower neural pathways (disinhibition).
Perceptual and sensory dysfunctions eg, spatial instability and disorientation. There may be a loss of co-ordination or clumsiness - difficulty in judging distance, placement and relative velocity (caused by proprioception dysfunctions, proprioception being the perception of stimuli relating to your own position, posture, equilibrium, or internal condition) Extension or quick rotation of the neck can cause dizziness (also due to proprioception dysfunctions)

- Altered time perception (losing time), feeling 'spaced out' or 'cloudy' or not quite real somehow
- Disorders of colour perception - recognising colours but forgetting what they mean, (Seeing the red light at an intersection, knowing it is red, but not recognising that red means 'stop,' for example)
- Abstract reasoning dysfunction; difficulty organising, integrating, and evaluating information to form conclusions or make decisions (some patients find it almost impossible to make decisions)
- Stroke-like episodes

- Short periods of amnesia may occur which may be associated with disorientation where the patient momentarily does not know where or who she is which may cause considerable anxiety. Some patients lose large parts of the day but this is infrequent. In most cases the patient can be brought out of the amnesiac attack with cues
- In severe illness patients can become unconscious, comatose for up to 23, 24 hours a day (the brain becomes unable to maintain wakefulness). There can be a difficulty in maintaining full consciousness for more than a few seconds, minutes, or half-hour periods at a time.
- Volitional problems; difficulty starting or stopping tasks, or switching from one task to another (a neurological dysfunction where the body does not respond appropriately, or quickly, or without difficulty, to the minds commands; is related to sleep paralysis. This is a central dysfunction and may be similar to that seen in Parkinsonianism)
- A feeling of agitated exhaustion is common (neurological in origin)
- Emotional symptoms include: mood swings (emotional lability) – crying easily, excessive irritability etc or intense emotions such as rage, terror, overwhelming grief, anxiety, depression and guilt. Sometimes there can be an emotional flattening or situations may be erroneously interpreted as novel (due to prefrontal cortex dysfunction). Disinhibition may occur to varying levels. Anxiety and panic attacks may occur, often not tied to environmental triggers. Emotional symptoms in M.E. tend to be linked to exacerbations in physical symptoms, there are often not environmental triggers. (Also note that injuries to the areas or centres of the brain which control emotions are of an identical nature as those that affect physical function; these emotional symptoms are an organic part of the illness caused by anatomical and physiological damage to the brain just as nystagmus, seizures or any other neurological problems or symptoms are. These emotional changes are also due in part to the cognitive changes caused by M.E., for example the problems with memory.)

DIGESTIVE DYSFUNCTIONS

- Oesophageal spasms (felt as extreme pain in the centre of the chest that sometimes radiates to the chest or mid-back) or oesophageal reflux (heartburn)
- Difficulty swallowing (or an inability to swallow)
- Great thirst, increased appetite, food cravings or lack of appetite
- Inability to tolerate much fat in the diet (gallbladder problems)
- Changes in taste and smell; an increased sense of smell or bizarre smells. Strange taste in mouth (bitter, metallic)
- Multiple new food allergies and intolerances
- Bloating, abdominal pain, nausea, indigestion or vomiting is common, as is diarrhoea, constipation or an alternation between the two.
· Intense gallbladder pain (in the upper right quadrant of the abdomen) or liver pain, tenderness or discomfort. Liver problems (along with other problems) can lead to a ‘poisoned’ feeling.
· Alcohol intolerance is common (ranging from mild to a total intolerance)

**ENDOCRINE & NEUROENDOCRINE DYSFUNCTIONS**
· Thyroid; thyroid pain, inflammation or dysfunction (usually secondary hypothyroidism). Adrenal gland dysfunction; aspects of both overactive and underactive adrenal function or pituitary dysfunctions
· Loss of thermostatic stability - suddenly feeling cold in warm weather, recurrent feelings of feverishness or chills or hot flashes particularly involving the upper body. Feeling cold and shivering one minute and hot and sweating the next is common. A low-grade fever may occur following exertion
· Subnormal body temperature and marked diurnal fluctuation (temperature fluctuation throughout the day)
· Cold hands and feet, sometimes on only one side
· Sweating episodes (profuse sweating, sometimes even when cold) - with the sweat often having quite a sour smell. Night sweats and spontaneous day sweats may occur
· Swelling of the extremities or eyelids
· Loss of adaptability and worsening of symptoms with stress (due to endocrine dysfunctions etc.)

**EXERTION & PHYSICAL ACTIVITY**
· An exacerbation of symptoms with physical activity beyond a person’s individual limits, and a worsening of the illness generally (etc.) with continued overexertion. See section 3 for more information.
· A sudden unexpected feeling of being 'high' can occur (due to neurological dysfunctions) leading to (usually short) bouts of physical hyperactivity
· Severe muscle weakness (paresis) or paralysis. Muscles will often function normally to start with, but pain and weakness (or paralysis) develop after short periods of use and then take 3, 4 or 5 days (or longer) to resolve (normal muscle recovery is around 200 minutes). Problems arise from sustained muscle use - it is a pathologically slow or impaired recovery of muscle after exercise. (It is a problem involving the metabolism of the muscles). Thus a patient may be easily able (for short periods) to lift something moderately heavy one or two times, but be unable to lift something very light many times (such as a soup spoon for example). This muscle weakness/paralysis affects all muscles/organs, including the heart, eyes and brain.
· Impaired cognitive processing, a reduced maximum heart rate, a drop in body temperature or dyspnea (shortness of breath) with overexertion. See section 3 for more information
· Loss of the natural antidepressant effect of exercise
· Inappropriate signs of immune system activation can be brought on by overexertion (ie. flu-like symptoms)

**HEADACHES**
· Onset of a new type, severity or pattern of headaches is common. See also the PAIN section

Dr Hyde explains that M.E. can cause a unique type of ‘severe headaches of a type never previously experienced.’ This is often associated with neck rigidity and occipital pain (pain/pressure felt at the base of the skull, the top of the neck) and/or retro-orbital eye pain (pain behind the eyes) and also sometimes pain behind the ears (or one ear).
Sinus, pressure or tension headaches (dull continual headaches which are not actually caused by anxiety as the name may suggest) can occur, as can hypoglycaemia headaches (generalised prickly ache over the top of the head)

HEARING, VESTIBULAR & SPEECH DYSFUNCTIONS
- Hyperacusis - an intolerance to normal sound volume and range (but particularly sounds in the higher frequencies). Sudden loud noises can also cause a startle response (flushing and a rapid heartbeat) and there can also be an extreme intolerance to vibration or movement.
- Excessive sensory inputs (noise, vibration) may lead to low level seizures and exacerbations of other symptoms. See section 3 for more information
- Tinnitus - ringing, buzzing, humming, clicking, popping and squeaking noises generated in the ear
- Hearing loss - sound can be muffled or indistinct or sound strangely flat, there can be a loss of tone perception
- Sharp transient ear pain, deep itching in the ears and/or swelling of the nasal passages
- Dizziness or vertigo - a sensation that your surroundings (or you) are spinning wildly (can cause vomiting). Vertigo may also be expressed in a milder form as an inability to watch TV or to read.
- Acute profound ataxia (balance problems) or a sensitivity to motion/movement (which can affect balance)
- Nystagmus - a rapid involuntary oscillation of the eyeballs
- The voice may become very weak, hoarse or fall to a whisper, and then there can be total loss of speech. There may also be a slowed rate of speech, sometimes with stammering, stuttering, muddled or slurred speech or difficulty moving the tongue to speak or getting enough air to speak more than a few words at a time.

HYPOGLYCEMIA
Hypoglycaemia or hypoglycaemia-like symptoms (problems with blood sugar regulation/low blood sugar)

IMMUNE SYSTEM DYSFUNCTIONS
- Lymphadenopathy: lymph nodes which are tender to the touch and painful on movement. The lymph nodes in the front and back of the neck, armpits, elbows and groin are most frequently affected, particularly on the left side.
- Recurrent flu-like symptoms (general malaise, fever and chills, sweats, cough, night sweats, low grade fever, sore throat, feeling hot often and low body temperature)
- Very severe throat pain, scratchiness and tenderness which often worsens with exercise, exertion or before relapses. Throat may also feel clogged and require constant clearing. Throat may appear red or have characteristic ‘crimson crescents’ around the tonsillar membranes of the upper throat
- An increased susceptibility to secondary infections can be a significant problem. In addition to seasonal colds and flu patients are also more susceptible to upper respiratory tract or urinary tract infections, topical fungal infections and recurring shingles. All of these infections also last longer, can be more severe and occur more frequently and may also cause relapses either concurrently or just after the initial infection. This is true even in cases where prior immunity has been established. See section 3 for more information.
- In some patients there is instead a decreased susceptibility to secondary infections. There is a tendency to catch either every virus going around or to ‘never catch anything’ depending on whether the immune system is under- or over-active (which changes dependant on which stage of the illness the person is in). Starting to get colds and flu’s again can be a sign of M.E. remission or improvement
Reactions to chemical smells: chemical sensitivities may occur to indoor and outdoor chemical air contaminants; perfumes, hairsprays, gasoline, household cleaning products, plastic and glue out-gassing. Can produce allergic reactions although not all chemical sensitivities are IgE mediated. May also cause an exacerbation of other symptoms.

· New sensitivities may also occur to some drugs and medications (particularly those which act on the CNS)

· Worsening of existing allergies and/or new severe sensitivities/allergies/intolerances to many varieties of food (and food additives) and to airborne allergens: pollen, mould, animal dander, fur and feathers or dust.

ALLERGY SYMPTOMS:

- Skin: pallor, itching, burning, tingling, flushing, warmth or coldness, sweating behind the neck, hives, blisters, blotches, red spots, pimples, dermatitis, eczema
- Eyes: blurred vision, itching, pain, watering, eyelid twitching, redness of inner angle of lower lid, drooping or swollen eyelids
- Ears: earache, recurring ear infections, dizziness, tinnitus, imbalance
- Nose: nasal discharge or congestion sneezing
- Mouth: dry mouth, increased salivation, stinging tongue, itching palate, toothache
- Throat: tickling or clearing, difficulty swallowing
- Lungs: shortness of breath, air hunger, wheezing, cough, mucous or recurrent bronchial infections
- Heart: pounding or skipped heartbeats, chest tightness
- Gastrointestinal tract: burping, heartburn, indigestion, nausea, vomiting, abdominal pain, gas, cramping, diarrhoea, constipation, mucus in stool; frequent, urgent or painful urination, bedwetting (in children)
- Muscular system: muscle fatigue, weakness, pain, stiffness, soreness
- Central nervous system: headache, migraine, vertigo, drowsiness, sluggishness, giddiness
- Cognition: lack of concentration, feeling of 'separateness', forgetting words or names, anxiety, tension, panic, overactivity, restlessness, jitteriness, depression, PMS

JOINT DYSFUNCTIONS

- Significant myalgia (pain) in joints is often widespread. The most common joints affected are knees, ankles, elbows, hips but pain in the fingers also occurs. Aching in the joints is also common
- Gelling (stiffness) in the joints that develops after holding a position for awhile, usually sitting or upon awakening but can also be caused by changes in temperature or humidity
- Gait abnormalities and a difficulty with tandem gait

MUSCLE DYSFUNCTIONS

- Significant myalgia in muscles is often widespread (sharp, shooting, burning or aching pain). Pain can be extremely severe in M.E. See also the PAIN section
- Transient tingling, numbness and/or burning sensations (or other odd sensations) in the face or extremities (paresthisias).
- There is sometimes atrophy of specific muscle groups (a shrinking in size visible to the eye)
- Inability to form facial expressions leading to a ‘slack’ facial appearance
- A loss of the ability to chew or swallow
- Severe muscle weakness (paresis) or paralysis. Muscles will often function normally to start with, but pain and weakness (or paralysis) develop acutely after short periods of use and then take 3, 4 or 5 days (or longer) to resolve (normal muscle recovery is around 200 minutes). Problems arise
from sustained muscle use - it is a pathologically slow or impaired recovery of muscle after exercise. (It is a problem involving the metabolism of the muscles). Thus a patient may be easily able (for short periods) to lift something moderately heavy one or two times, but be unable to lift something very light *many* times (such as a soup spoon for example). This muscle weakness/paralysis affects all muscles/organisms, including the heart, eyes and brain.

- Visible tremors and twitches of the muscles (involuntary movements)
- Muscle spasms, which can be extremely severe and painful. There may be spasms of the hands and feet which can lead to ‘clawed’ deformities or spasms in the neck which cause the head to twist to one side
- Slight hesitation in movement or ‘cogwheel’ effect with movement

**ORAL DYSFUNCTIONS**

- Dental decay and periodontal disease (gum disease) are much more common than in the general population
- Frequent canker sores (painful sores in the mouth which look like small bumps with white heads)
- Loose teeth and endodontal (the soft tissue in the centre of the tooth) problems
- Temperature sensitivity in the teeth and/or pain in the teeth

**PAIN**

- Three different types of muscle pain in ME:
  - Patient complains of feeling as though they have been beaten repeatedly with an axe handle; bruised and hurt all over. Is sometimes associated with a dull headache and an inability to concentrate.
  - Severe spike-like pain, usually in the main muscle mass in the leg; extensors or flexors. It is commonly described as feeling as though a nail or a knife had been stuck into the area.
  - Occurs after a particular muscle group has been in use for an extended period; the affected muscles become weak/paralysed and painful and this takes 3-5 days (or longer) to resolve. The affected muscle can frequently be palpated and is hard and swollen.
  - Cephalgies and other head area pain: encephalitic pain, pain behind the eyes, expanding head pain, ear pain, ophthalmic pain, tooth-hypersensitivity pain, spike-like pain, fibromyalgia pain, formification, sore throat and spasm associated pain
  - Other types of pain: chest and abdominal pain, causalgia and other neuralgic pain, abdominal pain, urogenital pain, pain in the extremities (hypothalamic dysfunction pain, periarthritic pain, bone pain and muscle pain)
  - Pain reception impairment: skin is very sensitive to the touch and there can be also be allodynia - a pain response to stimuli not usually painful (some patients find the weight of their sheets becomes extremely painful and intolerable for example)

**REPRODUCTIVE DYSFUNCTIONS**

- Menstrual cycles may become shorter, longer or irregular. Periods may also become lighter or disappear altogether (usually when illness is severe) There may also be an intensification of M.E. symptoms before and during a period
- Lowered libido
- Impotence
RESPIRATORY DYSFUNCTIONS
· Erratic breathing pattern
· Dyspnea - air hunger or difficulty breathing (often on waking or with exertion), which can be severe. See section 3 for more information
· Persistent coughing and wheezing

SEIZURES & SEIZURE ACTIVITY
· Grand mal seizures (where there is loss of consciousness and motor dysfunctions),
· Petit Mal seizures - absence seizures (where you are conscious but unaware of your actions. A person may continue with an activity as though asleep – an ambulatory automatism may occur)
· Simple partial seizures - do not involve loss of consciousness but produce altered sensations, perception, mood or bodily sensations; somatosensory seizures, autonomic seizures, focal motor seizures, auditory seizures, visual seizures. Complex partial seizures: episodic dysphasia/dysphagia (incomprehension of speech and inability to speak), olfactory hallucinations. Other seizures: tremulous attacks and psychomotor attacks. (Dr Byron Hyde states in his M.E. textbook that; by definition all M.E. patients will have some level of seizure activity as part of their illness.)
· Sensory storms/overload phenomena or a worsening of symptoms generally caused by a hypersensitivity to light, sound, vibration, movement, temperature, odours and/or mixed sensory modalities. See section 3 for more information
· Myoclonus (strong involuntary jerks of the arms, legs or entire body)

SKIN, HAIR & NAILS
· Skin: extreme pallor, rashes, dry and peeling skin, acne, spontaneous bruising, fungal infections, butterfly rash on face, flushing of face, fingertip pads may be atrophic so that the fingerprints are hard to see, skin may become red and shiny (generally after long-term illness). This is sometimes referred to as a ‘destruction of fingerprints.’.
· Hair: hair loss and poor quality regrowth.
· Nails: vertical ridges, bluish nail bed, brittleness, fungal infections

SLEEP DYSFUNCTIONS
· Un-refreshing sleep (waking up feeling worse than when you went to bed)
· Disrupted, chaotic or reversed circadian (sleep and wake cycle) rhythms
· Difficulty initiating sleep, maintaining sleep (fragmented sleep) or hyposomnia (lack of sleep) may occur
· Hypersomnia - excessive sleeping (common in the acute stages of the illness, a rare feature thereafter. Is more common in children than adults and thought to be most often caused by a dysfunction in the posterior hypothalamus and the upper part of the mid-brain.)
· Very light sleep (lack of deep stage sleep)
· Dreaming changes: intensely colourful and bright dreams (vivid), violent and attacking nature of dreams (nightmares), frequency of hypnagogic and hypnapagocic dream states (waking dreams, thematic dreams, pain dreams and sleep paralysis) and increased dreaming activity (thought to be caused by sensory seizures in the midbrain). There is also sometimes a complete lack of dreams.
· Sleep paralysis: temporary paralysis after sleeping (also called waking paralysis, can last from minutes to hours), early waking states (where you are neither asleep nor awake which can last for minutes or many hours) or dysania can occur
· Night extremity hypothermia
URINARY TRACT DYSFUNCTIONS
· Urinary frequency and bladder dysfunction, uncomfortable or painful/burning urination (Dysuria), difficulty passing urine, incontinence and/or nocturia (excessive urinating at night)

VISUAL DYSFUNCTIONS
· External visual dysfunctions: photophobia (extreme sensitivity to light), oscillating or diminished pupillary accommodation responses with retention of reaction to light, nystagmus (a rapid involuntary oscillation of the eyeballs), painful or burning sensations in the eyes, floaters, spots and scratchiness in vision, tearing and dry eye, internal and external ophthalmoplegia (paralysis of the extraocular muscles which are responsible for eye movements) changes in colour vision, sluggish focus, an inability to focus or accommodation difficulty (difficulty switching from one focus to another) can all occur as can double, tunnel, wavy or blurred vision, or night blindness.
· Central visual dysfunctions: visual comprehension dysfunction, reading ability loss or difficulty, writing ability loss or difficulty, distance or spatial dysfunction, loss of depth of field – less ability to make figure/ground distinctions, vision reversals and vision clouding.

WEATHER SENSITIVITY
· Intolerance of extremes of hot and cold weather. Periods of extended hot weather in particular are seldom well tolerated by M.E. patients. Hot (or even warm) weather often causes a severe worsening of the base level of illness and of many different symptoms (particularly cognitive problems in many cases).
· Insomnia, migraines, irritability or generally ‘feeling off’ a day or two before the weather changes. Changes in temperature or humidity can cause stiffness or increased aching or pain in the muscles. Changes in barometric pressure can cause night sweats and spontaneous sweating during the day

WEIGHT CHANGES
· Marked weight gain (often independent of dietary changes)
· Marked weight loss (often independent of dietary changes). Rapid weight loss can also occur despite large quantities of food being eaten. (Weight loss independent of dietary changes seems to be more common amongst younger sufferers, particularly children and teenagers.)

Most deaths from M.E. (around two thirds) are due to organ failure, usually cardiac or pancreatic. Death can also occur as a result of secondary infections or problems with maintaining breathing.

THE LATE EFFECTS OF ME
Can they be distinguished from the Post-polio syndrome?
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Originally a Presentation to the All Party Group of MPs on ME/PPS on 31st January 2001.
This Lincolnshire Post-Polio Library Publication February 2001.

Dr Elizabeth Dowsett for more information.
CO-MORBID ENTITIES:
(Note that some conditions, such as NMH for example, are instead included in the general
symptoms list because they are so central to M.E.)

• Increased tendency for Mitral Valve Prolapse, especially in children (breathlessness, fatigue, edema)
• Viral myocarditis - inflammation of the heart (usually of little consequence but which can sometimes lead to substantial cardiac damage and severe acute heart failure. It can also evolve into the progressive syndrome of chronic heart failure. There have been sudden deaths associated with exceptional physical exertion in patients with viral illnesses)
• Pericarditis (the outer layer of the heart, pericardium, is inflamed. Symptoms include chest pain, shortness of breath, and rapid, shallow respiration)
• Secondary or reactive depression (as with any other debilitating chronic illness)
• Irritable Bowel Syndrome
• Raynauds phenomenon (poor circulation)
• Shingles
• Systemic yeast/fungal infections
• Multiple Chemical Sensitivity Syndrome MCSS
• Carpal tunnel syndrome (weakness, pain, and disturbances of sensation in the hand)
• Pyriform muscle syndrome causing sciatica
• Positive Fibromyalgia tender points (FMS) and Myofascial trigger points (MPS) are common
• Temporomandibular Joint Syndrome TMJ (spasms of the jaw muscles causing intense pain)
• Hashimoto’s thyroiditis
• Sicca Syndrome
• Endometriosis (the presence and growth of functioning endometrial tissue in places other than the uterus that often results in severe pain and infertility) may be more common in M.E.
• Dysmenorrhoea - menstrual pain experienced a week before, during and a few days after periods (other symptoms include; headache, suprapubic cramping, backache, pain radiating down to anterior thigh, nausea and vomiting, diarrhea, syncope)
• More severe or new onset PMS
• Migraines (nausea, vomiting, head pain, light and noise sensitivity which can last for hours or days)
• Restless Legs Syndrome RLS
• Sleep apnea
• Irritable Bladder Syndrome
• Cystitis (inflammation of the urinary bladder)
• Prostatitis (inflammation of the prostate gland)
• Sjogrens syndrome (autoimmune disorder affecting moisture producing glands in the body)

On the pattern of symptoms and relapses etc. in ME. What characterizes ME every bit as much as the individual neurological, cognitive, cardiac, cardiovascular, immunological, endocrinological, respiratory, hormonal, muscular, gastrointestinal and other symptoms is the way in which people with ME respond to physical and cognitive activity, sensory input and orthostatic stress, and so on. In other words, the pattern of symptom exacerbations, relapses and of disease progression.
The way the bodies of people with M.E. react to these activities/stimuli post-illness is unique in a number of ways. Along with a specific type of damage to the brain (the central nervous system) this characteristic is one of the defining features of the illness which must be present for a correct diagnosis of M.E. to be made. The main characteristics of the pattern of symptom exacerbations, relapses and disease progression (and so on) in Myalgic Encephalomyelitis include:

- People with M.E. are unable to maintain their pre-illness activity levels. This is an acute (sudden) change. M.E. patients can only achieve 50%, or less, of their pre-illness activity levels post-M.E.

- When a person with M.E. is active beyond their individual (physical, cognitive, sensory or orthostatic) limits this causes a worsening of various neurological, cognitive, cardiac, cardiovascular, immunological, endocrinological, respiratory, hormonal, muscular, gastrointestinal and other symptoms.

- The level of physical activity, cognitive exertion, sensory input or orthostatic stress needed to cause a significant or severe worsening of symptoms varies from patient to patient, but is often trivial compared to a patient's pre-illness tolerances and abilities.

  The severity of M.E. waxes and wanes throughout the hour/day/week and month. The worsening of the illness caused by overexertion often does not peak until 24 - 72 hours (or more) later.

- The effects of overexertion can accumulate over longer periods of time and lead to disease progression, or death.

- The activity limits of M.E. are not short term: a gradual (or sudden) increase in activity levels beyond a patient's individual limits can only cause relapse, disease progression or death in patients with M.E.

- The symptoms of M.E. do not resolve with rest. The symptoms and disability of M.E. are not just caused by overexertion; there is also a base level of illness which can be quite severe even at rest. Repeated overexertion can harm the patient's chances for future improvement in M.E. M.E. patients who are able to avoid overexertion have repeatedly been shown to have the most positive long-term prognosis.

  People with ME. are unable to maintain their pre-illness activity levels. This is an acute (sudden) change. M.E. patients can only achieve 50%, or less, of their pre-illness activity levels post-M.E. Only being able to achieve 50% or less of your pre-illness activity level immediately upon becoming ill is very common – if not universal – in Myalgic Encephalomyelitis. (Although a small percentage of sufferers may possibly be somewhat less severely affected at onset.) This is not a gradual change in ability levels which occurs over weeks, months or years; it is an acute change. The onset of ME is frequently very dramatic, M.E. patients can very often tell you not just the day that they became ill, but the exact hour they became ill.

ME can commonly be diagnosed within just a few weeks if the doctor has experience with M.E. (If all tests are normal, M.E. cannot be the correct diagnosis.)

ME is an acute onset illness, however it should be noted that: (a) some sufferers will be unsure of their onset type (they may not recall it, or may not recall it accurately, for various reasons) and (b) in some cases, acute onset M.E. is preceded by a series of unrelated minor infectious episodes (in a previously well patient) which may be misinterpreted as being a gradual onset of the ME. (These minor infectious episodes may be due to the immune system being under temporary or chronic stress from events such as; recent immunization, repetitive contact with a large number of
infectious persons, or the effect of travel; as in exposure to a new subset of virulent infections. This pre-existing temporary or chronic immune system weakness is not seen in all patients and is not what causes M.E., although a compromised immune system will of course make the body more vulnerable to all types of infections, including ME.)

People with ME are limited in how physically active they can be but they are also limited in similar way with; cognitive exertion, sensory input and orthostatic stress. The bodies of people with Myalgic Encephalomyelitis respond inappropriately to anything that forces the body to have to react in some way or work harder in some way, in order to maintain internal homeostasis, including (but not limited to): physical activity, cognitive exertion (including emotional stress), sensory input and orthostatic stress. It should also not be assumed that a person with M.E. will necessarily react more severely to (or have greater limits on) physical activity than with cognitive exertion, sensory input or orthostatic stress. Some patients find that their most severe relapses come from orthostatic stress, while others will have to be more careful with their levels of sensory input or cognitive exertion as compared to physical activity. Other patients may be equally limited with each of these activities or stimuli, and so on. It varies from patient to patient and can also change over the course of the illness.

One of the main misconceptions about ME is that while walking a few steps must of course require additional bodily resources and additional cardiac output, time spent thinking, looking, listening or experiencing other sensory stimuli does not. But this is not the case.

Not only physical effort, but also cognitive effort, requires additional resources which an M.E. patient may not have. The brain contains some 100 billion neurons connected to some 10,000 relay stations and this enormous electrical activity creates a massive need for energy and other bodily resources. The brain uses up to 25% of the entire body's demand for glucose, 25% of the blood pumped from the heart goes to the brain and the brain also needs 25% of the body's oxygen supply. (Blood supplies nutrients like glucose, protein, trace elements, and oxygen to the brain.)

So of course, every extra second of 'electrical activity' – every thought, every feeling, every noise heard or sight seen – requires additional cardiac output, makes additional oxygen and glucose demands, and so on, in just the same way as does a physical activity such as walking; if not more so.

Dysfunctional Homeostasis is the ability of a living organism to regulate its internal environment to maintain a stable, constant condition, by means of multiple dynamic equilibrium adjustments, controlled by interrelated self-regulation mechanisms. Homeostasis is one of the fundamental characteristics of living things. It is the maintenance of the internal environment within tolerable limits. M.E. causes a loss of the ability of the CNS (the brain) to adequately receive, interpret, store and recover information which would enable it to control vital body functions. There is a loss of normal internal homeostasis; the individual can no longer function systemically within normal limits.

Metabolic problems at a cellular level also contribute to this inability to maintain homeostasis in M.E. M.E. Expert Dr Byron Hyde explains, 'In MRI spectography of arm muscle of M.E. patients, it has been shown that because of an abnormal build-up of normal metabolites, the muscle cell actually shuts down to prevent cell death.' This is what is happening to the M.E. patient’s cell physiology in every muscle (including the heart) and in the brain as a result of physical and cognitive activity and/or overexertion; there is ‘cell field shutdown’ to prevent the death of the cell.

Physical activity in this context does not just mean aerobic exercise; it includes any physical movement or activity, including stretching and even very small movements. Cognitive activity refers to any type of thinking, or mental processing. Sensory input includes exposure to light, noise and movement etc. Orthostatic stress or postural stress includes sitting or standing, but also things like having a few pillows under your head when lying down or sitting up in bed;
orthostatic stress is caused by any posture other than lying down flat (perhaps with legs raised to reduce the load on the heart; unless the patient is wearing pressure stockings, which achieve the same goal.)

When a person with M.E. is active beyond their individual (physical, cognitive, sensory or orthostatic) limits this causes a worsening of various neurological, cognitive, cardiac, cardiovascular, immunological, endocrinological, respiratory, hormonal, muscular, gastrointestinal and other symptoms.

When a person with M.E. is active beyond their individual post-illness limits, the result is not tiredness, fatigue or even exhaustion – nor is ‘malaise’ an accurate word to describe what occurs. There simply is no one symptom caused by overexertion in M.E. What does happen is that there is a worsening of all sorts of different symptoms and of the severity of the illness generally with overexertion. (Repeated or severe overexertion can also cause disease progression, permanent damage (eg. to the heart), or death in M.E.) It is an entirely different problem of a much greater magnitude.

Overexertion causes an exacerbation of all sorts of combinations of neurological, cognitive, cardiac, cardiovascular, immunological, endocrinological, respiratory, hormonal, muscular, gastrointestinal and other symptoms which can be mild, moderate, severe, or even life threatening (eg. seizures and cardiac events). Many of the symptoms involved are present at a lower level at rest, but overexertion causes them to worsen. (Although some patients may also have some symptoms that only appear after overexertion.)

The types of symptoms produced in response to certain levels of physical activity, cognitive activity, sensory stimuli or orthostatic stress may or may not vary depending on the type (and severity) of the activity or stimuli involved. But very often the types of symptoms worsened or produced by overexertion are fairly similar regardless of which exertion or input was involved. Overexertion can sometimes cause just one or two symptoms to worsen (eg. cardiac problems) but often a large cluster of symptoms are worsened. The cluster of symptoms made worse by excessive exertion or stimulus is often very similar from patient to patient, as generally it is a worsening of the most common symptoms of the illness. Patients commonly experience a combination of the following symptoms:

Profound cognitive dysfunctions (and various other neurological disturbances), muscle weakness (or paralysis), burning eye pain or burning skin, subnormal temperature or low-grade fever, sore throat or painful lymph nodes (and/or other signs of inappropriate immune system activation), faintness, weakness or vertigo, loss of co-ordination, dyspnea, an explosion of sensory phenomena (low level seizure activity), cardiac and/or blood pressure disturbances, facial pallor and/or a slack facial expression, widespread severe pain, nausea or feeling as if ‘poisoned,’ feeling cold and shivering one minute and hot and sweating the next, anxiety or even terror (as an organic part of the attack itself rather than as a reaction to it) and hypoglycaemia. Often the patient will feel an urgent need to retreat from all homeostatic pressures. The types of symptoms triggered vary widely from patient to patient, but some combination of these is common. There may also be an accompanying exacerbation of other symptoms. These symptoms often combine to create an indescribable and overwhelming experience of terrible illness that is unique to M.E, and can be profoundly incapacitating. At its most severe, the patient feels as if they are about to die.

Each of the symptoms caused or exacerbated by overexertion can be clearly articulated without difficulty whether they be; seizures, cardiac events, labile blood pressure, tachycardia, shortness of breath, muscle pain, muscle weakness or muscle paralysis, facial paralysis, black outs, flu-like symptoms, nausea, inability to speak or to understand speech, problems with memory, and so on. It makes no scientific or logical sense to subsume these very specific symptoms, and very specific and varied combinations of symptoms, under a vague and inaccurate label of mere ‘fatigue.’ To
say that all of these very different and very specific – and in some cases very serious – symptoms can be accurately summarized as being a problem of mere ‘fatigue,’ ‘malaise’ or ‘exhaustion’ is absurd.

A large number of illnesses cause significant fatigue or malaise after activity (for example post-mononucleosis or glandular fever fatigue syndromes, Lyme disease and Fibromyalgia and so on) but what is happening in M.E. is simply not the same; the symptomatology and pathology – and the effect of physical, cognitive and orthostatic overexertion on long-term prognosis – is very different in M.E.

**Also note that:** repeated or severe overexertion can also cause disease progression, permanent damage (eg. to the heart), or death in M.E. patients. Again, to suggest that these very serious and long-term effects – and fatalities – could be accurately summarized as being a problem of mere ‘fatigue’ is clearly absurd

**An additional note on ‘fatigue’:** The diagnosis of M.E. is determined upon the presence of certain neurological, cognitive, cardiac, cardiovascular, immunological, muscular, gastrointestinal and other symptoms and characteristics (and so on) – the presence or absence of mere ‘fatigue’ is irrelevant. In addition to these other (far more serious) symptoms, some M.E. sufferers may also suffer with mild, moderate or severe fatigue some of the time, while others will not. Thus the symptom of fatigue is not an essential symptom of M.E. and does not define M.E. (Although the symptom of fatigue is essential to qualify for a misdiagnosis of ‘CFS’).

The point to be most aware of is not that M.E. is ‘more than fatigue’ – but that M.E. ISN’T FATIGUE AT ALL.

The level of physical activity, cognitive exertion, sensory input or orthostatic stress needed to cause a significant or severe worsening of symptoms varies from patient to patient, but is often trivial compared to a patient’s pre-illness tolerances and abilities.

When there is talk of ‘overexertion’ leading to an exacerbation of symptoms in ME what is being referred to is not hard exercise, it is not anything resembling what healthy people would recognize as ‘overexertion.’ This term just refers to any activity which goes beyond a person's individual post-ME limits.

There is a lot of variation from patient to patient but very often the levels of activity required to cause relapse are trivial compared to a patient’s pre-illness tolerances and abilities. For example, what constitutes overexertion for someone with severe ME could be something as small as rolling over in bed, walking or talking for a few minutes, or eating a meal. The severity and duration of relapses varies depending on the severity of a person's illness, but relapses in ME are very often way out of all proportion to the actual activity. Relapses can be very severe and prolonged (or even permanent) even if a person with M.E. has only gone past their individual limits in a seemingly minor way.

This extreme and out of all proportion reaction to even trivial levels of activity is just not seen in those illnesses causing fatigue (and other symptoms) after exertion which may commonly be misdiagnosed as ‘CFS.’ People with post-viral fatigue syndromes, Fibromyalgia and Lyme disease etc. are not affected by small activities for many weeks, months, or permanently, in this way. While people with ME and people with these other illnesses may all not improve with a graded exercise regime, the way people with ME respond to physical and cognitive activity, sensory input and orthostatic stress is profoundly different than in these other illnesses. The two problems are quite distinct.
The severity of ME waxes and wanes throughout the hour/day/week and month. One can probably observe people with some illnesses carefully for an hour or so and collect a lot of good information about what they can and can’t do, how severe their illness is, and what their usual symptoms are from day to day, and so on. However ME is not one of those illnesses. ME is not a stable illness.

Observing the average M.E. sufferer for an hour – or even a week or more – will not give an accurate indication of their usual activity level because the severity of M.E. can wax and wane throughout the month, week, day and even hour. Also, people with M.E. can sometimes operate significantly above their actual illness level for short periods of time thanks to surges of adrenaline – albeit at the cost of severe and prolonged worsening of the illness afterward. Relapses and worsening of symptoms are also very often also significantly delayed (there may be both an acute AND a delayed reaction).

Just observing someone with M.E. do a certain task should not be taken to mean (a) that they can necessarily repeat the task anytime soon, (b) that they would have been able to do it at any other time of day, (c) that they can do the same task every hour, day or even every week, or month, or (d) that they wont be made very ill afterwards for a considerable period because they had to really push themselves (and make themselves ill) to do the task.

Often a considerable rest period is needed before and after a task, which may be hours, days, weeks or months long. For example, someone may need 2 weeks rest before an outing, for example, and may then spend 3 weeks extremely ill afterwards recovering from it. Just observing them in the 2 hours they were ‘out and about and mobile’ is of course not at all representative of their usual ability levels.)

Most importantly, because the worsening of the illness caused by overexertion may not even begin until 48 or more hours afterwards (when most observers are long gone), it's impossible to tell by seeing an ME patient engaged in an activity, whether that activity is so far beyond the patient’s limits that it will end up causing a severe or even permanent worsening of the illness (or ‘relapse’). To be blunt, the activity may even end up killing the patient. This isn’t common (the death rate is estimated at 3%), but deaths can and do occur. Thus, observers who see an ME patient engaged in an activity have no idea what the consequences of this activity may be.

**What is an adrenaline surge?** Adrenaline is often referred to as the ‘fight or flight' hormone as it kicks into action in situations of potential danger. However, adrenaline also kicks in when the body is in physiological difficulty, which is very often what is happening to severe M.E. sufferers. Adrenaline surges make the heart pump faster and raise the blood pressure, forcing blood around the body with greater force to supply the muscles with more oxygen, so that they can make a greater effort. Surges of adrenaline increase the metabolism. They also relax and dilate the airways so that more oxygen than usual can be taken in. Adrenaline surges can also decrease the amount of pain felt. As a result of all of these factors, adrenaline surges – while they last – have the ability to increase physical speed, strength and other physical abilities. Unfortunately, when these bursts of adrenaline wear off – as they must – people with M.E. are left far more ill as a result for many days, weeks, months or even years. People with M.E. are harmed by adrenaline surges, both by the physiological stress to the body of the changes caused by adrenaline, and by the extra activity which adrenaline enables, which may be far beyond the body’s normal limits so that such activity causes damage. For every short term ‘gain’ there is a far greater loss overall.

This is another one of the characteristics which clearly differentiates authentic M.E. from various self-limiting post-viral fatigue syndromes and so on – the striking variability of symptoms not only in the course of a day but often within the hour. As many M.E. experts have noted, this variability of the intensity of the symptoms is simply not found in post-viral fatigue states or syndromes (etc).
There is also a waxing and waning of the physical signs of M.E. throughout the day, as Dr Hyde & Dr Jain explain, “A patient examined in the morning might have nystagmus, which would disappear at midday, recur later, disappear later and recur the next day.”

The worsening of the illness caused by overexertion can be acute, but often does not reach its peak until 24 - 72 hours (or more) later. Patients refer to this as a “crash”

Another reason that short-term and superficial judgements of ability and disability levels in people with M.E. are ill-advised and often very misleading – and are in fact almost guaranteed to give a falsely more optimistic view of daily ability levels – is because the relapses caused by exertion very often do not appear until 48 or more hours afterward, when the average observer is long gone.

The onset of the worsening of symptoms caused by overexertion is sometimes be acute but often will not peak until 48 hours or more afterward (this is particularly true with regard to physical, cognitive and orthostatic exertions). Symptoms will then persist for hours, weeks or many months, or longer. For many M.E. sufferers, the effects from significant overexertion will very often peak on day three.

Sometimes there is a significant worsening of symptoms evident at the time of overexertion. At other times, there may only be a minor worsening of symptoms at the time of overexertion, but the delayed effects will be severe. Sometimes the acute effects and the delayed effects will both be severe. It varies depending on the type and severity of the overexertion involved etc.

The ‘CFS’ definitions state that post-exertional symptoms ‘may take up to 24 hours to resolve.’ But to say that this is true of M.E. patients betrays an ignorance of the most basic facts of ME.

Post-exertional symptoms very often take far longer than 24 hours to even APPEAR in people with M.E., let alone be completely resolved in that time. These symptoms can take days, weeks, months or even several years to resolve. Overexertion can also cause a worsening of the base level of illness in M.E. and so the effects of overexertion can also be semi-permanent or permanent. Death can also occur due to overexertion in M.E.

This significant delay in the onset of post-exertional symptoms is not seen in those illnesses causing fatigue (etc.) after exertion. Nor do the effects of even minor overexertion very often last for weeks, months, years or permanently in people with these various fatigue syndromes as they do with M.E. sufferers. There is also not the same risk of overexertion leading to death in these other illnesses, as there is with M.E (The cardiac insufficiency seen in M.E., which causes much of the symptomatology and the limits with activity and orthostatic stress and so on in M.E., is simply not seen in these other illnesses.)

The effects of overexertion can accumulate over longer periods of time and lead to disease progression, or death. In addition to the effects of overexertion commonly being delayed by 48 hours or so, the worsening of symptoms caused by overexertion can also sometimes be delayed (and accumulate) over weeks or even many months at a time until they are realized in a ‘crash.’ This is a period of intense worsening of the overall condition followed by a gradual return to the patient’s base level of illness over weeks, months or even years.

When the body is confronted with activity (or inputs) beyond the patient’s individual limits severely and/or repeatedly over time, these effects can also become cumulative in the long term; the patient becomes unable to return to their base level of illness at all. What this means is that long-term or permanent worsening of the overall severity of the condition is caused. Thus some patients are still dealing with the severe physical effects of inappropriate advice to exercise or to be more
physically or mentally active etc. five, ten, fifteen or more YEARS afterward and for some patients the damage caused is permanent. Overexertion has also resulted in death in some cases of M.E.

Strong evidence exists to show that overexertion can have extremely harmful effects on M.E. patients. Patient accounts of leaving exercise programs much more severely ill than when they began them; wheelchair-bound or bed-bound or needing intensive care or cardiac care units, are common. (Recent research has shown that postural stress and physical and mental overexertion exacerbate cardiac insufficiency in this disease; see the notes below for more information.) In addition to the risk of relapse, permanent damage, and disease progression, there have also been reports of sudden deaths in M.E. patients following exercise. As M.E. expert Dr. Elizabeth Dowsett explains, ‘20% have progressive and frequently undiagnosed degeneration of cardiac muscle which has led to sudden death following exercise. Prompt recognition and advice to avoid over-exertion is mandatory.’

Cardiac and vascular abnormalities have been documented from the earliest outbreaks of M.E. to the present day. Dr. Paul Cheney explains that when M.E. patients stand up, they are on the edge of organ failure as their cardiac output has dropped to the extremely low level of 3.7 litres per minute, a 50% drop from the normal output of 7 litres per minute. Without exception, says Cheney, every M.E. patient ‘is in heart failure.’

Recent research shows that mitochondrial and other dysfunction leads to diastolic dysfunction and reduced stroke volume/low cardiac output in ME – and that certain levels of orthostatic stress and physical and mental activity etc. exacerbate this cardiac insufficiency. Dr Cheney explained that because it takes more metabolic energy for the heart to relax and fill with blood than it does for it to squeeze and pump blood, the hearts of people with M.E. don’t fill with the proper amount of blood before they pump which is what causes the reduced cardiac output and many of the symptoms of ME (and much of the disability of ME). So the tachycardia – fast heart rate – often seen in M.E. in response to orthostatic stress and so on is actually compensating for low stroke volume to help increase cardiac output. The heart doesn’t fill with enough blood before each beat of the heart so it is forced to beat faster to try to make up some of the shortfall, but people with M.E. are still left with reduced cardiac output which leaves them very ill and disabled. If this problem is severe enough it can result in death. As one ME advocate explains: ‘Cardiac output is sometimes too low to meet the demands of movement, and any attempt to exert oneself beyond one’s own capacity for cardiac output - that is when demand exceeds cardiac capacity - would indeed result in death. Studies on dogs have shown that when the demands of the body exceed cardiac output by even 1%, the organism dies. ME patients [must] reduce demand and reduce their exertion level to stay within the bounds of their low cardiac output to stay alive.’

Some miscellaneous ‘fatigue’ sufferers have been shown to benefit from graded exercise programs, but the results of these studies are no more relevant to mild M.E. sufferers than they are to severe M.E. sufferers; people with ‘fatigue’ do NOT have mild M.E. any more than they have mild multiple sclerosis, mild Lyme disease, mild cancer or any other illness. Recent studies have shown that graded exercise programs are the actual reason many with M.E. are so severely affected in the first place, thus exercise programs should not be considered safe for M.E. sufferers of any severity. Graded exercise cannot improve authentic ME; disabled patients who improve with exercise do not qualify for a diagnosis of authentic ME.

The activity limits of ME are not short term, a gradual (or sudden) increase in activity levels beyond a patient’s individual limits can only cause relapse, disease progression or death in patients with ME.
Increasing the activity levels of someone with ME beyond their individual limits, can only ever be counterproductive. It really doesn't matter if you do this gradually or all at once. Raising the limits gradually may well delay the onset of the relapse in some patients, but the end result will still be relapse and/or disease progression, or death. None of the various cardiac, cardiovascular, immunological, neurological, cognitive, muscular, and other abnormalities present in ME sufferers – which together cause the high level of disability associated with ME – can be explained by mere 'de-conditioning.' Patients who improve with graded activity programs do not qualify for a diagnosis of ME.

ME is not a short-term or ‘hit and run’ viral attack; it is not a self-limiting post-viral fatigue syndrome caused by mononucleosis/glandular fever (mono could be a trigger), Q fever or hepatitis, or any other common infection. Nor is ME a psychological or behavioural condition. Authentic M.E. cannot be improved through psychotherapy or graded exercise therapy. These theories have been comprehensively disproven many times over with regard to authentic ME patients (as have the many other similar theories). ME is a chronic illness which affects the vast majority of sufferers for many years or decades at a time, or for the rest of their lives. A person who has been correctly diagnosed with ME will naturally raise their activity levels when/if they have had an improvement in their illness – but it can never work the other way around.

A note on M.E. and other illnesses: M.E. can be progressive, degenerative, chronic, or relapsing and remitting. As many M.E. experts have noted, the chronicity of M.E. is another characteristic which clearly separates the illness from various self-limiting post-viral fatigue syndromes. The symptoms of M.E. do not resolve with rest. The symptoms and disability of M.E. are not just caused by overexertion, there is also a base level of illness which can be quite severe even at rest. There is a base level of illness that is always present in M.E., even at rest. (This is true of all sufferers except perhaps that small percentage who have improved enough over time to be only mildly affected, or who have had a total or almost total remission of their M.E.) This is because the metabolic problems of M.E. are only one part of M.E., they are not the only cause of symptoms or of the worsening of the illness.

But even those symptoms which are caused by the metabolic problems of M.E. (etc.) do not always resolve with rest. For severely affected patients, just keeping the body going at the lowest possible level can count as ‘overexertion’ – not only can the bodies of these people not cope with extra activity, but they also cannot even cope with keeping the bodily systems and organs going at the lowest possible level – at rest. Because even when we are resting as much as we can be; hearts have to keep pumping, lungs have to keep drawing air in and out constantly, kidneys have to keep working, and so on. It takes a lot of metabolic power to keep all the complex systems in the body working, even at the lowest possible level. Forcing the body to do more work when it is already not coping with the most basic level of functioning causes these problems to become even more severe as the quality of function achieved across various bodily systems is lowered even further, but even at rest these same problems can be quite severe because of course so many different bodily systems never can ‘rest.’

Virtually all bodily systems are affected in some way by both the damage to the central nervous system and the metabolic problems of M.E. (including the cardiac insufficiency this causes) etc. so it is no wonder people with M.E. feel so ill, have such a reduced level of functioning in so many different bodily systems and have so many restrictions and limits on how active they can be. Even with complete rest – and some people with M.E. can do almost nothing else – many M.E. sufferers are still very ill and disabled.
Repeated overexertion can harm the patient’s chances for future improvement in M.E. M.E. patients who are able to avoid overexertion have repeatedly been shown to have the most positive long-term prognosis.

It is vital that M.E. patients are never encouraged to be active beyond their individual limits. As Dr Melvin Ramsay explains; ‘The degree of physical incapacity varies greatly, but the [level of severity] is directly related to the length of time the patient persists in physical effort after its onset; put in another way, those patients who are given a period of enforced rest from the onset have the best prognosis. Since the limitations which the disease imposes vary considerably from case to case, the responsibility for determining these rests upon the patient. Once these are ascertained the patient is advised to fashion a pattern of living that comes well within them.’

Pacing:
Patients with ME must be allowed to determine for themselves a level of daily activity which is not needlessly restrictive, but which is also sustainable in the long term without causing a worsening of symptoms or disease progression and which also holds back a small amount of ability to cope with occasional unplanned or unavoidable overexertions, to prevent these from causing significant setbacks. People with ME must also be allowed to determine for themselves how much rest they need. Giving people with ME the support they need to limit their activities in this way is actually the best way to ensure that they each get to be as active as possible in the long term. The importance of getting appropriate rest and avoiding overexertion in ME cannot be overstated. Forcing or encouraging people with ME to engage in even low levels of physical and cognitive activity, sensory input and orthostatic stress beyond their individual limits can have catastrophic long-term consequences. The patient must learn to listen to their body and only do half of what they think they can do.

Not every ME sufferer has ‘safe’ activity limits within which they will not exacerbate their illness, this is not the case for the very severely affected.

For very severely affected ME sufferers there is virtually no ‘safe’ level of physical or mental activity, orthostatic stress or sensory input; no level which does not produce a worsening of symptoms, and perhaps also contribute to disease progression. Even the most basic actions – speaking a few words, being exposed to moderate light or noise for a few minutes, turning over in bed, having hair or body washed in bed by a carer or chewing and swallowing food – cause severe and extended symptom exacerbations in such patients. It is not uncommon to hear of very severely affected sufferers who are unable to bathe themselves (or even be bathed by a carer) more often than once a week, or even once every few weeks, or even less. Some sufferers cannot chew or swallow food any longer and need to be tube fed. Many patients with severe M.E. are no longer able to toilet themselves, and so on. Either sufferers are just too ill to do these things at all, or they cannot tolerate the very long and severe relapses that come after such activities.

Even the smallest movement, thought, touch, light, noise or period upright etc. can the already very severe symptoms far, far worse. Thus few illnesses demand such isolation and loss of quality of life as severe ME. Very often people with very severe ME can barely communicate, or even tolerate the presence of another person. This is what makes ME such a cruel disease and such an isolating disease. The illness can cause a level of disability and isolation that is just unimaginable to anyone not familiar with very severe ME.
ME is a multi-factor illness. There are multiple biological dysfunctions and abnormalities, and chronic infections in many cases. The patient may also have co-morbid illnesses. According to gene studies there are at least 5 subgroups in ME / CFS. Some with ME have other biological illnesses, and not ME. We are dealing with a high level of biological complexity here.

What is ME and CFS? Multiple Paths leading into ME and CFS Causes of Heterogenity, Excessive Subgroups & Phenotypes and inability to find a Universal Biomarker, and the Conflicting Test Results and Treatment Outcomes

Patient Advocates highly recommend the use of Checklists for dealing with complex medical illnesses, diseases and procedures. The only solution is to use Detailed Checklists to:

- test for and rule out other similar illnesses often mistaken as being ME or CFS
- diagnose patient with ME & identify all of his/her biological abnormalities & dysfunctions
- diagnose ME with or without co-existing illnesses & delegate to subgroup
- Treatment plan based on findings of biological tests

This will involve 30 - 35 tests over 2 to 3 days to identify the illness and all biological abnormalities in a patient.

Detailed Checklists for the Following.
Rule out Other Illness with similar symptoms to ME
Chronic Lyme disease often misdiagnosed as ME / CFS. Chronic Mycoplasma infections often misdiagnosed as ME / CFS as well as other illnesses very similar to ME & Co-existing and comormid Illnesses with ME.

Medical Diagnostic Protocols and Treatment Protocols using Best International Practices

1. World Health Organisation - Classification of ME- ICC 2011. This is universally accepted by governments, medical associations and doctors worldwide.
   The ME ICC supercedes the CCC 2003 Canadian Consensus Criteria CCC 2003

2. Canadian ME Expert, Dr Byron Hyde has returned the definition of Myalgic Encephalomyelitis to it’s clinical and historic roots and complemented this information with the certitude of modern scientific testing. Dr Byron Hyde www.nightingale.ca
   office@nightingale.ca definitionofme_nrf_print.pdf


CFS Diagnostics as related to the Lake Tahoe Epidemic in the 1980’s


3. SEID - US National Academies of Science, Institute of Medicine report, 2015:
Fibromyalgia Diagnostics - Canadian Guidelines for Fibromyalgia Diagnostics
http://fmguidelines.ca/?page_id=19

Pregnant women who have ME or CFS should start here:

Ruling out ME & CFS Biomarkers

- Chronic Infections, Viral, Lyme, Bacteria, Parasite & other Pathogen Infections of the Nervous System such as brain, muscles, intestines, blood, joints, heart & Blood vessels
- Idiopathic CD4+T lymphocytopenia (ICL) or non HIV AIDS
- Immune System Dysfunctions & Abnormalities
- Blutathione Depletion & Methylation Cycle Blockage & Defects and it’s effects on Immune system function and Mitochondria.
- Measuring Mitochondria, energy levels & the level of disability. The mitochondria can be damaged and undermined by chronic infections of the muscles, intestines, nervous system, deep tissues and joints, the build up of toxins in the body, chronic inflammation, high levels of free radicals in the body and chronic immune system activation. Mitochondria function and structural damage is a good measure of disability in this illness.
- Damaged Mitochondria and defective kkrebs cycle and ATP production (found in a high percentage of cases).
- Test Homocysteine levels which are abnormally high in most neurological illnesses and cardiac and vascular illnesses. This is a good measure of inflammation damage to the nervous system and vascular system.
- Sleeping abnormalities which affect the mitochondria, immune system & neurological system. Single most important aspect of ME (found in over 90% of ME patients)
- Important vitamin & mineral deficiencies in ME: Magnesium deficiency inside blood cells & tissues co-exists with ME in many cases. Deficiencies can be found for Vitamin D, Folic acid, B12, CoQ10
- Intestine and Microbiome (contain over 75% of immune system cells.
- Tests for Intestinal toxic with effects on the immune system, mitochondria, glands and nervous system found in high percentage of ME cases.
- HPA axis - Thyroid, Adrenal, Pituitary, Hypothalmus glands dysfunction tests (Found in high percentage of ME cases)
- Genetic tests. Identification of genes involved in ME with emphasis on Immune system, Infections, HPA axis, Neurological, Mitochondria and Detoxification markers.
Brain, Neuro-inflammation & Neurological abnormalities

- Brain Scans & Neuroinflammation Tests - Hypo-perfusion and Lesions on the brain, Neuroinflammation, EEG markers, NMDA activity
- Neurological Inflammation Tests
- Postural Tachycardia Syndrome (POTS) Test, Orthostatic Intolerance Test, Circulating Blood Volume Test, Autonomic Dysfunction Test, Dysautonomia Test
- Central Diabetes Insipidus Spinal Fluid Proteins & Proteomic Analysis Test
- Oligoclonal Bands in spinal fluid Test
- Pain Measurement & Assessment
- Chiari malformation and / or cervical spinal stenosis & Other spinal injuries

Energy systems of the Body

- Test for Post-Exertional Neuromuscular Exhaustion (PENE) & Post Exercise Malaise, and Muscle Weakness tests.
- Oxidative and Nitrosative Stress Tests & GSH:GSSG ratio
- Heart function and activity : Cardiomyopathy, PFO abnormality, Diastolic Dysfunction and Increased risk of Heart attack in ME patients
- Micro Circulation Defects

Toxin Load

- Toxic damage to the Mitochondria, and Immune system, Glands and Nervous system (Found in high percentage of ME cases) (a) Test for heavy metals in the body (b) Test for organophosphates, chemicals, toxins, radioactive particles, and carbon monoxide levels in the body (c) Test for Mycotoxins (d) Liver, Kidney & Lymph Function and Detoxification (e) Genes involved in detoxification (f) Ciguatera poisoning (Found in over 70% of ME cases in a few studies)
- Detoxification Failure. Flow reversal in the liver and the brain. Chronic Cerbral Spinal Venous Insufficiency (CCSVO), Chronic Hepatic Venous Insufficiency (CHVI), Complications of Cardiac Dysfunction (found in over 80% ME patients). This is related to cardiac abnormalities found in ME patients.
- Toxic stress to the immune system through Allergies, Sinusitis and chronic immune system activation and inflammation (a) Test for allergies to food (b) Test for allergies to chemicals (c) Test for allergies to any substance

Vascular & Lymphatics

- Blood and Urinary markers
- Blood analysis using High Resolution Phase-Contrast Microscope with Darkfield Optics
- Erythrocyte Sedimentation Rate
- Abnormal red blood cell structure
- Blood and Urinary markers
- Damage to the endothelium in blood vessels supplying the brain, spinal cord and nerves
• Ehlers-Danlos Syndrome (EDS), found in some ME and CFS patients
• Chronic Hyperventilation & Effects
• Lymphatic Drainage Tests
• Fibromyalgia
• Biological Terrain Assessment

Factors which have high probability of being symptoms
• Telomere Shortening in ME
• Cancer risks for ME patients
• Glutatione Test. (Abnormality found in high percentage of cases)
• The Sakudo diagnostic blood test for ME. (Accuracy over 90% in research trials)
• Hypoglycemia Test
• Cognitive Dysfunction Tests
• Apoptotic Serum DNA Testing
• Neuropeptide Dysfunction
• The presence of crimson crescents in the mouth
• Functional Tests
• Beta 2 micro-globulin levels, Abnormal Urinary metabolites, and other biological markers

All samples - blood, spinal fluids, nerve tissue, muscle tissue and intestinal tissue samples, urine, saliva, etc. should be ordered by your GP or Specialist. Some appointments may have to be made in a general hospital where patients are booked according to systematic scheduling of either the hospital or clinic where they are performed.

Assessment of Diagnostic tests
• Determine if the person actually has ME through identifying the exact number of infections, biological dysfunctions and abnormalities present in the patient, and correlation of these with International Diagnostic criteria mentioned above.

• The phase of the illness. Tests on 285 ME patients and 200 controls in 2013 by Horning et al. in New York, show that there are significant differences in biomarkers between patients who have the illness for 3 years or less, and those who have it for more than 3 years. This explains the slight differences between patient groups which consistently appear in scientific studies. (Preliminary findings of Horning et al., September 2013). This ties into the findings of Dr. Paul Cheney who has stated there are 3 phases of the illness - phase 1, 2, 3. This is important as ME progresses over time, and the patient usually develops multiple biological dysfunctions and abnormalities and can become very disabled. Dr. Paul Cheney has successfully treated hundreds of ME patients in the USA since the early 1990's has identified 3 phases of the illness in the following lectures

• Subgrouping: based on infections and biological abnormalities and dysfunctions found. And other relevant factors such as: - what phase is the patient in, how long does he/she have the illness? Is the patient in remission or having a relapse? Does the patient have a co-morbid or co-existing illness with ME? What infections does the patient have and where are they located? Is the patient severely ill, moderately ill or mildly ill. Was it gradual onset ME or rapid onset?
ME Treatment: Note that we currently only have what works for us as individuals and all treatment should be discussed with your physician. Elimination of any infections and toxins should be the first treatment option, followed by or combined with immune system normalization, resolving of sleep problems and HPA axis and Neurological treatments, and other treatment options depending on the results of the diagnostic tests. Combining treatments such as treatment for immune system abnormalities with anti-viral or anti-mycoplasma or anti-pathogen treatment may achieve better results for some patients.

Treating factors for Myalgic Encephalomyelitis without comorbidity
Treatments recommended by International Medical criteria. Treatments recommended by the Primer for International Consensus Criteria (2011) or Dr Byron Hyde’s Criteria 2016/2017
http://www.nightingale.ca

Patients with ME ICC 2011 find the following guide to be very helpful.

• Increase water intake to 5 pints of clean, filtered water every day. This can help to reduce pain, reduce arthritic symptoms, joint pains and muscle pains, detox and clear out toxins, waste and infections from the body, improve the function of the lymph glands, improve kidney function, improve absorption of medicines, herbs and supplements, improve energy levels, improve cell functions and energy and mitochondria functions, improve blood volume, regulate blood pressure, and improve immune system functioning. Balance this water intake with medically adequate sea salt intake. Please read following medical and scientific links http://www.watercure.com/index.html

• Treatments for Sleeping abnormalities. Single most important aspect of ME (Found in over 90% of ME patients)

• Mitochondria Treatment (Found in over 90% of ME patients) Very important for all patients. http://drmyhill.co.uk/wiki/Mitochondrial_Function_Profile

• Treatment for chronic inflammatory immune response to molds, mycobacteria and mycotoxins

• Treatment for Immune system dysfunctions and abnormalities

• The Marshall Protocol for Immunological Defects and Chronic Infections

• Treatment for high Nagalase levels. Nagalase can cause immune dysfunction

• Treatment for high Homocysteine levels - high strength B complex vitamins once or twice a day, TMG, Omega-3 oils, Vitamin C, Vitamin E, and N acetyl cysteine. Also vegetables, fruits, nuts, eggs and fish containing the above vitamins and oils.

• Methylation Cycle & Glutathione depletion treatments as part of Immune system treatment

• Treatment for postural tachycardia syndrome (POTS) & Orthostatic Intolerance

• Treatments for Flow reversal in the liver and the brain. Chronic Cerebral Spinal Venous Insufficiency (CCSVI). Chronic Hepatic Venous Insufficiency (CHVI). Cardiac Dysfunction.

• Treatments for toxic damage to the immune system, mitochondria, Glands, and Nervous system (a) heavy metals in the body (b) organophosphates, chemicals, toxins, radioactive particles, and carbon monoxide levels in the body (c) Liver Detoxification Treatment (d) Ciguatera poisoning treatment

• Treatments for Intestinal toxic damage and it's effects on the immune system, mitochondria, glands and nervous system - Treatments for Digestion-related causes of immune system abnormalities - Treatments for Bowel disorders and gut bacteria disorders identified

• Lymphatic Drainage and Detoxification (Including Perrin Technique)
• Heart Treatments Brain and Nervous system, Allergies, HPA axis
• Treatments for Brain hypoperfusion, lesions and other abnormalities
• Treatments for Neurological Inflammation and Cognitive Dysfunction, Mental Fatigue & 'Brain Fog' and Autonomic Nervous System
• HPA axis - Thyroid, Adrenal Pituitary and Hypothalamus glands Treatments
• Vitamin C and DHEA
• Treatments for toxic stress to the immune system caused by Allergies, Sinusitis and chronic immune system activation and inflammation (a) allergies to food (b) allergies to chemicals (c) allergies to any substance (d) molds and mycotoxins
• Treating damage to the endothelium in blood vessels
• Treatment for Fibromyalgia – Most with ME ICC don't pay attention to FM although they often overlap
• Stress Reduction Strategy
• Treating factors which have high probability of being symptoms
• Treatments for Oxidative Stress
• Repairing cell membranes, cell structure and integrity, and normal cell function and communication
• Clinical Nutrition & Diet – Recommendations – Dr Sarah Myhill
• Treatments for Hypoglycemia
• Anticardiolipin Antibodies Treatment
• Genetic treatments
• Chiari malformation and / or cervical spinal stenosis
• Stress Reduction Strategy
• Restoring energy - using Qigong or Chi Kung and Meditation
• Traditional Chinese Medicine - Acupuncture - Chinese Herbs
Please note: All of the information concerning Myalgic Encephalomyelitis on this website is fully referenced and has been compiled using the highest quality resources available, produced by the world's leading M.E. Experts. http://www.hfme.org/

This paper is merely intended to provide a brief summary of some of the most important facts of ME. It has been created for the benefit of those people without the time, inclination or ability to read each of these far more detailed and lengthy references created by the world’s leading M.E. experts. The original documents used to create this paper are essential additional reading however for any physician (or anyone else) with a real interest in Myalgic Encephalomyelitis. For more information see the References page.


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