

Authors	Author Address	Title	Publication	Abstract
Ablashi DV, Kristine L. Ablashi, Bernhard Kramarsky, John Bernbaum, James E. Whitman , Gary R. Pearson		Viruses and Chronic Fatigue Syndrome Current Status	Journal of Chronic Fatigue Syndrome 1995: 1(2): 4 - 22	Because of the sudden onset of "flu-like" symptoms in the vast majority of cases, followed by persistent illness and fatigue over several years, both RNA (retroviruses) and DNA (herpesviruses and enteroviruses) viruses have been suspected to be implicated in the pathogenesis of CFS. In recent years, evidence of the association of some viruses with CFS has progressed, whereas, with some others it has weakened considerably. Thus far, no single virus has been found to be the causative agent of CFS. Reactivation, however, of latent virus or viruses could contribute to the symptomatology of CFS by damaging the immune system either directly or indirectly. In this report we have provided a comprehensive review of the status of research on viral agents which have been investigated for their role in the pathogenesis of CFS.
Arav-Boger R, Spirer Z.	Department of Pediatrics, Dana Children's Hospital, Tel Aviv Sourasky Medical Center, Israel.	Chronic fatigue syndrome: pediatric aspects.	988: Isr J Med Sci 1995 May;31(5):330-4	
Ash-Bernal R, Wall C 3rd, Komaroff AL, Bell D, Oas JG, Payman RN, Fagioli LR.	Department of Otolaryngology and Laryngology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, USA.	Vestibular function test anomalies in patients with chronic fatigue syndrome.	Acta Otolaryngol 1995 Jan;115(1):9-17	Chronic fatigue syndrome (CFS) is distinguished by the new onset of debilitating fatigue that lasts at least 6 months, concomitant with other symptoms to be described later. Many CFS patients complain of disequilibrium, yet the exact type of the balance dysfunction and its function and its location (peripheral vs. central) have not been described. Herein we report results of vestibular function testing performed on 11 CFS patients. These results revealed no predominant pattern of abnormalities. Patients typically performed below average in dynamic posturography testing, with a significant number of falls in the tests requiring subjects to depend heavily on the vestibular system. One patient had abnormal caloric testing, while 3 had abnormally low earth vertical axis rotation (EVA) gains at the higher frequencies tested. As a group, the average gain of EVA was significantly lower than normals in the 0.1 - 1.0 Hz range ($p < 0.05$). In earth horizontal axis rotation, the CFS group had a higher than normal bias value for the optokinetic (OKN) and eyes open in the dark conditions ($p < 0.05$), but had normal scores during visual vestibular reflex testing. Five of the 11 subjects had an abnormal OKN bias build up over the course of the run, equal to or actually exceeding the 60 degrees/s target velocity by as much as 14 degrees/s. Altogether, these results are more suggestive of central nervous system deficits than of peripheral vestibular dysfunction.
Baschetti R.		Chronic fatigue syndrome and liquorice.	993: N Z Med J 1995 Apr 26;108(998):156-7 comment in: N Z Med J. 1995 Jun 14;108(1001):234-5	
Baschetti R.		Liquorice and chronic fatigue syndrome.	968: N Z Med J 1995 Jun 28;108(1002):259 comment in: N Z Med J. 1995 Aug 11;108(1005):324-5 comment on: N Z Med J. 1995 Jun 14;108(1001):234-5	
Baschetti R.		Viral illness and chronic fatigue (syndrome)	952: Lancet 1995 Jul 1;346(8966):47 comment on: Lancet. 1995 May 27;345(8961):1333-8	
Bates DW, Buchwald D, Lee J, Kith P, Doolittle T, Rutherford C, Churchill WH, Schur PH, Wener M, Wybenga D, et al.	Department of Medicine, Brigham and Women's Hospital, Boston, Mass.	Clinical laboratory test findings in patients with chronic fatigue syndrome.	Arch Intern Med 1995 Jan 9;155(1):97-103 comment in: Arch Intern Med. 1995 Jun 26;155(12):1332	BACKGROUND: Results of readily available clinical laboratory tests in patients with chronic fatigue syndrome were compared with results in healthy control subjects. METHODS: Cases consisted of all 579 patients who met either the Centers for Disease Control and Prevention, Atlanta, Ga, British, or Australian case definition for chronic fatigue syndrome. They were from chronic fatigue clinics in Boston, Mass, and Seattle, Wash. Control subjects consisted of 147 blood donors who denied chronic fatigue. Outcome measures were the results of 18 clinical laboratory tests. RESULTS: Age- and sex-adjusted odds ratios of abnormal results, comparing cases with control subjects, were as follows: circulating immune complexes, 26.5 (95% confidence interval [CI] 3.4-206), atypical lymphocytosis,

				11.4 (95% CI, 1.4-94); elevated immunoglobulin G, 8.5 (95% CI, 2.0-37); elevated alkaline phosphatase, 4.2 (95% CI, 1.6-11); elevated total cholesterol, 2.1 (95% CI, 1.2-3.4); and elevated lactic dehydrogenase, 0.30 (95% CI, 0.16-0.56). Also, antinuclear antibodies were detected in 15% of cases vs 0% in the control subjects. The results of these tests were generally comparable for the cases from Seattle and Boston. Although these tests served to discriminate the population of patients from healthy control subjects, at the individual level they were not as useful. CONCLUSIONS: Patients with chronic fatigue syndrome who were located in two geographically distant areas had abnormalities in the results of several readily available clinical laboratory tests compared with healthy control subjects. The immunologic abnormalities are in accord with a growing body of evidence suggesting chronic, low-level activation of the immune system in chronic fatigue syndrome. While each of these laboratory findings supports the diagnosis of chronic fatigue syndrome, each lacks sufficient sensitivity to be a diagnostic test. Furthermore, the specificity of these findings relative to other organic and psychiatric conditions that can produce fatigue remains to be established.
Bearn J, Allain T, Coskeran P, Munro N, Butler J, McGregor A, Wessely S.	Department of Psychiatry, Institute of Psychiatry, London, UK.	Neuroendocrine responses to d-fenfluramine and insulin-induced hypoglycemia in chronic fatigue syndrome.	Biol Psychiatry 1995 Feb 15;37(4):245-52	Chronic fatigue syndrome (CFS) is a disorder characterized by severe physical and mental fatigue and fatigability of central rather than peripheral origin. We hypothesized that CFS is mediated by changes in hypothalamopituitary function and so measured the adrenocorticotrophic hormone (ACTH), cortisol, growth hormone, and prolactin responses to insulin-induced hypoglycemia, and the ACTH, cortisol, and prolactin responses to serotonergic stimulation with dexfenfluramine in nondepressed CFS patients and normal controls. We have shown attenuated prolactin responses to hypoglycemia in CFS. There was also a greater ACTH response and higher peak ACTH concentrations (36.44 +/- 4.45 versus 25.60 +/- 2.78 pg ml), whereas cortisol responses did not differ, findings that are compatible with impaired adrenal cortical function. This study provided evidence for both pituitary and adrenal cortical impairment in CFS and further studies are merited to both confirm and determine more precisely their neurobiological basis so that rational treatments can be evolved.
Bell DS		Chronic Fatigue Syndrome in Children	Journal of Chronic Fatigue Syndrome 1995; 1(1): 9 - 33	Chronic fatigue syndrome (CFS), formerly called chronic Epstein-Barr virus syndrome, chronic mononucleosis, and numerous other names, is a symptom complex characterized by marked functional limitation which affects children as well as adults. The symptom complex, physical examination, laboratory evaluation, clinical course, and differential diagnosis are reviewed with particular emphasis upon CFS in children. Management consists of a comprehensive treatment plan including medical, educational, and psychosocial support with the aim of reducing both symptom and activity limitation. While etiology is unknown, the use of the term "chronic fatigue syndrome" is appropriate for children with marked functional limitation due to unexplained fatigue who have the associated symptom complex and physical examination findings characteristic of this condition.
Bell DS		Diagnosis of Chronic Fatigue Syndrome in Children and Adolescents: Special Considerations	Journal of Chronic Fatigue Syndrome 1995; 1(3/4): 29 - 36	It has been a common occurrence that children with chronic, unexplained fatigue receive no specific diagnosis because of difficulties posed by the 1988 research criteria for chronic fatigue syndrome (CFS). The lack of a specific diagnosis creates medical uncertainty and may lead to increased psychosocial and educational disruption. With the recent publication of new research criteria these problems may be improved as the new criteria are less restrictive. In the process of developing new research criteria, data was collected for children who presented for evaluation of chronic unexplained fatigue over a two year period. Diagnosis of CFS was based upon the 1988 CDC criteria or clinical criteria based upon activity limitation and the associated symptom complex. Comparison of these two groups showed differences in symptom severity and degree of activity limitation, while demographics, psychosocial variables, and symptom pattern were similar. These results would suggest that chronic fatigue syndrome exists in a continuum of severity and that definition based solely upon severity of fatigue is arbitrary. While severe and debilitating fatigue should remain the basis of any research definition, clinical criteria based upon the symptom pattern of CFS may improve long term management by providing a working clinical diagnosis.
Berelowitz GJ, Burgess AP, Thanabalasingham T, Murray-Lyon IM, Wright DJ.	Department of Psychiatry, Charing Cross Hospital, London, UK.	Post-hepatitis syndrome revisited.	J Viral Hepat 1995;2(3):133-8	To examine the role of acute hepatitis A and B infection in the aetiology of chronic fatigue syndrome and psychiatric morbidity we studied 40 patients with acute viral hepatitis A or B consecutively admitted to an infectious diseases unit and studied at least 6 months after recovery. Liver function tests (LFT) had returned to normal in each case. Forty-seven patients with other infectious diseases, of which 12 were presumed viral, admitted immediately after each hepatitis patient during the same

				<p>period acted as controls. The main outcome measures were scores on a fatigue and muscle pain questionnaire, general health questionnaire (GHQ-12) and supplementary questions. The hepatitis cases scored significantly higher fatigue scores, GHQ-12 scores and muscle pain scores. Length of time since recovery from illness, age and sex were not confounding factors. Hepatitis cases were also less energetic, had greater weight change, had altered alcohol tolerance, had less exercise tolerance and felt less fit than the control group and compared with their premorbid state. Hence fatigue is more common after recovery in patients hospitalized for hepatitis A and B up to 30 months post-infection compared with matched controls hospitalized for other infectious diseases. Hepatitis A and B infection is a risk factor for post-infection fatigue, intermittent fatigue, as well as for psychiatric morbidity.</p>
Berman BM		Alternative Medicine: Part of the Mainstream	Journal of Chronic Fatigue Syndrome 1995; 1(3/4): 41 - 45	
Bianchedi M, Croce A, Moretti A, Neri G, Barberio A, Iezzi A, Pizzigallo E.	Clinica Otorinolaringoiatrica, Universita, G. D'Annunzio di Chieti.	[Auditory brain stem evoked potentials in the evaluation of chronic fatigue syndrome].[article in Italian]	908: Acta Otorhinolaryngol Ital 1995 Dec;15(6):403-10	<p>The Chronic Fatigue Syndrome (CFS) was formally defined to describe disabling fatigue of multifactorial ethology with depression and immunologic dysfunctions linked to some currently recognized infectious agents. In most cases neurophysiological tests reveal abnormalities. In this paper the Authors use low (11 pps) and high (51-71 pps) frequency ABR to evaluate the electrophysiological function of auditory brainstem responses. Eighteen patients with suspected CFS, between the ages of 17 and 63, were examined. Eleven subjects had clinically diagnosed "true" CFS (CDC criteria modified by Fukuda). The 11 pps frequency test did not reveal a high number of abnormalities in the patients in question. However, the high frequency stimulation test (with 51 and 71 pps) which was statistically significant (P = 0.009) revealed numerous aberrations in 7 patients; absence of the first wave in 1 case, in 5 numerous wave gap delays and in 1 patient absence of the first wave and numerous wave gap delays. The high frequency test did not show many abnormalities for the 4 remaining patients. For the 7 "non CFS" subjects, the clinical-audiological comparison showed no statistical significance (P = 0.920). The Authors hypothesize that the absence of the first wave in the CFS Subject may well indicate a cyto-neural junction disease in the organ of Corti. The combined analysis of clinical and audiological data showed that the described tests are more reliable when employed in dealing with patients with clinically assessed "true" CFS.</p>
Boda WL, Natelson BH, Sisto SA, Tapp WN.	Department of Physical Medicine and Rehabilitation, University of Medicine and Dentistry of New Jersey, New Jersey Medical School, East Orange, USA.	Gait abnormalities in chronic fatigue syndrome.	948: J Neurol Sci 1995 Aug;131(2):156-61	<p>To evaluate our clinical impression that patients with the chronic fatigue syndrome (CFS) did not walk normally, we assessed gait kinematics at slow walking speeds (i.e., 0.45, 0.89 and 1.34 m/sec) and 30 m run time speeds on CFS patients and on a comparison group of sedentary controls. Run time was significantly slower for CFS than control subjects (p < 0.001). There was a significant interaction (p < 0.01) between group and speed for maximum hip angle during stance and swing phase with hip angle being significantly larger at 1.34 m/sec for CFS than controls subjects for both cases (p < 0.05). Knee flexion during stance and swing phases was significantly larger for controls than CFS subjects at 0.45 m/sec (p < 0.01). Ratio of stride length divided by leg length was significantly larger for the control subjects than for the CFS subjects with differences occurring at 0.45 and 0.89 m/sec (p < 0.01) but not 1.34 m/sec. The data indicate that CFS patients have gait abnormalities when compared to sedentary controls. These could be due to balance problems, muscle weakness, or central nervous system dysfunction; deciding which will require further research. Evaluation of gait may be a useful tool to measure outcome following therapeutic interventions.</p>
Bohr TW.	Department of Neurology, Loma Linda University School of Medicine, California, USA.	Fibromyalgia syndrome and myofascial pain syndrome. Do they exist?	991: Neurol Clin 1995 May;13(2):365-84	<p>"It is in the healing business that the temptations of junk science are the strongest and the controls against it the weakest." Despite their subjective nature, these syndromes (particularly MPS) have little reliability and validity, and advocates paint them as "objective." Despite a legacy of poor-quality science, enthusiasts continue to cite small, methodologically flawed studies purporting to show biologic variables for these syndromes. Despite a wealth of traditional pain research, disciples continue to ignore the placebo effect, demonstrating a therapeutic hubris despite studies showing a dismal natural history for FS. In reviewing the literature on MPS and FS, F.M.R. Walshe's sage words come to mind that the advocates of these syndromes are "better armed with technique than with judgment." A sympathetic observer might claim that labeling patients with monikers of nondiseases such as FS and MPS may not be such a bad thing. After all, there is still a stigma for psychiatric disease in our society, and even telling a sufferer that this plays only a partial role may put that patient</p>

				<p>on the defensive. Labeling may have iatrogenic consequences, however, particularly in the setting of the work place. Furthermore, review of a typical support group newsletter gives ipso facto proof of this noxious potential. The author of a flyer stuffed inside the newsletter complains that getting social security and disability benefits for "the invisible disability" can be "an uphill battle. But don't loose (sic) hope." Apparently the "seriousness of the condition" is not appreciated by the medical community at large, and "clinician bias may well be the largest threat," according to Boston epidemiologist Dr. John Mason. Sufferers are urged to trek to their local medical library and pull four particular articles claiming FS patients have more "stress," "daily hassles," and difficulty working compared with arthritis patients. If articles can't be located, patients are told to ask their lawyers for help. Although "Chronic Fatigue Syndrome" and FS are not considered by everyone to be the same malady, the "National Institute of Health (sic) has lumped these two conditions together. This could work in your favor." (A U.S. political advocacy packet is available for \$8, but a list of U.S. senators with Washington, DC addresses is freely provided.) These persons see themselves as victims worthy of a star appearance on the Oprah Winfrey show. A sense of bitterness emerges; one literally bed-bound Texas homemaker writes in Parents magazine that "Some doctors may give up and tell you that you are a hypochondriac."(ABSTRACT TRUNCATED AT 400 WORDS)</p>
Bombardier CH, Buchwald D.	Department of Rehabilitation Medicine, University of Washington School of Medicine, Seattle, USA.	Outcome and prognosis of patients with chronic fatigue vs chronic fatigue syndrome.	920: Arch Intern Med 1995 Oct 23;155(19):2105-10	<p>BACKGROUND: There are few data on the natural history and prognosis of persons with chronic fatigue (CF) or CF syndrome (CFS). Therefore, we compared functional outcomes in patients with each condition and tested the validity of various prognostic indicators. METHODS: Four hundred forty-five (89%) of 498 consecutive referral patients were surveyed an average of 1.5 years after an initial evaluation. Data from the initial evaluation were used to predict outcomes. RESULTS: Sixty-four percent of all patients reported improvement, but only 2% reported complete resolution of symptoms. Patients initially diagnosed as having CFS reported greater symptom severity and lower level of functioning at follow-up than did patients with CF. Major depression predicted unemployment in the CF group. Older age, longer duration of illness, and a lifetime history of dysthymia predicted less improvement in the CF group. Current dysthymia predicted less improvement for the CFS group. CONCLUSIONS: The case definition of CFS according to the Centers for Disease Control and Prevention identifies chronically fatigued patients with poorer prognosis. In a tertiary care setting, recovery from CF or CFS is rare, but improvement is common. Prognostic indicators vary for the two groups, but the coexistence of dysthymia suggests poorer outcomes generally.</p>
Bou-Holaigah I, Rowe PC, Kan J, Calkins H.	Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md, USA.	The relationship between neurally mediated hypotension and the chronic fatigue syndrome.	931: JAMA 1995 Sep 27;274(12):961-7 comment in: JAMA. 1996 Feb 7;275(5):359-60 JAMA. 1996 Feb 7;275(5):359; discussion 360	<p>OBJECTIVE--To compare the clinical symptoms and response evoked by upright tilt-table testing in healthy individuals and in a sample of those satisfying strict criteria for chronic fatigue syndrome. DESIGN--Case-comparison study with mean (SD) follow-up of 24 (5) weeks. SETTING--Tertiary care hospital. PATIENTS AND OTHER PARTICIPANTS--A sample of 23 patients with chronic fatigue syndrome (five men and 18 women; mean age, 34 years), each of whom fulfilled the strict diagnostic criteria of the Centers for Disease Control and Prevention, was recruited from regional chronic fatigue support groups and from the investigators' clinical practices. There were 14 healthy controls (four men and 10 women; mean age, 36 years). INTERVENTIONS--Each subject completed a symptom questionnaire and underwent a three-stage upright tilt-table test (stage 1, 45 minutes at 70 degrees tilt; stage 2, 15 minutes at 70 degrees tilt with 1 to 2 micrograms/min of isoproterenol; and stage 3, 10 minutes at 70 degrees with 3 to 4 micrograms/min of isoproterenol). Patients were offered therapy with fludrocortisone, beta-adrenergic blocking agents, and disopyramide, alone or in combination, directed at neurally mediated hypotension. MAIN OUTCOME MEASURES--Response to upright tilt and scores on symptom questionnaires prior to and during follow-up. RESULTS--An abnormal response to upright tilt was observed in 22 of 23 patients with chronic fatigue syndrome vs four of 14 controls (P < .001). Seventy percent of chronic fatigue syndrome patients, but no controls, had an abnormal response during stage 1 (P < .001). Nine patients reported complete or nearly complete resolution of chronic fatigue syndrome symptoms after therapy directed at neurally mediated hypotension. CONCLUSIONS--We conclude that chronic fatigue syndrome is associated with neurally mediated hypotension and that its symptoms may be improved in a subset of patients by therapy directed at this abnormal cardiovascular reflex.</p>
Buchwald D, Umali P, Umali	University of Washington,	Chronic fatigue and the	951: Ann Intern Med 1995 Jul	<p>OBJECTIVES: To investigate the point prevalence of the chronic fatigue syndrome and unexplained</p>

J, Kith P, Pearlman T, Komaroff AL.	Seattle, USA.	chronic fatigue syndrome: prevalence in a Pacific Northwest health care system.	15;123(2):81-8	debilitating chronic fatigue in a community-based sample of persons and to describe demographic, clinical, and psychosocial differences among those with the chronic fatigue syndrome, those with chronic fatigue, and healthy controls. DESIGN: Prospective cohort study. SETTING: A health maintenance organization in Seattle, Washington. PARTICIPANTS: A random sample of 4000 members of the health maintenance organization was surveyed by mail for the presence of chronic fatigue. MEASUREMENTS: Persons with chronic fatigue were evaluated using a questionnaire that requested information about medical history and fatigue and related symptoms; validated measures of functional status and psychological distress; a physical examination; and standardized blood tests. A structured psychiatric interview was done in persons who appeared to meet the original Centers for Disease Control and Prevention (CDC) criteria for the chronic fatigue syndrome. Participants completed self-report measures at 12 and 24 months. Those with chronic fatigue were reevaluated in person 1 year after study enrollment. RESULTS: 3066 (77%) of the 4000 members surveyed responded. Chronic fatigue was reported by 590 persons (19%). Of these, 388 (66%) had a medical or psychiatric condition that could account for the fatigue. Of the 74 persons (37%) with chronic fatigue who were enrolled in the study, only 3 met the CDC criteria for the chronic fatigue syndrome. The remaining 71 persons were designated as having chronic fatigue alone. Seventy-four healthy, age- and sex-matched controls who were drawn from the same sample but who denied having chronic fatigue were also studied. Demographic characteristics were similar in persons with the chronic fatigue syndrome, persons with chronic fatigue alone, and controls. Those with the chronic fatigue syndrome or chronic fatigue alone had more frequent cervical and axillary adenopathy, poorer functional status, and greater psychological distress than controls. Women and minorities were not overrepresented among cases with chronic fatigue. CONCLUSIONS: Using different assumptions about the likelihood that persons who did not participate in the study had the chronic fatigue syndrome, the estimated crude point prevalence of the syndrome in this community ranged from 75 to 267 cases per 100,000 persons. The point prevalence of chronic fatigue alone was strikingly higher; it ranged from 1775 to 6321 cases per 100,000 persons.
Campion PD, Dowrick CF, Edwards RH.		Illness behaviour in the chronic fatigue syndrome and multiple sclerosis. Choice of multiple sclerosis as comparison condition was inappropriate.	922: BMJ 1995 Oct 21;311(7012):1092-3 comment on: BMJ. 1995 Jul 1;311(6996):15-8	
Cater RE 2nd.		Chronic intestinal candidiasis as a possible etiological factor in the chronic fatigue syndrome.	984: Med Hypotheses 1995 Jun;44(6):507-15	The chronic candidiasis syndrome, also known as the Candida-related complex, putatively caused by the overgrowth of <i>Candida albicans</i> in the gastrointestinal tract and secondarily in the genital organs, is briefly described. Patients with this disorder have many of the same symptoms as those with the chronic fatigue syndrome, except for the recurrent flu-like symptoms of the latter disorder. The positive response of a large number of patients with the chronic fatigue syndrome (CFS) to an oral antifungal agent and a diet for intestinal candidiasis has been described by another clinician. There is evidence that <i>Candida albicans</i> infection of the mucous membranes depresses T cell and natural killer (NK) cell function. Similar abnormalities of immune function are found in the CFS. The function of cytotoxic T cells, T helper cells, and NK cells is important in preventing reactivation of infections from Epstein-Barr virus, cytomegalovirus, and other herpesviruses. Reactivation of one or more of these viruses could lead to the expression of the flu-like symptoms in the CFS. Yet the immune dysfunction found in this disorder has been considered the primary underlying causal factor. It is proposed that chronic intestinal candidiasis may be an agent which leads to immune depression in many CFS patients and therefore that it could be a causal factor in CFS.
Chalder T, Deale A, Wessely S, Marks I.		Cognitive behavior therapy for chronic fatigue syndrome.	996: Am J Med 1995 Apr;98(4):419-20; discussion 421-2 comment on: Am J Med. 1993 Feb;94(2):197-203	
Chalder T, Deale A, Wessely S.		Cognitive behavioral therapy for chronic fatigue syndrome.	Clin Infect Dis 1995 Mar;20(3):717-8 comment on:	

			Clin Infect Dis. 1994 Jan;18 Suppl 1:S105-10	
Chalder T, Wessely S, Wallace P, Hirsch S, Wright D.		Viral illness and chronic fatigue (syndrome)	941: Lancet 1995 Aug 12;346(8972):449 comment on: Lancet. 1995 Jul 1;346(8966):47 Lancet. 1995 Jul 1;346(8966):47-8 Lancet. 1995 Jul 1;346(8966):48	
Chalder T.		Chronic fatigue syndrome.	924: Br J Psychiatry 1995 Oct;167(4):549-50 comment on: Br J Psychiatry. 1995 Jun;166(6):798-801	
Clark MR, Katon W, Russo J, Kith P, Sintay M, Buchwald D.	Department of Psychiatry and Behavioral Sciences, Johns Hopkins Hospital, Baltimore, Maryland 21287-5371.	Chronic fatigue: risk factors for symptom persistence in a 2 1/2-year follow-up study.	Am J Med 1995 Feb;98(2):187-95	BACKGROUND: The prolonged disability of patients suffering from chronic fatigue may be due to sustaining factors that are independent of the cause and subject to intervention. This study reexamined a cohort of patients with chronic fatigue to define medical and psychiatric predictors of persistent symptoms. METHODS: Seventy-eight patients with chronic fatigue present for 6 months or more (not required to meet the Centers for Disease Control case definition for chronic fatigue syndrome [CFS]) completed a self-report, follow-up questionnaire to measure the overall improvement or worsening of their condition at a mean of 2.5 years after their initial examination. At the time of initial evaluation, patients underwent a structured psychiatric examination, physical examination, laboratory studies, and self-report measures of psychological distress and functional disability. The psychiatric examination queried the patient about 28 somatic symptoms that are separate from those associated with CFS. Discriminant analysis was used to determine which variables present at the initial examination were significant predictors of persistent symptoms and disability at 2.5 years. RESULTS: The factors most important at the time of initial presentation in predicting persistent illness were: (1) more than eight medically unexplained physical symptoms separate from those associated with CFS case definition; (2) lifetime history of dysthymia; (3) duration of chronic fatigue symptoms greater than 1.5 years; (4) less than 16 years of formal education; and (5) age older than 38 years. None of the results of the initial physical examination, or immunologic, general laboratory, or viral antibody measurements were significant in predicting persistence of symptoms. Recovery rates for those who met the criteria for CFS by either of two case definitions were lower than the rate of noncases, but the differences were not statistically significant. The five aforementioned variables formed a significant discriminative function, correctly classifying 78% of those who recovered and 74% of those with persistent symptoms. CONCLUSIONS: At initial examination, patients with chronic fatigue, more than eight medically unexplained physical symptoms (excluding symptoms in the case criteria for CFS), a lifetime history of dysthymic disorder, longer than 1.5 years of chronic fatigue, less than 16 years of formal education, and who were older than 38 years were the most likely to have persistence of symptoms of chronic fatigue at the 2.5-year follow-up.
Clauw DJ.	Georgetown University Medical Center, Washington, DC 20007, USA.	The pathogenesis of chronic pain and fatigue syndromes, with special reference to fibromyalgia.	987: Med Hypotheses 1995 May;44(5):369-78	Syndromes characterized by chronic pain and fatigue have been described in the medical literature for centuries. Fibromyalgia is the term currently used to describe this symptom complex, and considerable research has been performed in the last decade to delineate the epidemiology, pathophysiology, and genesis of this entity. Although fibromyalgia is defined by its musculoskeletal features, it is clear that there are a large number of non-musculoskeletal symptoms, such that we now understand that there is considerable overlap with allied conditions such as the chronic fatigue syndrome, migraine and tension headaches, irritable bowel syndrome, and affective disorders. This article will review our current state of knowledge regarding fibromyalgia and these allied conditions, and present a unifying hypothesis that describes both the pathophysiology of symptoms and the genesis of these disorders.
Cleare AJ, Bearn J, Allain T, McGregor A, Wessely S, Murray RM, O'Keane V.	Maudsley Hospital, Denmark Hill, London, UK.	Contrasting neuroendocrine responses in depression and chronic fatigue syndrome.	940: J Affect Disord 1995 Aug 18;34(4):283-9	Hypothalamic-pituitary-adrenal (HPA) axis and central 5-HT function were compared in chronic fatigue syndrome (CFS), depression and healthy states. 10 patients with CFS and 15 patients with major depression were matched for age, weight, sex and menstrual cycle with 25 healthy controls. Baseline-circulating cortisol levels were highest in the depressed, lowest in the CFS and intermediate between the two in the control group ($P = 0.01$). Prolactin responses to the selective 5-HT-releasing

				agent d-fenfluramine were lowest in the depressed, highest in the CFS and intermediate between both in the healthy group ($P = 0.01$). Matched pair analysis confirmed higher prolactin responses in CFS patients than controls ($P = 0.05$) and lower responses in depressed patients than controls ($P = 0.003$). There were strong inverse correlations between prolactin and cortisol responses and baseline cortisol values. These data confirm that depression is associated with hypercortisolaemia and reduced central 5-HT neurotransmission and suggest that CFS may be associated with hypocortisolaemia and increased 5-HT function. The opposing responses in CFS and depression may be related to reversed patterns of behavioural dysfunction seen in these conditions. These findings attest to biological distinctions between these disorders.
Committee for Science and Education, Medical Association of South Africa.		Chronic fatigue syndrome.	946: S Afr Med J 1995 Aug;85(8):780-2 comment in: S Afr Med J. 1996 Oct;86(10):1301	OBJECTIVE: To acknowledge the clinical syndrome chronic fatigue syndrome (CFS) and outline the diagnostic criteria and reasonable management. OUTCOMES: Attempt at containment of treatment cost and improvement of the quality of care of patients with CFS. EVIDENCE: Delphi-type commentary from 20 expert clinicians and appropriate organisations. Limited literature survey. VALUES: To clarify the reasonable management of CFS amid conflicting clinical opinion on a condition of concern to patients, funders and doctors. An adaptation of an existing guideline was sent to organisations and individuals for comment. Comments received were included in this guideline where possible. BENEFITS, HARMS AND COSTS. To acknowledge a clinical syndrome with a reasonable approach to management considering the cost implications. No cost analysis was done. RECOMMENDATIONS: To recommend the following: (i) diagnostic criteria for CFS; (ii) potential differential diagnoses and possible investigations; and (iii) management protocol. VALIDATION: The draft guidelines were subjected to external review by individual doctors who are acknowledged CFS treaters, doctor groups and the patient support group. There were major disputes about the content, with the responses falling into two groups: those who do not believe CFS is a distinguishable illness, and those who do. DEVELOPER AND FUNDING: The Committee for Science and Education, Medical Association of South Africa. ENDORSEMENTS: Medical Association of South Africa and national health care organisations (see list at the end of the document).
Cope H, David A, Pelosi A, Mann A.		Chronic fatigue syndrome.	Lancet 1995 Jan 14;345(8942):131 comment on: Lancet. 1994 Nov 26;344(8935):1514	
Cope H, Pernet A, Kendall B, David A.	Section of Neuropsychiatry, Institute of Psychiatry, London.	Cognitive functioning and magnetic resonance imaging in chronic fatigue.	965: Br J Psychiatry 1995 Jul;167(1):86-94	BACKGROUND. This study examines whether cognitive dysfunction in chronic fatigue may be accounted for by depression and anxiety or is due to brain pathology evident on magnetic resonance imaging (MRI). METHOD. Twenty-six subjects with chronic fatigue, with and without coexisting depression, and 18 age-matched normal controls were recruited from primary care following a presumed viral illness six months previously. Comparison was made with 13 psychiatric controls with depressive illness on standardised cognitive tests. MRI determined the presence of cerebral white-matter lesions. RESULTS. No substantial differences in performance were shown between subjects with chronic fatigue, most of whom met the criteria for chronic fatigue syndrome, and controls. Subjective cognitive dysfunction increased with psychopathology. White-matter lesions were found in a minority from all groups. Improvement in fatigue and depression coincided with improved performance on cognitive measures. CONCLUSIONS. Subjective complaints of cognitive impairment are a prominent feature of chronic fatigue, but objective cognitive and MRI abnormalities are not. Such complaints probably reflect psychopathology rather than a post-viral process.
Costa DC, Tannock C, Brostoff J.	Department of Psychiatry, UCL Medical School, London, UK.	Brainstem perfusion is impaired in chronic fatigue syndrome.	918: QJM 1995 Nov;88(11):767-73 comment in: QJM. 1996 Feb;89(2):163-4	We looked for brain perfusion abnormalities in patients with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). An initial pilot study revealed widespread reduction of regional brain perfusion in 24 ME/CFS patients, compared with 24 normal volunteers. Hypoperfusion of the brainstem (0.72 ± 0.05 vs. 0.80 ± 0.04 , $p < 0.0001$) was marked and constant. We then tested whether perfusion to the brainstem in ME/CFS patients differs from that in normals, patients with major depression, and others with epilepsy. Data from a total of 146 subjects were included in the present study: 40 normal volunteers, 67 patients with ME/CFS (24 in the pilot study, 16 with no psychiatric disorders, 13 with ME/CFS and depression, 14 with ME/CFS and other psychiatric disorders), 10 epileptics, 20 young depressed patients and 9 elderly depressed individuals. Brain

				perfusion ratios were calculated using ⁹⁹ Tcm-hexamethylpropylene amine oxime (⁹⁹ Tcm-HMPAO) and single-photon emission tomography (SPET) with a dedicated three-detector gamma camera computer/system (GE Neurocam). Brain-stem hypoperfusion was confirmed in all ME/CFS patients. Furthermore, the 16 ME/CFS patients with no psychiatric disorders and the initial 24 patients in the pilot study showed significantly lower brainstem perfusion (0.71 +/- 0.03) than did depressed patients (0.77 +/- 0.03; ANOVA, p < 0.0001). Patients with ME/CFS have a generalized reduction of brain perfusion, with a particular pattern of hypoperfusion of the brainstem.
Cuellar ML, Gluck O, Molina JF, Gutierrez S, Garcia C, Espinoza R.	Department of Medicine, LSU Medical Center at New Orleans, USA.	Silicone breast implant--associated musculoskeletal manifestations.	915: Clin Rheumatol 1995 Nov;14(6):667-72	Three hundred consecutive women with silicone breast implants (SBI), referred to the arthritis clinic with a variety of musculoskeletal complaints, were evaluated for the presence of underlying connective tissue disease. A complete history and physical examination were performed, as well as laboratory testing for C-reactive protein, rheumatoid factor; and autoantibody determination by indirect immunofluorescence and immunodiffusion. The group mean age was 44.4 years (range 25-69), the mean time from initial implant surgery to appearance of symptoms was 6.8 years (range: 6m-19y) and 83.3% of women studied had clinical manifestations highly suggestive of an underlying connective tissue disorder. Fifty-four percent met criteria for fibromyalgia and/or chronic fatigue syndrome, distinct connective tissue diseases was detected in 11%, undifferentiated connective tissue disease or human adjuvant disease was found in 10.6%, and a variety of disorders such as angioneurotic oedema, frozen shoulder, multiple sclerosis-like syndrome were present. Several other miscellaneous conditions including recurrent unexplained low grade fever, hair loss, skin rash, sicca symptoms, Raynaud's phenomenon, carpal tunnel syndrome, memory loss, headaches, chest pain, and shortness of breath were also seen accompanying specific and non-specific conditions. Seventy percent of patients who underwent explanation of the implants reported improvement of their systemic symptomatology. A significant proportion of SBI patients referred for rheumatic evaluation have clinical manifestations highly suggestive of an underlying connective tissue disease. Furthermore, improvement of their symptomatology follows explanation of the implants in over half of the patients.
David A, Cope H, Pelosi A, Mann A.		Viral illness and chronic fatigue (syndrome)	964: Lancet 1995 Jul 1;346(8966):47 comment in: Lancet. 1995 Aug 12;346(8972):449 comment on: Lancet. 1995 May 27;345(8961):1333-8	
DeLuca J, Johnson SK, Beldowicz D, Natelson BH.	Department of Research and Psychology, Kessler Institute for Rehabilitation, West Orange, New Jersey.	Neuropsychological impairments in chronic fatigue syndrome, multiple sclerosis, and depression.	J Neurol Neurosurg Psychiatry 1995 Jan;58(1):38-43	To examine the degree and nature of cognitive impairments in chronic fatigue syndrome, a comprehensive neuropsychological battery was given to patients with chronic fatigue syndrome, multiple sclerosis, depressed patients, and healthy controls. The battery included tests of attention and concentration, information processing speed, verbal and visual memory, intellectual ability, and concept formation. Measures of depression and anxiety were also obtained. The chronic fatigue syndrome group did not differ from the depressed group in overall neuropsychological performance, but differed from the multiple sclerosis and control groups. The most significant impairment was in information processing speed in the chronic fatigue syndrome group. Depression and anxiety were not related to neuropsychological performance. The influence of reduced information processing on other areas of cognition is discussed.
DeLuca J, Karen B. Schmaling		Neurocognitive Testing in Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 21 - 26	
Di Luca D, Zorzenon M, Mirandola P, Colle R, Botta GA, Cassai E.	Institute of Microbiology, University of Ferrara, Italy.	Human herpesvirus 6 and human herpesvirus 7 in chronic fatigue syndrome.	976: J Clin Microbiol 1995 Jun;33(6):1660-61	We analyzed lymphocytes of patients with chronic fatigue syndrome (CFS) for the presence of human herpesvirus 6 (HHV-6) and HHV-7 DNA. HHV-7 was present in over 80% of CFS patients and healthy controls, while the prevalence of HHV-6 variant A increased significantly in CFS cases (22 versus 4%; P = 0.05).
Dobbins JG, Benjamin Natelson, Ira Brassloff, Susan Drastal, Sue-Ann Sisto		Physical, Behavioral, and Psychological Risk Factors for Chronic Fatigue Syndrome A Central Role for Stress?	Journal of Chronic Fatigue Syndrome 1995: 1(2): 43 - 58	In spite of the distinct epidemiologic features of chronic fatigue syndrome, its cause remains unknown and no risk factors for the illness have been identified. In order to better characterize CFS, we conducted a case-control study of well-defined CFS cases to identify physical, behavioral, and psychological factors related to the occurrence of CFS. The study, conducted in the metropolitan area

				surrounding Newark, New Jersey, USA, included 20 patients who fulfilled the CFS case definition and 20 matched controls. All subjects completed a self-administered questionnaire. The greatest difference between cases and controls was the reported level of stress from any of five sources in the 5 years prior to onset of illness (95% vs. 55%; $P = 0.01$). In addition, the risk of CFS was significantly related to the number of sources of stress, especially
Dodge JH, Kita MW.		The chronic fatigue syndrome.	960: Ann Intern Med 1995 Jul 1;123(1):75; discussion 76 comment on: Ann Intern Med. 1994 Dec 15;121(12):953-9	
Dunstan RH, Donohoe M, Taylor W, Roberts TK, Murdoch RN, Watkins JA, McGregor NR.	Department of Biological Sciences, University of Newcastle, NSW.	A preliminary investigation of chlorinated hydrocarbons and chronic fatigue syndrome.	934: Med J Aust 1995 Sep 18;163(6):294-7	OBJECTIVE: To determine whether serum levels of chlorinated hydrocarbons are elevated in patients with chronic fatigue syndrome. METHODS: Chlorinated hydrocarbon levels were measured in 22 patients with chronic fatigue syndrome (CFS) (as defined by the Centers for Disease Control [CDC]); in 17 patients with CFS symptoms whose history of exposure to toxic chemicals excluded them from the research definition of CFS; and in 34 non-CFS control subjects matched for age and sex. RESULTS: DDE (1,1-dichloro-2,2-bis (p-chlorophenyl) ethene) was detected in all serum samples at levels over 0.4 ppb. The incidence of hexachlorobenzene (HCB) contamination (> 2.0 ppb) was 45% in the CFS group, compared with 21% in the non-CFS control group ($P < 0.05$). The CFS group had a significantly higher total organochlorine level (15.9 ppb; SEM, 4.4) than the control group (6.3 ppb; SEM, 1.1; $P < 0.05$). The toxic exposure group also had a higher mean organochlorine level (13.6 ppb; SEM, 6.2) than the control group, but the difference was not statistically significant. DDE and HCB comprised more than 90% of the total organochlorines measured in each of the groups. CONCLUSION: The results suggest that recalcitrant organochlorines may have an aetiological role in CFS. There were no significant differences in serum organochlorine concentrations between CFS patients and chronic fatigue patients with a history of toxic chemical exposure. Therefore, exclusion of patients from the CDC research definition of CFS on the basis of a reported history of known exposure to toxic chemicals is not valid. The role of low-level organochlorine bioaccumulation in the development of CFS symptoms requires further investigation.
Farmer A, Jones I, Hillier J, Llewelyn M, Borysiewicz L, Smith A.	Department of Psychological Medicine, University of Wales College of Medicine, Heath Park, Cardiff.	Neuraesthesia revisited: ICD-10 and DSM-III-R psychiatric syndromes in chronic fatigue patients and comparison subjects.	925: Br J Psychiatry 1995 Oct;167(4):503-6	BACKGROUND: Different definitions of chronic fatigue syndrome (CFS) have different psychiatric exclusion criteria and this affects the type and frequency of associated psychiatric morbidity found. The operational criteria for neuraesthesia in ICD-10 vary in this and other respects from the Centers for Disease Control and Prevention (CDC) criteria for CFS. Neuraesthesia and associated psychiatric morbidity in CDC-defined CFS are evaluated. METHOD: CFS subjects and controls were interviewed with the Schedule for the Clinical Assessment of Neuropsychiatry (SCAN). The computerised scoring program for SCAN (CATEGO5) facilitates the assignment of operational definitions according to DSM-III-R and ICD-10. Subjects were re-interviewed with SCAN an average of 11 months later. No specific treatments or interventions were given during this period. RESULTS: The majority of subjects fulfilled ICD-10 operational criteria for neuraesthesia and had two and a half times the rate of psychiatric morbidity as the healthy comparison group according to the CATEGO5 Index of Definition (ID). Approximately 80% of subjects fulfilled both DSM-III-R and ICD-10 criteria for sleep disorders. There was a significant fall in the number of subjects fulfilling criteria for depression and anxiety disorders and a significant increase in the number of subjects with no diagnosis for DSM-III-R criteria over time. There were no significant changes over time for any diagnosis according to ICD-10 criteria or for overall levels of psychopathology as reflected in CATEGO5 ID levels. CONCLUSIONS: The ICD-10 'neuraesthesia' definition identifies almost all subjects with CDC-defined CFS. Fifty percent of CFS subjects also had depressive or anxiety disorders, some categories of which remit spontaneously over time.
Farrar DJ, Locke SE, Kantrowitz FG.	Department of Psychiatry, Beth Israel Hospital, Harvard Medical School, Boston, USA.	Chronic fatigue syndrome. 1: Etiology and pathogenesis.	Behav Med 1995 Spring;21(1):5-16	Chronic fatigue syndrome (CFS) is a disorder of unknown etiology characterized by debilitating fatigue and other somatic and neuropsychiatric symptoms. A range of heterogeneous clinical and laboratory findings have been reported in patients with CFS. Various theories have been proposed to explain the underlying pathophysiologic processes but none has been proved. Research findings of immunologic dysfunction and neuroendocrine changes suggest the possible dysregulation of interactions between the nervous system and the immune system. Without a clear understanding of its

				etiopathogenesis, CFS has no definitive treatment. Management approaches have been necessarily speculative, and they have evolved separately in a number of medical and nonmedical disciplines. The results of several controlled treatment studies have been inconclusive. An accurate case definition identifying homogeneous subtypes of CFS is needed. The integration of medical and psychologic treatment modalities and the use of both biologic and psychologic markers to evaluate treatment response will enhance future treatment strategies.
Fennell PA		CFS Sociocultural Influences and Trauma: Clinical Considerations	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 159 - 173	An integrated model of the assessment and treatment of the CFS population needs to include the sociocultural influences that affect CFS patients as well as their treating clinicians. These sociocultural factors include: (1) the pre-existing cultural climate toward disease, (2) cultural intolerance of ambiguity, (3) cultural intolerance of chronic vs. acute illness, (4) the ongoing psyche-soma duality among health care providers, and (5) initial disease illegitimacy and subsequent enculturation. These specific influences, as well as the patient's medical status, need to be carefully considered in the assessment and treatment of CFS patients and their families. The traumatogenic effects of these sociocultural influences on CFS patients will be discussed and specific treatment strategies will be suggested
Fennell PA		The Four Progressive Stages of the CFS Experience: A Coping Tool for Patients	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 69 - 79	The CFS experience may be construed as a series of adaptations and adjustments that begin at the onset of symptoms. The ability of the CFS-affected individual to cope with symptoms and disabilities is strongly influenced by sociocultural factors. The purpose of this paper is to present a comprehensive multistage model of the CFS experience that recognizes the influences of cultural, psychosocial and medical factors in CFS assessment and treatment. The patient's awareness of these stages of adjustment can be an important coping tool in reconstructing the illness experience.
Fisk JW.		Chronic fatigue syndrome.	932: N Z Med J 1995 Sep 22;108(1008):393 comment on: N Z Med J. 1995 Jul 28;108(1004):301	
Flanigan MJ, Morehouse RL, Shapiro CM.	Department of Psychiatry, University of Toronto, Ontario, Canada.	Determination of observer-rated alpha activity during sleep.	927: Sleep 1995 Oct;18(8):702-6	Patients suffering from chronic fatigue syndrome (CFS) have been described as having alpha intrusion into sleep. In a separate study of the relationship between depression and CFS, we investigated the sleep of CFS patients. We could not detect any observable alpha anomaly in our group of CFS patients. It is possible that there is a subgroup of CFS patients in whom no alpha anomaly is present. However, the sleep electroencephalogram (EEG) montage used in our study was different to that employed by previous researchers. This paper investigates the influence of electrode derivations on the outcome of observable alpha ratings. We compared simultaneous recordings of sleep EEG using three commonly employed montages. Our results indicate that use of the mastoid reference (montage 1) results in the highest observer-related alpha. This may suggest that data regarding alpha intrusion should always be collected using montage 1. However, there is a possibility that the mastoid electrode is not electrically silent and is contaminating the data of the referenced channels. The implications of these findings are discussed in relation to the validity of alpha intrusion measurement of CFS and fibromyalgia.
Friedberg F		The Stress/Fatigue Link in Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 147 - 152	This paper cites preliminary evidence for the relationship between fatigue and stress in chronic fatigue syndrome. Stress may intensify symptoms of CFS and erode positive mood and affect. A model of the stress/fatigue link in CFS will be presented and a specific coping technique will be described as a tool to interrupt the stress/symptom interaction in CFS.
Friedberg F		Clinical Assessment of Coping in CFS Patients	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 53 - 58	The controversy regarding psychosocial factors in the onset and maintenance of chronic fatigue syndrome (CFS) is briefly outlined. The primary purpose of this presentation is to describe coping assessments and possible cognitive-behavioral interventions for CFS patients.
Furst G		Occupational Therapy	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 91 - 94	
Galbraith DN, Nairn C, Clements GB.	Regional Virus Laboratory, Ruchill Hospital, Glasgow, UK.	Phylogenetic analysis of short enteroviral sequences from patients with chronic fatigue	953: J Gen Virol 1995 Jul;76 (Pt 7):1701-7	This study used phylogenetic analysis based on a region of the 5' non-translated region (5'NTR) of a variety of enteroviral sequences to compare sequences associated with chronic fatigue syndrome (CFS) and those from enteroviruses causing acute infections. Direct sequencing of PCR products was used to

		syndrome.		obtain the nucleic acid sequences from CFS patients. The inferred phylogenetic tree identified three groupings, one correlating with the diagnosis of CFS. The analysis identified a close relationship between the chronic fatigue enteroviral sequences, and showed that 19/20 were distinct from previously described enteroviruses. These results suggest there is persistence of enterovirus infection in some CFS patients and indicate the presence of distinct novel enterovirus sequences.
Gantz NM.	Department of Medicine, Polyclinic Medical Center, Harrisburg, Pa., USA.	10 key questions answered on chronic fatigue syndrome.	971: Contemp Intern Med 1995 Jul;7(7):15-6, 21-4, 27-8	
Gascon J, Marcos T, Vidal J, Garcia-Forcada A, Corachan M.	Seccion Medicina Tropical, Hospital Clinic, Provincial de Barcelona, Spain.	Cytomegalovirus and Epstein-Barr Virus Infection as a Cause of Chronic Fatigue Syndrome in Travelers to Tropical Countries.	J Travel Med 1995 Mar 1;2(1):41-44	
Gascon J, Marcos T, Vidal J, Garcia-Forcada A, Corachan M.	Seccion Medicina Tropical, Hospital Clinic, Provincial de Barcelona, Spain.	Cytomegalovirus and Epstein-Barr Virus Infection as a Cause of Chronic Fatigue Syndrome in Travelers to Tropical Countries.	470: J Travel Med 1995 Mar 1;2(1):41-44	
Ghahramani M, Gooriah V.	Trenton Forensic Psychiatric Hospital, NJ 08628, USA.	Chronic fatigue syndrome associated with a psychotic state resulting in multiple murders.	Bull Am Acad Psychiatry Law 1995;23(4):613-6	A 28-year-old, ambitious, academically successful Asian man with a zeal for hard work develops infectious mononucleosis and its resultant lethargy and fatigue. He becomes depressed, then develops symptoms of mania before turning floridly psychotic. In his psychotic state he develops grandiose delusions about being the second son of God after Christ and takes it upon himself to rid the world of all evil by defeating the anti-Christ. He kills four people and seriously injures a fifth. He is arrested and found not guilty by reason of insanity. He remains a diagnostic puzzle for a long time before starting to respond to neuroleptic medication.
Glover DM.	Virginia Mason Clinic East, 13014 120th Avenue, N.E., Kirkland, WA 98034, USA.	Chronic Fatigue Syndrome.	Adolesc Med 1995 Feb;6(1):101-114	Despite its new name, chronic fatigue syndrome is not a new disease. This chapter reviews current definitions, emphasizing that chronic fatigue syndrome is a diagnosis of exclusion. The author also discusses viral infections that are associated with CFS, including Epstein-Barr virus, cytomegalovirus, herpesvirus type 6, enteroviruses, and retroviruses.
Gold PW, Licinio J, Wong ML, Chrousos GP.	Clinical Neuroendocrinology Branch, NIMH, Bethesda, Maryland 20892, USA.	Corticotropin releasing hormone in the pathophysiology of melancholic and atypical depression and in the mechanism of action of antidepressant drugs.	906: Ann N Y Acad Sci 1995 Dec 29;771:716-29	Hypercortisolism in depression seems to preferentially reflect activation of hypothalamic CRH secretion. Although it has been postulated that this hypercortisolism is an epiphenomenon of the pain and stress of major depression, our data showing preferential participation of AVP in the hypercortisolism of chronic inflammatory disease suggest specificity for the pathophysiology of hypercortisolism in depression. Our findings that imipramine causes a down-regulation of the HPA axis in experimental animals and healthy controls support an intrinsic role for CRH in the pathophysiology of melancholia and in the mechanism of action of psychotropic agents. Our data suggest that hypercortisolism is not the only form of HPA dysregulation in major depression. In a series of studies, commencing in patients with Cushing's disease, and extending to hyperimmune fatigue states such as chronic fatigue syndrome and examples of atypical depression such as seasonal affective disorder, we have advanced data suggesting hypofunction of hypothalamic CRH neurons. These data raise the question that the hyperphagia, hypersomnia, and fatigue associated with syndromes of atypical depression could reflect a central deficiency of a potent arousal-producing anorexogenic neuropeptide. In the light of data presented elsewhere in this symposium regarding the role of a hypofunctioning hypothalamic CRH neuron in susceptibility to inflammatory disease, these data also raise the question of a common pathophysiological mechanism in syndromes associated both with inflammatory manifestations and atypical depressive symptoms. This concept of hypofunctioning of hypothalamic CRH neurons in these disorders also raises the question of novel forms of neuropharmacological intervention in both inflammatory diseases and atypical depressive syndromes. Review, Academic
Golden HE.		Clinical laboratory test findings in patients with chronic fatigue syndrome.	969: Arch Intern Med 1995 Jun 26;155(12):1332 comment on: Arch Intern Med. 1995 Jan	

Goldenberg DL.	Newton-Wellesley and Tufts University School of Medicine, Massachusetts, USA.	Fibromyalgia, chronic fatigue syndrome, and myofascial pain syndrome.	9;155(1):97-103 Curr Opin Rheumatol 1995 Mar;7(2):127-35	Two important studies in which nuclear magnetic resonance spectroscopy was used convincingly demonstrated that muscle is not the primary pathologic factor in fibromyalgia. There were further studies reporting that fibromyalgia-chronic fatigue syndrome may follow well treated Lyme disease or mimic Lyme disease. The longest therapeutic trial to date in fibromyalgia demonstrated an initial modest effect of tricyclic medications, but at 6 months that efficacy was no longer evident. Investigation in both fibromyalgia and chronic fatigue syndrome now focuses on the central nervous system. The use of new technology, eg, neurohormonal assays and imaging such as single-photon emission computed tomography scan, may be important in understanding these elusive conditions.
Goldstein JA, Ismael Mena, Eugenio Jouanne, Ira Lesser		The Assessment of Vascular Abnormalities in Late Life Chronic Fatigue Syndrome by Brain SPECT: Comparison with Late Life Major Depressive Disorder	Journal of Chronic Fatigue Syndrome 1995: 1(1): 55 - 79	We report on brain SPECT analysis of regional cerebral blood flow (rCBF) in late life chronic fatigue syndrome (CFS) patients and compare their results with patients with late life depression and elderly normal controls 45 years and older. We attempted to distinguish CFS from normals and patients with depression and applied the findings to understand the pathophysiology of the illness. We studied 33 patients with CFS (55 ± 10 years), 26 patients with late life depression (62 ± 8 years), and 19 normal controls (66 ± 8 years); 43 other normal controls had only ^{133}Xe rCBF measurements (66 ± 8 years). We evaluated rCBF quantitatively with ^{133}Xe images and qualitatively with high resolution imaging using $^{99\text{m}}\text{Tc}$ -HMPAO. We found that rCBF in CFS measured by ^{133}Xe varied between 35 and 41 ml/min/100g in both hemispheres, $p < 0.0001$ and 0.05; similar findings were observed in depression. In CFS $^{99\text{m}}\text{Tc}$ -HMPAO again demonstrated right orbitofrontal and marked right dorsofrontal hypoperfusion at 58% to 66% of the maximal activity in the brain, $p, 0.001$. In late life depression, hypoperfusion was primarily limited to the right orbitofrontal lobe, 42% and 57%, $p, 0.001$. In depression, the abnormalities were most striking in the left temporal lobe and particularly in the left anterior frontal lobes. CFS patients with major depressive disorder by DMS-III-R criteria did not differ in regional cerebral hypoperfusion from those without major depression. The pathophysiology of the illness may involve the dysregulation of a neural network which includes circuits between the hippocampus (located in the anterior temporal lobe) and the dorsolateral prefrontal cortex.
Hamre HJ.		[Chronic fatigue syndrome--a review of the literature].[article in Norwegian]	923: Tidsskr Nor Laegeforen 1995 Oct 10;115(24):3042-5	Chronic fatigue syndrome is a clinical condition characterized by abnormal fatigue, subfebrile body temperature, sore throat, lymphadenopathy, arthralgia, myalgia and neuropsychiatric symptoms. Typically, the syndrome develops after a flu-like illness and is markedly exacerbated by exercise. The etiology is unknown and there is no single diagnostic test. The patients may have cognitive dysfunction, immunological and endocrinological abnormalities and abnormal mitochondria. Magnetic resonance imaging scans may show increased uptake of signals in the brain, and single photon emission computerized tomography reveals regional hypoperfusion of the brain. The author discusses similarities and distinctions between the syndrome and depression.
Hamre HJ.		[Chronic fatigue syndrome].[article in Norwegian]	914: Tidsskr Nor Laegeforen 1995 Nov 10;115(27):3419 comment on: Tidsskr Nor Laegeforen. 1995 Oct 10;115(24):3017-22	
Harrison AL		Development and Evaluation of Claims Involving Chronic Fatigue Syndrome (CFS) Under the Social Security Disability Provisions	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 131 - 133	
Heiman TH		Chronic Fatigue Syndrome and Vocational Rehabilitation: Unserved and Unmet Needs	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 105 - 118	Individuals with chronic fatigue syndrome (CFS) are largely unserved by the health care and rehabilitation professions. Their numbers are growing and their needs are complex and extensive. Some persons with CFS (PWCs), who have the least functional impairment, may benefit from vocational rehabilitation services. While employment options or accommodations, as well as support services, may be available to PWCs, their disabilities are gravely misunderstood, requiring long-term, intermittent, knowledgeable, professional counseling, and support. Given the frequency of reports by consumers and advocates concerning unserved, unmet needs of PWCs, a survey was conducted among PWCs throughout Wisconsin to identify their needs both for independent living support services and

				for employment accommodations. A weighted scale was developed based upon self-reports of 119 respondents regarding importance and satisfaction levels for such services. Results provided rankings of PWC needs, to the degree that such needs were perceived as unserved and unmet. Furthermore, subjects reported the number of good days and bad days experienced monthly, describing differential levels of symptoms and function for these days on a CFIDS Disability Scale, created by David Bell, M.D. Results indicated the devastating impact of CFS upon health, daily activities, personal relationships, income, and work. PWC's reported significantly-unmet or highly-unmet needs for the great majority of the selected support services and employment accommodations.
Hickie I, Lloyd A, Hadzi-Pavlovic D, Parker G, Bird K, Wakefield D.	School of Psychiatry, University of New South Wales, Australia.	Can the chronic fatigue syndrome be defined by distinct clinical features?	937: Psychol Med 1995 Sep;25(5):925-35	To determine whether patients diagnosed as having chronic fatigue syndrome (CFS) constitute a clinically homogeneous class, multivariate statistical analyses were used to derive symptom patterns and potential patient subclasses in 565 patients. The notion that patients currently diagnosed as having CFS constitute a single homogeneous class was rejected. An alternative set of clinical subgroups was derived. The validity of these subgroups was assessed by sociodemographic, psychiatric, immunological and illness behaviour variables. A two-class statistical solution was considered most coherent, with patients from the smaller class (27% of the sample) having clinical characteristics suggestive of somatoform disorders. The larger class (73% of sample) presented a more limited combination of fatigue and neuropsychological symptoms, and only moderate disability but remained heterogeneous clinically. The two patient groups differed with regard to duration of illness, spontaneous recovery, severity of current psychological morbidity, utilization of medical services and CD8 T cell subset counts. The distribution of symptoms among patients was not unimodal, supporting the notion that differences between the proposed subclasses were not due simply to differences in symptom severity. This study demonstrated clinical heterogeneity among patients currently diagnosed as CFS, suggesting aetiological heterogeneity. In the absence of discriminative clinical features, current consensus criteria do not necessarily reduce the heterogeneity of patients recruited to CFS research studies.
Hickie I, Lloyd A.	School of Psychiatry, University of New South Wales, Sydney, Australia.	Are cytokines associated with neuropsychiatric syndromes in humans?	943: Int J Immunopharmacol 1995 Aug;17(8):677-83	Traditional aetiological models in neuropsychiatry have placed little emphasis on the abnormal behavioural responses (decreased psychomotor activity, anorexia, weight loss, decreased social exploration and sexual behaviour, impaired cognitive function and increased somnolence) that are common to both psychiatric syndromes, notably depression, and the illness behaviour of sick animals. In recent years, the possible role of cytokines, as mediators of not only the immunological and metabolic responses to infection and inflammation but also a co-ordinated behavioural response, has been described. Further, a range of possible mechanisms for these effects has been postulated, notably involving corticotropin releasing factor (CRF) and prostaglandins of the E series (PGE) with the central nervous system (CNS). Here we outline a series of human clinical conditions where neuropsychiatric syndromes co-occur with a host response to infection or inflammation. These may be characterized by cytokine production (e.g. acute, recurrent and chronic viral illness, systemic autoimmune diseases and chronic fatigue syndrome). Other clinical situations characterized by exposure to or in vivo production of cytokines (e.g. treatment of chronic infections and malignancies, progression and/or recurrence of malignancies) are also discussed. We postulate that the stereotyped behavioural repertoire observed is mediated by cytokine-dependent mechanisms within the CNS. Systematic studies of the behavioural responses of such patient groups are suggested, noting specifically correlations between the time course and severity of immune and neuroendocrine and behavioural responses and dose-response effects.
Hickie IB, Lloyd AR, Wakefield D.	University of New South Wales, Sydney.	Chronic fatigue syndrome: current perspectives on evaluation and management.	933: Med J Aust 1995 Sep 18;163(6):314-8 comment in: Med J Aust. 1996 Mar 18;164(6):384	OBJECTIVE: To describe clinical and laboratory guidelines for assessment and management of patients presenting with chronic fatigue syndrome (CFS). DATA SOURCES: Relevant international consensus diagnostic criteria and research literature on the epidemiology, pathophysiology, concurrent medical and psychological disturbance and clinical management of CFS. CONCLUSIONS: Medical and psychiatric morbidity should be carefully assessed and actively treated, while unnecessary laboratory investigations and extravagant treatment regimens should be avoided. No single infective agent has been demonstrated as the cause of CFS, and immunopathological hypotheses remain speculative. The aetiological role of psychological factors is debated, but they do predict prolonged illness. The rate of spontaneous recovery appears to be high. Effective clinical management requires a

				multidisciplinary approach, with consideration of the medical, psychological and social factors influencing recovery.
Hicks JE		General Approaches to the Rehabilitation of Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995; 1(3/4): 85 - 90	
Hilden J.		[Chronic fatigue syndrome--a psychosocial syndrome]?[article in Danish]	Ugeskr Laeger 1995 Feb 6;157(6):757 comment on: Ugeskr Laeger. 1994 Nov 14;156(46):6832-6	
Hutchison AS.		Exercise responses in the chronic fatigue syndrome. Objective assessment of study is difficult without knowledge of data.	913: BMJ 1995 Nov 11;311(7015):1304 comment on: BMJ. 1995 Aug 26;311(7004):544-5	
Iaria RL Jr, Komaroff AL, Fagioli LR, Moloney WC, True CA, Naides SJ.	Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts, USA.	Absence of parvovirus B19 infection in chronic fatigue syndrome.	989: Arthritis Rheum 1995 May;38(5):638-41	OBJECTIVE. To evaluate the presence of infection with parvovirus B19 in patients with chronic fatigue syndrome (CFS) who also had rheumatologic symptoms and mild hematologic abnormalities. METHODS. Seven patients meeting the Centers for Disease Control and Prevention working case definition for CFS who also had mild leukopenia, thrombocytopenia, or anemia were studied. Bone marrow was aspirated from each patient, and examined for morphologic abnormalities, including features seen in marrow infections with parvovirus B19, as well as for parvoviral DNA, using polymerase chain reaction (PCR) amplification. Serum obtained at the time of marrow aspiration was also evaluated for parvoviral DNA, using the PCR method, and was examined for the presence of IgM and IgG antibodies to the virus. RESULTS. No evidence of marrow involvement with parvovirus B19 was found in any patient. One patient had antibody evidence of a transient parvoviral infection, during which time an underlying thrombocytopenia worsened. CONCLUSION. Despite examining a selected group of patients thought most likely to have parvoviral infection, based on clinical and hematologic measures, no evidence of clinically important parvoviral infection was noted. Thus, it seems unlikely that parvovirus B19 plays a role in CFS, even though it has been associated with fibromyalgia, a clinically similar syndrome.
Izquierdo Clemente C, Ibanez Estella JA, Sanchez Ibanez A.		[Chronic fatigue syndrome].[article in Spanish]	912: Aten Primaria 1995 Dec;16(10):647 comment on: Aten Primaria. 1995 May 31;15(9):587-8	
Jason LA, Taylor R, Wagner L, Holden J, Ferrari JR, Plioplys AV, Plioplys S, Lipkin D, Papernik M.	Department of Psychology, DePaul University, Chicago, Illinois 60614, USA.	Estimating rates of chronic fatigue syndrome from a community-based sample: a pilot study.	947: Am J Community Psychol 1995 Aug;23(4):557-68	Most of the Chronic Fatigue Syndrome (CFS) epidemiological studies have relied on physicians who refer patients having at least six months of chronic fatigue and other symptoms. However, there are a number of potential problems when using this method to derive prevalence statistics. For example, some individuals with CFS might not have the economic resources to access medical care. Other individuals with CFS might be reluctant to use medical personnel, particularly if they have encountered physicians skeptical of the authenticity of their illness. In addition, physicians that are skeptical of the existence of CFS might not identify cases. In the present pilot study, a random community sample (N = 1,031) was interviewed by telephone in order to identify and comprehensively evaluate individuals with symptoms of CFS and those who self-report having CFS. Different definitions of CFS were employed, and higher rates (0.2%) of CFS were found than in previous studies. Methodological benefits in using more rigorous epidemiological methods when estimating CFS prevalence rates are discussed.
Jenzer G.		[Clinical aspects and neurologic expert assessment in sequelae of whiplash injury to the cervical spine].[article in German]	929: Nervenarzt 1995 Oct;66(10):730-5	Whiplash injury to the cervical spine and its possible long-term sequelae, the late (or chronic) whiplash syndrome, are analysed based on a clearly defined accident mechanism and an initial battery of investigations to exclude lesions other than those affecting the soft tissue of the neck region (i.e. the consequences of strain and sprain). Predictors are discussed that may point to a delayed and complicated recovery, with development of a complex array of symptoms. The pattern of this symptomatology, as reviewed on the basis of different neuropsychological investigations, appears inhomogeneous. Comparison with other non-traumatic conditions, such as the chronic fatigue

				syndrome, the fibromyalgia syndrome and chronic daily headache, as well as with chronic disturbances of cervical origin, reveals striking similarities. In cases of litigation, these circumstances require careful assessment of the patient's previous history and an extensive differential diagnosis. Whiplash injury to the cervical spine rarely results in disability and, if so, is only minor.
Jonas WB		How Useful Are the Alternative Therapies for Chronic Fatigue Syndrome?	Journal of Chronic Fatigue Syndrome 1995; 1(3/4): 47 - 50	
Jovanovic J, Cvjetkovic D, Brkic S, Madle-Samardzija N.	Medicinski fakultet, Novi Sad.	[The Epstein-Barr virus and chronic fatigue syndrome]. [article in Serbo-Croatian (Roman)]	Med Pregl 1995;48(11-12):391-3	Lately discovered chronic fatigue syndrome is associated with Epstein-Barr virus infection. The objective of this paper was to detect this syndrome in our patients. 31 patients with cured acute infective mononucleosis were examined by questionnaire, physical check-up and laboratory analyses in order to detect disorders characteristic for chronic fatigue syndrome. Six months after they had been cured, out of 7 patients 5 patients complained of frequent sore throat, fatigue and exhaustion, and a year later, all 5 patients were sleepy and tired all the time. More than a year after the acute illness 19 patients were examined and in 5.6% frequent sore throat and enlarged neck lymph nodes occurred. The gathered results point to disorders characteristic for chronic fatigue syndrome in a high percentage. This pilot study should only be the beginning of examinations of this kind.
Kantrowitz FG, Farrar DJ, Locke SE.	Department of Psychiatry, Beth Israel Hospital, Harvard Medical School in Boston, USA.	Chronic fatigue syndrome. 2: Treatment and future research.	Behav Med 1995 Spring;21(1):17-24	
Kelly R.		Myalgic encephalomyelitis and chronic fatigue syndrome.	999: N Z Med J 1995 Mar 22;108(996):110 comment on: N Z Med J. 1995 Feb 8;108(993):44-5	
Kermode-Scott B.		Don't worry about the label. Diagnose underlying perpetuating factors in chronic fatigue syndrome.	972: Can Fam Physician 1995 Jun;41:1126-8	
Kerr JR, Curran MD, Moore JE, Murphy PG.	Department of Bacteriology, Belfast City Hospital, Northern Ireland.	Parvovirus B19 infection-- persistence and genetic variation.	Scand J Infect Dis 1995;27(6):551-7	53 patients with acute B19 infection were studied; symptoms at acute infection were rash and arthralgia (n = 26), rash (n = 7), arthralgia (n = 16), aplastic crisis (n = 3), and intrauterine fetal death (n = 1). These patients were followed for 26-85 months (mean 57 months) and re-assessed for persistent symptoms, anti-B19 antibodies, and B19 DNA. At follow-up, 7 individuals were positive for serum B19 DNA, compared with none of the controls (2-tailed p value = 0.016). All 7 of those persistently infected were women, 3 of whom had symptoms; 1 had a chronic haemolytic anaemia (initial presentation was aplastic crisis); 1 had persistent arthralgia in both knees (initial presentation was bilateral knee arthralgia); and 1 had arthralgia in one knee and chronic fatigue syndrome (initial presentation was bilateral arthralgia in knees and shoulders). For the 7 persistently infected patients, serum from the time of diagnosis of acute B19 infection was available for 4, all of which contained B19 DNA. With single-stranded conformational polymorphism (SSCP) assay of these 11 PCR products, identical SSCP types were demonstrated in 5 of 7 follow-up isolates. In 2 of the 4 cases for which both acute and follow-up PCR product was available, the SSCP type of the follow-up product was different from that of the acute product. Two B19 virus types were demonstrated in one patient (with persistent arthralgia and chronic fatigue syndrome) at follow-up assessment.
Klebanova VA.		[Chronic fatigue syndrome (Review)]. [article in Russian]	Gig Sanit 1995 Jan-Feb;(1):35-8	
Klein R, Berg PA.	Department of Internal Medicine, University of Tubingen, Germany.	High incidence of antibodies to 5-hydroxytryptamine, gangliosides and phospholipids in patients with chronic fatigue and fibromyalgia syndrome and	619: Eur J Med Res 1995 Oct 16;1(1):21-6	The fibromyalgia syndrome (FMS) is one of the most frequent rheumatic disorders showing a wide spectrum of different symptoms. An association with the chronic fatigue syndrome (CFS) has been discussed. Recently, a defined autoantibody pattern consisting of antibodies to serotonin (5-hydroxytryptamine, 5-HT), gangliosides and phospholipids was found in about 70% of the patients with FMS. We were therefore interested in seeing whether patients with CFS express similar humoral immunoreactivity. Sera from 42 CFS patients were analysed by ELISA for these antibodies, and the

		their relatives: evidence for a clinical entity of both disorders.		results were compared with those previously observed in 100 FMS patients. 73% of the FMS and 62% of the CFS patients had antibodies to serotonin, and 71% or 43% to gangliosides, respectively. Antibodies to phospholipids could be detected in 54% of the FMS and 38% of the CFS patients. 49% of FMS and 17% of the CFS patients had all three antibodies in parallel, 70% and 55%, respectively had at least two of these antibody types. 21% of FMS and 29% of CFS patients were completely negative for these antibodies. Antibodies to 5-HT were closely related with FMS/CFS while antibodies to gangliosides and phospholipids could also be detected in other disorders. The observation that family members of CFS and FMS patients also had these antibodies represents an argument in favour of a genetic predisposition. These data support the concept that FMS and CFS may belong to the same clinical entity and may manifest themselves as 'psycho-neuro-endocrinological autoimmune diseases'.
Krilov LR.	Department of Pediatrics, Cornell University Medical College, Manhasset, New York, USA.	Chronic fatigue syndrome.	975: <i>Pediatr Ann</i> 1995 Jun;24(6):290-2, 294	
Lane RJ, Burgess AP, Flint J, Riccio M, Archard LC.	Academic Unit of Neuroscience, Charing Cross and Westminster Medical School, London.	Exercise responses and psychiatric disorder in chronic fatigue syndrome.	939: <i>BMJ</i> 1995 Aug 26;311(7004):544-5 comment in: <i>BMJ</i> . 1995 Nov 11;311(7015):1304	
Lapp CW, Cheney PR.		The chronic fatigue syndrome.	956: <i>Ann Intern Med</i> 1995 Jul 1;123(1):74-5 comment on: <i>Ann Intern Med</i> . 1994 Dec 15;121(12):953-9	
LaRosa JH		NIH and the Women's Health Agenda	<i>Journal of Chronic Fatigue Syndrome</i> 1995; 1(3/4): 137 - 143	
Lawrie SM, Pelosi AJ.	Edinburgh University Department of Psychiatry, Royal Edinburgh Hospital.	Chronic fatigue syndrome in the community. Prevalence and associations.	974: <i>Br J Psychiatry</i> 1995 Jun;166(6):793-7	BACKGROUND. Chronic fatigue syndrome (CFS) is a poorly understood condition, apparently related to both psychiatric disturbance and infectious illness. Little progress has been made in identifying aetiology, owing to a lack of epidemiological studies using case-definition criteria. METHOD. A community postal survey of a random sample of over 1000 patients registered at a local health centre comprised a fatigue questionnaire and the 12-item General Health Questionnaire (GHQ). RESULTS. Total fatigue scores were modestly higher in women than men. Fatigue was most frequently attributed to psychosocial factors. Fatigue and GHQ scores were strongly correlated. Two men and two women satisfied British criteria for CFS, a prevalence of 0.56% (95% CI 0.16-1.47%); three were probable psychiatric cases. CONCLUSIONS. Previously reported sociodemographic associations of CFS may reflect medical referral patterns. A strong association exists with psychological morbidity, but relabelling CFS as a psychiatric disorder is not justified.
Leitch AG.	Royal Victoria Chest Clinic, Chalmers Hospital, RIE NHS Trust, Edinburgh, UK.	Neurasthenia, myalgic encephalitis or cryptogenic chronic fatigue syndrome?	977: <i>QJM</i> 1995 Jun;88(6):447-50	
Lemke MR.		[Chronic fatigue syndrome. The necessity for an integrated, interdisciplinary approach].[article in German]	<i>Dtsch Med Wochenschr</i> 1995 Jan 5;120(1-2):47	
Lesniak OM, Belikov ES.		[The classification of Lyme borreliosis (Lyme disease)].[article in Russian]	<i>Ter Arkh</i> 1995;67(11):49-51	A new version of Lyme's disease classification based on the authors' experience and other classifications is proposed. It distinguishes periods of the disease (acute, subacute, chronic) and stages (I--isolated erythema migrans, II--local disseminated infection, III--generalized disseminated infection) as well as the signs which are significant in Lyme's disease diagnosis: erythematous and nonerythematous form, seropositivity or seronegativity against <i>Borrelia burgdorferi</i> . Subclinical (latent) infection, complications of Lyme's disease (fibromyalgia syndrome, chronic fatigue syndrome, etc.) and mixed-infection with tick-borne viral encephalitis are included as well.
Lipkin DM, Robin R,		Chronic fatigue syndrome.	979: <i>J Neurol Neurosurg</i>	

Vasquez L, Plioplys AV, Plioplys S.			Psychiatry 1995 Jun;58(6):764-5 comment on: J Neurol Neurosurg Psychiatry. 1994 May;57(5):617-21	
Loblay RH.		Chronic fatigue syndrome: what's in a name?	935: Med J Aust 1995 Sep 18;163(6):285-6 comment in: Med J Aust. 1996 Feb 19;164(4):251	
Lutgendorf S, Nancy G. Klimas, Michael Antoni , Andrew Brickman, Mary Ann Fletcher		Relationships of Cognitive Difficulties to Immune Measures, Depression and Illness Burden in Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(2): 23 - 41	Objective. We related the subjective assessment of cognitive difficulties with lymphocyte phenotypes, cell-mediated immunity (CMI), cytokine and neopterin levels in patients with chronic fatigue syndrome (CFS), in order to determine if CFS patients complaining of greater cognitive difficulties would show greater impairments in cell-mediated immunity and a greater degree of immune system dysregulation, and to determine if these cognitive difficulties would correlate with the other non-affective measures of CFS associated illness burden. We also assessed whether these relationships would hold independent of depression in two ways, by statistically covarying depression severity scores and by comparing subsets of CFS patients with and without a concurrent diagnosis of major depressive disorder. Design. A case series of CFS patients. Setting. Outpatient tertiary referral clinic at the University of Miami School of Medicine, Miami, FL. Patients. Consecutive sample of 65 patients who were referred as CFS to the University of Miami Diagnostic Immunology Clinic, who met the Centers for Disease Control and Prevention (CDC) criteria for diagnosis of CFS and consented to participate. Main Measures. Self-assessment of cognitive difficulties, depression and illness burden, clinician-assessed depression and CFS symptoms, lymphocyte phenotype, proliferative response to mitogens, serum levels of cytokines and neopterin. Results. Among CFS patients, high Cognitive Difficulty Scale (CDS) scores were significantly related to lower lymphocyte proliferative responses to mitogens, higher neopterin levels, and higher CD4 and lower CD8 lymphocyte counts. These relationships, with the exception of T cell subset percentages, were maintained when depression severity was used as a co-variate. High CDS scores were also significantly related to lower Karnofsky scores, and greater illness burden as measured by the Sickness Impact Profile. Conclusions. Evidence is presented that CFS patients with higher cognitive difficulty scores have more immune and clinical dysfunction than those patients with less cognitive difficulty, and that these relationships are independent of depression. These observations provide support for the concept that although both cognitive difficulties and immunologic abnormalities, such as immune activation and impaired cell-mediated immunity, may represent secondary sequence to the same event(s), they are not likely to be secondary sequence to depression.
Lutgendorf SK, Antoni MH, Ironson G, Fletcher MA, Penedo F, Baum A, Schneiderman N, Klimas N.	Department of Psychology, University of Miami, Coral Gables, FL 33124, USA.	Physical symptoms of chronic fatigue syndrome are exacerbated by the stress of Hurricane Andrew.	967: Psychosom Med 1995 Jul-Aug;57(4):310-23	This study examined the effects of Hurricane Andrew on physical symptoms and functional impairments in a sample of chronic fatigue syndrome (CFS) patients residing in South Florida. In the months after Hurricane Andrew (September 15-December 31, 1992), 49 CFS patients were assessed for psychosocial and physical functioning with questionnaires, interviews, and physical examinations. This sample was made up of 25 CFS patients living in Dade county, a high impact area, and 24 patients in Broward and Palm Beach counties, areas less affected by the hurricane. Based on our model for stress-related effects on CFS, we tested the hypothesis that the patients who had the greatest exposure to this natural disaster would show the greatest exacerbation in CFS symptoms and related impairments in activities of daily living (illness burden). In support of this hypothesis, we found that the Dade county patients showed significant increases in physician-rated clinical relapses and exacerbations in frequency of several categories of self-reported CFS physical symptoms as compared to the Broward/Palm Beach county patients. Illness burden, as measured on the Sickness Impact Profile, also showed a significant increase in the Dade county patients. Although extent of disruption due to the storm was a significant factor in predicting relapse, the patient's posthurricane distress response was the single strongest predictor of the likelihood and severity of relapse and functional impairment. Additionally, optimism and social support were significantly associated with lower illness burden after the hurricane, above and beyond storm-related disruption and distress responses. These

				findings provide information on the impact of environmental stressors and psychosocial factors in the exacerbation of CFS symptoms.
Macintyre A.		Viral illness and chronic fatigue (syndrome)	963: Lancet 1995 Jul 1;346(8966):47 comment in: Lancet. 1995 Aug 12;346(8972):449 comment on: Lancet. 1995 May 27;345(8961):1333-8	
Martin WJ, Glass RT.	Department of Pathology, University of Southern California School of Medicine, Los Angeles 90033, USA.	Acute encephalopathy induced in cats with a stealth virus isolated from a patient with chronic fatigue syndrome.	Pathobiology 1995;63(3):115-8	A simian cytomegalovirus-related stealth virus, isolated from a patient with the chronic fatigue syndrome, induced an acute neurological illness when inoculated into cats. Histological examination of brain tissue showed foci of cells with cytoplasmic vacuolization and an absence of any inflammatory reaction. Electron microscopy confirmed the presence of herpes-like viral particles and viral-like products in the brain of an inoculated animal. These findings support the role of stealth viruses in the pathogenesis of human neurological diseases and provide an animal model to evaluate potential antiviral therapy.
Mawle AC, Nisenbaum R, Dobbins JG, Gary HE Jr, Stewart JA, Reyes M, Steele L, Schmid DS, Reeves WC.	Division of Viral and Rickettsial Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia 30333, USA.	Seroepidemiology of chronic fatigue syndrome: a case-control study.	907: Clin Infect Dis 1995 Dec;21(6):1386-9	We performed serological testing for a large number of infectious agents in 26 patients from Atlanta who had chronic fatigue syndrome (CFS) and in 50 controls matched by age, race, and sex. We did not find any agent associated with CFS. In addition, we did not find elevated levels of antibody to any of a wide range of agents examined. In particular, we did not find elevated titers of antibody to any herpesvirus, nor did we find evidence of enteroviral exposure in this group of patients.
Mayberg H		Functional Neuroimaging in CFS: Applications and Limitations	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 9 - 20	
McComas AJ, Miller RG, Gandevia SC.	Department of Biomedical Sciences, McMaster University, Hamilton, Canada.	Fatigue brought on by malfunction of the central and peripheral nervous systems.	Adv Exp Med Biol 1995;384:495-512	Increased fatigability necessarily occurs in every patient with muscle weakness, regardless of whether the latter is due to a central or peripheral neurological disorder. The tendency for disuse to increase fatigability, as a secondary phenomenon, must also be considered; disuse affects both motoneuron recruitment and the biochemical and physiological properties of the muscle fibers. In recent studies impaired recruitment has been observed in postpolio patients, while patients with multiple sclerosis or spinal cord injury have shown, in addition, altered neuromuscular function. Findings are also presented in ALS and the chronic fatigue syndrome. In general, the most dramatic increases in fatigability take place in disorders of the peripheral nervous system and almost any cell component can be incriminated. There is a need to study fatigability systematically in neurology and rehabilitation.
McKenzie M, Lucy Dechene, Fred Friedberg, Robert Fontanetta		Coping Reports of Patients with Long-Term Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 59 - 67	Two hundred sixty-five patients with chronic fatigue syndrome, who had been ill for a minimum of 10 years, responded to an open-ended questionnaire with detailed descriptions of major illness issues and coping techniques. Their predominant illness concerns and personal accounts of coping strategies as well as an analysis of style of coping and illness progression will be presented.
McKenzie R, Straus SE.	Laboratory of Clinical Investigation, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland, USA.	Chronic fatigue syndrome.	Adv Intern Med 1995;40:119-53	
Mitterer M, Pescosta N, Fend F, Larcher C, Prang N, Schwarzmann F, Coser P, Huemer HP.	Department of Haematology, General Hospital, Bozen, Italy.	Chronic active Epstein-Barr virus disease in a case of persistent polyclonal B-cell lymphocytosis.	958: Br J Haematol 1995 Jul;90(3):526-31	Persistent polyclonal B-cell lymphocytosis (PPBL) is a rare haematological disorder. It is characterized by activated and morphologically atypical B lymphocytes and polyclonal IgM production and has been associated with female sex, cigarette smoking, and HLA-DR7 expression. We report a case of PPBL with intermitting symptoms compatible with a chronic fatigue syndrome, recurrent erythema nodosum and multiforme. Serological findings suggested a chronic active Epstein-Barr virus (EBV) infection. Messenger RNA of EBV immediate early gene transactivation BZLF1 was detected in peripheral blood lymphocytes by reverse transcriptase PCR indicating a persistent replication of the virus. Over 2 years of observation we detected varying numbers of atypical lymphocytes. These cells hybridized with a probe specific for the EBV internal repeat region (BamHI W) which indicates a productive

				infection. Of interest, no reaction was observed with a probe specific for the latency-associated small RNAs (EBERs). The immunological phenotype of the polyclonal B cells was similar to B-cell lines immortalized by EBV in vitro, expressing a number of activation molecules (CD23, CD25, CD54) and the bcl-2 protein. In summary, our findings suggest that persistent EBV replication might be crucial in the development of lymphoproliferative disorders such as PPBL.
Moldofsky H.	Centre for Sleep and Chronobiology, Toronto Hospital, Western Division, Canada.	Sleep, neuroimmune and neuroendocrine functions in fibromyalgia and chronic fatigue syndrome.	Adv Neuroimmunol 1995;5(1):39-56	The justification for disordered chronobiology for fibromyalgia and chronic fatigue syndrome (CFS) is based on the following evidence: The studies on disordered sleep physiology and the symptoms of fibromyalgia and CFS; the experimental studies that draw a link between interleukin-1 (IL-1), immune-neuroendocrine-thermal systems and the sleep-wake cycle; studies and preliminary data of the inter-relationships of sleep-wakefulness, IL-1, and aspects of peripheral immune and neuroendocrine functions in healthy men and in women during differing phases of the menstrual cycle; and the observations of alterations in the immune-neuroendocrine functions of patients with fibromyalgia and CFS (Moldofsky, 1993b, d). Time series analyses of measures of the circadian pattern of the sleep-wake behavioural system, immune, neuroendocrine and temperature functions in patients with fibromyalgia and CFS should determine whether alterations of aspects of the neuro-immune-endocrine systems that accompany disordered sleep physiology result in nonrestorative sleep, pain, fatigue, cognitive and mood symptoms in patients with fibromyalgia and CFS. Review, Academic
Moss SE		Cognitive/Linguistic Deficits Associated with Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 95 - 100	
Murdoch JC.		Chronic fatigue syndrome.	950: N Z Med J 1995 Jul 28;108(1004):301 comment in: N Z Med J. 1995 Sep 22;108(1008):393 comment on: N Z Med J. 1995 Jun 14;108(1001):234-5	
Murtagh J.	Department of Community Medicine, Monash University.	Patient education. Chronic fatigue syndrome.	957: Aust Fam Physician 1995 Jul;24(7):1297	
Naik SR, Ghoshal UC		Low grade pyrexia: is chronic fatigue syndrome a safe and justified diagnosis? .	926: J Assoc Physicians India 1995 Oct;43(10):725-6 comment on: J Assoc Physicians India. 1994 Aug;42(8):606-8	
Nairn C, Galbraith DN, Clements GB.	Regional Virus Laboratory, Ruchill Hospital, Glasgow, Scotland.	Comparison of coxsackie B neutralisation and enteroviral PCR in chronic fatigue patients.	949: J Med Virol 1995 Aug;46(4):310-3	Coxsackie B enteroviruses have been implicated repeatedly as agents associated with chronic fatigue syndrome (CFS). The objective of this study was to compare the serological evidence for the presence of Coxsackie B virus neutralising antibody, with the polymerase chain reaction (PCR) detecting a portion of the 5' nontranslated region (NTR) of the enterovirus genome. Serum samples from 100 chronic fatigue patients and from 100 healthy comparison patients were used in this study. In the CFS study group, 42% patients were positive for enteroviral sequences by PCR, compared to only 9% of the comparison group. Using the neutralisation assay, 34% of study patients were positive, compared to 41% of comparison patients. In the study group, 66/100 patient results correlated, i.e., they were either positive/positive or negative/negative for both tests. Of those that did not correlate, the majority were PCR-positive/Coxsackie B antibody-negative (21/34). In the comparison group, 58/100 patient results correlated. Of those that did not, the majority were PCR-negative/Coxsackie B antibody-positive (37/42). The Coxsackie B antibody neutralisation assay was not able to differentiate the CFS study group from the healthy comparison group, and thus the clinical relevance of this assay may be questioned. The PCR assay did differentiate the two groups with significantly more CFS patients having evidence of enterovirus than the comparison group.
Natelson BH, Ellis SP, Braonain PJ, DeLuca J, Tapp WN.	CFS Center, University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark	Frequency of deviant immunological test values in chronic fatigue syndrome patients.	Clin Diagn Lab Immunol 1995 Mar;2(2):238-40	Of 11 immunological tests done on chronic fatigue syndrome patients and on fatigued controls, 3 tests (protein A binding, Raji cell, or C3 or C4 [deviant values in either complement component were counted as positive]) with deviant results discriminated best among the groups. Other tests, including immunoglobulin G subclasses, complement component CH50, interleukin-2, and anticardiolipin

	07103.			antibodies, did not discriminate well among the groups.
Natelson BH, Johnson SK, DeLuca J, Sisto S, Ellis SP, Hill N, Bergen MT.	Department of Neurosciences, University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark, USA.	Reducing heterogeneity in chronic fatigue syndrome: a comparison with depression and multiple sclerosis.	916: Clin Infect Dis 1995 Nov;21(5):1204-10	Chronic fatigue syndrome (CFS) is a heterogeneous illness characterized by a high prevalence of psychiatric problems. We reasoned that we could reduce heterogeneity by excluding patients with psychiatric problems preceding CFS. We compared the functional status, mood, fatigue level, and psychiatric status of this more homogeneous group of CFS patients with the same parameters in patients with mild multiple sclerosis and in patients with major depression or dysthymia. Patients with CFS and those with multiple sclerosis were similar in terms of level of anger, severity of depression, level of anxiety, and frequency of current psychiatric diagnoses. Patients with CFS resembled depressed patients in having impaired vigor and experiencing substantial fatigue and confusion--problems constituting part of the case definition of CFS. The group with CFS was not psychologically vulnerable before the development of this condition and maintained adequate networks of social support despite disabling illness. Stratification to exclude patients with prior psychiatric disease and those with mild CFS allowed us to define a group of patients with CFS who more resembled patients with mild MS than patients with major depression or dysthymia and thus were more likely to have illness with an infectious or immunologic cause. Use of such a stratification strategy should prove important in testing of the viral/immunologic hypothesis of the etiology of CFS.
Nixon PG.		Hyperventilation and chronic fatigue syndrome.	QJM 1995 Jan;88(1):73-4 Erratum in: QJM 1995 Apr;88(4):299	
Nixon PG.		Chronic fatigue syndrome in Army general practice.	981: J R Army Med Corps 1995 Jun;141(2):112-3	
Pankow W, Feddersen CO, von Wichert P.	Abteilung Poliklinik, Zentrum für Innere Medizin, Klinikum, Philipps-Universität, Marburg.	[Differential therapy of chronic fatigue syndrome]. [article in German]	911: Internist (Berl) 1995 Dec;36(12):1156-61	
Patarca R, Nancy G. Klimas Maria N. Garcia, Michael J. Walters, Derek Dombroski, Hector Pons, Mary Ann Fletcher		Dysregulated Expression of Soluble Immune Mediator Receptors in a Subset of Patients with Chronic Fatigue Syndrome: Cross-Sectional Categorization of Patients by Immune Status	Journal of Chronic Fatigue Syndrome 1995: 1(1): 81 - 96	Individuals with chronic fatigue syndrome (CFS) have significantly increased proportions of activated CD8+T cells, decreased natural killer (NK) cell cytotoxic and lymphoproliferative activities, elevated serum levels of tumor necrosis factor (TNF)- α and detectable TNF- β , interleukin (IL)-1 β , and IL-6 mRNA in peripheral blood mononuclear cells (PBMC). We report here that CFS patients as a group also have significantly higher levels, as compared to controls, of soluble TNF receptor type I (sTNF-RI or sCD120a), sIL-6R (sCD126) and β 2-microglobulin (β 2-m), but not of IL-1 receptor antagonist (IL-1Ra). Correlative and population distribution studies that included lymphoid phenotypic distributions and function as well as soluble immune mediator expression levels revealed the existence of at least two mainly nonoverlapping immunological categories among CFS patients with either: (1) dysregulated TNF- α / β expression in association with changes in the serum levels of IL-1 α , IL-4, sIL-2R and IL-1Ra, PBMC-associated expression of IL-1 β , IL-6 and TNF- β mRNA, and T cell activation; or, (2) interrelated and dysregulated expression of sTNF-RI, sIL-6R, and β 2-m and significantly decreased lymphoproliferative and NK cell cytotoxic activities. This preliminary systematization is of usefulness in the diagnosis, follow-up, and characterization of possible etiological agents for CFS.
Patnaik M, Komaroff AL, Conley E, Ojo-Amaize EA, Peter JB.	Specialty Laboratories, Inc., Santa Monica, California 90404-3900, USA.	Prevalence of IgM antibodies to human herpesvirus 6 early antigen (p41/38) in patients with chronic fatigue syndrome.	919: J Infect Dis 1995 Nov;172(5):1364-7 Erratum in: J Infect Dis 1995 Dec;172(6):1643	To evaluate the association between human herpesvirus 6 (HHV-6) and chronic fatigue syndrome (CFS), 2 geographically separate groups of CFS patients (125 and 29 patients, respectively) and healthy controls (150 and 15 controls, respectively) were compared, using an EIA, for antibodies to HHV-6 early antigen p41/38 (EA). Sixty percent (93/154) of CFS patients were positive for HHV-6 EA IgM, 40% (61/154) were positive for IgG, and 23% (35/154) were positive for both. A total of 119 (77%) of the CFS patients were positive for HHV-6 EA IgG or IgM (or both); only 12% (20/165) of the controls had IgG or IgM to HHV-6 EA. These data demonstrate that more CFS patients than controls had elevated levels of HHV-6 EA-specific IgM, perhaps indicating active replication of HHV-6 in CFS.
Pelcovitz D, Septimus A, Friedman SB, Krilov LR, Mandel F, Kaplan S.	Department of Psychiatry, North Shore University Hospital, Manhasset, NY 11030, USA.	Psychosocial correlates of chronic fatigue syndrome in adolescent girls.	928: J Dev Behav Pediatr 1995 Oct;16(5):333-8	Behavior problems and family functioning were investigated in a sample of 10 adolescent girls with chronic fatigue syndrome (CFS), 10 matched healthy adolescent girls, and 10 adolescents with childhood cancer in remission. Based on the adolescent girls' reports, the CFS group had significantly higher scores than the cancer and healthy comparison adolescent girls on somatic complaints and also significantly higher scores than the cancer controls on internalizing symptoms and depression. Parent

				reports resulted in significantly higher scores in the CFS group than the adolescent girls from the healthy comparison groups on internalizing scores and somatic complaints. There were no significant differences on any family variables.
Petrie K, Moss-Morris R, Weinman J.	Department of Psychiatry and Behavioural Science, University of Auckland Medical School, New Zealand.	The impact of catastrophic beliefs on functioning in chronic fatigue syndrome.	J Psychosom Res 1995 Jan;39(1):31-7	This study investigated the association between catastrophic beliefs and disability in the context of Chronic fatigue syndrome (CFS). A sample of 282 CFS sufferers were asked about the consequences of pushing themselves beyond their present physical state. Responses were coded into catastrophic or non-catastrophic categories. While not differing on the length of illness or psychological adjustment, subjects demonstrating catastrophic responses evidenced significantly higher levels of fatigue and were more disabled in terms of their ability to work both in their normal occupation and around the house. Catastrophizers also showed greater disability in terms of their sleep and rest, social communication, and recreational activities. The role of catastrophic beliefs and personal perceptions of CFS in maintaining the illness is discussed.
Plioplys AV, Plioplys S.	Chronic Fatigue Syndrome Center, Mercy Hospital and Medical Center, Chicago, Ill. 60616, USA.	Serum levels of carnitine in chronic fatigue syndrome: clinical correlates.	Neuropsychobiology 1995;32(3):132-8	Carnitine is essential for mitochondrial energy production. Disturbance in mitochondrial function may contribute to or cause the fatigue seen in chronic fatigue syndrome (CFS) patients. One previous investigation has reported decreased acylcarnitine levels in 38 CFS patients. We investigated 35 CFS patients (27 females and 8 males); our results indicate that CFS patients have statistically significantly lower serum total carnitine, free carnitine and acylcarnitine levels, not only lower acylcarnitine levels as previously reported. We also found a statistically significant correlation between serum levels of total and free carnitine and clinical symptomatology. Higher serum carnitine levels correlated with better functional capacity. These findings may be indicative of mitochondrial dysfunction, which may contribute to or cause symptoms of fatigue in CFS patients.
Plioplys AV, Plioplys S.	Chronic Fatigue Syndrome Center, Mercy Hospital and Medical Center, Chicago, IL 60616, USA.	Electron-microscopic investigation of muscle mitochondria in chronic fatigue syndrome.	Neuropsychobiology 1995;32(4):175-81	Patients with chronic fatigue syndrome (CFS) suffer from disabling physical and mental fatigue. Abnormalities in mitochondrial function can lead to fatigue and weakness. Ultrastructural mitochondrial abnormalities have been reported to be present in CFS patients. We obtained percutaneous needle muscle biopsies from 15 CFS patients and 15 age- and sex-matched controls. We investigated previously reported ultrastructural abnormalities in CFS: subsarcolemmal mitochondrial aggregates, intermyofibrillar mitochondrial aggregates, mitochondrial circumference, area, pleomorphism and the presence of compartmentalization of the inner mitochondrial membrane. All of the steps of tissue processing, electron microscopy and data abstracting and analysis were performed in a totally blinded fashion. All of our data were rigorously quantified. We found no difference in any of these studied parameters between CFS patients and controls. Although there is no ultrastructural mitochondrial abnormality in CFS patients, other lines of evidence suggest the presence of a possible functional mitochondrial abnormality.
Plioplys S, Plioplys AV.	Chronic Fatigue Syndrome Center, Mercy Hospital and Medical Center, Chicago, IL 60616, USA.	Chronic fatigue syndrome (myalgic encephalopathy).	930: South Med J 1995 Oct;88(10):993-1000	Chronic fatigue syndrome is associated with many misconceptions. In this review, we attempt to summarize various pathogenic hypotheses for this disease and discuss new lines of insight into causes and treatments of this baffling and most frustrating condition.
Polich J, Moore AP, Wiederhold MD.	Department of Neuropharmacology, Scripps Research Institute, La Jolla, California 92037, USA.	P300 assessment of chronic fatigue syndrome.	J Clin Neurophysiol 1995 Mar;12(2):186-91	The P3(00) event-related brain potential (ERP) was elicited with an auditory tone-discrimination paradigm in 25 patients diagnosed with chronic fatigue syndrome (CFS) and 25 matched normal control subjects. Target stimulus probability was varied systematically (0.20, 0.50, 0.80) in different task conditions. No differences between the CFS and control subjects were found for either P3 amplitude or latency. No group effects were observed for the N1, P2, and N2 components. Despite the attentional and immediate memory deficits reported in CFS, the P3 ERP from auditory stimuli does not reliably discriminate CFS from matched control subjects.
Pollark RJ, Komaroff AL, Telford SR 3rd, Gleit, Fagioli L, Brunet LR, Spielman A.		Borrelia burgdorferi infection is rarely found in patients with chronic fatigue syndrome.	Clin Infect Dis 1995 Feb;20(2):467-8	
Priest RG, Gimbrett R, Roberts M, Steinert J.	Department of Psychiatry, St Mary's Hospital Medical School, Imperial College of Science, Technology and	Reversible and selective inhibitors of monoamine oxidase A in mental and other disorders.	Acta Psychiatr Scand Suppl 1995;386:40-3	The clinically tested reversible inhibitors of monoamine oxidase A (RIMAs) include brofaromine, moclobemide and toloxatone. Moclobemide has shown unequivocal antidepressant activity against serious depressive illness in 4 placebo-controlled double-blind trials. It has been compared with amitriptyline, imipramine, clomipramine, desipramine, maprotiline, fluoxetine, fluvoxamine,

	Medicine, University of London, United Kingdom.			tranylcypromine, toloxatone, mianserin and amineptine in the treatment of depressive disorders. Meta-analysis showed convincing evidence of moclobemide efficacy, comparable with the most potent antidepressants available. The efficacy of moclobemide has been demonstrated in psychotic and non-psychotic depression, in depression with and without melancholia, in endogenous depression (both unipolar and bipolar), in retarded depression and in agitated depression. The efficacy of moclobemide, allied to the unusually benign side effect profile, has led to exploration of its use in other disorders. Two small studies have given encouraging results in the treatment of attention-deficit hyperactivity disorder. Large placebo-controlled studies have shown the activity of moclobemide in the depression that accompanies dementia (such as senile dementia of Alzheimer type). The results also suggested that, in this patient population, cognitive ability improved in parallel. Social phobia has also been shown to improve on treatment with either moclobemide or brofaromine. Clinical trials are in progress on the effect of moclobemide in chronic fatigue syndrome. Moreover, there are encouraging results with the use of brofaromine and moclobemide in panic disorder. Other disorders in which treatment with RIMA is of interest include agoraphobia, bulimia, borderline personality disorder, post-traumatic stress disorder, compulsive hair pulling (trichotillomania), dysmorphophobia, kleptomania as well as various anxiety syndromes.
Ray C, Jefferies S, Weir WR.	Department of Human Sciences, Brunel University, Uxbridge, London.	Coping with chronic fatigue syndrome: illness responses and their relationship with fatigue, functional impairment and emotional status.	936: Psychol Med 1995 Sep;25(5):937-45	The implications of patients' approaches to managing chronic fatigue syndrome were examined in a cross-sectional study. With severity of fatigue controlled, attempting to maintain activity was associated with less functional impairment, while accommodating to the illness was positively related to impairment; behavioural disengagement was related not only to higher levels of impairment but also to greater emotional disturbance. Fatigue itself was positively associated with focusing on symptoms and with behavioural disengagement; it was associated also with illness accommodation, but only for illness of longer duration. The causal direction of relationships between coping and fatigue severity is ambiguous, and a follow-up study will address the effects of coping on changes in the illness over time.
Ray C, Jefferies S, Weir WR.	Department of Human Sciences, Brunel University, Middlesex, UK.	Life-events and the course of chronic fatigue syndrome.	910: Br J Med Psychol 1995 Dec;68 (Pt 4):323-31	Life-events have been implicated in the onset and course of various illnesses. The present study examined their role in chronic fatigue syndrome, in the context of the ongoing illness. Using the PERI list, events experienced during the past year were elicited in interviews with 130 patients. The analyses were restricted to those events implying moderate or major life change, and separate analyses were carried out for positive and negative events. Positive events were found to be associated with lower scores for fatigue, impairment, anxiety and depression, as assessed at the time of the life-events interview, and these relationships were also significant when prior scores at the beginning of the year were statistically controlled. Negative life-events were associated with higher anxiety, but were unrelated to the other measures. It was concluded that positive life-events and experiences may contribute to the process of recovery in chronic fatigue syndrome, though their occurrence may also be facilitated by a preceding lifting of symptoms.
Reilly PA.	Frimley Park NHS Trust Hospital, Camberley, Surrey, UK.	'Repetitive strain injury': from Australia to the UK.	944: J Psychosom Res 1995 Aug;39(6):783-8	The UK is now experiencing an epidemic of upper limb pain similar to that which affected Australia in the 1980s. The pain is often non-specific, and does not conform to the pattern of various well-recognized rheumatological entities. The syndrome is known by a number of terms, some of which imply an aetiological link to workplace activities unsubstantiated by hard evidence. The syndrome may well be largely psychosocial, and analogous to the chronic fatigue syndrome. It is currently the cause of many contentious and well-publicized medico-legal cases. Possible factors behind the epidemic will be discussed, and an approach to management suggested.
Rest J.		The chronic fatigue syndrome.	955: Ann Intern Med 1995 Jul 1;123(1):75; discussion 76 comment on: Ann Intern Med. 1994 Dec 15;121(12):953-9	
Richardson JR		Disturbance of Hypothalamic Function and Evidence for Persistent Enteroviral Infection in Patients with Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(2): 59 - 66	It has been suggested that one of the major effects of persistent virus infections in the production of disorders such as the chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) is on the hypothalamus (1). Buspirone, which is one of the anxiolytic drugs of the azapirone group, causes a release of prolactin by stimulation of serotonin 5-hydroxytryptamine (5-HT) receptors. The buspironeprolactin response was studied in a subgroup of patients with CFS/ME and evidence of

				<p>persistent enteroviral infection, as shown by the repeated detection of the groupspecific protein of enteroviruses, VPI, in the blood. Family controls who were asymptomatic were studied at the same time. In addition to the response to buspirone, diurnal variations in cortisol and prolactin levels were studied. It was found that the patients with CFS/ME had much greater rises in prolactin levels one hour after buspirone compared to controls. Cortisol levels were elevated in the patients, but the rise was not significantly different between the two groups. There was a significant association between the pattern of sleep disturbance, which we speak of as the OWL syndrome, and the ratio of preand post-buspirone prolactin levels. This study shows that there is a hypothalamic disturbance in the patients who also had evidence of enteroviral infection as part of the disorder of CFSME. It represents a quantifiable biochemical alteration to be found in this group of patients</p>
Romer FK.		[Chronic fatigue syndrome and angiotensin-converting enzyme].[article in Danish]	Ugeskr Laeger 1995 Feb 6;157(6):756-7 comment on: Ugeskr Laeger. 1994 Nov 14;156(46):6832-6 Ugeskr Laeger. 1994 Nov 14;156(46):6836-40	
Roser Galard C, Juncadella Garcia E, Hernandez Hernandez A, Maymo Pijuan N.		[Chronic fatigue syndrome: is it ignored in primary care?][article in Spanish]	985: Aten Primaria 1995 May 31;15(9):587-8 comment in: Aten Primaria. 1995 Dec;16(10):647	
Rotheram EB Jr.		The chronic fatigue syndrome.	954: Ann Intern Med 1995 Jul 1;123(1):75; discussion 76 comment on: Ann Intern Med. 1994 Dec 15;121(12):953-9	
Rowe PC, Bou-Holaigah I, Kan JS, Calkins H.	Department of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD 21287.	Is neurally mediated hypotension an unrecognized cause of chronic fatigue?	Lancet 1995 Mar 11;345(8950):623-4 comment in: Lancet. 1995 Apr 29;345(8957):1112; discussion 1112-3 Lancet. 1995 Apr 29;345(8957):1113	Neurally mediated hypotension is now recognised as a common cause of otherwise unexplained recurrent syncope, but has not been reported in association with chronic fatigue. We describe seven consecutive non-syncopal adolescents with chronic post-exertional fatigue, four of whom satisfied strict criteria for chronic fatigue syndrome. Upright tilt-table testing induced significant hypotension in all seven (median systolic blood pressure 65 mm Hg, range 37-75), consistent with the physiology of neurally mediated hypotension. Four had prompt improvement in their chronic fatigue when treated with atenolol or disopyramide. These observations suggest an overlap in the symptoms of chronic fatigue syndrome and neurally mediated hypotension.
Sairenji T, Yamanishi K, Tachibana Y, Bertoni G, Kurata T.	Department of Pathology, National Institute of Health, Tokyo, Japan.	Antibody responses to Epstein-Barr virus, human herpesvirus 6 and human herpesvirus 7 in patients with chronic fatigue syndrome.	Intervirology 1995;38(5):269-73	To test for an association between chronic fatigue syndrome (CFS) and infections with Epstein-Barr virus (EBV), human herpesvirus 6 (HHV-6) and human herpesvirus 7 (HHV-7), antibodies to these viruses were tested in the serum from three groups of individuals: (1) 10 CFS patients with chronic fatigue beginning with a clinical pattern of acute infectious mononucleosis [IM; true chronic IM (CIM)]; (2) 10 CFS patients whose illness did not start with acute IM (non-CIM), and (3) healthy controls. High EBV antibody titers were demonstrated in most patients. Antibodies to ZEBRA, a product of the immediate early EBV gene BZLF1, were detected in the serum of CFS patients at a higher frequency than in healthy controls. Antibody titers to HHV-6 and HHV-7 were also higher in the patients with CFS than in the controls. These results are consistent with the view that CFS patients may have reactivations of EBV, HHV-6 and HHV-7.
Schaefer KM.	Allentown College of St. Francis de Sales, Center Valley, PA 18034, USA.	Sleep disturbances and fatigue in women with fibromyalgia and chronic fatigue syndrome.	J Obstet Gynecol Neonatal Nurs 1995 Mar-Apr;24(3):229-33	OBJECTIVE: To determine the relationship between sleep disturbances and fatigue in women with fibromyalgia (FM) and those with chronic fatigue syndrome (CFS) and to assess whether any differences existed between the two groups. DESIGN: Descriptive comparative. SETTING: Community program on chronic fatigue syndrome and related disorders. PARTICIPANTS: Sixty-three women who attended the program; 13 had CFS, and 50 had FM. MAIN OUTCOME MEASURES: A moderately strong relationship between fatigue and sleepiness was found ($r = .63$, $p < .01$). Trouble staying asleep was the highest rated sleep disturbance, and fatigue was the most common subjective feeling reported. Women with CFS reported significantly more trouble staying asleep than women with FM, $t(61) = 1.81$, $p < .03$. CONCLUSIONS: Data from this study support that women with FM and CFS encounter problems sleeping. Clinicians are encouraged to assess women with FM and CFS for

				their quality of sleep rather than amount of sleep. Researchers are encouraged to continue study of sleep disturbances in women with FM and CFS to improve understanding of the disturbances and to test the effectiveness of sleep interventions.
Schlech WF 3rd.	Department of Medicine, Dalhousie University, Halifax, Nova Scotia, Canada.	The practice of infectious diseases in the 1990s: the Canadian experience.	Clin Infect Dis 1995 Feb;20(2):291-5	A survey of the members of the Canadian Infectious Disease Society was carried out to determine the content of an infectious diseases consultative practice in the 1990s. Respondents were asked to identify all new inpatient, outpatient, and telephone consultations during a 1-week period in 1990. Consultations were categorized by the infectious disease syndrome of the patient and by the microorganism that was identified. Bacterial infections were the most common cause of inpatient consultations, while viral infections were more common in outpatients. Consultations for parasitic infections were primarily for <i>Pneumocystis carinii</i> pneumonia related to infection with the human immunodeficiency virus (HIV). "Newer" infectious disease syndromes such as chronic fatigue syndrome, toxic shock syndrome, and Lyme disease were all represented in the responses for the 1-week study period. The significant impact of HIV infection on the overall consultative load suggests that there will be a continuing need for newly trained infectious disease consultants into the 21st century.
Schmaling KB, Jeannie D. DiClementi		Interpersonal Stressors in Chronic Fatigue Syndrome: A Pilot Study	Journal of Chronic Fatigue Syndrome 1995; 1(3/4): 153 - 158	This paper reports two preliminary studies on interpersonal influences in CFS. The first study explored histories of abuse in patients with CFS and the second report assessed fatigue activity level and relationship satisfaction in CFS patients. The results of the first study indicated that the patients with CFS reported high levels of prior abuse compared to prior experiences of healthy controls. In the second study, higher levels of fatigue were moderately correlated with inactivity for CFS individuals in satisfied relationships, but not among patients in dissatisfied relationships. These findings suggested that solicitous partners may be inadvertently reinforcing disability. The results of the two studies support a biopsychosocial model of CFS.
Schonfeld U.		[Chronic fatigue syndrome]. [article in German]	994: Med Monatsschr Pharm 1995 Apr;18(4):90-6	
Schweitzer R, Kelly B, Foran A, Terry D, Whiting J.	Queensland University of Technology, Australia.	Quality of life in chronic fatigue syndrome.	917: Soc Sci Med 1995 Nov;41(10):1367-72	Whilst the debilitating fatigue experienced in patients suffering from Chronic Fatigue Syndrome (CFS) results in a subjective marked impairment in functioning, little research has investigated the impact of this disorder on quality of life. Forty-seven subjects with a confirmed diagnosis of CFS and 30 healthy controls were compared using the Sickness Impact Profile (SIP). A subgroup of subjects were interviewed regarding the impact CFS has had on their social and family relationships, work and recreational activities. Results from both the SIP and the interview revealed that CFS subjects had significantly impaired quality of life, especially in areas of social functioning. These findings highlight the importance of addressing the social isolation and loss of role functioning experienced by CFS sufferers.
Secchiero P, Carrigan DR, Asano Y, Benedetti L, Crowley RW, Komaroff AL, Gallo RC, Lusso P.	Laboratory of Tumor Cell Biology, National Cancer Institute, National Institutes of Health, Bethesda, Maryland 20892.	Detection of human herpesvirus 6 in plasma of children with primary infection and immunosuppressed patients by polymerase chain reaction.	J Infect Dis 1995 Feb;171(2):273-80	A sensitive and specific polymerase chain reaction method for the detection of human herpesvirus 6 (HHV-6) DNA in serum or plasma has been developed. In total, 157 human serum or plasma samples were studied. HHV-6 DNA was detected in 6 (85.7%) of 7 children with exanthem subitum, 3 (23.1%) of 13 bone marrow transplant (BMT) recipients, 4 (22.2%) of 18 human immunodeficiency virus (HIV)-infected patients, 1 (2.6%) of 39 patients with chronic fatigue syndrome, and none of 37 healthy adults. In the HHV-6-positive BMT recipients, HHV-6 plasma DNA was transiently detected during episodes of fever and respiratory infection. In children with exanthem subitum and in 1 HIV-infected patient, the HHV-6 strains were characterized as variant B, whereas variant A was detected in all other patients. Detection of viral DNA in serum or plasma is a marker of active infection that can be used to investigate the role of HHV-6 in human disease.
Shanks MF, Ho-Yen DO.	Royal Cornhill Hospital, Aberdeen.	A clinical study of chronic fatigue syndrome.	973: Br J Psychiatry 1995 Jun;166(6):798-801 comment in: Br J Psychiatry. 1995 Oct;167(4):549-50	BACKGROUND. This study examines the hypothesis that more recently ill patients with chronic fatigue syndrome (CFS) might have different characteristics from more chronic patients in tertiary referral centres. METHOD. Sixty-four patients who fulfilled strict diagnostic criteria for CFS had detailed medical, viral, immunological and psychiatric assessment. Patients were advised to remain within their energy limits. Patient and doctor monitored progress using a scoring system. RESULTS. Using the Schedule for Affective Disorders and Schizophrenia, patients were placed into four groups: group A (no psychiatric disorder, 35 patients), group B (psychiatric disorder before onset of CFS, 7 patients), group C (coincident psychiatric disorder and CFS, 11 patients), and group D (psychiatric

				disorder after onset of CFS, 11 patients). There were no viral or immunological differences between the groups. Patients in groups B, C and D had more severe illness than those in group A ($P < 0.05$), but patients in group A had more muscle pain ($P < 0.05$) than patients in group C. Counselling resulted in 52 patients becoming better; nine remained the same and three became worse. CONCLUSIONS. A lower incidence of psychiatric disorder may characterise patients who are more recently ill, as may the type of associated emotional disorder and better outcome.
Sharpe M.		Cognitive behavior therapy for chronic fatigue syndrome.	995: Am J Med 1995 Apr;98(4):420-1; discussion 421-2 comment on: Am J Med. 1993 Feb;94(2):197-203	
Shepherd C.		Viral illness and chronic fatigue (syndrome)	962: Lancet 1995 Jul 1;346(8966):47-8 comment on: Lancet. 1995 Aug 12;346(8972):449 Lancet. 1995 May 27;345(8961):1333-8	
Shepherd C.		Illness behaviour in the chronic fatigue syndrome and multiple sclerosis. Disentangling common characteristics is not so easy.	921: BMJ 1995 Oct 21;311(7012):1093 comment on: BMJ. 1995 Jul 1;311(6996):15-8	
Simpson LO.		Myalgic encephalomyelitis and chronic fatigue syndrome.	N Z Med J 1995 Feb 8;108(993):44-5 comment in: N Z Med J. 1995 Mar 22;108(996):110	
Sisto SA		Rehabilitation of the Patient with Chronic Fatigue Syndrome	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 101 - 104	
Sisto SA, Tapp W, Drastal S, Bergen M, DeMasi I, Cordero D, Natelson B.	Neurobehavioral Unit, VA Medical Center, E. Orange, NJ 07018-1095, USA.	Vagal tone is reduced during paced breathing in patients with the chronic fatigue syndrome.	982: Clin Auton Res 1995 Jun;5(3):139-43	Patients with chronic fatigue syndrome (CFS) often complain of an inability to maintain activity levels and a variety of autonomic-like symptoms that make everyday activity intolerable at times. The purpose of the study was to determine if there were differences in vagal activity at fixed breathing rates in women with CFS. Twelve women with the diagnosis of CFS between the ages of 32 and 59 years volunteered for the study. Healthy women, who were between the ages of 30 and 49, served as controls. Full signal electrocardiograph and respiratory signals were collected during a paced breathing protocol of three fixed breathing rates (8, 12 and 18 breaths/min) performed in the sitting and standing postures. Vagal activity was analyzed by means of heart rate spectral analysis to determine the subject's response to specific breathing rates and postures. Heart rate variability was used as a non-invasive method of measuring the parasympathetic component of the autonomic nervous system. Using this method, although there was significantly less vagal power in the sitting versus the standing postures for both groups, the overall vagal power was significantly lower ($p < 0.034$) in the CFS group versus healthy controls. Vagal power was also significantly lower ($p < 0.01$ to $p < 0.05$) at all breathing rates in both postures except while standing and breathing at 18 breaths/min. Knowledge of the differences in vagal activity for CFS patients may allow stratification for the analysis of other research variables.
Smets EM, Garssen B, Bonke B, De Haes JC.	University of Amsterdam, Department of Medical Psychology, The Netherlands.	The Multidimensional Fatigue Inventory (MFI) psychometric qualities of an instrument to assess fatigue.	997: J Psychosom Res 1995 Apr;39(3):315-25	The Multidimensional Fatigue Inventory (MFI) is a 20-item self-report instrument designed to measure fatigue. It covers the following dimensions: General Fatigue, Physical Fatigue, Mental Fatigue, Reduced Motivation and Reduced Activity. This new instrument was tested for its psychometric properties in cancer patients receiving radiotherapy, patients with the chronic fatigue syndrome, psychology students, medical students, army recruits and junior physicians. We determined the dimensional structure using confirmatory factor analyses (LISREL's unweighted least squares method). The hypothesized five-factor model appeared to fit the data in all samples tested (AGFIs > 0.93). The instrument was found to have good internal consistency, with an average Cronbach's alpha

				coefficient of 0.84. Construct validity was established after comparisons between and within groups, assuming differences in fatigue based on differences in circumstances and/or activity level. Convergent validity was investigated by correlating the MFI-scales with a Visual Analogue Scale measuring fatigue ($0.22 < r < 0.78$). Results, by and large, support the validity of the MFI.
Solomon GF		Psychoneuroimmunology and Chronic Fatigue Syndrome: Toward New Models of Disease	Journal of Chronic Fatigue Syndrome 1995: 1(1): 3 - 7	
Stevens SR		Using Exercise Testing to Document Functional Disability in CFS	Journal of Chronic Fatigue Syndrome 1995: 1(3/4): 127 - 129	
Strayer DR, William Carter Kenneth I. Strauss, Isadore Brodsky, Robert Suhadolnik, Dharam Ablashi, Berch Henry , William M. Mitchell , Sheila Bastien , Daniel Peterson		Long Term Improvements in Patients with Chronic Fatigue Syndrome Treated with Ampligen	Journal of Chronic Fatigue Syndrome 1995: 1(1): 35 - 53	Fifteen patients who fit the CDC definition of chronic fatigue syndrome (CFS) and had evidence of severe reduction in performance levels by low Kamofsky performance scores (KPS) of 20-60 were treated with Ampligen. At baseline most patients showed evidence of cerebral dysfunction by neuropsychological testing, were antigen positive by cell culture assay for human herpesvirus-6 (HHV-6), and displayed reduced performance during exercise tolerance testing, as measured by oxygen consumption. These patients represented a subset of CFS patients with especially severe and sustained symptomatology. Following 1248 weeks of Ampligen therapy, sustained improvements were noted in KPS ($p < 0.01$). Cognitive function improved including IQ and memory. Oxygen uptake and treadmill duration during exercise tolerance testing was also improved after 24 weeks of treatment ($p < 0.01$). Reduction in HHV-6 expression as measured by the giant cell assay was significant ($p < 0.001$). Patients continued to show significant improvement late in therapy, taking 8 to 12 weeks as baseline. It was concluded that while receiving Ampligen, the severely afflicted patients studied here derived long-lasting clinical benefit from the Ampligen therapy.
Surawy C, Hackmann A, Hawton K, Sharpe M.	University Department of Psychiatry, Warneford Hospital, Oxford, England.	Chronic fatigue syndrome: a cognitive approach.	1980: Behav Res Ther 1995 Jun;33(5):535-44	Observations concerning the characteristics of patients who presented to a medical clinic with a principal complaint of chronic medically unexplained fatigue (Chronic Fatigue Syndrome or CFS) are described, including the cognitions (thoughts and assumptions) elicited from a sample of these patients who were treated using cognitive behavioural therapy. On the basis of these observations a cognitive theory of the aetiology of CFS is proposed. These observations have implications for the treatment of patients with CFS.
Swanink CM, van der Meer JW, Vercoulen JH, Bleijenberg G, Fennis JF, Galama JM.	Department of Medical Microbiology, University Hospital Nijmegen, The Netherlands.	Epstein-Barr virus (EBV) and the chronic fatigue syndrome: normal virus load in blood and normal immunologic reactivity in the EBV regression assay.	1992: Clin Infect Dis 1995 May;20(5):1390-2	The etiology of chronic fatigue syndrome (CFS) is unknown. Some patients have high antibody titers to viral capsid antigen (VCA) and early antigen (EA) of Epstein-Barr virus (EBV), suggesting that reactivation of EBV is involved. We investigated virus load (spontaneous transformation) and immunologic regression of EBV-induced transformation in peripheral blood mononuclear cells (PBMCs) from 10 selected patients with CFS who had high antibody titers to VCA and EA. The outcome was compared with that for nine healthy controls and one patient with severe chronic active EBV infection (SCAEBV). There were no significant differences in viral load between patients and healthy controls. Immunologic regression of in vitro-transformed PBMCs was also equally efficient in patients and controls. The SCAEBV-infected patient and two controls, who were all seronegative for EBV, showed impaired regression. In conclusion, we were unable to demonstrate a role for reactivation of EBV in CFS, even in selected patients with high titers of antibody to VCA and EA of EBV.
Swanink CM, Vercoulen JH, Bazelmans E, Fennis JF, Bleijenberg G, van der Meer JW, Galama JM.		Viral antibodies in chronic fatigue syndrome.	1938: Clin Infect Dis 1995 Sep;21(3):708-9 comment on: Clin Infect Dis. 1994 Sep;19(3):448-53	
Swanink CM, Vercoulen JH, Bleijenberg G, Fennis JF, Galama JM, van der Meer JW.	Department of Medical Microbiology, University Hospital, Nijmegen, Netherlands.	Chronic fatigue syndrome: a clinical and laboratory study with a well matched control group.	1990: J Intern Med 1995 May;237(5):499-506	OBJECTIVE. To investigate the relation between severity of complaints, laboratory data and psychological parameters in patients with chronic fatigue syndrome (CFS). SUBJECTS. Eighty-eight patients with CFS and 77 healthy controls matched for age, sex and geographical area. METHODS. Patients and controls visited our outpatient clinic for a detailed medical history, physical examination and psychological tests: Checklist Individual Strength (CIS). Beck Depression Inventory (BDI) and Sickness Impact Profile (SIP). Venous blood was drawn for a complete blood cell count, serum

				<p>chemistry panel, C-reactive protein and serological tests on a panel of infectious agents. RESULTS. All patients fulfilled the criteria for CFS as described by Sharpe et al. (J R Soc Med 1991; 84: 118-21), only 18 patients (20.5%) fulfilled the CDC criteria. The outcome of serum chemistry tests and haematological tests were within the normal range. No significant differences were found in the outcome of serological tests. Compared to controls, significant differences were found in the results on the CIS, the BDI, and the SIP. These results varied with the number of complaints (CDC criteria). When the number of complaints was included as the covariate in the analysis, there were no significant differences on fatigue severity, depression, and functional impairment between patients who fulfilled the CDC criteria and patients who did not. CONCLUSION. It is concluded that the psychological parameters of fatigue severity, depression and functional impairment are related to the clinical severity of the illness. Because the extensive panel of laboratory tests applied in this study did not discriminate between patients and controls, it was not possible to investigate a possible relation between the outcomes of psychological and laboratory testing.</p>
<p>Tedeschi R, Foong YT, Cheng HM, dePaoli P, Lehtinen T, Elfborg T, Dillner J.</p>	<p>Microbiology and Tumor Biology Center, Karolinska Institute, Stockholm, Sweden.</p>	<p>The disease associations of the antibody response against the Epstein-Barr virus transactivator protein ZEBRA can be separated into different epitopes.</p>	<p>983: J Gen Virol 1995 Jun;76 (Pt 6):1393-400</p>	<p>The BamHI-Z-encoded Epstein-Barr virus (EBV) replication activator (ZEBRA) is a key mediator of the switch from latency to productive cycle in EBV virus. Antibodies against ZEBRA are a marker of EBV reactivation and are regularly found among patients with infectious mononucleosis (IM) or nasopharyngeal carcinoma (NPC), but are only rarely found among healthy EBV-seropositive donors. In order to define the serologically reactive epitopes in the ZEBRA protein, we synthesized a set of overlapping peptides and tested them for reactivity with serum samples from EBV-seronegative persons, patients with NPC, IM, chronic fatigue syndrome, lymphoma or from healthy donors. Three major EBV-specific epitopes were found. These epitopes were further defined and optimized using substitution or truncation analogues of the peptides. Reactivity with epitope number 22 was found in 63% of NPC patients' sera, with < 2% of healthy donors' sera being positive. Serological reactivity with epitope number 19 was associated with IM (57% positive, 5% healthy donors positive). Serum antibodies against epitope 1 were found among healthy donors, but were significantly elevated among patients with NPC, IM or lymphomas. In conclusion, different serologically reactive epitopes in the ZEBRA protein associate with different EBV-associated diseases.</p>
<p>Trigwell P, Hatcher S, Johnson M, Stanley P, House A.</p>	<p>High Royds Hospital, Menston, Leeds.</p>	<p>"Abnormal" illness behaviour in chronic fatigue syndrome and multiple sclerosis.</p>	<p>961: BMJ 1995 Jul 1;311(6996):15-8 comment in: BMJ. 1995 Oct 21;311(7012):1092-3 BMJ. 1995 Oct 21;311(7012):1093</p>	<p>OBJECTIVE--To investigate the presence of abnormal illness behaviour in patients with a diagnosis of chronic fatigue syndrome. DESIGN--A cross sectional descriptive study using the illness behaviour questionnaire to compare illness behaviour scores and illness behaviour profiles of patients with chronic fatigue syndrome and patients with multiple sclerosis. SETTING--A multidisciplinary fatigue clinic and a teaching hospital neurology outpatient clinic. SUBJECTS--98 patients satisfying the Oxford criteria for chronic fatigue syndrome and 78 patients with a diagnosis of multiple sclerosis. MAIN OUTCOME MEASURE--Responses to the 62 item illness behaviour questionnaire. RESULTS--90 (92%) patients in the chronic fatigue syndrome group and 70 (90%) in the multiple sclerosis group completed the illness behaviour questionnaire. Both groups had significantly high scores on the general hypochondriasis and disease conviction subscales and significantly low scores on the psychological versus somatic concern subscale, as measured in relation to normative data. There were, however, no significant differences in the subscale scores between the two groups and the two groups had identical illness behaviour profiles. CONCLUSION--Scores on the illness behaviour questionnaire cannot be taken as evidence that chronic fatigue syndrome is a variety of abnormal illness behaviour, because the same profile occurs in multiple sclerosis. Neither can they be taken as evidence that chronic fatigue and multiple sclerosis share an aetiology. More needs to be known about the origins of illness beliefs in chronic fatigue syndrome, especially as they are important in determining outcome.</p>
<p>Van Houdenhove B, Onghena P, Neerinx E, Hellin J.</p>	<p>Department of Psychiatry, Katholieke Universiteit Leuven, Belgium.</p>	<p>Does high 'action-proneness' make people more vulnerable to chronic fatigue syndrome? A controlled psychometric study.</p>	<p>966: J Psychosom Res 1995 Jul;39(5):633-40</p>	<p>Degree of premorbid 'action-proneness' was measured, using a self-administered questionnaire, in 35 patients suffering from chronic fatigue syndrome (CFS), all the members of 'ME'-self help groups and all those meeting CDC-criteria of CFS. The results were compared with those of 30 chronic idiopathic musculoskeletal pain patients, 34 patients with a chronic organic condition, and 34 neurotic patients without primary somatic complaints. Statistical analysis showed that CFS patients described themselves as significantly more 'action-prone' than the last two groups, and to a degree which was comparable with the chronic pain group. The results could not be explained by concomitant depression</p>

				and are in accordance with anecdotal reports of premonitory hyperactive lifestyle in CFS patients. Further investigations seem worthwhile to test the hypothesis that hyperactivity might be a predisposing factor for chronic illness behaviour in CFS patients.
Wahlstrom L.	Psykiatrisk konsult till infektionskliniken, Huddinge sjukhus.	[Does chronic fatigue syndrome have physiological or psychological causes? A wrongly formulated question may result in information]. [article in Swedish]	Lakartidningen 1995 Jan 18;92(3):150-3	
Welch JC.		Chronic fatigue syndrome and liquorice.	970: N Z Med J 1995 Jun 14;108(1001):234-5 comment in: N Z Med J. 1995 Aug 11;108(1005):324-5 N Z Med J. 1995 Jul 28;108(1004):301 N Z Med J. 1995 Jun 28;108(1002):259 comment on: N Z Med J. 1995 Apr 26;108(998):156-7	
Wessely S, Chalder T, Hirsch S, Pawlikowska T, Wallace P, Wright DJ.	Department of Psychological Medicine, King's College School of Medicine and Dentistry, London, UK.	Postinfectious fatigue: prospective cohort study in primary care.	986: Lancet 1995 May 27;345(8961):1333-8 comment in: Lancet. 1995 Jul 1;346(8966):47-8 Lancet. 1995 Jul 1;346(8966):47-8 Lancet. 1995 Jul 1;346(8966):48	The idea that chronic fatigue has an infectious origin has become popular, but the main evidence for such an association has come from retrospective case-control studies, which are subject to ascertainment bias. We report a prospective study of the outcome of clinically diagnosed infections in patients presenting to UK general practitioners. Questionnaires assessing fatigue and psychiatric morbidity were sent to all patients aged 18-45 years in the study practices. The prevalence of chronic fatigue and chronic fatigue syndrome was then ascertained among 1199 people aged 18-45 who presented to the general practitioners with symptomatic infections and in 1167 people who attended the surgeries for other reasons. 84% were followed up at 6 months. 9.9% of cases and 11.7% of controls reported chronic fatigue (odds ratio 1.0 [95% CI 0.6-1.1]). There were no differences in the proportions who met various criteria for chronic fatigue syndrome. No effect of infection was noted when we excluded subjects who reported fatigue or psychological morbidity at the baseline screening. The strongest independent predictors of postinfectious fatigue were fatigue assessed before presentation with clinical infection (3.0 [1.9-4.7]) and psychological distress before presentation (1.8 [1.2-2.9]) and at presentation with the acute infection (1.8 [1.1-2.8]). There was no effect of sex or social class. Our study shows no evidence that common infective episodes in primary care are related to the onset of chronic fatigue or chronic fatigue syndrome.
Wessely S.	Department of Psychological Medicine, King's College School of Medicine, London, England. Review, Multicase	The epidemiology of chronic fatigue syndrome.	Epidemiol Rev 1995;17(1):139-51	
Westin J, Rodjer S, Turesson I, Cortelezzi A, Hjorth M, Zador G.	Department of Medicine/Haematology, University of Lund, Sweden.	Interferon alfa-2b versus no maintenance therapy during the plateau phase in multiple myeloma: a randomized study. Cooperative Study Group.	Br J Haematol 1995 Mar;89(3):561-8	This clinical trial was designed to investigate if maintenance therapy with alfa-interferon could prolong the plateau phase in patients with multiple myeloma. In addition, the tolerability of interferon treatment and its effect on survival were evaluated. From September 1987 to September 1989 a total of 314 patients were accrued to a multi-institutional randomized clinical trial. All patients entered into the protocol received standard melphalan-prednisone (MP) induction therapy. Response was noted in 184 (59%) and a plateau phase achieved in 155 (49%). From the latter group, 125 eligible patients were randomized to either interferon alfa-2b or no maintenance. The patients were followed for an average of 51 months (minimum 36 months) from the time of randomization. The plateau phase was significantly prolonged in the group of patients treated with interferon (median 13.9 v 5.7 months from the time of randomization; P < 0.0001). The interferon therapy was tolerated fairly well, moderate granulocytopenia and a chronic fatigue syndrome being the most frequent side-effects (22% v 18% W.H.O. grade 3 toxicity). The median survival from randomization was almost identical in both groups (36 v 35 months). The study shows that interferon maintenance therapy given to multiple

				myeloma patients who have achieved a response to initial treatment with MP prolongs the plateau phase duration with tolerable toxicity. The clinical value of this finding should be interpreted with caution, because survival was not prolonged. Further studies are required to clarify the role of interferon in the treatment of multiple myeloma. Multicenter Study Randomized Controlled Trial
Wilson A, Hickie I, Lloyd A, Hadzi-Pavlovic D, Wakefield D.	Department of Psychiatry, Prince Henry Hospital, Little Bay, NSW, Australia.	Cell-mediated immune function and the outcome of chronic fatigue syndrome.	942: Int J Immunopharmacol 1995 Aug;17(8):691-4	This study examined the importance of cell-mediated immunity in determining the long-term outcome of patients diagnosed with chronic fatigue syndrome (CFS). A total of 103 patients (74%) of 139 previously enrolled in one of two treatment trials conducted within a university hospital referral center was reviewed a mean of 3.2 yr after trial entry. Ongoing symptom severity, levels of disability and immunological function were assessed at follow-up. The relationship between immunological function at trial entry and measures of outcome was also evaluated. Sixty-five patients (63%) had improved, while only 6 (6%) reported no current symptoms. Thirty-one subjects (30%) were unable to perform any form of work and 26 (25%) were on a disability benefit directly attributable to CFS. Cell-mediated immune function, as measured at trial entry or follow-up, did not appear to affect outcome. Whilst improvement occurred in the majority of patients with CFS, a substantial proportion (37%) remained functionally impaired. Impairment of cell-mediated immunological function measured during the course of the illness may not be an important factor in determining long-term outcome.
Wong MT, Dolan MJ, Lattuada CP Jr, Regnery RL, Garcia ML, Mokulis EC, LaBarre RA, Ascher DP, Delmar JA, Kelly JW, et al.	Department of Infectious Diseases/PSMI, Wilford Hall Medical Center, Lackland Air Force Base, Texas 78236-5300, USA.	Neuroretinitis, aseptic meningitis, and lymphadenitis associated with Bartonella (Rochalimaea) henselae infection in immunocompetent patients and patients infected with human immunodeficiency virus type 1.	945: Clin Infect Dis 1995 Aug;21(2):352-60	Bartonella (Rochalimaea) henselae causes a variety of diseases, including bacillary angiomatosis, peliosis hepatis, lymphadenitis, aseptic meningitis with bacteremia, and cat-scratch disease (CSD). Cases of B. henselae-related disease were collected from September 1991 through November 1993. Patients with suspected CSD, unexplained fever and lymphadenitis, or suspected B. henselae infection who were seen in the Infectious Diseases Clinic at Wilford Hall Medical Center (Lackland Air Force Base, TX) underwent physical and laboratory examinations. In addition to three previously described cases, 23 patients with R. henselae-related infection were identified. The patients included 19 immunocompetent individuals presenting with lymphadenitis (11), stellate neuroretinitis (5), Parinaud's oculoglandular syndrome with retinitis (1), chronic fatigue syndrome-like disease (1), and microbiologically proven adenitis without the presence of immunofluorescent antibodies to B. henselae (1) and four patients infected with human immunodeficiency virus type 1 presenting with isolated lymphadenitis (1), diffuse upper-extremity adenitis (1), neuroretinitis (1), and aseptic meningitis (1). A couple with neuroretinitis and their pet cat, a persistently fatigued patient, and a patient with Parinaud's oculoglandular syndrome were shown to have bacteremia. Tissue cultures were positive for B. henselae in three recent cases of adenitis. Twenty-two patients were exposed to cats. This series further demonstrates the similarities between B. henselae-related diseases and CSD and identifies several new syndromes due to B. henselae.
Woodward RV, Broom DH, Legge DG.	National Centre for Epidemiology and Population Health, Australian National University, Canberra.	Diagnosis in chronic illness: disabling or enabling--the case of chronic fatigue syndrome.	978: J R Soc Med 1995 Jun;88(6):325-9 comment in: J R Soc Med. 1995 Dec;88(12):723	This paper examines doctors' and patients' views on the consequences of an increasingly common symptomatic diagnosis, chronic fatigue syndrome (CFS). Two studies were conducted: the first comprised interviews with 20 general practitioners; the second was a longitudinal study, comprising three interviews over a period of 2 years with 50 people diagnosed with CFS. Contrasts were apparent between doctors' practical and ethical concerns about articulating a diagnosis of CFS and patients' experiences with and without such a diagnosis. Seventy per cent of the doctors were reluctant to articulate a diagnosis of CFS. They felt constrained by the scientific uncertainty regarding its aetiology and by a concern that diagnosis might become a disabling self-fulfilling prophecy. Patients, by contrast, highlighted the enabling aspects of a singular coherent diagnosis and emphasized the negative effects of having no explanation for their problems.
Wookey C.		Viral illness and chronic fatigue (syndrome)	959: Lancet 1995 Jul 1;346(8966):48 comment in: Lancet. 1995 Aug 12;346(8972):449 comment on: Lancet. 1995 May 27;345(8961):1333-8	
Yatham LN, Morehouse RL, Chisholm BT, Haase DA, MacDonald DD, Marrie TJ.	Dalhousie University, Nova Scotia Hospital, Dartmouth.	Neuroendocrine assessment of serotonin (5-HT) function in chronic fatigue syndrome.	Can J Psychiatry 1995 Mar;40(2):93-6 comment in: Can J Psychiatry. 1996	Prolactin and cortisol responses to dl-fenfluramine challenge were examined in 11 patients with chronic fatigue syndrome and in 11 healthy controls who were age and gender matched. After obtaining two baseline samples, each subject was given 60 mg of dl-fenfluramine orally and further

			Mar;41(2):129-31	blood samples were drawn hourly during the following five hours in order to measure prolactin and cortisol levels. There was no difference in either baseline or fenfluramine-induced hormonal responses between patients with chronic fatigue syndrome and controls. There was also no correlation between depression scores on HAM-D and hormonal responses in patients with chronic fatigue syndrome. The findings of this study do not support a role for 5-HT in chronic fatigue syndrome.
Zannoli R, Morgese G.	Paediatric Clinic, Chieti University, Italy.	New pathogens, and diseases old and new. I) Afipia felis and Rochalimaea. II) Parvovirus B 19. III) herpesvirus 6.	909: Panminerva Med 1995 Dec;37(4):238-47	The paper describes events that in the last fifteen years, have led to the identification of the aetiological agents of three widely known diseases: cat scratch disease, erythema infectiosum and exanthem subitum. The particular features of Afipia felis and Rochalimaea, Parvovirus B 19 and Herpesvirus 6 are presented. The paternity of new diseases (i.e. bacillary angiomatosis, bacillary peliosis hepatitis, LES-like syndrome, chronic fatigue syndrome, petechial glove and sock syndrome, etc.) has also been attributed to some of these pathogens as has the paternity of some older ones (i.e. aplastic crisis, erythroblastosis fetalis, trench fever, hepatitis, opportunistic infection, etc.). It has been argued that the same pathogen can cause different diseases depending on the immunogenic state of the subject. To date, persisting difficulties in isolating the pathogen or differentiating between latent or active infection, still in some cases raises doubts concerning the attribution of the disease to a specific agent. New immunological or molecular techniques, allowing the direct detection of in vivo replication, are still needed in order to establish a sure connection between some of these agents and some of these diseases. Progress here will both give more accurate data about the epidemiology of some diseases and allow us to apply more appropriate treatment and prevention techniques. Review, Academic
Zhang C, Baumer A, Mackay IR, Linnane AW, Nagley P.	Department of Biochemistry, Monash University, Clayton, Victoria, Australia.	Unusual pattern of mitochondrial DNA deletions in skeletal muscle of an adult human with chronic fatigue syndrome.	998: Hum Mol Genet 1995 Apr;4(4):751-4	