

Authors	Author Address	Title	Publication	Abstract
Alexander EL, Kumar AJ, Kozachuk WE.		The chronic fatigue syndrome controversy.	Ann Intern Med 1992 Aug 15;117(4):343-4 comment on: Ann Intern Med. 1992 Jan 15;116(2):103-13	
Apfelbaum B.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1754; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Bauermeister CD, Wagner C, Brede HD.		[What is the relation of human herpesvirus 6 to chronic fatigue syndrome]?[article in German]	Med Monatsschr Pharm 1992 Jun;15(6):165-8	
Bell DS.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1753; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Bell DS.	Harvard Medical School, Boston, Massachusetts.	Chronic fatigue syndrome. Recent advances in diagnosis and treatment.	Postgrad Med 1992 May 1;91(6):245-52	Chronic fatigue syndrome is a chronic debilitating illness that is marked in the majority of cases by sudden onset of fatigue and flulike symptoms. Symptoms subsequently relapse and remit and may persist for years. Physical examination typically reveals relatively minor, nonspecific abnormalities in an apparently well patient. Although immunologic abnormalities are associated with chronic fatigue syndrome, tests for these features are expensive, nonspecific, and generally reserved for research purposes. The diagnosis is made on the basis of new onset of severe fatigue, a characteristic pattern of symptoms, and exclusion of other illnesses. Treatment is aimed at alleviating symptoms and helping patients adjust to the debilitating and chronic nature of the illness. Review Literature
Berger RM.		"Chronic fatigue syndrome and women: can therapy help?"	Soc Work 1992 Sep;37(5):477-8 comment on: Soc Work. 1992 Jan;37(1):35-9	
Berman DS, Wenglin BD.		Chronic fatigue syndrome and psychiatric disorders.	Am J Med 1992 Jun;92(6):710 comment in: Am J Med. 1994 May;96(5):485-6 comment on: Am J Med. 1991 Oct;91(4):335-44	
Berneman ZN, Ablashi DV, Li G, Eger-Fletcher M, Reitz MS Jr, Hung CL, Brus I, Komaroff AL, Gallo RC.	Laboratory of Tumor Cell Biology, National Cancer Institute, National Institutes of Health, Bethesda, MD 20892.	Human herpesvirus 7 is a T-lymphotropic virus and is related to, but significantly different from, human herpesvirus 6 and human cytomegalovirus.	Proc Natl Acad Sci U S A 1992 Nov 1;89(21):10552-6	An independent strain (JI) of human herpesvirus 7 (HHV-7) was isolated from a patient with chronic fatigue syndrome (CFS). No significant association could be established by seroepidemiology between HHV-7 and CFS. HHV-7 is a T-lymphotropic virus, infecting CD4+ and CD8+ primary lymphocytes. HHV-7 can also infect SUP-T1, an immature T-cell line, with variable success. Southern blot analysis with DNA probes scanning 58.8% of the human herpesvirus 6 (HHV-6) genome and hybridizing to all HHV-6 strains tested so far revealed homology to HHV-7 with only 37.4% of the total probe length. HHV-7 contains the GGGTTA repetitive sequence, as do HHV-6 and Marek's disease chicken herpesvirus. DNA sequencing of a 186-base-pair fragment of HHV-7(JI) revealed an identity with HHV-6 and human cytomegalovirus of 57.5% and 36%, respectively. Oligonucleotide primers derived from this sequence (HV7/HV8, HV10/HV11) amplified HHV-7 DNA only and did not amplify DNA from other human herpesviruses, including 12 different HHV-6 strains. Southern blot analysis with the p43L3 probe containing the 186-base-pair HHV-7 DNA fragment hybridized to HHV-7 DNA only. The molecular divergence between human cytomegalovirus, on the one hand, and HHV-6 and HHV-7, on the other, is greater than between HHV-6 and HHV-7, which, in turn, is greater than the difference between HHV-6 strains. This study supports the classification of HHV-7 as an additional member of

				the human beta-herpesviruses.
Bode L, Komaroff AL, Ludwig H.		No serologic evidence of borna disease virus in patients with chronic fatigue syndrome.	Clin Infect Dis 1992 Dec;15(6):1049	
Bryan CS. Editorial		The chronic fatigue syndrome: caveat emptor.	J S C Med Assoc 1992 Feb;88(2):79-81 comment on: J S C Med Assoc. 1992 Feb;88(2):51-7	
Buchwald D, Garrity D, Pascualy R, Kith P, Ashley RL, Wener MH, Kidd PG, Katon WJ, Russo JE.	Department of Medicine, School of Medicine, University of Washington, Seattle.	Chronic fatigue syndrome.	Toxicol Ind Health 1992 Jul-Aug;8(4):157-73	
Burke SG.	School of Social Work, Loyola University of Chicago, IL 60614.	Chronic fatigue syndrome and women: can therapy help?	Soc Work 1992 Jan;37(1):35-9 comment in: Soc Work. 1992 Sep;37(5):477-8 Soc Work. 1992 Sep;37(5):478	This article presents current research on chronic fatigue syndrome, which currently afflicts mostly females between the ages of 25 and 55. Because depression is a common symptom of chronic fatigue syndrome, mental health practitioners are often involved with the victims and must formulate an appropriate treatment strategy that considers the physiological, intrapsychic, interpersonal, and environmental aspects of the client. This article includes case material focusing on a woman who was medically diagnosed with the Epstein-Barr virus and was in psychotherapy with the author. The difficulty of managing the interplay of the real health problems and the emotional issues presented by the client is highlighted.
Calabrese L, Danao T, Camara E, Wilke W.	Cleveland Clinic Foundation, Ohio.	Chronic fatigue syndrome.	Am Fam Physician 1992 Mar;45(3):1205-13	Fatigue is one of the most common complaints among patients seen in the primary care setting. Chronic fatigue syndrome, which has recently been called chronic fatigue immune dysfunction syndrome, is distinctive, with an abrupt onset of symptoms that wax and wane for at least six months. Usually there is low-grade fever, pharyngitis and tender, but not enlarged, lymph nodes. The fatigue can be disabling and is often made worse by physical activity. Some patients with this disorder have also been found to have highly characteristic immunologic abnormalities. Treatment can be rewarding and is based on patient education and support, exercise and symptomatic therapies for abnormal sleep patterns, musculoskeletal pain and other symptoms.
Castilla A, Subira ML, Civeira MP, Cuende JL.		[Surface T-lymphocyte markers and monocyte dysfunction in the chronic fatigue syndrome]. [article in Spanish]	An Med Interna 1992 Apr;9(4):207-8	
Chao CC, DeLaHunt M, Hu S, Close K, Peterson PK.	Neuroimmunobiology and Host Defense Laboratory, Minneapolis Medical Research Foundation, Minnesota 55404.	Immunologically mediated fatigue: a murine model.	Clin Immunol Immunopathol 1992 Aug;64(2):161-5	Chronic fatigue syndrome (CFS) is an idiopathic disorder in which the chief symptoms is profound fatigue. To explore the relationship between immune stimulation and fatigue, we developed a murine model for quantifying fatigue: reduction in voluntary running and delayed initiation of grooming after swimming. Inoculation of female BALB/c mice with Corynebacterium parvum antigen or the relatively avirulent Me49 strain of Toxoplasma gondii induced fatigue: baseline running reduced to less than 50 and 30% for 8 and 14 days, respectively, and delayed initiation of grooming after swimming in both immunologically stimulated groups. A threefold evaluation of serum transforming growth factor-beta levels, a cytokine increased in CFS patients, was found in fatigued C. parvum- and T. gondii-inoculated mice. This murine model appears promising for investigation of the pathogenesis of immunologically mediated fatigue.
Cho WK, Stollerman GH.	Yale University School of Medicine, New Haven.	Chronic fatigue syndrome.	Hosp Pract (Off Ed) 1992 Sep 15;27(9):221-4, 227-30, 233-6 passim	
Clague JE, Edwards RH, Jackson MJ.		Intravenous magnesium loading in chronic fatigue syndrome.	Lancet 1992 Jul 11;340(8811):124-5 comment in: Lancet. 1992 Aug 15;340(8816):426 comment on: Lancet. 1991 Mar	

			30;337(8744):757-60	
Coovadia HM.	University of Natal Medical School, Durban, Congella, South Africa.	Rheumatic fever and disorders of the musculoskeletal system.	Curr Opin Rheumatol 1992 Oct;4(5):718-24	New information provided on the pathogenesis and management of rheumatic fever is of current interest. Invasive disease by group A streptococci has been shown to be due to production of toxin A. The natural history and immunopathologic basis for chronic Lyme arthritis are reported. Attention is drawn to pyomyositis and clinical presentation of chronic fatigue syndrome in children. Patients with Sweet's syndrome often have antineutrophil cytoplasmic autoantibodies. Biopsy specimens of panniculitis should be taken to aid treatment. Long-term outcome in chronic osteomyelitis is favorable; recommendations on the rational use of imaging have been reported.
Cope H, David AS.		Outcome in the chronic fatigue syndrome.	BMJ 1992 Aug 8;305(6849):365 comment on: BMJ. 1992 Jul 18;305(6846):147-52	
Crimson crescents--a possible association with the chronic fatigue syndrome.	Cunha BA.	Erratum in: Ann Intern Med 1992 May 1;116(9):779	Ann Intern Med 1992 Feb 15;116(4):347	
Dale JK, Straus SE.	Medical Virology Section, National Institute of Allergy and Infectious Disease, National Institutes of Health, Bethesda, Maryland. Review, Academic	The chronic fatigue syndrome: considerations relevant to children and adolescents.	Adv Pediatr Infect Dis 1992;7:63-83	
Demitrack MA, Gold PW, Dale JK, Krahn DD, Kling MA, Straus SE.	Department of Psychiatry, University of Michigan Medical Center, Ann Arbor 48109-0116.	Plasma and cerebrospinal fluid monoamine metabolism in patients with chronic fatigue syndrome: preliminary findings.	Biol Psychiatry 1992 Dec 15;32(12):1065-77	The syndrome of chronic fatigue, feverishness, diffuse pains, and other constitutional complaints, often precipitated by an acute infectious illness and aggravated by physical and emotional stressors, has a lengthy history in the medical literature. The Centers for Disease Control (CDC) recently formulated a case definition, renaming the illness "chronic fatigue syndrome." Nevertheless, there remain few biological data that can validate the existence of this syndrome as distinct from a wide variety of other, largely psychiatric disorders, and little understanding of its pathogenesis. In the present study, basal plasma and cerebrospinal fluid levels of the monoamine metabolites, 3-methoxy-4-hydroxyphenylglycol (MHPG), 5-hydroxyindoleacetic acid (5-HIAA), and homovanillic acid (HVA) were determined in 19 patients meeting CDC research case criteria for chronic fatigue syndrome and in 17 normal individuals. Patients with chronic fatigue syndrome showed a significant reduction in basal plasma levels of MHPG and a significant increase in basal plasma levels of 5-HIAA. Although the functional significance of these findings has not been definitively elucidated, they are compatible with the clinical presentation of a syndrome associated with chronic lethargy and fatigue, and with evidence of persistent immune stimulation, and lend support to the idea that chronic fatigue syndrome represents a clinical entity with potential biological specificity.
Digon A, Goicoechea A, Moraza MJ.		Chronic fatigue syndrome.	J Neurol Neurosurg Psychiatry 1992 Jan;55(1):85 comment on: J Neurol Neurosurg Psychiatry. 1991 Aug;54(8):669-71	
Dooley DP.		Commercial laboratory testing for chronic fatigue syndrome.	JAMA 1992 Aug 19;268(7):873-4	
Downey DC.	Oregon Health Sciences University, School of Dentistry, Portland 97201.	Fatigue syndromes: new thoughts and reinterpretation of previous data.	Med Hypotheses 1992 Oct;39(2):185-90	Recently, the author has identified 19 patients who have complained of marked fatigue that had abnormal responses to copper test bracelets or necklaces. At this time, 8 have been shown to have at least one enzyme deficiency in the heme pathway. These patients have been diagnosed with multiple sclerosis, chronic fatigue syndrome and other non-specific diagnoses. A lengthy but still limited review of the literature was performed regarding the following conditions: multiple sclerosis (MS), hepatic porphyria (HP), chronic fatigue syndrome (CFS) and paralytic polio (PP). The text will focus on similar epidemiologies, laboratory findings and clinical courses. Copper as a common but not unique etiologic agent will be discussed; as will the heme pathway, a biologic process that may be disordered

				in all.
Drago F, Romagnoli M, Loi A, Rebori A.	Department of Dermatology, University of Genoa, Italy.	Epstein-Barr virus-related persistent erythema multiforme in chronic fatigue syndrome.	Arch Dermatol 1992 Feb;128(2):217-22	BACKGROUND--Erythema multiforme (EM) has been rarely reported in Epstein-Barr virus (EBV)-associated diseases; this includes patients with chronic fatigue syndrome who have chronic or recurrent and disabling illness and an abnormal antibody reactivity to EBV. We describe a patient fulfilling the chronic fatigue syndrome diagnostic criteria who had developed an unusually persistent EM resistant to corticosteroids therapy. The EBV DNA was studied in skin EM lesions, throat washings, peripheral mononuclear cells, and plasma. The EBV antigens were studied in skin EM lesions and in mononuclear cells. The patient was followed up to 2 years. OBSERVATIONS--The patient had abnormal titers of antibodies against various EBV antigens and by immunofluorescence she disclosed the EBV nuclear antigen and the viral capsid antigen in the blood vessels of the affected skin. The dot blot hybridization assay detected viral DNA in throat washings and mononuclear cells, but not in plasma. The presence of the viral genomic content in lesional skin is suggested by the autoradiographic signal and by the difference from appropriate control specimens. Skin lesions and constitutional symptoms cleared after acyclovir sodium therapy and recurred after discontinuation of this therapy. CONCLUSIONS--This is the first EM case in which evidence of the EBV causal role has been provided. The association with chronic fatigue syndrome suggests the EBV role in selected cases of this syndrome.
Durlach J.	International Society for the Development of Research on Magnesium, Neuilly/Seine, France. Randomized Controlled Trial	Chronic fatigue syndrome and chronic primary magnesium deficiency (CFS and CPMD).	Magnes Res 1992 Mar;5(1):68	
Englander K.		"Chronic fatigue syndrome and women: can therapy help?"	Soc Work 1992 Sep;37(5):478 comment on: Soc Work. 1992 Jan;37(1):35-9	
Faas RJ.		[Chronic fatigue syndrome].[article in Dutch]	Ned Tijdschr Geneesk 1992 Oct 10;136(41):2037-8	
Fallon BA, Liebowitz MR, Klein DF.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1756; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Flugel RM, Mahnke C, Geiger A, Komaroff AL.		Absence of antibody to human spumaretrovirus in patients with chronic fatigue syndrome.	1409: Clin Infect Dis 1992 Feb;14(2):623-4	
Fuchs D, Weiss G, Wachter H.		Pathogenesis of chronic fatigue syndrome.	J Clin Psychiatry 1992 Aug;53(8):296 comment on: J Clin Psychiatry. 1991 Oct;52(10):403-10	
Gerow G, Poierier MB, Alt R.	Department of Diagnosis, National College of Chiropractic, Lombard, IL 60148-4583.	Chronic fatigue syndrome.	J Manipulative Physiol Ther 1992 Oct;15(8):529-35 Erratum in: J Manipulative Physiol Ther 1992 Nov-Dec;15(9):followi	A 36-yr-old white female presented with severe fatigue and symptoms consistent with immune deficiency, but was later found to be suffering from chronic fatigue syndrome. This article discusses the diagnostic criteria for this condition. Chiropractic manipulation afforded relief of some symptoms for this patient.
Ginsburg KS, Kundsinn RB, Walter CW, Schur PH.	Department of Rheumatology and Immunology, Brigham and Women's Hospital, Boston, MA 02115.	Ureaplasma urealyticum and Mycoplasma hominis in women with systemic lupus erythematosus.	Arthritis Rheum 1992 Apr;35(4):429-33	OBJECTIVE. To determine the prevalence of genitourinary mycoplasma infection in women with systemic lupus erythematosus (SLE). METHODS. Urine specimens from 49 patients with SLE and 22 patients with chronic fatigue syndrome (CFS) were cultured for mycoplasma. Patient records were reviewed for medical history and SLE disease activity. RESULTS. Sixty-three percent of the SLE patients were culture positive, compared with 4.5% of the CFS patients (P less than 0.001). Neither corticosteroid treatment, SLE activity, nor age accounted for this difference. CONCLUSION. Genitourinary mycoplasma colonization occurs significantly more frequently in SLE than in CFS.

Goldenberg DL.	Newton-Wellesley Hospital, Massachusetts.	Fibromyalgia, chronic fatigue, and myofascial pain syndromes.	Curr Opin Rheumatol 1992 Apr;4(2):247-57	During the past year many studies have been published on fibromyalgia and chronic fatigue syndromes. Randomized clinical trials using current operational diagnostic criteria were reported, but no single therapy has been highly effective in either condition. The working case definition of chronic fatigue syndrome has been criticized and suggestions for a new case definition have been made. Further understanding of the overlap of these three common disorders will also require that uniform diagnostic criteria be tested in chronic fatigue syndrome and myofascial pain syndrome.
Goodnick PJ, Sandoval R, Brickman A, Klimas NG.	Department of Psychiatry, University of Miami, Florida 33136.	Bupropion treatment of fluoxetine-resistant chronic fatigue syndrome.	Biol Psychiatry 1992 Nov 1;32(9):834-8	Chronic fatigue syndrome (CFS) includes many symptoms of major depression. For this reason, many antidepressants have been used to treat the symptoms of this disorder. Among the more recently released antidepressants are fluoxetine and bupropion. In this open study, nine CFS patients who either could not tolerate or did not respond to fluoxetine showed significant response when administered 300 mg/day of bupropion for an 8-week period in both rating of HDRS ($t = 4.80$, $p < 0.01$) and BDI ($t = 2.48$, $p < 0.05$). Furthermore, bupropion improvement in Hamilton Depression Rating Scale correlated significantly with change in plasma homovanillic acid (HVA) ($r = 0.96$, $p < 0.01$). Plasma total methylhydroxyphenolglycol (MHPG) also increased significantly during bupropion treatment ($t = 2.37$, $p = 0.05$). Measures of T1 microsomal antibodies also decreased over treatment time; increases in natural killer cell numbers correlated inversely with change in plasma levels of free MHPG ($r = -0.88$, $p < 0.05$). Bupropion responders were more likely to have trough blood levels above 30 ng/ml ($\chi^2 = 3.6$, $p = 0.05$).
Goodrich W.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1753; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Goudsmit EM, Macintyre A.		Chronische-moeheidsyndroom. [Chronic fatigue syndrome.	Ned Tijdschr Geneesk 1992 Apr 4;136(14):708-9	
Goudsmit EM, Shepherd C.		Chronic fatigue syndrome.	Br J Psychiatry 1992 Jan;160:127-8 comment on: Br J Psychiatry. 1991 Sep;159:439-40	
Gow JW, Simpson K, Schliephake A, Behan WM, Morrison LJ, Cavanagh H, Rethwilm A, Behan PO.	Department of Neurology, University of Glasgow, UK.	Search for retrovirus in the chronic fatigue syndrome.	J Clin Pathol 1992 Dec;45(12):1058-61	AIM: To examine peripheral blood and skeletal muscle from patients with chronic fatigue syndrome for exogenous retrovirus. METHODS: Blood samples from 30 patients and muscle biopsy specimens of 15 patients were examined for retroviral sequences by DNA extraction, polymerase chain reaction (PCR), and Southern blotting hybridisation. Sera were examined for human foamy virus by western immunoblotting and indirect immunofluorescence techniques. RESULTS: No differences between the patient and control populations was found for any of the PCR primer sets used (gag, pol, env, and tax regions of HTLV I/II). An endogenous gag band was observed in both the patient and control groups. All sera were negative for antibody to human foamy virus. CONCLUSION: The results indicate that there is no evidence of retroviral involvement in the chronic fatigue syndrome.
Grau JM, Casademont J, Pedrol E, Fernandez-Sola J, Cardellach F, Barros N, Urbano-Marquez A.	Department of Internal Medicine, Hospital Clinic i Provincial, Barcelona, Spain.	Chronic fatigue syndrome: studies on skeletal muscle.	Clin Neuropathol 1992 Nov-Dec;11(6):329-32	Chronic fatigue syndrome represents a poorly defined disease with protean clinical manifestations, the majority of them expressed as a muscle fatigue or as inability to maintain the expected muscle strength. In the present work we studied muscle function and muscle histopathology in 20 patients fulfilling the proposed criteria for chronic fatigue syndrome. Special interest is directed towards the immunoreactive expression of class I MHC molecules comparing some inflammatory and virus-related myopathies with muscles from chronic fatigue syndrome. Only minor morphological changes were detected in 9 out of 20 patients of the series. The nonspecific morphological changes in muscle tissue and the lack of class I MHC expression does not support the viral etiology of muscle fatigue in chronic fatigue syndrome. In contrast with the reported clinical improvement with high doses of essential fatty acids, our patients' clinical condition did not improve after three months of L-carnitine therapy.
Hashimoto N, Kuraishi Y, Yokose T, Tajima N, Mochio	3rd Dept. Internal Medicine, Jikei Univ. School of	[Chronic fatigue syndrome--51 cases in the Jikei University	Nippon Rinsho 1992 Nov;50(11):2653-64	Between April 1991 and August 1992, we diagnosed 51 cases of CFS who met definition of CFS designated by CDC, 1988. They are 41 female and 11 male, and 78% are women. At first visit, their

S, Shimizu M, Yokoyama J, Kobayashi N, Nohara A, Taniguchi I, et al.	Medicine.	School of Medicine].[article in Japanese]		ages are ranged from 16 to 64 years old, and approximately 45% is 20 to 30 years old. In periods of illness from onset, 39.2% of the patients are in period of 6 month to 1 year, 19.6% within 2 years, and 15.6% within 3 years, respectively. The sufferer who have symptoms of CFS over 10 years long are in 6 cases. Most of patients have already been examined by many other clinics and hospitals. They have been told as no abnormal medical condition, or often as neurosis, depressive state and autonomous imbalance etc. Interesting things are trigger of CFS. 77.5% of patients have onset of flu-like symptom, including 5 cases of acute infectious mononucleosis. In many female patients, symptoms of CFS begun after hand work in addition to psychological factors. Specific laboratory results are not shown in CBC, urinalysis, biochemical studies and inflammatory markers. 6 cases have positive Rheumatoid factor and positive ANF are shown in 16 cases (31.3%). Specific patterns of anti EBV antibodies are not shown. Lymphocyte subsets used by monoclonal antibodies are not specific. At the present, prognosis is good and 56.8% of CFS patients are generally improved. For severe cases, NSAID, Sulpiride, Amitriptyline and minor tranquilizer are used.
Hashimoto N.	3rd Dept. Internal Medicine, Jikei Univ. School of Medicine.	[Definition of the chronic fatigue syndrome and its issues].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2591-9	This article reviewed Definition of CFS proposed by CDC 1988. There are several issues in Definition for CFS of CDC. It is presented that other chronic clinical conditions have been satisfactorily excluded, including preexisting psychiatric diseases in (2) of major criteria. However, fibromyalgia can not be excluded from the fifth symptom of minor criteria, myalgia, and also depression from the ninth symptom. It is practically difficult to define impairment of average daily activity below 50% of the patient's premorbid activity level for a period of at least 6 months, as shown in (1) of major criteria, and it is not adapted for a first visit patient. Definition for CFS of CDC has been discussed on EBV infection, but not written on postviral fatigue syndrome and myalgic encephalomyelitis. Especially whether epidemic type of CFS is present or not was not discussed. Diagnostic criteria of CFS is necessary for clinical practice. Review Literature
Hickie I, Lloyd A, Wakefield D.	Mood Disorders Unit, Prince Henry Hospital, Little Bay, NSW.	Immunological and psychological dysfunction in patients receiving immunotherapy for chronic fatigue syndrome.	Aust N Z J Psychiatry 1992 Jun;26(2):249-56	Associations between immunological and psychological dysfunction in 33 patients with Chronic Fatigue Syndrome (CFS) were examined before and in response to treatment in a double blind, placebo-controlled trial of high dose intravenous immunoglobulin. Only those patients who received active immunotherapy demonstrated a consistent pattern of correlations between improvement in depressive symptoms and markers of cell-mediated immunity (CMI). This finding lends some support to the hypothesis that depressive symptoms in patients with CFS occur secondary to, or share a common pathophysiology with, immunological dysfunction. This pattern and the lack of strong associations between depression and immunological disturbance prior to treatment are less supportive of the view that CFS is primarily a form of depressive disorder or that immunological dysfunction in patients with CFS is secondary to concurrent depression.
Hickie I, Lloyd A, Wilson A, Wakefield D.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1755-6; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Higgins ES.	Department of Family Medicine, Medical University of South Carolina, Charleston 29425-5820.	Chronic fatigue syndrome: a depressive disorder.	J S C Med Assoc 1992 Feb;88(2):51-7 comment in: J S C Med Assoc. 1992 Feb;88(2):79-81	
Hissink Muller W.		[Chronic fatigue syndrome].[article in Dutch]	Ned Tijdschr Geneesk 1992 Jan 18;136(3):147	
Holmwood C, Shannon C.	Family Medicine Programme, South Australia.	Chronic fatigue syndrome. A review from the general practice perspective.	Aust Fam Physician 1992 Mar;21(3):278-9, 283-5 comment in: Aust Fam Physician. 1993 Apr;22(4):635	There is no doubt that the chronic fatigue syndrome exists. It is a condition that is debilitating and of unknown cause. Research into chronic fatigue syndrome demonstrates possible psychiatric or organic causes. The truth may be somewhere in between. Evidence for the existence of an ongoing chronic infection is now not convincing. Treatment should be based on supportive counselling, explanation, psychiatric help (both pharmacological and non pharmacological) and a graded programme of increased activity with the eventual aim of resumption of full functioning.
Hooge J.	There is much controversy as	Chronic fatigue syndrome:	Br J Nurs 1992 Sep 10-	

	to whether chronic fatigue syndrome is a physical or a psychological illness. This article reviews the literature, explains where nursing stands in the controversy and makes suggestions for nursing care.	cause, controversy and care.	23;1(9):440-1, 443, 445-6	
Horstink MW, Gonera EG, Berger HJ, van Weel C.		[Chronic fatigue syndrome].[article in Dutch]	Ned Tijdschr Geneesk 1992 Jan 18;136(3):148 comment on: Ned Tijdschr Geneesk. 1991 Oct 26;135(43):2005-9	
House A.		Alleged link between hepatitis B vaccine and chronic fatigue syndrome.	CMAJ 1992 Apr 1;146(7):1145 comment on: Can Med Assoc J. 1992 Jan 1;146(1):37-8	
Howard JM, Davies S, Hunnisett A.		Magnesium and chronic fatigue syndrome.	Lancet 1992 Aug 15;340(8816):426 comment on: Lancet. 1992 Jul 11;340(8811):124-5	
Hudson JI, Goldenberg DL, Pope HG Jr, Keck PE Jr, Schlesinger L.	Biological Psychiatry Laboratory, McLean Hospital, Belmont, Massachusetts 02178.	Comorbidity of fibromyalgia with medical and psychiatric disorders.	Am J Med 1992 Apr;92(4):363-7	PURPOSE: Patients with fibromyalgia have been reported to display high rates of several concomitant medical and psychiatric disorders, including migraine, irritable bowel syndrome, chronic fatigue syndrome, major depression, and panic disorder. To test further these and other possible associations, we assessed the personal and family histories of a broad range of medical and psychiatric disorders in patients with fibromyalgia. PATIENTS AND METHODS: Subjects were 33 women (mean age 42.1 years) who each met American College of Rheumatology criteria for fibromyalgia and presented to a rheumatologist at a tertiary referral center. They received the Structured Clinical Interview for DSM-III-R (SCID); a supplemental interview, in SCID format, for other medical and psychiatric disorders, including migraine, irritable bowel syndrome, and chronic fatigue syndrome; and an interview for family history of medical and psychiatric disorders. RESULTS: Patients with fibromyalgia displayed high lifetime rates of migraine, irritable bowel syndrome, chronic fatigue syndrome, major depression, and panic disorder. They also exhibited high rates of familial major mood disorder. CONCLUSIONS: The finding that migraine, irritable bowel syndrome, chronic fatigue syndrome, major depression, and panic disorder are frequently comorbid with fibromyalgia is consistent with the hypothesis that these various disorders may share a common physiologic abnormality.
Ichise M, Salit IE, Abbey SE, Chung DG, Gray B, Kirsh JC, Freedman M.	Department of Radiology (Division of Nuclear Medicine), University of Toronto, Canada.	Assessment of regional cerebral perfusion by 99Tcm-HMPAO SPECT in chronic fatigue syndrome.	Nucl Med Commun 1992 Oct;13(10):767-72	Chronic fatigue syndrome (CFS) is a severely disabling illness of uncertain aetiology. It is characterized by a chronic, sustained or fluctuating sense of debilitating fatigue without any other known underlying medical conditions. It is also associated with both somatic and neuropsychological symptoms. Both physical and laboratory findings are usually unremarkable. Regional cerebral blood flow (rCBF) was assessed in 60 clinically defined CFS patients and 14 normal control (NC) subjects using 99Tcm-hexamethylpropyleneamine oxime (99Tcm-HMPAO) single photon emission computed tomography (SPECT). Compared with the NC group, the CFS group showed significantly lower cortical/cerebellar rCBF ratios, throughout multiple brain regions ($P < 0.05$). Forty-eight CFS subjects (80%) showed at least one or more rCBF ratios significantly less than normal values. The major cerebral regions involved were frontal (38 cases, 63%), temporal (21 cases, 35%), parietal (32 cases, 53%) and occipital lobes (23 cases, 38%). The rCBF ratios of basal ganglia (24 cases, 40%) were also reduced. 99Tcm-HMPAO brain SPECT provided objective evidence for functional impairment of the brain in the majority of the CFS subjects. The findings may not be diagnostic of CFS but 99Tcm-HMPAO SPECT may play an important role in clarifying the pathoetiology of CFS. Further studies are warranted.
James DG, Brook MG, Bannister BA.	Academic Department of Medicine, Royal Free	The chronic fatigue syndrome.	Postgrad Med J 1992 Aug;68(802):611-4	

	Hospital, London, UK.			
Kanayama Y.	Second Department of Internal Medicine, Osaka University Medical School.	[Chronic fatigue syndrome-- symptoms, signs, laboratory tests, and prognosis].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2586-90	Chronic fatigue syndrome (CFS) is an undefined clinical problem and is perceived as a complex of multiple symptomatology with an unexplained persistent fatigue. Major symptoms include fatigue lasting for more than 6 months, low-grade fever, moderate lymphadenopathy, muscle and joint pain, and various psychological presentations. Since no specific laboratory tests are available, clinical diagnosis demands that known causes of chronic fatigue should be excluded. The pathogenesis is at present unknown, but it is suspected that CFS is a physical and psychological condition associated with some unrecognized infectious agent. Further study is needed to clarify the precise pathophysiology of this newly recognized entity. Review Literature
Kaplan KH, Goldenberg DL, Galvin-Nadeau M.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1754; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Karetzky MS. Editorial		Chronic fatigue syndrome.	N J Med 1992 Mar;89(3):191-2 comment on: N J Med. 1992 Mar;89(3):211-6	
Kato Y, Kamijima S, Kashiwagi A, Oguri T.	Second Department of Internal Medicine, Aichi Medical College.	[Chronic fatigue syndrome, a case of high anti-HHV-6 antibody titer and one associated with primary hyperaldosteronism].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2673-8	Two cases of chronic fatigue syndrome (CFS) were reported which were suggestive for the study of the etiology and a cure for CFS. Case 1: A 31-year-old woman was admitted for chronic fatigue syndrome. Examination revealed a high titer of anti HHV-6 antigen of x2560 and an increased percentage of suppressor T lymphocytes in the peripheral blood. HHV-6 was speculated to be reactivated and stimulating the immune system in CFS. Case 2: A 46-year-old woman suffering from CFS had been in remission for 6 years. She was admitted for hypertension associated with right adrenal adenoma and hyperaldosteronism. After right adrenalectomy, there was a recurrence of high fever and other CFS symptoms. It was suggested that CFS symptoms may be ameliorated by aldosterone.
Katon W, Russo J.	Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle 98195.	Chronic fatigue syndrome criteria. A critique of the requirement for multiple physical complaints.	Arch Intern Med 1992 Aug;152(8):1604-9 comment in: Arch Intern Med. 1992 Aug;152(8):1569-70	OBJECTIVE. The purpose of this study was to test the hypothesis that the patients with chronic fatigue who have the highest number of medically unexplained physical symptoms over their lifetime would also have the highest prevalence of current and lifetime affective and anxiety disorders, lifetime affective symptoms, and the most functional disability. A further goal was to use this information to modify the current case definition to better identify a subgroup of patients with chronic fatigue syndrome who are less likely to have psychiatric illness. DESIGN. Two hundred eighty-five consecutive patients with chronic fatigue were interviewed with the National Institute of Mental Health Diagnostic Interview Schedule and completed four self-rating questionnaires measuring psychologic distress, functional disability, and the tendency to amplify symptoms. Based on previously published data, patients were divided into four groups with a progressively higher number of lifetime medically unexplained physical symptoms. The prevalence of current and lifetime psychiatric disorders, lifetime psychologic symptoms, and extent of functional impairment was then compared in these four groups of patients. MAIN RESULTS. The prevalence of current and lifetime psychiatric diagnosis and lifetime depressive symptoms increased linearly with the number of lifetime physical symptoms that the patient experienced. The extent of impairment in activities of daily living and the tendency to amplify symptoms also increased linearly with the number of medically unexplained physical symptoms. CONCLUSION. The patients with the highest numbers of medically unexplained physical symptoms had extraordinarily high rates of current and lifetime psychiatric disorders. These data suggest that the current case definition for chronic fatigue syndrome inadvertently selects for patients with the highest prevalence of lifetime psychiatric diagnoses. A recommendation based on these results is to modify the case criteria for chronic fatigue syndrome to include patients with fatigue and few physical symptoms and to identify and consider excluding patients with high numbers of physical complaints.
Kawa K.	Dept. Pediatrics, Osaka Medical Center.	[Chronic fatigue syndrome in school children].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2606-11	Chronic fatigue syndrome (CFS) is characterized by persistent or relapsing debilitating fatigue for at least 6 months without any apparent medical diagnosis that would explain the clinical presentation. Although, most of the reported patients are over age 30, CFS also affects school children. To better understand CFS, the network of the central nervous-endocrine-immune systems should be considered,

				and one must be careful to distinct CFS from school absenteeism and other psychosomatic disorders often seen among them. Review Literature
Kawai K, Kawai A.	Kawai Internal Medicine Clinic, Tokyo, Japan.	Studies on the relationship between chronic fatigue syndrome and Epstein-Barr virus in Japan.	Intern Med 1992 Mar;31(3):313-8	Among 1,153 consecutive patients, 22 patients (1.9%) who complained of chronic fatigue for a period of over 6 months without detectable causes were studied. Ten patients (0.86%) satisfied the criteria of chronic fatigue syndrome (CFS) and were classified to be definite cases of CFS. The other patients were classified as probable cases. In order to clarify the role of Epstein-Barr virus (EBV) as a cause of CFS, we measured various antibodies for EBV. The definite cases had significantly higher titers of early antigen complex (EA)-IgG than both the probable cases and controls. We proposed the EA-IgG/EBNA ratio as the indicator of activation of EBV and attempted to estimate the degree of fatigue by the EA-IgG/EBNA ratio. The highest ratio value (16.0) of the 22 patients ratios was the most serious case. In general, the ratio correlated with the degree of fatigue. Based on these results, it was concluded that a relationship does exist between CFS and EBV.
Kitani T, Kuratsune H, Yamaguchi K.	Dep. of Internal Medicine, Osaka University.	[Diagnostic criteria for chronic fatigue syndrome by the CFS Study Group in Japan].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2600-5	Much interest recently has been given to chronic fatigue syndrome (CFS) in Japan as other countries. The CFS Study Group sponsored by the Ministry of Health and Welfare has been developed since April 1991, A diagnostic criteria for CFS was newly proposed by this group. The criteria is substantially based upon the working case definition, which was made by Holmes and colleagues in 1988. There are some modification from CDC working case definition; the criteria of probable cases of CFS was defined, and postinfectious CFS was also given. Review Literature
Kitani T, Kuratsune H.		[Chronic fatigue syndrome].[article in Japanese]	Nippon Naika Gakkai Zasshi 1992 Apr 10;81(4):573-82	
Kitani T.	Department of Internal Medicine, Osaka University.	[Chronic fatigue syndrome: the present concept and historical perspective].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2581-5	
Klonoff DC.	Department of Medicine, University of California, San Francisco.	Chronic fatigue syndrome.	Clin Infect Dis 1992 Nov;15(5):812-23	Chronic fatigue syndrome (CFS) is defined by symptoms and diagnosed without any objective diagnostic tests. Risk factors for developing CFS may include infection, psychiatric disorders, and allergies. Modest dysfunction of multiple organ systems, including the immune, central nervous, endocrine, and muscular systems, have been identified in cases of CFS. Symptoms of various organic, psychiatric, and poorly understood disorders overlap those of CFS. There is no known cure for CFS; however, exercise, counseling, and medications may provide symptomatic relief.
Kminek A.	Klinika detskeho a dorostoveho lekarstvi I. LF UK, Praha.	[Chronic fatigue syndrome].[article in Czech]	Cesk Pediatr 1992 Apr;47(4):226-9	
Komaroff AL, Wang SP, Lee J, Grayston JT.		No association of chronic Chlamydia pneumoniae infection with chronic fatigue syndrome.	J Infect Dis 1992 Jan;165(1):184	
Kuratsune H, Yamaguti K, Hattori H, Tazawa H, Takahashi M, Yamanishi K, Kitani T.	Department of Clinical Research, Osaka University.	[Symptoms, signs and laboratory findings in patients with chronic fatigue syndrome].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2665-72	This review summarizes the symptoms, signs and laboratory abnormalities seen in 59 patients with chronic fatigue syndrome (CFS), 2 patients with post-infectious CFS and in 26 patients with possible CFS whose illnesses fulfill the criteria proposed by the study group of the Ministry of Welfare, Japan. The characteristic symptoms and signs of CFS are prolonged generalized fatigue following exercise, headache, neuropsychological symptoms, sleep disturbance and mild fever. In possible CFS patients, the frequency of mild fever, muscle weakness, myalgia and headache is low. Our standard hematologic and laboratory tests revealed a few abnormality in patients with CFS. The characteristic abnormality in CFS patients is the low values of 17-Ketosteroid-Sulfates/creatinine in morning urine and the acylcarnitine deficiency. It seems likely that this deficiency of acylcarnitine induces an energy deficit in the skeletal muscle, resulting in general fatigue, myalgia, muscle weakness and postexertional malaise in CFS patients. Virologic studies revealed no evidence of retrovirus infection with HTLV-1, HTLV-2 and HIV, but the reactivation of HHV-6 infection was apparent.
Kyle DV, deShazo RD.	University of Alabama, School of Medicine, Department of	Chronic fatigue syndrome: a conundrum.	Am J Med Sci 1992 Jan;303(1):28-34	Chronic fatigue syndrome (CFS) is a multi-faceted disorder for which no etiology has been determined. This paper discusses the implications of the new clinical case definition of CFS on

	Medicine, Birmingham.			previous and future studies of this illness. The authors' own management approach is also discussed.
Levine PH, Jacobson S, Pocinki AG, Cheney P, Peterson D, Connelly RR, Weil R, Robinson SM, Ablashi DV, Salahuddin SZ, et al.	Environmental Epidemiology Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD 20892.	Clinical, epidemiologic, and virologic studies in four clusters of the chronic fatigue syndrome.	Arch Intern Med 1992 Aug;152(8):1611-6 comment in: Arch Intern Med. 1993 Mar 8;153(5):661	BACKGROUND. The purpose of this study is to provide a case definition of chronic fatigue syndrome in an outbreak occurring in the Nevada-California region to evaluate candidate etiologic agents and observe the natural history of the illness. METHODS. Patients diagnosed as having chronic fatigue syndrome were studied by repeated interviews, questionnaires, and blood collection over a 3-year period. Serum samples were tested for antibodies to Epstein-Barr virus, human herpesvirus-6, and human T-lymphotropic viruses I and II. Leukocytes from typical cases were also assayed for human T-lymphotropic viruses I and II. RESULTS. Cases were defined as persons who had: (1) severe persistent fatigue following an acute illness appearing in an individual with no previous physical or psychological symptoms; (2) presenting signs and symptoms of an acute infection; (3) severe and persistent headache and/or myalgias; and (4) abrupt change in cognitive function or the appearance of a new mood disorder. After 3 years of follow-up, almost all study subjects were able to return to pre-illness activity. None of the viruses evaluated--human T-lymphotropic viruses I and II, Epstein-Barr virus, or human herpesvirus-6--could be etiologically linked to these outbreaks. CONCLUSION. Clinical features of outbreaks of chronic fatigue syndrome differ sufficiently to suggest different etiologic agents. Giardiasis appears to have precipitated one of the four clusters in this study but the cause(s) of the other three outbreaks is as yet uncertain. The overall prognosis of chronic fatigue syndrome is usually favorable.
Levine PH, Peterson D, McNamee FL, O'Brien K, Gridley G, Hagerty M, Brady J, Fears T, Atherton M, Hoover R.	Epidemiology and Biostatistics Program, National Cancer Institute, NIH, Bethesda, Maryland 20892.	Does chronic fatigue syndrome predispose to non-Hodgkin's lymphoma?	Cancer Res 1992 Oct 1;52(19 Suppl):5516s-5518s; discussion 5518s-5521s	Chronic fatigue syndrome, an illness that frequently is associated with abnormalities of cellular immunity, has been reported anecdotally to be associated with an increased incidence of lymphoid hyperplasia and malignancy. This report describes an initial analysis of population-based cancer incidence data in Nevada, focusing on the patterns of non-Hodgkin's lymphoma prior to and subsequent to well described, documented outbreaks of chronic fatigue syndrome during 1984-1986. In a study of time trends in four age groups, the observed time trends were consistent with the national trends reported in the Surveillance, Epidemiology, and End Results Program. No statistically significant increase attributable to the chronic fatigue syndrome outbreak was identified at the state level. Additional studies are in progress analyzing the data at the country level, reviewing patterns in other malignancies, and continuing to monitor the cancer patterns over subsequent years.
Linde A, Andersson B, Svenson SB, Ahrne H, Carlsson M, Forsberg P, Hugo H, Karstorp A, Lenkei R, Lindwall A, et al.	Department of Virology, National Bacteriological Laboratory, Stockholm.	Serum levels of lymphokines and soluble cellular receptors in primary Epstein-Barr virus infection and in patients with chronic fatigue syndrome.	J Infect Dis 1992 Jun;165(6):994-1000	The immunopathology in primary Epstein-Barr virus (EBV) infections and in chronic fatigue syndrome was studied by examining serum levels of interleukins (IL) and of soluble T cell receptors in serum samples. Serum samples were from patients during and 6 months after primary EBV-induced infectious mononucleosis and from patients with chronic fatigue syndrome and serologic evidence of EBV reactivation. Markers for T lymphocyte activation (soluble IL-2 and CD8) and for monocyte activation (neopterin) were significantly elevated during acute infectious mononucleosis but not in patients with chronic fatigue syndrome. Interferon-alpha, IL-1 beta, and IL-6 levels were not significantly increased in any patient group but interferon-gamma levels were significantly increased during the acute phase of infectious mononucleosis. The levels of IL-1 alpha were significantly higher than in controls both in patients with infectious mononucleosis and in those with chronic fatigue syndrome. In the latter, the lack of most markers for lymphocyte activation found in patients with infectious mononucleosis makes it less likely that EBV reactivation causes symptoms.
Lloyd A, Hickie I, Hickie C, Dwyer J, Wakefield D.	Department of Immunology, Prince Henry Hospital, Sydney, Australia.	Cell-mediated immunity in patients with chronic fatigue syndrome, healthy control subjects and patients with major depression.	Clin Exp Immunol 1992 Jan;87(1):76-9	The chronic fatigue syndrome (CFS) is characterized by severe persistent fatigue and neuropsychiatric symptoms. It has been proposed that the abnormalities in cell-mediated immunity which have been documented in patients with CFS may be attributable to a clinical depression, prevalent in patients with this disorder. Cell-mediated immune status was evaluated in patients with carefully defined CFS and compared with that of matched subjects with major depression (non-melancholic, non-psychotic) as well as healthy control subjects. Patients with CFS demonstrated impaired lymphocyte responses to phytohaemagglutinin (PHA) stimulation, and reduced or absent delayed-type hypersensitivity (DTH) skin responses when compared either with subjects with major depression or with healthy control subjects (P less than 0.05 for each analysis). Although depression is common in patients with CFS, the disturbances of cell-mediated immunity in this disorder differ in prevalence and magnitude from those associated with major depression. These observations strengthen the likelihood of a direct relationship between abnormal cell-mediated immunity and the etiology of CFS.

Lloyd AR, Pender H.	Department of Infectious Diseases, Prince Henry Hospital, Little Bay, NSW.	The economic impact of chronic fatigue syndrome.	Med J Aust 1992 Nov 2;157(9):599-601 comment in: Med J Aust. 1993 Feb 15;158(4):286-7	OBJECTIVE: To estimate the economic impact of chronic fatigue syndrome (CFS) on the individual, the government, and the community. DESIGN: The financial burden produced by CFS was studied by calculating the direct and indirect costs arising from the disorder. Data regarding use of health resources, income and employment were obtained by questionnaire from patients with CFS. In addition, aggregate Medicare data on the incidence and fees charged for each Schedule item for these patients was obtained. SETTING: The Richmond Valley, New South Wales. PARTICIPANTS: Forty-two patients with CFS identified in our population-based prevalence study. RESULTS: The conservative estimate of the per annum costs of CFS in the Richmond Valley, with a prevalence of 37.1 cases per 100,000, was \$396,000. If extrapolated to the Australian population, we estimate CFS would generate an annual cost of at least \$59 million. CONCLUSION: This disorder constitutes a large but neglected area of health resource utilisation and economic burden.
Lozano de Leon F, Gutierrez Fernandez J, Martin Mazuelos E, Garcia-Bragado F.	Unidad de Enfermedades Infecciosas, Hospital Universitario de Valme, Sevilla.	[Infection by human herpesvirus type 6: epidemiology, immunopathology and clinical implications].[article in Spanish]	Rev Clin Esp 1992 Jan;190(1):37-42	The human herpesvirus type 6 has been discovered recently and is the object of numerous investigations. Even though, its morphology is very close to the cytomegalovirus, its epidemiologic, immunopathologic and clinic characteristics are similar to the Epstein-Barr virus. Like the latter, HHV-6 persists latent in the host during all his live, frequently relapsed and is ubiquitous. Exanthema subitum in children and mononucleosis-like syndrome in adults have been attributed to acute HHV-6 infection. Under certain conditions, the development of chronic fatigue syndrome, some lymphoproliferative disorders and, perhaps, others diseases can be influenced by the persistent activity of this infection furthermore, HHV-6 can be a cofactor in infection with HIV and provokes a faster evolution and more severe illness.
Lynch S, Montgomery S, Seth R.		Chronic fatigue syndrome.	Br J Gen Pract 1992 Jan;42(354):39-40 comment on: Br J Gen Pract. 1991 Nov;41(352):479-80	
Lynch SP, Seth RV, Main J.	St James University Hospital, Leeds.	Monospot and VP1 tests in chronic fatigue syndrome and major depression.	1348: J R Soc Med 1992 Sep;85(9):537-40	Thirty-four patients with chronic fatigue syndrome (CFS) were compared with controls with DSM-III-R major depression on the Monospot and VP1 antigen tests. There was no significant difference in the numbers initially VP1 positive in the groups (11/34 and 7/34 positive in the chronic fatigue and major depression group respectively). Four CFS but no depressed patients were Monospot positive initially. No patient was both Monospot and VP1 positive. Patients positive on the tests were offered a repeat 6 months later. Eight of the 11 VP1 positive patients in the CFS group were retested and four remained positive, but none of the four depressed patients retested remained positive. No patient retested remained Monospot positive. The Monospot and VP1 tests appear to have little discriminating ability between these groups as screening tests and their predictive validity is unclear.
Mahnke C, Kashaiya P, Rossler J, Bannert H, Levin A, Blattner WA, Dietrich M, Luande J, Lochelt M, Friedman-Kien AE, et al.	Projektgruppe Humane Retroviren, DKFZ, Heidelberg, Federal Republic of Germany.	Human spumavirus antibodies in sera from African patients.	Arch Virol 1992;123(3-4):243-53	Serum samples collected from patients with a wide variety of diseases from African and other countries were tested for antibodies to the human spumaretrovirus (HSRV). A spumaviral env-specific ELISA was employed as screening test. Out of 3020 human sera screened, 106 were found to be positive (3.2%). While the majority of patients' sera from Europe (1581) were negative, 26 were positive (1.6%). Sera from healthy adult blood donors (609), from patients with multiple sclerosis (48), Graves' disease (45), and chronic fatigue syndrome (41) were negative or showed a very low prevalence for spumaviral env antibodies. A higher percentage of seropositives (6.3%) were found among 1338 African patients from Tanzania, Kenya, and Gabon. Out of 1180 patients from Tanzania, 708 suffered from tumors, 75 from AIDS, and 128 had gynecological problems; 51 of the Tanzanian patients were HSRV seropositive (4.3%). A particularly high percentage of 16.6% seropositives were identified among nasopharyngeal carcinoma patients (NPC) from Kenya and Tanzania consistent with results reported 10 years ago. However, 20 nasopharyngeal carcinoma patients from Malaysia were HSRV-seronegative. In selected cases, sera from seropositive individuals were reacted with proteins from HSRV-infected cells in vitro. HSRV env- and gag-specific antibodies were specifically detected by these sera in Western blots. The results indicate spumavirus infections in human patients with various diseases at a relatively low prevalence worldwide; in African patients, however, the prevalence of spumavirus infections is markedly higher.
Manu P, Lane TJ, Matthews DA.	Department of Psychiatry, University of Connecticut	The pathophysiology of chronic fatigue syndrome:	Int J Psychiatry Med 1992;22(4):397-408	OBJECTIVE: To examine published data regarding patient cohorts with the recently defined chronic fatigue syndrome. METHOD: Review of thirty-two peer-assessed research publications that included

	Health Center, Farmington 06032.	confirmations, contradictions, and conjectures.		full disclosure of the methodology employed; classification of the findings as confirmed, contradictory, or non-duplicated. RESULTS: Research studies have confirmed that the majority of patients with the chronic fatigue syndrome: 1) are white middle-aged women, 2) have a high prevalence of current major depression and somatization disorder, 3) have abnormal personality traits, 4) believe that their fatigue has a physical cause, and 5) show mild abnormalities of humoral immunity. Contradictory data have been presented with regard to: 1) the time of onset of depressive disorders, 2) the etiologic role of herpetic and enteroviral infections, 3) the presence of abnormal cellular immunity, and 4) the clinical utility of immunoglobulin therapy. Non-duplicated research has indicated 1) hypothalamic-pituitary-adrenal axis dysfunction, 2) abnormalities on magnetic resonance images of the brain, 3) altered cytokine production, and 4) the possibility of retroviral infection. CONCLUSIONS: As presently defined, the chronic fatigue syndrome has many of the clinical and biological features associated with depressive and somatoform disorders. A specific etiologic role for infections or immune dysfunction has not been confirmed.
Martin WJ.		Chronic fatigue syndrome.	Science 1992 Feb 7;255(5045):663 comment on: Science. 1991 Dec 20;254(5039):1726-8	
Matsuda J, Gohchi K.	Department of Medicine, Teikyo University School of Medicine.	[Overview of our patients with chronic fatigue syndrome (CFS) from the pathoetiological aspects].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2635-40	We interviewed 285 patients who visited our department claiming with a complaint of chronic fatigue syndrome (CFS) and subsequently diagnosed 55 as having CFS, according to the criteria for CFS of the centers for disease control (CDC). We measured various virus antibody titers, 2-5, adenylate synthetase levels in the serum lymphocyte subset in blood, employing a double staining technique with monoclonal antibodies. In this paper, we pathoetiology of CFS, based on our findings and other researchers' is discussed.
Matsuda J.	Department of Medicine, Teikyo University School of Medicine.	[Chronic fatigue syndrome].[article in Japanese]	Nippon Rinsho 1992 Apr;50(4):887-91	Chronic fatigue syndrome (CFS), which is characterized by devastating fatigue, mild fever, lymphadenopathy, headache, myalgia, insomnia and neuropsychiatric disorders, now has drawn much attentions from many physicians, researchers and even peoples in general society world wide. The pathogenesis of CFS is still remains to be clarified and clinico-pathological difference between CFS and mood disorder is controversial. In this paper, CFS would be reviewed in detail.
Matsumoto Y, Ninomiya S.	Second Department of Internal Medicine, Nagoya City University Medical School.	[Allergy among Japanese patients with chronic fatigue syndrome].[article in Japanese]	Arerugi 1992 Dec;41(12):1722-5	Allergy is a common feature of patients with chronic fatigue syndrome (CFS). Because of this strong association, we attempted to explore the prevalence of allergies among Japanese patients with CFS. Of the present 18 patients, 78% had allergies during their premorbid and/or postmorbid conditions. Their allergies were mainly cutaneous reactions including drug allergies and 43% of the patients had 2 or more allergic reactions. In the case of a premorbid condition, allergies improved spontaneously after onset of CFS. Clinical manifestations of CFS, however, became worse during the period of an association with allergies. Immunologic tests, including peripheral blood lymphocyte-subsets, blastogenesis, natural killer-cell functions and cytokine-assays, were not any correlation between both patients with and without allergies.
McCluskey DR, Riley MS.	Department of Medicine, Royal Victoria Hospital, Belfast, Ireland.	Chronic fatigue syndrome.	Compr Ther 1992 Apr;18(4):13-6	Chronic Fatigue Syndrome appears to represent a spectrum of disorders in which a variety of pathophysiological mechanisms may operate. While the initiating event in the majority of patients is a pyrexial illness, possibly due to enterovirus infection, evidence of persisting infection or inflammatory changes in muscle and/or brain remain unconvincing. CFS patients display a definite reduced aerobic work capacity compared to normal control subjects, but this may reflect a state of deconditioning resulting from prolonged physical inactivity. They also have an altered perception of their level of exertion and premorbid fitness. The characteristic fluctuation in symptoms, with periods of relapses and partial remissions, may indicate that some central disorder of sensory perception is operational. It may be that a primary sleep disorder results in a reduced sensory threshold for afferent stimuli from muscle. This could well account for many of the subjective symptoms which patients experience. Much more research is clearly necessary if we are to achieve a better understanding of this distressing and at present enigmatic disorder.
Moyer HL Jr.		"Chronic fatigue syndrome and women: can therapy	Soc Work 1992 Sep;37(5):478 comment on: Soc Work. 1992	

		help?".	Jan;37(1):35-9	
Murdoch JC.	University of Otago, Dunedin, New Zealand.	Chronic fatigue syndrome. A review from the general practice perspective.	Aust Fam Physician 1992 Aug;21(8):1205-6	
Murray JB.	Psychology Department, St. John's University, Jamaica, NY 11439.	Psychological aspects of chronic fatigue syndrome.	Percept Mot Skills 1992 Jun;74(3 Pt 2):1123-36	
Nishikai M.	Department of Internal Medicine, Second Tokyo National Hospital.	[Chronic fatigue syndrome--study of 51 cases treated at the Second Tokyo National Hospital].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2641-7	Fifty-one patients with chronic fatigue syndrome (CFS) were studied. Tender points, which are a characteristic clinical feature of fibromyalgia, were found in all but two of the patients at 11.4 points (mean) per patient. IgG antibody titers to EB virus viral capsid antigen were more elevated in the CFS patient group compared to that of the control ($p < 0.0015$). IgG antibody titers to HHV-6 were not higher in the patient group. NK cell activity was not more decreased in the patient group, whereas, the mean number of NK cells was lower ($p < 0.005$) in the patient group, when CD57 was used as the NK cell marker. Viral infections and/or disorders in cellular immunity may be important factors in the pathogenesis of CFS.
Ogawa R, Toyama S, Matsumoto H.	Department of Internal Medicine, Kanebo Memorial Hospital.	[Chronic fatigue syndrome--cases in the Kanebo Memorial Hospital].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2648-52	In our hospital, 134 patients (28 male, 106 female, 10-82 years of age) were diagnosed as having chronic fatigue syndrome (CFS). Some patients had mild elevation of antibodies against Epstein-Barr Virus and immunologic abnormalities (natural killer cell dysfunction and high rates of skin reactivity to house dust, pollen, drugs and common food). In the patients with immunologic abnormalities, we found decreases in serum concentrations of arachidonic acid and dihomogamma-linolenic acid. A Kampo medicine, Ren-Shen-Yang-Rong-Tang was used in the management of 134 patients and 98 patients returned to work or school.
Okano M.	Department of Pediatrics, Hokkaido University School of Medicine.	[Viral infection and its causative role for chronic fatigue syndrome].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2617-24	Patients with chronic fatigue syndrome (CFS), of unknown etiology, have been increasingly reported. This syndrome is characterized by debilitating fatigue, lymphadenopathy, and fever. Herein, I focus on and review this syndrome from the view point of the causative role of viral infection. Since the symptoms of CFS are similar to those of chronic infectious mononucleosis (CIM) or chronic Epstein-Barr virus infection (CEBV), the role of EBV has been intensively studied. The etiological relationship between EBV and CFS, however, is questioned, like other lymphotropic viruses, including human retroviruses, adenoviruses and human herpesvirus 6. Additionally, severe chronic active EBV infection syndrome (SCAEBV) is also discussed in this review because symptoms of this disorder are similar to those of CFS but more severe in degree. Currently, the cause(s) and treatment of CFS are enigmatic and require further research and multidisciplinary study. Review Literature
O'Sullivan SJ.		Alleged link between hepatitis B vaccine and chronic fatigue syndrome.	CMAJ 1992 Jan 1;146(1):37-8 comment in: Can Med Assoc J. 1992 Apr 1;146(7):1145	
O'Sullivan SJ.		Alleged link between hepatitis B vaccine and chronic fatigue syndrome.	CMAJ 1992 Aug 15;147(4):399, 402	
Pamphlett R, O'Donoghue P.		Antibodies against Sarcocystis and Toxoplasma in humans with the chronic fatigue syndrome.	Aust N Z J Med 1992 Jun;22(3):307-8	
Peterson PK, Schenck C.		Chronic fatigue syndrome as a "real" disease?	J Gen Intern Med 1992 Jan-Feb;7(1):119-20 comment on: J Gen Intern Med. 1991 Jul-Aug;6(4):378-9	
Phillips N.		Chronic fatigue syndrome.	Aust N Z J Psychiatry 1992 Jun;26(2):329-30 comment on: Aust N Z J Psychiatry. 1992 Mar;26(1):64-72	
Price RK, North CS, Wessely	Department of Psychiatry,	Estimating the prevalence of	Public Health Rep 1992 Sep-	Chronic fatigue syndrome is a poorly understood disease characterized by debilitating fatigue and

S, Fraser VJ.	Washington University School of Medicine, St. Louis, MO 63110.	chronic fatigue syndrome and associated symptoms in the community.	Oct;107(5):514-22 comment in: Public Health Rep. 1993 Jan-Feb;108(1):135-7	neuromuscular and neuropsychological symptoms. Despite numerous studies on the subject, the epidemiology of the syndrome in the community remains largely unexplored. An estimate of the prevalence in the population is presented, approximating the Centers for Disease Control criteria as well as the prevalence estimates of the fatigue symptom complex that include fatigue, disability, and neuromuscular and neuropsychological symptoms. The study population consisted of a very large, multicenter, stratified, and random sample of a general population health survey known as the Epidemiologic Catchment Area Program. Data used for this study were gathered between 1981 and 1984. The Diagnostic Interview Schedule, a highly structured mental health interview, was used to assess the lifetime prevalence of medical and psychological symptoms. Chronic fatigue was common. A total of 23 percent of the subjects reported having experienced the symptom of persistent fatigue sometime during their lives. Chronic fatigue syndrome, however, as defined by the Centers for Disease Control, appeared to be quite rare in the general population. Only 1 of 13,538 people examined was found to meet a diagnosis of the syndrome with an approximation of the CDC criteria. Fatigue symptom complex was frequently related to medical or psychiatric illness or substance abuse; thus, persons meeting partial criteria of chronic fatigue syndrome were also found to be rare when psychiatric or medical exclusions were applied.
Ray C, Weir WR, Cullen S, Phillips S.	Department of Human Sciences, Brunel University, Uxbridge, Middlesex, U.K.	Illness perception and symptom components in chronic fatigue syndrome.	J Psychosom Res 1992 Apr;36(3):243-56	Two-hundred and eight patients with chronic fatigue syndrome (post-viral fatigue syndrome) completed a questionnaire which dealt both with their illness in general and with the extent to which they experienced specific symptoms. A factor analysis of the symptom data yielded four components: emotional distress; fatigue; somatic symptoms; and cognitive difficulty. Emotional disturbance is a common feature of the disorder and its role has been widely debated. When the symptom components were considered independently, fatigue, somatic symptoms and cognitive difficulty were associated with questionnaire items relating to general illness severity, but emotional distress was not. Thus negative emotions did not contribute directly to patients' perception of illness severity. They were, however, correlated with the other symptom components. It is argued that this correlation reflects a reciprocal influence, with negative emotions exacerbating fatigue and other key symptoms and the debilitating nature of these symptoms enhancing emotional vulnerability.
Ray C.	Department of Human Sciences, Brunel University, Uxbridge, Middlesex, United Kingdom.	Positive and negative social support in a chronic illness.	Psychol Rep 1992 Dec;71(3 Pt 1):977-8	A measure of social support was developed and administered to 207 patients with chronic fatigue syndrome. Positive social support was related to anxiety, and negative social support was related to both anxiety and depression.
Reeves WC, Pellett PE, Gary H Jr.		The chronic fatigue syndrome controversy.	Ann Intern Med 1992 Aug 15;117(4):343; discussion 344 comment on: Ann Intern Med. 1992 Jan 15;116(2):103-13	
Rikard-Bell CJ, Waters BG.	Arndell Children's Unit, North Ryde, New South Wales.	Psychosocial management of chronic fatigue syndrome in adolescence.	Aust N Z J Psychiatry 1992 Mar;26(1):64-72 comment in: Aust N Z J Psychiatry. 1992 Jun;26(2):329-30	The state of chronic fatigue syndrome (CFS) as abnormal illness behaviour or as biologically determined disease is undecided. The ensuing, often public, debate has confused the community and has led to sharp differences in the therapeutic approach to individual patients. These challenges are compounded when the patient is an adolescent and intergenerational issues enter the picture. Two adolescent cases with different outcomes are presented and the principles of a rehabilitation approach to treatment are outlined which attempt to avoid being drawn into unproductive debates about aetiology.
Saltstein B, Gurwitt A, Webster W, Barrett SN.		Taking chronic fatigue syndrome seriously.	Am J Psychiatry 1992 Dec;149(12):1755; discussion 1756-7 comment on: Am J Psychiatry. 1991 Dec;148(12):1638-46	
Scheffers MK, Johnson R Jr, Grafman J, Dale JK, Straus SE.	Cognitive Neurophysiology Unit, National Institute of Neurological Disorders and Stroke, National Institutes of	Attention and short-term memory in chronic fatigue syndrome patients: an event-related potential analysis.	Neurology 1992 Sep;42(9):1667-75	We recorded event-related brain potentials (ERPs) from 13 patients with chronic fatigue syndrome (CFS) and 13 matched normal controls. To assess attentional and memory deficits in CFS patients, we used a short-term memory task in which events occurred in different spatial locations and the patients made a rapid-response (RT) when a letter in a relevant location matched a letter in the prememorized

	Health, Bethesda, MD 20892.			set (Attention paradigm). Time-on-task effects on the ERP and behavioral measures were assessed over the 2 1/4-hour duration of this task. Both groups also performed a visual Oddball paradigm, with an RT, before and after the Attention paradigm. The patients' RTs were much more variable and, in nine of 13 cases, slower than the mean RT of the controls in both paradigms. The patients' memory performance was not significantly different from that of the controls and there were no group differences in the overall amplitude, latency, or scalp distribution of the N1, P2, N2, or P300 components of the ERP in either paradigm. The ERP and performance data from both paradigms suggest that perceptual, attentional, and short-term memory processes were unaffected in CFS patients and that the differences were limited to response-related processes.
Schluederberg A, Straus SE, Peterson P, Blumenthal S, Komaroff AL, Spring SB, Landay A, Buchwald D.	National Institute of Allergy and Infectious Diseases, Bethesda, MD.	NIH conference. Chronic fatigue syndrome research. Definition and medical outcome assessment.	Ann Intern Med 1992 Aug 15;117(4):325-31	A workshop was held 18 to 19 March 1991 at the National Institutes of Health to address critical issues in research concerning the chronic fatigue syndrome (CFS). Case definition, confounding diagnoses, and medical outcome assessment by laboratory and other means were considered from the perspectives of key medical specialties involved in CFS research. It was recommended that published Centers for Disease Control (CDC) case-definition criteria be modified to exclude fewer patients from analysis because of a history of psychiatric disorder. Specific recommendations were made concerning the inclusion or exclusion of other major confounding diagnoses, and a standard panel of laboratory tests was specified for initial patient evaluation. The workshop emphasized the importance of recognizing other conditions that could explain the patient's symptoms and that may be treatable. It was viewed as essential for the investigator to screen for psychiatric disorder using a combination of self-report instruments followed by at least one structured interview to identify patients who should be excluded from studies or considered as a separate subgroup in data analysis. Because CFS is not a homogeneous abnormality and because there is no single pathogenic mechanism, research progress may depend upon delineation of these and other patient subgroups for separate data analysis. Despite preliminary data, no physical finding or laboratory test was deemed confirmatory of the diagnosis of CFS. For assessment of clinical status, investigators must rely on the use of standardized instruments for patient self-reporting of fatigue, mood disturbance, functional status, sleep disorder, global well-being, and pain. Further research is needed to develop better instruments for quantifying these domains in patients with CFS.
Shepherd C.		Chronic fatigue syndrome: a joint paediatric-psychiatric approach.	Arch Dis Child 1992 Nov;67(11):1410 comment on: Arch Dis Child. 1992 Apr;67(4):550-5	
Shepherd C.		Fluctuations in perceived energy and mood among patients with chronic fatigue syndrome.	J R Soc Med 1992 Sep;85(9):588 comment in: J R Soc Med. 1992 Oct;85(10):650 comment on: J R Soc Med. 1992 Apr;85(4):195-8	
Shepherd C.		Outcome in the chronic fatigue syndrome.	BMJ 1992 Aug 8;305(6849):365 comment on: BMJ. 1992 Jul 18;305(6846):147-52	
Shepherd C.		Immune responsiveness in chronic fatigue syndrome.	Postgrad Med J 1992 Jan;68(795):66-7 comment on: Postgrad Med J. 1991 Jun;67(788):532-7	
Shimizu T.	Dept. of Neurology, Teikyo University Medical School.	[Neuro-psychiatric aspects of chronic fatigue syndrome].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2630-4	Chronic fatigue syndrome (CFS) is easily differentiated from various neurological organic disorders by conventional clinical examinations. The most important disease for distinguishment from CFS is fibromyalgia syndrome, in which the prominent and cardinal feature is a deprivation of stage 4 slow wave sleep. Experimentally, the sleep disturbance in controls can induce general myalgia, muscle tender points, severe fatigue and stiffness on awakening. The EEG abnormality is slow alpha wave

				contaminants on slow wave background, which is identical to EEG of CFS. The results clearly imply that CFS is not a hysterical or psychogenic disease, and that fibromyalgia may be a central fundamental of CFS. Fibromyalgia, however, has distinct features such as no antecedent inflammatory process and no endemics. Therefore, the syndrome has features distinct from, in addition to common features to CFS. It is also very difficult to distinguish CFS from depression. The above-mentioned features can be observed in depression. Now, study of brain blood flow or metabolism by PET or SPECT can be a possible tool for establishment of the CFS identity. Review Literature
Stoner BP, Corey GR.	Department of Medicine, Duke University Medical Center, Durham 27710.	Chronic fatigue syndrome. A practical approach.	N C Med J 1992 Jun;53(6):267-70	
Straus SE. Editorial		Defining the chronic fatigue syndrome.	Arch Intern Med 1992 Aug;152(8):1569-70 comment on: Arch Intern Med. 1992 Aug;152(8):1604-9	
Takahashi H, Imai K, Katanuma A, Sugaya T, Hisano K, Motoya S, Aoki S, Sugiyama T, Yachi A.	Department of Internal Medicine (Section I), Sapporo Medical College.	[A case of chronic fatigue syndrome who showed a beneficial effect by intravenous administration of magnesium sulphate].[article in Japanese]	Arerugi 1992 Nov;41(11):1605-10	We have treated a case of chronic fatigue syndrome with atopic diathesis who had suffered general malaise, low grade fever, swelling of the lymph nodes, myalgias and arthralgias for a long time. A 29-year-old female, who had been treated for atopic dermatitis for 5 years, complained of general malaise in May 1990. She was admitted to the nearest hospital in December 1990 because of low grade fever, swelling of the lymph nodes and an elevation of antinuclear antibody (2520x). She was transferred to our hospital in May 1991. A diagnosis of collagen disease was not compatible with her condition. In addition to general malaise, fever and lymph node swelling, headache, myalgias, muscle weakness, arthralgias and insomnia were observed, and a diagnosis of chronic fatigue syndrome was made based on the working case definition proposed by Holmes et al. Although eosinophilia, a high serum level of IgE, and elevation of RAST scores, low NK and ADCC activity, and a reduced level of NK cells in the peripheral blood were detected, serum antibodies to a number of viruses were in the normal range. Treatments with non-steroid anti-inflammatory drugs, minor tranquilizers and antidepressant drugs were not effective at all. An administration of magnesium sulphate was intravenously performed once a week in order to improve her condition, especially severe general malaise. After about 6-week's administration of magnesium sulphate, she noticed reduced easy fatigability and an improvement in her impaired daily activities. Finally she was able to leave the hospital in January 1992.(ABSTRACT TRUNCATED AT 250 WORDS)
Thoolen IM, de Vries TW.	Kinderkliniek Academisch Ziekenhuis Groningen.	[Chronically tired or the chronic fatigue syndrome in an adolescent].[article in Dutch]	Tijdschr Kindergeneeskd 1992 Jun;60(3):63-7	To fulfill the criteria of the chronic fatigue syndrome a patient must have new onset persistent or relapsing, debilitating fatigue or easy fatigability. The symptoms do not resolve with bedrest and are severe enough to reduce or impair average daily activity below 50% of the patient's premorbid activity level for a period of at least 6 months. Other clinical conditions that may produce similar symptoms must be excluded. Using a case history the (differential) diagnosis, treatment and prognosis of the chronic fatigue syndrome are discussed.
Uchida A.	Dept. Late Effect Studies, Kyoto University.	[Therapy of chronic fatigue syndrome].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2679-83	Chronic fatigue syndrome (CFS) is characterized by unexplained, debilitating fatigue or easy fatigability lasting longer than six months. While a number of clinical trials have been performed in CFS patients, there is currently no established therapy for CFS. Treatment with acyclovir of CFS patients is ineffective. Intravenous immunoglobulin therapy appears to be effective, though the results are controversial. Antidepressants might help the associated depression and anxiety but not other symptoms. Trials with magnesium have improved the well-being of patients. Restoration of NK activity by biological response modifiers, such as sifoprann, resulted in restoration of NK cell activity and recovery from CFS. Taken together, immunological abnormalities may be involved in CFS, and its restoration may produce clinical benefit in CFS. Review Literature
Uchida A.	Dept. Late Effect Studies, Kyoto University.	[Chronic fatigue immune dysfunction syndrome].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2625-9	Chronic fatigue syndrome (CFS) is characterized by unexplained, debilitating fatigue or easy fatigability lasting longer than six months. While a viral basis of infection is proposed to be the cause of CFS, other viral infections do not generally persist after several weeks. Immunological disorders, including abnormal functions and distributions of T lymphocytes, B lymphocytes, natural killer (NK) cells, and monocyte/macrophages, are described in CFS. NK cells are known to play an important role

				in host resistance against viral infection as well as in the regulation of the immune systems. Restoration of NK activity resulted in recovery from CFS. Taken together, immunological abnormalities, especially dysfunction of NK cells, may be involved in CFS. Review Literature
Ur E, White PD, Grossman A.	Department of Endocrinology, St. Bartholomew's Hospital, London, England.	Hypothesis: cytokines may be activated to cause depressive illness and chronic fatigue syndrome.	Eur Arch Psychiatry Clin Neurosci 1992;241(5):317-22	Abnormalities in the regulation of the hypothalamo-pituitary-adrenal (HPA) axis are a well recognised feature of endogenous depression. The mechanism underlying this phenomenon remains obscure although there is strong evidence suggesting excessive CRH activity at the level of the hypothalamus. We propose a novel hypothesis in which we suggest that the aetiological antecedent to CRH hyperactivity is cytokine activation in the brain. It is now well established both that interleukins -1 and -6 are produced in a number of central loci and that cytokines are potent stimulators of the HPA axis. Hence, we suggest that activation of IL-1 and IL-6 by specific mechanisms (such as neurotropic viral infection) in combination with the consequent CRH-41 stimulation, may (via their known biological effects) underly many of the features found in major depression and other related disorders, particularly where chronic fatigue is a prominent part of the symptom complex. This theory has considerable heuristic value and suggests a number of experimental stratagems which may be employed in order to confirm or reject it.
van Rensburg EJ.		Unacceptable trends in the diagnosis of chronic fatigue syndrome.	S Afr Med J 1992 Feb 1;81(3):172-3	
Vereker MI.	Paxton House Family and Young Person's Unit, Reading.	Chronic fatigue syndrome: a joint paediatric-psychiatric approach.	Arch Dis Child 1992 Apr;67(4):550-5 comment in: Arch Dis Child. 1992 Nov;67(11):1410	
Ware NC, Kleinman A.	Department of Social Medicine, Harvard Medical School, Boston, Massachusetts 02115.	Culture and somatic experience: the social course of illness in neurasthenia and chronic fatigue syndrome.	Psychosom Med 1992 Sep-Oct;54(5):546-60	An anthropological view of culture and somatic experience is presented through elaboration of the notion that illness has a social course. Contemporary anthropology locates culture in local worlds of interpersonal experience. The flow of events and processes in these local worlds influences the waxing and waning of symptoms in a dialectic involving body and society over time. Conversely, symptoms serve as a medium for the negotiation of interpersonal experience, forming a series of illness-related changes in sufferers' local worlds. Thus, somatic experience is both created by and creates culture throughout the social course of illness. Findings from empirical research on neurasthenia in China, and chronic fatigue syndrome (CFS) in the United States, corroborate this formulation. Attributions of illness onset to social sources, the symbolic linking of symptoms to life context, and the alleviation of distress with improvement in circumstances point to the sociosomatic mediation of sickness. Transformations occasioned by illness in the lives of neurasthenic and CFS patients confirm the significance of bodily distress as a vehicle for the negotiation of change in interpersonal worlds. An indication of some of the challenges anthropological thinking poses for psychosomatic medicine concludes the discussion.
Welch LS, Sokas R.	Division of Occupational and Environmental Medicine, George Washington University School of Medicine, Washington, DC 20037.	Development of multiple chemical sensitivity after an outbreak of sick-building syndrome.	Toxicol Ind Health 1992 Jul-Aug;8(4):47-50	Investigation of this outbreak raises some important points for future research. Although for various reasons the case ascertainment for MCS was not complete, the three MCS patients described here all had preexisting conditions that may have put them at risk. In addition, one person among the 20 described had chronic fatigue syndrome but did not develop MCS. Many of the persons described here continue to have ongoing complaints that are not MCS. Significant exacerbation of preexisting allergic disease and new onset of asthma occurred among those patients. As a group, they did not recover completely after the outbreak; several are no longer working in the building but in alternative work spaces. An important distinction should be made between individuals who met the definition used here for MCS and others who had significant exacerbation of some better-defined illness brought on by building conditions. New onset of MCS was a partial but not complete explanation of the clinical course for this group of 20 persons.
Wessely S.		The measurement of fatigue and chronic fatigue syndrome.	J R Soc Med 1992 Apr;85(4):189-90 comment in: J R Soc Med. 1992 Sep;85(9):588	

Wessely S. Publication Types: Comment Letter		Outcome in the chronic fatigue syndrome.	BMJ 1992 Aug 8;305(6849):365 comment in: BMJ. 1992 Sep 12;305(6854):649 comment on: BMJ. 1992 Jul 18;305(6846):147-52	
Whelton CL, Salit I, Moldofsky H.	Department of Psychiatry, University of Toronto, Toronto Hospital, Canada.	Sleep, Epstein-Barr virus infection, musculoskeletal pain, and depressive symptoms in chronic fatigue syndrome.	J Rheumatol 1992 Jun;19(6):939-43	Sleep physiology, viral serology and symptoms of 14 patients with chronic fatigue syndrome (CFS) were compared with 12 healthy controls. All patients described unrefreshing sleep and showed a prominent alpha electroencephalographic nonrapid eye movement (7.5-11.0 Hz) sleep anomaly (p less than or equal to 0.001), but had no physiologic daytime sleepiness. There were no group differences in Epstein-Barr virus (EBV) antibody titers. The patient group had more fibrositis tender points (p less than 0.0001), described more somatic complaints (p less than 0.0001), and more depressive symptoms (p less than 0.0001). Patients with CFS do not show evidence for a specific chronic EBV infection, but show altered sleep physiology, numerous tender points, diffuse pain, and depressive symptoms. These features are similar to those found in fibromyalgia syndrome.
Winters EG, Quinet RJ.	Dept of Internal Medicine, Ochsner Clinic, New Orleans, LA 70121.	Chronic fatigue syndrome.	J La State Med Soc 1992 Jun;144(6):260-70	The chronic fatigue syndrome (CFS) is a poorly understood condition with nonspecific signs and symptoms, especially debilitating fatigue. Most patients can pinpoint the onset of their illness and usually describe a flu-like state. The search for an etiologic agent has focused on a number of viruses such as Epstein-Barr, enteroviruses, retroviruses, and human herpesvirus-6. Evidence supports persistent viral infection in a small percentage of CFS patients. Immunologic abnormalities do exist in CFS, which indicate the presence of immune activation in CFS patients. Although abnormal muscle biopsies have been found in some patients with CFS, strength and endurance appear normal, but perception of exertion may be abnormal. Patients with chronic fatigue have a high incidence of premorbid and concurrent psychiatric disorders, and on physical examination many often have reproducible tender points similar to fibromyalgic patients. Clinical evaluation should rule out other potential causes of fatigue, but elaborate diagnostic tests are seldom required. Presently, no specific treatment exists for CFS. A cognitive behavioral approach with or without the use of tricyclics has been advocated. Patients should be encouraged to maintain functional status and should not be discouraged from exercise. Several medications have been tried but with no definite clinical benefit.
Wong R, Lopaschuk G, Zhu G, Walker D, Catellier D, Burton D, Teo K, Collins-Nakai R, Montague T.	Department of Medicine, University of Alberta, Edmonton, Canada.	Skeletal muscle metabolism in the chronic fatigue syndrome. In vivo assessment by 31P nuclear magnetic resonance spectroscopy.	Chest 1992 Dec;102(6):1716-22	BACKGROUND: Previous study of patients with chronic fatigue syndrome (CFS) has demonstrated a markedly reduced dynamic exercise capacity, not limited by cardiac performance and in the absence of clinical neuromuscular dysfunction, suggesting the possibility of a subclinical defect of skeletal muscle. METHODS: The in vivo metabolism of the gastrocnemius muscles of 22 CFS patients and 21 normal control subjects was compared during rest, graded dynamic exercise to exhaustion and recovery, using 31P nuclear magnetic resonance (NMR) spectroscopy to reflect minute-to-minute intracellular high-energy phosphate metabolism. RESULTS: Duration of exercise was markedly shorter in the CFS patients (8.1 +/- 2.8 min) compared with the normal subjects (11.3 +/- 4.3 min) (p = 0.005). There were large changes in phosphocreatine (PCr), inorganic phosphate (Pi), and pH from rest to clinical fatigue in all subjects, reflecting the high intensity of the exercise. The temporal metabolic patterns were qualitatively similar in the CFS patients and normal subjects. There were early and continuous changes in PCr and Pi that peaked at the point of fatigue and rapidly reversed after exercise. In contrast, pH was relatively static in early exercise, not declining noticeably until 50 percent of total exercise duration was achieved, and reaching a nadir at 2 min postexercise, before rapidly reversing. There were no differences in pH at rest (7.08 +/- 0.04 vs 7.10 +/- 0.04), exhaustion (6.85 +/- 0.17 vs 6.76 +/- 0.17) or early (6.64 +/- 0.25 vs 6.56 +/- 0.24) or late recovery (7.09 +/- 0.04 vs 7.10 +/- 0.05), CFS patients vs normal subjects, respectively (NS). Neither were there intergroup differences (NS) in PCr or Pi. Although, quantitatively, the changes in PCr, Pi, and pH were marked and similar in both groups from rest to exhaustion, the changes all occurred much more rapidly in the CFS patients. Moreover, adenosine triphosphate (ATP) was significantly (p = 0.007) less at exhaustion in the CFS group. CONCLUSIONS: Patients with CFS and normal control subjects have similar skeletal muscle metabolic patterns during dynamic exercise and reach similar clinical and metabolic end points. However, CFS patients reach exhaustion much more rapidly than normal subjects, at which point they

				also have relatively reduced intracellular concentrations of ATP. These data suggest a defect of oxidative metabolism with a resultant acceleration of glycolysis in the working skeletal muscles of CFS patients. This metabolic defect may contribute to the reduced physical endurance of CFS patients. Its etiology is unknown. Whether CFS patients' overwhelming tiredness at rest has a similar metabolic pathophysiology or etiology also remains unknown.
Wood C, Magnello ME, Sharpe MC.	Department of Biological Anthropology, University of Oxford.	Fluctuations in perceived energy and mood among patients with chronic fatigue syndrome.	J R Soc Med 1992 Apr;85(4):195-8 comment in: J R Soc Med. 1992 Sep;85(9):587 J R Soc Med. 1992 Sep;85(9):588	Patients currently suffering or recently recovered from chronic fatigue syndrome (CFS) were compared with each other and with a group of well-matched controls in a study of diurnal variation in levels of perceived mental and physical energy and positive and negative affect. Patients who were currently ill showed diurnal variation in patterns of energy, with maximum levels being recorded between 10.00 h and 12.00 h which were significantly higher ($P < 0.05$) than energy levels recorded on rising or retiring. This pattern was similar to the controls but average energy levels at each time point were lower ($P < 0.05$) among the ill patients. Recovered patients showed the same pattern, with mean energy levels falling between those of the ill patients and controls. Similar diurnal patterns were found for perceptions of positive, though not negative affect. Correlations between physical and mental energy and between both of these energy variables and positive affect were high ($r = 0.75$ to 0.85) in both controls and CFS patients. However, correlations with negative affect were low (eg $r = -0.10$) and non-significant. Total scores on the Hospital Anxiety and Depression Scale (HAD) were significantly higher ($P < 0.05$) among patients who were still ill than those who had recovered. Scores on the HAD Depression (but not Anxiety) subscale were also significantly higher among those who were still ill ($P < 0.01$). These findings may be of value in facilitating programmes of cognitive-behavioural modification intended to aid the recovery of patients with CFS.
Wood C.		Fluctuations in perceived energy and mood among patients with chronic fatigue syndrome.	J R Soc Med 1992 Oct;85(10):650 comment on: J R Soc Med. 1992 Sep;85(9):588	
Woodward CG, Cox RA.	Public Health Laboratory, Leeds, U.K.	Epstein-Barr virus serology in the chronic fatigue syndrome.	J Infect 1992 Mar;24(2):133-9	The antibody profiles against Epstein-Barr virus were studied in 136 patients presenting with chronic fatigue syndromes. These profiles were compared with a panel of sera from blood donors. The patients exhibited higher titres in a combined assay for antibodies to the Restricted (R) and Diffuse (D) components of the Early Antigen complex than controls (P less than 0.001) but titres against these antigens were not useful on an individual patient basis. The patients who displayed elevated titres of antibodies to Early Antigens did not differ clinically from those displaying titres in the control range. Four of nine patients who had increased antibodies to Early Antigens also had evidence of active enterovirus infection.
Wright B.		Chronic fatigue syndrome and heterogeneity.	J R Soc Med 1992 Sep;85(9):588 comment on: J R Soc Med. 1992 Apr;85(4):189-90	
Yamanishi K.	Research Institute for Microbial Diseases, Osaka University.	[Chronic fatigue syndrome and virus infection: human herpesvirus 6 (HHV-6) infection].[article in Japanese]	Nippon Rinsho 1992 Nov;50(11):2612-6	Chronic fatigue syndrome (CFS) is newly-recognized disease characterized by chronic and debilitating fatigue. It has been suggested that viral infection may be involved in this syndrome from the results of clinical examination, including increased activity of 2',5'-synthetase in leukocytes of patients. The following viruses have been reported as etiologic agents of this disease. First, many studies have found elevated levels of IgG to viral capsid antigen and early antigens to Epstein-Barr virus (EBV), but low titer or absence of antibody to EBV-associated nuclear antigen. Second, the enteroviruses have also been implicated as possible causative agent of CFS, because virus could be isolated from patients. Recently it was also reported that antibodies to human T-lymphotropic virus (HTLV) and HTLV type II (HTLV-II) gag sequence were detectable in patients. Finally several reports state that human herpesvirus 6 (HHV-6) could be isolated from CFS patients in the high frequency. In conclusion, it is still early to identify the etiologic agent from these reports, and more effort is needed. Review Literature
Zajdowicz TR.		Chronic fatigue syndrome and military service.	Mil Med 1992 Sep;157(9):A3-4	

