Fibromyalgia is a disorder that causes aches and pain all over the body, highlighted by "tender points" throughout the body (Office of Women's Health, U.S. Department of Health and Human Services, 2012). These tender points are very small places on the neck, chest, shoulders, back, knees, hips, arms, and legs that hurt when any pressure is put on them.

Aches and pains are the most common symptoms of fibromyalgia. Usually starting at the neck and shoulders and spreading to other parts of the body over time, the pain varies according to the time of day, weather, sleep patterns, and stress level. People with fibromyalgia may also have cognitive and memory problems, fatigue, sleep disorder, irritable bowel syndrome, chronic headaches, skin and temperature sensitivity, cognitive impairment, depression and anxiety, and irritable bladder (Office of Women's Health, U.S. Department of Health and Human Services, 2012; Fibromyalgia Network, n.d.).
Areas of Impact for a Person with Fibromyalgia

Concentration Issues: trouble focusing for long periods of time, difficulty with new information
Depression and Anxiety: may need medications to deal with one or both of these.

Fatigue/Weakness: may not be able to work 8 hours at a time, may not be able to lift objects, times unable to walk or stand for long periods of time

Fine Motor Impairment: needs larger print to read, needs to be flexible in workstation set up

Gross Motor Impairment: cannot climb stairs, bend, reach, and stoop for objects

Migraine Headaches: unable to tolerate overhead or flickering lights, loud noises may trigger headaches

Skin Sensitivity: may be irritated by certain types of material/clothing, chemicals used in the office may irritate

Sleep Disorder: insomnia, cannot keep regular 9-5 schedule

Temperature Sensitivity: cannot handle too hot or too cold office temps, my not be able to tolerate fans/vents blowing on them
Arthritis includes approximately 100 inflammatory and non-inflammatory diseases that affect the body's joints, connective tissue, and other supporting tissues such as tendons, cartilage, blood vessels, and internal organs. There are more than 100 different types of arthritis and the cause of most types is unknown (Arthritis Foundation, 2011a).

Swelling in one or more joints, early morning stiffness, recurring pain or tenderness in any joint, obvious redness and warmth in a joint, unexplained weight loss, fever, or weakness combined with joint pain that last more than two weeks are typical symptoms of arthritis. Skin, joint, kidney, lung, heart, nervous system, and blood cell infections may accompany fatigue and difficulty in sleeping. Evaluating arthritis requires an assessment of past history, current symptoms, blood tests, biopsies, and x-rays (Arthritis Foundation, 2011b).
Areas of impact for persons with Arthritis
Migraines from Migraine Research Foundation 2015

Migraine is an extraordinarily prevalent neurological disease, affecting 38 million men, women and children in the U.S. and 1 billion worldwide. Migraine is the 3rd most prevalent illness in the world.

- Nearly 1 in 4 U.S. households includes someone with migraine.
- Amazingly, 12% of the population – including children – suffer from migraine.
- 18% of American women, 6% of men, and 10% of children experience migraines.
- Migraine is most common between the ages of 25 and 55.
- Migraine tends to run in families. About 90% of migraine sufferers have a family history of migraine. Migraine is the 6th most disabling illness in the world.
- Every 10 seconds, someone in the U.S. goes to the emergency room complaining of head pain, and approximately 1.2 million visits are for acute migraine attacks.
- While most sufferers experience attacks once or twice a month, more than 4 million people have chronic daily migraine, with at least 15 migraine days per month.
- More than 90% of sufferers are unable to work or function normally during their migraine.

Migraine is a public health issue with serious social and economic consequences.

Healthcare and lost productivity costs associated with migraine are estimated to
be as high as $36 billion annually in the U.S.

• In 2015, the medical cost of treating chronic migraine was more than $5.4 billion, however, these sufferers spent over $41 billion on treating their entire range of conditions.

• Healthcare costs are 70% higher for a family with a migraine sufferer than a non-migraine affected family.

• American employers lose more than $13 billion each year as a result of 113 million lost work days due to migraine.
• U.S. headache sufferers receive $1 billion worth of brain scans each year.
• Migraine sufferers, like those who suffer from other chronic illnesses, experience the high costs of medical services, too little support, and limited access to quality care.
• Beyond the burden of a migraine attack itself, having migraine increases the risk for other physical and psychiatric conditions.
• Migraine remains a poorly understood disease that is often undiagnosed and undertreated.
• In 2017, there are about 500 certified headache specialists in the U.S. and 38 million sufferers.
• More than half of all migraine sufferers are never diagnosed.
• The vast majority of migraine sufferers do not seek medical care for their pain.
• Only 4% of migraine sufferers who seek medical care consult headache and pain specialists.
• Although 25% of sufferers would benefit from preventive treatment, only 12% of all sufferers receive it.

• **Stages for Migraines**

• **Types and Stages**
  – Prodrome
    • Constipation, mood changes, food cravings, neck stiffness, increased thirst and urination, and frequent yawning
  – Aura affecting vision, physical sensation, physical weaknesses/numbness, speech, hearing, and control of motor movement
  – Attack
    • Pain on one side or both sides of head
    • Throbbing or pulsing pain
    • Sensitivity to light, sounds, and sometimes smells and touch
    • Nausea and vomiting
    • Blurred vision
    • Lightheadedness, sometimes followed by fainting
– Post-Drome
  • Confusion, moodiness, dizziness, weakness, and sensitivity to light and sound

• Migraine Triggers
• Hormonal changes in women
• Foods and Food Additives
• Drinks
• Stress
• Sensory Stimuli
• Changes in Sleep Patterns
• Physical Factors
• Changes in Environment
• Medications
• Levels of Migraines
• Chronic Migraine
  – Lasts 15 or more days for more than three months
• Status Migrainosus
  – Severe migraines for more than three days
• Persistent aura without infarction
  – Aura lasting more than one week after the migraine attack
• Migrainous infarction
  – Aura lasting for more than one hour and should be evaluated by the doctor.

• Migraines and AT Considerations
• Lights
• Computer and other electronic devices
• Workstation
• Home
• How it affects AT for Primary Disability

– Sources: MayoClinic and https://migraineresearchfoundation.org
• Multiple Chemical Sensitivity (MCS)
• Multiple Chemical Sensitivity; in broad terms it means an unusually severe sensitivity or allergy-like reaction to many different kinds of pollutants including solvents, VOC’s (Volatile Organic Compounds), perfumes, petrol, diesel, smoke, “chemicals” in general and often encompasses problems with regard to pollen, house dust mites, and pet fur & dander.
• MCS Triggers
• pesticides
• cigarette smoke
• paint fumes
• wood preservatives
• mercury amalgam (in dentistry)
• office photocopier fumes
• perfumes
• formaldehyde (MDF, insulation, bodycare, etc)
• isocyanate (foam insulation etc)

• epoxy

Symptoms

• burning, stinging eyes
• wheezing, breathlessness
• nausea
• extreme fatigue/lethargy
• headache/migraine/vertigo/dizziness
• poor memory & concentration
• runny nose (rhinitis)
• sore throat, cough
• sinus problems
• skin rashes and/or itching skin
• sensitivity to light & noise
• sleeping problems
• digestive upset
• muscle & joint pain.
• What to Do?
• explain your problems to your employer

• tactfully request that colleagues be aware of your problems & if at all possible, avoid smoking & the use of perfumes whilst around you
• you can request that your workstation / office is sited well away from common sources of pollution, such as photocopiers, fax, printers, etc

• if you have access to opening windows, make use of these when practicable to ensure fresh air.

• At home: you can do much more and should aim to rid your home as far as is reasonably possible of all pollutants.
• Remember – avoidance is the key.

– Source: https://www.multiplechemicalsensitivities.org
LUPUS

Lupus is a widespread and chronic autoimmune disease that, for unknown reasons, causes the immune system to attack the body's own tissue and organs, including the joints, kidneys, heart, lungs, brain, blood, or skin. The immune system normally protects the body against viruses, bacteria, and other foreign materials. In an autoimmune disease like lupus, the immune system loses its ability to tell the difference between foreign substances and its own cells and tissue. The immune system then makes antibodies directed against "self." There are several forms of lupus: cutaneous, systemic, drug-induced, neonatal, and overlap syndrome or mixed connective tissue disease (Lupus Foundation of America, 2014).

Although lupus can affect any part of the body, the most common symptoms are achy joints, frequent fevers, arthritis, fatigue, skin rashes, kidney problems, chest pain with deep breathing, a butterfly-shaped rash across the cheek and nose, photosensitivity, impaired vision, Raynaud's phenomenon, and seizures. No single set of symptoms is uniformly specific to lupus and no laboratory test can prove lupus conclusively; symptoms may disappear for no apparent reason and remain in remission for weeks, months, or even years (Lupus Foundation of America, 2014).

AT Examples for this condition:
Areas of Impact for Persons with Lupus: common to have some or many but seldom will a client have all at the same time;

**Cognitive Impairment:** concentration, organization skills, mental fatigue

**Fatigue/Weakness:** tires easily, cannot lift heavy objects, periods of extreme tiredness/sleepiness

**Fine Motor Impairment:** pincer grasp may be affected, small object manipulation

**Gross Motor Impairment:** walking, climbing stairs, balance, coordination, periods of time where wheelchair or walker may be necessary

**Photosensitivity:** migraines from florescent lights, sunlight too bright, overhead lighting, flickering lights

**Respiratory Difficulties:** intolerance of smoke or scents such as air fresheners, perfumes, cleaning chemicals,

**Seizure Activity:** flickering lights, florescent lighting

**Stress Intolerance:** stress can trigger any or all for a “flare”

**Temperature Sensitivity:** intolerance of temperature extremes and/or changes

**Vision Impairment:** due to fine motor impairment my loose eye coordination or focus. Trouble reading small print, trouble reading large quantity of print
Medically Induced Disabilities

• DSM Diagnosis 9 Substance-Induced Disorders
  • Substance-induced delirium
  • Substance-induced persisting dementia
  • Substance-induced persisting amnestic disorder
  • Substance-induced psychotic disorder
  • Substance-induced mood disorder
  • Substance-induced anxiety disorder
• Hallucinogen persisting perceptual disorder
• Substance-induced sexual dysfunction
• Substance-induced sleep disorder

Source: https://www.ncbi.nlm.nih.gov/books/NBK64178/

• Substances
  • Alcohol
• Caffeine
• Cocaine and Amphetamines
• Hallucinogens
• Nicotine
• Opioids

• Sedatives

• Tardive Dyskinesia

• Tardive dyskinesias (TDs) are involuntary movements of the tongue, lips, face, trunk, and extremities that occur in patients treated with long-term dopaminergic antagonist medications. Although they are associated with the use of neuroleptics, TDs apparently existed before the development of these agents. People with schizophrenia and
other neuropsychiatric disorders are especially vulnerable to the development of TDs after exposure to conventional neuroleptics, anticholinergics, toxins, substances of abuse, and other agents.

Source:

• Traits
Unable to focus
Unable to organize information
Unable to prioritize work
Unable to remember multiple steps
• Common Tools
• Check list
• Reduce distraction
  – Visual
  – Auditory
• Use electronic devices for organization and reminders
• Set up Visual Reminders
Learning Disabilities

Learning Disabilities (LD) refer to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning.

Learning disabilities are a lifelong condition; they are not outgrown or cured, though many people develop coping techniques through special education, tutoring, medication, therapy, personal development, or adaptation of learning skills. Approximately 4.6 million adults in the United States have learning disabilities (National Center for Learning Disabilities, 2014).

Specific Learning Disabilities:

Dyslexia is the term associated with specific learning disabilities in reading. Although features of a learning disability in reading vary from person to person, common characteristics include the difficulty with individual sounds in words, and difficulties with word decoding, fluency, rate of reading, rhyming, spelling, vocabulary, comprehension and written expression. Dyslexia is the most prevalent and well-recognized of the subtypes of specific learning disabilities.

Dyscalculia is the term associated with specific learning disabilities in math. Although features of a learning disability in math vary from person to person, common characteristics include difficulty with counting, learning number facts and doing math calculations, difficulty with
measurement, telling time, counting money, estimating number quantities, mental math and problem-solving strategies.

Dysgraphia is the term associated with specific learning disabilities in writing. This term is used to capture both the physical act of writing and the quality of written expression. Dysgraphia can manifest in difficulties with spelling, putting thoughts on paper, and poor handwriting, including difficulty in forming letters or writing within a defined space, organizing thoughts on paper, keeping track of thoughts already written down, and difficulty with syntax, structure, and grammar.

Associated Deficits and Disorders

While not designated as specific subtypes of learning disabilities, there are a number of areas of information processing that are commonly associated with LD (NCLD, 2014).

Auditory Processing Disorder: a weakness in the ability to understand and use auditory information. Individuals may have difficulties with noticing, comparing and distinguishing the distinct and separate sounds in words, picking out important sounds from a noisy background, recalling information presented orally, understanding and recalling the order of sounds and words, and difficulty with spelling, reading and written expression.

Visual Processing Disorder: a weakness in the ability to understand and use visual information. Individuals often have difficulty noticing and comparing features of
distinguish one item from another, distinguishing a shape or printed character from its background, distinguishing the order of symbols, words or images, difficulty engaging in short-term and long-term recall of visual information, and understanding how objects are positioned in space.

Non-Verbal Learning Disabilities: unique learning and behavioral profiles that may overlap with dyslexia, dyscalculia and dysgraphia but that differ in significant ways. Most notably, these individuals often have strengths in the areas of verbal expression, vocabulary, reading, comprehension, auditory memory and attention to detail, yet have difficulty with math computation and problem solving, visual-spatial tasks and motor coordination, reading body language and social cues, as well as seeing the “big picture” in social and academic contexts.

Executive Functioning Deficits: weaknesses in the ability to plan, organize, strategize, remember details and manage time and space efficiently. Executive functioning deficits are often seen in individuals who have a learning disability.
EXAMPLES OF AVAILABLE ASSISTIVE TECHNOLOGY (AT)

SCREEN READERS- JAWS, WINDOWEYES, BRAINASOFT, SUPERNOVA/DOLPHIN
SCREEN MAGNIFICATION- ZOOMTEXT, VIDEO MAGNIFICATION SYSTEMS
HAND HELD MAGNIFIERS- PEBBLE, RUBY

FM SYSTEM
ROGER PEN
MIRROR
LOOP SYSTEM
ASL
PEN AND PAPER
WHITEBOARD

SMART PEN
WYNN
READ AND WRITE GOLD

HEIGHT ADJUSTABLE DESK
ERGONOMIC CHAIR
FOOT REST
HEADSET
SPEECH TO TEXT SOFTWARE- DRAGON, BRAINASOFT, NATIVE TO DEVICE APPLICATIONS
WYNN
OTT LIGHT
SMART PHONE
SMART WATCH
TABLETS
Case Studies
Case #1

- Client’s age range is in the early 20’s. Disabilities are severe to profound bilateral hearing loss, migraine sensitivity with photosensitivity, fibromyalgia, and anxiety disorder. Currently attending community college with goal of Vet Tech. Lives in an apartment and has anxiety about others coming to the home. Unable to tolerate vibration to neck and back.
Current Technology

• Has hearing aids and experience with FM System
• Relies on her tablet and computer
  – Watches Netflix
• Has Wi-Fi in the home
• Uses public transportation and relies on her smartphone in public
Case #2

- Client’s age range is in the early 20’s. Disabilities are Cerebral Palsy, learning disability in reading comprehension, and low vision. Currently attending college with the goal of becoming a teacher.
Current Technology

• Relies on computer and borrows the ZoomText at the school
• Relies on her smartphone for communication
• No knowledge of Ease of Access Features on either devices
Case #3

- Client’s age range in 30s. Disabilities are MCS to perfumes, chemical, and cigarettes/cigars. Uses a wheelchair. Works in an office for medical billing.
Case #4

- Client’s age range is late 40’s. Disabilities are Rheumatoid Arthritis, and learning disability in Dyscalculia. Currently employed as a Mechanical Engineer for a production firm in the area of material science. She struggles with checking of numbers in calculations, often reverses the numbers.
Case #5

- Client is 40 female. She is paraplegic due to auto accident at age of 18.
- She also has RA and lupus which limit her stamina, strength, and mobility.
- She lives on her own and is a very successful business person who operates out of her home and uses the computer for all aspects both work and personal needs.
- She needs access to her computer from multiple locations including when she is bedridden. She has two different wheelchairs that she utilizes to access the community or her home.
- She is familiar with Mac and would prefer to keep using this system as most of her current work is graphic designing in nature and compatible with applications needed.
Questions to Consider:

1. What limitations does the employee with this disorder experience?
2. How do these limitations affect the employee’s job performance?
3. What specific job tasks are problematic as a result of these limitations?
4. What accommodations are available to reduce or eliminate these problems? Are all possible resources being used to determine accommodations?
5. Can the employee provide information on possible accommodation solutions?
6. Once accommodations are in place, can meetings take place to evaluate the effectiveness of the accommodations? Can meetings take place to determine whether additional accommodations are needed?
7. Would human resources or personnel departments, supervisors, or coworkers benefit from education, training or disability awareness regarding learning disabilities? Can it be provided?