Chiropractic Guide to Symptoms and Disease

Chiropractic is a portal of entry into the health care system. It remains necessary for the chiropractor to detect areas of biomechanical dysfunction, while still screening patients for underlying complications. The doctor directs treatment methods and considers appropriate care options, including primary intervention, and alternate therapies or referral. This program is designed to sharpen those skills and provide the clinician with a template for interpreting signs, symptoms and tests and directing patient care.

Defining Disease:
An interruption, cessation, or disorder of bodily functions, systems or organs. A morbid entity characterized usually by at least two of these criteria: recognized etiologic agents, identifiable group of signs and symptoms, or constant anatomical alterations.  

The Benefits of a Comprehensive History:
A comprehensive history extends beyond a problem focused history or a singular chief complaint. It takes into consideration a description of location, quality, severity, timing, context, modifying factors and associated signs and symptoms significantly related to the presenting problems. In essence a chief complaint; extended history of present illness; review of systems which is clinically related to the problems identified in the present illness, plus a review of all additional bodily systems, complete past, family and social history are included.

Dates and Data:
Things that must be considered and recorded include at least, the age, sex, race, birthplace, martial status, occupation and social factors.

Source of History:
Provided by the patient, relative or friend and assessed by the providers judgment of the validity of reporting. Remember, history includes the patients existing medical/chiropractic record and diagnostic testing.

Chief Complaint:
Gathering a clear and concise record of the patient’s description in his/her own words, without applying the provider’s interpretation. Do not coerce or cajole the patient into a pre-conceived condition.

Past History:
Inspect general state of health. Take into consideration childhood illness, such as measles, rubella, mumps, chicken pox, rheumatic fever, scarlet fever, polio or surgeries. Consider immunizations, such tetanus, pertussis, diphtheria, Polio, measles, rubella, mumps or varicella. Review adult illnesses, psychiatric, venereal diseases, surgeries, injuries, allergies, hospitalizations, and current medications. The latter would include, home remedies, non-prescription drugs and borrowed medicine. Ask questions on dose. Such as: How often? How much? What are they for?
Scan patient’s dietary habits (ask a variety of questions like, what did you eat? What did you drink? How much? How do you feel during/after?) Check sleeping patterns, including times, quality, difficulties and
energy levels. Inquire about habits such as, exercise, caffeine (coffee), alcohol, tobacco, recreational drugs and recreation in general. ¹

Family History:
Inquire on health status of parents, siblings, children and even the spouse. This includes age, age of illnesses or death. Data on grandparents to grandchildren may also be helpful.

Psychosocial History:
Evaluating the patient as a person. Take into consideration lifestyle, home situation, relationships, a typical day, upbringing, schooling, military services, job history, financial status, marriage, recreation, religion, beliefs, perceptions and attitudes. ⁴

Review of Systems:

General- Usual weight, recent weight change, weakness, fatigue, fever
Skin- Rashes, lumps, itching, dryness, color change, changes in hair or nails
Head- Headache, head injury
Eyes- Vision, glasses or contacts, latest exam, pain, redness, tearing, double vision, glaucoma, cataracts
Ears- Hearing, tinnitus, vertigo, earaches, infection, discharge
Nose and Sinuses- Colds, stuffiness, hay fever, nosebleeds, sinus pressure
Mouth and Throat - Teeth and gums, bleeding gums, dental examination, sore tongue, sore throats, hoarseness
Neck- Lumps, swollen glands, goiter, pain in the neck
Breasts- History of lumps, pain, discharge, self-exam (ability and knowledge)
Respiratory- Cough, sputum, hemoptysis, wheezing, asthma, bronchitis, emphysema, pneumonia, tuberculosis, pleurisy, tuberculin test, last chest x-ray
Cardiac- Heart trouble, hypertension, rheumatic fever, murmurs, dyspnea, edema, chest pain, palpitations, past EKG or other testing
Gastrointestinal- Swallowing, heartburn, appetite, nausea, vomiting, indigestion, bowel movements, bleeding, stool color, constipation, diarrhea, abdominal pain, food intolerance, excessive belching, excessive gas, hemorrhoids, jaundice, liver or gallbladder trouble, hepatitis
Urinary- Frequency, polyuria, nocturia, dysuria, hematuria, urgency, hesitancy, incontinence, infections, stones
Genito-Reproductive-Male- discharge, sores, history of venereal disease and treatment, hernias, testicular pain, masses, frequency of intercourse, libido, sexual difficulties
Genito-Reproductive-Female- age of menses, regularity, frequency, and duration of periods, amount of bleeding, bleeding between periods, or after intercourse, last menstrual period, dysmenorrhea, age of menopause, menopausal symptoms, post-menopausal bleeding, discharge, itching, venereal diseases and treatment, last pap-smear, number of pregnancies, number of deliveries, number of abortions, complications of pregnancy, birth control methods, frequency of intercourse, libido, and sexual difficulties
Musculoskeletal- Joint pains or stiffness, arthritis, gout, backache, location and symptoms (swelling redness, pain, stiffness, weakness, limitations of motion or activity). Muscle pain or cramps
Peripheral Vascular- Intermittent claudication, cramps, varicose veins, thrombophlebitis
Neurologic- Fainting, black outs, seizures, paralysis, local weakness, numbness, tingling, tremors, memory
Psychiatric- Nervousness, tension, mood, depression, (historical and observed)
Endocrine- Thyroid trouble, heat or cold intolerance, excessive sweating, diabetes, excessive thirst, hunger, or urination frequency
Hematologic- anemia, bruising, bleeding, transfusions

Unique Perspective on Children’s History

These relate specifically to the patient’s chronological age and stage of development. The child’s history then follows the same outline as the adult’s history, with certain additions.

Identifying Data from Parents or Guardians- Record the date of birth for patient’s less than 3 years of age. Record the first names of parents and last name of each if different.

Chief Complaints- It should be made clear whether these are concerns of the patient, a parent, or both. In some instances, it may be a third party, such as a schoolteacher, who has expressed concern about the child.

Present Illness- This should include how each member of the family responds to the patient’s symptoms, their concerns about them, and whether the patient achieves any secondary gains from the illness.

Overview

Subjective Component or Symptoms, Objective Component or Signs, Testing or Imaging, Laboratory, Examination and Differential Diagnosis and Treatment

Remember that the subjective component is the symptoms that are defined by the patient in their own words with their interpretation of severity. The objective component, or signs are pure interpretation by the clinician. These direct the examinations, orthopedic, neurological, and chiropractic analysis. The findings of the examination or the mechanism of injury direct the testing, imaging techniques and laboratory studies.

The accumulation of history, examination and testing establishes the differential diagnosis and directs the treatment options.

Summary of Symptoms

Abdominal Pain or Swelling

Though a primary reason for medical visits, abdominal pain is rarely dangerous. More serious causes may be linked to symptoms that are:

- consistent and prolonged (over 2 hours).
- associated with vomiting.
- associated high fever (over 101°Fahrenheit).
- sudden and wakes the patient.
- made worse by movement, coughing or sneezing.

Probable Causes:

Common: gastroenteritis, irritable bowel syndrome, and indigestion
Less Frequent: appendicitis, gall stones, ulcers, pancreatitis, diverticulitis
Uncommon: aortic aneurysm, intestinal obstruction
**Diagnosis Consideration:**

Intensify the history; pain made better by eating may suggest ulcer or pancreatitis. Pain decreased with bowel movement suggests irritable bowel syndrome or narrowing of the large intestine. Pain with vomiting may point to intestinal obstruction. With women, a menstrual history may identify the cause.

The location of pain and radiation may point to the cause. Ulcer pain is common just below the sternum, while pancreatitis or gall stones start above the umbilicus and travel to the back.

Testing options could range from laboratory studies like blood count to diagnostic imaging (like x-ray of the stomach and intestine, CT, ultrasound or endoscopy).

**Treatment Options:**

Dependent on severity, duration of dangerous symptoms, suggested care includes avoidance of solid foods, use of clear liquids if tolerated. Emergency care may be required if bowel movements do not happen for several days, or if the patient experiences malaise or loss of conscience.

**In the Presence of Swelling:**

The intestine lacks typical pain receptors, and when the wall of the intestine is stimulated or stretched, the patient may experience distention. This is common with irritable bowel where nerve receptors may have a lower threshold. Fluid accumulation can result from congestive heart failure, cirrhosis, nephrotic syndrome or even intra-abdominal cancer (especially ovarian cancer). Obstruction can produce this symptom but would be associated with pain and vomiting.

**Treatment Options:**

Mild symptoms may only require dietary modifications, like decreased fat content. Suspicion of disease requires referral to medical care or diagnostic testing/imaging. Natural remedies (for mild conditions only) include angelica root for gas; green tea, brewers yeast, barley, bitter orange, cinnamon, cumin for indigestion; aloe, black root psyllium, rhubarb, for constipation; asparagus root, barberry, cranberry, dandelion and parsley for urinary tract infections; licorice, Lady’s Mantle and slippery elm for stomach problems.

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**Abdominal pain continued**

Abdominal pain is the most common complaint that brings a patient to a physician's office. Forty percent of acute cases have no definitive diagnosis. There are four primary causes for abdominal pain; hemorrhage, rupture, perforation, and inflammation. Hemorrhages can occur with or without a rupture. Ruptures produce a tearing pain of rapid onset. Perforations are usually identified as a sudden sharp pain. Inflammation forms with a gradual onset of pain, these symptoms can change from a visceral nature to a parietal one. Visceral pain appears as diffuse, deep and dull. This pain, which is over the midline, is usually intermittent and is not affected by movement or pressure from palpation. Parietal pain is sharp and constant and is lateralized to a quadrant. This pain is made worse with movement, palpation or any pressure applied to the abdomen. Expect parietal pain to be localized to a quadrant.

Visceral pain will occur at the midline in the epigastric region, periumbilical region or the hypogastric region.
If this pain is localized to the epigastric region, differentiate the location from the thorax, stomach, duodenum, pancreas, liver or gallbladder. In the periumbilical region differentiate between the small intestine and the cecum. In the hypogastric region differentiate between the large intestine, pelvic organs and urinary system.

Parietal pain will be assessed by quadrant. The right upper quadrant will suggest possible pleurisy, hepatitis, cholecystitis, perforated duodenal ulcer, appendicitis, and perforated colon or fallopian tube rupture. The left upper quadrant may reveal pleurisy, splenic rupture, pancreatitis, perforated gastric ulcer, diverticulitis or perforated colon associated with cancer. The right lower quadrant may suggest conditions that include; appendicitis, acute Crohn's disease, pelvic inflammatory disease, perforated duodenal ulcer, inguinal hernia or ruptured aortic aneurysm. The left lower quadrant may suggest possible pain from sigmoid diverticulitis, pelvic inflammatory disease, gastric ulcer, inguinal hernia or sigmoid carcinoma.

**Associated symptoms**

The presence of diarrhea suggests gastroenteritis. The presence of constipation could suggest structural obstruction, neurologic disease, metabolic disorders or symptoms arising from iatrogenic causes, such as the long-term use of narcotics. The patient may also demonstrate urinary symptoms, pelvic symptoms like pelvic inflammatory disease or vomiting and/or anorexia. In the presence of infection anticipate high fever and chills.

**Extreme symptoms**

The clinician cannot fail to miss symptoms such as a very abrupt onset of severe pain, shock, peritoneal signs, abdominal distention or palpable mass.

**Emergency signs**

It will be necessary to seek immediate emergency care in the presence of shock, peritoneal signs, possible obstruction or when there is a severe pain with unimpressive examination findings.  

**Appetite Loss**

Defined as anorexia, it has limited diagnostic significance. The degree of anorexia and severity of appetite loss could suggest a variety of causes.

**Causes:**

Chronic disease like multiple sclerosis, Crohn’s disease, rheumatoid arthritis and AIDS can demonstrate this symptom. Stress, anxiety and depression are more frequent contributors. When not related to weight loss, loss of appetite is less likely to be related to illness. Anorexia can be the first sign of hepatitis, even before jaundice.

Anorexia Nervosa is a psychological condition usually seen in women and girls. Look for refusal of food, fear of obesity, distorted sense of body image and menstrual irregularities.
Diagnostic Considerations:
A complete history may reveal stress, depression or anxiety. Physical examination may direct diagnostic testing like blood count, thyroid function or screening chemistries to evaluate general health.\textsuperscript{11}

Treatment Options:
Target the underlying cause. Consider the possible use of natural or pharmacological appetite stimulants like megestrol acetate. It is necessary in the subacute or chronic phase to consider medical or psychiatric referral especially if chronic weight loss is evident.

Natural remedies include alfalfa, angelica root, bitter orange, caraway, chamomile, chicory, cinnamon, ginger root, devils claw, dandelion, peppermint, rosemary and sage.\textsuperscript{12}

Backache (Outside of Trauma)
Beyond over use or trauma, backache has several alternate etiologies. Consider inflammatory conditions such as rheumatoid arthritis, or systemic lupus erythmatosis for example. Degenerative illness can effect a small population, for example, ankylosing spondylitis impacts mostly men. While osteoporosis may\textsuperscript{12} lead to localized compression fracture in mostly women.

Remember that tumors and infections are rare in this region. Sudden unprovoked symptoms may be linked to kidney infection or less commonly a rupture, like aortic aneurysm.

Diagnostic Considerations:
History and physical exam will help rule out trauma. Remember overuse as a possible cause. Changes in sensation or deep tendon reflexes in the lower extremity must be evaluated.

Equivocal findings will prompt diagnostic imaging, ranging from plan film radiographs to CT, MRI or Bone Scan. Laboratory studies would be indicated to rule out metabolic or metastatic disease.\textsuperscript{13}

Treatment Options:
Equivocal findings may make manipulation and rehabilitative therapy contraindicated. Medical options must be considered while chiropractic monitoring and supervision continues.\textsuperscript{14}

Breathing Problems
Conscious or labored breathing represents air hunger or shortness of breath the term for this is dyspnea. It arises from lung conditions like asthma, chronic bronchitis, emphysema or pneumonia. Monitor wheezing, coughing, sputum production and chest pain. A consideration must be given to progressive illness such as congestive heart disease (look for shortness of breath, sleeping problems, ankle swelling.) With severe anemia the clinician must look for pale-colored nail beds and pale conjunctiva. Neuromuscular weakness may cause generalize weakness or specific coordination problems (like rising from a chair or swallowing difficulties.) Anxiety and hyperventilation are suspected in patients with certain personality traits and with no other evidence of disease. Patients with these problems adapt an increasingly sedentary life style, leading to
deconditioning and obesity. Deconditioned patients often have frequent sore throats, which aggravate a sense of shortness of breath.

**Diagnostic Considerations:**

Rule out obstruction of the air passageway and upper respiratory infection by history and physical examination. Testing will often require a chest x-ray, pulmonary function testing, arterial blood gas analysis and complete blood count. A cardiology referral must be considered after testing positive for pertinent vital signs.

**Treatment Options:**

Suspicion of emphysema would require improving lung function. In the presence of anemia, the red blood count should be restored by nutritional supplementation after the underlying cause of the anemia is determined. Congestive heart disease will probably lead to drug management with pharmaceuticals like Digoxin, Furosemide or Enalapril. 

Natural therapies include those used for bronchitis, colds, cough, poor circulation, low blood pressure, and modest heart disease. These may include, but not limited to anise, echinacea, garlic, horseradish, licorice root, chamomile, mustard, pine oil, sandalwood, primrose, belladonna, butcher’s broom and gingko.

**Bruising (Unexplained):**

A bruise is nothing more than blood under the skin. Colors range from red to yellow, orange to blue. Blue suggests a deeper bruise. Color is associated with blood pigment, hemoglobin reflected through the skin tissue. Of course, blunt trauma is the primary cause of bruising. People who have accumulated a lot of sun over years have more fragile skin. Sun exposed areas, such as the forearms, are common areas where even normal pressure can lead to bruising.

Vitamin C deficiency can cause easy bruising. Classically this is seen as scurvy with a corkscrew-shaped hair rising from the bruise. Scurvy is rare in the United States, but immigrant groups may demonstrate such findings.

The absence of clotting may be a cause for bruising even without trauma. Underlying causes can include leukemia, thrombocytopenia (a defect in one of the clotting elements of the blood, particularly the platelets), historical evidence of alcohol use, chemotherapy or exposure to insecticides, aspirin use, anti-inflammatory drugs, ibuprofen use. Systemic corticosteroid medications like Prednisone must be considered.

Sudden onset of red bruises on the extremities in conjunction with fever and general illness must be considered serious. Life threatening infections such as Rocky Mountain Spotted Fever, spinal meningitis, viral illness, drug allergies and connective tissue disease such as systemic Lupus erythematosus can cause inflamed vessels and blood leakage causing small bruises.

**Diagnostic Considerations:**

A thorough history will reveal sun-induced bruising common in middle aged and the elderly especially with patients with fair complexion. Medication use must be assessed. Blood testing will evaluate the clotting elements to assure that the marrow is producing blood cells and platelets.

With sudden onset without trauma, one should suspect serious infection. Look for associated fever. Directing a white blood cell count or bacterial culture. A diagnosis of vasculitis may require even biopsy. Concurrent medical care will be required if these underlying pathologies are observed.
Treatment Options:

These options can range from removal (if possible) of medications contributing to bruising or avoidance of high exposure to sunlight by covering the skin. An increase in vitamin C or various B vitamins may be required if a deficiency seems evident.

Chronic Cough

In general a cough protects the lung from harmful elements found in the tracheobronchial tree. A dry cough on the other hand, which does not help void mucus, pus or foreign material, may not have an obvious benefit. A cough is usual associated with an upper-respiratory infection and lasts only a few days. A lingering cough (several weeks to a month) suggests another medical condition.

Diagnostic Considerations:

Common causes of cough include; smoking, air pollution, post nasal drip, asthma, gastroesophageal reflux, emphysema, chronic bronchitis, cystic fibrosis, common cold or influenza, cancers affecting the head and neck, lung cancer, bronchiectasis (abnormal dilation of the bronchial tree causing collection of mucus, ) congestive heart failure, anxiety, pulmonary fibrosis or scarring, pneumonia, tuberculosis, and medications like ACE inhibitors (Enalopril or Captopril) used in hypertension.

Treatment Options:

First and foremost, rule-out smoking. Stopping smoking can eliminate 50% of chronic cough. Productive coughs suggest chronic bronchitis and bronchiectasis, while dry cough suggest chronic postnasal drip, asthma, heartburn or drug-induced cough.

Consider screening a patient with chest or sinus x-ray. This can lead to further study with pulmonary function testing or monitoring esophageal acidity.

Simple solutions like increasing water intake can decrease a sense of throat tickle in a dry cough. Chronic productive cough is often treated with a bronchodilator medication like Theophylline or Albuterol. Remember, over-the-counter anti-histamines can interfere with mucus clearance and should be avoided when cough is productive. Speech and breathing therapy techniques may also help control symptoms.

Concussion

There are eight common signs of concussion. The signs include: vacant stare, delayed visual and motor responses, confusion and inability to focus, disorientation, slurred or incoherent speech, incoordination, memory deficits and loss of consciousness. A concussion occurs most commonly on the athletic field. This type of injury can also happen as the result of a vehicular accident or fall.

Often the physical examination of the patient will be on the sidelines of a sporting event. This sideline evaluation is a problem focused neurological exam primarily for mental status.

Mental status

Orientation: assess the individuals understanding of time, place, person and situation.
Concentration: ask the individual to count backwards or recite the months of the year backwards.
Memory: ask the individual to name the teams in the contest or perform three-word recall.
Exertional provocation

If it is safe and prudent to do so evaluate the ability of an athlete to perform a 40 m sprint, perform five push-ups, or five sit-ups, or perform five knee bends.

Neurological tests

Perform a primary evaluation of the individual's strength, coordination and sensation.

Grading the concussion

**Grade 1**: this grade of concussion represents three primary findings. The patient will have no loss of consciousness. The most significant symptom will be transient confusion. Symptoms of the grade 1 concussion, which are found upon examination, resolve in less than 15 minutes.

**Grade 2**: with the grade 2 concussion there is no loss of consciousness. Transient confusion remains. The symptoms found upon examination last more than 15 minutes.

**Grade 3**: the individual has experienced a grade 3 concussion if there is any loss of consciousness. This loss of consciousness could be brief only a matter of seconds. The symptoms found on examination are prolonged and last several minutes.

In the presence of a grade 1 concussion the clinician would remove the participant from the event, examine the individual immediately and follow that exam at five-minute intervals. This individual may return to the event if the symptoms of impaired mental status abate within 15 minutes. In the presence of a grade 2 concussion, the participant will be removed from the event, examined on site and would not return to the event until a neurological exam is performed following one full asymptomatic week. The patient would be re-examined the day following the event. If a grade 3 concussion is suspected the patient should be transported to the nearest emergency department with cervical immobilization if indicated. Emergency neurological examination and imaging will be performed as indicated. This individual would likely be admitted to the hospital.

### Sports Concussion And Return To Play

<table>
<thead>
<tr>
<th>Grade of concussion</th>
<th>Return to play</th>
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</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>15 minutes or less</td>
</tr>
<tr>
<td>Multiple grade 1</td>
<td>one week</td>
</tr>
<tr>
<td>Grade 2</td>
<td>one week</td>
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<tr>
<td>Multiple grade 2</td>
<td>two weeks</td>
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<tr>
<td>Grade 3 (brief LOC)</td>
<td>one week</td>
</tr>
<tr>
<td>Grade 3 (prolonged LOC)</td>
<td>two weeks</td>
</tr>
<tr>
<td>Multiple grade 3</td>
<td>one month or more at the specialists</td>
</tr>
</tbody>
</table>
**Constipation**

A key factor in evaluating the severity of constipation is whether this state is significantly different from the individual's normal habits. There are four primary complaints for this condition *decreased frequency, incompleteness, hardness, and straining*. There is a phenomenon known as Hoyer's rule. This states, "If one eats every day, one should defecate every day". There are two primary functional origins to this condition, which include depression and a sustained use of medication, especially antidepressants. The organic or mechanical origins of constipation include; pain associated with hemorrhoids, fissures and perianal abscess. More significant organic origins include spinal cord injuries, scleroderma or Hirschsprung's disease (congenital megacolon associated with an absence of Meissner's and Auerbach's autonomic plexuses in the bowel wall).

**Normal colon function**

Bowel habits will vary greatly even in normal healthy individuals. In the presence of sustained constipation it is extremely important to perform a detailed the drug history since the most common cause is linked to both prescription and over-the-counter medications. Generally, 1 liter of undigested material will pass through the colon. Sixty to eighty percent of this material is water.

**Treatment**

There are numerous ways to gently and systematically diminish constipation. A primary rule of thumb is to make sure the patient is well hydrated, consuming between six and eight glasses of water per day. High fiber fruit drinks such as prunes are generally effective. Adequate fiber in general is important, such as the daily consumption of fresh fruit, vegetables and whole grain cereals. The use of bran or psyllium fiber as a stool-bulking agent is also effective. Regular exercise has been known to increase metabolic rate and effect peristalsis. The development of healthy bowel habits may include training, relaxation, regularity and immediacy. There are mechanical aids to minimize constipation, which include abdominal massage and chiropractic lumbar manipulation. Over-the-counter agents such as aloe gel capsules or bowel stimulants or laxatives are commonly employed.

**Diarrhea**

There are four primary types of diarrhea *secretory, osmotic, exudative and motility disorder*. The secretory form is generally clear and is due to excess secretion or impaired absorption. This would be seen in extreme conditions like cholera. The osmotic form is also clear and noncellular where there is decreased water reabsorption due to the use of antacids or excessive magnesium or a lactase deficiency. The exudative type is usually associated with purulent or even bloody discharge. This type is often seen in the presence of colitis. Motility disorders result in increased peristalsis and are usually associated with irritable bowel syndrome or hyperthyroidism.

**Acute diarrhea**

When a healthy individual experiences abrupt diarrhea it is generally due to infection by bacteria, virus or
protozoa. Commonly there will be associated symptoms such as headache, vomiting, malaise and myalgia. Fever and anorexia may also be associated with the symptoms. In the presence of bacterial diarrhea the symptoms usually occur 12 hours following a meal. This would suggest exotoxin as the cause. Staphylococcus is commonly a culprit. Development of acute diarrhea one to three days later suggests contamination by an organism that invades the colon mucosa. These invaders include salmonella, Shigella, Campylobacter or vibrio. In the presence of viral diarrhea there would be no bacteria or protozoa found in the stool and the symptoms would last no more than one to three days. Protozoan diarrhea is generally the result of drinking untreated water. This non-potable water contains either giardiasis or entamoeba histolytica. Do not forget that acute diarrhea can be of a noninfectious form. Drugs such as antibiotics and cholinergic agents can produce the symptoms.

**Chronic diarrhea**

The suggestion that this condition is chronic means that it has persisted for weeks or months. Conditions like ulcerative colitis, Crohn's disease and diverticulitis can represent diarrhea with palpable abdominal tenderness and possible fever indicating inflammation. Diarrhea without inflammation indicating malabsorption can be associated with sprue (malabsorption with steatorrhea), pancreatic insufficiency, scleroderma and diabetic visceral neuropathy. Endocrine disorders such as diabetes mellitus, adrenal insufficiencies and hypoparathyroidism can contribute to the symptom.\(^\text{15}\)

**Treatment**

Always identify the side effects of both prescription and over-the-counter medication. Consider lactose intolerance and use restraint with milk products. Consider a clear diet with foods such as chicken broth or Jell-O. Continue to hydrate and replace both glucose and minerals. A rehydration fluid containing 1 quart of water with 1 teaspoon of sugar and a pinch of salt can accomplish this. Avoid carbonated drinks and foods that are gas producing. Do not encourage the use of binding foods designed to slow digestion. Generally, this approach will decrease the ability of the body to void the excess fluid and the associated contaminant. The most common products utilized at the local pharmacy include Pepto-Bismol, Kapectate and Imodium.\(^\text{16}\)

**Dizziness and Fainting**

The term dizziness describes a wide variety of symptoms from lightheadedness to near fainting or loss of consciousness. The division of symptoms into four categories may be helpful: 1.) **Lightheadedness**- is a mild sensation that represents about 1/3 or all doctor visits for dizziness. 2.) **Vertigo**- a spinning sensation also about 1/3 of the cases; 3.) **Disequilibrium**- involves unsteadiness, balance problems or stumbling (about 1/5 of the cases.); and 4.) **Pre-syncope or near fainting**- represents a few percent of the cases. Fainting is known as syncope. Most commonly this is not due to serious illness, but is associated with rising to quickly.

**Causes:**

As a rule, lightheadedness is related to anxiety, depression, panic attacks or stress-related problems. Vertigo is linked to inner ear infections or sensory vestibular function; remember this may be dysfunction of the structure of balance. Disequilibrium is associated with sensory dysfunction such as loss of proprioception, visual disturbances (cataracts) and more chronic or significant loss of balance function. Pre-syncope is associated with low blood pressure due to either the tone of the blood pressure vessels or to nervous system reflexes.
which maintain blood pressure. Less often, but still possible, is the presence of arrhythmias. Fainting is also related to blood pressure irregularities or anoxia. A history must rule-out less common possibilities like seizures, hypoglycemia, hypoxia or chronic cough. One-forth of all cases never fully confirm a specific cause.

**Diagnostic Considerations:**

Look for the position of patient at the time of the incident, the activities engaged in, the environment (heat, closeness, stuffiness, stress) and provocation (fear, anxiousness). Rule-out weakness in the arms, breathing difficulties, nausea, chest pain and seizures. A cardiac history must be pursued. Interview the patient for use of hypertensive medications that can produce these symptoms such as Hydrochlorothiazide, Captopril, Atendol and Nifedipine, psychotropic drugs like Amitriptyline and Chlorpromazine. The examination should focus on blood pressure in multiple positions (standing for at least 2 minutes). A George’s test to rule out vertebrobasilar ischemia is indicated. Referral options (usually not required, but should be considered) include EKG or blood testing.

**Treatment Options:**

Options may range from decreasing sodium in the diet, to a method of keeping the blood from pooling in the legs like the use of elastic stocking to medicines like Meclizime. Note that medications like Fludrocortizone will raise the blood pressure. Medical physicians also use Procainamide, Atendol and Digoxin to treat arrhythmias. Vision correction may decrease disequilibrium. Breathing techniques and stress reduction techniques may be helpful. The use of a walking devise, like a cane or walker, can quell unsteadiness. [19] [20]

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**Fatigue**

This is discomfort or loss of efficiency after physical or mental activity. This is not weakness, which is a loss of power or strength. Chronic fatigue (more that a few months) is one of the top ten reasons for a medical visit.

**Causes:**

These range from:

- Psychologic conditions like anxiety, depression, bereavement and stress.
- Excessive use of sedatives, caffeine, alcohol, elicit drugs, and cigarettes.
- Prescription medications that treat hypertension.
- Sleep apnea, restless leg syndrome (nocturnal myoclonus).
- Progressive illness effecting the heart, liver, kidneys, lungs, blood and nervous system.
- Chronic infections like viral hepatitis and forms of tuberculosis.
- 50 to 100 times less common is C.F.I.D.S. **Chronic fatigue immune dysfunction syndrome.** Chronic Epstein-Barr virus or Malalgic Encephalomyelitis. C.F.I.D.S. is debilitating with neurological abnormalities comprising symptoms like those of chronic mononucleosis. This is seen most often in women under the age of 45 years. The cause is yet unknown, but researchers have pointed to HHV-6 or in other forms of the Herpes-Viruses, enteroviruses or retroviruses. This condition is impacted by gender, age, genetic disposition, prior illness, stress and environment.
Diagnostic Considerations:

History is key. Rule-out psychological factors, sleep problems, drugs, medications and habits. The Center for Disease Control has set up a criteria for C.F.I.D.S. as follows:

- A new onset of persistent or relapsing debilitating fatigue in a person previously without symptoms. The fatigue doesn’t resolve with bed rest and is severe enough to reduce or impair average daily activities by 50% for 6 months.
- Exclusion of other diseases by history, exam and lab.

Symptoms may include:

- Prolonged fatigue after activities normally tolerated.
- Low-grade fever.
- Painful lymph nodes.
- Muscle weakness.
- Muscle discomfort or myalgia.
- Sleep disruption.
- Headache.
- Migratory arthralgia (without swelling or redness).
- Photophobia, forgetfulness, irritability, confusion, depression, transient scotoma, difficulty thinking and loss of concentration.

Findings may include:

- Low-grade fever.
- Non-exudative pharyngitis.
- Palpable/tender nodes.

Treatment Options:

No single treatment is known, yet medical physicians are experimenting with antiretroviral agents like Acyclovir and selected immunomodulating agents, such as I.V. ganuglobulin, ampligen, transfer factor and others. Approaches like tricyclic antidepressants like Doxepin, histamine 2 blocking agents and antianxiety agents.

Conservative approaches also include avoidance of environmental irritants, improved sleep hygiene, comfort and support groups. 

There is more than just anecdotal support for manipulation to aid in immunity and manual therapy to reduce myofascial irritation. Some natural agents impact fatigue, including, cola nut, Ginseng, Guarana and Mate. 

Dizziness continued

Benign paroxysmal positional vertigo. This is an abnormal sensation of motion caused by provocative positions of the head, which will result in nystagmus, and the feeling of uneasiness. This is considered the most common cause of vertigo. In evaluating the etiology of BPPV suspect that females will demonstrate this symptom more than males. Approximately 64% recorded cases are female. Generally, the symptoms will occur between the ages of 50 and 57. The cause often remains unknown. Common theories suggest Canalithiasis. This is described as free moving densities in the posterior semicircular canal. The other theory is Cupulothiasis. With this condition, the posterior semicircular canal is sensitive to gravity and this produces
an impingement upon the cupula.

The causes for the development of benign paroxysmal positional vertigo can include: trauma, inactivity, acute alcoholism, major surgery, disease in the central nervous system, otitis media, vestibular neuritis, cervicogenic origin or Meniere disease.

The development of a sensation of dizziness occurs when the head is held in a certain position. Generally, the symptom will last for seconds up to several minutes. The severity can vary from patient to patient with some individuals being able to function while others are subject to nausea and vomiting. This is often called top shelf vertigo. It is given this name because the patient experiences symptoms when quickly rising or extending the cervical spine.

A standard physical examination for this would include the Dix-Hallpike maneuver. With this maneuver the patient is moved rapidly from a sitting position to a supine position with the head turned 45° to the left. The clinician will wait 20 to 30 seconds and return the patient to the sitting position. If no nystagmus is observed the procedure is repeated on the right side. Pure horizontal nystagmus indicates horizontal canal involvement while sustained nystagmus may indicate cupulolithiasis.

There are several methods for managing this condition outside of prescription medications. If it is perceived that the symptoms are arising from a cervicogenic cause, chiropractic manipulation is an option. Other options include repositioning maneuvers. These repositioning maneuvers include Epley maneuver and the Semmont's maneuver. Traditionally repositioning maneuvers are approximately 55% to 70% successful with a reoccurrence rate of between 5% and 15%. Associated instructions with repositioning maneuvers requires the patient to wait 10 minutes before leaving the clinician's office, sleeping in a recumbent position for two to three days and avoiding rapid or oscillating head movements.

With the Epley maneuver, the patient starts in a sitting position with the head turned 45° toward the affected side. The doctor slowly reclines the patient supine towards the affected side. While extended from the examining table the patient's head is slowly turned towards the opposite side. The doctor and patient roll the body so the shoulders are aligned perpendicular to the floor, the affected ear is turned upward and the head is turned approximately 45° and held for 40 seconds. The patient is then raised back to the sitting position and the head is turned approximately 90° toward the contralateral side. The ending position as the head turned back to midline with a 20° extension of the neck.

For the Semmont's maneuver the patient begins in a seated position with the head at midline. The patient then turns the head away from affected side and the doctor assists the patient to lie down on their side. The side-lying position is maintained for four minutes. Finally the patient is slowly returned to the seated position.

Fever

Of course fever is a normal body responds and is generally self-limiting. Children will always have a greater fever response than adults, in fact geriatrics may show no fever response or a significant decrease in that response. A normal body temperature is measured rectally at 98.6°F Fahrenheit or 37°C Celsius. There is generally a diurnal variation of + 0.5°C Celsius in the afternoon as compared to the evening. An increase in temperature is generally considered fever when it is greater than 37.2°C or 99.3°F.

Causes of fever

There are nine primary causes for the development of a fever. These include: infections, rheumatic diseases, central nervous system disease, malignant disease, hematolytic disease, cardiopulmonary diseases,
gastrointestinal diseases, endocrine diseases and chemical agents. By far, infections are the most common cause of fever. These infections are bacterial, viral, fungal or parasitic. It is possible for fever to be present with rheumatic diseases such as rheumatic fever, CNS diseases such as tumor or cerebral hemorrhage, metastasis or primary neoplasm, hemolytic diseases which included leukemias and lymphoma, cardiopulmonary diseases such as infarction and pulmonary embolism, gastrointestinal diseases such as hepatitis or liver abscess, or in the presence of endocrine diseases such as hyperthyroidism, but these are significantly less common. The most common chemical agent to produce fever is usually a reaction of the patient to anesthesia.

Symptoms associated with fever that the clinician must evaluate include: temperature greater than 40°C/104°F, a temperature greater than 102°F for more than 24 hours, neck stiffness or meningeal irritation, febrile seizures, petechial rash, or respiratory distress.

There are numerous diagnostic procedures associated with managing fever. These include: a thorough history and physical exam, review of current medications, blood cultures, complete blood count, erythrocyte sedimentation rate, and urinalysis etc.

Acetaminophen is used for children when their temperature is greater than 102° F. The temperature is generally reassessed every four hours and a steady dependence on fluids is required. Lukewarm sponge baths are generally applied when a child's temperature is greater than 103°F. These sponge baths are provided for 30-minute intervals and the temperature is rechecked every hour. Aspirin is generally not considered an option for children under the age of 18 due to concerns regarding Reye's syndrome, which is characterized by encephalopathy and fatty degeneration of the liver.

Headache:

Headache most common patient complaint and usually it occur as a symptom of an underlying disorder. Ninety percent of all headaches are vascular, muscle contraction or a combination. The other 10% are attributable to underlying intracranial, systemic or psychological disorders. Ten percent of all headaches are classified as migraine headaches. This is found mostly in females and there is a strong familial incidence, characterized by throbbing and a vascular unilateral presentation.

Causes:

Most chronic headaches result from tension (muscle contraction) triggered by stress, fatigue, or menstruation or environmental stimuli (noise, crowds, bright lights). Eye irritation can also contribute to this condition. Sinus or paranasal problems must be considered along with diseases of the scalp, teeth, extra cranial arteries, ear infection, muscle spasm and cervical arthritis.

Rule-out the use of Vasodialators (like nitrates, alcohol, and histamines), systemic disease, hypoxia, hypertension, head trauma and tumor, bleeding (intracranial), abscess or aneurysm.

Diagnostic Considerations:

Migraine headaches are associated with local leakage of a vasodilating polypeptide called neurokinin through the dilated arteries and a decrease in plasma levels of serotonin. They are characterized by unilateral, pulsating pain, which later becomes more generalized. There are associated complaints of scintillating scotoma, hemianopsia, unilateral paresthesia or speech disorder. Look for irritability, anorexia, nausea, vomiting and photophobia.

A physical exam of the head and neck is key. Include percussion, asculation for bruits, inspection for signs of
infection, cranial nerve competency, palpate for crepitus and tender spots. Rule-out systemic diseases, hypertension or psychosocial factors. Diagnostic testing includes, cervical and sinus x-rays, EEG, CT or MRI can be indicated. Chronic findings can also be due to intracranial pressure (ICP). Suspicions of ICP would lead medical physician’s to pursue a lumbar puncture to relieve the build up of pressure.

**Treatment Options:**

Medical care ranges from aspirin to Codeine or meperidine to muscle relaxants to Naproxen. Reduction of emotional or physiological stress has proven effects. Manual therapy, manipulation and avoidance of causative factors also have had levels of success. Caffeine can be a quick fix, but excessive use can cause the condition.

Medical physicians also use various drugs to prevent migraines like, Proanolal, Atenolal, Clomidine and Amitriptyline.\[24\] Alternate therapies include, acupuncture, acupressure, biofeedback, chiropractic, hypnotherapy, massage, meditation, myotherapy, osteopathic medicine and reflexology.\[25\]

**Headaches continued**

It is reported that 80% of Americans experience some form of headache each year. These patients report that approximately 50% of these are severe headaches. Ten percent to twenty percent of patients consult a physician with complaints of headache.

**Headache differentials**

**Tension headache**

Due to muscle contraction this is the most common type of headache but is often confused with a migraine headache. Generally, this is described as bilateral pressure or tightness of a mild to moderate intensity lasting 30 minutes intermittently over a seven-day period. Generally, this headache is not aggravated by physical activity. The most common finding will be hypertonic suboccipital and cervical muscles. There will be no other findings to suggest another headache type. Common treatments include the use of over-the-counter medications, manipulation, stretching, and postural retraining.

**Cluster headache**

The ratio is expected to be 6:1 male to female with a peak age ranging between 20 to 50 years. The primary symptom is severe pain around the eye orbit unilaterally with the pain being spread to the adjacent temple or face. The headaches are generally of a short duration ranging between 15 minutes to two hours. There is always a sudden onset and they will occur one time per day over a sustained period. Physical findings may include blood shot eyes, photophobia and tearing. Treatment options often include the use of prescription medication, over-the-counter medication, manipulation, and therapeutic heat.

**Migraine headache**

There are two types of migraine headache these are the common and the classic. The common migraine headache occurs without an aura. Generally, females experience this more than males and the ages range between 10 and 30 years. This headache is associated with unilateral temporal throbbing pain of a moderate to severe nature. The symptoms could last hours to days. This headache is aggravated by physical activity and is
often accompanied by anorexia, nausea, photophobia and phonophobia. Common treatments include prescription medication both PRN and prophylactic, over-the-counter medication, chiropractic manipulative therapy, ice, heat and sleep. Patient education is the primary treatment option. Generally, there is a catalyst to the headache. This catalyst or trigger may be stress, dietary, mechanical or chemical. Trial and error is generally the method of detection. A thorough history and dissuasion from the established trigger decreases the frequency and possibly the intensity of this headache.

The classic migraine also affects females more than males and ranges between 10 and 30 years of age. It is common for a visual or neurologic effect to occur 20 to 30 minutes before the headache arrives. Scintillating scotoma generally on one side of the visual field is present. There may be some level of visual loss often called metamorphopsia (bending mirror). The symptoms are classical unilateral throbbing, pulsing pain moderate to severe in its intensity and worse with activity. The symptoms will last for hours and will be accompanied by anorexia, nausea, photophobia and phonophobia. Generally, the symptoms will arise several times per year. Identification of the catalyst is also a mechanism for prevention.

Cervicogenic headache

This headache is seen more frequently in females than males. This represents 15 to 20% of the recurrent headaches. The most common cause of this headache form is neck trauma. Accompanying findings would include decreased cervical range of motion, myalgia, myospasm and myofascitis. Common treatments include chiropractic manipulative therapy of the upper cervical spine, adjunctive therapies including heat and electrical stimulation and cervical muscle rehabilitation. Medical options include muscle relaxants and anti-inflammatory medication. Conservative treatment measures would also include education of the patient in posture, muscle strengthening and dietary habits.

Pathological headache

In the presence of abrupt onset, trauma, cognitive changes, seizures, nuchal rigidity, anticoagulant therapy, diastolic pressure greater than 115mmHg, severe headaches in children, alcohol or drug dependency, known cancer or papilledema the clinician must take precautions and direct the patient towards specialty evaluations or emergency services. The general cause for the pathological headache is central nervous system infection, tumor, hemorrhage, hematoma, glaucoma, stroke or temporal arteritis. Search the history for vomiting, nausea, loss of consciousness, slow/insidious onset or an abrupt onset of severe nuchal rigidity. The most common physical examination findings will be hypertension, abnormal neurological exam, cognitive changes, odd behaviors, altered mental status, fainting and/or meningeal signs. It is likely that the patient would undergo laboratory studies that include sedimentation rate. There may be a need for advanced diagnostic imaging to rule-out an advancing pathology.

A method to quickly define a headache type is to use the mnemonic -- V-I-N-D-I-C-A-T-E -- Vascular suggests either migraine or temporal arteritis. Inflammatory/infection indicates sinusitis, abscess or meningitis. Neoplastic of course indicates tumor or nasal polyp. Degenerative/dysfunction indicates cervical subluxation or spondylosis. Intoxication indicates possibly alcohol hangover or lead poisoning. Congenital indicates aneurysm. Autoimmune/allergy indicates food allergy, lupus or allergic sinusitis. Trauma suggests concussion, fracture or a subdural bleed. Endocrine/metabolic indicates pituitary adenoma, uremia or hypoglycemia. 19
Memory Loss

Memory loss is impacted from a variety of centers. Age is obviously the most commonly seen and is associated with progressive dementia to Alzheimer’s disease. The latter is gradually becoming more common in younger patients.

A key component of the history is the extent of inability to retain information. When the memory system is affected by actual disease, there is more consistent inability to recall items and repetition of material is less and less effective in improving memory performance.

Causes:

There are many factors that affect memory processes. Lack of sleep or moderate illness may be enough to cause difficulties. Usually performance returns once the limiting factors are resolved.

Drug intoxicants can cause varying degrees of dysfunction. Look to prescription drugs for effects on memory.

Check:
- sedatives like Lorazepam and Triazolam
- antidepressants and tranquilizers
- diuretics
- steroids like Prednisone

Chemical intoxicants outside of prescription drugs. Check:
- alcohol
- volatile agents or gases even carbon monoxide
- recreational or illicit drugs
- heavy metals like lead, mercury

Systemic disease. Check:
- congestive heart disease
- emphysema
- renal disease
- hepatic disorders
- lung cancer
- vitamin deficiencies like B12 or thiamin
- fevers in the elderly

Disorientation due to environment or stress. History of:
- hospitalization
- isolation
- impact on diurnal rhythms

Brain disorders. Check history of:
• Alzheimer’s’ disease and Parkinson’s disease
• vascular disease like atherosclerosis, aneurysm or stroke
• trauma/concussion
• brain infection, like syphilis, meningitis, encephalitis
• tumors
• severe epilepsy

Diagnostic Considerations:
A neurological and mental status examination must be considered if chemical or systemic disease or environmental effects are ruled-out. A mental status exam includes, a review of cognitive functions to check attention performance, language, visual-spatial functions, abstract reasoning, insight, behavior and judgment. Blood testing can confirm metabolic disturbances, infection or nutritional deficiencies. Ancillary diagnostic testing may include:

• EEG
• CT or MRI for plaque formation in vascular structures of the brain or tissue infarct
• lumbar puncture (for pressure defects of the CNS).

Treatment Options:
Options are quite limited for advanced disease. Treatment to help Alzheimer’s patients is directed at placating erratic behavior, not to restore memory. Vitamin therapy can address nutrition deficiencies. Medical physicians commonly use cerebral vasodialators. Emotional support is almost mandatory. Constructing a safe environment and employing reasonable exercise must be taken seriously.

Recurrent chest pain
Cardiovascular disorders

Angina pectoris
Angina pectoris generally represents substernal pressure that lasts two to three minutes related to exertion or emotional stress. Rest or nitroglycerin relieves these findings. Usually a physical examination will demonstrate normal findings with transient signs and symptoms like tachycardia, hypertension, or systolic murmur. Ancillary studies in the presence of possible angina pectoris would include a stress EKG or coronary arteriogram.

Pericarditis
This condition will also demonstrate substernal pain. The symptoms of pericarditis last a few seconds and radiates through the left neck and arm. The symptoms are increased with coughing or lying down and they are decreased with sitting up or leaning forward. During auscultation there is often a pericardial friction rub producing a scratchy or Velcro like sound that is heard best during expiration, but is actually increased with respiration. Ancillary studies for suspicion of pericarditis include the EKG and ultrasound.

Mitral valve prolapse
The mitral valve prolapse is more commonly found in young females and would be considered non-exertional and unpredictable. The common finding is a mid-systolic click and a late systolic murmur. Ancillary
diagnostic studies would include an echocardiogram.

**Chest wall disorders**

**Rib fracture**
In the presence of a rib fracture expect sharp, local pain with a history of trauma and symptoms that include prolonged coughing. In the presence of a rib fracture expect palpable crepitis, possible edema and or discoloration and pain with chest motion. The plain film radiograph of the ribs would be the ancillary diagnostic of choice.

**Breast disorders**
If a tender mass is present and there is a family history of breast cancer or there is vague chest wall pain this will be considered a significant history. Physical findings will be linked to the palpable mass which is unilateral. Of course, the ancillary diagnostic procedure of choice is a mammogram with possible biopsy.

**Pectoralis muscles**
Tight pectoralis musculature will demonstrate tenderness in the upper sternal and clavicular region. Symptoms will be precipitated by exertion or overuse. Upon physical examination, there will be palpable tenderness in the upper sternal area. The most prominent physical finding will be pain produced with 90° of horizontal abduction.

**Abdominal disorders**

**Esophagitis**
This will result in a burning substernal pain that is increased by lying and eating but is decreased by antacids. The physical examination is usually within normal limits. The patient would be a candidate for laboratory studies, which include a complete blood as well as possible endoscopy or barium, swallow.

**Peptic ulcer**
There will be a burning epigastric pain usually linked to dietary indiscretions that is increased by fasting and stress and is decreased by food and antacids. Physical findings will actually be very limited. The patient is a possible candidate for an endoscopy and barium swallow as well significant alterations in dietary habits. There is also a trial of antibiotics that influences symptoms.

**Respiratory disorders**

**Pleuritis**
This will result in sharp lateral chest pain upon inspiratory effort, which is precipitated by cough and relieved by analgesics. Physical examination may reveal the presence of fever, dull percussion, bronchial breath sounds and a friction rub. Ancillary diagnostic procedures would include the chest x-ray and CBC.
Bronchitis/asthma/chronic obstructive pulmonary disease
This is characterized by a vague recurrent chest pain with prolonged coughing and probable infection. Physical findings would include possible rales, ronchi or wheezing with increased chest motion, cough or respiration. The patient should undergo a chest x-ray to evaluate fluid in the lungs or to rule-out other pathology. 

Skin Changes
Skin is man's front-line protective barrier between internal structures and the external environment. A variety of skin lesions may arise and cause various observable changes.

Primary changes include:
- macule - a flat circumscribed, discolored area
- vesicle - serous fluid-filled lesion consisting of a bulla (a larger than 0.5 cm) or pustule (contains purulent fluid)
- papule - solid elevated mass consisting of a plaque (confluence of papules) a nodule (which is palpable, solid and round) and a wheal (transient area of edema)

Secondary changes include:
- erosion (partial loss of dermis)
- ulcer (excavation in dermis)
- fissure (linear ulcer)
- excoriative (abrasive)
- crust (dried serum or cell debris)
- scale (fragmented)
- lichenifcation (exaggerated lines)
- atrophy (thin skin)
- scar
- keloid (hypertrophied scars)

Diagnostic Considerations:
The most serious of conditions is Melanoma (a pigmented skin cancer). Inspect changes in moles such as a darkening of the tissue, an enlargement or a raising of the tissue. History should cover the level of sun exposure. Remember there are benign causes of melanocyte changes like, pregnancy, oral contraception or estrogen replacement, increased sun exposure or injury to the mole itself during healing. Look for symmetry, the tissue should be flat and nonpalpable, should have homogeneous color, should have a regular clear border and does not have notching of the perimeter or a finger of pigment extending from the border. A hair is usually the sign of a benign melanocyte.

Treatment Options:
Benign moles or nevi do not need to be treated. Testing is performed with either a shave biopsy or an elliptical
incision. This is a medical management condition. Melanoma will require excision. \[29\]

Treatment of less significant lesions will vary from topical astringents to lotions and creams. Over the counter creams include low percentage cortisone, hydrogen peroxide, neosporen, zinc oxide and Vitamin E creams. Natural remedies include chamomile, oats, St. John’s Wart, and witch hazel. \[30\]

**Trembling**

This is an involuntary, rhythmic, visible shaking.

**Causes:**

This symptom is classified as tremors. These can be benign or familial tremors or senile tremors. With no identification of disease. Advanced causes include:

- Parkinson’s disease
- disease of the cerebellum
- degenerative disease like multiple sclerosis, stroke, tumors and alcoholism
- withdraw from substance use
- fatigue
- chorea- must be differentiated from a tremor
- anxiety, stress
- stimulant use
- nicotine
- asthma inhalers
- Lithium treatment
- antipsychotic and antidepressant treatment
- increase thyroid hormone

**Diagnostic Options:**

A history would focus on:

- drug use
- alcohol use
- family history

**Treatment Options:**

Decreasing or influencing habitual problems of substance use. Increasing rest and assuring hydration will help control minor causes. Medical treatments include pharmaceuticals like propranolol, primidone and alprazolam. \[31\]

Care may include stress management, manipulation/chiropractic adjustments, modification of activities of daily living and dietary influences can manage various forms of tremors especially benign factors. Natural remedies for resolving nervousness include hops, Kava and lavender. \[32\]

**Changes in Urination**

The kidneys control the volume, composition and pressure of body fluids, by regulating the excretion of water and solutes. Through hormonal mechanisms, they metabolize vitamin D, red cell production and blood pressure. Urine is formed in the kidneys as an aqueous solution containing metabolic waste products, foreign
substances and water-soluble constituents of the body in quantities depending upon homeostatic needs. We will limit our discussion to 3 primary symptoms. Polyuria (frequent urination), Dysuria (painful urination) and changes in the appearance of urine.

**Causes:**

Frequent urination is most attributable to bladder infection (less frequently bladder tumor). Enlarged prostate, neurological disease or age, as well as subtle changes in a person’s response to bladder sensation will all be a factor.

Dysuria or painful urination will direct a clinician toward other causes like bacterial infection of the urinary tract, sexually transmitted diseases, prostititis, yeast infection, atrophic vaginitis or kidney stones.

Most changes in appearance of urine identify blood in the urine or a cloudy or malodorous symptom. We can narrow this down to stones, severe or prolonged infection, vaginitis, crystals in the urine that are benign or kidney dysfunction.

**Diagnostic Considerations:**

History will include the presence of fever, backache or discharge. The history must address the duration, frequency and intensity of the symptoms. This differentiation will impact the direction or re-direction of care. Conservative intervention can impact function in low severity cases while still pursuing diagnostics to rule-out complications or advanced disease. The key to all of these symptoms is to monitor for fever. Infection requires a re-direction to medicine/antibiotic therapy. But remember, prevention of re-occurrence will be the responsibility of the doctor directing treatment and referrals.

Urinalysis is performed to rule-out infection. Cytology or cystoscopy (a form of endoscopy) will aid to rule out tumor. Intravenous pyelogram (a form of radiograph) may be indicated in the presence of bleeding either in the kidneys or bladder.

**Treatment Options:**

Treatment options are fairly logical; reducing the underlying cause will alleviate the symptoms. Medical therapies will be considered in the presence of prostatic hypertrophy, tumor, urinary infections, sexually transmitted diseases, etc.

Conservative treatment options include monitoring hydration, vitamin and herbal remedies and manipulation to promote health oriented management for symptoms that are not fully controlled via medical therapies or changes in activities in daily living.

Natural remedies include asparagus root, barberry, birch, dandelion, Goldenrod, Java tea, parsley and stinging nettle.

**Weight Gain**

Almost all instance of weight gain is related to increased caloric intake; decrease caloric expenditure due to a decrease in physical activity, or a combination of both factors. Problems stemming from a slow metabolism rarely explain weight gain. A rapid fluctuation in weight (on the order of 1-2 pounds per day) is almost always due to fluid retention and is commonly noted premenstrual in women.
Causes:

Beyond increase caloric intake, coupled with decreased activity, these other less common considerations that must be ruled out include:

- congestive heart disease
- cirrhosis of the liver
- kidney failure

These diseases result in clinical findings like:

- abdominal distension and swelling
- leg/ankle swelling
- respiratory complications
- hypothyroidism

Diagnostic Considerations:

A history will address reports of recent weight gain. The patient’s weight must be adjusted for body build, height, gender and age to rule out disease. Weight should be measured in the same manner on each examination. A dietary history should be reviewed to estimate caloric intake. Review activity levels like job responsibilities, hobbies and exercise habits.

The physical examination is dominated by inspection of legs, fingernails, abdomen and neck, as well as auscultation of the lungs, heart and primary vessels. This is a screening to rule out disease as a contribution to the problem.

Specialty testing, in the presence of suspected complications include: EKG for the heart, chest x-rays for the heart and lungs, blood testing (blood liver function) or ultrasound for the liver, urinalysis for kidney function and blood thyroid function in cases where hypothyroidism is suspected.

Treatment Options:

Treatment depends on the nature of the condition. Obviously, weight gain due to increased caloric intake can be treated by dietary reductions and modifications with increased exercise. Fluid overload can be treated with salt restrictions or even diuretics (like hydrochlorothiazide).\[36]\n
Weight Loss

A serious underlying illness is suspected when weight loss reaches approximately 10% of the individual’s stable weight. Rule-out weight loss due to dieting and increased exercise.

Causes:

Poor appetite can obviously contribute to decreased weight. Eventually, treatment will have to get to the source of this appetite loss such as depression, pancreatic cancer, and stomach cancer, AIDS etc. An
overactive thyroid (hyperthyroidism) must be considered. Diseases of the small intestine or pancreas that interfere with complete digestion and absorption of food may lead to weight loss although changes in bowel habits or even diarrhea are usually present. [37]

**Diagnostic Considerations:**

Eating disorders revolve around two conditions, anorexia nervosa and Bulimia Nervosa. Four criteria are used to evaluate Anorexia including:

- patient refuses to maintain weight over a minimal normal weight for age and height
- intense fear of gaining weight despite underweight status
- distorted perception of body weight, size or shape
- at least 3 consecutive absences of menstrual cycle

Bulimia has 2 primary criteria:

- recurrent episodes of binge eating
- self-induced vomiting, misuse of laxatives, diuretics, enemas, fasting or excessive exercise [38]

Respiratory diseases like Sarcoidosis (seen most commonly in African-American women between 20-40 years of age) can result in quick weight loss because the multi system granulomatous disorder will demonstrate pulmonary infiltration. [39]

Remember a thorough history of diet, comprehensive exam and baseline laboratory including blood count, screening chemistries, and occult blood testing may be required.

**Treatment Options:**

Medical referral options including psychological care should be considered. Mild cases require increased caloric intake and a decrease in over exertion or supervision of over-exercise syndrome. Stress management, eating habits, and influence on body image, all must be addressed. Natural remedies include alfalfa, anise, angelica rood, caraway, Chamomile, dandelion, ginger root, lavender, peppermint, sage and yarrow. Alternate therapies like acupuncture, hypnotherapy etc. are often utilized. [40]

**Overview of Vascular Disease**

- Anemia
- Leukemia
- Thrombosis/Emboli

**Anemia** - any condition where the number of red blood cells per cubic millimeter and the amount of hemoglobin in 100 ml of blood, and the volume of packed red blood cells per 100 ml of blood are less than normal. This is generally pertaining to the concentration of oxygen-transporting material in a designated volume of blood, in contrast to total quantities as in oligocythemia, oligochromemia and oligemia (oligo-prefix meaning too little or the opposite of poly).

Symptoms resemble pallor of the skin and mucous membranes, shortness of breath, palpitations of the heart,
soft systolic murmurs, lethargy and fatigability. \[41\]

Anemia can be due to:
- excessive blood loss
- decrease red cell production
- red cell destruction
- intrinsic/extrinsic red cell defects \[42\]

**Leukemia** - a generalized neoplastic disorder of the blood-forming tissues, primarily those of the leukocytic series.
- Acute leukemia occurs within a few months in most cases and is associated with severe anemia, hemorrhages, and slight enlargement of the lymph nodes or the spleen.

Chronic leukemia exceeds one year with a gradual onset of symptoms of anemia or splenomegla, hepatomegla, enlarged lymph nodes.

Chronic forms of leukemia are granulocytic or lymphocytic. These can be differentiated by their cell type, based on laboratory testing. \[43\]

**Thrombosis/embolism** - these can create drastic changes in tissue function.
- *thrombosis* - presence of a thrombus; clotting within a blood vessel which may cause infarction of tissue.
- *embolism* - is an obstruction or occlusion of a vessel by a plug, composed of detached thrombus or vegetation, mass of bacteria or other foreign body. \[44\]

**Overview of Neurological Disorders**
- Upper motor neuron lesion
- Lower motor neuron lesion

**Upper motor neuron lesion** occurs in the corticospinal or pyramidal tract. Voluntary movement originates in the motor cortex of the brain. Fibers travel down through the corticospinal tract to the brain stem where most cross over to the opposite side, go down the cord to the anterior horn cell or synapse with intermediate neurons. The corticospinal tract mediates voluntary movements, integrates skilled, complicated or delicate movements by stimulation selected muscular actions while inhibiting others. Remember, corticobulbar neurons associated with motor cranial nerves are also upper motor neurons.

**Lower motor neuron** or final common pathway is assessed through the anterior horn cell of the cord. Any movement, whether voluntary or automatically in the basal ganglia, or as the result of a reflex must be translated into action via the lower motor neuron.

With a lower motor neuron lesion, muscles atrophy and fasiculations would be indicated. With diminished deep tendon reflexes and atrophy of muscles suspect a lower motor neuron lesion. While an increase in deep tendon reflexes (hyper-reflexia) suggests an upper motor neuron lesion. \[45\]

**Overview of Infectious Disease**
Blood and Serum:

- **Acid phosphatase** - found in the serum and prostate it is released into the blood and lymph in metastatic prostatic cancer, a normal range is measured in .5-2.0 Badansky units.
- **Albumin/globulin ratio (total protein)** - sampled in serum, amino acids are converted into albumin and globulin in the liver. The kidney would normally prevent these proteins from being excreted. Normal a/g ratio is 2:1 or 2.5:1.
- **Alkaline phosphatase** - sampled in serum, normals range between 2.0 - 4.5 Badansky units, or an increase suggests bone growth and disease, liver disease, bile duct obstruction, Paget’s disease; while a decrease suggests growth retardation.
- **Amylase** - sampled in serum, this enzyme produced by the pancreas and parotid gland, normals range from 4-25 u/ml, an increase suggests acute pancreatitis.
- **ANA (anti-nuclear antibodies)** - sampled in blood in autoimmune disease, antibodies form to the nuclear material of the host cells. If normal it would not be present. It would be present in lupus, rheumatoid arthritis and scleroderma.
- **ASO titer** - increased in rheumatic fever.
- **Bilirubin (bile pigment)** - released into blood as a result of red blood cell breakdown then conjugated (combined) with glucuronic acid in the liver. Increased in hepatitis, duct obstruction or hemolytic disease.
- **BST (bromsulthalein)** - this injected dye should be removed in the liver. If increased, this would suggest liver disease.
- **BUN (blood urea nitrogen)** - urea is the end product of protein metabolism. This would be increased in renal damage or in urinary tract obstruction. While a decrease would suggest hepatic failure or pregnancy.
- **Calcium (in serum)** - this maintains proper neuromuscular excitability and clotting controlled by the parathyroid hormone. An increase in this suggests hyperparathyroidism, hypothyroidism, and excess vitamin D and bone metastases. A decrease suggests the opposite plus possible malabsorption, renal insufficiency or pancreatitis.
- **CO2 (carbon dioxide) (serum)** - because it is converted to carbonic acid this helps regulate acidosis or alkalosis.
- **Creatine/Creatinine** - creatine forms creatine phosphate, the storage form of energy in muscle. In the presence of CPK, creatine phosphate combines with ADP to form ATP, leaving creatinine as a waste product eliminated by the kidneys. Increased creatine suggest muscular dystrophy, while decreased creatinine suggest the same, while increased creatinine suggest kidney disease or obstruction.
- **CPK (creatine phosphokinase)** - an increase in CPK suggest myocardial infarct. Measured at least 4 hours after symptoms and peaking at 36 hours. Also, an extreme increase in this would suggest the presence of muscular dystrophy.
- **ESR (erythrocyte sedimentation rate)** - when blood is mixed with an anticoagulant the red blood cells settle out. This is increased in advanced malignancy, tissue necrosis or inflammatory disease.
- **Blood glucose (found in serum)** - this is increased in diabetes and Cushing’s disease, and will be decreased in hypoglycemia and Addison’s disease.
- **Heterophil (Paul-Bunnel)** - found in blood, in certain diseases the titer of antibodies to sheep red blood cells rises. An increase in this suggests the presence of mononucleosis.
• **IBC (iron binding capacity)**- transferrin picks up iron and transports it to the bones. An increase in IBC suggests hepatitis, blood loss or anemia.

• **IDH (isocitric dehydrogenase)**- found in serum, it is the enzyme of citric acid in the liver. If increased, it will suggest viral hepatitis or liver metastases.

• **Iron**- measured in serum, it forms hemoglobin, it is increased in acute liver disease and hemolytic disease. It will be decreased in the presence of iron deficiency, anemia and bleeding.

• **LAP (luecin aminopeptidase)**- measured in serum this enzyme active with liver alkaline phosphatase, will be increased in liver cancer.

• **LDH (lactic dehydrogenase)**- measured in serum, it is the Krebs cycles active enzyme in liver and muscle, this will be increased in the presence of myocardial infarct.

• **Lipase**- found in serum this fat digesting enzyme is produced by the pancreas. This will decrease in acute pancreatitis, cancer of the pancreas and obstruction of the pancreatic duct.

• **Lipids**- measured in the serum this is a freely circulating source of energy.
  - Total lipids = 450-1000mg %
  - Cholesterol =150-280mg %
  - Phospholipids = 9-16mg %
  - Total fatty acids = 190-420mg %
  - Triglycerides = 40-150mg %

  Lipids in the serum suggest an increase in atherosclerosis and hyperlipidemia.

• **Phosphorus**- this is measured in serum and is regulated by parathyroid hormone, vitamin D and the kidneys. An increase in phosphorus suggests severe kidney disease, hypoparathyroidism and hypervitaminosis (D). A decrease is seen with hyperparathyroidism, vitamin D deficiency, malabsorption and osteomalacia.

• **Potassium**- exchanged for sodium in the kidney, measured in serum, an increase suggests renal insufficiencies or Addison’s disease. A decrease in potassium suggests chronic renal disease, use of insulin or excess glucose and diuretics.

• **SGOT (serum glutamic oxalacetic transaminase)**- this is an enzyme present in the muscle and liver. Increase in SGOT is seen in heart disease and in muscular dystrophy, as well as liver disease.

• **SGPT (serum glutamic pyruvic transaminase)**- this enzyme in large amounts in the muscle and liver. An increase in SGPT suggests acute hepatitis.

• **Sodium**- this is measured in serum, sodium maintains osmotic pressure and acid-base balance. An increase in sodium is suggestive of Cushing’s disease, while a decrease in sodium may suggest Addison’s disease.

• **Uric Acid**- measured in serum, this is the end product of purine metabolism. This will be increased in gout, while decreased in acute hepatitis.

### Complete Blood Count (CBC)

(All measured in blood)

• **White Blood Count (leukocytes)**- bactericidal, main defense against invading microorganisms. An increase in WBC suggest infections, blood disorders, emotional upset, while a decrease in WBC is seen in diminished immunity due to exhaustion.

• **Red Blood Count (RBC)**- red blood cells will be increased in polycythemia and decreased with anemia.

• **Hemoglobin**- oxygen transport, this will increase in dehydration and polycythemia while it will be reduced in all anemias and in late pregnancy.

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• **Hematocrit** (volume of settled RBC’s per 100 ml of blood)- hematocrit will be increased in polycythemia and decreased in anemia.

• **Indices** (mean corpuscular volume or MCV) (mean corpuscular hemoglobin or MCH)- these will be increased in macrocytic anemia and will be decreased in microcytic anemia (mean corpuscular hemoglobin concentration or MCHC) this will be decreased in microcytic anemia.

• **Platelet count**- primary in coagulation and vessel wall strength, this will be increased in trauma and blood loss, while decreased in the presence of anemia.

**White Blood Count (WBC):**

• **Neutrophils**- increased in bacterial infection and necrosis.

• **Lymphocytes**- increase in viral infection, lymphocytic leukemia and decreased in Hodgkin’s disease and pyogenic infection.

• **Eosinophils**- increased in allergies and paracystic infection.

• **Monocytes**- increase in chronic infection and Hodgkin’s disease.

• **Basophils**- increase in myeloid leukemia and decreased in acute infections.

• **Reticulocyte**- increased in pernicious anemia, hemorrhage, while decreased in aplastic anemia.

**Urinalysis (measured in the mid-stream catch)**

• **Aldosterone**- increased in hypertension and dysfunction of the adrenal cortex.

• **Bence Jones protein**- present in multiple myeloma and osteosarcoma.

• **Catecholamines**- compounds produced in the adrenal cortex (epinephrine/ norepinephrine) increased in pheochromocytoma- a benign neoplasm affecting the tissues of the adrenal medulla.

• **HCG (human chorionic gonadotropin)**- this is present during pregnancy.

• **Phenylalanine**- present in phenylketonuria (PKU), which is seen in mental retardation.

• **PSP (phenolsulfonphthalein)**- this is decreased in kidney dysfunction.

• **17 Ketosteroids**- excretion products of androgenic hormones, this will increase in the presence of Cushing’s disease and decreased in the presence of Addison’s disease.

The suspicion of infectious disease may require medical co-management. Though some infections are self-limited, there must be absolute confidence by the clinician of a proper and accurate diagnosis. The first rule of thumb is the safety of the patient. If unsure, get help. This is not to just spread liability, but rather to get to the essence of the problem and provide the appropriate remedy. As seen with blood laboratory and urinalysis, minor infectious disease may mask more serious underling pathology. Laboratory studies not only confirm infection but aid in a differential diagnosis of more significant conditions.

**Overview of Musculoskeletal Disorders**

• IVD lesion

• Arthritides

• Dystrophy

**Intervertebral Disc Lesion**- though of musculoskeletal origin, much of the information derived from the exam is neurological in nature. The clinician should focus on the physical findings like, motor abnormalities, reflexes, muscle atrophy etc. Findings like atrophy must be differentially diagnosed, for example, rule-out...
prior surgery in the involved limb, contralateral side overuse, etc. Look for physical findings not consistent with the history; for instance, examine the vascular system and its potential contribution to the symptomatology.

Leg pain combined with back pain is not alone a conformation of disc lesion. Comparative orthopedics (not just a straight leg raise) lays the foundation for the diagnosis and sets the direction of future testing and treatment. Sensory disruption of a sustained nature also will help define the condition and redirect testing from imaging to electrodiagnostics.

The AMA Guides to the Evaluation of Permanent Impairment suggest a variety of differentiators like: guarding, loss of reflexes, decreased muscle circumference, electrodiagnostic findings, motion roentgenograms, loss of bowel/bladder control and range of motion. These tools can narrow down the focus of back pain and extremity dysfunction to the possible existence of disc lesion.  

Arthritides—there are numerous forms of arthritis ranging from infectious etiologies, degenerative changes, biochemical causes and unknown etiologies. Persistent and chronic pain associated with musculoskeletal pain syndromes will influence a differentiation against various forms of arthritis. The following is a brief summary of specific symptoms:

- **Rheumatoid arthritis**—symptoms commonly associated include, simultaneous inflammation in multiple joints, tenderness in nearly all active joints with fatigue and malaise by mid-day.
- **Psoriatic arthritis**—will mimic rheumatoid arthritis, but will be associated with psoriasis of the skin or nails and a negative RA serology.
- **Sjogren’s syndrome**—a systematic inflammatory disorder of unknown etiology characterized by dryness of the mouth, eyes and other mucus membranes. This is associated with rheumatic disorders.
- **Lyme disease**—seen with an early skin lesion with later progressive neurologic, cardiac or joint abnormalities.
- **Infectious arthritis**—follows a pathogenic microbe, which infects a joint. Typically, this is a bacterial infection like staphylococci in young children.
- **Reiter’s syndrome**—typically, non-bacterial urethritis seen 7 to 14 days following a sexual exposure accompanied by low-grade fever and conjunctivitis. This condition is seen mostly in adult males.
- **Gout**—may be precipitated by a minor trauma, over indulgence in food and alcohol, surgery, fatigue, emotional stress, use of penicillin, insulin or diuretics. Pain is of a throbbing, crushing or excruciating nature. Look for warmth, redness and exquisite tenderness. The skin becomes tense, hot, shiny and a dusky red or purplish color.

Dystrophy— the presence of weakness must be isolated. Muscular dystrophies are associated with proximal trunk weakness as opposed to distal extremity weakness that is associated with neuropathy or disc lesion. Muscular dystrophy has a positive familial connection in 50% of the cases.

- **Duchenne’s muscular dystrophy**—manifests over three to five years with signs of clumsiness, weakness and falling. The patient’s gait will reflect walking on toes due to calf contractures. Eventual cardiac problems and decreased mentation and a premature death are anticipated (second decade).
- **Becker’s muscular dystrophy**—similar development as Duchenne’s muscular dystrophy, but all symptoms are diminished and life span is extended into the 5th and 6th decade. Development occurs around a 10 to 15 year period.
- **Distal muscular dystrophy**—will develop between 12 and 30 years in the distal muscle groups spreading to the proximal groups. Symptoms are linked to a tendency to fall while walking, difficulty running
climbing stairs.

- **Myotonic dystrophy** - the most frequent type of muscular dystrophy, with specific muscle group wasting, cataracts, testicular and ovarian atrophy and frontal baldness. There is an inability to relax contracted skeletal muscle. Percussion will show a very slow return to a relaxed state. Because facial muscles are involved a dull expressionless appearance may be demonstrated.

In summary, a patient’s attending chiropractor should be prepared for a variety of symptomatic complexes. The history is a key trigger to focus the direction of an examination and the subsequent diagnostic testing. The time frame, the gender, the age, the family history, the social factors, the habits, the occupation of the patient are invaluable indicators of the specific illness.

**BIBLIOGRAPHY**