

# Tina Williams " Acute Low Back Pain" iHuman

## History & Physical Examination

SOAP #4

2

### Patient Demographics:

Name: T.H.

Age/race/sex: 26 Hispanic Female

**Clinical site: Primary Care clinic; Presents for sick visit.**

## SUBJECTIVE DATA

Chief Complaints : "My lower back has been hurting for about 2 weeks now".

### History of Present Illness :

Mrs. H is a 26 y/o Hispanic female with a six year history of depression-controlled on Sertraline, who presents to the clinic today complaining of spontaneous occurring acute low back pain to lumber region that started about 2 weeks ago after wearing heels to a party. Reports it has been very difficult to dress lower body and to bend. She reports the pain is constant but has intermittent intensities of aching and soreness throughout the day. The pain is localized to the lumber area, described as aching and soreness with no radiation, rated a 5/10 in office today with 3/10 being the lowest amount of pain experienced and 8/10 being the worst pain she has experienced. Reports the pain is worse in the mornings when getting out of bed after lying down all night. She hasn't tried any pharmacological or non-pharmacological therapies. She reports no heavy lifting, strenuous exercise, current injuries, nor feelings of anxiety or

depression. However, about 5 years ago she was riding her bike, went down a ramp and flipped head first over the handle bars of the bike. At which time she experienced this same low back pain, went to the ER and had X-rays that showed some inflammation and swelling. She was then prescribed a muscle relaxant, Ibuprofen, and physical therapy for 8 weeks, which helped tremendously. At today's visit, she hopes to find out where the pain is coming from and what she can do to prevent it from returning.

Past Medical History:

- Depression-active- diagnosed 6 years ago after mom passed in a MVA
- Low back pain-active-diagnosed about 5 years ago after previous back injury.

Past Surgical History:

- No surgeries to date

Allergies:

NKA to food, dust, mold, environment, or medications.

Medications:

Sertraline 150 mg by mouth daily for depression

Health Maintenance:

- Influenza Vaccine-October 2017 at CVS.
- All other immunizations are up-to-date including TDaP, MMR, and Varicella.
- Last Pap smear- June 2016-normal
- Performs MSBE
- Depression screen positive for PHQ2; on meds and see Psychologists regularly.
- CAGE 0/4

Personal & Social History:

- Lives alone in a one bedroom apartment.
- Works at a nursing home as a Certified Nursing Assistant 4 days/week. She loves her job and has a dependable car.
- Denies any smoking, illicit drug abuse, or alcohol misuse.
- Previously did cross fit in high school. However, do to work she hasn't had much time to get the amount of exercise she needs.
- Patient is sexually active with only one sex partner, her boyfriend.
- 24 hour diet recall: B- one bowl of Chex cereal; L- a turkey sandwich, chips, and a diet coke; S-about 1-2 cups of cheese-it crackers and a diet coke; D- Meatloaf, veggies, mashed potatoes from Boston Market, and a bottled water.

Family History:

Grandparents

Paternal: Paternal grandfather 81, HTN, DM; Paternal grandmother 76 history of DM and MI.

Maternal: Maternal grandfather died at 82 from MI, maternal grandmother 79, history of diabetes and arthritis.

Parents

Father: Father 59, history of HTN, Diabetes, Depression, and Stroke. Mother: Mother 52, died in a MVA.

Siblings

Siblings: Only child.

Children

Children: No children.

Review of Systems:

SOAP #4

4

<b>General</b>	Denies any fever, chills, night sweats, weight loss or weight gain in the past year.
----------------	--

<b>Skin</b>	Denies dry skin and itching. Denies abnormal lesions or new nevi/moles
<b>Head</b>	Previous head injury, denies any masses, lesions and headache
<b>Eyes</b>	Denies any discharge, itchy, blurred vision, vision loss or vision changes, eye pain or injection.
<b>Ears</b>	Denies any itching, fullness, vertigo, ear pain or drainage, hearing loss or changes in quality of hearing.
<b>Nose/Sinuses</b>	Denies epistaxis, PND, maxillary or frontal sinus pain, or changes in smell
<b>Mouth/Throat</b>	Denies sore throat and dysphagia. Denies gum disease, has all original teeth, last dental exam was in July of this year, sees the dentist annually.
<b>Neck/Lymph Nodes</b>	Denies swollen /painful lymph nodes, denies any neck pain or stiffness.
<b>Breasts</b>	Denies masses, pain, or nipple discharge. Does perform regular SBE.
<b>Thorax/Respiratory</b>	Denies any SOB, DOE, or wheezing.
<b>CVS</b>	Denies CP, palpitations, denies peripheral edema, Orthopnea
<b>GI/Abdomen</b>	Denies dyspepsia, nausea, vomiting, diarrhea, constipation, bloating, hematemesis, hematochezia, or abdominal pain. No recent changes in bowel habits. Last bowel movement was this morning, which is consistent with her regular bowel habits and was normal.
<b>GU</b>	Denies any pain on urination, frequency, urgency, or vaginal discharge.
<b>Musculoskeletal</b>	See HPI.
<b>Neurologic</b>	Denies memory loss, numbness, tingling, or burning pains or weakness.
<b>Endocrine</b>	Denies known glucose abnormalities, heat or cold intolerance
<b>Psychiatric</b>	Reports a history of depression but denies any anxiety.

## OBJECTIVE

### Physical Examination:

Vital Signs/HT/WT	T: 98.2F, P: 72 readily palpable, RR: 16, BP 110/64 on right, 110/68 on the left SaO2 on RA: 100% HT: 5'8", WT: 128lbs (toned-physique, stable with no gains or losses within the last 6 months), BMI: 19.46, normal for ht. and wt.
General	26 y/o Hispanic female, pleasant appears her stated age

sitting on the examination table in moderate distress as evidenced by arms tensed on elbows as she's guarding pain. Well groomed, well developed, AAOx3

Skin Warm, moist, no rashes or suspicious moles, +turgor Head/Scalp ATNC, thick black hair, no dandruff, no lesions/masses.

Eyes	External examination without ptosis, strabismus or exophthalmos. Conjunctiva pink. Rest of exam deferred.
Ears	Auricles symmetrical, no lesions or tophi; Rest of exam deferred.
Nose Sinuses	Bilateral nasal turbinates' pink, moist. Rest of exam deferred. Deferred
Mouth	Lips pink, moist mucous membrane, tongue protrudes in midline.
Pharynx/Throat	Deferred.
Neck/Lymph nodes	Trachea midline with full AROM without pain.
CVS	RRR, normal S1, S2, no murmurs, rubs, or extra systole, JVD
Lungs/Thorax	3cm at 30 degrees, no carotid bruits, no cyanosis or vascular lesions. No chest wall deformity. PMI at 5 <sup>th</sup> ICM MCL. Nontender without heaves or thrill. Auscultation of the abdomen without bruit. Palpation without pulsatile masses Chest symmetrical without deformity, respirations even and unlabored throughout anterior and posterior lung fields. Palpation without tenderness. Tactile fremitus present. Resonance heard on percussion throughout anterior and posterior lung fields. Vesicular breath sounds auscultated throughout anterior and posterior peripheral lung fields.
Breasts	Deferred
Abdomen	Deferred
GU	Deferred
Musculoskeletal	Mandible moves in midline TMJ palpation without clicks or tenderness. Neck and cervical spine have no noted deformities or signs of inflammation. Curvature of cervical, thoracic and lumbar spine within normal limits. Bony features of shoulders and hips are of equal height bilaterally and nontender. Posture is slumped and gait is smooth but guarded. Palpation of spinous processes of C7-L5 are palpable, midline, and tender to deep palpation right below L5. Discomfort noted with lying flat on exam table. Patient can bend to touch toes but experiences discomfort at about 90 degrees from the upright position. Although patient can actively perform such maneuvers as bending her knees to her chest while lying flat, flex,

	extend, and rotate the spine there is some mild discomfort and pain noted throughout the maneuvers.
Extremities/Pulses	No edema, erythema or cyanosis to upper or lower extremities. Pulses 2/4 to bilateral femoral, popliteal, posterior tibial, and dorsalis pedis pulses.
Neurologic	AA O X3. Slumped posture while sitting and walking. Gait steady and intact. Sensation intact to light, deep, and sharp touch. gait and balance intact. CN II- XII intact. Memory and cognition intact for present and past medical history.
Psych	Appropriate mood and affect

### Evidence Based Assessment/Plan

**Clinical Decision Making:** 26 y/o Hispanic female presents to the primary care clinic with a two week history of constant low back pain worse when ambulating and dressing. The pain is non-radiating and has intermittent intensities of aching and soreness consistent with acute non-specific low back pain. She has experienced these symptoms before after a biking accident 5 years ago. Given Mrs. H's presenting signs and symptoms there is a need to differentiate between the diagnosis of acute nonspecific low back pain and low back pain with radiculopathy. Mrs. H is an otherwise healthy young female with a history of depression controlled on antidepressant. She has no other co-morbidities or health issues.

<b><u>CHARACTERISTICS OF DIFFERENTIAL DIAGNOSIS</u></b>	pain might or might not be associated with significant pathology on magnetic resonance imaging (MRI) and is <u>SIGNS</u>	Some physical exam findings of low back pain may include the following;
<b><u>Non-specific Acute Low Back Pain</u></b> Nonspecific or nonradicular low back pain is not associated with neurologic symptoms or signs. In general, the pain is localized to the spine or paraspinal regions (or both) and does not radiate into the leg. In general, nonspecific low back pain is not associated with spinal nerve root compression. Nonspecific low back	<u>AND SYMPTOMS</u>  Pain areas: in the low back, muscles and bones, hip, or leg.  Sensory: leg numbness or pins and needles.  Back joint dysfunction or muscle spasms.  Slumped gait due to pain on standing upright. <a href="http://www.aafp.org">www.aafp.org</a>  <u>PHYSICAL EXAM FINDINGS</u>	Superficial tenderness over the lumbar region to light touch Nonanatomic tenderness  Exacerbation of pain by applying a few pounds of pressure with the hands to the top of the head  Exacerbation of pain by simulated rotation or flexion of the spine  Ability to sit up straight from a supine position, but intolerance of the straight-leg-raising test  Nonanatomic distribution of sensory

## Differential Diagnosis:

often a result of simple changes soft tissue disorders such as strain, but it



can also be caused by <http://www.clevelandclinicmeded.co> serious medical [m](#) disorders arising in the bony spine, parameningeal, or retroperitoneal regions.

**Risk factors:**

Smoking, obesity, older age, female gender, physically strenuous work, sedentary work, a stressful job, job dissatisfaction and psychological factors such as anxiety or depression.

**Diagnosis:**

Diagnosis is based on physical exam findings. Routine spine radiographs are of limited value because they visualize only bony structures.

Guidelines from the

U.S. Agency for Health Care Policy and

Research (AHCPR) indicated value of routine spine radiographs for acute low back pain in the following settings: acute major trauma, minor trauma associated with risk of osteoporosis, risk of spinal infection, pain that does not respond to rest or recumbency, and history of cancer,

fever, or unexplained weight loss. They may also be of value in assessing spinal alignment and rheumatologic disorders of bone. The American Academy of Neurology guideline recommends nonsurgical therapy before CT and MRI are used in patients with uncomplicated acute low back pain of less than 7 weeks' duration.

[www.aafp.org](http://www.aafp.org)

**Acute lumbosacral**

**radiculopathy** Low back pain accompanied by spinal nerve root

damage is usually associated with neurologic signs or symptoms and is described as *radiculopathy*. There is usually pathologic evidence of spinal nerve root compression by disk or arthritic spur, but other intraspinal pathologies may be present and are often apparent on an MRI scan of the lumbosacral spine.

**Risk factors:**

Traumatic injury Lumbar sprain or strain  
Postural strain sitting, standing or walking >2hrs per day  
**Radiculopathy** — A common feature of low back pain is radiculopathy, which occurs when a nerve root is irritated by a protruding disc or arthritis of the spine. Radiculopathies usually cause radiating pain, numbness, tingling, or muscle weakness in the specific areas related to the affected nerve root, usually the lower leg. Most people with these conditions improve

with limited or no treatment, described below.

**Sciatica** — Sciatica refers to the most common symptom of radiculopathy. It is a pain that occurs when one of the five spinal nerve roots, which are branches of the sciatic nerve, is irritated, causing a sharp or burning pain that extends down the back or side of the thigh, usually to the foot or ankle. You may also feel numbness or tingling. Occasionally, the sciatica may also be associated with muscle weakness in the leg or the foot. If a disc is herniated, sciatic pain often increases with coughing, sneezing, or bearing down.

A comprehensive physical examination of a patient with acute LBP should include an in-depth evaluation of the

neurologic and musculoskeletal systems.

The neurologic examination should always include an evaluation of sensation, strength, and reflexes in the lower extremities.

This portion of the examination allows the examiner to detect sensory or motor deficits that may be consistent with an associated radiculopathy or cauda equina syndrome.

Often, an assessment of the L5 reflex (medial hamstrings) is helpful. Also, in L5 radiculopathy, the presence of weakness in foot dorsiflexors should raise the additional suspicion of a peroneal nerve palsy.

When differentiating

---

between an L3  
radiculopathy versus a  
femoral neuropathy,  
weakness in the hip  
adductors in addition to  
the quadriceps group  
would indicate an  
frequent moving or lifting  
>25 lbs. strength <50%  
depression obesity poor  
health prior LBP poor  
back endurance  
Osteoarthritis

Rheumatoid Arthritis

[www.aafp.org](http://www.aafp.org) **Diagnosis:**

After the initial

---

examination, the diagnosis of lumbar radiculopathy can be supported by electrodiagnosis, MRI, CT scans, and/or contrast myelography. Treatment of lumbar radiculopathy will vary depending on the actual cause of the radiculopathy. These treatments can include the use of back supports, medication, physical therapy, steroid injection in the spine, and even surgery.

<http://www.aanem.org>

### **Neurogenic claudication**

— Neurogenic claudication is a type of pain that can occur when the spinal cord is compressed due to narrowing of the spinal canal from arthritis or other causes. The pain runs down the back to the buttocks, thighs, and lower legs, often involving both sides of the body. This may cause limping and weakness in the legs. Pain usually gets worse when extending the lower spine (e.g., when standing or walking), and gets better when flexing the spine by sitting, stooping, or leaning forward.

<https://www.uptodate.com/contents/low-back-pain-in-adults>

The onset of symptoms in patients with lumbosacral radiculopathy is often sudden and includes LBP. Some patients state the preexisting back pain disappears when the leg pain begins.

Sitting, coughing, or sneezing may exacerbate the pain, which travels from the buttock down to the posterior or posterolateral leg to the ankle or foot.

Radiculopathy in roots L1-L3 refers pain to the anterior aspect of the thigh and typically does not radiate below the knee, but these levels are affected in only 5% of all disc herniations.

When obtaining a patient's history, be alert for any red flags (i.e., indicators of medical conditions that usually do not resolve on their own without management). Such red flags may imply a more complicated condition that requires further workup (e.g., tumor, infection). The presence of fever, weight loss, or chills requires a L3 radiculopathy. In an isolated femoral neuropathy, only the quadriceps group would show weakness.

Provocative maneuvers, such as the straight-leg raising test or the slump test, may provide evidence of increased dural tension, indicating underlying nerve root pathology.

Attempts at pain centralization through postural changes (i.e., lumbar extension) may suggest a discogenic etiology for pain and may also assist in determining the success of future treatment strategies. The musculoskeletal evaluation should include an assessment of the lower

extremity joints, as pain referral patterns may be confused with focal peripheral involvement. For example, a patient with anterior thigh and knee pain may actually have a degenerative hip condition rather than an upper lumbar radiculopathy. By assessing lower extremity flexibility, hip rotation, muscular balance, and ligamentous stability, the evaluating physician might be alerted to the patient's predisposition toward an acute LBP episode.

<https://emedicine.medscape.com>

thorough evaluation. Patient age is also a factor when looking for other possible causes of the patient's symptoms. Individuals younger than 20 years and those older than 50 years are at increased risk for more malignant causes of pain (e.g., tumor, infection).

<https://emedicine.medscape.com>

### POC LABS to Review

No POC labs to review

### Diagnosis 1-Guidelines for Treatment for Non-Specific Acute Low Back Pain (most likely dx):

There is general agreement that patients with acute nonspecific spine pain or nonlocalizable lumbosacral radiculopathy (without neurologic signs or significant neurologic symptoms) require only conservative medical management. Patients should abstain from heavy lifting or other activities that aggravate the pain. Bed rest is not helpful and has been shown to delay recovery. Bed rest may be recommended for the first few days for patients with severe pain with movement. Recommended medications include nonsteroidal anti-inflammatory drugs such as ibuprofen or aspirin. If there are complaints of muscle spasm, muscle relaxants such as cyclobenzaprine may be used in the acute phase of pain. Narcotic analgesia should be avoided, in general, but it can be prescribed in cases of severe acute pain. A study by Cherkin and coworkers compared standard physical therapy maneuvers and chiropractic spinal manipulation for the treatment of acute low back pain and found that both provide small short-term benefits and improve patient satisfaction.

<http://www.clevelandclinicmeded.com>

Nonpharmacologic treatment, including superficial heat, massage, acupuncture, or spinal manipulation, should be used initially for most patients with acute or sub-acute low back pain, as they will improve over time regardless of treatment. When pharmacologic treatment is desired, nonsteroidal anti-inflammatory drugs (NSAIDs) or skeletal muscle relaxants should be used. *Avoid imaging in cases of uncomplicated low back pain (unless there are specific clinical indications).* Medications prescribed today;

- Diclofenac Sodium 50 mg 1 by mouth twice daily for pain for 2 weeks.
- Flexeril (Cyclobenzaprine) 10 mg 1 tab by mouth three times a day as needed for muscle spasms for 2 weeks.

[www.aafp.org](http://www.aafp.org)

Diagnostic test needed:

No further diagnostic test needed at this time. Diagnosis was based on clinical presentation, history, and physical exam.

Referrals/Consults:

Referral for physical therapy to evaluate and treat for low back pain and spasms.

Patient Education :

**Remaining active** — many people are afraid that they will hurt their backs further or delay recovery by remaining active. However, remaining active is one of the best things you can do for your back. In fact, prolonged bed rest is not recommended. Studies have shown that people with low back pain recover faster when they remain active. Movement helps to relieve muscle spasms and prevents loss of muscle strength. Although high-impact activities should be avoided, it is fine to continue doing regular day-to-day activities and light exercises, such as walking. If certain activities cause the back to hurt too much, it is fine to stop that activity and try another.

If back pain is severe, bedrest may be necessary for a short period of time, generally no more than one day. When in bed, the most comfortable position may be to lie on the back with a pillow behind the knees and the head and shoulders elevated, or to lie on the side with the upper knee bent and a pillow between the knees.

**Heat** — using a heating pad can help with low back pain during the first few weeks. It is not clear if cold packs help as well.

**Work** — most experts recommend that people with low back pain continue to work so long as it is possible to avoid prolonged standing or sitting, heavy lifting, and twisting. Some people need to stay home from work if their occupation does not allow them to sit or stand comfortably. While standing at work, stepping on a block of wood with one foot (and periodically alternating the foot on the block) may be helpful.

**Pain medications** — Take medications on a regular basis for two weeks for it to be effective, rather than using the medication only when the pain becomes unbearable. If needed, take muscle relaxant before bedtime. Do not take this medication while driving or operating machinery.

**Exercise** — a program of exercises can help to increase back flexibility and strengthen the muscles that support the back. Although starting back exercises or stretching immediately after a new episode of low back pain might temporarily increase the pain, the exercise may reduce the total duration of pain and prevent recurrent episodes. Recommended activities include those that involve strengthening and stretching, such as walking, swimming, use of a stationary bicycle, and low-impact aerobics. Avoid activities that involve twisting, bending, are high-impact, or make the back hurt more. Some specific exercises may help strengthen the muscles of the lower back. People with frequent episodes of low back pain should continue these exercises indefinitely to prevent new episodes.



**Mattress choice** – The benefit of a firm mattress in preventing or treating low back pain has not been proven. In one study, medium-firm mattresses were more likely to improve chronic back pain compared with firm mattresses <https://www.uptodate.com/contents/low-back-pain-in-adults>

Diagnosis 2-Guidelines for Treatment for Acute Lumbosacral Radiculopathy: The initial treatment of the patient with lumbosacral radiculopathy presenting with sensory symptoms and pain without significant neurologic deficits is not different from the approach for the patient with uncomplicated low back pain. However, such patients require observation for possible worsening of their neurologic status. For patients with acute lumbosacral radiculopathy, the objectives of treatment are to ameliorate pain (symptomatic treatment) and to address the specific underlying process (mechanism-specific treatment) if necessary <http://www.clevelandclinicmeded.com>

Diagnostic test needed:

If signs and symptoms of radiculopathy, sciatica, or neurogenic claudication exist, the patient may require one or more of the tests including Spinal Radiography, CT scan, MRI, contrast myelography, or electrodiagnosis. <http://www.aanem.org>

Referrals/Consults:

Referral to an orthopedic surgeon or neurosurgeon is recommended under the following circumstances:

- Increasing neurologic problems (measurable weakness)
- Loss of sensation (e.g., numbness) or bladder and bowel symptoms
- Failure to

improve after four to six weeks of nonsurgical management, with persistent and severe sciatica and evidence of nerve root involvement <https://www.uptodate.com/contents/low-back-pain-in-adults>

Patient Education :

Most people with radiculopathy improve with conservative treatment such as medication and PT. Surgery is recommended for some people with radiculopathy. They, too, usually improve after a recovery period. Following treatment, most people are able to work and take part in other daily activities. Patient education would include education to prevent acute non-specific low back pain in addition to reducing chances of developing radiculopathy by maintaining good posture and a healthy weight. Using safe techniques when lifting heavy objects to prevent injuries to your back. Remembering to lift with your knees. That means you should bend your knees, not your back. Also asking for help when moving heavy or bulky objects and when doing repetitive tasks, take frequent breaks. <https://www.healthline.com>

Prevention :

There are a number of ways to prevent low back pain from returning. Perhaps the most important are exercise and staying active. Regular exercise that improves cardiovascular fitness can be combined with specific exercises to strengthen the muscles of the hips and torso. The abdominal muscles are particularly important in supporting the lower back and preventing back pain. It is also important to avoid activities that involve repetitive bending or twisting and high-impact activities that increase stress in the spine.

**Bend and lift correctly** — People with low back pain should learn the right way to bend and lift. As an example, lifting should always be done with the knees bent and the abdominal muscles tightened to avoid straining the weaker muscles in the lower back (p

**Take a break** — People who sit or stand for long periods should change positions often and use a chair with appropriate support for the back. An office chair should be readjusted several times throughout the day to avoid sitting in the same position. Taking brief but frequent breaks to walk around will also prevent pain due to prolonged sitting or standing. People who stand in place for long periods can try placing a block of wood on the floor, stepping up and down every few minutes.

<https://www.uptodate.com/contents/low-back-pain-in-adults>

### **Healthcare Maintenance/Recommendations :**

Annual Influenza vaccine education provided-Received in October of 2017 Depression screen-positive- Recommended to continue Sertraline and visits to Psychologists as scheduled.

CAGE-0/4

STI and STD education

Sex behavioral counseling

Reinforced recommendations for MSBE

Cervical Cancer screen and HPV education-Recommended continuing routine Pap testing every 3 years.

Diet and exercise education- Recommended to exercise at least 3 days/week; with exercises to help strengthen the core muscles. Continue eating a healthy diet and stay hydrated during workouts.

Recommended using a back brace while at work to help with support with lifting and to call for lifting help instead of trying lift alone.

The USPSTF also recommends high blood pressure, depression, and alcohol misuse screening in this age group. Screening for HIV, Syphilis, HBV, HCV, and STI screening and behavioral counseling is also recommended in all sexually active females in this age group. Although, Mrs. H has a toned physique I think it's important to counsel her on the importance of daily exercise and physical activity to help reduce pain and on healthful diet practices such as the DASH diet, which is high in grains, fruits, vegetables, and low in fat to help prevent future co-morbidities

especially since her family history is so significant for such severe co-morbidities and mortalities.

[www.uspstf.org](http://www.uspstf.org)

**Follow-up:** Follow up in 2 weeks for evaluation of pain management or as needed if pain becomes worse or changes in presentation.

## **References**

American Academy of Family Physicians. (2017). Diagnosis and Treatment of Low Back Pain; Clinical Practice Guidelines. Retrieved from: <http://www.aafp.org/patient-care/clinical-recommendations/all/back-pain.html>

American Association of Neuromuscular & Electrodiagnostic Medicine. (2017). Lumbar Radiculopathy. Retrieved from: <http://www.aanem.org/Patients/Disorders/Lumbar-Radiculopathy>

Cleveland Clinic Center for Center for Continuing Education. Published by; Levin, Kerry. M.D. (2010). Low Back Pain. Retrieved from: <http://www.clevelandclinicmeded.com/medicalpubs/diseasemanagement/neurology/lowback-pain/#top>

Healthline. (2017). Radiculopathy (Pinched Nerve). Retrieved from: <https://www.healthline.com/health/radiculopathy#overview1>

Scientific Electronic Library Online by Ladeira, Carlos (2011). Evidence based practice guidelines for management of low back pain: physical therapy implications. Retrieved from: <http://www.scielo.br/pdf/rbfis/v15n3/04.pdf>

U.S. Preventive Services Task Force. (2017). Grade A and B Recommendations. <https://www.uspreventiveservicestaskforce.org/Search>

UpToDate. (2017). Patient Education. Low Back Pain in Adults (Beyond the Basics). Retrieved from: <https://www.uptodate.com/contents/low-back-pain-in-adultsbeyond-the-basics>