

MY PAIN TOOLS

Pain Education Online Tutorial Outline

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(My Talking Self) SECTION A

Welcome to My Pain Tools. I am Dr. Yogi. I hope you find this online patient education tutorial informative and entertaining. Knowledge is power and we hope we can inspire you to empower yourself into a happier and more functional life. So open your tool box, because we are going add a few new tools to it today.

(Introduction) SECTION B

Welcome to MyPainTool.

This website is not intended for rendering medical advice or recommendations. The contents of this website and communications are provided for informational purposes only. This information should not be used as a substitute for a consultation with a qualified healthcare provider, who can meet your individual medical needs. Always consult a medically trained professional with questions and concerns you have regarding your medical condition. No patient-physician or patient-provider relationship is intended to be created by neither this website nor its creators by making this information available to you. Please read the full disclaimer before proceeding.

The purpose of this online tutorial is to provide you, the patient, and your family members the tools and information needed to better understand and manage the chronic pain you or your loved ones suffer from.

The economic impact of chronic pain is staggering. The annual total cost of pain from all causes is estimated to be more than \$100 billion.

Un-measurable is the cost and burden chronic pain places on those suffering from it. Although we may never be able to eliminate chronic pain, we can learn to live with it and overcome its limitations. You can empower yourself with the tools needed to achieve a happier and more functional life.

We can only scratch the surface on some of the important topics that surround pain management. We hope that what you learn today inspires you to seek out more information.

As you will learn shortly the power of laughter can be an important pain tool, and so we have tried to bring laughter and entertainment to you in this tutorial. We hope to keep you moving forward in life.

(Pain Mechanism) SECTION C

“Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”

Our nervous system is the most complex organs in our body. Because of this pain is very complex.

Throughout our bodies are pain receptors, called nociceptors. These receptors are stimulated due to release of various chemicals by damaged tissue such as histamine, substance P, serotonin, bradykinin and prostaglandins. When stimulated, the nociceptors transmit the pain signal along sensory nerves to the spinal cord. In the spinal cord the impulses are processed by the dorsal horn and sent to the brain. Sometimes signals sent to the spinal cord communicate directly with motor nerves, to cause for example ones arm to quickly withdraw after touching a hot plate. This is called an automatic reflex and does not involve the brain or conscious thought. Most of the times pain signals are sent upwards in the spinal cord from the dorsal horn via ascending nociceptive tracts, such as the Spinothalamic tract. These tracts terminate in the medulla, midbrain and thalamus. Further processing in the thalamus leads to signals being sent to areas in the brain that control things such as heart rate, blood pressure and emotions. Thalamic neurons also project to regions of the cortex including the somatosensory cortex, where fine discrimination of pain occurs.

We experience pain everyday when we get a paper cut, stub our toes or hit our funny bone.

You may not want to believe it but pain is a protective mechanism. It tells us to pull away from a potentially damaging situation, like a hot pan. It warns us to take it easy and thus protects a damaged body part while it heals.

Most of the time pain goes away once we remove the stimulus. Unfortunately sometimes pain persists despite removal of the stimulus. Other times pain starts in the absence of any detectable injury or stimulus. When pain last for prolonged periods of time and is uncontrolled it can start having a more devastating effect on ones quality of life that is far more destructive than the discomfort of the pain itself.

But what is the difference in acute and chronic pain?

Often acute pain has a sudden onset and is usually sharp in nature but can have other forms. It can be mild or severe in intensity and last a few seconds to months. Most of the time acute pain last less than 3 months and usually goes away once the underlying cause is treated or heals. When acute pain last longer than 3 months it is often considered chronic pain at this point.

Chronic pain often persists besides the fact that there is no longer an identifiable stimulus. Pain signals in the nervous system remain active, and these effects can lead to both physical and emotional manifestations. Physically one can feel nausea, fatigue, muscle aches, decreased energy, and insomnia, among other things. Emotionally people can experience wide mood swings, depression, anger, anxiety, and a sense of being overwhelmed. These physical and emotion changes soon start affecting one's ability to work, enjoy life, and perform activities of daily living. Patients soon become deconditioned and unable to functional.

(Multidisciplinary Approach) SECTION D

Chronic pain is a complex condition involving physical, psychological, emotional and environmental factors.

A multidisciplinary approach to pain management has been shown to improve the quality of patient care, reduce the use of health care services, and overall cost of health care.

A multidisciplinary team can include members from the fields of pain medicine, orthopedics, neurosurgery, neurology, rheumatology, oncology, palliative care, psychology, psychiatry, physical medicine and rehabilitation, physical and occupational therapy, social work, chiropractic care, acupuncture and alternative medicine, etc.

Just as there can be many members to the multidisciplinary team, there are also many more modalities that are key to the multidisciplinary approach to pain management such as medication management, physical therapy, cognitive-behavioral therapy, nerve blocks, surgery, massage, counseling, biofeedback, support groups, spiritual wellness, and alternative treatments just to name a few.

The main goals of pain management is to help you learn how to manage your pain by giving you the appropriate tools from the multidisciplinary approach to pain management, so you can achieve this goal.

(Improving Function) SECTION E

Your doctor may often ask about changes in your function along with changes in your pain scores throughout your treatment.

Often patients may report no improvement in pain scores, but when questioned further they will show a significant improvement in function, due to the treatments they received.

As a patient it is important to evaluate yourself for improvement in function and not just improvement in pain.

Increase in function can be a goal to focus on when deciding on treatment options to improve your overall quality of life.

Having goals relating to increase in function can create more structure to ones management, as well as justification for use of medications and treatments.

Goals that you set should be simple and reasonable, such as being able to complete a favorite hike, or being able to take one's grandchildren fishing, etc.

(POSITIVE ATTITUDE) SECTION F

A positive attitude may not solve all your problems, but it will annoy enough people to make it worth the effort. ~Herm Albright

If you don't think every day is a good day, just try missing one. ~Cavett Robert

It's so hard when I have to, and so easy when I want to. ~Annie Gottlier

Every day may not be good, but there's something good in every day. ~Dr. Yogi

The secret of having a positive attitude is not a new concept when it comes to dealing with chronic conditions, especially pain management.

There have been numerous research studies showing over and over that those with a positive attitude have a greater response to treatments, report lower pain scores and show increase in function compared to those that do not.

This is often difficult to maintain when dealing with chronic pain, which can often be debilitating.

A positive attitude is a tool you must have in your tool box when dealing with chronic pain.

Attitude is a little thing that makes a big difference. ~Winston Churchill.

(COPING SKILLS) SECTION G

Coping by definition is often referred to as “purposeful efforts to manage the negative impact of stress” With chronic pain this often refers to the efforts made to live through the pain and maintain activity and function despite the pain.

Using the mind along with other pain management therapies can be very powerful in increasing your sense of control and learning to live with pain without it interfering in your well-being.

Try not fight against the pain as this can be counter-productive, self-defeating, and a reflection of one's lack of acceptance of one's condition. Rather than trying to fight the pain, manage it, cope with it, and acknowledge other areas of your life you have control over. Using a coping skill is something you can control, it may not "control" your pain, but in choosing to use a coping skill, it may indirectly decrease your pain by making you feel more empowered, energetic, accomplished, etc.

When trying to develop your own set of coping tools try to incorporate some key techniques that are described next.

Relaxation Techniques

There are many different ways to put yourself in a relaxed state of mind. One option is to place yourself in an isolated dark and quiet room, then shut your eyes while you focus on slow deep breaths. Do not let your mind wander. Find a relaxation technique that works for you. Some examples include: biofeedback, deep breathing, meditation, Zen yoga, muscle relaxation, power napping, pranayama, visualization, hypnosis, etc.

Imagery Techniques

Again there are many different ways to apply imagery techniques to your coping tools. Often this technique involves imagining your pain or injury as a certain physical form with size, shape and color, then changing that physical form and controlling its movements and actions. Once you get the sense of control over that object, then you can discard it, destroy it or have it fly away through the power of your imagery. Age progression/regression is a type of imagery technique. This technique involves mentally taking yourself forward or backward in time to a state where you are or were pain free and focusing on that pain free state of mind as if it were true and your reality.

Diverting Focus

Focus on a non-painful part of your body and then alter a sensation in that part of your body, such as focusing on your big toe and making it feel cold. This can take your mind off the sensation of pain from your primary area of pain such as your back.

Optimistic View/Attitude

Focus your attention on what you can do rather than on ways in which your pain limits you. As well as on what you want to do and believe you can achieve that goal despite the pain. This is a very important tool, as how we perceive our pain will reflect greatly on how we experience both psychological and physical pain and will have an impact on our quality of life. Always remember the glass is half full not half empty. People who are optimistic tend to have higher levels of endorphins which are the body's natural pain killers.

Biofeedback

Although not a coping skill by definition, biofeedback is a very important treatment modality. There have been many advances in the field of biofeedback. Biofeedback "is the process of becoming aware of various physiological functions using instruments that provide information on the activity of those same systems, with a goal of being able to manipulate them at will." There are any processes that can be controlled including: heart rate, respiratory rate, brain activity, muscle tone, skin temperature and conductance, as well as pain perception. This technique is best performed with the help of a professional such as your psychologist.

The above were just a few of the tools that can be helpful when trying to cope with chronic pain. One of the hardest things to do, yet very important is persisting despite the pain.

Persisting Despite The Pain

We often look at function as a more important measurement of quality of life rather than pain scores in the management of chronic pain. This is because physical function and one's ability to perform daily activities correlates more closely to quality of life than individual pain scores. It is important to set goals to move you towards increasing your function even in the face of increasing pain. It is often difficult not being able to do the things, due to pain, that we once could do. When we start pulling away from the things we love to do and start avoiding activities because of the fear of pain, we find ourselves worse in the long run. This can be the most difficult task when trying to find the balance between increasing function and activities while not increasing the pain or injuring oneself. Always check with your doctor to make sure the activities you choose to persist through are appropriate for you.

Other tools to coping include proper sleep, exercising and diet. We will talk more about these topics further along in this tutorial.

Like learning anything new, it will take time and practice to master these techniques. Practice them for about 30minutes 3-4 times a week. With persistence you will master the tools to coping and improve your quality of life.

(STRESS) SECTION H

Be mindful of your daily stress as emotional and psychological stress can make pain problems worse.

Stress can cause the release of hormones that increase the perception of pain and cause back muscles to tighten up, which can lead to decreased blood flow to those muscles.

Stress and back pain can become a vicious cycle, as each can lead to the other and feed off each other. So stop the cycle sooner than later by managing your stress level.

Aerobic exercises decrease stress hormones while increasing your body's natural endorphins which will help improve mood and decrease back pain.

Relaxation techniques and stretching exercises can also decrease stress while improving back pain.

Also remember a goodnight's sleep and allowing your body to rejuvenate, will go a long way in decreasing your body's stress levels.

You can find more information about aerobic exercises, relaxation techniques, and sleep in other parts of this tutorial.

(SLEEP) SECTION I

Pain often keeps one from getting proper night's sleep and the sleeplessness makes the pain worse, it's a vicious cycle.

Studies have reported that 50%-80% of patients with chronic pain do not get proper sleep.

Poor sleep also affects your mood by increasing depression which worsens your pain.

Pain often disrupts the normal sleep cycle causing one not get enough deep and REM sleep which are important parts of the sleep cycle. They are vital in order to get a good nights rest. Chronic pain patients are known to have microarousals that affect their overall sleep. These microarousals often do not affect non chronic pain patients.

Some pain medications can increase sleep disturbances, however other pain medications can aid in a good nights sleep, therefore it is important to discuss with your doctor your pain medications if you have poor sleep.

Undiagnosed sleep apnea can sometimes be the cause of poorly controlled pain. If you suspect you might have sleep apnea consult with your doctor. Treating sleep apnea can often improve your quality of life.

Making proper sleep a priority in your management goals is very important.

Some important tips to help improve your sleep include:

- 1) Review your pain medications to with your doctor to see if any of the medications you are taking could be affecting your sleep.
- 2) Avoid stimulants at night such as caffeine, alcohol, or nicotine
- 3) Avoid watching TV in bed, and try to make your bedroom a sleep friendly environment. Consider using ear plugs, eye mask, and a colder room temperature.
- 4) Create a routine of relaxation before your bed time. Don't do high activity things before bed; instead consider things such as reading a book, taking a hot bath, and using relaxation techniques.
- 5) Don't let you mind wonder on the day's event, focus on one non-stressful thought. Often counting sheep can be very effective in getting your mind off a stressful day.
- 6) If you take naps take them early and avoid long late afternoon naps.
- 7) Review your diet as a balanced diet can help induce a more good and natural sleep.
- 8) Keep a diary of your sleep habits and consider consulting with a sleep specialist if these simple tips do not help you get proper nights sleep.

(DEPRESSION) SECTION J

Depression and chronic pain are closely intertwined. As with many other issues, depression increases pain and pain increases depression in a viscous cycle.

Patients often forget to address their moods when they are trying to manage their pain. It is important to discuss your mood such as depression and anxiety with your doctor during your physician visits.

Many of the pain medications available today can be helpful both in the treatment of depression while helping manage a chronic pain condition. Review your medications with your doctor and together you two can determine if adjuvant pain medications that address pain and depression are an appropriate addition to your regimen.

A valuable tool for chronic pain patients with or without depression includes developing a relationship with a psychologist and/or psychiatrist. They can offer valuable insight and coping tools that should be part of the overall management of your chronic condition.

Please seek immediate medical care if you ever experience any suicidal or homicidal ideations.

(WEIGHT) SECTION K

Your excessive weight can be your enemy when it comes to managing your chronic pain, such as in low back pain.

With low back pain a majority of obese people have excess body fat around the abdomen, this extra forward weight increases the lordotic curve of the spine and places additional stress on the lower back as well as your joints.

Fat cells are believed to facilitate production of inflammatory factors thus weight loss not only decrease mechanical stress on the body it may also help to decrease overall inflammation and general pain.

Obese people have a higher incidence of degenerative disc disease, herniated and ruptured disc, osteoporosis, stress fractures, spinal stenosis, spondylosis, spondylolisthesis, spondylolysis, spinal osteoarthritis and unhealthy posture, among many other health problems.

When it comes to low back pain reducing your weight by just 10% can significantly reduce your back pain. Consider making a 10% reduction in your weight one of your goals as part of your management tools.

There are many programs and tools available to help individuals achieve a healthier weight. The best way to maintain a healthy weight is with a balanced diet and exercise program.

(SMOKING) SECTION L

It has been repeatedly shown that smoking cigarettes is linked to many diseases including chronic pain. Smokers report on average 3 times more pain such as in back pain than non-smokers. Studies have shown that woman who smoke are even more likely than men to develop back pain.

Smoking increases pro-inflammatory substances increases your risk of osteoporosis, decreases nutrition to the body and leads to poor circulation, all of which can cause disc damage and increase back pain.

Nicotine and carbon monoxide are just two of the many harmful substances smokers are exposed. Both of which deprive disc cells of vital nutrients and cause disc degeneration.

The road to a smoke free life may be a bumpy one, however the long term benefits make the journey worth it. There are many programs and tools to help those who want to stop smoking. However the first step is making that decision yourself to quit. Talk to your doctor today to decide the best game plan to get you to a smoke free and pain free life.

(DIET) SECTION M

Can your diet affect your chronic pain? The simple answer is yes: A balanced diet that produces a health weight can have a great impact on your pain.

Throughout history there have been many nutrients and foods that have been used to treat many ailments including pain. Some have been tested scientifically and other's secret to "heal" have been passed down from generation to generation.

We do not endorse any food or nutrient as being a treatment or cure to your pain, however we review below the nutrients and food that have been considered by some to be beneficial for individuals in chronic pain. Please consult with a dietician for more information.

Often pain is due secondary to inflammation that your body experiences. Certain foods can increase this inflammation while others help to reduce it. Certain cells in your body such as fat cells are believed to facilitate production of more inflammatory factors. Thus weight loss not only decreases mechanical stress on the body it may also help to decrease the overall inflammation.

The proper diet combined with an aerobic exercise program allows appropriate nutrients to reach painful areas aiding the healing and recovery process. Aerobic exercises are also known to improve blood flow.

A healthy and back friendly diet not only may help decrease inflammation, it can also improve blood flow by decreasing the formation of hardened arteries (atherosclerosis). There have been many scientific studies showing that patients with atherosclerosis have a high incidence of low back pain. Just as atherosclerosis can decrease blood flow to the heart and brain, it can also decrease blood flow to the back leading to increased back pain and poor healing. A back friendly diet can decrease the level of bad cholesterol in your body thus decreasing the amount of atherosclerotic plaque formation.

Some Helpful Tips:

1) Eat Power Foods

Power foods are foods that provide your body with energy slowly rather than quickly. Power foods usually are those that are high in complex carbohydrates and proteins and low in simple sugars.

2) Avoid Starchy Foods, Unnecessary Carbohydrates, & Foods with High Glycemic Index

3) Drink Plenty of Liquids: Water, Milk or Juices

4) Avoid Soda

Soda contains both caffeine and phosphoric acid both of which reduce calcium and can weaken bones and increase back pain.

5) Take Your Vitamins & Minerals Daily

Important Supplements in Pain Management Include: Calcium, Vitamin D3, Vitamin C, Vitamin B Complex, Antioxidant, Magnesium and Omega 3 Fatty Acids,

6) Choose Healthier Snacks: Fresh Fruits, Nuts and Vegetables.

7) Use Oils Sparingly

Use extra virgin olive oil, rather than other oils or dressings on salads, as it has been known to have anti-inflammatory properties,

8) Eat Clean & Lean Meats: Poultry, Fish and Eggs.

9) Eat Less & More Often

Try to eat 5-6 small meals throughout the day instead of 2-3 large meals as we traditionally do. This maintains a more constant metabolic rate. Also try not to over eat and only eat balanced meal. Also remember to eat a healthy breakfast it can give your body a good start in the morning.

10) Void Excessive Caffeine

Caffeine can increase muscle tension, as well as decrease calcium.

11) Avoid Excessive Sodium

Watch your sodium intake and keep your blood pressure under control.

12) Other Supplements and Creams Believed To Be Beneficial

Methylsulfonylmethane

Glucosamine

Chondroitin Sulfate

Capsaicin Topical Cream

GOOD NUTRIENTS	AVOID THESE FOODS
Power Foods (high in complex carbohydrates and proteins)	Starchy foods
Nuts	Saturated Fats
Vegetables	Trans Fats
Extra Virgin Olive Oil	Other Cooking Oils
Fruits	Caffeine
Vitamin D & C	High Sodium Intake
Antioxidants	High Glyemic Index Foods
Omega 3 Fatty Acids	Sweets
Water	Soda
Clean & Lean Meats (Poultry/Fish)	Red Meat
Small Meals (5-6) Day	Large Meals

Anti-inflammatory Herbs

There are many herbs that have been throughout the years that have been shown to be beneficial in treating pain. However these herbs are not often tested by the FDA so their safety profile may not always be know. Please use supplements and herbs with caution and consult with your doctor and nutritionist before starting these medications. Safety in pregnant women or nursing

mothers is often unknown. Willows bark, Devils claw and Ginger Extracts are three of the more popular anti-inflammatory supplements in some areas.

- *Willow bark*
- *Devil's Claw*
- *Ginger Extract*
- *Boswellia*
- *Bromelain*
- *Curcumin (Turmeric)*
- *Quercetin*
- *Cayenne*
- *Clematis*
- *Condurango*
- *Echinacea*
- *Kava*
- *Meadowsweet*
- *Pau d'arco*
- *Feverfew*
- *St John's wort*
- *Valerian*

(OSTEOPOROSIS) SECTION N

Osteoporosis affects millions of people in the US, leading to a little under one million compression fractures a year. It also is a cause in many patients with chronic pain condition.

Osteoporosis is a disease of the bone that results in bone fractures and deterioration of bone strength. In osteoporosis there is an imbalance with increased bone loss and a decrease in new bone formation.

Although anybody can develop osteoporosis, known risk factors include: advanced age, female gender especially with estrogen deficiency such as postmenopausal, European or Asian ancestry, thin and small body frames, excess alcohol, nicotine use, malnutrition such as vitamin D or calcium deficiency, high protein diet, lack of weight bearing exercises, phosphoric acid from soda, heavy metals such as cadmium, as well as excessive physical activity such as in intensive training without proper compensatory increase in nutrition. Caffeine is not known risk factor for osteoporosis.

First important steps in prevention of osteoporosis or to minimize the effects of the disease is to get appropriate screening. Also make sure you have a balanced diet and appropriate amount of exercise. Access your environment to help prevent falls which will help decrease osteoporosis related complications. There are also many medications used in the prevention and treatment of osteoporosis. Consult with your doctor to discuss how you can take steps to prevent or address osteoporosis. Addressing osteoporosis will make a big difference in your overall management of your chronic pain condition.

(ACCESSORIES) SECTION O

STOP! Put down that large purse and take off those high heels!

Large bags, heavy backpacks and incorrect shoes are now a major culprit for long term chronic pain such as back pain.

If you use a large purse than make sure you transfer the weight often by switching shoulders and try to buy bags with wide padded double straps. Limit the bag weight to no more than 10% of your body weight.

If your children use backpacks for school limit the weight to 15% of the child's weight and do not allow them to wear the backpack on a single strap.

Avoid high-heeled shoes, cowboy boots, and sandal flip flops as they fail to give enough cushion to your steps.

Try to choice a well cushioned shoe that provides comfort, stability with good arch support and helps you always maintain a good posture.

It is all about good POSTURE!!! Poor posture secondary to bad accessories places too much uneven wear on the discs, joints and ligaments of the back.

(ERGONOMICS) SECTION P

Ergonomics is often defined as “the scientific study and analysis of the human, the machine, and/or working environment interface and an investigation of those elements in the system that affect optimum human performance on a given task or set of tasks”. However, ergonomists have attempted to define postures which minimize unnecessary static work and reduce the forces acting on the body.

Goal of proper body ergonomics is try to keep your spine, from head to toe, as aligned as possible.

Also stay active and avoid prolonged sitting or standing positions. Remember in your daily activities use your legs and engage your abdominal muscles instead of forcing the workload onto your back or neck. Take the time to evaluate your day to day activities and see how you can improve your posture from simple things as getting out of your car to brushing your teeth.

The section on ergonomics can be endless, here we will focus on only a few important areas of proper ergonomics such as lifting, sitting, standing and sleeping.

By being mindful to the ergonomic principles when it comes to lifting, sitting, standing and sleeping one can significantly aid in the management of their chronic pain condition.

(ERGONOMICS: Lifting) SECTION P1

LIFT WITH YOUR LEGS! Never lift with your back by bending over!!!

Proper lifting techniques include bending your knees and squatting to pick up the object. Always keep your back straight, head up, lift with both hands, take short steps and hold the object close to your body. Avoid twisting your body while lifting. Tighten your abdominal muscles to help hold your back in a good lifting position and prevent excessive force on the spine. Finally lift with your legs not your back and try keeping your feet about shoulder width apart.

Try to divide heavy loads into smaller parts, never strain, maintain good posture and body mechanics lift slowly and ask for help when you can.

Push rather than pull when moving objects.

Remember that pushing or lifting a heavy object can still cause strain on your knee joints, so be cautious.

Wearing a back support belt may be beneficial when lifting, and using tools to get the task done isn't a bad idea.

NEVER TRY TO LIFT AN OBJECT THAT IS TOO HEAVY FOR YOU!

(ERGONOMICS: Sitting) SECTION P2

Prolonged sitting and forward bending at your work station can aggravate disc pain, so take a load off your disc by taking breaks and lying down.

When sitting have your feet supported by the floor and not dangling.

Sit on a chair with a mild wedged cushion (thick edge at the back against the seat) that is sloped downward thus forcing a more natural arch in your lower back. Chairs with proper lumbar supports and arm rests can also be helpful.

Try to maintain yourself aligned while sitting so that your shoulders line up squarely over your hips and your ears line up with your shoulders. From the side it should look like you are sitting up straight and you are well aligned from head to hip.

(ERGONOMICS: Standing) SECTION P3

You may not believe it but the way you stand can put unnecessary strain on your back.

Lets get into an ideal standing position: Start by placing your feet about 5 inches apart, next align the pelvis over the ankles to create a natural lordosis in your lower back (your body weight should be equally disturbed on the heels and toes), now align your shoulders over your pelvis, and your ears over your shoulders. It may feel awkward at first as most of us are used to our old slumping position. With a little retraining you will come to find this stance more natural and your back will thank you for it.

If you have to stand for a long period of time consider resting your foot on a prop or footstool (about 5 inches high) and alternate between feet, one at a time.

(ERGONOMICS: Sleeping) SECTION P4

We spent more than 30% of our lives in bed, so invest in the right orthopedically designed bed for your back sooner than later.

The best bed is one that when you lie down it keeps your spine aligned correctly (head to hips forming a straight line), which is usually a medium-firm bed.

Sleep on your back or side, and avoid sleeping on your stomach.

When sleeping on your back make sure the pillow supports your head and neck instead of supporting your neck and shoulder. Also consider a pillow under your knees & thighs.

When sleeping on your side use enough head support so your upper spine is straight (your nose lines up with your breastbone), and use a pillow length wise under your knees. A third pillow in front of your chest and abdomen is optional but can provide added support.

Avoid sleeping in the fetal position as this puts pressure on your disc.

Be mindful how you get in and out of bed to avoid unnecessary twisting or flopping onto the bed. The “logroll” method is often recommended. Also consider stretching when you wake up before getting out of bed.

Again the goal of proper body ergonomics is try to keep your spine, from head to toe, as aligned as possible.

Also stay active and avoid prolonged sitting or standing positions. Remember in your daily activities use your legs and engage your abdominal muscles instead of forcing the workload onto your back or neck. Take the time to evaluate your day to day activities and see how you can improve your posture from simple things as getting out of your car to brushing your teeth.

(AEROBICS) SECTION Q

Often chronic pain makes it difficult for patients to keep active. This lack of activity along with medications such as opioids can decrease the levels of the body’s natural pain killers called endorphins.

Your doctor may recommend you start a low impact aerobic exercises as part of your management tools. Exercises may include aquatic therapy, elliptical machine, and/or recumbent bicycling as tolerated, to improve cardiovascular function, core strength and flexibility.

Aerobic exercises improve blood flow to and bring nutrients to painful structure. This can aid in healing, increase mobility, and decrease stiffness in painful joints and the back.

When choosing which aerobic exercise is appropriate for you, you should choose low impact exercises which will not jar the spine or aggravate the joints. Always check with your doctor or cardiologist to make sure any form of exercise is appropriate for you to start especially if you have underlying heart disease.

Example of Low Impact Exercises Include:

- 1) Power Walking
- 2) Stationary Bicycling: Recumbent bicycling is preferred over upright bikes as upright bikes can cause strain to the lumbar spine.
- 3) Elliptical or Step Machines
- 4) Water Therapy: Exercises in the water often allow one to be active while minimizing stress on one's back and joints, secondary to the buoyancy of the water which counteracts the effects of gravity on your body. Water therapy often allows patients to perform otherwise painful exercises.

When performing an aerobic exercise you should exercise enough to increase your heart rate to the target zone which is often 20% higher than the baseline heart rate for at least 20-30 minutes. Target zone heart rates can vary widely from one person to another. It is best to start slow especially if you have not exercised regularly prior and work your way up to your target zone and target time over a few weeks. Consult with your doctor to determine the appropriate level of exercise for you.

(STRETCHING & CORE STRENGTHENING) SECTION R

The following sections review some of the principles of physical therapy. Physical therapy can be a very important part of your pain management regimen. Physical therapy itself involves multiple different treatment options, which we will not cover here. We will review a few general stretches and exercises for the lower back and neck. These general recommendations do not apply to everyone, so please consult with your physical therapist to determine a specific program for your particular chronic condition.

Although stretching may be beneficial for many conditions, core strengthening may not be appropriate for some pain conditions. Core strengthening may be difficult for the elder population who may find more benefit from a combination of stretching and aerobic exercises.

Please consult with your doctor and physical therapist before beginning any physical therapy program.

CORE STRENGTHENING

Routine back exercises performed correctly and regularly will go a long way to a healthier back.

Start off slow and be patient and warm up your muscles with aerobics before you start your strength training.

Strengthening exercises should be done about every second day; your muscles need a day off to rest and recover.

STRETCHING

Stretching the muscles and tissues around your spine, pelvis and legs helps keep your spine flexible and limber.

Always use proper stretching technique, which means stretching the muscles only to the point of mild tension. Holding the stretch without bouncing for at least 10-30 seconds, and then let the muscle totally relax. Repeat each stretch 3-4 times and also repeat the whole stretch routine several times a day. Stretching exercises may be done daily but every second day is usually enough.

Warm up your muscles with aerobics before you start your stretch training, and start slow.

IMPORTANT MUSCLES FOR THE LOW BACK

- 1) Primary Core Stabilizers
 - a. Transverse Abdominus
 - b. Multifidus
 - c. Pelvic Floor/Diaphragm Muscles
- 2) Other Muscles
 - a. Quadriceps
 - b. Gastrocnemius
 - c. Soleus
 - d. Hamstrings
 - e. Gluteus Medius

- f. Gluteus Maximus
- g. Rectus Abdominus
- h. Abdominal Obliques
- i. Piriformis
- j. Iliopsoas
- k. Latissimus Dorsi
- l. Quadratus Lumborum

IMPORTANT MUSCLES FOR THE NECK

- 1) Primary Neck Muscles
 - a. Splenius Muscle
 - b. Semispinalis Muscle
 - c. Multifidi Muscles
- 2) Other Muscles
 - a. Levator Scapula
 - b. Rhomboids
 - c. Sternocleidomastoid
 - d. Trapezius
 - e. Scalene Muscles

NECK STRETCHES

1) Cervical Flexion

This stretch is performed by bringing your chin to your chest

2) Cervical Extension

This stretch is performed by looking up at the ceiling

3) Lateral Neck Bend

This stretch is performed by bringing your right ear close to your shoulder and repeating on the left side

4) Rotation of the Neck

This stretch is performed by turning your head to the right as far as possible. Try to touch your chin to your shoulder and repeat on the left side

NECK EXERCISES

The neck exercises involve similar movements as the neck stretches with the addition of resistance.

1) Cervical Flexion

This exercise is performed by placing your hands on your forehead and gently pushing your head into your hands, without allowing movement of the head.

2) Cervical Extension

In this exercise place your hands on the back of the head and gently push the head back into your hand without allowing movement of the head.

3) Lateral Neck Bend

In this exercise place your hand on the side of the head and gently push the head into your hand like when you bring the ear to the shoulder, but without allowing movement of the head.

4) Rotation of the Neck

In this exercise place your hand on the side of the head and gently turn the head into your hand without allowing movement of the head.

LOW BACK STRETCH

1) Lumbar Flexion Stretch

While seated lean forward between your legs with your arms stretched outwards towards the ground until you feel a comfortable stretch. Avoid lumbar flexion from the standing position as it may aggravate low back pain.

2) Lumbar Extension Stretch

Lie on your stomach then prop yourself up on your elbows extending your back. Continue straightening your elbows until a gentle stretch is felt.

3) Lumbar Rotation Stretch

Lie on your back then bring your left knee to your chest and slowly bring the bent leg across your body until you feel a comfortable stretch then repeat for the right side.

4) Lumbar Lateral Flexion Stretch

Place your hands along your sides and then run your left hand directly down the side of the left leg, being sure to bend laterally while avoiding forward bending, until you feel a comfortable stretch in the lateral rib cage region. Repeat on the right side.

5) Pelvic Tilt

Lie on your back with both knees bent and feet flat on the floor. Keep your legs together and cross your arms over your chest. Tilt your pelvis and push your low back to the floor then slowly lift your buttocks off the floor as far as possible without straining until a comfortable stretch is felt.

6) Cat Stretch

Position yourself on your hands and knees on a matt on the floor. Very slowly, raise your head. As you do this, allow your belly to open downward toward the floor, and your back to fall into an arch until you feel a comfortable stretch. Then stretch your spine in the opposite direction by dropping your head. Move your chin toward your chest, while your back rises toward the ceiling, until you feel a comfortable stretch.

7) Hamstring Stretch

Clasp your hands behind the thigh and pull it towards your chest. Keep the opposite leg flat on the floor, until a comfortable stretch is felt and repeat on the other side.

8) Hip Flexor Stretch

Kneel on your right knee; consider using a pad on your kneecap for comfort. Then place your left foot in front of you, bend your knees and place your left hand on your left leg for stability. Then place your right hand on your right hip to keep you from bending at the waist. While keeping your back straight and abdominal muscles tight lean forward shifting more body weight onto your front legs until you feel a comfortable stretch.

9) Piriformis Stretch

Lie on your back. Put your left ankle on your right knee. Keep your head down on the ground. Reach around the right thigh and pull your knee towards you as you push against the left knee with your left hand, until you feel a comfortable stretch. Repeat on other side.

10) Latissimus Dorsi Stretch

Kneel on the floor then lean forwards with the arms outstretched as far as possible and hands on the floor. Push your buttocks down towards your feet keeping your hands still until you feel a comfortable stretch.

11) Iliotibial Band Stretch

Lay on your back and with your hands grasp the outside of the opposite knee. Keeping your back and shoulder flat on the floor and the arms extended for support, gently pull the knee and thigh across to the opposite side of the body until you feel a comfortable stretch along the lateral aspect of the thigh and repeat for opposite side.

12) Calf Stretch (Gastrocnemius & Soleus)

Lean forward against the wall using both your hands for support. Extend the calf to stretch behind the torso while the other leg is placed with the knee bent. To stretch the gastrocnemius, keep the back leg straight and slowly lean towards the wall allowing the front knee to bend until you feel a comfortable stretch in the calf of the rear leg. To stretch the soleus keep the back leg slightly bent and slowly lean towards the wall allowing the front knee to bend until you feel a comfortable stretch in the calf of the rear legs.

LOW BACK EXERCISES

1) Straight Leg Raise

Lie on your back with one leg straight and one knee bent. Then tighten your abdominal muscles to stabilize your low back and slowly lift the leg straight up about 6-10 inches and hold for 5 seconds then slowly lower the leg and repeat for other leg. Do not lift both legs at the same time as this may make your back pain worse.

2) The Bridge

Lie flat on your back with your feet flat on the floor. Bend your knees 90 degrees. Next raise your pelvis off the floor while keeping your abdominal muscles and buttocks tight.

3) Prone Extension

Start in the prone position and place your arms behind your back and keep the pelvis and legs in contact with the floor. Keep your chin tucked and then slowly lift the torso off the floor.

4) Opposite Arm and Leg Extension

Begin on all fours, hands directly under your shoulders and knees directly under your hips. Keep head aligned with spine and keep buttocks and abdomen tight. Do not let your back arch. Lift one arm up and forward until it is level with torso; simultaneously lift the opposite leg in the same manner.

5) Wall Squats

Start with your back against the wall. Slowly bend the knees and allow the back to slide down the wall until the thighs are approximately parallel to the floor. Then, slowly push with the legs to return to the starting position.

6) Scared Cat

Start with hands and knees on floor. Slowly arch the back upwards and tuck the chin by flexing the head forward and tightening the abdominal muscles. Then, lift the head upwards and extend the lower back so that the abdominal section hangs downward.

7) Therapy Ball Balance

Sit on an exercise therapy ball with both feet planted on the floor and arms on the side. Sit tall with good posture, and keep your shoulders square. Your chin should be tucked in. Slowly rock back-and-forth, side-to-side and in circular motions. This is an easy exercise to do while sitting at your desk at work or home.

(Understanding Your Medications) SECTION S

Medication management can often be a big component to ones pain management regimen.

Only you and your doctor together can determine if medications and which medications are appropriate for you to help treat your medical condition.

Medication can be very beneficial, yet they are not without risk and side effects. It is important to only take your medication as prescribed by your doctor and report any side effects you notice.

You should empower yourself by educating yourself not only about your disease but also the medications you take to manage your condition. As a patient you should take it upon yourself to understand the medications you take and the associated side effects, as well as ask questions if you have any concerns or questions.

When it comes to pain management there are a wide variety of medication categories used to treat pain as well as adjuvants that are used including:

NSAIDS, Oral Steroids, Acetaminophen, Short Acting Opioids, Long Acting Opioids, Anticonvulsants, Benzodiazepines, Muscle Relaxants, Antidepressants, Anti-Rheumatics, Migraine Medications, Dopamine Stimulants, Gout Medications, Sleep Aids, Medications to treat side effects such as Constipation, Nausea, or Sedation.

When deciding on medications your doctor will often determine when and during which activities your pain manifest as well as the nature of your pain.

Pain resulting from injury to your nervous system (neuropathic pain) often is treated best with medications that target that particular pain mechanism such as with anticonvulsants and antidepressants.

Acute and inflammatory pain can often be managed with short term anti-inflammatory medications.

Often interventional procedures you might receive to help you manage your pain may include a steroid injection which is a strong anti-inflammatory medication.

Medications that often get a lot of attention in the treatment of pain management are Opioids. The next section will take you through understanding opioid medications as a tool in the treatment of chronic pain as well as safety and abuse issues surrounding opioid therapy.

(OPIOID SAFETY) SECTION T

If appropriate your physician may consider opioid therapy in your treatment plan.

Opioids can be a life changing medication for many patients with chronic pain, if used responsibly. Opioids have great potential to ease pain; however they have equal potential for deadly side effects and misuse.

Opioids, also referred to as narcotics, are pain relieving medications that come from the opium poppy plant. Natural opioids include codeine and morphine.

Opioids work by binding to opioid receptors in the central and peripheral nervous system where they produce analgesic effects by decreasing the perception of pain, decreasing your reaction to pain, and increasing pain tolerance. They do not have an effect on the source of the pain, such as anti-inflammatory medications due to reducing the inflammation that causes pain.

Opioids also bind to other opioid receptors throughout the body producing unwanted side effects such as GI constipation, respiratory depression, and sedation. They also often produce euphoria which is one of the reasons why they can also lead to abuse, misuse and addiction.

Safety is always a big concern when using opioid therapy. Opioids should only be used as prescribed. You should report any side effects to your doctor especially sedation or respiratory depression. Your doctor may recommend that you not drive or operate heavy machinery among other limitations while on opioid therapy. Opioid therapy can also cause cognitive impairment as well thus these medications may not be a viable option for many in the management of their pain.

Two other important conditions associated with opioid medications not often found in other pain medications include dependence and tolerance.

Opioid dependence is a normal physiologic response that occurs with continued use of opioid medications. This is often manifested by withdrawal symptoms if the medication is stopped or reduced abruptly. Opioid dependence can be addressed and withdrawal prevented by gradually tapering off the opioid medication, if the decision is made to no longer use opioid therapy as part of the treatment plan.

Opioid tolerance is also the body's normal response to continued use of the opioid medication. It results in a reduction of the drug's effect over time requiring an increase in medication to achieve the same level of pain relief. Tolerance often develops sooner for respiratory depression and sedation than for analgesia (pain relief), however tolerance to the constipating effects of the opioids never occurs and patients often have to take daily stool softeners.

Some strategies used by pain specialists to overcome or address these issues include drug holidays as well as opioid rotations. The idea of drug holidays is to slowly titrate off your opioid medication and be off opioid medications for a few weeks to months, allowing the opioid receptor to "reset themselves", thus making the medication more effective once they are restarted. The concept behind opioid rotation is to exchange one opioid medication for another. Due to the slight variation between the opioid medications, incomplete cross-tolerance between opioids and intra-individual variations in response, opioid rotation allows one to achieve a better balance between analgesia and side-effects.

Also your doctor will consider adding adjuvant pain medications such as antidepressants and anticonvulsants which can increase the effects of the opioids. These adjuvant medications are often referred to as opioid sparing in the fact that by adding these medications to the treatment

plan one may require less opioids to get the same pain relief. This may decrease the problems of dependence and tolerance or at least prolong their development.

Often more worrisome than dependence and tolerance is opioid addiction. A common myth is that everyone who uses long term opioid medications will eventually develop opioid addiction, which is false. This misconception often is due to lack of understanding of the definition of addiction. Addiction is a chronic disease characterized by persistent drug-seeking and drug-taking behaviors despite the negative consequences associated with it. Drug addiction includes physical as well as psychological dependence. Unlike pure opioid tolerance and dependence (which are normal physiological responses) opioid addiction is a disease that is not a normal response to opioid use.

Often patient with undertreated pain may develop “addiction like” behaviors, unlike true addiction these behaviors are eliminated once the patient receives effective pain treatment. This is referred to as pseudoaddiction, because to the untrained eye it looks like addiction but is rather under treatment of pain.

It is important to know and understand the risk factors to developing addiction when you and your doctor decide if opioid therapy is an appropriate option for your treatment plan. Your doctor will assess you for risk factors and discuss them with you.

(LIVING WITH CHRONIC PAIN) SECTION U

Chronic pain can be difficult to live with and often discouraging. The following steps can help you keep moving forward when it comes to living with chronic pain.

STEP 1: Empower Yourself

Education about pain leads to empowerment. Understand your medical condition and chronic pain problem. Work with and ask your pain specialist questions with regards to your condition and treatment options for your condition. Keep up with the latest in chronic pain news as everyday there are new developments in chronic pain and new treatments options.

STEP 2: Set Goals

With chronic pain often small steps forward can result in greater change and make a bigger difference than trying to make huge leaps and jumps forward. By setting reasonable goals one can move forward to your ultimate goal of a higher quality of life. Good goals can include starting a low impact light exercise routine, and/or visiting family & friend, engaging in daily

responsibilities and rewarding activities despite experiencing mild to moderate pain. Track your pain and physical activities so you and your doctor can better understand and determine areas that need improvement.

STEP 3: Pace Yourself

Take things one step at a time. Rather than over doing yourself in activities, choose activities that are reasonable and add small amounts of rest periods between activities, so that at the end of the day your pain isn't worse than when you started.

STEP 4: Healthy Relationships

Having a strong support network can make a big difference when it comes to living with pain. Maintain a healthy relationship with family and friends through strong bonds and good communications.

STEP 5: Healthy Balance in Life

Maintain a healthy balance in life which includes medical, emotional, social, spiritual, psychological, nutritional and physical health. Seek out laughter, joy, love and peace in your life.

STEP 6: Manage Stress

Often we experience significant stressors in our lives that are unrelated to ones chronic pain condition, however these stressors tend to have a large impact on ones chronic pain. Do not ignore these stressors, rather address them. Managing the stress in your life will aid to the improved quality of your life with regards to living with your chronic medical condition. Relaxation techniques, massages and biofeedback can often be helpful here. Awareness of stress is helpful, for example, note or track thoughts, feelings, and activities that tend to exacerbate both emotional and physical stress or pain. This can be done in a pain diary, or on a simple piece of paper. Awareness of stress and stress triggers, allows you to make changes in your daily life to reduce such identified stressors, therefore (or with the goal in mind of) reducing your physical and emotional.

STEP 7: Attitude Makes a Difference

Be Optimistic! This may be the most difficult of the steps as depression and negative thoughts often overwhelm one who suffers from chronic pain. However, you much look at the glass half full and not half empty. Distraction, continuing to engage in valued activities despite pain, creating a life and identity separate from the pain, can often be used to take focus away from negative thoughts and feelings with regards to your chronic condition. Pain may make one feel helpless or "out of control", one's attitude is something that someone always has personal control over, regardless of how severe their pain or physical handicaps are. So attitude can also contribute to empowerment.

STEP 8: Acceptance

An important step in moving forward is to accept your medical condition rather than denying you have a problem. Acceptance does not mean blame and is not an act of losing hope or giving up. Rather it is an acceptance of a chronic problem and the understanding that you have the right to be treated with humanity and respect. Through acceptance one actually gains more control over his/her life through letting go of constantly fighting against one's pain, trying to control it, or change it. Acceptance is a continuous process and it takes time and consistent effort to truly work toward acceptance of one's condition. Some days you may feel more willing to accept your pain than other days, this is normal and that is okay. The goal is to continually work toward an accepting attitude about yourself and your pain condition.

STEP 9: Avoid Feeling Guilty, Self Blame, or Hopelessness

Do not blame yourself or feel guilty with regards to having a chronic problem. You will never be able to move forward if you paralyze yourself with guilt, self-blame or hopelessness.

STEP 10: Be Proactive

Try to be as functional as possible. If your pain doesn't allow you to do your current job, look to work in jobs that are accommodating to your limitations and medical condition. Consider volunteer work as helping other human beings and animals can bring great self reward and a higher quality of life.

STEP 11: Health Lifestyle

Maintain balance in your life with regards to exercise, diet and sleep. Minimize smoking and alcohol as well. These topics are covered in more detail further in the tutorial.

STEP 12: Share

Reach out to others and share your story. Not only will this help you, but you will also be able to help others. Support groups can often be very valuable.

(Your Pain Specialist and You) SECTION V

In the past most patients in chronic pain were managed by primary care providers. As our understanding of chronic pain increased and the development of new treatment and management options arose, more physicians emerged that specialized solely in the management of pain.

These new relationship dynamic between the patient, the primary care provider and pain specialist has changed how we treat chronic pain in the 21th century.

Management of chronic pain has taken a multidisciplinary and multi-treatment approach with regards to chronic pain management.

The relationship you develop between yourself and your pain specialist is a very valuable relationship to the success in the management of your pain.

If you do not already see a pain specialist, it is important for you to discuss with your primary care physician if having a pain specialist as part of your treatment team is a reasonable next step.

CONCLUSION SECTION W

Thank you for taking the time to finish this tutorial. When I created this tutorial I tried to address all the issues that my own pain patients repeatedly asked, as well as the issues and topics that we all should be mindful of when living with chronic pain. This tutorial would not be possible without the generous input from the faculty at the UCSD Center for Pain Medicine in La Jolla, CA and at Coastal Pain & Spinal Diagnostics in Carlsbad, CA. Also special thanks to Dr. Erin Grimes in the Department of Psychology in La Jolla, CA for all her help. Please send me your feedback and if I can be of help in any way please feel free to contact me.

Sincerely,

“Dr. Yogi”

Dr. Yogesh V. Patel