Pain Medications

The purpose of this page is to give a brief introduction to the various classifications of pain medications, along with a synopsis of some of the more common medications.

What you should know about pain medications-before you start

- Every physician has different preferences for medications based on personal experience. In fact, a basic premise taught in medical school is that when confronted with many medications of the same basic type, a physician should learn all he can about one or two so as to be aware of all effects, interactions, costs and potential problems with those medications.

- Anesthesiologists are some of the most knowledgeable physicians when it comes to the effects and interactions of medications on the body- they see it every day in the operating room as they constantly monitor drug interactions and blood pressure, pulse and pain levels.

- There is no single pain drug that works for all people in all situations. Pain drugs need to be tailored to each individual's particular pain problem. The good effects of the drug must be weighed against bad side effects.

- Less is more. At Newport Pain Management we strive to keep you on the minimal amount of medications to achieve the most pain relief.

- By law, generic drugs must contain the same main ingredient as name brands. They are allowed to differ in inert fillers and dyes however. This can change the absorption of the drug in the stomach (from the fillers), or change allergic risk (from the dyes primarily). In general, for pain medication, generics cost less and work just as well.

- If you have pain 24 hours a day, it is best to take medications on a regular schedule to keep a constant amount of drug circulating around the body. Usually a physician will try to use long acting

medications so you don't have to remember to take medications as often.

- Even a natural substance is a chemical. A chemical is a chemical whether made by nature or in a test tube. The public often believes that natural or homeopathic medications are somehow better. The simple truth is that natural substances are usually so weak in concentration that they have little good or bad effect on severe pain problems. They can be useful for mild problems or when used to reduce the dose of prescription medications. Be aware that Health store substances are unregulated for manufacturing quality, so the dose in each pill may be very inconsistent. Many people don't remember when L-tryptophan was the rage in health stores, but was found to be the cause of several deaths, in large part to manufacturing irregularities.

- The use of medications for pain control is usually downplayed by those who lack the license or knowledge to use them properly. It is interesting that people trust health advice from a health store counter clerk who likely struggled to pass high school biology, and makes a commission on sales of 'natural' remedies to you. The bottom line is that you should ask your physician for advice regarding these remedies. If he/she lacks sufficient knowledge, then find a new doctor.

Main Categories of Pain Medications

Pain medications fall into 6 general categories.

- Anti-inflammatories and Acetaminophen.
- Antidepressants
- Anticonvulsants
- Opiods (narcotics)
- Adjuvant Analgesics
- Headache Medications

Anti-Inflammatories and Acetaminophen

These medications form the base of what is known as the pain pyramid. This is a concept endorsed by most pain physicians, in which layers of medications are added until pain relief is achieved. Anti-inflammatories are generally the first pain medication given, as

they are relatively safe and can be inexpensive. The drugs are not addictive, and the body doesn't 'get used to them'. Most of the anti-inflammatories have their effect quickly- they don't need time to 'build up'. All these medications have a 'ceiling effect' for pain control. In other words they only work up to a point for pain. However, except for Acetaminophen (Tylenol®), they all work to decrease swelling in the body. This is helpful in actually treating many forms of pain. Some people are worried that if they take pain medications, they will cover up the pain and over do it, thereby causing more injury. In general, these medications will not cover up severe injury and are safe to use during sporting events with the approval of your Doctor.

Acetaminophen- (Better known as Tylenol). What sets acetaminophen apart is that unlike aspirin or NSAIDs, it is not an anti-inflammatory, but it does not cause the stomach or bleeding problems they can. It works for many types of pain to a point. Also is a drug that is frequently combined with other pain medications, such as in Vicodin®, to give better pain relief. Can cause liver problems, especially if taken with alcohol.

Aspirin- (salicylates) An anti-inflammatory that works for most types of pain to a point. Can be very effective in rheumatoid arthritis. A single dose can cause the body's blood clotting platelets to not work for 8-10 days. This is why it may prevent heart attacks, and why it should be stopped two weeks before surgery. It can cause asthma attacks in sensitive individuals, and cause stomach problems such as bleeding, or ulceration if taken frequently. Other salicylates include **Diflusinal** (Dolobid®) and **choline magnesium** (Trilisate®)

NSAIDs- There are many drugs classified as **N**on**S**teroidal **A**nti-**I**nflammatory **D**rugs or **NSAIDs.** These are very effective pain medications. There are so many on the market because some patients may respond better to one or another. A doctor usually starts with the one he is most familiar with, and if the patient finds it is not effective it is quickly stopped and another brand started until the one that works best is found.

Possible Adverse Effects- As a group they cause similar problems to those caused by aspirin. They can cause bleeding by effecting the platelets, but generally only while the drug is in the

system. The risk of gastrointestinal bleeding, ulceration and perforation is present, with risk increasing as you get older or drink more alcohol. A sub-class of NSAID's known as COX-2 inhibitors have less risk of gastrointestinal bleeding. All NSAID's can effect the kidneys, especially as you get older or have heart failure.

Common NSAID's- celecoxib (Celebrex®), Etodolac (*Lodine*®), Ibuprofen (*Motrin*®), Naproxen (*Naprosyn®, Aleve*®), Nabumetone (*Relafen*®), Oxaprozin (*Daypro*®), Ketorlac (*Toradol*®), and Diclofenac (*Voltaren®, Cataflam®, Arthrotec*®).

Antidepressants

It may seem strange that antidepressants are useful in treating pain. The fact of the matter is that antidepressants work to increase certain chemicals in the brain itself, chemicals that are known to help the brain block pain. Thus antidepressants can be thought of as pain blockers. The most common chemical antidepressant effect is on *serotonin*. This molecule also plays a role in depression, sleep and appetite among others. As a general rule, these medications tend to help if the pain is burning or aching in nature. They are very useful in treating problems such as myofascial pain or fibromyalgia. None of these drugs are addictive in nature, and most can be stopped without needing a slow weaning program. It is important to keep in mind that the beneficial pain effects may not be seen for up to 4 weeks after starting these medications. There are many types of antidepressants used for pain control, but most fall within 3 major groups, plus some isolated others.

Tricyclic Antidepressants (TCAs)

This class of medications was first introduced in the 1950's, and thus medical science has a good deal of knowledge about them. In pain management, the most studied drug in this class is **amitriptyline** (Elavil®). In general, the TCAs cause sleepiness, so they are best taken at night. Since many people with pain can't sleep well at night, the drowsiness caused by these medications is beneficial. They can also decrease acid production in the stomach, which again can be a good thing. On the downside, they can cause dizziness, a dry mouth, a hung over feeling, and in some instances a rapid heart rate. Some studies put their effectiveness in reducing pain at over 80%. Elavil®

may be particularly useful at decreasing pain associated with shingles. The sooner it is started after the outbreak of shingles, the better it works. Other drugs in this class include doxepin (Sinequan®), imipramine (Tofranil®), nortriptyline (Pamelor®), and desipramine (Norpramin®)

Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs)
The first of the medications was venlafaxine (Effexor®), but the most common of these medications is **duloxetine** (Cymbalta®) introduced in 2004. They lack many of the side effects of the tricyclic antidepressants, but are known to cause nausea and increase blood pressure. SNRI's are effective in treating sharp pain such as in shingles. Other drugs in this class include Other drugs in this class include milnacipran (Savella®), and desvenlafaxine (Pristiq®).

Selective Serotonin Reuptake Inhibitors (SSRIs)
The first of these medications **fluoxetine** (Prozac®) was introduced in 1987. They lack many of the side effects of the tricyclic antidepressants, but are known to cause nausea, anorexia, diarrhea, sleep disturbances and sexual dysfunction such as delayed ejaculation or inability to have orgasm. Tremors are rare. Because they are a relatively new drug class, SSRIs are less well established in terms of pain control. Other drugs in this class include **paroxetine** (Paxil®), and **sertraline** (Zoloft®).

5HT2 Antagonists and Serotonin Reuptake blockers
These medications tend to be strong sleep enhancers, but don't cause a dry mouth like the TCAs. They can also cause dizziness. The two commonly prescribed drugs in this class are **nefazodone** (Serzone®) and **trazodone** (Desyrel®).

Other Medications
There are several other medications worth mentioning. The first is **bupropion** (Wellbutrin®). This medication has few side effects, and generally no sexual side effects. It is best used in people who have a Parkinson's, but may not be the best choice in epileptics. It has had a recent surge in popularity as an aid to stop smoking. It comes in a sustained release form, better known as Zyban®. As smoking has been shown to be linked to chronic pain, it is a good choice to help stop smoking and control pain at the same time. The other

medication of note is **venlafaxine** (Effexor®). It can cause the blood pressure to go up in some people, but in general has few side effects. Again, it is relatively new and is not well studied in terms of pain control.

Anticonvulsant Medications

These medications have been used to control pain since the 1940's. Typically they work best for pain that is sharp or stabbing in nature, such as with trigeminal neuralgia, neuromas, or pinched nerves. Some, such as **valproex sodium** (Depakote®) are used to prevent headaches. The various anticonvulsant medications work on different molecules known as neurotransmitters in the brain, spinal cord, or nerves themselves. The end result is that the intensity or frequency of sharp pain can be frequently reduced with these medications. The oldest of these medications are **phenytoin** (Dilantin®), **carbamazepine** (Tegretol®) and **clonazepam** (Klonopin®). They all can cause changes in memory and mental processing. Other anticonvulsant agents such as **gabapentin** (Neurontin®, Gralise®), pregabalin (Lyrica®), **tiagabine** (Gabatril®), **topiramate** (Topamax®), **oxcarbazepine** (Trileptal®) and others may have less side effects, and may not need frequent blood levels drawn to check how the drug is taken up into the body.

Opiods (Narcotics)

As a class these are the most effective pain medications in the world. However, they are also the most controversial, as they can cause addiction or death. Because of the severe consequences of misuse, these medications are highly regulated by the DEA and state medical boards, and if dispensed inappropriately, can cost a physician his livelihood.

There is little controversy over use of narcotic drugs such as morphine, codeine, methadone, Dilaudid, or fentanyl in patients suffering from pain due to cancer. There is firm data to support the fact that good pain control by use of narcotics prolongs both the cancer patient's quality of life, and length of life. In other words, when it comes to cancer, good pain control can translate into a longer life. The price to be paid with narcotics lies in their side effects, such as sleepiness, mental confusion, constipation, and itchiness. Thus a

good physician will attempt to limit these side effects by giving supplemental (adjuvant) medications in order to lower the narcotic dose.

If needed however, it is important to know that some narcotics have no ceiling effect, that is, as long as there are tolerable side-effects, the dose and effect can be increased. This must be done extremely carefully, as narcotics can slow down breathing, and cause death if used improperly.

Another important concept is that for chronic pain, it is usually better to take the medication by the clock, rather than waiting for severe pain to return. This may actually allow less medication to be taken in the long run.

Addiction-Dependence-Tolerance: What are they? Many patients refrain from using narcotic medications for fear they will become a 'druggie', addicted to narcotics. The plain statistical fact is that in people who truly have pain, the risk of addiction to narcotics is thought to be as low as 1 out of a 100. Addiction may be seen as a persistent pattern of behavior when the drug is taken for reasons other than pain. This should not be confused with the term dependence, which basically means that the drug changes the body chemistry, so if the drug is stopped, the body will react. This is why narcotic users must slowly stop the drug with a process known as weaning. This reduces the effects of withdrawing from the medications. Typical withdrawal symptoms are nervousness, sweating, shaking, and nausea. A skilled physician can wean someone from narcotics in a week, using medications to counter the effects of withdrawal. There are in hospital techniques such as withdrawal under anesthesia that can work in a day. The last factor to consider when using narcotics is tolerance. This is the phenomenon where a person gets used to the effects of the drug, and thus needs more and more of it to get the same effect. Usually the first thing noticed is that the drug isn't lasting as long as before, then that it doesn't work as well. In my experience, this happens to almost everyone who takes narcotics for a long period of time. There are ways to limit this. One way is use low drug doses and add other pain medications. Another way is to substitute different classes of

narcotics for each other as tolerance develops. The next is to stop the narcotics for a period of time in what is known as a 'drug holiday'. This allows your body to chemically get back to normal, and when the drug is restarted, it will have a much stronger effect.

Besides cancer, when can narcotics be used for pain? Every physician will have a different answer to this question. In general, besides cancer, narcotics are the drug of choice for pain immediately following surgery or a severe injury. The issue is less straightforward when it comes to chronic pain. A good rule is that if the patient understands the risks of taking the medications, such as addiction dependence and tolerance, as well as the benefits of the drug, and is aware of alternative choices, he/she may be placed on the medication. That person will need to be followed by the doctor on a regular basis to confirm the drug is actually beneficial. Within the medical community, you will find that, the younger the patient, the less willing a physician will be to prescribe medications that will cause dependence.

Are some narcotics better than others? The simple answer is yes. For patients with pain 24 hours a day, it makes sense to take a long acting pain medication. Long acting medications need to be taken one to three times a day only. This would include medications such as **methadone, levorphanol, OxyContin®**, or extended release forms of morphine such as **MSContin®, Kadian®, or Oramorph SR®. Fentanyl** (Duragesic®) is a short-acting medication that comes in many forms, including a patch that can continually provide pain relief.

Short acting medications, that is medications lasting no more than 6 hours, are generally best used for pain that is not expected to be persistent, such as after surgery or an injury. They are also useful when used in addition to long acting medications, to eliminate the pain that the long acting medications don't cover. For example, the long acting medication may work well except when the person does a certain activity. The short acting narcotic would be used then to cover the pain created by this short lasting activity. Common short acting medications are **morphine (MSIR), Vicodin®, Percocet®, Darvon®, Darvocet®, hydromorphone**(Dilaudid®) and **Codeine**

(Tylenol #3®). **Fentanyl** comes in a lollypop for children who may not like pills.

Demerol is a narcotic that beats to a different drummer. It is generally not used outside the emergency room in the treatment of chronic pain as it has many potential serious interactions with other medications, and at high doses causes seizures. It is one of the most frequently abused medications available.

Tramadol (Ultram®) is an interesting opiod related drug. It acts in many ways like an opiod, but reportedly has less (but not zero) risk of dependence. It is quickly becoming a standard in the treatment of moderate to moderately severe pain. It does carry the risk of seizures, and this risk may be increased in people also taking antidepressants. **Ultracet®** is a version of tramadol combined with acetaminophen. The combination lasts longer and appears to have less side effects than tramadol alone.

Dextomethorphan is a levorphanol derivative that is used in cough syrup. It has a unique property in that it is an NMDA receptor antagonist. This means it has theoretical pain killing properties in certain condition where the skin is sensitive to touch, as in shingles. Practical experience has shown it less beneficial than hoped.

Another type of narcotic are those known as partial agonists, and mixed agonists/antagonists. What makes these different is that they do have a ceiling effect on pain, that is they work only to a point. They are not typically used much in the treatment of chronic pain. One exception is the use these in treating migraine headaches. The most common choice being **buporphanol** (Stadol®) nasal spray. While it can be effective, drug dependence and abuse have become a serious problem with its use.

Adjuvant Medications

Often one of the key differences between Doctors who specialize in pain management and those who don't is knowledge and use of medications used to supplement those medications listed above. These medications focus on one aspect of a problem, and can

reduce the dose used of other medications. They can also be used to minimize or counteract side effects of the primary pain medication.

Sleep Medications

These are known collectively as *hypnotics*. There are four prescription medications favored for use in chronic pain. These are **clonazepam** (Klonopin®), **diphenhydramine** (Benadryl®), **chloral hydrate**, and **zolpidem** (Ambien®). Each has its own distinct advantages and disadvantages. As pain often causes poor sleep, and poor sleep causes more pain, getting adequate rest is important. It is even more important to get the right kind of sleep. There are several distinct types of sleep. These have been established by studying the electrical activity of the brain during sleep. Research in pain management has shown that dreaming sleep (known as *REM* for rapid eye movement sleep) is important in helping reduce pain. Certain sleep medications are known to help you close your eyes, but may change or effect the various sleep stages differently. This is one of the reasons medications like Valium® are not typically used in pain management. Klonopin® mentioned above, is in the same class as Valium® but carries other unique properties that make it useful. One other important consideration in choosing sleep medications is the fact that dependence and/or tolerance can develop with some. Ambien appears to be beneficial in this regard.

Psychostimulants

Sometimes the problem is too much sleep. This can be seen in people who take narcotics for pain control. The most common stimulant in the world is caffeine. **Caffeine** may also enhance the effect of aspirin, acetaminophen or ibuprofen when used in combination for treating headaches. For treating severe drowsiness due to medications, **methylphenidate** (Ritalin®), or **dextroamphetamine** (Dexidrin®) can be useful.

Corticosteroids

Because they are powerful anti-inflammatories, corticosteroids can be powerful pain relievers. They can be taken by mouth or be injected in combination with numbing medicine during a nerve block, epidural, or trigger point injection. If taken by pill, typically the medication is given as a ‘dose-pack’. Dose-packs are a set amount and frequency of the drug in which a large dose is given at first followed by a

decreasing dose of the drug toward the end. The purpose of this is to minimize side effects that may occur from abruptly stopping the medications. Corticosteroids are produced by the body in the adrenal glands. When given artificially, sensors in the body can tell the adrenal gland to stop making its usual amount of corticosteroids. Then when the drug is stopped, the body may not be able to start up the adrenal production of corticosteroid very quickly. In fact, it can take months or more to restart normal production. This depends on the brand, dose and duration of time the person took corticosteroids. In the short term, corticosteroids can increase blood sugar levels in diabetics, or cause water retention in women. In the long term, corticosteroids can cause weakening of the immune system, make bones and ligaments weaker, change your appearance to have a more rounded face and more fat in the upper back, and cause stomach problems, just to name a few. As you can see, these medications need to be handled with care. This is also why limits are set on how many corticosteroid injections can be done for pain.

Muscle Relaxants

Almost everyone with persistent low back pain has been placed on a muscle relaxant of one type or another. This is because studies have shown muscle relaxants tend to be effective in the short run, such as when back pain first occurs, but have little success in the long run. Exceptions to this rule may include **cyclobenzaprine** (Flexeril®). This is a drug that has a chemical structure similar to a tricyclic antidepressant, and has similar side effects such as dry mouth. It has an extremely long half-life of three days, thus it can take almost two weeks to get it out of the system when stopped. The other exception is **baclofen** (Lioresal®), which can actually reduce muscle spasm. This makes it useful for fibromyalgia or myofascial pain. The single best use of baclofen is in spinal cord injured people who suffer from severe pain due to spasticity or cramping of the muscles. Often the drug side effects of tiredness or drowsiness can be limited if administered directly to the spinal fluid by an implanted pump. **Tizanidine** (Zanaflex®) has also been effective for spasticity as well as headaches.

Topical Drugs

There are literally hundreds of different creams, balms and lotions available over the counter for pain relief. I will focus on the few that work the best at Newport Pain Management.

EMLA® cream (lidocaine 2.5% and prilocaine 2.5%) is a prescription drug, designed to numb the skin down to the fat. It is used in hospitals to put on the hand of children or nervous adults to numb the area where the IV needle will be placed. It can also be used effectively to treat pain such as herpes zoster, better known as shingles. Apply it thick enough so you cannot see through it and put plastic wrap over the area to keep your clothes clan and the cream from getting crusty.

Another good topical cream is **capsaicin (Zostrix®)**. This cream actively works to reduce the amount of a molecule thought to cause pain known as 'substance P'. Interestingly, it is derived from the chile pepper plant. It has been found to be useful in treating arthritis pain among others. Results with the cream aren't usually seen until it is used for a month, and it should be applied to the painful area 4 times a day. Wear gloves when using it, and wash your hand well, as it can burn your eyes if you rub them after applying the cream.

Lidocaine (Lidoderm® patch) is a numbing medicine that comes impregnated into a decal that can be applied directly to the skin. It can be very effective for shingles.

Sometimes mouth pain can be intolerable, especially if associated with chemotherapy. An old solution that works well is the **Magic swizzle.** It is a mixture of lidocaine, Maalox® and Benadryl® that numbs the inside of the mouth.

Interstitial cystitis is a condition associated with frequent urination and bladder pain. Local anesthetics such as **lidocaine** or **DMSO** be placed into the bladder for pain control. One oral medication for treatment is **Pentosan**, a type of blood thinner.

Local Anesthetics

Local anesthetics are medications like novocaine, drugs that when injected numb nerves. Used properly, they are extremely safe, with allergic reactions extremely rare. If allergic reaction does occur it is generally to the preservative in with the medication rather than the medication itself. A common scenario is that people say they had an injection at a dental office and their blood pressure went up or they got nervous and shaky. This is usually due to a substance known as

epinephrine, which is added to reduce bleeding and lengthen the time the anesthetic works. The dentist inadvertently injected the substance into the blood vessel in the mouth, and the effect is immediate. Instead of admitting an inadvertent injection, the effect is written off as a "bad reaction". The most common local anesthetics used today are **lidocaine, bupivacaine, chloroprocaine**, and the up and coming **ropivacaine**. Novocaine isn't really used anymore. When injected these medications can last from minutes to hours. Each has distinct advantages and disadvantages.

Mexiletine (Mexitil®) is a pill form of lidocaine. It can be effective when all else fails in the treatment of difficult pain problems, including fibromyalgia. Because it is a heart medication as well, mexiletine is usually started after an IV trial of the drug is given under controlled conditions where the heart can be monitored.

Bone Medications

A very common form of pain is from small fractures in the bone, which may be related to cancer, drug therapy such as taking corticosteroids over the long term, or from severe osteoporosis. Often pain can be reduced by adding a medication to help make the bones stronger. The best known of these is **calcitonin** (Miacalcin®). This is a hormone which helps the body add calcium to bones. **Pamidronate** (Aredia®) is one of several other medications which also helps build bone. Unfortunately, pamidronate is taken by IV injection only.

For bone pain due to direct invasion of tumor into the bone, **strontium-90** can be effective in reducing pain. It has major side effects and limitations. Its use should be directed by your oncologist in conjunction with a pain specialist.

Drugs acting on the sympathetic nervous system

There are a group of painful conditions lumped under the category of *sympathetically maintained pain* that need special drugs for treatment. The most common condition in this category is best known as **RSD** –**R**eflex **S**ympathetic **D**ystrophy, or the newer term **CRPS type I** (Complex Regional Pain Syndrome). Symptoms include burning, aching pain initially localized then spreading, as well as intense sensitivity to cold in the painful area and intense pain with even the lightest touch to the skin. Drugs such as **clonidine** (Catapres®) and **phenoxybenzamine** (Dibenzyline®) act to block the sympathetic nervous system, and thus can decrease pain.

Marijuana, Herbs and Health Supplements

In California, voter initiated legislation has made it legal for physicians to grow and prescribe **marijuana** for chronic pain. It is still not legal for physicians to prescribe it on a federal level. It is not well known however, that **dronabinol** (Marinol®) a pill form of the active ingredient of marijuana THC, has existed for years, and in general has not met with much success. Marijuana use has not been well studied as yet for treating chronic pain not due to life threatening cancer. Many physicians would rather not put their medical license in jeopardy by prescribing a drug without hard data to support its use. One of the potential benefits of marijuana besides pain relief in cancer patients is the fact that it can increase appetite.

Melatonin is a hormone involved in regulation of sleep. Available in health stores, studies have found it effective in treating jet lag and mild insomnia. It has not been shown to be effective in treating depression or pain.

DHEA is a hormone that is related to testosterone. Its production in the body peaks while you are in your 30's and declines 2% per year thereafter. When in your 80's, you are left with 10-20% of your peak amount. While human studies are lacking, rat studies show that the hormone inhibits GABA, and potentiates NMDA, two molecules involved in pain perception. Thus it may be found to have benefit in the future. It follows that because of its relationship to testosterone, it will prove to have the same drawbacks as testosterone if taken in excessive amounts, ie causing male hair growth in women, and increasing prostate cancer risk in men to name a few. DHEA has been used in treating fibromyalgia with little proven effect as yet.

Kava is a pepper plant relative that grows wild in Fiji and the surrounding islands. It is also now cultivated in Australia and India. The natives drink it in tea form to relax. It has an interesting side effect of numbing the mouth. Thus besides helping sleep it may have pain relieving abilities similar to capsaicin, which also comes from a type of pepper plant. No studies have been done for pain use, but it bears watching.

Phytodolor® is a combination of *fraxius excelsior (Ash), Populus tremula (Poplar)* and *Solidago vigaurea*(Golden Rod) and has been used for rheumatism in Germany. Studies indicate it has

anti-inflammatory and anti-oxidative properties, and may be effective for treatment of mild to moderate arthritic pain.

St. John's Wort is an herb from the European continent. It has been shown to have mild antidepressant attributes, and thus may be beneficial for chronic pain (see section on antidepressants). Some also feel it has potential benefits for use in treatment of monthly PMS in women. No direct studies on this or other pain uses have been published however.

Salix (white willow) bark has been used for over 2000 years to treat rhematoid arthritis. It is changed in the body to salicylic acid, which is an antiinflammatory drug along the lines of aspirin. Studies have not shown any bleeding problems with salix to date. Some Doctors recommend it for use in rheumatoid arthritis before stronger drugs are tried.

Other plant extracts that appear to have promise are **Harpagophytum procumbens or Harpagophytum zeyheri (Devils Claw)**. It is from South Africa and recommended in Germany for arthritis and low back pain. **Urtica dioica (Nettle)** grows in the Alps and some parts of Asia and North America. It contains several substances with antirheumatic properties. Side effects appear to be minor, however dose and optimal preparation have yet to be established.

Minerals such as **magnesium** may be beneficial for fibromyalgia, and **calcium** for PMS in women. Data is not clearly established and accepted as yet however.

Headache Medications

Medications for headaches can be grouped into three basic types.

1. Preventative medications to keep the headache from starting.
2. Pain or Analgesic medications.
3. Abortive medications, that is medications that work to stop headaches, but aren't typically thought of as pain medications.

Typically a person who suffers from headaches will take a regular preventative medication, and have a combination of pain and abortive medications at his/her disposal for when a headache occurs.

Preventative medications include:

These medications are given to keep the headache from even starting. Thus they can reduce the frequency or number of attacks

that occur. They may do little to help the attack once it is started. Some of them may act by making the blood vessels within the brain less reactive to headache triggers.

- Beta blockers of which Inderal is the most used.
- Calcium channel blockers like Verapamil
- Alpha agonists like clonidine
- Sansert
- Periactin
- Nonsteroidal anti-inflammatories
- Antidepressants notably Elavil®
- Anticonvulsants such as Depakote
- Lithium

Analgesic medications:
These can be thought of as medications that take away pain once it is there. These have been talked about in other sections. The include: Demerol, Aspirin and caffeine, Fiorinal®, Codeine and similar medications. Usually these are given with medications to reduce nausea.

Abortive therapy
These medications are not pain medications in the sense they do not act to block many types of pain besides headaches, as the analgesics can as listed above. These abortive medications can be very effective in stopping headache type pain however. They do not reduce the frequency or number of attacks however. They are best used in the prodromal stage of a headache or as soon as possible after the onset of the headache. After taking the medications, help them work by finding a quiet, low light area to relax.

- Inhalation of 10% carbon dioxide (CO_2)
- Amyl nitrate
- Sublingual nifedipine
- Ergotamine
- Dihydroergotamine
- DHE-45
- Midrin®
- Sumatriptan (Imitrex®), Zolmitriptan (Zomig®),Rizitriptan (Rizalt®)
- Phenothiazines (Compazine®)
- Nonsteroidal anti-inflammatories (Toradol®)

- Steroids (methlprednisolone)

Sumatriptan (Imitrex®) and its many cousins warrant special mention. They are medications known as 5HT-1 (Serotonin) agonists that have been shown to be very effective in the treatment of migraine headaches. Imitrex is thought to bind directly to receptors in the vasculature around the brain. It can also change the diameter of blood vessels around the heart. It is important to know when you should not take this class of medications. This includes people who have risk factors for heart disease such as in smokers, diabetics, people with high blood pressure, family history of heart problems or people who have a diagnosis of existing heart problems such as chest pain or coronary artery disease. The drugs should not be taken within 24 hours of taking an Ergot such as **Ergotamine** (Wigraine®) or **Dihydroergotamine** (Migranol®) as they can prolong the drug's effect on the blood vessels. They should be used with caution if you are taking Prozac®, Paxil® or Zoloft®, are pregnant, or have liver problems.

Botulinum toxin (Botox® or Myoblock®) is an injectable drug that temporarily paralyzes the muscle it is injected into. The effect wears off in 2-4 months, but can be effective for migraine headache control. It has not been shown to be very effective for fibromyalgia.