What to expect in more detail

Before Treatment: The Examination Process

When you are brought back to the examination room, Dr. Reeves will enter to take notes on your medical history. First, he will start with a history of your pain. He will ask about when your difficulties first began, so be prepared to tell him the sequence of what came first. He will ask about what diagnoses have been given, what types of specialists you have seen, and what testing has been done. If there are MRI scans, X-Rays, or other special testing, he will want to read a report, so if possible, bring a copy of the report when you are seen. His expertise is in reading ultrasound images, not MRIs or CTs, so bringing in the disc are not as helpful as a copy of the reports. We can typically call for reports while you are in if you can't find the reports.

Be aware history is comprehensive. This is not like a high-traffic general practitioner's office in which you must mention only one area of concern at a time. Instead, *every area of pain should be mentioned* so that examination can include everything. Even if only one area is treated, body areas are quite interrelated and better histories lead to more accurate treatment. Don't hesitate to mention other alternative approaches. We will ask about dietary sensitivities, food intolerance, and if you have been tested for other conditions which can cause chronic pain. A functional medicine specialist can be very helpful to evaluate for those conditions as well, and this will be determined based on your history.

Next is the brief survey examination. This typically consists of a general examination of the related sections of your nervous system, muscles, and joints. This is brief, but covers many areas. There are general findings that will sometimes be important for the specific problem for which you are being seen. Then you will be asked to put on a gown, still wearing your underclothing, for an examination related to the specific regions of the body that hurt.

Following that, the specific source(s) of every pain will be identified. One by one, specific examination techniques will be applied to "zero in" on those sources. The two methods of examination that perhaps will be the most unusual for you will be the *nerve examination* and *ultrasound examination*. The nerve examination utilizes manual (finger) pressure which is light and with just one finger over precise areas where small sensory nerves penetrate muscle and can contribute to pain. This is actually very common, and when they are found, the opposite area (other side of your body) will be checked to confirm any abnormal finding. Often you will be shown the atlas that shows where the nerve penetration areas are, as they are common patient to patient. The ultrasound examination uses the same sound waves used to see babies in the womb. High-quality ultrasound shows details of ligaments, tendons, and nerves in a way that is often better or different than MRI scans are capable of. Another advantage is that ultrasound allows your joints and other structures to be examined while in motion, which can provide even more information.

After the examination, a "map" of findings is made. If you are treated, this map will be re-checked at your next follow-up appointment.

<u>During Treatment</u>: How We Treat

Here are some pointers which will help you be prepared for your prolotherapy treatment...

1. It is best to use the restroom facilities before entering the room, as the treatment is meticulous and can last a while. However, you will have other opportunities as needed of course, including just before and during treatment

2. The areas to treat will be marked with a marker. Prior to your departure, these marks will be lightened using 91% alcohol, but there may be some marks that remain a few days.

3. Based on the number of treatable areas and their depth, we decide how to make the treatment as comfortable as possible. Our goal is to make treatment no more uncomfortable than the earlier examination was. Over 27 years we have developed and are teaching ways to minimize treatment discomfort. The primary ways we do this is by use of: a) Oral pain medication, b) Medications to gently and effectively prevent nausea from pain medication, c) Use of anesthetic cream application to your skin before treatment (you start before you arrive typically), d) Application of small anesthetic bumps on your skin with an acupuncture sized needle, e) Deeper anesthetic injection one the spot is numbed, f) The use of as small needles as possible, g) Injection of fluid as the needle enters, which pushes little nerves and sensitive structures out of the way, and h) The use of ultrasound to guide the needle gently to the structure to instill the fluid without firmly touching deeper structures.

4. Several different areas of your body may benefit from treatment...

> **A.** <u>Superficial nerve penetrator locations</u>. This is where sensory nerves are diving down through holes in membranous layers called *fascia*, which line our muscles. Nerves can become irritated at those locations, and will produce pain chemicals (substance P included) that cause pain, and other chemicals (CGRP and nitric oxide) that can cause degenerative change and irritation of nearby joints, ligaments, and tendons. Injections here employ a small needle, delivering a 12.5% dextrose solution just under the skin. Dextrose helps with the healing of all soft tissue, which includes ligaments, tendons, and nerves. For more information on why superficial nerve penetrators are treated, see the article on the introduction page on how treatment works.
>
> **B.** <u>Deeper areas of nerve compression</u>. Nerves can easily become compressed in fascia that surrounds them and as they pass around bones and through muscles, etc. The nerves have to move every time you move. With ultrasound, fluid can comfortably be injected to separate the nerves from the encasing fascia about them. Family is welcome to view your treatment as this is perhaps the most interesting part of the treatment to see, although those who get use to watching the ultrasound can see most of what is done by watching the procedure. The exciting thing about freeing up these nerves is that we are observing

an improvement in those with neuropathy, even diabetic type, as any nerve that is compressed appears to benefit from releasing the compression. Please see PIT under the research section for research status in this area.

C. Ligaments, which connect bones together. Joints cannot move properly without healthy ligaments. This is important. An example is a loose shoulder ligament, as a loose shoulder will often cause the rotator cuff to be rubbed on, causing a cuff tear or making it worse. Also, muscles may tighten up when either ligaments are weak in a reflex attempt to protect the area and this results in a chronic stiffness. Be aware that when the nerves are irritated (A or B above) they also cause a reflex stiffness.

D. Tendons, which connect muscles to bones. These are ropelike structures, very much like ligaments, and they cannot be strengthened by exercise. As an analogy, this treatment adds strands to an existing "rope" of a tendon. It is helpful to explain that muscles are affecting by irritated nerves within them and will often not fire off properly with motion. This is thought to cause much of the noise that is heard when joints move and abnormal muscle tension can cause things to "go out of place" such as rotations is certain joints like the sacroiliac. Thus, it is important to treat not only tendons but also ligaments and irritated nerves.

5. We utilize mannitol cream to complement the prolotherapy and perineural injection treatments. If, on examination, the superficial (under the skin) nerves appear to be involved, you will be given a "cream application" map that will indicate areas of the body where application of the cream is recommended. An application of 2-4 times a day is best for active pain and twice a day for maintenance. We will go over that during your visit. Mannitol cream is not just a simple cream, but actually treats the superficial nerve causes of pain and can reduce the amount of injection treatments needed. We make up mannitol cream by the quart (in our office), and that can be diluted to make one gallon. Mannitol cream in these concentrations is patented, and we do not own that patent. However, as a researcher for this cream, we have been given permission to make it for our patients.

6. A specific frequency of further treatment will be recommended. For elite athletes with pending obligations, a one- to four-week frequency can be considered. Our goal, however, is to allow full time for natural healing, which can decrease the treatment frequency needed. We recommend a two- to three-session trial, typically at two-month intervals. Our treatments are quite comprehensive; we do not need more than 2-3 treatments to determine if your condition will respond to prolotherapy. After that period, our goal is to taper (as soon as possible) to 3-12 months intervals, or not at all. Our goal it to fix the problem permanently. There are those with hereditary nerve sensitivities or genetic changes that affect healing that may lead to a need for periodic treatment.

After Treatment: What to Expect

Much of this is covered on the post treatment instructions but here is more information.

How you feel after treatment depends on how much of your pain is from nerves outside of ligaments and tendons versus how much from nerves inside ligaments and tendons. If you pain is from nerves outside of ligaments and tendons, you typically feel improvements for 4-48 hours due to a calming or "re-setting" of the nerves. Then pain recurs. Nerves outside of ligaments and tendons may need 3 treatments to begin holding the effects of treatment, although nerves may partially reset much quicker. Nerves in ligaments and tendons respond much slower, over 8 weeks or more, because the ligaments or tendons may need to heal themselves before the nerve can respond. As the ligament or tendon repairs, pressure can be taken off the nerve. Nerves inside ligaments and tendons may need 2 treatments to begin holding the effects of treatments. Since treatments are often spaced at 2-month intervals to allow time for healing, it can be 4 months or more before changes are seen. The important takeaway message here is that we generally expect improvements by 2 healing cycles or 4 months but many patients see improvement more quickly than that.

General Precautions:

Exercising is encouraged, but please do not over-do it. Pay attention to what your body tells you. If it hurts, take a break! Do not push yourself just because you feel better (you may pay for it later). Use either ice or heat to help calm pain or spasms.

Additional injuries will make healing more difficult. We notice several common sources of falls in those with significant chronic pain -- and stairs are one of the most common. Thus, for any of our patients with significant pain we recommend the following: when going up or down stairs, do not alternate feet. Take one step at a time. Always hold on to at least one handrail when using stairs, watch for obstructions on steps, and do not carry things in both hands.

Feeling better or worse: Sometimes breaking a pain cycle can help quickly, especially if you feel supported by the fluid of injection. Therefore, you may feel better after the post-injection soreness wears off. However, many nerves are not going to quit firing until the ligaments and tendons become strong enough that the nerves are taken off "stretch," and that takes time. In this office we attempt to avoid missing anything during a treatment session so that 6 weeks after the 2nd treatment is usually enough time to determine benefit.

HOW MANY TREATMENTS WILL I NEED?

Dr. Reeves uses the Hackett approach to prolotherapy, which is typically very comprehensive. For this reason, areas are rarely missed in treatment and two trial treatments are usually enough to determine if the treatment will be beneficial. Exceptions include athletes that are actively engaging in contact sports or high force activity during treatment periods. Typically those areas which have hurt less over months or years resolve first, and we then taper out treatment as the more stubborn areas start responding. There are those conditions in which all cartilage has been lost already in a joint (such as the knee) and in which wear and tear of everyday living may

require a treatment every 3-6 months, but our goal is always to restore tissue enough towards "normal" that repeat visits are only recommended following trauma or some unusual event.

It is very important to realize that prolotherapy is a *diagnostic* as well as a *therapeutic* treatment. This means that if prolotherapy does not help it may very well be that there is an undiagnosed problem that needs to be identified. Therefore, be sure to check with Dr. Reeves or your prolotherapy practitioner about this possibility in the event additional testing is needed. Surgery is not needed often in patients receiving prolotherapy, but occasionally it is and referrals from your prolotherapy physician can often save a lot of time in obtaining surgery when it is truly necessary. For those few patients who need surgery, prolotherapy prepares them by addressing other pain problems unrelated to the need for surgery, simplifying decision making by the surgeon, and typically allowing a smoother recovery from surgery.

WHAT ABOUT NARCOTICS?

Typically, patients do not need narcotic pain medication after treatment except, perhaps, that evening of the treatment, or the next day. Patients commonly receive a prescription for a limited amount of post-injection pain medication. Pain flares lasting more than a week should be reported to us. We may need to see you back in the office to review the situation rather than just covering up a pain flare with medication.

For those patients already taking chronic narcotics, Dr. Reeves will not take over prescribing and refilling them for you. We only prescribe a limited amount to take on top of the chronic medication already being taken. This clinic focuses on pain elimination and reduction, not pain management. Dr. Reeves has a colleague specializing in pain management if needed or desired by our patients. However, elimination or reduction of *pain sources* is the purpose of Dr. Reeves' approach.