



## North Texas Musculoskeletal Medicine

*Enhancing the body's innate ability to heal*

*Ntxmsk.com 817.416.0970*

### **Dennis E. Minotti II, D.O.**

Thank you for your interest in Regenerative Orthopedics, procedures that are radically changing treatment of musculoskeletal conditions. Bone Marrow Aspirate Concentration (BMAC) and Platelet Rich Plasma Injections (PRP) are non-surgical procedures designed to accelerate regeneration of cells in healing of acute and chronic musculoskeletal injuries and arthritis.

Included in this packet is additional information on questions you may have on these procedures.

If you would like to submit information on your individual condition, please complete the form on the Home Page of our website, [NTXMSK.com](http://NTXMSK.com). Your condition will be evaluated for likely success with our procedures, and a Regenerative Specialist will respond to you shortly.

Please call our Regenerative Specialist at 817.416.0970 to make an appointment for a consultation or further information.



### About Dr. Minotti

I am Dr. Minotti, a regenerative medicine specialist. I have spent the past 20 years exploring new and better ways to treat the human body. I help frustrated patients find freedom from pain and restore their quality of life so they can do the things they love.

Until recently, traditional orthopedic treatment for chronic pain and joint injury or degeneration was limited primarily to cortisone injections and pain medications, both shown to have negative side effects. The other primary option was surgery that involves lengthy rehab and often does not work.

Fortunately, 86% of injuries can be treated non-surgically.

Research exploring the physiology of how the body actually heals has allowed innovative advancements in treatment of musculoskeletal conditions. Regenerative Orthopedics helps bodies mend themselves, providing cures for people who have been living – until now – with few treatment options. Regenerative Orthopedics effectively bridges the gap between invasive surgery and medications that mask pain.

Bone Marrow Aspirate Concentrate (BMAC) and Platelet Rich Plasma Injections (PRP) are non-surgical procedures designed to accelerate regeneration of cells in healing of acute and chronic musculoskeletal injuries. They address the root cause of your pain rather than merely treating the symptoms.

Dr. Minotti is Board Certified and specialty trained in Neuromusculoskeletal Medicine and Osteopathic Manipulative Medicine by the American Board of Neuromusculoskeletal Medicine. He holds numerous certificates from the Interventional Orthopedics Foundation and is in the process of completing Interventional and Regenerative Orthopedic Medicine Certification (IROM-C) from The American Academy of Orthopedic Medicine and The Orthohealing Method. Dr. Minotti also serves as an adjunct professor at University of North Texas Health Science Center.

Many scientists believe the concept of intrinsic healing, or the body's ability to heal itself, is a New Frontier. Medicine is changing. The wonders of the human body and its ability to heal itself are at the center of this Medical Renaissance.

*Natural forces within us are the true healers of disease. –Hippocrates*





## **Orthobiologic Therapy**

Orthobiologic Therapy has created a renaissance in treatment of orthopedic injuries and joint pain. Regenerative Orthopedics enhances the body's natural healing powers to treat conditions that have previously been treated primarily through surgery. They work by stimulating and enhancing the body's natural repair system, signaling needed cells to the site of an injury. The body naturally repairs and regenerates millions of cells each minute. When the body becomes overwhelmed due to chronic or severe conditions, Orthobiologic Therapy can provide healing cells to damaged tissue to replace depleted cells to allow for accelerated and more complete healing.

NTXMSK offers Bone Marrow Aspirate Derived Orthobiologic Therapy for our patients. We also offer a series of optional protocols, so your treatment can be tailored to individual conditions.

### **Bone Marrow-derived Stem Cell Therapy**

Science has discovered that both bone marrow and adipose cells are rich in MSCs. These can be harvested from the patient's body and injected in a condensed form into an injured site.

Mesenchymal stem cells (MSCs) found in adult bone marrow are extracted from the back of the patient's pelvis or hip bone using a special needle developed for bone marrow extraction. FDA-approved devices concentrate the bone marrow into what is called "Bone Marrow Aspirate Concentrate" (BMAC). The cells are not manipulated or altered with additives. These adult stem cells are considered medicinal signaling cells, they help direct your own local stem cells to differentiate into the type cells needed to repair the damaged or injured tissue.

Following each of these procedures, there is a recovery period of one to two weeks when stress to the joints must be minimized to allow the body to heal properly. The injected area may be sore for 48-72 hours while the early inflammation phase subsides. A follow-up visit will be scheduled for approximately 8 weeks. A booster injection of Platelet Rich Plasma (PRP) may be given at this time to maximize the healing process.



## **Regenerative Procedures**

### **Platelet Rich Plasma Injections (PRP)**

PRP is one of the first Orthobiologic therapies used in the treatment of musculoskeletal conditions. Platelets were once thought to only function in the clotting of blood. Research has recently discovered that platelets release growth factors, such as alpha-granules, along with proteins crucial to the healing process. Platelets also stimulate the release of localized stem cells to initiate the healing process.

The PRP procedure condenses platelets and other healing elements to create a solution rich in growth factors and signaling molecules crucial in the healing of musculoskeletal conditions. These natural healing elements are injected through ultrasound guidance directly into the site to promote and accelerate the healing of soft tissue injuries and osteoarthritis. The proteins help to reduce inflammation and pain. Plasma contains the hormones, electrolytes and nutrients required to nourish cells and tissue during the healing process.

Treatments are generally spaced at least 8-12 weeks apart, allowing for proper healing cascade to take effect. Average number of treatments is 1-4. However, many patients find results after only 1 treatment while others require more treatments depending on their individual condition. Typically, more severe, chronic issues will require a greater number of treatments. Some personal factors that may inhibit maximum healing include smoking, poor nutrition, diabetes and other immune suppressing conditions.

### **Dextrose Prolotherapy**

“Prolotherapy” is derived from the Latin word “prolo” meaning offspring, due to the proliferation of new tissue caused by the procedure. The dextrose acts as an irritant, causing the body to regenerate tissue at an accelerated rate. The stimulation promotes healing by providing fresh and adequate blood supply to the injured area through the body’s healing response of inflammation.

Treatments are generally spaced 4 weeks apart, allowing for proper healing cascade to take effect. Average treatments are 2-12. Many patients find results after only one treatment while others require more treatments depending on their individual condition. Typically, more severe, chronic issues will require a greater number of treatments. Some personal factors that may inhibit maximum healing include smoking, poor nutrition, diabetes and other immune suppressing conditions.

### **FDA APPROVAL**

All of our Orthobiologic procedures are performed on the same day with minimal manipulation and homologous use of BMC, PRP, Adipose. We strive to be compliant with the latest relevant FDA Section 351 and 361 HCT/P guidelines where appropriate at all times.



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**Regenerative Orthopedics**

**Osteopathic Manipulation**

## Common Conditions Treated

Regenerative Orthopedic procedures are designed to stimulate the body to repair tissue in areas of degeneration at an accelerated rate. Procedures include BMAC, Platelet Rich Plasma Injections (PRP), and Prolotherapy. These injections are a safe, non-surgical option for chronic injuries, pain and arthritis.

Pain from sport and accident injury, overuse and the aging process is often caused by damage to the joints and connective tissue. If the structures do not heal properly, chronic degeneration and arthritis result.

Regenerative Orthopedic procedures accelerate and enhance the natural healing process.

<b>Cervical Spine</b> arthritis, instability, whiplash, disc disease <b>Thoracic Spine</b> arthritis, instability, rib dysfunction	<b>Elbow</b> instability, arthritis, Tennis Elbow (lateral epicondylitis), Golfer's Elbow (medial epicondylitis), triceps tendonitis/tears, Ulnar Collateral Ligament sprains	<b>Knee</b> arthritis, ligament instability/tears, Runner's knee (tendonitis), Osgood-Schlatter's Disease, pes anserine tendonitis
<b>Lumbar Spine</b> arthritis, instability, disc disease, spondylosis, pain after surgery <b>Pubic Symphysis</b> osteitis pubis, instability	<b>Wrist and Hand</b> thumb arthritis and instability, carpal bone instability, carpal tunnel syndrome, TFCC tears, finger arthritis	<b>Ankle and Foot</b> Arthritis, instability/chronic sprains, sinus tarsi syndrome, Achilles tendonitis/tears, plantar fasciitis, Morton's neuromas
<b>Shoulder</b> instability, recurrent subluxation, impingement syndrome, RTC tendonitis/tearing, arthritis of GH joint or AC joint, SLAP injuries (labral tears)	<b>Hip and Pelvis</b> Instability, arthritis, pelvis tendonitis and pain, hip stabilizing muscles/tendons, chronic IT band tendonitis, chronic hamstring strains/tears	<b>TMJ</b>

Musculoskeletal injuries normally take 8-12 weeks for the repair process to occur. Anti-inflammatory and pain medications or steroid injections actually inhibit this process. Surgery should be the last option for chronic pain and arthritic conditions. Regenerative Orthopedic treatments can produce long-lasting results as they treat the cause of the pain rather than merely treating the symptoms.



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## Regenerative Orthopedics

## Osteopathic Manipulation

### NTXMSK Regenerative Information and Pricing

A 50% deposit is required at time of scheduling. The remaining 50% is payable at the time of service.

#### Prolotherapy

Usually requires 2-12 sets of injections once every 3-4 weeks.

#### PRP (Platelet Rich Plasma)

Usually requires 1-4 sets of injections once every 8-12 weeks.

#### BMAC (Bone Marrow Aspirate)

Can be repeated every 12 months if needed and PRP for boosters in between if needed.

#### EPAT (Shockwave/Pressure Wave) for Musculoskeletal Complaints

\$125 per treatment. \$50 for second region if treated on the same day. Usually requires 3-5 treatments spaced one week apart.

#### ESW (Focused Shockwave) for Musculoskeletal Complaints

\$150 per treatment. \$75 for second region if treated on the same day. Usually requires 3-5 treatments spaced one week apart.

#### EMTT (Extracorporeal Magnetotransduction Therapy) for Musculoskeletal Complaints

\$75 per treatment. Usually, 2 treatments a week for 4 weeks (8 total treatments).

ALL REGENERATIVE TREATMENTS ARE FULL PRICE FOR FIRST REGION AND HALF OFF SECOND REGION, WITH THE EXCEPTION OF LOWER BACK, MID BACK AND NECK REGIONS.

### PRICING

	<u>Prolotherapy</u>	<u>PRP</u>	<u>Bone Marrow or Adipose Aspirate</u>
Lower Back	300	1200	5000
Neck	300	1050	4500
Mid Back	300	1050	4500
Knee	250	1000	4500
Shoulder	250	1000	4500
Ankle/Foot	200	1000	4500
Wrist	200	1000	4500
Fingers	200	1000	4500
Toes	200	1000	4500
Elbow	200	1000	4500
TMJ	200	1000	4500
Hip	250	1000	4500



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## Stages of Musculoskeletal Repair

Post injury First 72 hours	Inflammatory 1 <sup>st</sup> week	Proliferation 3-6 weeks	Maturation Week 6-18 months
<p>The body's first response is to protect itself. Blood containing platelet cells rushes to the area to stop bleeding and initiate the healing process.</p> <p>Platelets are the most numerous cells shortly after a wound occurs, releasing cytokines, small proteins important in cell signaling, and growth factors. Growth factors stimulate cells to speed their rate of division.</p> <p>Platelets, also, release other chemicals that stimulate the inflammatory phase.</p>	<p>Inflammation is the body's natural response to defend against harmful substances. As the blood vessel become dilated, swelling quickly occurs.</p> <p>A special category of white blood cells that originate in the bone marrow rush to the area as first responders. Two types of leukocyte are predominant in the inflammatory response- macrophages and neutrophils.</p> <p>Neutrophils are first to the injured site and function by neutralizing harmful bacteria. Macrophages aid the healing process by engulfing bacteria and dead cells, ingesting them so that the area is clear for new cells to grow.</p>	<p>Swelling and pain begin to subside and proliferation of cells begins to repair the injury.</p> <p>Proliferation is when the body begins to produce new cells and tissue.</p> <p>Special cells called fibroblasts create a framework of collagen for new cells to develop, essentially sewing the two bits of damaged tissue back together. Collagen is the universal building material for most tissue in the body.</p> <p>In soft tissue, collagen is organized in straight lines, allowing the stress to dissipate evenly through the tissue when it is stretched. However, collagen formed during the Proliferation Stage is constructed in a random fashion. This happens because the body is trying to repair the area quickly. As a result, the repair site is left weak and susceptible to further injury.</p>	<p>New blood vessels mature and the tissue now becomes stronger with more organized and healthy fibers. Pain subsides. Collagen density and tissue strength are increased.</p> <p>Scar tissue, part of the proliferation phase, generally, causes adhesion formation that inhibits mechanical function.</p> <p>When healing is enhanced through cellular regenerative procedures, repair provides increased collagen deposit resulting in reduced scar tissue. Intrinsic healing through an accelerated process results in better bio-mechanics, particularly a better gliding motion in the tendon sheathe.</p>

Ligaments and tendons contain similar biological structure. Healing of these tissues is divided into four overlapping stages (Table). The body functions similarly to an emergency repair unit with each biological function doing its own job in turn. Intrinsic healing enhanced by regenerative injections allows for less secondary tissue damage and quicker, more complete healing.



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## Frequently Asked Questions

### **What is the success rate of Regenerative Orthopedic Injections?**

Studies show that approximately 86% of the patients who responded said they were satisfied with their treatment.

### **How many injections are required?**

Responses to treatments vary depending on age, overall health, and nature of the injury. Most PRP treatments require 1-4 sets of injections. BMAC Injections are more powerful and generally require fewer treatments. The correct procedure for you varies with severity of condition and other health factors.

### **How soon can I go back to regular physical activities?**

Regenerative Injections help to repair soft tissue. Although they are designed to accelerate healing, any healing is not immediate. These procedures are stimulating the growth and repair of tissue which requires time and rehabilitation. Generally speaking, conservative activity is tolerated during the first six weeks. Pain during or after activity is a good indicator of what your body will allow. The length of time, however, is determined by the extent of the injury and your individual healing tendencies.

### **Are Regenerative Procedures covered by insurance?**

No, these procedures are not covered. However, NTXMSK takes most major insurance plans and will submit the initial consultation to your carrier. NTXMSK charges standard office visit fees for the initial evaluation and any follow-up visits.

### **Can Regenerative Orthopedic procedures prevent surgery?**

Most soft tissue injuries have portions intact, making regenerative injections a preferred approach. If the tissue is completely torn, however, surgery may be required.

### **Can I drive after my procedure?**

If you have taken any type of sedative, you **MUST** have a driver. All other procedures do not require a driver. However, we highly recommend having one. You may feel sore or have numbness after your procedure. Every patient responds differently, and it is best to take precautions to ensure your safety.

### **Should I eat before my appointment?**

A light meal and plenty of water about 1-2 hours before the procedure and good hydration the day before is recommended. Water improves cell hydration and lessens the discomfort of the injections. Food diminishes the likelihood of dizziness. Patients report less discomfort when they drink water right up to the time of the injections.



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## Suggested Supplements to Enhance Healing

**Certain supplements are recommended to optimize your body's healing potential. *This does not mean they are required.***

Vitamin C - 2,000 to 3,000 daily

*Increases bone marrow production of stem cells. Used as an anti-oxidant and modulator of the immune system. Also, cross links collagen during healing.*

L-Glutamine - 3,000 - 5,000 mg daily

*An amino acid for tissue repair and immune function.*

Arginine - 500mg twice a day

*An amino acid that increases cell health through increasing Nitric Oxide production. It increases blood flow and oxygenation of the healing tissue.*

Protein - Intake of 0.5 grams/pound for your ideal body weight

*Needed to maintain an anabolic state during the healing phase. With injury and healing, the body has a higher need for healing amino acids and protein.*

Turmeric - 300-600 mg/day

*Acts as a natural anti-inflammatory. Upregulates bone formation and decreases bone loss.*

Vitamin D3 -5,000 IU/day

*Helps reduce the aging of stem cell and helps stem cells differentiate into other cell types.*

Glucosamine/Chondroitin - 1000mg a day

*Acts as a natural anti-inflammatory and aids in healthy cartilage.*

Oil/Omega 3 healthy fat- 1,000mg daily

*Helps modulate abnormal inflammation and augment healing*

These supplements can be ordered from our website and shipped. <https://wellestate.me/dennis-minotti#/>

For optimal results, begin taking 2-4 weeks prior to beginning your treatment.