

What Are My Options?

Edward G. Loniewski, DO , FACOS, FAOAO

Do you want to get back to?



Golf



Playing with Kids



Pickle Ball

We have options!

Dr. Loniewski- Ethical and Effective Cell Therapy



Dr. Phillippe Hournigou
Dr. Helene Rouard
Unite' D' Inge'nierie et de The'rapie Cellulaire
Henri Mondor Hospital, Paris, France

- Performing cell based therapies since 2005
- Over 4,000 procedures.
- Developer of techniques and protocols used by surgeons all over the world.
- Work with Phillippe Hournigou and Helen Rouard. - University of Paris/ Henri Mondor Hospitals

Dr. Loniewski- Ethical and Effective Cell Therapy

- Developer of criteria for cell based therapy.
- We don't recommend this for everyone.
- Principle Investigator for cutting edge technologies.
- Custom designed and personalized treatment plans
- Only Physician performing internal audits of potency and purity of products in Michigan.



Dr. Loniewski- Ethical and Effective Cell Therapy

- Nationally recognized speaker for stem cell seminars
- Trains physicians on cell based treatments
- Active member of International Cartilage Restoration Society (ICRS)
- Studied cell based therapies in Switzerland and France, California, Florida, Colorado and Texas.



Our Results

November 2013- Present

First surgeon in area to offer cell based therapies

344 patients (292 knees , 41 hips, and 11 other)

Followed closely at 3 mo, 6 mo, and yearly.

82.5% of patients improved

Average improvement was 50% or more.

Less than 10% have converted to joint replacement.

Most patients had grade IV severe arthritis.

Takes 3 months to notice improvements .

See continual improvements for well over 2 yrs.

May require additional PRP injections



Dr. Loniewski-Customized Therapies

We can customize a cell
based therapy for you.

Not every joint fits the
same therapy.

We will evaluate your
symptoms and develop a
program to fit your goals
and severity of the disease.



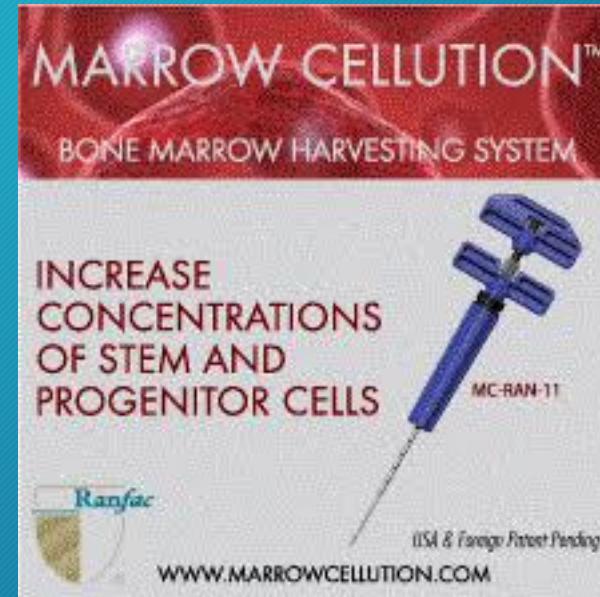
Customized Therapies Basic Stem Cell Package

Basic Stem Cell Therapy Package:

In office stem cell harvest and delivery using high efficiency instruments

Return to work in 1 day

Starts at \$2,750



Advanced Stem Cell Therapy Package

Advanced Stem Cell Therapy Package

Includes state of the art concentration of stem cells

Concentrated plasma proteins

Extra Platelet Rich Plasma injection

Starting at \$3,995.



Ultimate Stem Cell Therapy Package

- Comprehensive treatments to enhance cell therapy
- Nutrition
- Exercise
- Laser
- Gait Analysis
- Two additional customized PRP
- State of the art stem cell processing



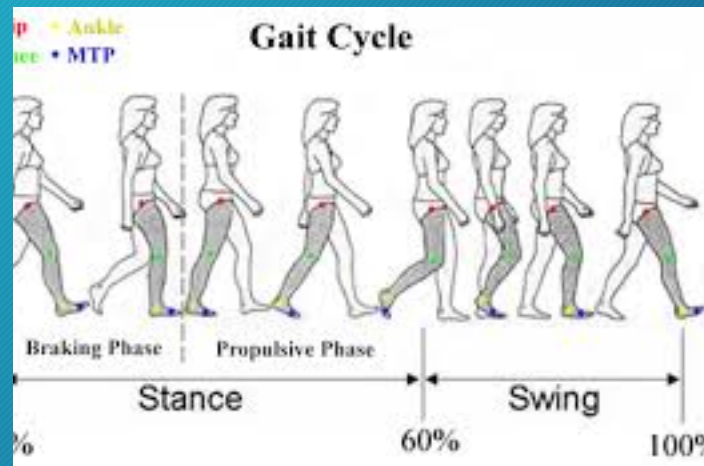
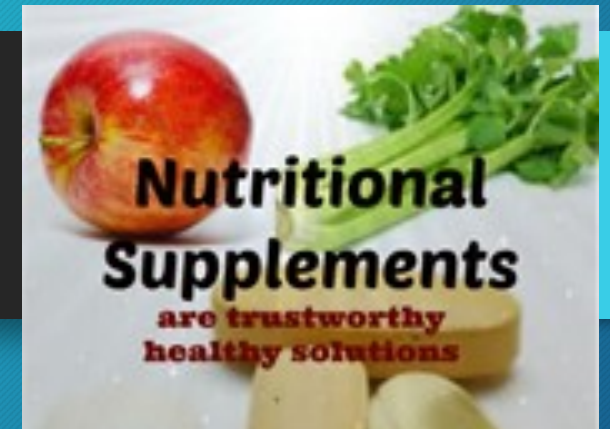
Ultimate Stem Cell Therapy Package

Includes comprehensive treatments for nutrition, exercise and cell health

Gait Analysis by registered therapist

9 treatments with whole body vibration.

9 treatments of low level laser.



Ultimate Stem Cell Therapy Package

Nutritional supplementation

3 months of Joint Builder Ultra

Testing for Nitric Oxide deficiency and treatment for 3 months.



Ultimate Stem Cell Therapy Package

Concentrated stem cell processing

Concentrated plasma proteins

One customized PRP injection prior to the stem cell

One extra customized PRP injection given after the stem cell

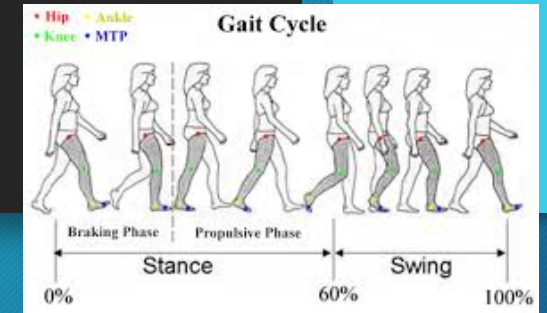
Laser and Whole Body Vibration therapy

Nutritional optimization

Gait analysis

Starting at \$5,000

Save over \$1,000 if purchased separately.

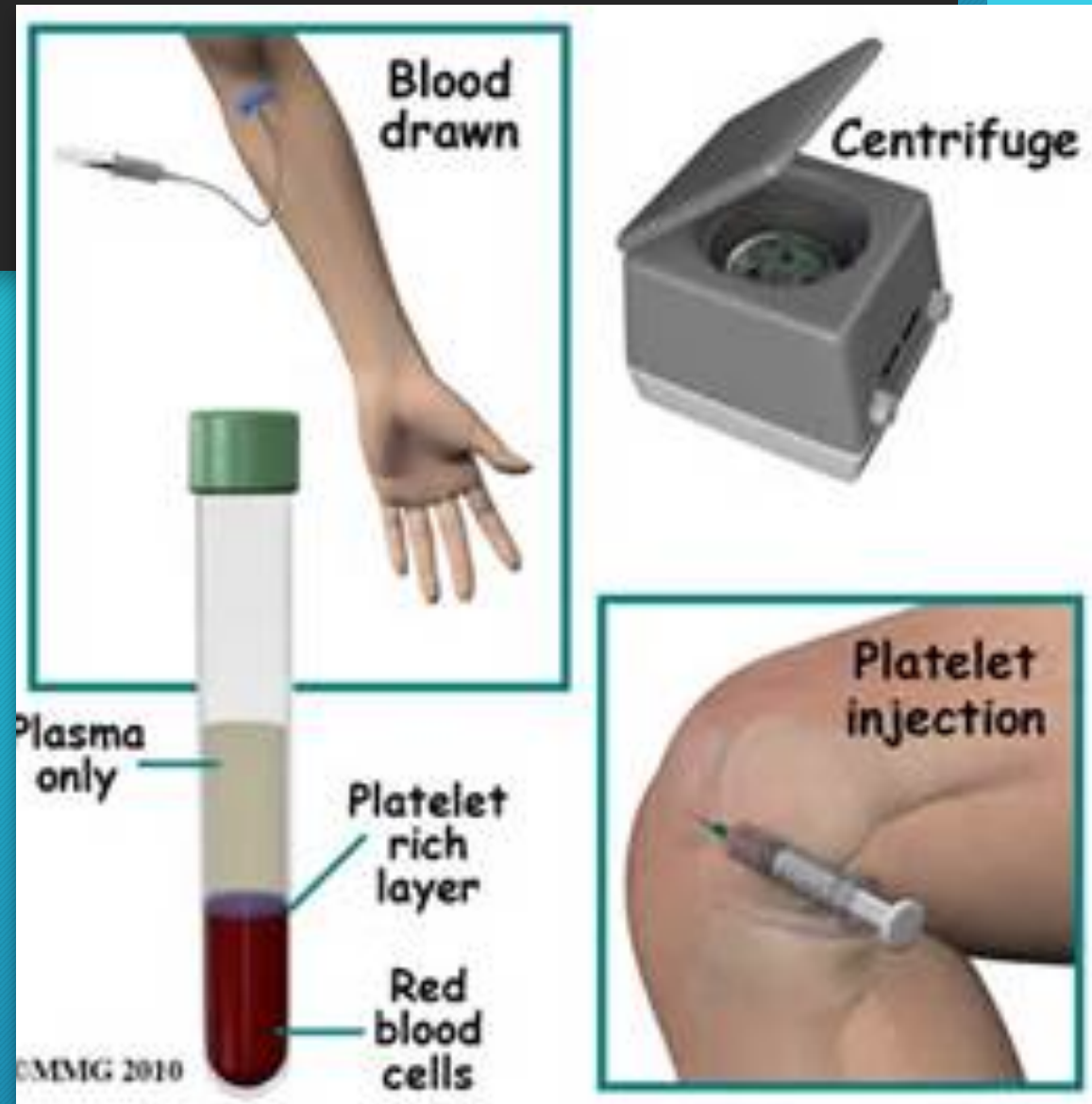


Platelet Rich Plasma

Duration- 6 months to 2 years with an average of 12 months

One office visit lasting about 30 minutes

Return to normal activities the next day.

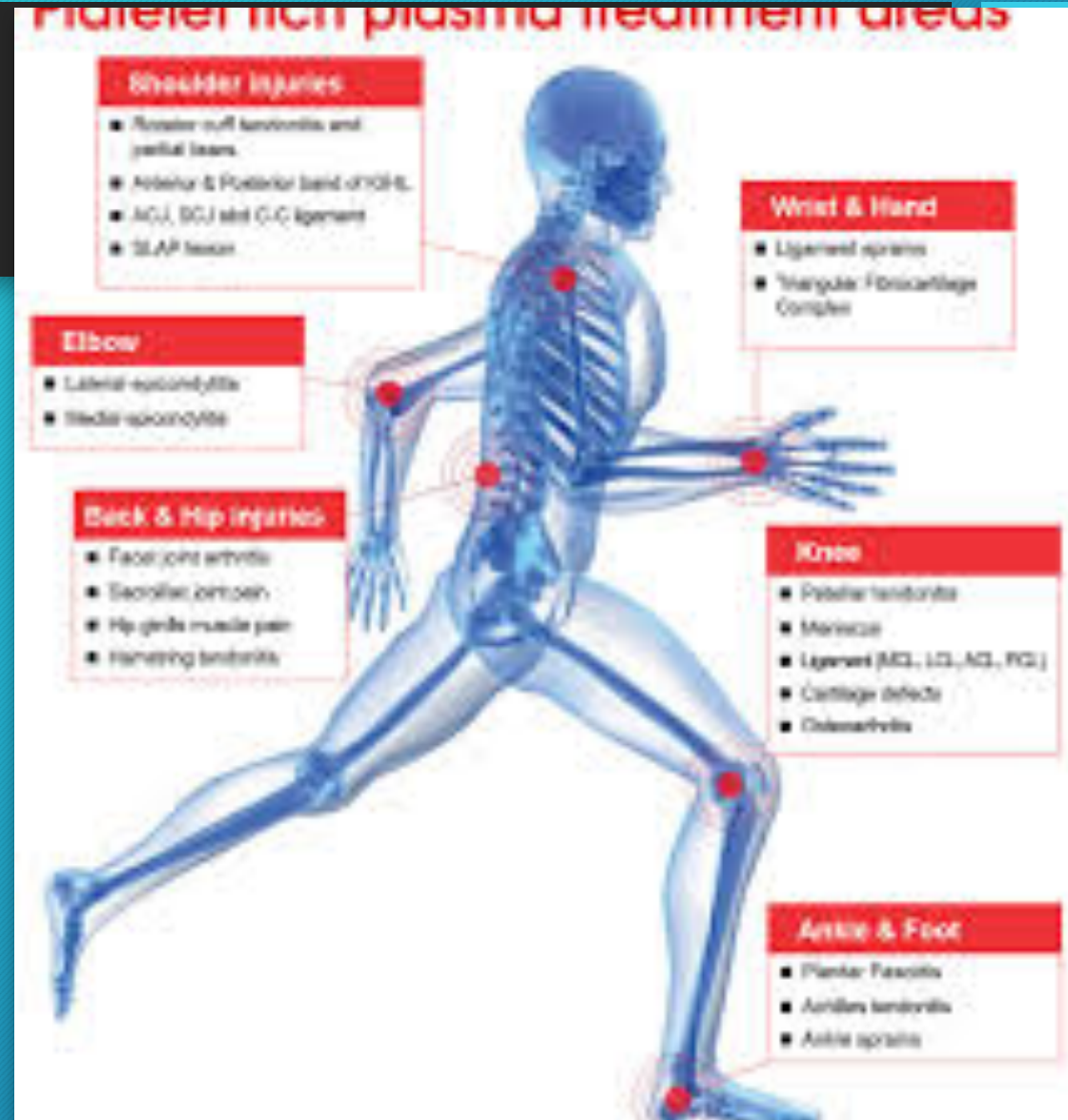


Platelet Rich Plasma for Soft Tissue Issues!

May be used to treat tendonitis, bursitis and ligament sprains or tears

Used by many pro athletes to speed recovery

Provides multi use for arthritis and soft tissue issues in one setting



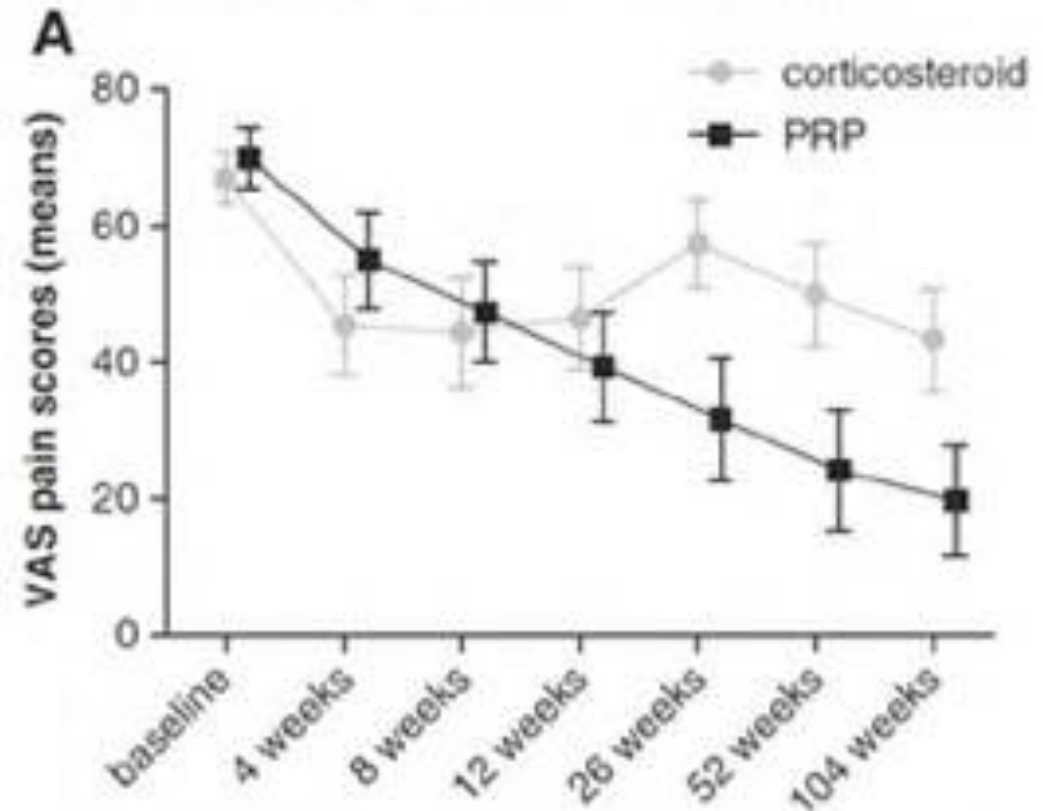
Platelet Rich Plasma

Superior to Hyaluronic
and Steroid Injections

Cost - \$500- \$1,000 per
injection

Not covered by insurance

Platelet Rich Plasma vs. Corticosteroid



American Journal of Sports Medicine 2010

Advanced Orthopedic Specialists PRP Difference

- Custom designed PRP formulations based on your condition and age.
- Detailed separation techniques with cooler temperature vials and double spin technique.
- Ultrasound delivery techniques available.
- Most experience with over 4,000 procedures since 2005



Summary of PRP

Platelets release factors which help heal damaged joints and surrounding tissues.

One single injection can provide relief for one year

Superior pain relief and longer pain relief than Hyaluronic and steroid injections.

May be more effective in younger and less severe arthritic patients

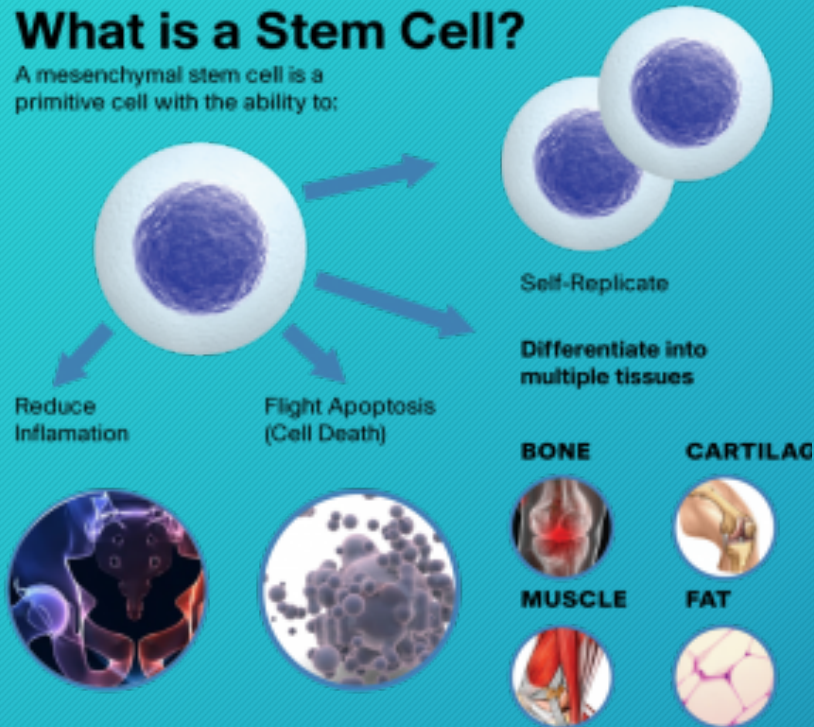
Not covered by insurance



Bone Marrow Concentrate Stem Cells

What is a Stem Cell?

A mesenchymal stem cell is a primitive cell with the ability to:



Adult stem cells are the means by which our bodies naturally heal throughout our lifetime

Bone Marrow contains regenerative cells including:

- Hematopoietic Stem Cells
- Mesenchymal Stem Cells
- Endothelial Progenitor Cells
- Platelets
- Plasma Proteins

Bone Marrow Concentrate provides 3 different but complimentary therapies

- Stem Cells
- Platelet Rich Plasma (PRP)
- Plasma Proteins (A2M and IRAP)

Is Stem Cell Therapy A Miracle ?

Miracles must be:

Attributable to a Divine Power

Beyond the power of created nature

Beyond the order of created nature

Extraordinary

Sensible

The Miracle of the Sun in Fatima, Portugal, October 13, 1917 was a true miracle



Stem Cell Therapy

Is not **directly** attributable to a divine power

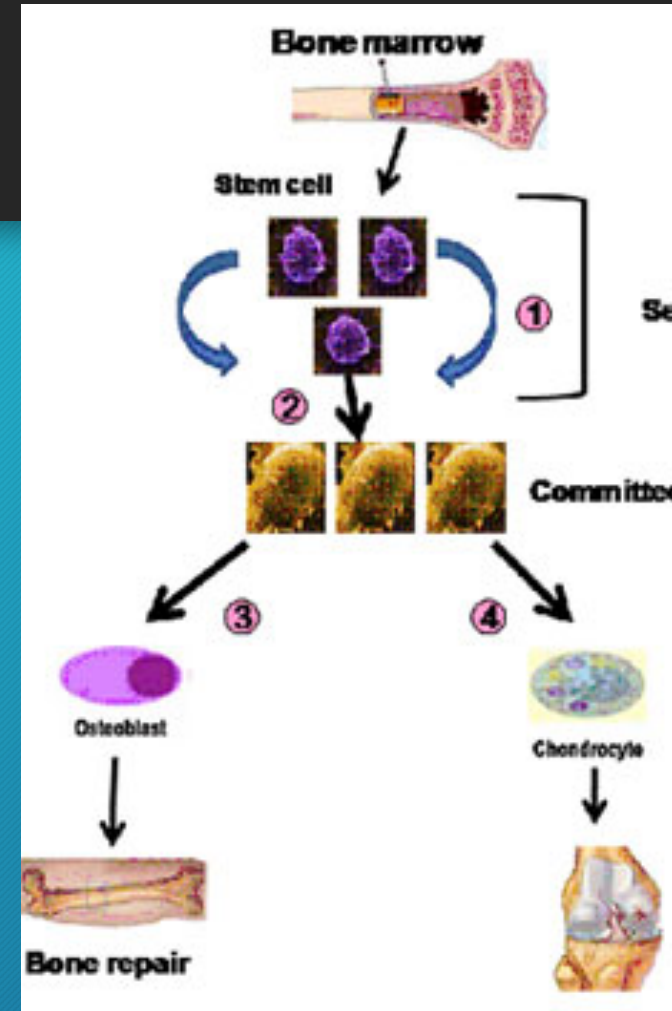
Is within the power of created nature (it's in your bone marrow)

Is within the order of created nature (all living creatures use stem cells)

Is not extraordinary

Is only sensible after the pain stops.

NO MIRACLES HERE!



Why all the Hubbub?

Access- easy and almost painless harvest of bone marrow in any office setting.

Efficiency- Increase cell harvest by over 300% and also capture over 90% of the cells.

Evidence- In vitro and vivo studies hold promise.

Long Term Anticipation: *“Stem Cell Research can revolutionize medicine more than anything since antibiotics”* - Ronald Reagan.



This is how young I looked when Regan was President!

How does Stem Cell Therapy Work?

Special Cells in Bone Marrow Work Together

Platelet Growth Factors - “The Fertilizer”

Plasma Proteins- Reducers and Scavengers

Stem Cells - ” The Conductors”

To

Reduce - Bad Chemicals

Restore- Cell to Cell Communication

Regenerate - Cell Balance



REDUCE
Bad
Chemicals



RESTORE
CELL TO CELL
COMMUNICATION



REGENERATE
Normal
Balance



How Stem Cells Work

How do Cell Based Therapies work?

Platelets - “The Fertilizer”

Platelets clump or clot just like your scab and release many growth factors such as:

PDGF- platelet derived growth factor

TGF-B- transforming growth factor - Beta

IGF- Insulin Growth Factor

VEGF - Vascular Endothelial Growth Factor

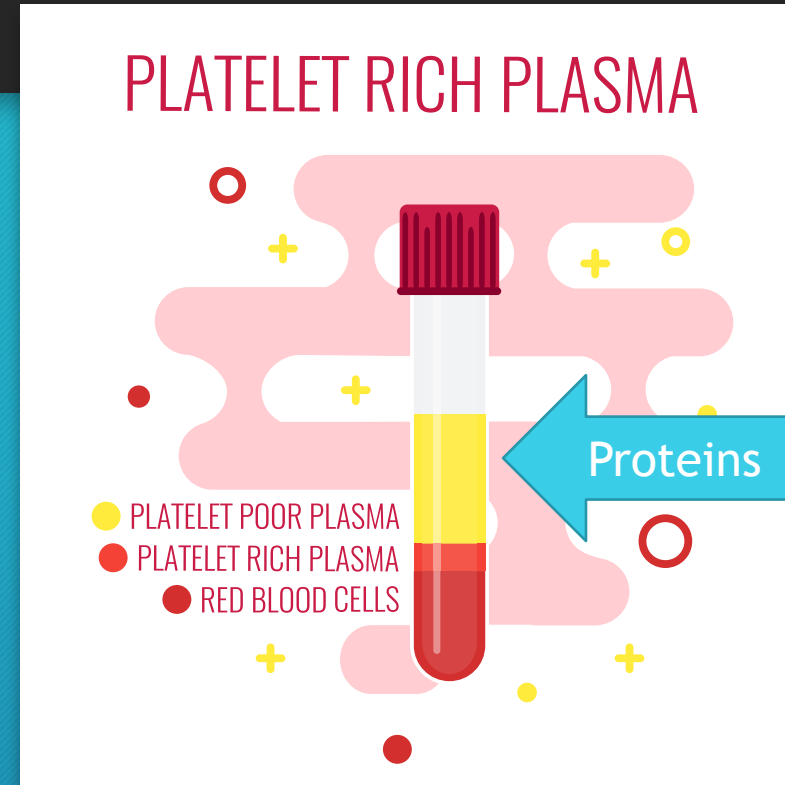


Plasma Proteins

The fluid between your platelets and bone marrow is Plasma

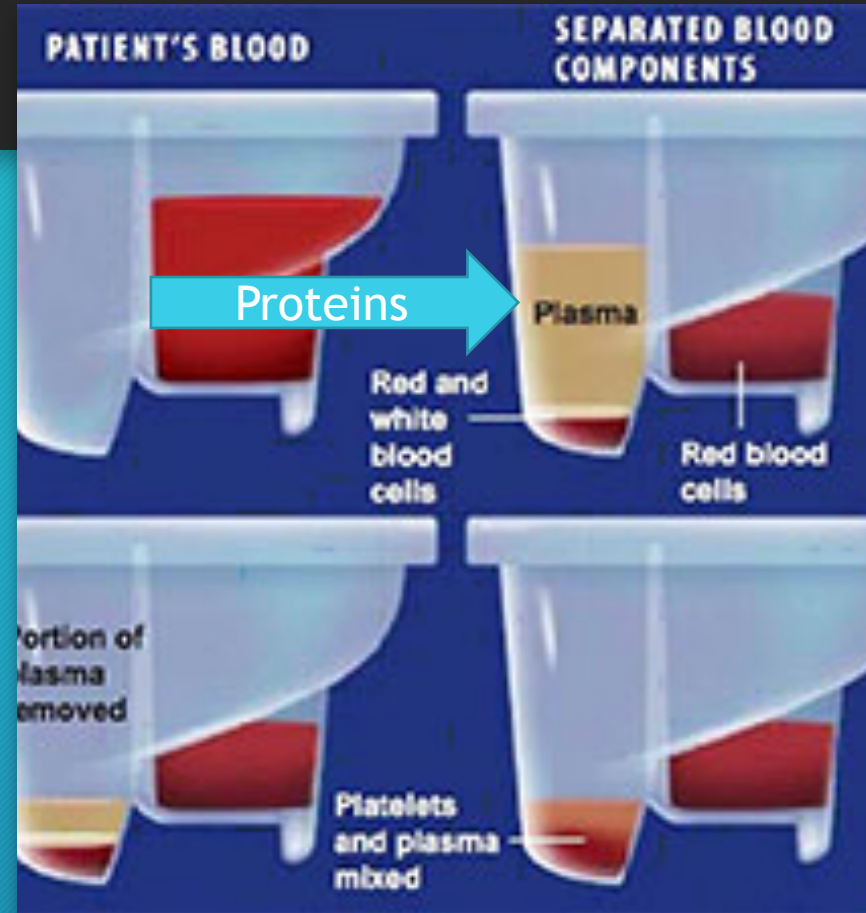
Plasma contains proteins which help in the healing process

Traditionally, these proteins were discarded



Plasma Proteins

- Proteins found in this plasma help with reducing destruction to joints and inhibiting chemicals which destroy the joint.
- Concentrating plasma proteins such as **A2M** or **IRAP** have been shown to help reduce pain and restore function in arthritic joints *



*Frizziero A, Autologous conditioned serum for the treatment of osteoarthritis and other possible applications in musculoskeletal disorders. Br Med Bull. 2013; 105: 169-84.

Plasma Protein IRAP™

IRAP™ stands for intraluleukin-1 Receptor Antagonist Protein which binds to a chondrocyte receptor for Interluekin-1 Beta.

Blocks the harmful effects of Interlukein-1 Beta (IL-1 B)

Reducing IL-1 B will help reduce destruction . *

IRAP™ is used by many race trainers to improve performances.

IRAP™ was the name of a horse in the 2017 Kentucky Derby!

- Attur M, Plasma levels of interleukin-1 receptor antagonist (IL1Ra) predict radiographic progression of symptomatic knee osteoarthritis. Osteoarthritis Cartilage. 2015 Nov;23(11):1915-24



Stem Cells

Conductors and Not Carpenters of joint biochemical function

Reduce harmful inflammation

Restore normal cell-cell communication

Regenerate/normalize bone and cartilage balance and repair.

They do not directly build cartilage, but rather help promote a harmonious environment.



Bone Marrow Concentrate is The Complete Package

- Bone Marrow Contains All Three Important Components:
- **Plasma Proteins**- To Reduce Bad Chemicals
- **Growth Factors** - To Restore Cell To Cell Communication
- **Stem Cells** - To Regenerate normal balance.

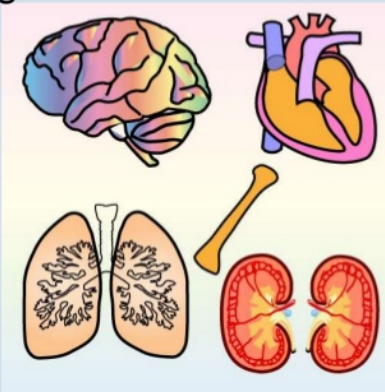


Putting it all in Plain English:

Levels of Organization

Organs are structures made up of several groups of tissues working together to perform a specific function.

Examples: heart, lungs, brain, skin, etc.



All joints are an organ just like a brain, heart or lung.

All organs have cells which communicate between each other to perform a specific function.

Cartilage has a function which bone does not

Cartilage cells talk a different language than bone cells

Tunneling caused by the biochemical imbalance in the knee causes “cross talk” between these two separate but important cells of the joint.

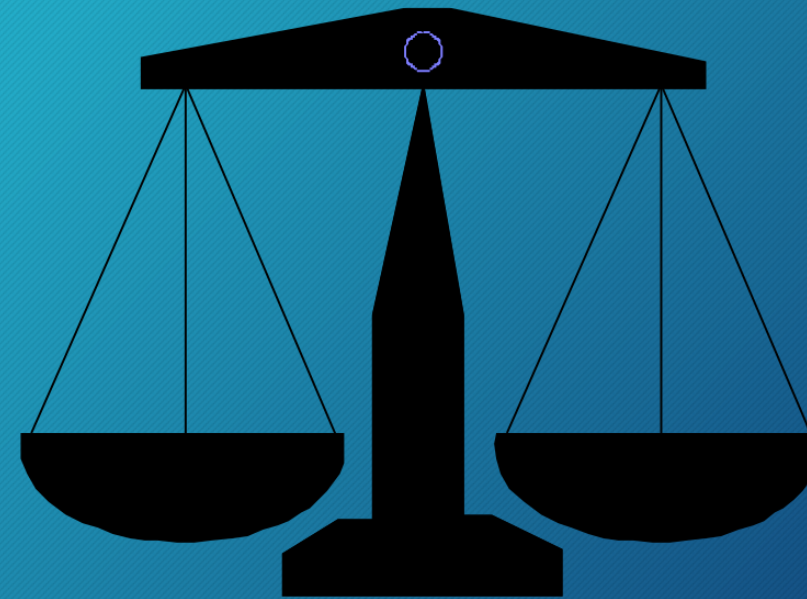
Bone Marrow Stem Cell can restore the normal communication of these cells so they can function like a normal joint.

How does Bone Marrow Stem Cell Therapy “Regenerate?”

Bone Marrow Stem Cell Therapy helps to regenerate the normal balance of damage and repair

Transplanted bone marrow stem cells help conduct the normal balance but do not directly build tissue.

New tissue can happen, but only after bone marrow reduces the bad chemicals and restores normal communication.



Damage

Repair

REDUCE
Bad
Chemicals



RESTORE
CELL TO CELL
COMMUNICATION



REGENERATE
Normal
Balance



How Stem Cells Work

Do these cells really
provide benefits or
value?

Bone Marrow Derived Stem Cell Safety

**SAFETY
FIRST**

- **Safety-**: No adverse events noted in 78 studies*
- No Adverse events in over 1,000 patients **
- No risk of cancer in over 1873 patients followed for for over 10yrs. ***
- Most common event is mild bruising of the pelvis or joint.

**Lalu MM et al, Safety of Cell Therapy with Mesenchymal Stromal Cells (SafeCell): A systemic Review and Metanalysis of Clinical Trials. PLoS One. 2012 Oct 25 7(10) e47559.

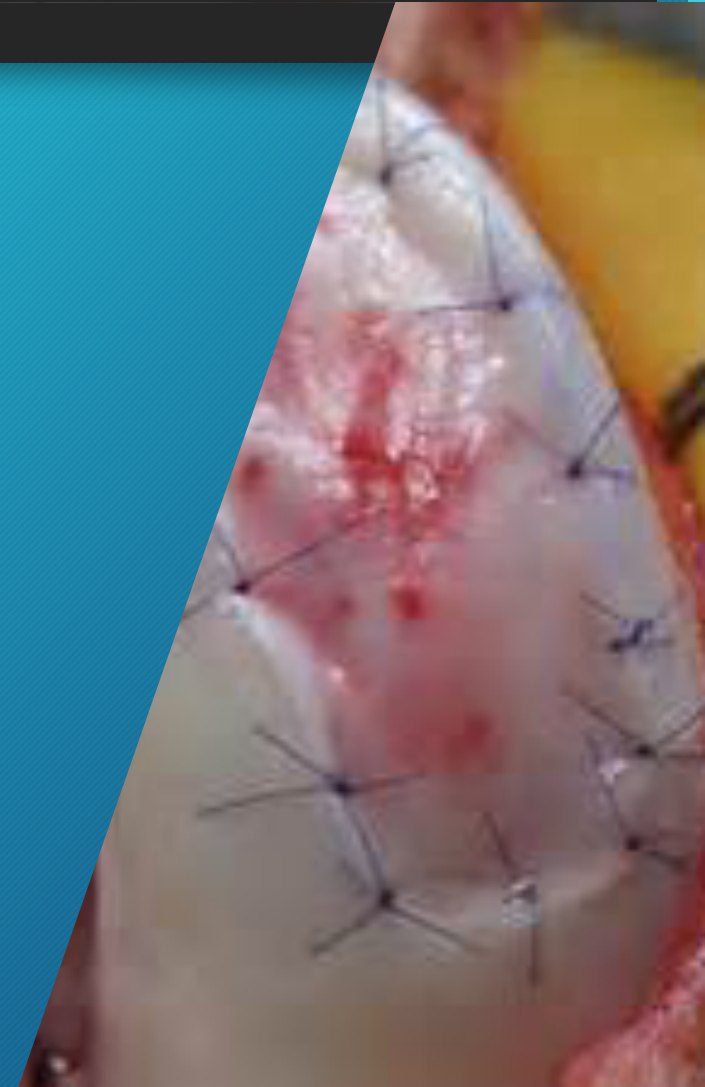
***Herniguo P et al, Cancer risk is not increased in patients treated for orthopedic diseases with autologous bone marrow concentrate. J Bone Joint Surg Am, 2013 Dec 18; 95(24) 2215-21

*[World J Gastroenterol.](#) 2014 Oct 14;20(38):14051-7

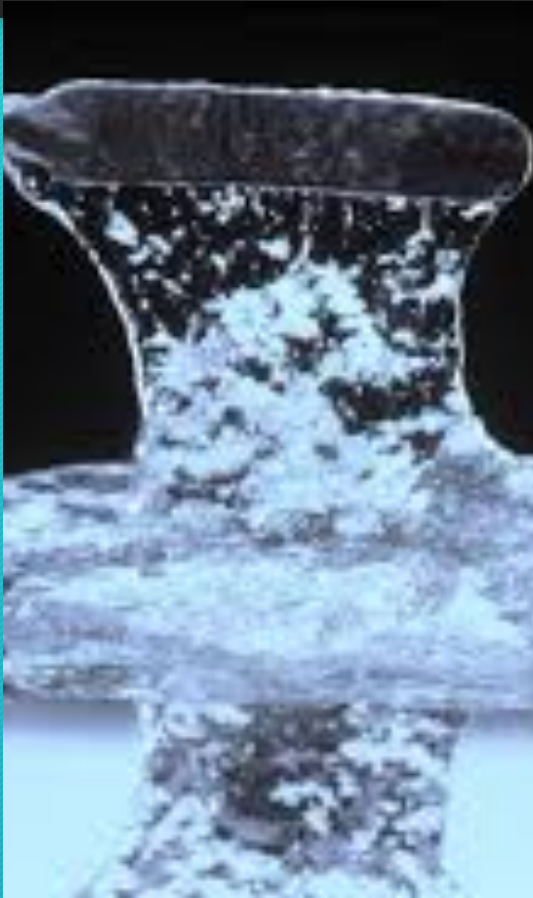
Bone Marrow Concentrate Stem Cell

- Efficacy (Does it Work?)
- Better outcomes of arthritic knees compared to surgical patients:
- Autologous Chondrocyte Implantation (ACI) surgery .
- Patients with only one injection improved more than patients receiving two surgeries.*

- *Ref- Autologous bone marrow-derived mesenchymal stem cells versus autologous chondrocyte implantation: an observational cohort study.
Nejadnik H., American Journal of Sports Medicine 2010 Jun;38(6):1110



Bone Marrow Concentration Stem Cell Therapy Performed Better than Gel Injections



- Controlled study comparing Allogeneic Bone Marrow (taken from someone else) to Hyaluronic injections.
- Bone marrow stem cell group had significantly improved functional scores
- MRI was improved only in the bone marrow stem cell group
- **Stem Cell group did better!**
- Vega A, et al, Treatment of Knee Osteoarthritis with Allogeneic Bone Marrow Mesenchymal Stem Cells: A Randomized Controlled Trial, Transplantation, 2015 Aug;99(8); 1681-90



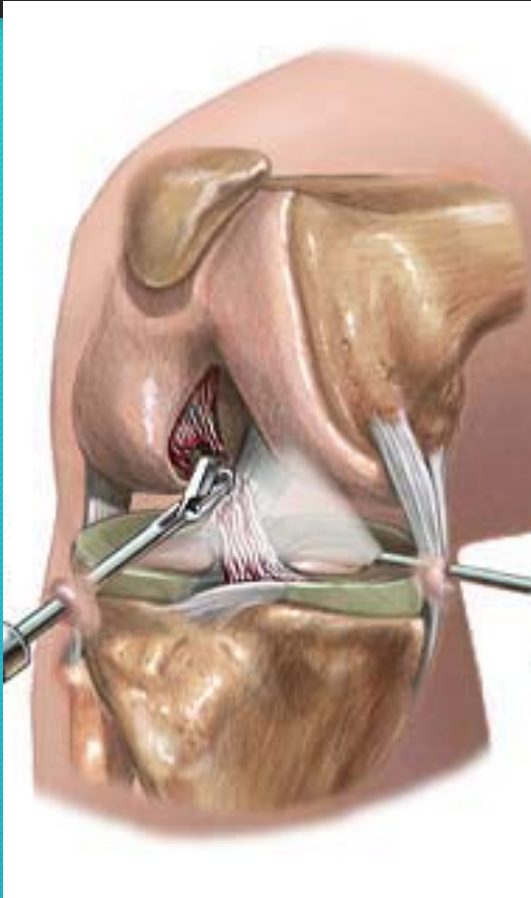
Bone Marrow Concentrate Stem Cells for Knee Arthritis

- Bone Marrow Stem Cell used to treat knee arthritis:
- 840 procedures evaluated
- Patient activity and function improved
- Pain scores reduced
- 6% of patients had adverse events (most common was bruising)
- Centeno C, et al, Efficacy of autologous bone marrow concentrate for knee osteoarthritis with and without adipose graft, Biomed Res Int. 2014;2014:370621

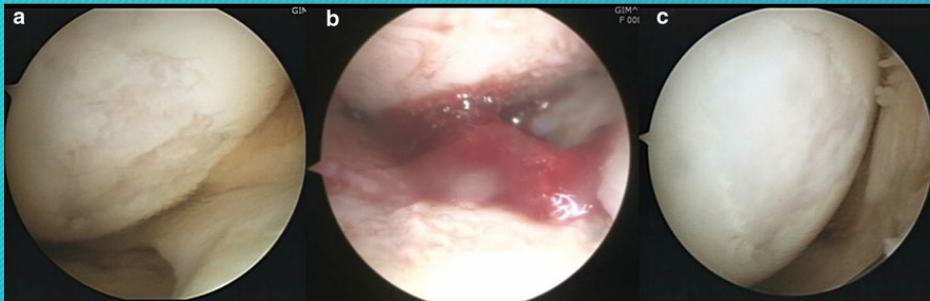


Arthroscopy vs. Stem Cell

Scope vs. Scope and Stem Cell



- [Varma HS](#), The new avenues in the management of osteoarthritis of knee--stem cells [J Indian Med Assoc.](#) 2010 Sep;108(9):583-
- 50 patients split into 2 groups. Group A- Scope, Group B- Scope +Stem Cell.
- Followed with Visual Analog Pain Scales (0-10), and osteoarthritis outcome scores.
- **Patients in Group B- with Stem cells had reduced pain, improved activity and quality of life scores.**



- 16 of 30 had second look arthroscopy- 87.5% had neutral or improved results with 62.5% showing very positive (18.7%) or positive (43.8%) improvement.

Second Look Arthroscopy

Joint Replacement vs. Stem Cell



Joint Replacement

- **Safety :**
- A retrospective review of 169,406 patients receiving either a total knee or total hip replacement. The overall complication rate was **16%** for inpatient joint replacement.
- Another study reviewing over 405,379 total hips found that the complication rates were found in **3.4 %** in the first hip replacement but increased to **10.9%** with revision (re-do) hip replacements.
- ***Complications increase with :*** Patient age over 70; malnutrition, obesity, cardiac history; smoking history; and diabetes

Joint Replacement

- Efficacy: The Gold Standard - American Academy of Hip and Knee Surgeons (AAHKS) reports:
- **Reliable**- over 90% of patients have pain relief
- **Reproducible**- over 90% relief of pain.
- **Durable**- 80-85% of patients will still have the same joint replacement 20 yrs from the date of their surgery.



Patient Satisfaction after Joint Replacement

- Although total joint replacement can provide reliable results, many patients have “issues” and continued symptoms.
- **Approximately 27%- 30% of patients after a total hip or knee are dissatisfied . * ****

- *Lam, YF et al, A Review of the Clinical Approach to Persistent Pain Following Total Hip Replacement, HongKongMedJ , 2016 Dec: 22(6): 600-7
- **Wylde, V et al, Total Knee Replacement: Is it Really and Effective Procedure for All?; Knee, 2007, Dec 14 (6): 417-23

Convenience of Joint Replacement

- Pre-operative class and history and physical
- Pre-operative occupational therapy
- Visit with family doctor and possibly specialists
- Hospital stay of 1-3 days
- **Require someone to help 24/7 for 3 weeks**
- Sedentary work in 3 weeks
- High demand jobs 3 months
- Physical therapy for 6-8 weeks
- Injections or pills to prevent blood clots





Stem Cell Vs. Knee Replacement



- White Paper from University of Paris:
- 60 patients all 85 yrs or older.
- **Group A-** Bilateral Knee Replacement
- **Group B-** Bilateral intra-marrow stem cell
- **Group C-** One knee replaced and other with stem cell

Stem Cell Vs. Knee Replacement

- Average follow up is over 6 yrs (range from 2- 15 yrs)
- Stem Cell Group had
- Faster improvement in functional outcome of Knee Society Score (KSS)
- **Stem Cell Group average improvement was 16.3 pts**
- **Knee replacement group average improvement was only 8.9 pts**



Stem Cell Vs. Knee Replacement

- **Knee Replacement Group had :**
- **Higher** analgesic use
- **Longer** hospital stay (20 vs 2 days)
- **Higher** Transfusions (29.3% vs. 0%)
- **More** blood clots (12% vs 2%)
- **Longer** use of crutches (4 vs 1 week)
- **More** medical complications



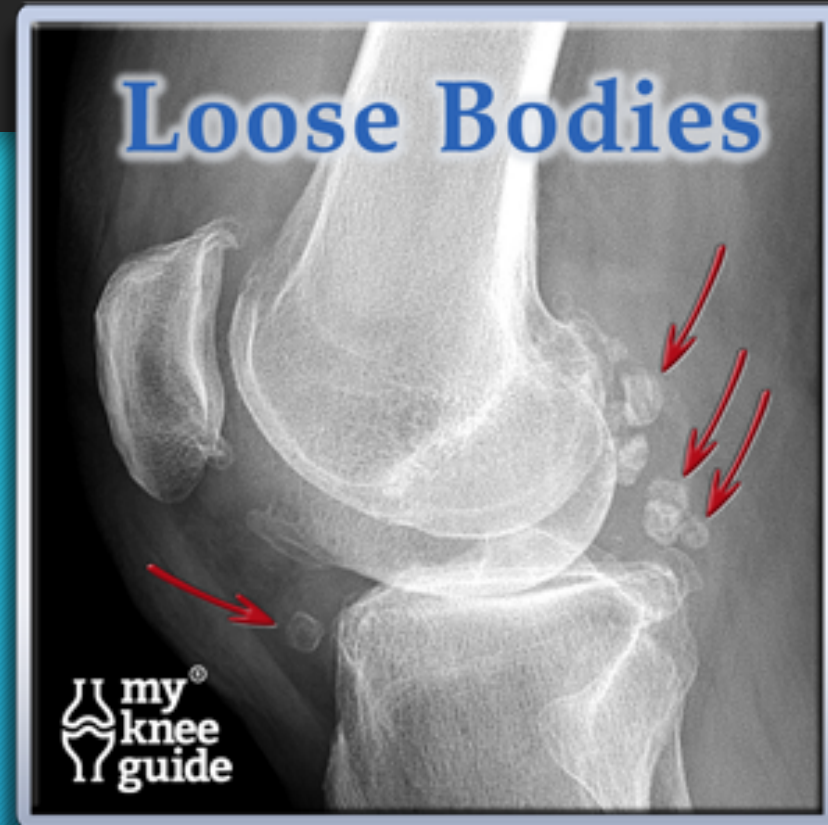


Stem Cell Vs. Knee Replacement

- Stem Cell had higher patient satisfaction:
- When asked to point to the knee they preferred,
- **70% pointed to the stem cell knee!**

Am I a Candidate for Stem Cell?

- Do you have:
- Rare or no giving away, locking or catching from loose bodies or meniscus tears.
- **OR**
- My joint gives away or catches less than 2 times per week.
- **If your joint is stable with no or very rare episodes of catching or giving away, you can consider cell based therapies.**



Am I a Candidate for Stem Cell?

- My knee joint has mild to moderate swelling not requiring any draining
- **OR**
- My knee swells but not enough to stop all my activities for more than 2 days.
- **If your joint has only rare episodes of swelling and you do not require draining more than 4 times per year, you can consider cell based therapy**



Am I a Candidate for Stem Cell?

- Knee angle is LESS than 8° of knocked knee or 10° degrees of bowlegged angle.
- **OR**
- You notice the bow in your leg even with your pants on.
- **If you have mild to moderate bowing of your joint and you do not notice the bow under your pants, you can consider cell based therapies**





Am I a Candidate for Stem Cell?

- Range of Motion within 20 degrees of normal
- **OR**
- You can get dressed by yourself without any assistance.
- **If you have mild to moderate loss of motion of the joint and can dress yourself without any aids, you should consider cell based therapies.**

If you have two or more of these risk factors for major surgery , you should consider cell based therapies



- Body Mass Index over 40
- Depression
- Chronic use of narcotics
- Kidney Failure
- Hepatitis or liver disease
- Blood clot history
- Previous surgical infections
- Diabetes
- Stroke history
- Previous heart disease

If you have any of the following, you should consider cell based therapy.

- Not willing to undergo surgical treatment for my joint .
- Do not have anyone to take care of me 24/7 for up to 3 weeks
- Do not wish to or can not take off work up to 3 months
- I am not willing to commit to up to 2 months of therapy.



Benefits of Cell Based Therapy

- No to little time off work or activities
- No or little need for supervision at home
- No prolonged pain or recovery
- No or very limited narcotics



Benefits of Cell Based Therapy

- Lower Risk!
- Most have less than 1% risk of complications
- Ability to perform on overweight patients
- Medical complications such as blood clots, infections, diabetes or heart disease have little effect on the treatment
- No addiction risk
- No hospital stay
- Everyone's welcome!



Bone Marrow Concentrate Stem Cell

- How is this done?
 - Muscle relaxer's and pain pills given .
 - Lying on your stomach or side .
 - Area is made numb
 - Needle is introduced into the back part of your pelvis
 - Bone marrow is taken with little to no pain.



Bone Marrow Concentrate Stem Cell

- Bone Marrow Processing
- Patented sterile system separates out the bone marrow concentrate from the plasma proteins and red blood cells.
- Bone marrow concentrate also contains increased concentration of platelet rich plasma.



Bone Marrow Concentrate Stem Cell

- Not covered by insurance
- Cost Start at \$2,750
- May be reimbursable under a Health Spending Account (HSA)
- Can provide customized programs including whole body vibration, gait analysis, low level laser, and nutritional supplements.



Combination Treatments

Knee Arthroscopy And Bone Marrow Stem Cell

For Mechanical problems:

Meniscus Tear

Torn Cartilage

Loose Body

Bone Marrow
Inflammation

Tight knee cap

For Arthritic Condition:

Bone Marrow Stem Cell

Platelet Rich Plasma

Plasma Proteins

Benefits of Stem Cell Therapy with Surgery

Proven Benefits with :

Microfracture

Meniscus Surgery

Arthritis Surgery

Less Expensive -

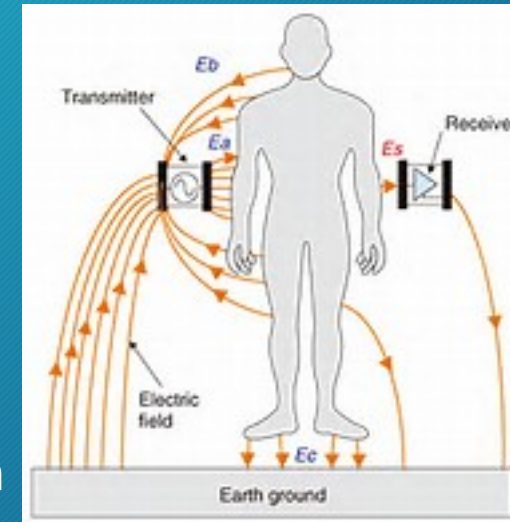
Less Painful- All done under anesthetic

More Convenient- Both joints or more can be done at the same time.



Mechanical Stimulus- To Get Your Joints Moving

- Electromagnetism holds all atoms together and allows chemistry to work.
- Mechanical Loading of your body produces an electrical charge called a piezoelectric field.
- Disease interrupts the normal fields.
- Mechanical loading re-establishes normal field.
- Types of mechanical loading:
 - PEMF (Pulsed Electromechanical Fields)
 - Walking -
 - WBV (Whole Body Vibration)
- Easiest and most effective may be whole body vibration
- Most effective range is 15-30 Hz for cartilage and 50 Hz for bones



Whole Body Vibration (WBV)

- Previously used by John Harvey Kellogg (of Corn Flakes fame) to build muscle wellness with vibrating chairs, bars and platform.
- Vladimir Nazarov developed a hand held device for prevention of muscle and bone atrophy for the Russian Space Institute.
- Used by many athletes such as Lance Armstrong and celebrities such as Madonna to improve physical stamina.



Whole Body Vibration

How it works:

The plate moves up and down in a rapid rate similar to standing up on a fast moving train.

This vibration frequency stimulates the Involuntary Muscle Stretch Reflex(IMSR) causing up to 1,500 muscle contractures per minute.

10 minutes of use can equal 1 hour of active exercise



Whole Body Vibration

Effective for :

Osteoarthritis- WBV treatment alone performed as well as intensive physical therapy program

Park YG, Kwon BS, Park J-W, et al. Therapeutic Effect of Whole Body Vibration on Chronic Knee Osteoarthritis. *Annals of Rehabilitation Medicine*. 2013;37(4):505-515. doi:10.5535/arm.2013.37.4.505.

Osteoporosis and Balance- Bone density in the WBV group increased by 4.3% ($P = .011$), balance improved by 29%

Gusi N, *BMC Musculoskelet Disord*. 2006;7:1-8

Incontinence - Average grade of stress urinary incontinence decreased and subjective improvement of complaints in all patients ($p < 0,001$).

Von der Heide S., EFFECT ON MUSCLES OF MECHANICAL VIBRATIONS PRODUCED BY THE GALILEO 2000 IN COMBINATION WITH PHYSICAL THERAPY IN TREATING FEMALE STRESS URINARY INCONTINENCE

Prevention of Long Term Bed Rest Atrophy-

Edwards JH, Reilly GC. Vibration stimuli and the differentiation of musculoskeletal progenitor cells: Review of results *in vitro* and *in vivo*. *World Journal of Stem Cells*. 2015;7(3):568-582. doi:10.4252/wjsc.v7.i3.568.

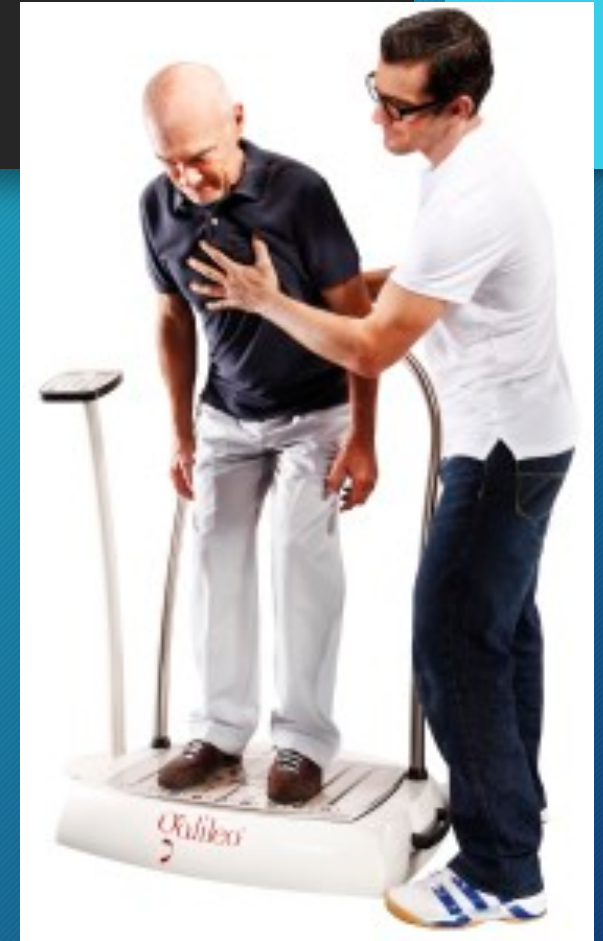
Improve Lymphatic Drainage-

Ohkuma, m; Treatment of Peripheral Lymphedema by concomitant application of magnetic fields, vibration and hyperthermia: A Preliminary Report; *Lymphology*, 35, 2002, p 87-90



Whole Body Vibration

- Simple standing exercises lasting 10-15 minutes
- Series of 2-3 treatments a week for 4 weeks.
- Ideal for patients with balance and endurance problems.



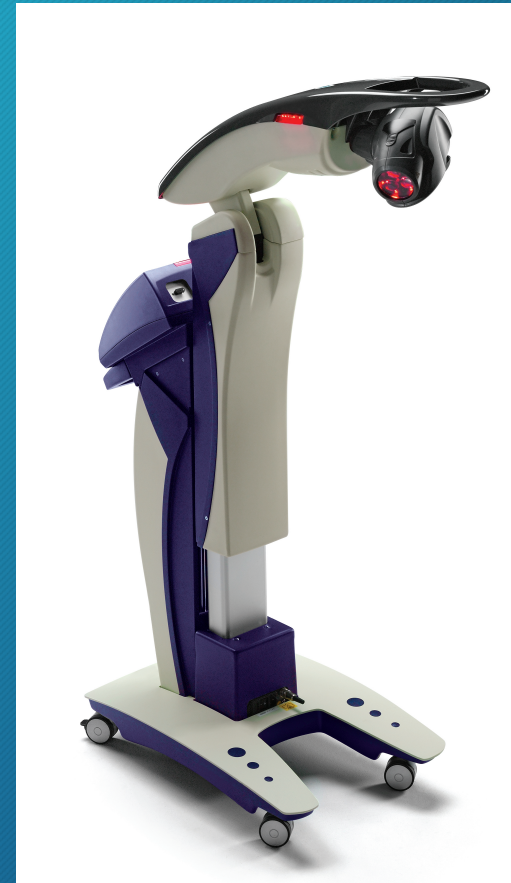
Whole Body Vibration and Cell Based Therapy

- Increases bone marrow stem cells
 - Edwards JH, Reilly GC. Vibration stimuli and the differentiation of musculoskeletal progenitor cells: Review of results *in vitro* and *in vivo*. *World Journal of Stem Cells*. 2015;7(3):568-582. doi:10.4252/wjsc.v7.i3.568.
- Provides optimal stress to joint for stem cell growth
 - Zhou Y, Guan X, Zhu Z, Gao S, Zhang C, Li C, Zhou K, Hou W, Yu H. Osteogenic differentiation of bone marrow-derived mesenchymal stromal cells on bone-derived scaffolds: effect of microvibration and role of ERK1/2 activation. *Eur Cell Mater*. 2011;22:12-25. [[PubMed](#)]
- Non stressful exercise to your joints.



Benefits of Laser Therapy

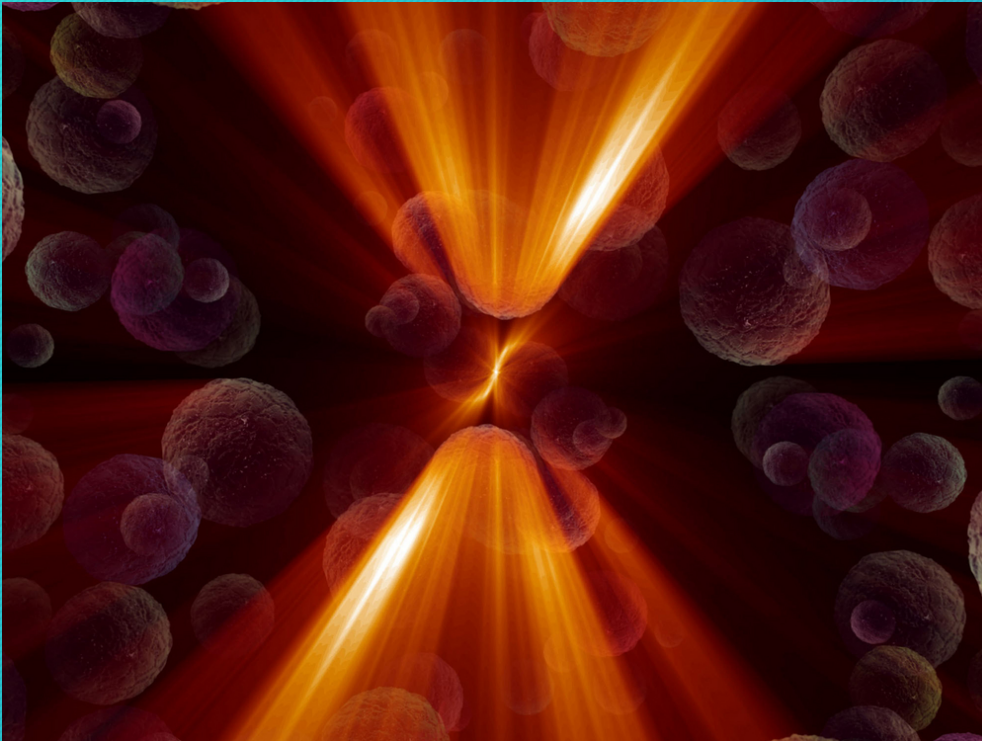
- Pain Management
- Reduce Inflammation
- Increase Mobility
- Help Speed Recovery



Commonly Treated Conditions With Laser :

- Arthritis
- Sprains & Sprains
- Post Surgical Recovery
- Tendon & Ligament Injuries
- Enhancement of cell therapy

How Does Laser Work?



Patented and FDA approved Multiwave Locked System (MLS) uses two specific laser wavelengths:

808nm for anti-edema and anti-inflammation and

905nm for analgesia

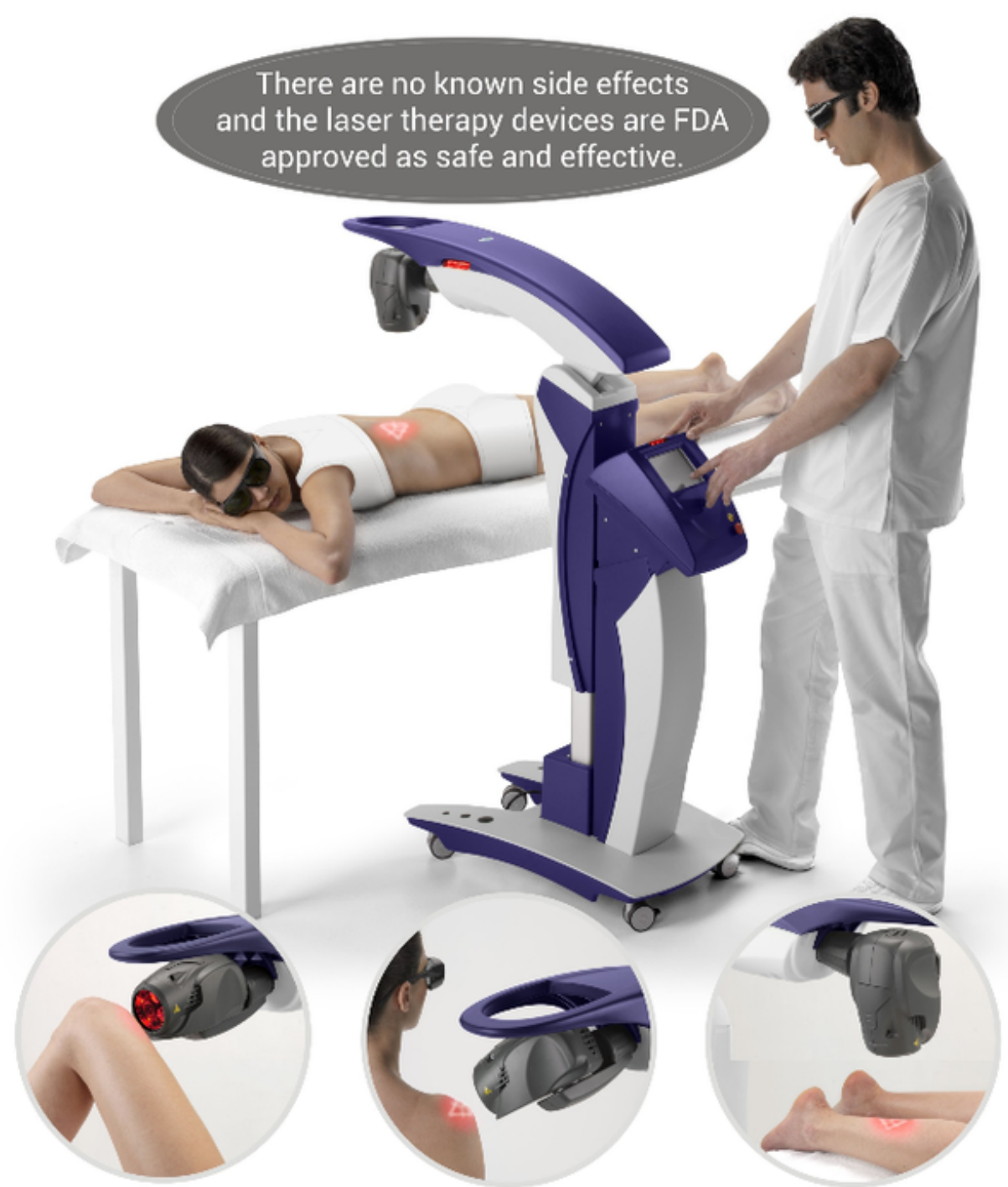
Penetrate 3-4 cm into damaged tissue to help with repair and reduction of pain without causing any thermal damage

Two laser frequencies at different speeds enter into your cell.

When they touch, energy is released within the cell restoring normal function without pain or side effects.

Laser Therapy Treatments

- No pain
- No Side Effects
- No Addiction
- 3 to 9 treatments given every other day
- 20 to 30 min per treatment
- Just lay back and relax



Results of Laser Therapy at AOS

- Average % of patients responding- 79.9%
- Average % reduction in pain - 53%
- Most effective for lower back strains, bursitis and tendonitis
- Although FDA approved, not covered by insurance

Low Level Laser Results

Over 400 patients in our practice reported the following

Diagnosis	Average % Change in Pain	% Responsive
Lumbar DJD	57	74
Sciatica	47	75
Lumbar Strain	63	80
Lumbar Stenosis	57	86
Sacroiliitis	41	100
Spine DJD/Stenosis	50	67
Knee Stiffness/strain/contusion	50	90
Knee DJD	56	84
MCL Sprain	61	89
LCL Sprain	80	100
Patella Tendonitis	38	50
Pes Bursitis	60	71
PF Chondromalacia	26	100
Quad Tear	60	67
Saphenus Impingement	52	100
Plica Syndrome	60	100
Tibia Stress Fx	67	100
Synovitis/Tendonitis	66	75
IT Band Tendonitis	46	57
Troch Bursitis	60	81
Hip DJD	40	83
Hamstring/Piriformis Strain	54	80
Ischial Bursitis/IT band Tendonitis	57	83
Glenohumeral arthritis/RC Inflammation	44	67
RCT	37	73
Shoulder DJD	52	33
S/P IF	40	100
Sinus Tarsi Impingement and peroneal tendonitis	50	100
Subtalar OA/Impingement	50	100
Ankle OA/Synovitis/Impingement/Strain	42	90
Wrist/Hand Arthritis	55	43
Epicondylitis	81	50
Hematoma	50	90
Average % Change	53	
Average % of Responsive Patients		79.9

Laser Therapy Helps Cell Therapy

- Studies have shown benefits of adding low level laser for stem cell and platelet rich plasma therapy.
- Increase in stem cell activity and reduction of cell death
 - O'Connor Megan, Patil Rachana, Yu Jiangzhou, Hickey Richard, Premanand Kavitha, Kajdacsy-Balla Andre, Benedetti Enrico, and Bartholomew Amelia. Photomedicine and Laser Surgery. November 2016, 34(11): 556-563. <https://doi.org/10.1089/pho.2015.4025>
- Increase Stem Cell Proliferation :
 - Fekrazad Reza, Asefi Sohrab, Allahdadi Mahdi, and Kalhori Katayoun A.M.. Photomedicine and Laser Surgery. November 2016, 34(11): 533-542. <https://doi.org/10.1089/pho.2015.4029>
- Suggested 6 to 9 treatments starting at \$360

Nitric Oxide Deficiency and Replacement

Nitric Oxide is one of the most important biochemical signaling molecule

Voted Molecule of the Year 1992

Function of Nitric Oxide won the Nobel Prize for Medicine in 1998.

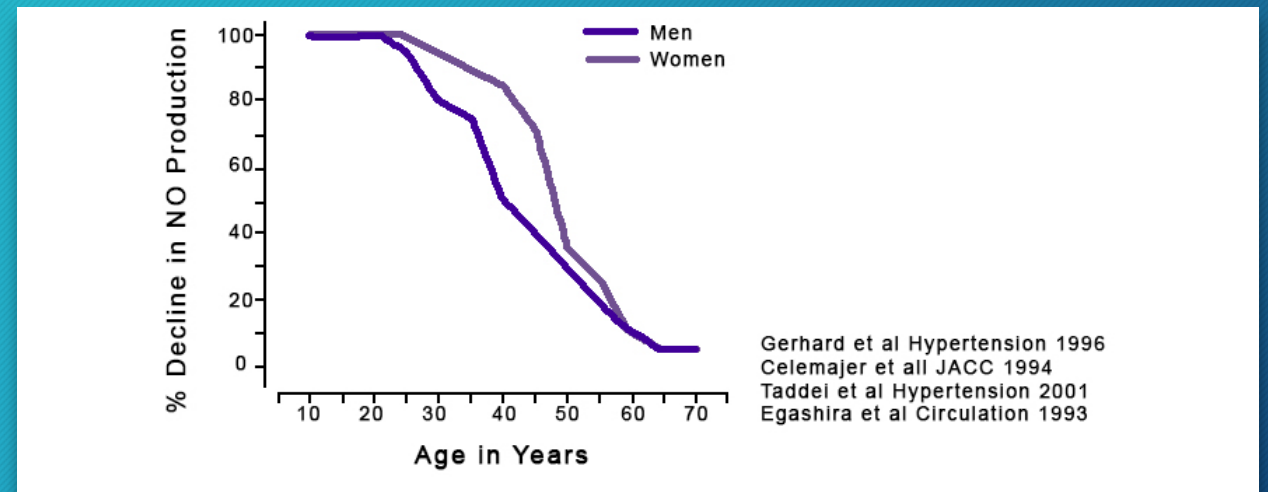


Nitric Oxide Deficiency

As we age, Nitric Oxide levels Decrease

This leads to :

- Cardiovascular Disease
- Hypertension
- Decreased oxygen levels
- Lower endurance

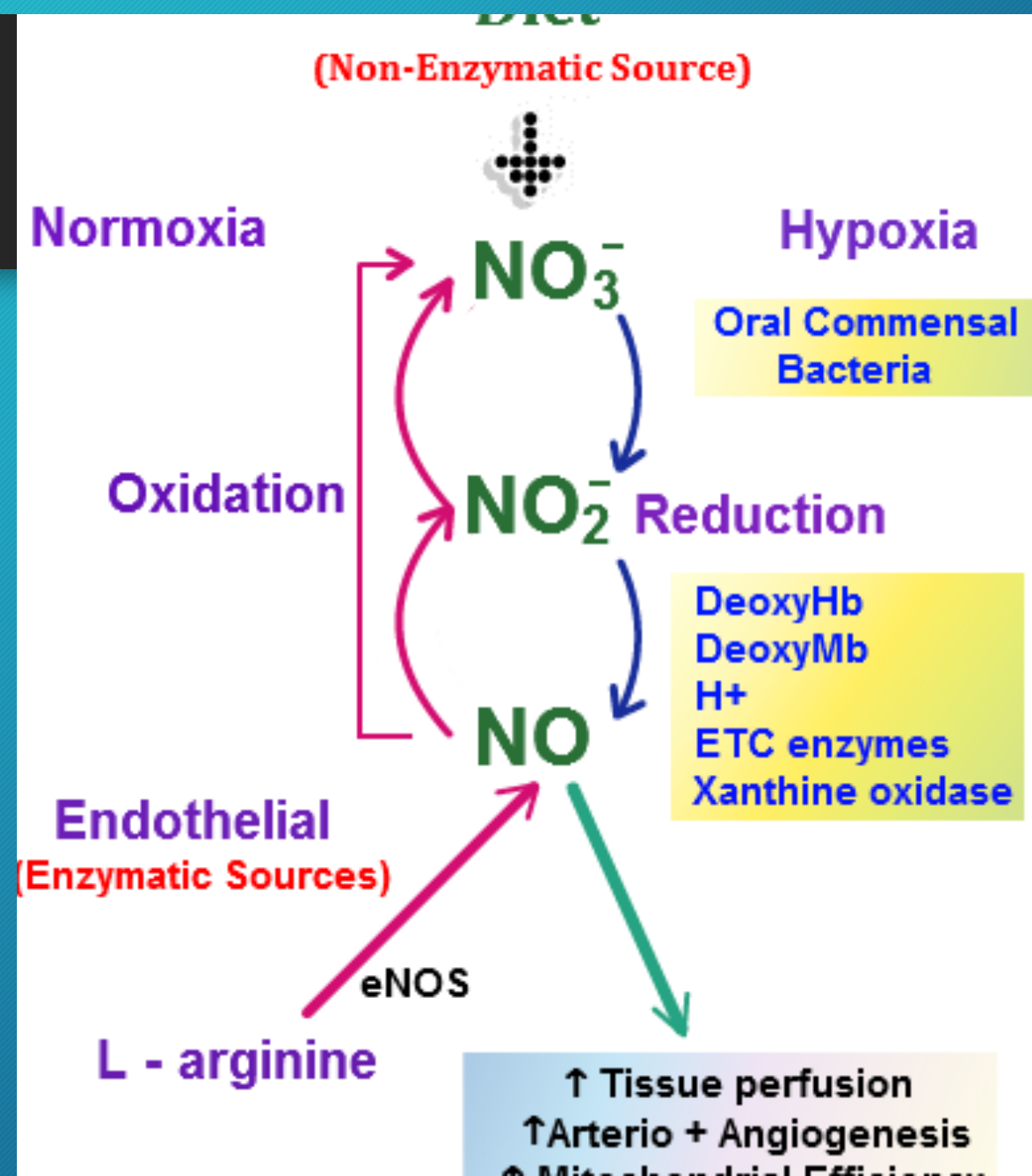


Cause of Nitric Oxide Deficiency

Loss of Nitric Oxide Synthase (NOS) an enzyme which converts amino acid L-Arginine to Nitric Oxide occurs with aging

Only 40- 50% of this enzyme is functional.

This enzyme is dependent upon normal oral bacteria flora



Fixing the Nitric Oxide Synthase (NOS) Pathway

Nitric Oxide Synthase Quick Fixes:

Stop smoking

Moderate regular exercise

Eat Nitrate Enriched Foods:

Spinach

Kale

Beets

Stop antibacterial mouth washes

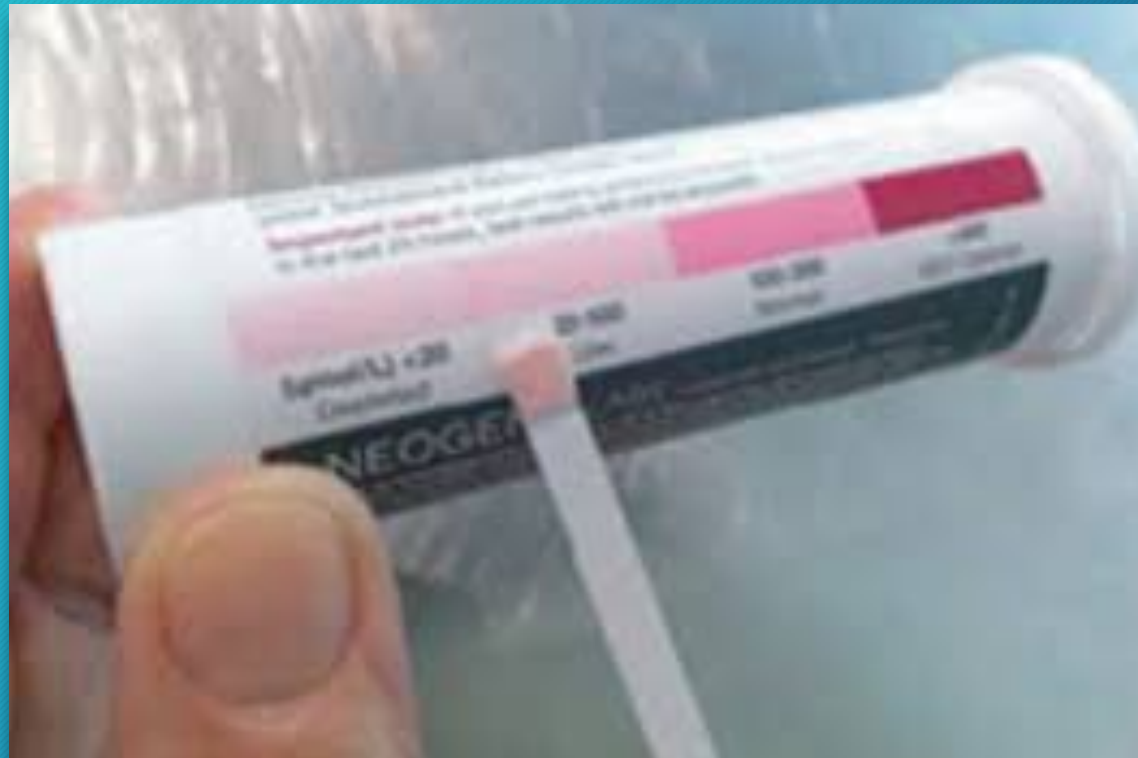


Simple Nitric Oxide Testing

Free Testing takes 30 seconds.

Simple test of your saliva.

Supplementation only suggested if low or depleted



Nitric Oxide Supplements

Developed at University of Texas Nitric Oxide Lab by Dr. Nathan Bryan

Clinical Studies showing safe restoration of normal levels of nitric oxide.

1,400 physicians prescribing worldwide

40 million tablets sold and used safely

Used by many professional teams and elite athletes



Homeopathic Injections

Homeopathy was founded by Samuel Hahnemann in 1796

University of Michigan open homeopathic hospital in 1891

Based on theory of “miasms” and “like cures like”

Recent basic science and clinical trials prove that this may be true!



Traumeel / Zeel Homeopathic Injections

- Manufactured in Germany.
- Made of 12 active natural botanicals and one mineral
- Not FDA approved, but FDA evaluated for Good Manufacture Process (GMP)
- Can only be delivered by a licensed physician



Traumeel/ Zeel Injections

- University of Miami study of 232 patients found that Zeel was as effective as Celebrex and Vioxx.
- Traumeel reduced harmful biochemical causing pain and inflammation.
- Case Western Study of 252 patients double blinded placebo controlled revealed Traumeel and Zeel injections provided better pain relief.

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**MILLER SCHOOL
of MEDICINE**



Traumeel/Zeel Injections

- 3 injections given one week apart.
- Effective for:
- Arthritis
- Tendonitis
- Bursitis
- No Reported Side Effects
- Can be repeated without any waiting period

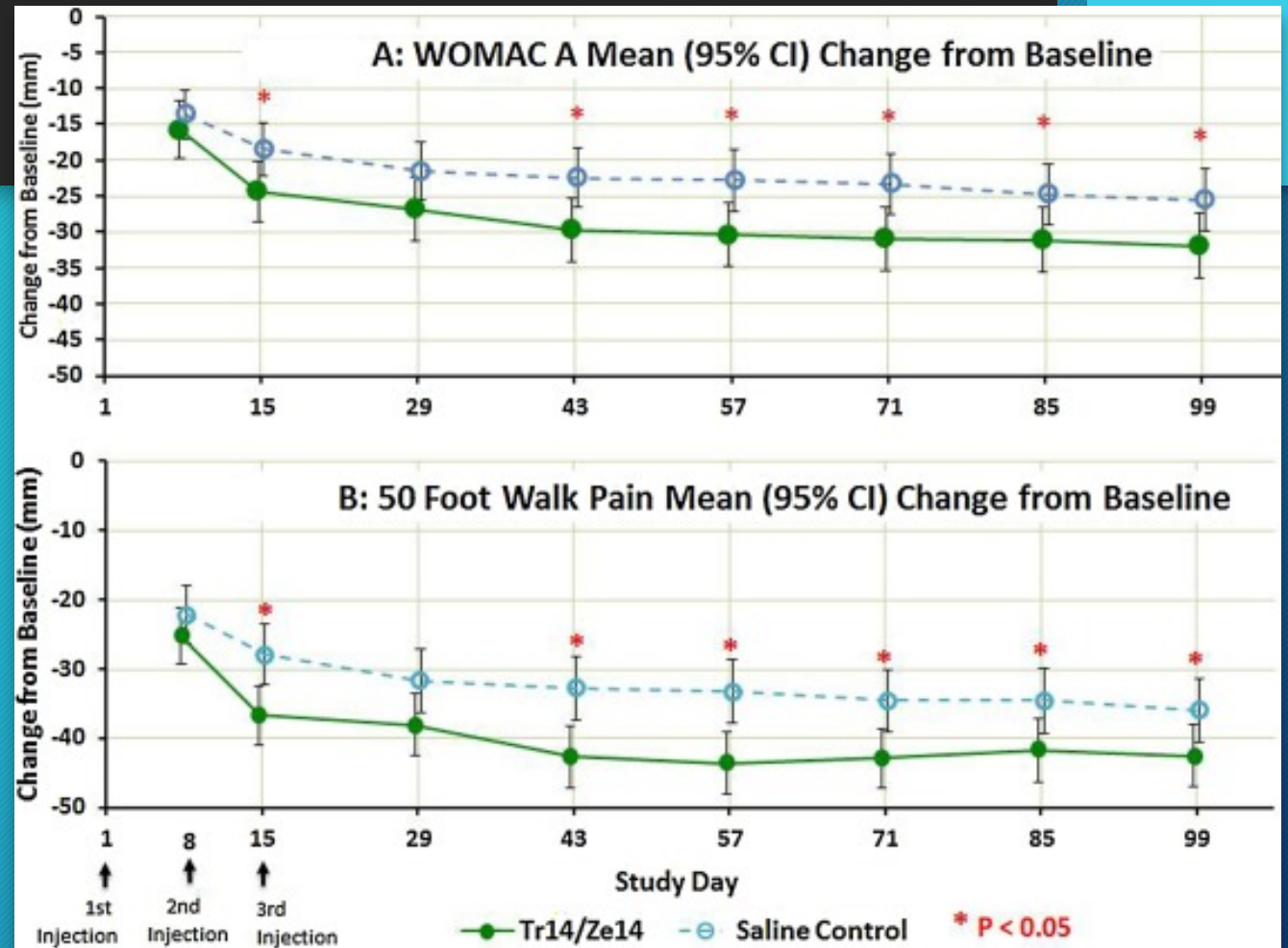


Traumeel/Zeel

Normally Lasts 3 months or more of pain relief.

Can be repeated anytime between

Cost is \$300 for a set of 3 injections.



Summary of Homeopathic Injections

Botanical Mineral
Injections

Proven Safe without side
effects

Proven effective as anti-
inflammatory
medications

3 simple injections

May repeat anytime

Cost is low at \$300 per
set.



Traumeel Cream- Injection Free Temporary Relief

Cream can be used over
sore joints, tendons,
bursa

Use 2-4 times per day

May help with temporary
relief

No side effects

Low cost of only
\$30/tube

Lower cost than any
prescription cream.



Do you want to get back to?



Exercise



Dancing



Travel

We have options!