“What Should I Do Now That I’ve Thrown Out My Vioxx?”

Are We Treating Inflammation and Injuries Correctly?

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Inflammation and Healing

- “The inflammatory response is closely intertwined with the process of repair.” Jefferey Patterson, M.D.
- “Inflammation contains injuries and heals defects. Without inflammation, infections would go unchecked, wounds would never heal, and injured organs might remain festering sores.”
What is the mechanism of healing?

- When cell walls are broken, they release arachadonic acid and glycosylated proteins, which attract fibroblasts and granulocytes (white blood cells and macrophages).
- Granulocytes bind to the glycosylated (sugared) proteins, and fibroblasts set the stage for the proliferative processes with Type III collagen deposition.
Stages of Healing

- **Inflammatory**
  - Increased blood flow, swelling
  - Macrophages remove damaged tissue

- **Proliferative**
  - Formation of new blood vessels
  - New collagen formation

- **Remodeling**
  - New vessels mature, collagen density increases
Inflammation

- Histamine released, causing vasodilation and swelling
- Serotonin, bradykinin, and prostaglandins increase circulation and capillary permeability
- Typically lasts two to seven days
Proliferation

- Macrophages and other immune constituents secrete growth factors which support angiogenesis and Type I collagen deposition.
- This phase typically lasts four to six weeks, which coincides with our understanding of the healing time for soft tissue injuries.
Remodeling

- Ratio of Type III to Type I collagen decreases, increasing the organization and strength of the connective tissue.
- This stage may continue for up to a year and a half.
NSAIDS: The Enemies of Healing?

- Prostaglandins are essential to begin healing process
- NSAIDS inhibit prostglandin activity
- COX-2 activity is essential for fracture healing
- NSAIDS reduce the torsional rigidity and normalized shear stress of bone

NSAIDS Enemies 2 Heal

- NSAIDS interfere with cartilage repair
- NSAIDS interfere with ligament repair
- NSAIDS harm tendon repair
- Reduce blood flow in connective tissue by 35-43% during exercise
- NSAIDS delay cutaneous wound healing and endothelial ulcer healing
NSAIDS Enemies #3

- Link to cardiovascular events through interference of balance between prothrombotic thromboxane A2 and antithrombotic vascular prostacyclin.

- NSAIDS may induce Liver Toxicity or Renal Impairment
Corticosteroids

- SAIDS, (Dexamethasone, Kenalog, Prednisone, Methylprednisolone)
- Block Arachadonic Acid, Prostaglandins, and Leukotrienes
- Degrades tissues just as NSAIDS above
Conclusion #1

- (In case you’ve just walked in...)
- We Need Inflammation To Begin The Healing Cascade!
- Inflammation: Good!
What is Our Treatment for Inflammation?
RICE vs. MEAT

- Rest .................................................... Movement
- Ice ................................................. Exercise
- Compress ............................................ Analgesics
- Elevate .............................................. Treatment

- RICE decreases blood flow, MEAT increases blood flow
Ligament lost 39 percent of its strength due to bone resorption while “healing” in a plaster cast after bone fracture. It took seven and a half months for the ligament to regain strength!

All connective tissues are semi-conductive and piezoelectric. They need stimulation to ensure the natural propagation of metabolic signals. Bodies at rest tend to stay at rest!


Rest II

- Increases fatty proliferation in joints
- Increases cartilage necrosis
- Increases randomness of collagen formation in the connective tissue
- For every day a ligament remains unstressed it will take two days of rehab to restore its mobility and strength.
- Metabolic rate of cells doubles with every ten degrees (Celsius).
- 25 minute icing to the knee decreases cellular metabolism by up to 400%.
- Decreases arterial blood flow (average) of 38%, soft tissue blood flow 26%, bone tissue blood flow 19%.

Compression and Elevation

- Reduces blood flow
- Reduces healing capacity
- D.O. stands for Deliver Oxygen
Mobility

- One study showed movement of the knee for twelve weeks after medial collateral ligament sprain increased joint stability more than fifty percent!
Exercise
Analgesics

- Not to be confused with NSAIDS!
- Aspirin, Ibuprofen, & Naproxen, are NSAIDs!
- Acetaminophen is anti-pyretic and analgesic, but not anti-inflammatory.
- Vicodin and Percocet are examples of acetaminophen with codeine, an opioid derivative.
- Ultram is a non-opioid analgesic.
- These have their own associated problems, but will not interfere with healing to the extent of NSAIDs.
Treatment

- Physical Therapy
- Acupuncture
- Osteopathy
- Chiropractic
- Massage
- Prolotherapy
- LASER
- All increase blood flow and piezoelectric activity.
Natural Anti-Inflammatories

- May interfere to a lesser extent than prescription drugs
- May actually promote healing in some instances
Eicosapenta-enoic Acid Docosahexanoic Acid

These are Omega 3 Long Chain Essential Fatty Acids (EFAs)

Found in plants and deep water ocean fish

These have system-wide anti-inflammatory effects secondary to their membrane-stabilizing potential (notably for cardiovascular system)

Vitamin C
Liposomal Delivery Systems

- Nanopheric lipid packets by-pass the stomach and deliver directly to the bloodstream via the small intestines
- This maximizes absorption dramatically!

Lipoflow.com
This suggestion originally came from Dr. William Kaufman, M.D., Ph.D. by way of Jonathan Wright, M.D.

2-4 GRAMS of niacinamide per day, in frequently-divided doses to insure maximal utilization, is great for osteoarthritis.

Pentosan polysulfate via nebulizer with Glucosamine Chondroitin and MSM.

* Nutrition and Healing Newsletter, April, 2005.
Proteolytic Enzymes

- Chymostrypsin
- Trypsin
- Bromelain
- Papain
- Serrapeptase

The anti-inflammatory effect of enteric-coated proteolytic enzymes seems to be related to their ability to help the body break down immune complexes.

- www.drmurray.com/articles/Penzymes.htm
Megahydrin

- Micro-clustered water with hydride ions
- H- is a highly reactive ion with an incredible affinity for any acidic species or oxygen radical
- Will bind with COOH to form H2O
DMSO

- Di-methyl Sulfoxide
- Methyl groups are **non-polar**, dissolve oil-based derivatives
- Sulfoxide groups are **polar**, dissolve water-based derivatives
- **Will drive any substance into the skin** – be careful of what’s on your hands!
- Increases circulation and aids in the cellular clean-up process as a free-radical scavenger.
Shown to equal the anti-inflammatory effects of Celebrex after one month

Najm, WI et al, S-Adenosyl Methionine versus Celecoxib for the Treatment of Osteoarthritis Symptoms: A Double-blind Crossover Trial,

BMC Musculoskeletal Disorders, 2004,5:6

www.biomedcentral.com/1471-2474/5/6.
Cumin

Has synergy with water-soluble antioxidants such as Vitamin C

- Effective against haloperoxyl radicals, superoxide and lipid peroxyl radicals

- Priydarshini, KI, Free Radical Molecular Biology in Medicine, 1997; 23(6): 838-43.
Ginger may be a potent COX-1 inhibitor and play a key role as an anti-platelet aggregator. Very effective against osteoarthritis of the knee, but it is essentially an NSAID.

Boswellia

- Blocks 5-lipoxygenase and leukotriene synthesis
- Found to be helpful in a number of inflammatory conditions, including asthma, colitis, arthritis.
Proliferative Treatment
Prolotherapy

- Prolotherapy is a technique to strengthen connective tissue
- It involves injecting small amounts of solution into weakened ligaments or tendons
- The resulting inflammation induces a proliferative healing response, creating thicker, stronger tissues, and relieving muscular spasm and pain.
Who Uses Prolotherapy?

Hackett reported that he treated 1600 patients with severe sacro-iliac strain – 82% remained pain-free 2-12 years later.

Hemwall reported 1399 of 1871 patients reported complete recovery, 413 reported general improvement, 25 no improvement, 170 lost to follow-up.
Why Haven’t We Heard About It?

- Hackett proposed prolotherapy to his orthopedic colleagues as an alternative to surgery for sprained ligaments, strained tendons, and torn cartilage. Reception was less than resounding ...

- There is no to patent or profit from, hence, there is no research conducted by drug companies, and few blinded studies in the medical literature.
Research

- Double-blinded study by Dorman and Klein
  - 81 patients with ten or more years of chronic low back pain, s/p surgeries, manipulations, physical therapy, etcetera ...
  - 88% of the treatment group reported marked improvement
  - Flexion, extension, and rotation of the lumbar spine were all improved.
  - Collagen fibers increased average of 58% on biopsy

What’s In the Shot?

- Generally Dextrose-Based (25%)
- 1% Lidocaine
- 0.25% Marcaine
- 5% Sodium Morrhuante (EPA in Benzoyl Alcohol)
- Vitamin B12
- P2G (Phenol, Glucose, Glycerin)
- Pumice, Glucosamine/Chondroitin, HGH)
How Does That Work?

- Glucose is hyper-osmotic and irritating; draws fluid to the site of injection.
- Sodium Morrhuate is rich in poly-unsaturated long chain fatty acids, (like arachadonic acid) which act as precursors for inflammatory mediators such as prostaglandins, leukotrienes, and thromboxanes.
You Want More Proof?

  - Again, 81 patients, double blind, but both the treatment and placebo groups received injections, exercise and manipulation, so both groups did fairly well and though the prolo group did better, this was determined to be inconclusive.

- K. Dean Reeves, University of Kansas has concluded several different studies, using different solutions, and for different conditions, all showing efficacy.
Successfully Treated Syndromes

- Sacro-Iliac Sprains
- Cervicogenic Headaches
- Rotator Cuff Tears
- Spondylolisthesis
- Failed Back Syndrome
- Fallen Arches
- Terrible Triad
Low Level LASER Therapy
635nm Cold Lasers as an Adjunct to Burn Pain Management

51 year old post 50% burn from propane explosion. DOI 05.12.03

Pre-Erchonia 16 hours post-injury.
Post Erchonia 16 hours post injury. Increased perfusion and tissue weepage post treatment.
Spontaneous bleeding from leg post laser treatment 14 days post burn.
2 months post Erchonia treatments and allografting.

58 year old post deep 2° burn to feet from molten carpet in a house fire. DOI 04.30.03

Right foot prior to 3rd Erchonia treatment. Pain decreased by 75% post treatment.
Left foot.
11 days post 5 Erchonia treatments and allografting.
26 days post injury. 6 Erchonia treatments 60% decrease in pain averaged over treatments.

Various Burn Patients.

Minor hand burn. Pain decrease of 50% in 5 min. post-treatment.
Patient in pic fig c fully healed with good skin quality 4 months post injury.
Who Uses LLLT?
How Does It Work?

- Surface receptors
- Protein phosphorylation alters protein function
- Adenosine
- ATP
- ADB
- Enzymes
- Cell metabolism
- Contraction and relaxation of muscles
- Ribosome
- Synthesis of proteins
- Cytoskeleton
- Release of hormones and nerve signals
- Transcription of genetic information
What Can It Do?

- Diminish Pain and Inflammation
  - Increase Lymphatic Drainage
  - Increase Blood Circulation
  - Increase Cellular Metabolism
  - Increase ROM
  - Reduce Increase Strength
  - Speed Tissue Repair

How Does It Work, Again?

- Laser is programmed to specific frequencies, which resonate with receptors on the cell surface. It is at the receptor that cellular responses are triggered by hormones, growth factors, neurotransmitters, etc., by resonance with cellular processes, such as ATP production, protein synthesis.

How Weird Is That?
How Does It Work?

Calcium increases in the muscle cell

1. [Diagram showing calcium entering the muscle cell]
2. [Diagram showing ATP breakdown]
3. [Diagram showing actin and myosin binding]
4. [Diagram showing crossbridge formation]
5. [Diagram showing ATP regeneration]
6. [Diagram showing muscle contraction]
7. [Diagram showing relaxation process]
How Is This Applied?

- Non-surgical (Class III) has no thermal effects
- Treat:
  - The Area of Involvement
  - The Nerve Root of the Involved Myotome
  - The Motor-Sensory Strip of the Frontal and Parietal Cortices
  - The Cerebellum
Do We Have Time for A Demonstration?
Conclusion #2

- The Body Has Mechanisms to Heal Itself
- Our job is to help, or get out of the way!
Questions?
Follow-Up

- Advanced Pain Solutions
- <drperretz.com>
- pperretz@hotmail.com
- <getprolo.com>
- <Erchonia.com>