

Stem Cells, CBD, PRP for Knee Arthritis

SCAM

Or

SCIENCE

Thomas Meade MD
Coordinated Health
Allentown, PA



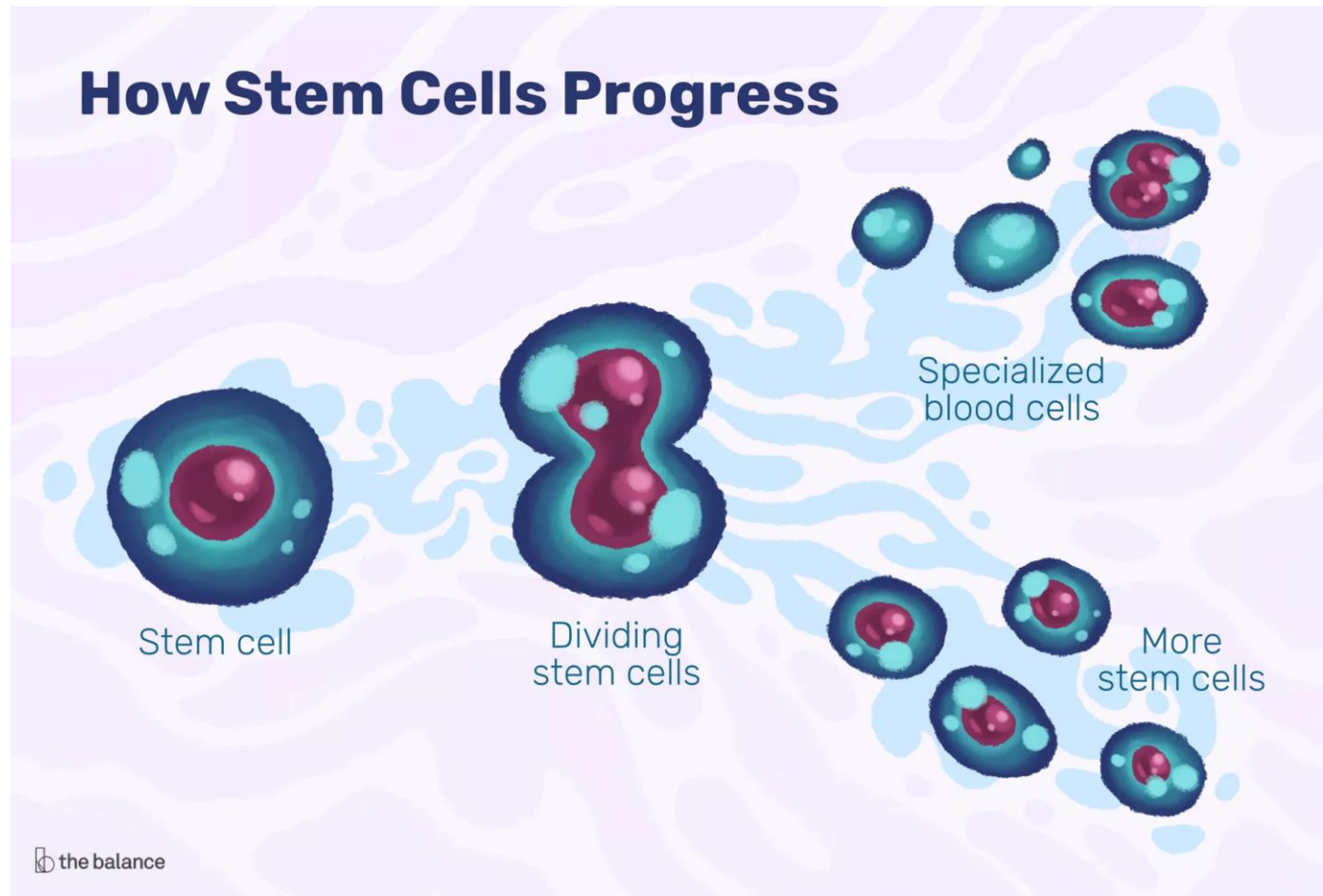
DISCLAIMER

All information provided was for education only and not meant to serve as medical advice. Any personal use of information provided should be discussed with your physician

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Stem Cells-Definition

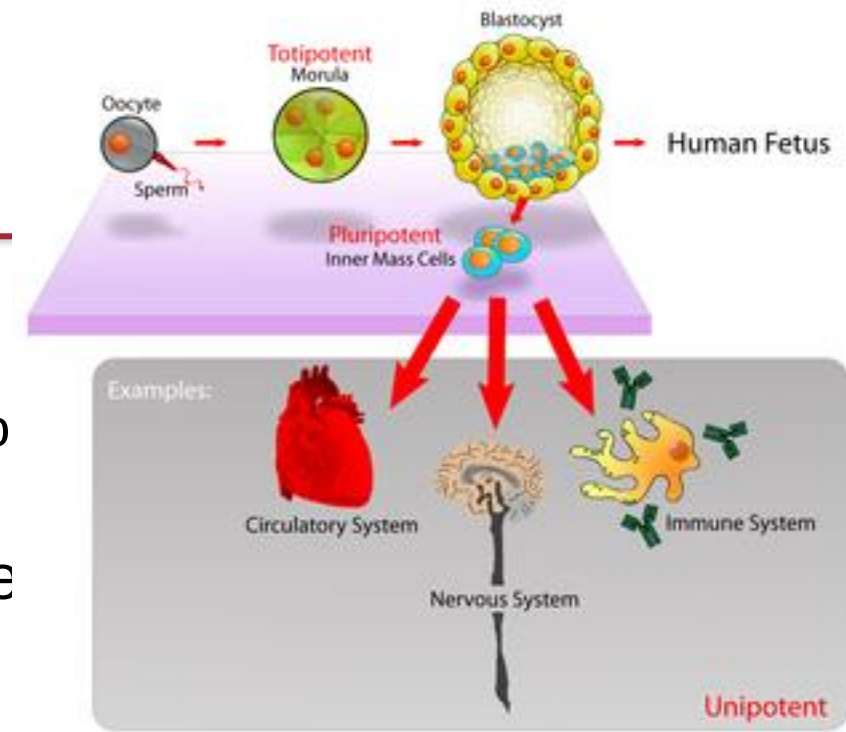
Cells- can differentiate into other types of cells, and can also divide in self-renewal to produce more of the same type of stem cells.



Stem Cell Types

- 1. Embryonic Stem Cells-** require destruction of embryo
 - Many nations currently have moratoria or limitations on either human ES cell research or the production of new human ES cell lines.
 - Currently **no approved treatments using ES cells.**

- 2. Adult Stem cells-** **Adipose** , Bone Marrow, Blood
Stem cells, are cells which maintain and repair the tissue in which they are found. [\[26\]](#)



Stem Cell History

- 1998- Isolated human embryonic stem cells
 - 2010 1st human trial
- 2006- Adult stem cells could be reprogrammed
- 2008 – no SC clinics
- 2019 >700 clinics
- FDA- only oversees Drugs....but 2017-Fat Stem Cells are DRUGS
- Argument- Stem cells manipulated w drugs/enzymes
- Until 2020- licensed and FDA Approved Clinics
- Where are we now?--- WILD WILD WEST!



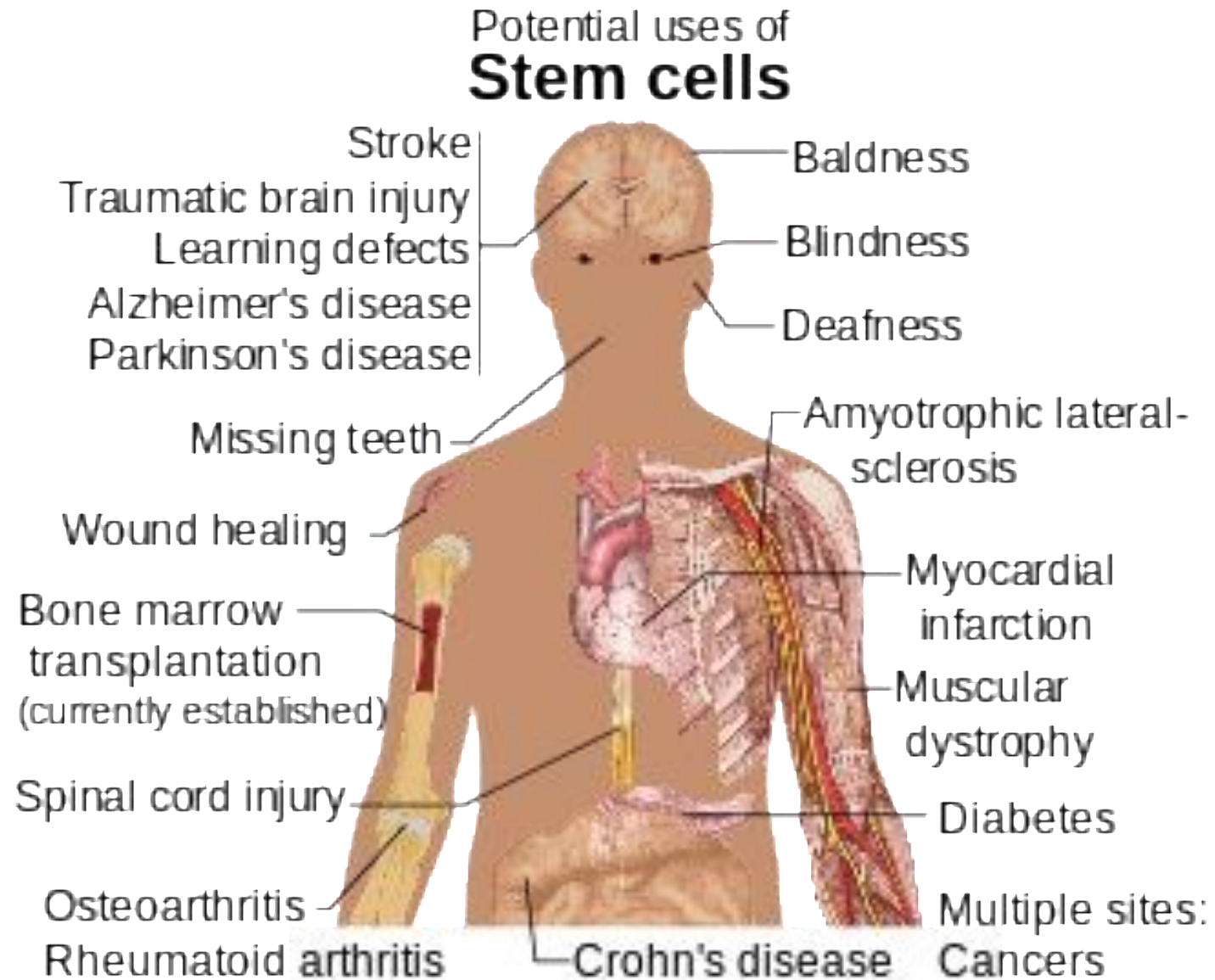
Stem Cell Basics I.

- *Stem cells are unspecialized.* -Sleeping- long time-til needed
 - The primary roles of **adult stem cells in a living organism are to maintain and repair the tissue in which they are found.**
- Scientists are just beginning to understand the signals inside and outside cells that trigger each step of the differentiation process.

Problem

- Need lots Stem Cells to treat problems- millions and millions
- Not many MSC- (adult stem cells in Fat or Bone Marrow)-least amt-RARE
- Very Hard to grow in Lab- unlike ESC
- Turn into other tissues—tumors???? We dont know signals to turn into specific tissues
- Isolating these cells from an adult tissue is challenging,
- methods to expand their numbers in cell culture have not yet been worked out.

Enormous Potential!!!



Reality

Stem Cells



'Stem Cells'
From FAT



1:1000 to 1:1,000,000

Bone Marrow Stem Cells



Blood, Bone
Cartilage



Fat Stem Cells



Fat Cells,insulate
Store food



AAOS-2018

Misrepresentation of Uncharacterized and Unproven Minimally Manipulated Products as **Stem Cells** May Erode Public Trust and Compromise Development of Legitimate Cell Therapies

- AAOS
- National Institutes of Health (NIH),
- American Orthopaedic Society for Sports Medicine,
- Arthroscopy Association of North America,
- International Cartilage Regeneration and Joint Preservation Society,
- Keynote speakers
 - National Institutes of Standards and Technology,
 - Stanford Center for Innovative Study Design
 - FDA.

Recommendations

- **Stem cells have unique characteristics** that are not met by minimally manipulated cell-based therapies being widely marketed in the United States
- Problematic, confusion for patients, physicians, and the general public.
- **ALL current cell therapies offered in the US** for musculoskeletal conditions involve the transplantation of adult cells obtained through harvest and minimal manipulation of native tissues
- Term stem cell has been overused, misused
- CALL IT: cell therapy and that the untested and uncharacterized nature of these treatments be clearly understood by practitioners and clearly communicated within the profession, to patients, and to the public.

NEWS | STEM CELL THERAPIES | DECEMBER 20, 2018

FDA Clamps Down on Unapproved Stem Cell Therapies

Genetech warned its umbilical cord blood-derived cellular products are not FDA cleared



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PROBLEM \$\$\$\$\$\$\$\$\$\$

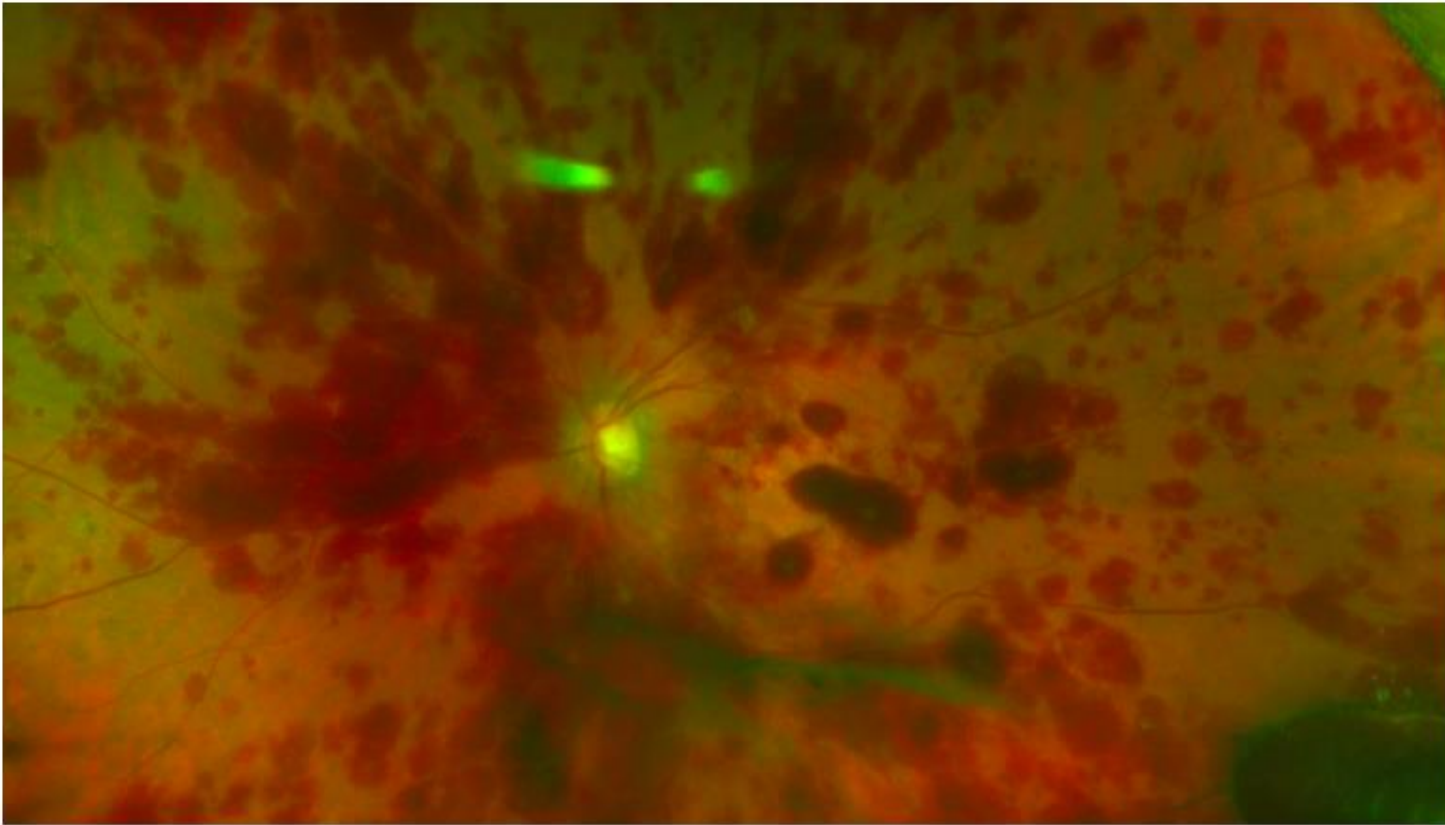
"This is not an industry that's just going to melt away overnight," Turner said.
"It may be a prolonged battle. There's just too much money caught up in this marketplace." *Bioethicist*

None of the therapies they offer have FDA approval. The clinics use a variety of stem cell products, including those from fat tissue, along with cells from bone marrow and from birth tissue like the placenta and umbilical cord.

"At best, these clinics are selling bogus treatments that cost patients thousands of dollars, say industry critics; at worst, the therapies can cause permanent harm."



This clinic's experimental stem cell treatment blinded patients. Years later, the government is still trying to stop it.



A picture of a patient's eye one week after receiving stem cell injections from U.S. Stem Cell in 2015 shows widespread retinal hemorrhages, according to ophthalmologist Thomas Albini. He said the patient suffered significant loss of vision. (Thomas Albini)



**Coordin
Health**

Criticism: FDA-Not great track record!!!

- If the FDA had done something meaningful around 2009 and these businesses hadn't proliferated there wouldn't be this huge regulatory challenge facing the FDA
- Hundreds of these businesses and they say they can't possibly regulate them all, so they have to prioritize their resources and just pick the most outrageous ones.
- "The FDA is part of the very problem they're now responsible for addressing.
- They did very little for years
- If they had done a better job of it over the last seven or eight years, we'd be in a very different place."

Excitement

- Stem cell research is one of the most fascinating areas of contemporary biology,
 - BUT-- research on stem cells raises scientific questions as rapidly as it generates new discoveries.

+

Patients w (OA) that eventually fail conventional nonsurgical therapies lead to chronic pain, disability, and difficulty with self-care and activities of daily living.

=

Patients vulnerable to unsubstantiated claims in direct-to-consumer advertising.^{4,5}



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Stem Cell therapy

Say Goodbye to Joint/Back Pain?

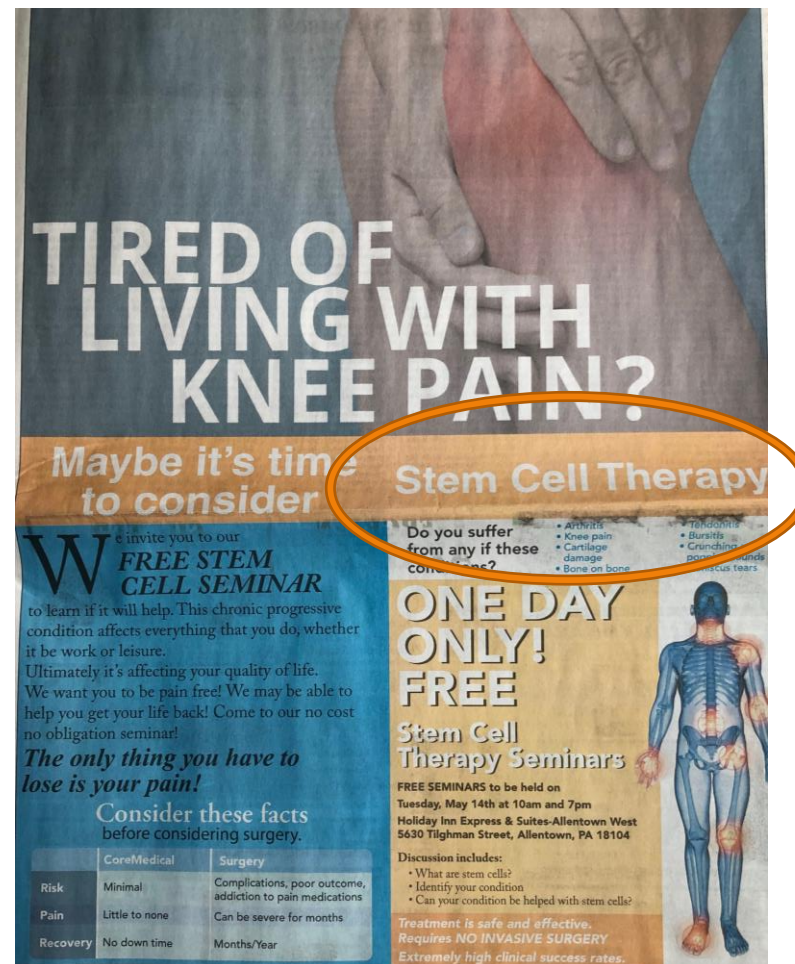
Maybe it's time to think about Stem Cell Therapy

Millions Suffer from Joint/Back Pain

WHY SUFFER FROM THE DEBILITATING EFFECTS OF IT

We invite you to our **FREE STEM CELL SEMINAR** to learn if it will help. This chronic progressive condition affects everything that you do, whether it be work or leisure. Ultimately it's affecting your quality of life. We want you to be pain free! Come to our no cost no obligation seminar!

The only thing you have to lose is your pain!



TIRED OF LIVING WITH KNEE PAIN?

Maybe it's time to consider **Stem Cell Therapy**

Do you suffer from any of these conditions?

- Arthritis
- Knee pain
- Cartilage damage
- Bone on bone
- Tendonitis
- Bursitis
- Crunching/popping
- Ligament tears

ONE DAY ONLY! FREE Stem Cell Therapy Seminars

FREE SEMINARS to be held on
Tuesday, May 14th at 10am and 7pm
Holiday Inn Express & Suites-Allentown West
5630 Tilghman Street, Allentown, PA 18104

Discussion includes:

- What are stem cells?
- Identify your condition
- Can your condition be helped with stem cells?

Treatment is safe and effective. Requires NO INVASIVE SURGERY. Extremely high clinical success rates.

Dr. ---proudly offers advanced regenerative medicine in the form of stem cell treatment. An injection of a patient's stem cells reduces inflammation and promotes healing by triggering the growth of muscle, cartilage, and bone.

A person with long blonde hair, seen from behind, stands on a rocky mountain peak with their arms outstretched. They are wearing a light-colored t-shirt and shorts. A blue backpack is on the ground near their feet. The background shows a vast, hazy mountain range under a clear sky. The image is used as a background for the advertisement.

STEM CELL THERAPY IN PITTSTON

The future is now! You can now harvest your cells and store them for future use through Cells on Ice.

(570) 569-2250

ARE STEM CELLS SAFE?

Stem cells are harvested under sterile conditions using a special "closed system" technology so that the cells never come into direct contact with the environment throughout the entire process from removal to deployment. Sterile technique and antibiotics are also used to prevent infection.

Patients have their fat harvested in our special sterile treatment facility under a local anesthetic. The fat removal procedure lasts approximately twenty minutes. Specially designed equipment is used to harvest the fat cells and less than 100cc of fat is required. Post operative discomfort is minimal and there is minimal restriction on activity.

No. Only adult "mesenchymal" stem cells are used. These cells are capable of forming bone, cartilage, fat, muscle, ligaments, blood vessels, and certain organs. Embryonic stem cells are associated with ethical considerations and limitations.



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CHECK OUT THE **RESEARCH** HERE

World Journal of Orthopedics

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Minireviews

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World J Orthop. Sep 18, 2017; 8(9): 674-680

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Mesenchymal stem cells for cartilage regeneration in osteoarthritis

Baldur Kristjánsson, Sittisak Honsawek

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Chulalongkorn University, King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Bangkok
10330, Thailand



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Research

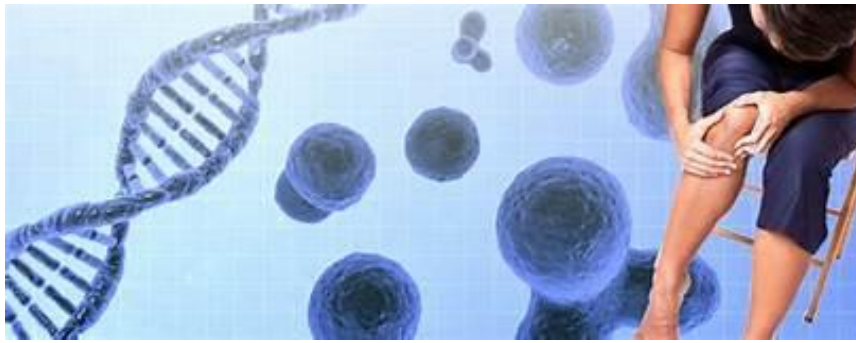
- MSCs have also been found to have no capability for cartilage regeneration after articular cartilage damage.
- Another study found that patients' age and stage of OA also affected the differentiation capability and expression of stemness genes of localized adipose-derived MSCs[\[17\]](#).
- More shockingly, recent study reported that synovial fluid from OA patients inhibited the *in vitro* chondrogenic differentiation in MSC cultures of healthy donors[\[18\]](#).
- Cell based tissue engineering for OA have been used with varying results for over two decades. Autologous chondrocyte implantation (ACI) is a cell based technology wherein the cultured chondrocytes are applied on the injured area for regenerating and repairing cartilage[\[20\]](#)



Clinical Study

1. India- 10pts ADSC +PRP
2. China –Rat study
3. Korea- symptomatic improvement
4. Korea- review
5. British review article
6. Basic Science- no ref
7. Vietnam- ADSC +PRP—21 pts
8. European study- no ref





- As promising as the field is, **stem cell treatments still are unproven**, and they often have high rejection rates.

- The cost also can be prohibitive for many patients, with a single treatment costing well into the thousands of dollars, **(\$4000-\$12,000) as of 2018**.

Stem cell **clinicians will admit they don't have the broad, controlled studies** to prove injected stem cells are safe and effective.

For today, however, **we remain in murky medical waters**. Stem cells are a high-priced treatment backed by insufficient research, and they can be administered by any physician willing to take a weekend course and accept cash or charge.

Summary

Meanwhile, the FDA has given the industry at large until 2020 to comply with the new rules. So far, few companies have made any move to do so, FDA officials said.

- International scientific groups,
- Leading stem cell researchers
- American Lung Association
- American Academy of Ophthalmology



‘Although stem cells may eventually be used to treat many diseases, the research is in its early stages, they said, and the therapies at cash-based clinics are unproven and premature.’

Stem Cells

SCAM

OR

SCIENCE

?

BOTH



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PRP

SCAM

OR

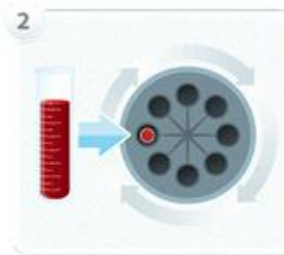
SCIENCE

PRP-Definition

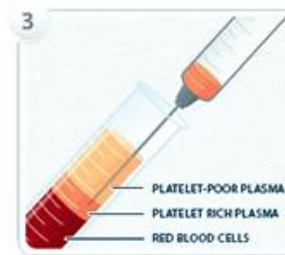
- **Platelet-rich plasma (PRP)**--is a concentrate of platelet-rich plasma protein derived from whole blood, centrifuged to remove red blood cells.
- PRP contains several different growth factors
- Tentative evidence supports its use in osteoarthritis (OA) of the knee.^{[7][8]}
- PRP was "a promising, but not proven, treatment option for joint, tendon, ligament, and muscle injuries".^[9]



1 Collect Blood
30-60ml of blood is drawn from the patient's arm.



2 Separate the platelets
The blood is then placed in a centrifuge. The centrifuge spins and separates the platelets from the rest of the blood components.



3 Extract platelet-rich plasma
The blood is then placed in a centrifuge. The centrifuge spins and separates the platelets from the rest of the blood components.



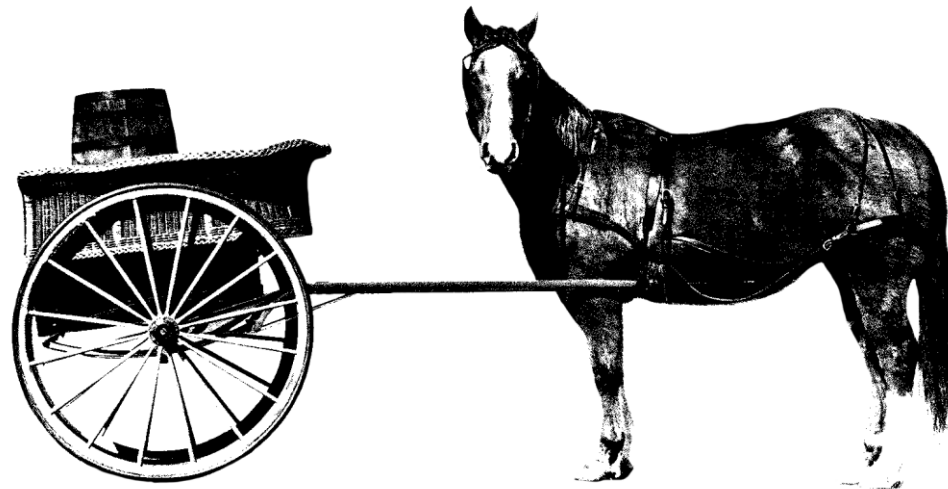
4 Inject injured area with PRP
Using the concentrated platelets, we increase the growth factors up to eight times, which promotes temporary relief and stops inflammation.



AAOS

The clinical use of biologics such as platelet-rich plasma (PRP) and cell-based therapies to treat orthopaedic complications has greatly outpaced the evidence.

CART BEFORE THE HORSE



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Proponents

- Proponents of PRP therapy have argued that negative clinical results are associated with poor-quality PRP produced by inadequate single spin devices.

 PRP Centrifuge for 6 tubes x20m



Good News

- There are no studies to date that have reliably documented adverse effects associated with PRP treatment

Treatment of knee OA with PRP and minimally manipulated autologous cells are already widely used in the United States. The existing studies do not show that these therapies are associated with substantial risk of harm. [12,39](#)



PRP

For Pro Athletes

PRP Saves Careers



Coordinat
Health

Dr PRP
USA

21 Biggest American Pro Athletes Who've Had PRP In 2016

This USA-only list is not all-inclusive and I'm sure we have omitted a lot. But this list should give you an idea of how popular this treatment really is.

- 1. As we mentioned above, Garrett Richards had platelet-rich plasma injection for healing the pitcher's partially torn elbow ligament. He's confident of his comeback without Tommy John.
- 2. Stephen Curry had Platelet-Rich Plasma for a grade 1 MCL sprain during Game 4 of the team's first-round series against the Houston Rockets in 2016.
- 3. In November, Los Angeles Lakers' D'Angelo Russell got a platelet-rich plasma injection to alleviate pain in his left knee. After having the injection on Nov 23, he missed 11 games to pave way for full recovery.
- 4. Philadelphia 76ers Jerryd Bayless also got his PRP to heal his wrist in November. But one thing he didn't do after Platelet-Rich Plasma was rest. He continued playing so healing didn't happen. And he was under immense pressure to stop the season and do surgery to get well for the next season, which is what he eventually did in December.
- 5. New York Mets catcher Travis d'Arnaud received a platelet-rich plasma injection in his ailing right shoulder. His was a strained rotator cuff. Today, word is out that he is 0-for-5 in his attempt to throw out base stealers this season.



Platelet-Rich Plasma Cuts Downs Healing Time By 50%

We've had physicians who say they're seeing hamstring strains that typically has about a six-week healing window heal completely in three-weeks. They are astounded. Typically natural treatments should have LONGER healing window than traditional treatments. But here, we're talking about hundreds of cases where it's actually cut down by 50% or more – and this is the most natural (and simple) of all treatments.

PRP just concentrates the body's own healing resources to where needs it most!

The growth factors and other cytokines present in PRP include

- platelet-derived growth factor
- transforming growth factor beta
- fibroblast growth factor
- insulin-like growth factor 1
- insulin-like growth factor 2
- vascular endothelial growth factor
- epidermal growth factor
- Interleukin 8
- keratinocyte growth factor
- connective tissue growth factor



Efficacy of Platelet-Rich Plasma in the Treatment of Knee Osteoarthritis: A Meta-analysis of Randomized Controlled Trials.

Arthroscopy 2017

CONCLUSIONS:

Current evidence indicates that, compared with HA and saline, intra-articular PRP injection may have more benefit in pain relief and functional improvement in patients with symptomatic knee OA at 1 year postinjection.

This study suggests that PRP injection is more efficacious than HA injection and placebo in reducing symptoms and improving function and quality of life.

[Knee Surg Sports Traumatol Arthrosc.2016](#)

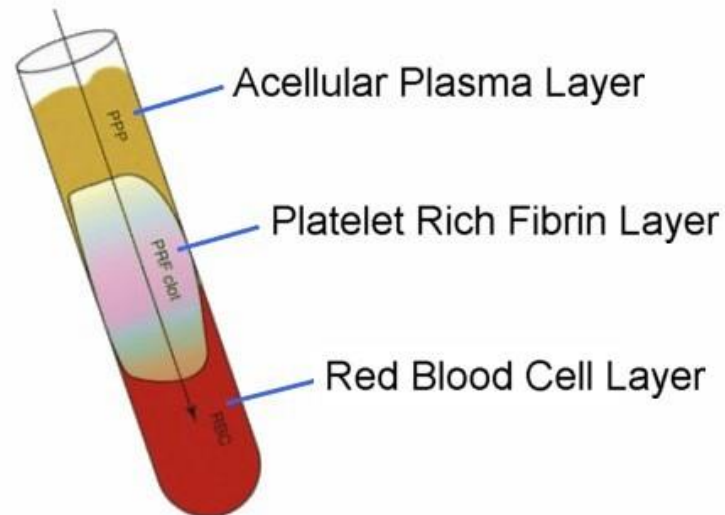


Not all PRP's created equal

- Different concentrations WBC, Platelets, Fibrin
- Most research- white papers by companies
- No significant peer review comparisons

PLATELET RICH FIBRIN

10 cc of blood centrifuged for 10 minutes



PRP

SCAM

OR

SCIENCE

- Neither-if honest
- Does no Harm
- May accelerate soft tissue healing
- As good or better than HA
- BUT- NO INSURANCE

SCAM

OR

SCIENCE

Costly Joint-Pain Injections Replaced By New \$2 Pill

New pill boosts the same lubricating joint fluid as expensive and painful injections - without using a needle. Users report dramatic relief from swelling, pain and stiffness without side effects and expense.

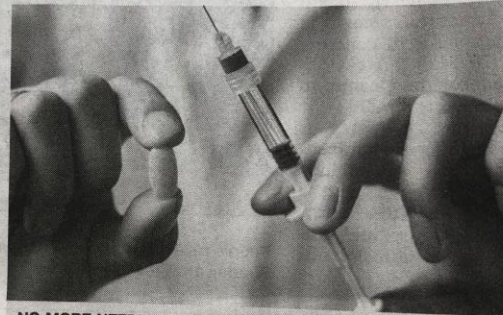
Health News Syndicate

HNS—A popular needle injection for people with joint pain is now available in an inexpensive nonprescription pill. The breakthrough came when researchers discovered a way to deliver the injected "relief molecule" through the digestive system.

Top US clinics have used these needle injections for years because they deliver powerful relief. Unfortunately, the shots are painful and expensive. They also only work on the joint being treated.

The new pill, called Synovia, delivers the same "relief molecule" as the injections. However, it has some impressive advantages. First, it's inexpensive and nonprescription. Also, relief is delivered to every joint in the body because it enters the bloodstream through the digestive system.

This gives it the ability to produce a much wider variety of pain relief. Users report greater



NO MORE NEEDLES: A popular needle injection pain-killer for joint pain is being replaced. The key molecule in these injections can now be delivered by taking a new low-cost pill called Synovia.

Impressive Clinical Results

Leading clinics use injection therapy because it works. Recent clinical trials show the pill form also delivers major relief.

One example is a landmark study out of Europe. In the study the active ingredient in Synovia was compared to a popular NSAID pain reliever.

roles: lubrication and giving the cartilage the nutrients it needs."

Approved By Leading Doctors

The new delivery system for this molecule has caught the attention of leading medical doctors.

"Needle injections for joint pain have been



UNHEALTHY: No lubricating fluid or cartilage leads to painful bone-on-bone rubbing.



HEALTHY: Synovia's active ingredients lubricate joints and nourish cartilage!



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Boswellia serrata: Boswellic acids – the active components – have strong anti-inflammatory and analgesic properties. They also may help prevent cartilage loss and inhibit the autoimmune process, making Boswellia a potential therapy for RA, too.

2. Capsicum Annuum: capsaicin reduces substance P, a pain transmitter.

3. Curcuma longa: Curcumin blocks inflammatory cytokines and enzymes, including cyclooxygenase-2 (COX-2), the target of celecoxib.

4. Zingiber officinale: ginger has been shown to have anti-inflammatory properties similar to ibuprofen and COX-2 inhibitors. Ginger also suppresses leukotrienes (inflammatory molecules) and switches off certain inflammatory genes, making it potentially more effective than conventional pain relievers.

. Glucosamine sulfate: Glucosamine produced in the body provides natural building blocks for growth, repair, and maintenance of cartilage. Like chondroitin, glucosamine may lubricate joints, help cartilage retain water and prevent its breakdown. Similar to NSAIDs for its effectiveness of easing osteoarthritis symptoms.

6. Methylsulfonylmethane: MSM is an organic sulfur compound. Sulfur is needed to form connective tissue. MSM also seems to act as an analgesic by lessening nerve impulses that transmit pain.

7. Willow Bark: Willow bark contains a chemical called salicin that is similar to aspirin. It eases pain and reduces inflammation.

Does your knee feel like this?

Does Dad have knee pain? This would be the perfect gift for him!

Then You Need To Know About An Innovative
FDA Cleared Treatment That Is Providing
Lasting Relief Locally
Without Surgery!

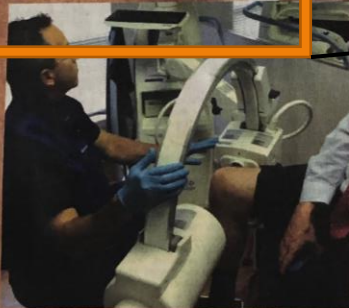
Happy
Father's
Day!

And The Best
Part Is...
It's Covered By
Most Insurance
Including
Medicare!

Do you wake up with knee pain? Does your knee pain keep you from certain activities? Have you been told you need a knee replacement? Are you active and sometimes suffer from sore knees? Do you take medications for knee pain? Do you have difficulty going up and down stairs? Are you considering surgery to alleviate your knee pain? Have you tried everything to get rid of your knee pain without success?

If you have answered yes to any of these questions or if you are experiencing similar symptoms, then you are likely ready to experience the relief and healing that Dr. Scot Paris and his team can offer.

- No known side effects!
- Little to no pain!
- Recovery is almost immediate!

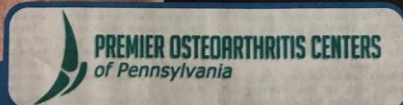


Scot Paris, MD, FACS



"For the pain relief my knees have gotten, believe me, it is worth the drive from the Bethlehem area".

Clarence H.



CALL NOW For a
RISK-FREE
CONSULTATION

1329 E. High St. | Pottstown, PA

CALL NOW
610-326-8400
www.endmykneepain.com

SCAM

- No known side effects!
- Little to no pain!
- Recovery is almost immediate!

Common side effects of Synvisc include:

- injection site reactions (pain, swelling, warmth, stiffness, puffiness, or fluid buildup in or around the knee),
- muscle pain,
- trouble walking,
- fever,
- chills,
- nausea,
- numbness or tingly feeling,
- headache,
- dizziness,
- tired feeling, or
- itching or skin irritation around the knee.

Tell your doctor if you have serious side effects of Synvisc including:

- back pain,
- severe headache, or
- fast or pounding heartbeat.
- Synvisc may cause an allergic reaction.

Pt Complaints:

I had one synvisc injection . Within 24 hours my knee had doubled in size . My Ortho had to drain my knee two days later . The pain was intense and continued for weeks . I'm still dealing with pain two months later .

I had the series of three shots and a small reaction after the third one....Dr recommended Synvisc one and it was a nightmare....huge swelling...could not bend or move my right knee at all...got so sick and dizzy I ended up in er ...had horrible results in blood work...it even affected my liver....er dr aspirated three times....now most of swelling is down but my knee it's so stiff and painful I'm in tears at times..is there a class action against Synvisc somewhere?

I have had the same bad reaction and now I am going to have my knee "washed" out as my orthopedic Dr calls it after the sinvisc injection missed work and working out - it's been a month. I am for a class action LS.



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Introducing Dr. Scot Paris



Dr. Scot Paris received a BA in Psychology from Emory University in Atlanta, GA in 1987. He then received his Medical Degree from UMDNJ/Robert Wood Johnson Medical School in Piscataway, NJ in 1991. Dr. Paris completed a Residency in General Surgery at Mercy Catholic Medical Center in Darby, PA in 1996, and then completed a Fellowship in Colon and Rectal Surgery at UMDNJ/Muhlenberg Hospital in 1997.

Currently, Dr. Paris practices General and Colorectal Surgery in private practice in Pottstown, PA and is the Chairman of the Department of Surgery at Pottstown Memorial Medical Center in Pottstown.

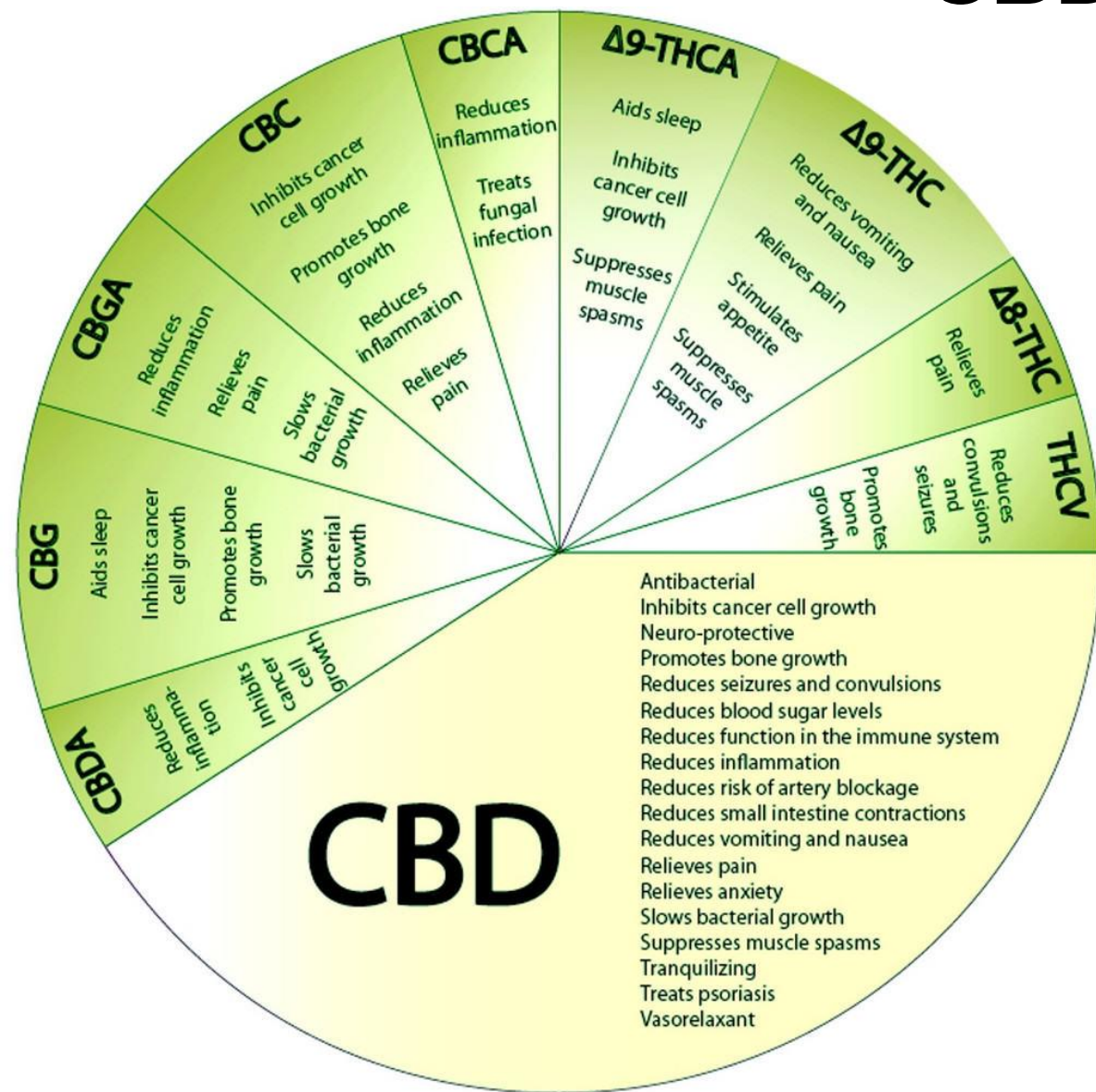
Dr. Paris joins Northeast Spine and Wellness Center as the Medical Director. Dr. Paris has taken an interest in the treatment and prevention of chronic back pain and other musculoskeletal conditions. He is currently receiving training in minimally invasive pain management techniques and provides and performs surgical expertise for pain management physicians that perform techniques that require surgical intervention. In addition, Dr. Paris plans to obtain certification

with the American Academy of Pain Management.

SCAM

CBD

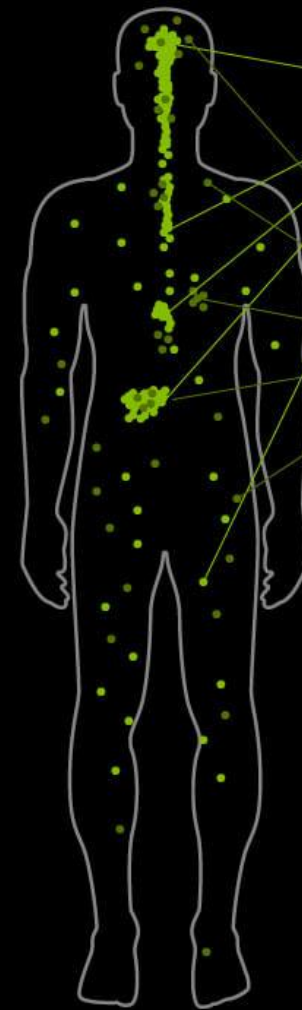
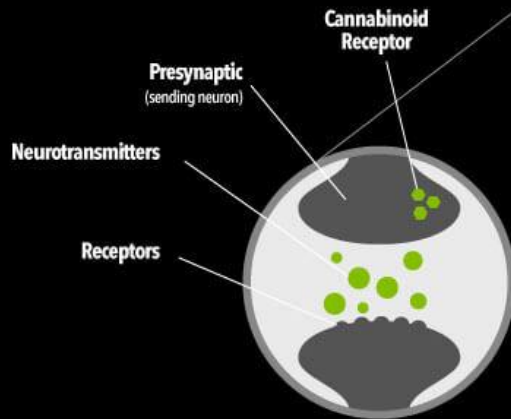
SCIENCE



Body's 1° tool of homeostasis-600 M yrs old

The Human Endocannabinoid System

Discovered in the 20th Century, our Endocannabinoid System (ECS) consists of numerous cannabinoid receptors that are endogenous to the mammalian brain, and play a pivotal role in physiological processes such as mood, memory, pain and appetite.

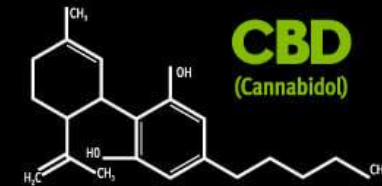


CB1

CB1 receptors are primarily found in the brain and central nervous system, and to a lesser extent in other tissues.

CB2

CB2 receptors are mostly in the peripheral organs especially cells associated with the immune system.



CBD Suppresses the breakdown of Anandamide, a naturally occurring Cannabinoid in the body that is responsible for activating the CB1 and CB2 receptors.



Center for
Integrative
Health

Basic Science Facts- Endocannabinoid System

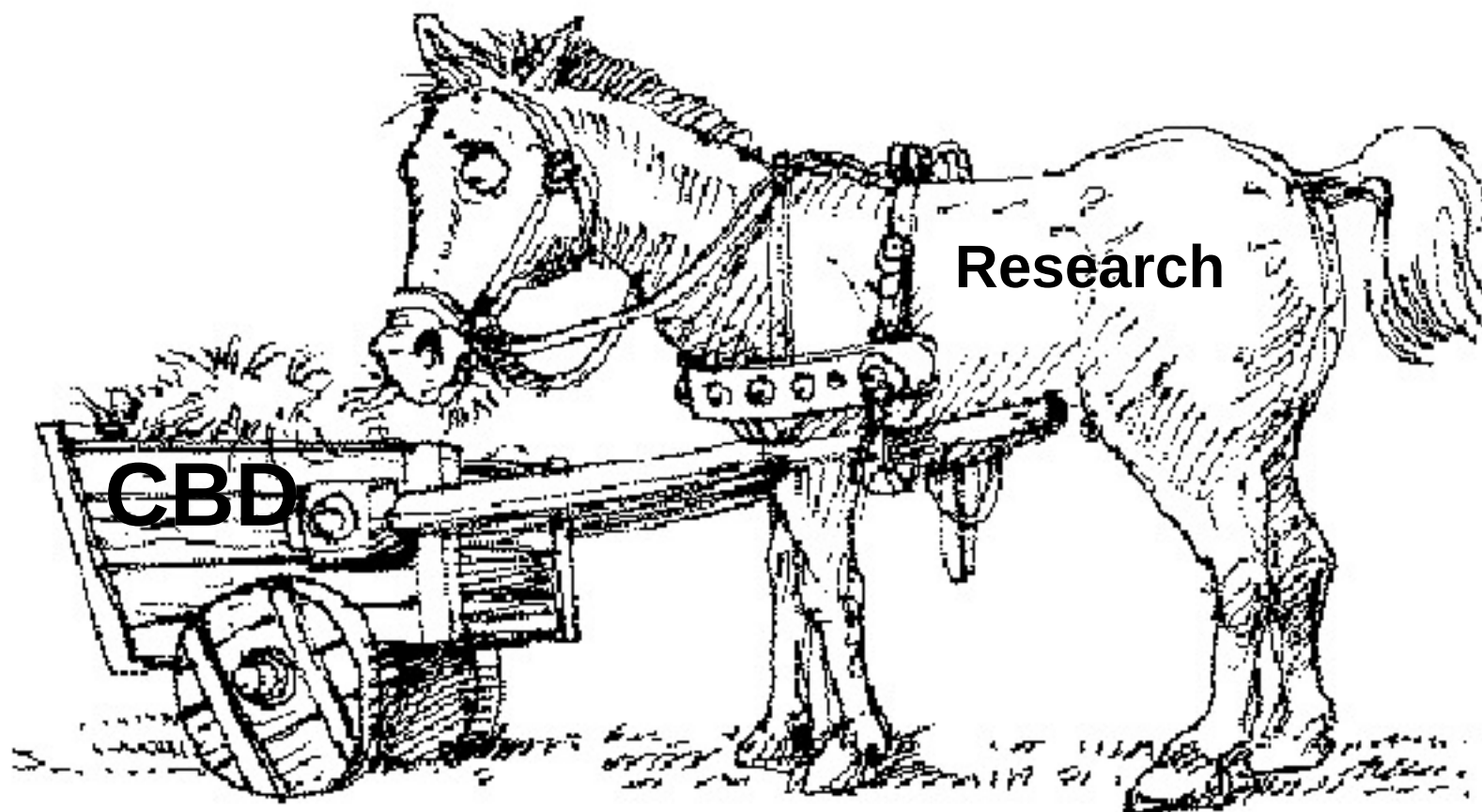
- Humans and animals synthesize endocannabinoids- same receptors as exogenous plant based CBD/THC
- Crucial for bioregulation and unique/ubiquitous cell signaling: PAIN-Acute, Chronic Inflammatory, Neuropathic
- Anti- inflammatory effects of most spices –mediated thru CB2 receptors
- Derived from FFA in cell membranes-similar to Omega 3/6
- May help normalize sleep, improve appetite PO TJA
- **US Dept HHS-** owns patent on use CBD as Anti-Ox & Neuroprotectants
- Significant 'cross-talk' betwn opioid & EC receptors- dec dose response curve
- CB 1-2 receptors may-decrease cartilage destruction – inhibiting chondrocyte expression of cytokines



Basic Science Facts- Endocannabinoid System

- Ibuprofen, Ketorolac, Acetaminophen, Cox-2 –all have a cannabinoid MOA for analgesia
- EC system is widely distributed in body. Main function is cellular homeostasis.
- **Understanding is emerging, incomplete, complex-exciting!!**





PUTTING THE CART BEFORE THE HORSE



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\$2.00 ■ THE NATION'S NEWS

USA TODAY[®] WEEKEND

Hemp Gummies Shown To Relieve Discomfort

Hemp Gummies offer users fast acting relief from joint and muscle discomfort that's absolutely delicious; now available in the U.S. without a prescription

For millions battling daily discomfort, this news couldn't be more exciting.

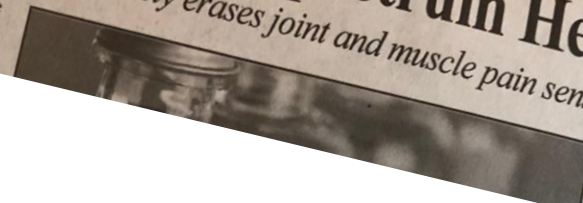
A new relief extract found in hemp is available across the nation and can be purchased without a prescription. And the best part, it comes



Joint Pain Sufferers Kick Up Their Heels with Maximum-Strength Full-Spectrum Hemp Oil

under Federal Law, won't get you high; completely erases joint and muscle pain sensations, deep sleep

World Health Organization and the American Academy of Family Physicians support access to hemp and its therapeutic health-improving properties.



Hemp Extract, like
Hemp Gummies, may
help users with...

- Aching joints
- Sore muscles
- Cramping
- Leg and foot discomfort
- Restlessness
- Stress
- Sleep problems



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Contents lists available at [ScienceDirect](#)

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Primary Arthroplasty

Should Cannabinoids Be Added to Multimodal Pain Regimens After Total Hip and Knee Arthroplasty?



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Since All pain is ultimately transmitted through inflammatory mediators.....

NEUTRACEUTICALS TO HELP OPTIMIZE SURGICAL OUTCOMES

- **Omega-3 (Fish Oil)-1000-3000mg**
- **Turmeric/Curcumin(700-1500)**
- ASA 81mg**
- Bromelain (100mg bid)
- Vit D3 (5000mg)
- Vit E (400-800mg)
- Vit C (2000mg)
- Mg+ (400-800mg)
- CoQ10 (100-200mg)
- Zn(50mg)
- Selenium (200mcg)
- Resveratrol (250mg)
- **L-Arginine (1500mg)**

Green/Black Tea
Carotenoids
Black Pepper-peppercorns
Cinnamon
Clove
DHEA (25-100mg)
Tart Cherry
Avocado
Pomegranate
Ginger
Quercetin (250mg)

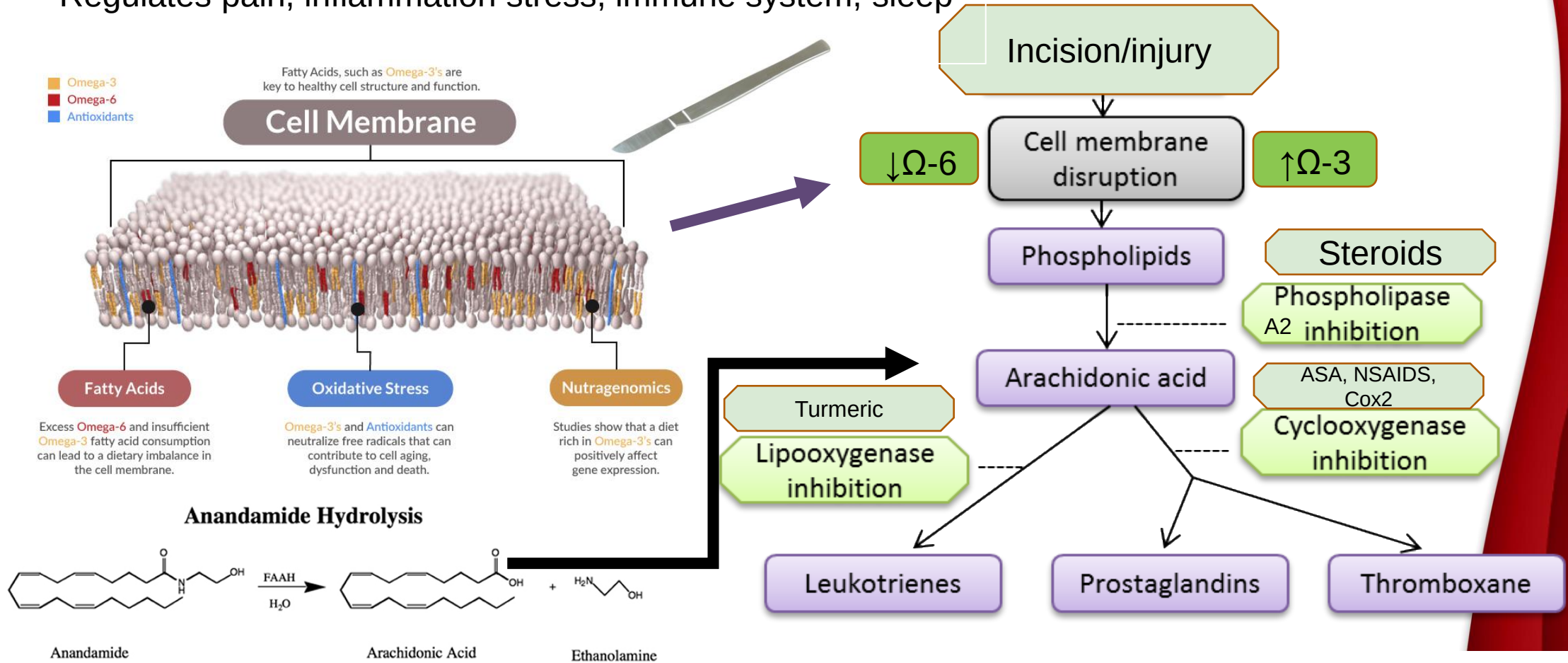
Hemp- CBD!!!



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Anandamide (endocannabinoid-'CBD')- produced on demand from phospholipids in cell membrane

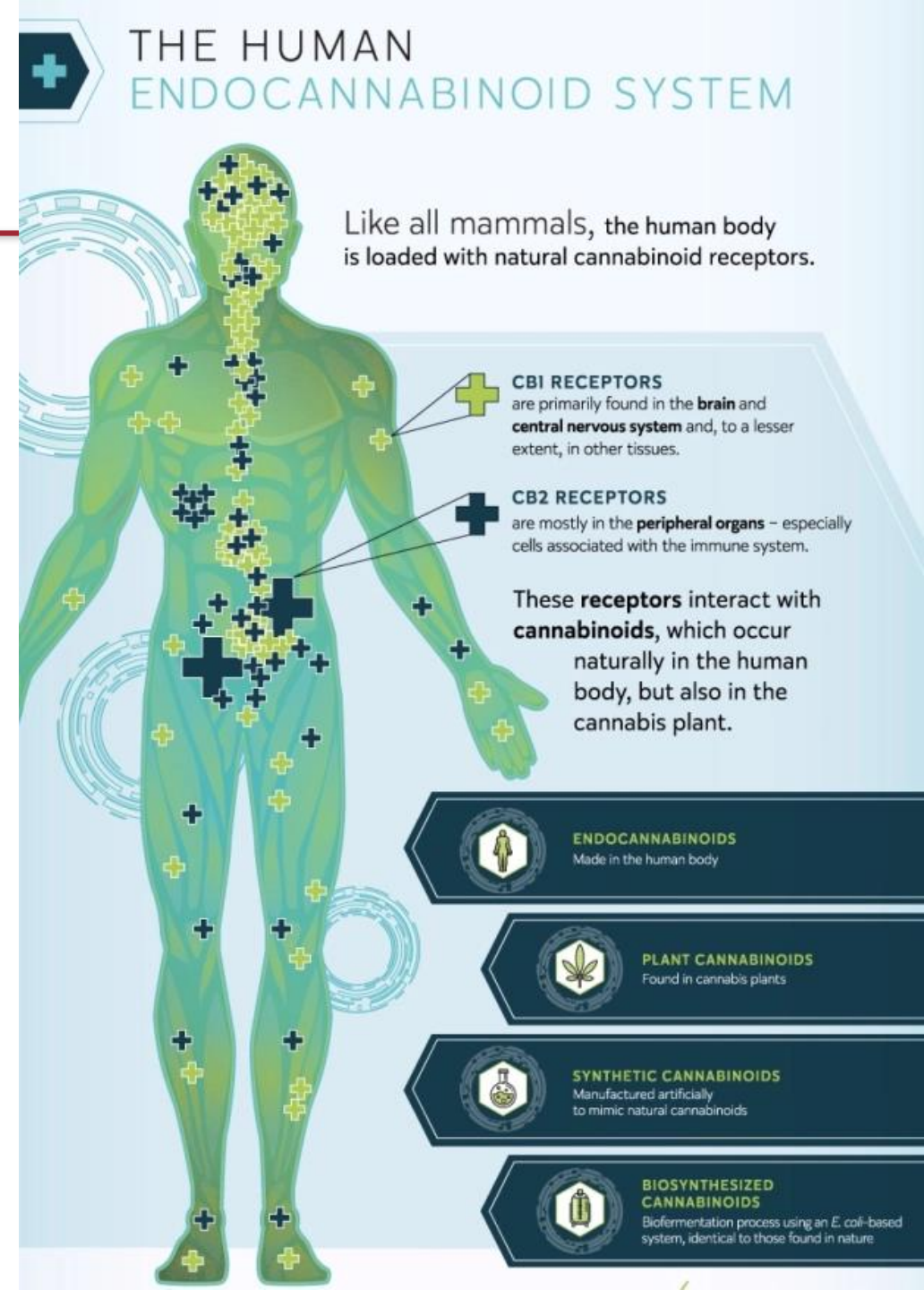
- Regulates pain, inflammation stress, immune system, sleep





The Endocannabinoid System, Cannabinoids, and Pain

- **Modulate Pain and Inflammation**
- **Anti-Nausea**
- **Tissue healing**
- **No respiratory depression**
- **No fatalities** reported directly related to toxicity
- 600 million y.o. system & thousands yrs. social/medicinal use
- Pain related medical service = \$1Trillion USA
- Stay tuned- 31 states approved
 - Overdose Rx deaths decreased 25%

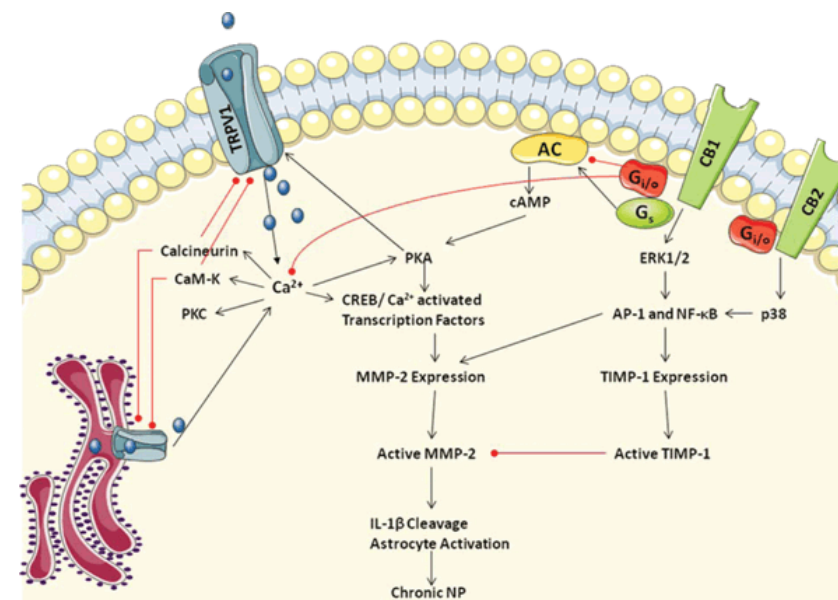


SCAM

CBD

SCIENCE

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Q and A

THANK YOU



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