PRP for Chronic Pain

Dr. John Hughes, DO

February 21st, 2018

Dr. John Hughes, DO
Doctor of Osteopathy

1) The body is a unit; one cannot treat a part of the body without considering its entirety.

2) Structure and function are reciprocally interrelated.

3) The body is capable of self-regulation, self-healing, and health maintenance.

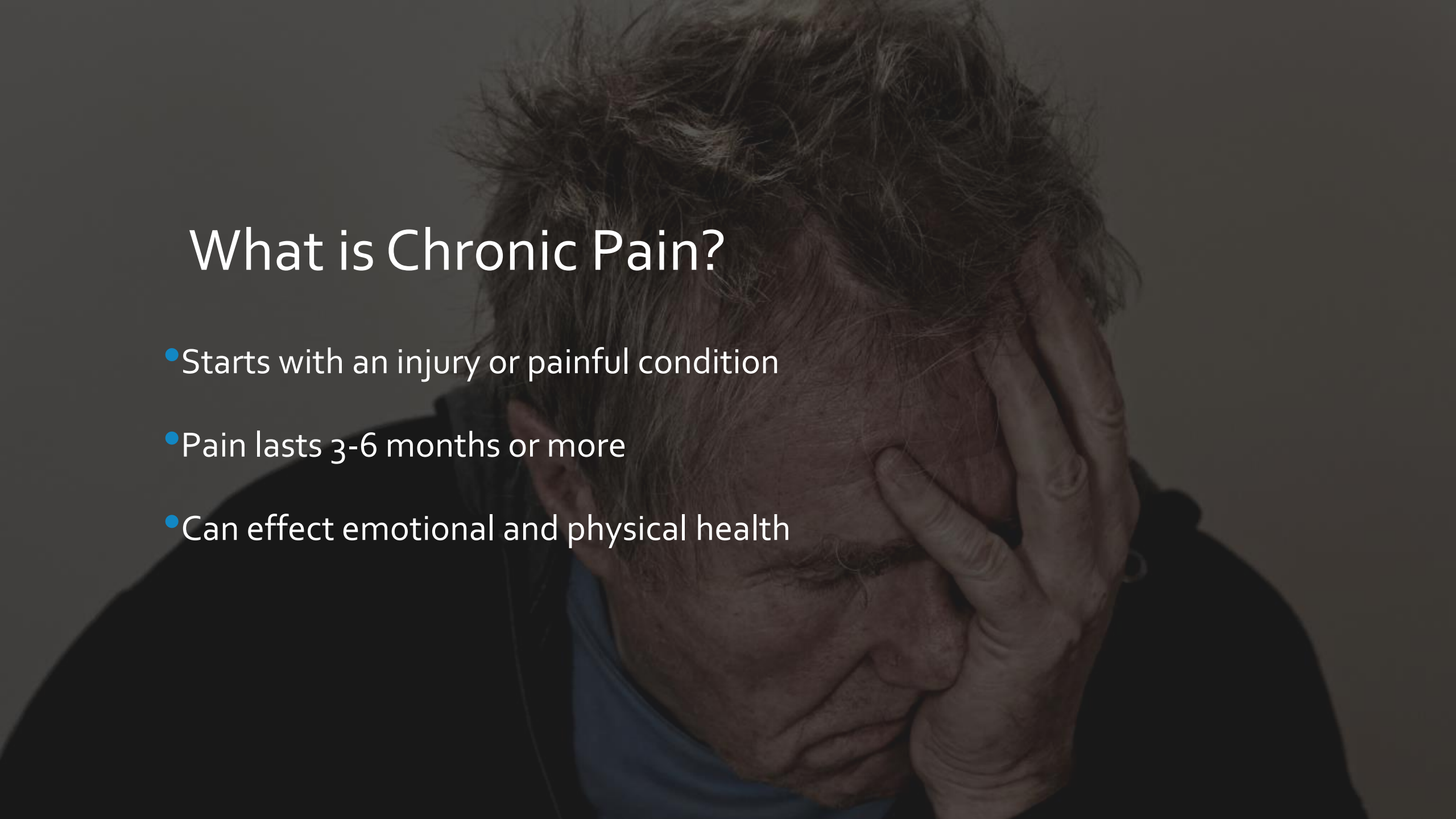
4) The nervous system controls, influences, and integrates all bodily functions.

Learning Objectives

- What causes chronic pain?
- What is PRP?
- How PRP treats chronic pain

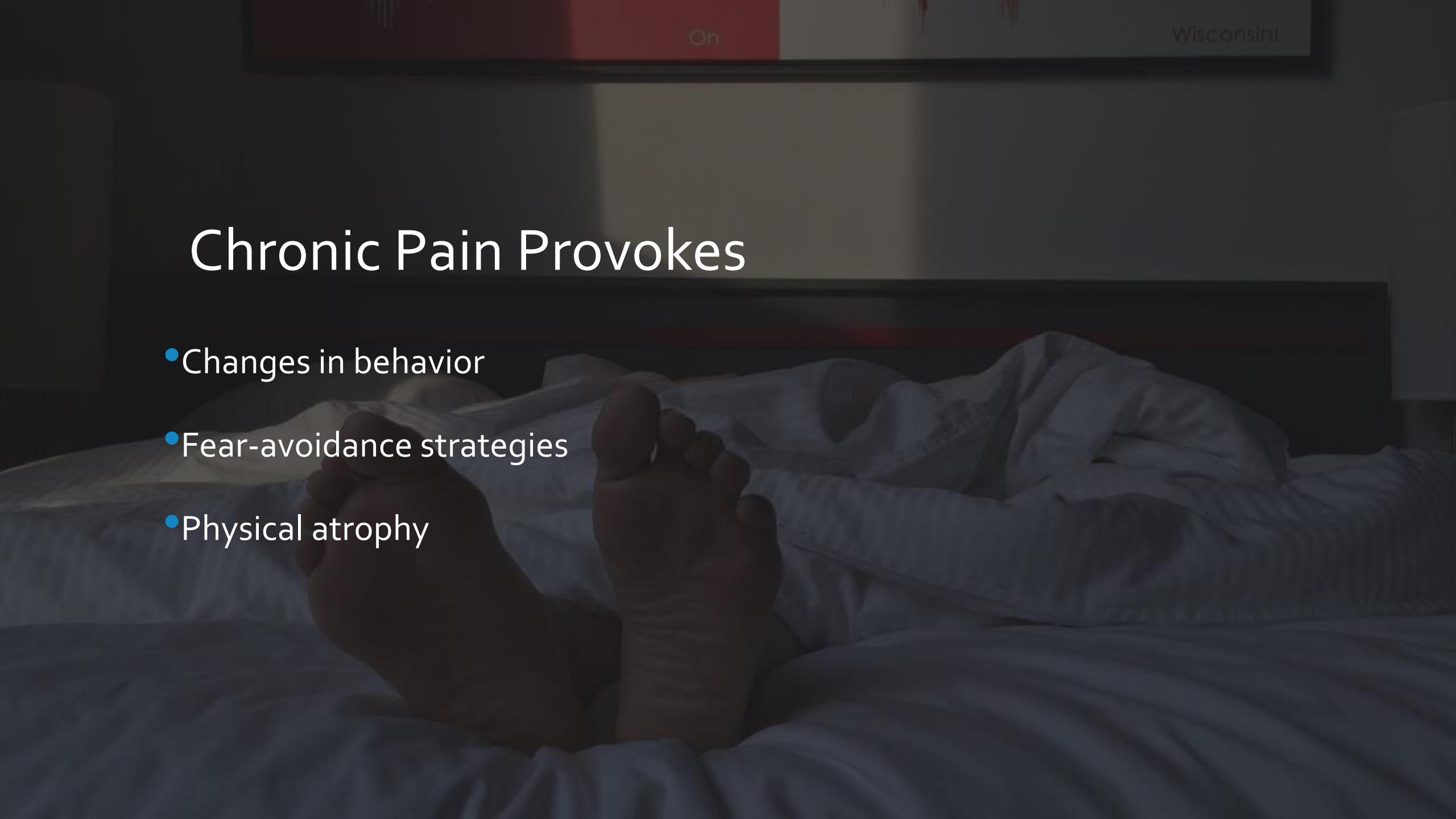
But first, what is pain?

- Pain results from tissue damage
- It is a part of the body's defense mechanism
- Acute: intense and short-lived
- Chronic: continuous and long-lived



What is Chronic Pain?

- Starts with an injury or painful condition
- Pain lasts 3-6 months or more
- Can effect emotional and physical health



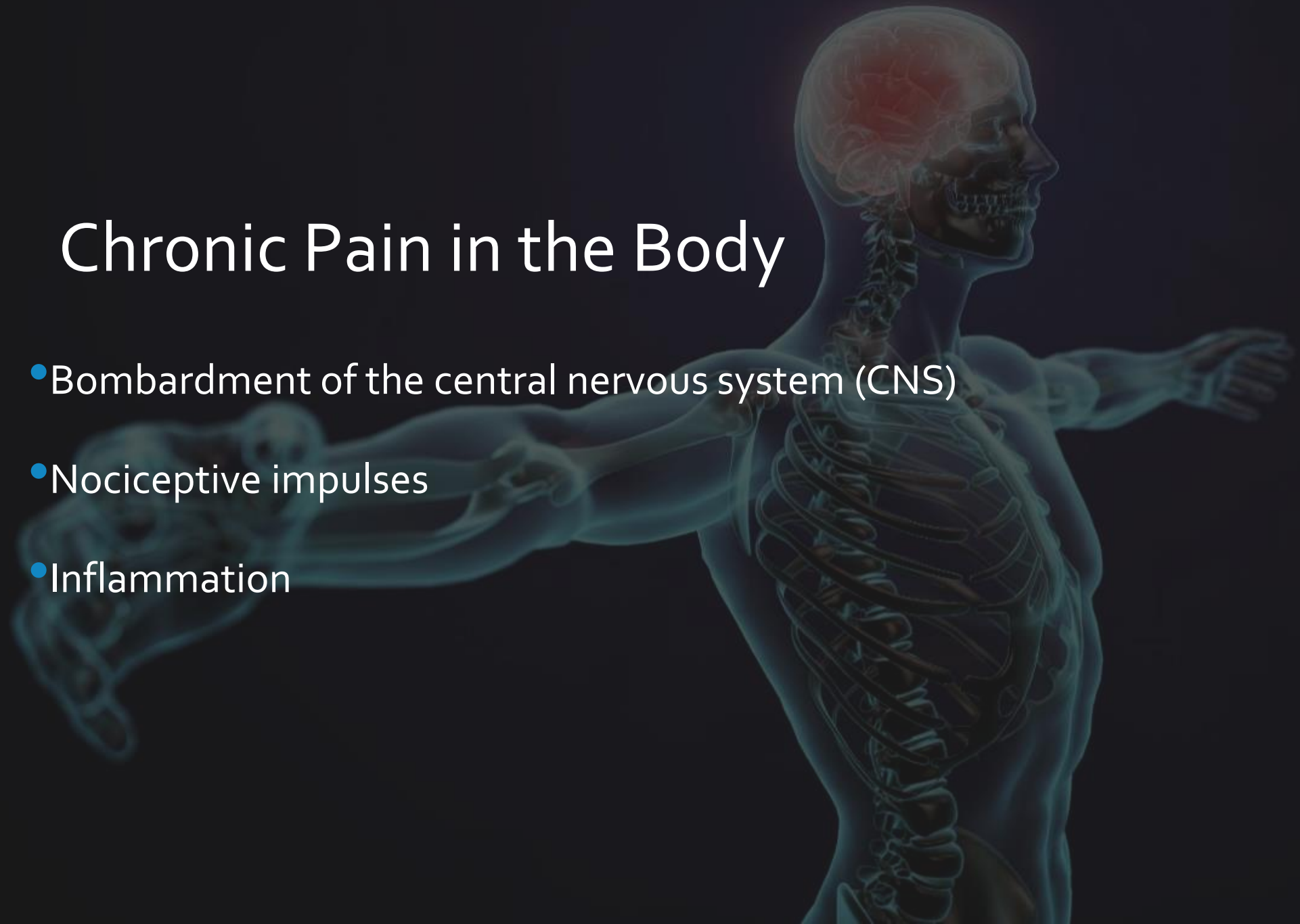
Chronic Pain Provokes

- Changes in behavior
- Fear-avoidance strategies
- Physical atrophy

What Causes Chronic Pain?

- Arthritis
- Joint problems
- Back pain
- Headaches
- Muscle strains and sprains
- Repetitive stress injuries
- Fibromyalgia
- Nerve damage
- Broken bones
- Cancer
- Acid reflux or ulcers
- IBD or IBS
- Endometriosis
- Surgery
- And more

Chronic Pain in the Body

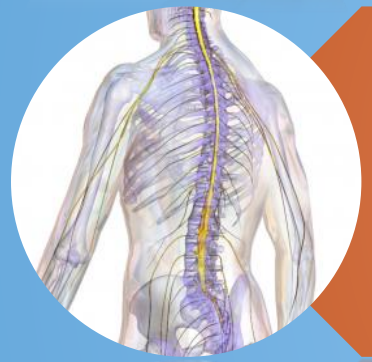


- Bombardment of the central nervous system (CNS)
- Nociceptive impulses
- Inflammation

3 Types of Pain

Nociceptive

Normal response to noxious insult or injury of tissues such as skin, muscles, visceral organs, joints, tendons, or bones



Neuropathic

Pain initiated or caused by a primary lesion or disease in the somatosensory nervous system

Inflammatory

Activation of an inflammatory cascade attempting to heal the injured area involving biochemical reactions

Physiology of Pain from Injury

Nociceptive

Inflammatory

Physiology of Pain from Injury

Nociceptive

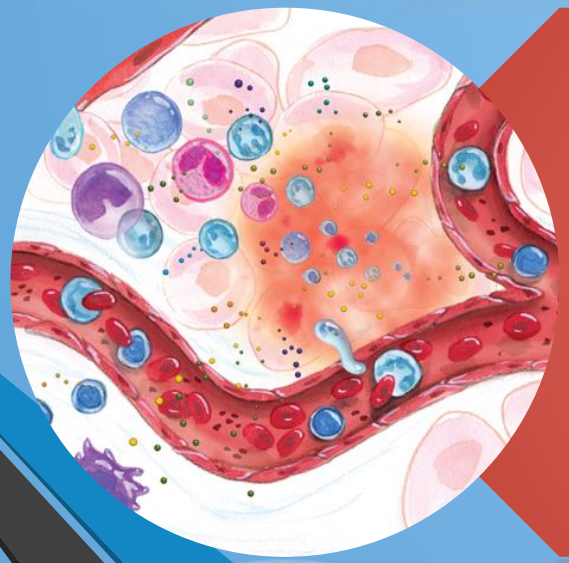
- Triggers the nervous system to react
- Can be overly sensitized = chronic pain

Inflammatory

Physiology of Pain from Injury

Nociceptive

- Triggers the nervous system to react
- Can be overly sensitized = chronic pain

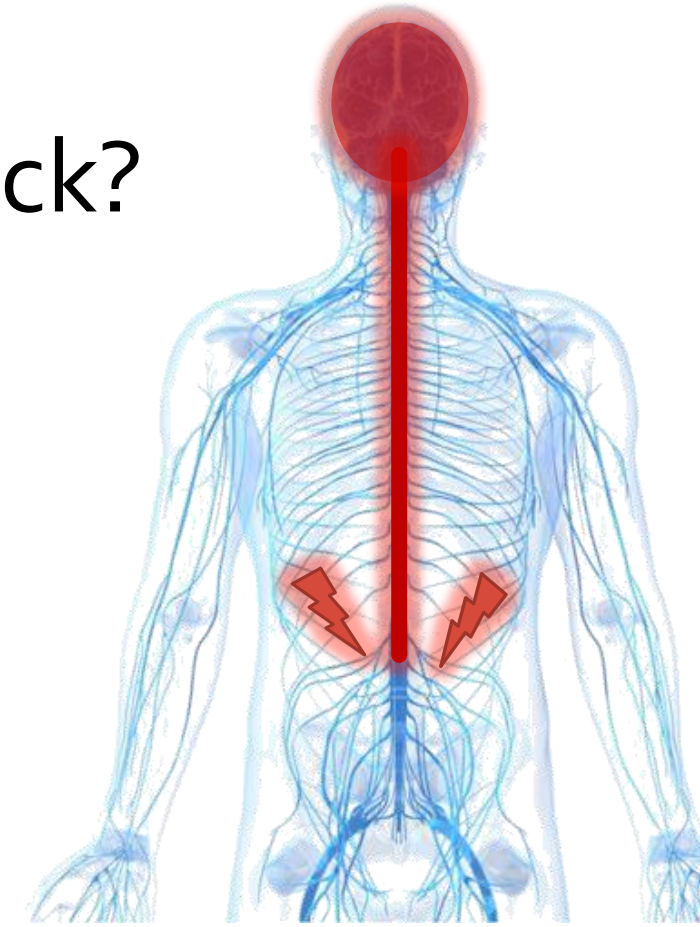


Inflammatory

- Triggers biochemical reactions to heal the area
- May not reach full healing potential = chronic pain

What happens when you strain your back?

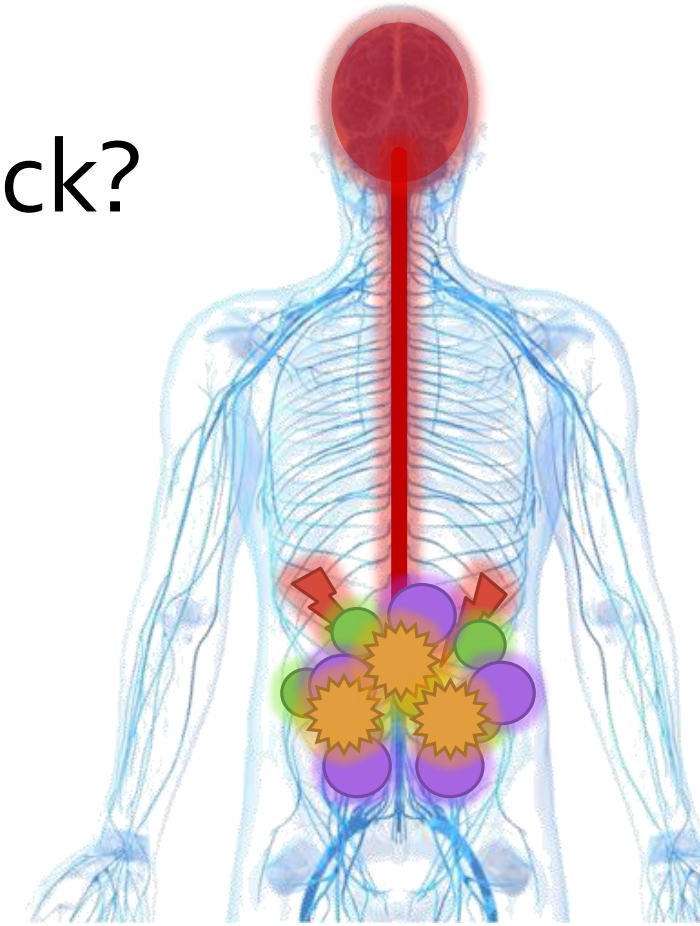
1) Nociception



- Activation of nociceptive nerve fibers
- A signal is sent down the neuron via the spinal cord to the brain
- Signals upregulate the feeling of pain and initiates the inflammatory response

What happens when you strain your back?

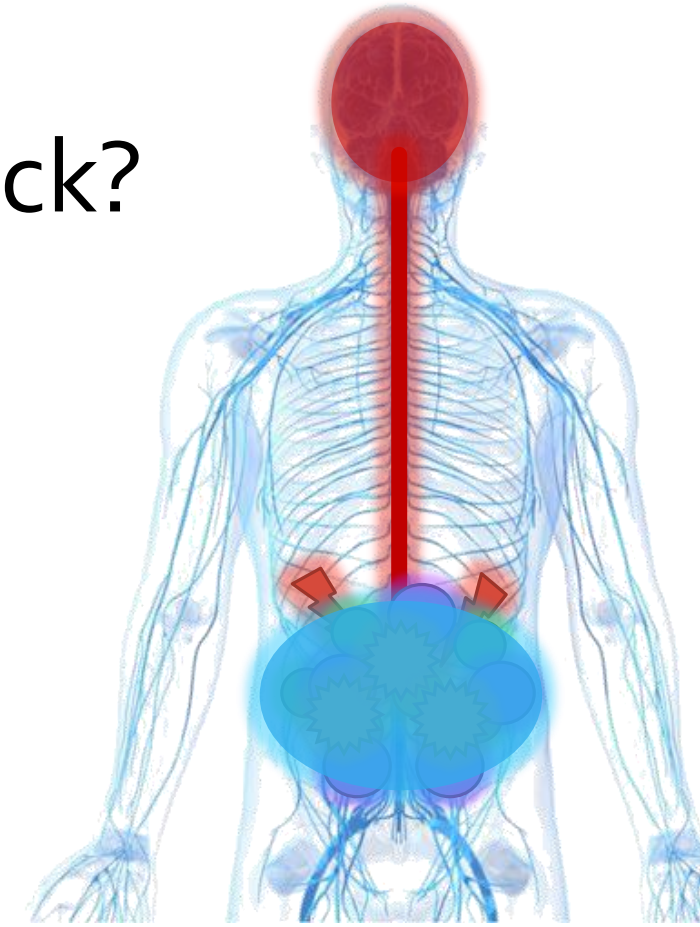
2) Inflammatory Response



- Damaged cells release cytokines and other mediators
- Initiates vascular dilation and permeability
- PMLs, followed by macrophages enter the scene
- Stimulates the migration and proliferation of fibroblasts

What happens when you strain your back?

3) Proliferation Phase

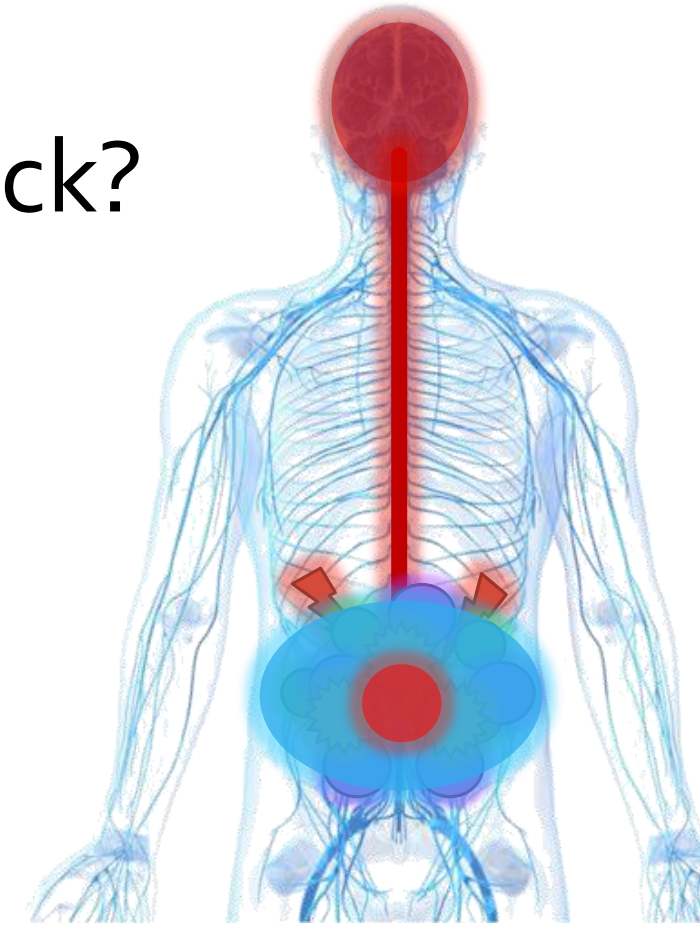


- Connective tissue begins to heal
- Fibroblasts encourage synthesis of procollagen matrix

  (2-3 days after injury)
- Vascular buds form increasing blood supply (3-4 days)

What happens when you strain your back?

4) Remodeling Phase



- Collagen type I changes to collagen type III
- Fibrils increase along lines of stress to become tightly packed (2-3 weeks)
- Collagen thickens and increases to preinjury length but with only 50 to 70 % tensile strength
- With severe injury, the healing process may stop before the tissue is sufficiently competent for everyday use

Are Cortisone Injections the Answer?

- Blocks inflammation
- Stops the healing / inflammation cascade
- Decreases immune function (risking microbial infection)
- Causes tendon weakening, atrophy, or ruptures

= NOT A CURE

Are Anti-Inflammatory Drugs the Answer?

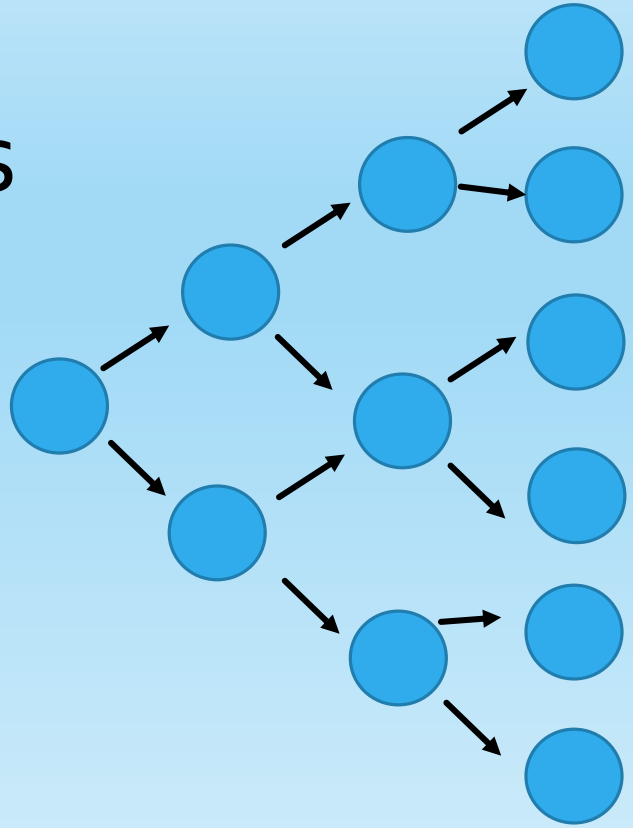
- Non-Steroidal Anti-Inflammatories (NSAIDS)
  - Inhibit COX enzymes and reduce the formation of prostaglandins
  - Damages the gastrointestinal track
- Opiates
  - Block spontaneous firing fibres and nociceptive activity
  - Damages the body and brain
- Cannabinoids
  - Inhibit peripheral sensitization
  - Blocks nociception

= NOT A CURE

Other Treatments for Pain

- Surgery
- TENS
- Physical Therapy
- Psychological Treatment
- Acupuncture
- Chiropractic Treatment
- Therapeutic Touch / Reiki
- Nutritional Supplements
- Herbal Remedies
- Proliferative Injections …

Proliferative Injections



- Proliferation: the growth or production of cells by multiplication of parts
- Proliferative therapy: injection of irritant or proliferant solutions into the affected ligaments, tendons, and/or joints
  - Leads to local inflammation in the injected area
  - Localized inflammation triggers a wound healing cascade

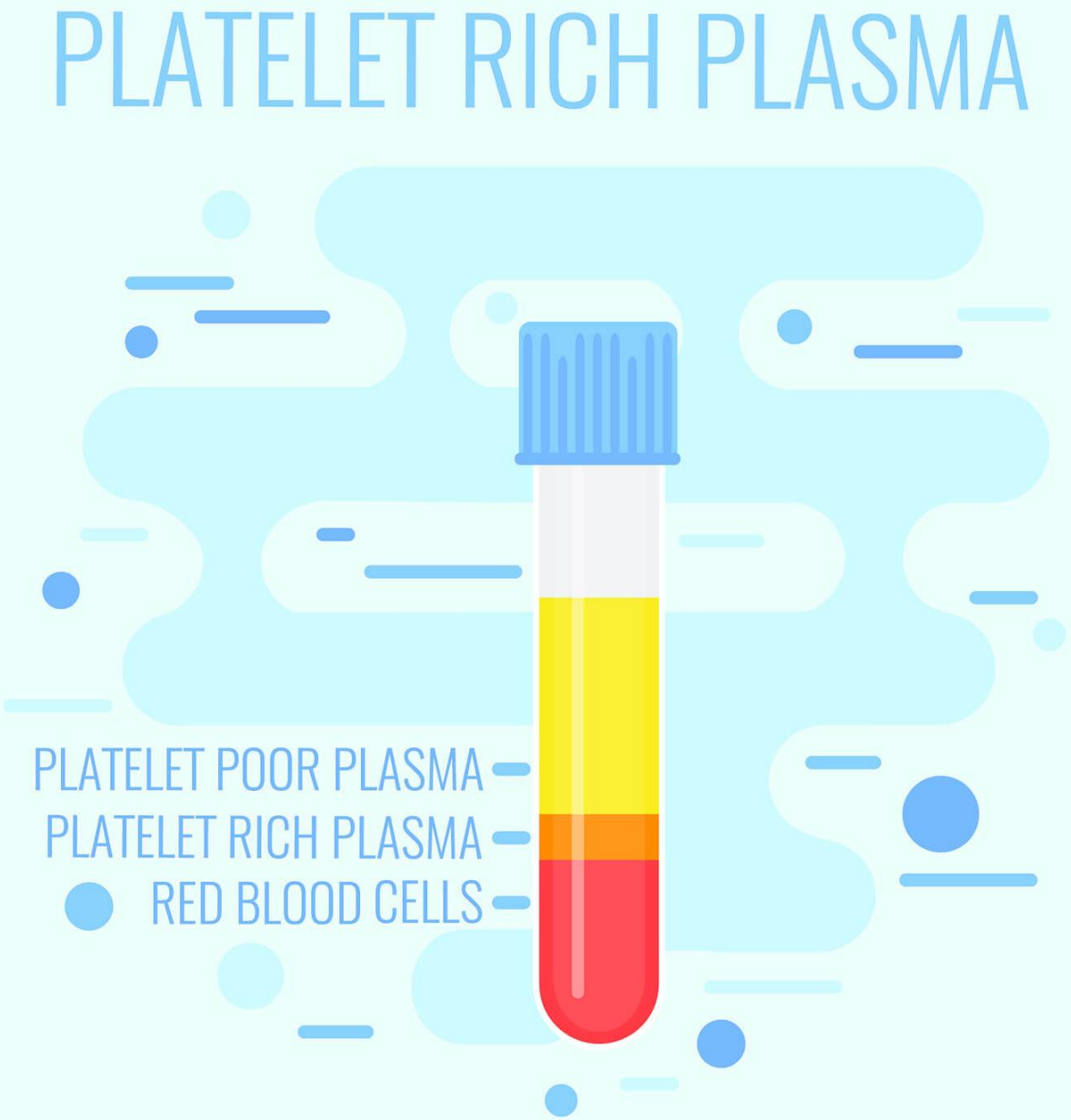
PRP =

The

Supercharged

Proliferative

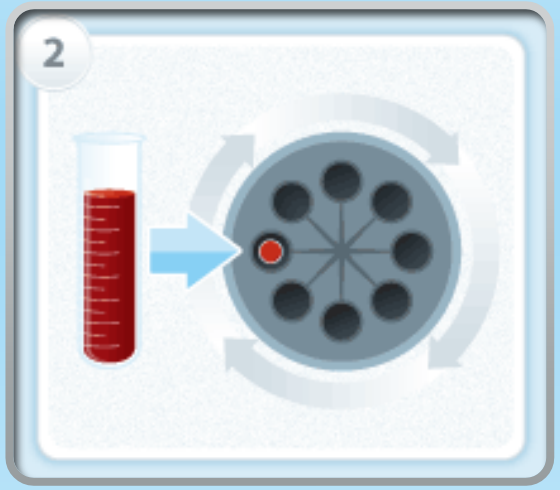
Injection



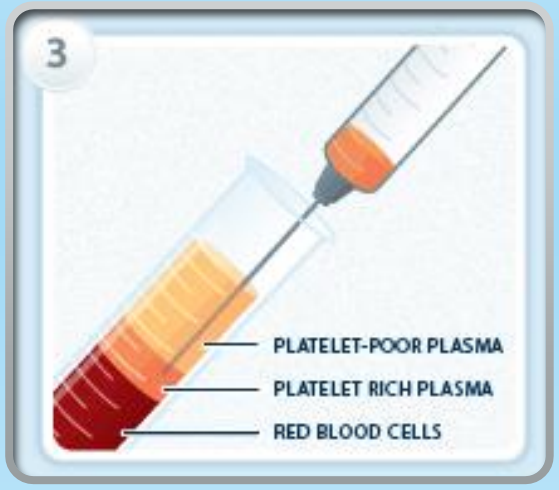
What is Platelet Rich Plasma (PRP)?

- From autologous blood
- Contains levels of platelets above baseline levels
  - Cell ratios in normal blood contain only 6% platelets, in PRP contains 94% platelets
- Contains over 300 growth factors

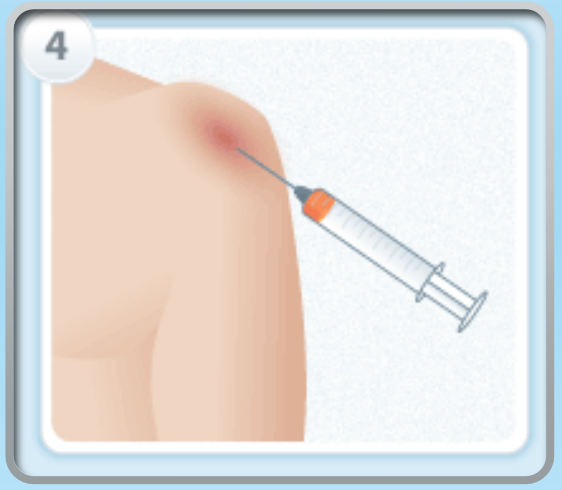
1) Collect blood



2) Separate the platelets



3) Extract platelet-rich plasma



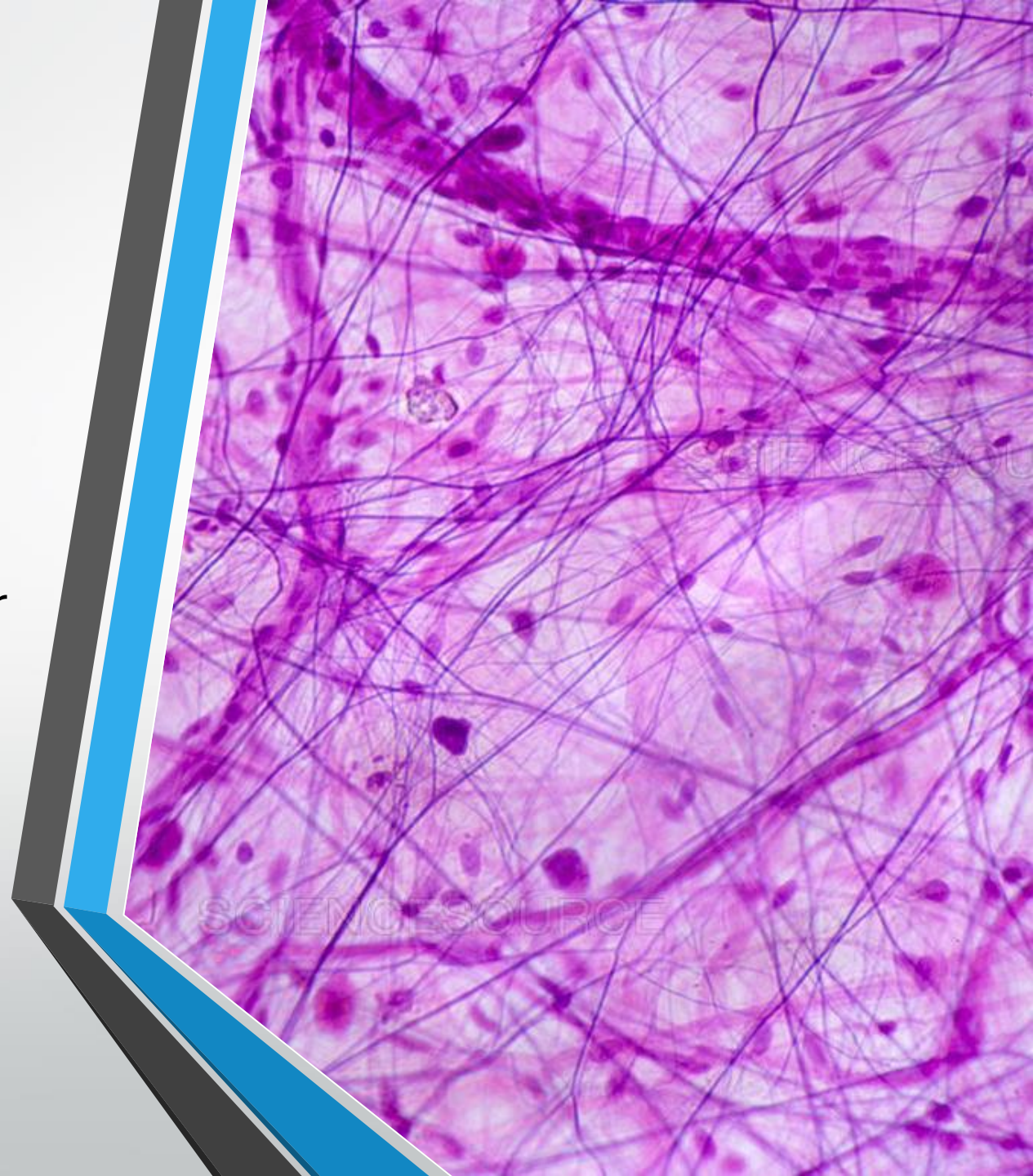
4) Inject injured area with PRP

Process of PRP

How Does PRP Work?

1) Formulates Collagen

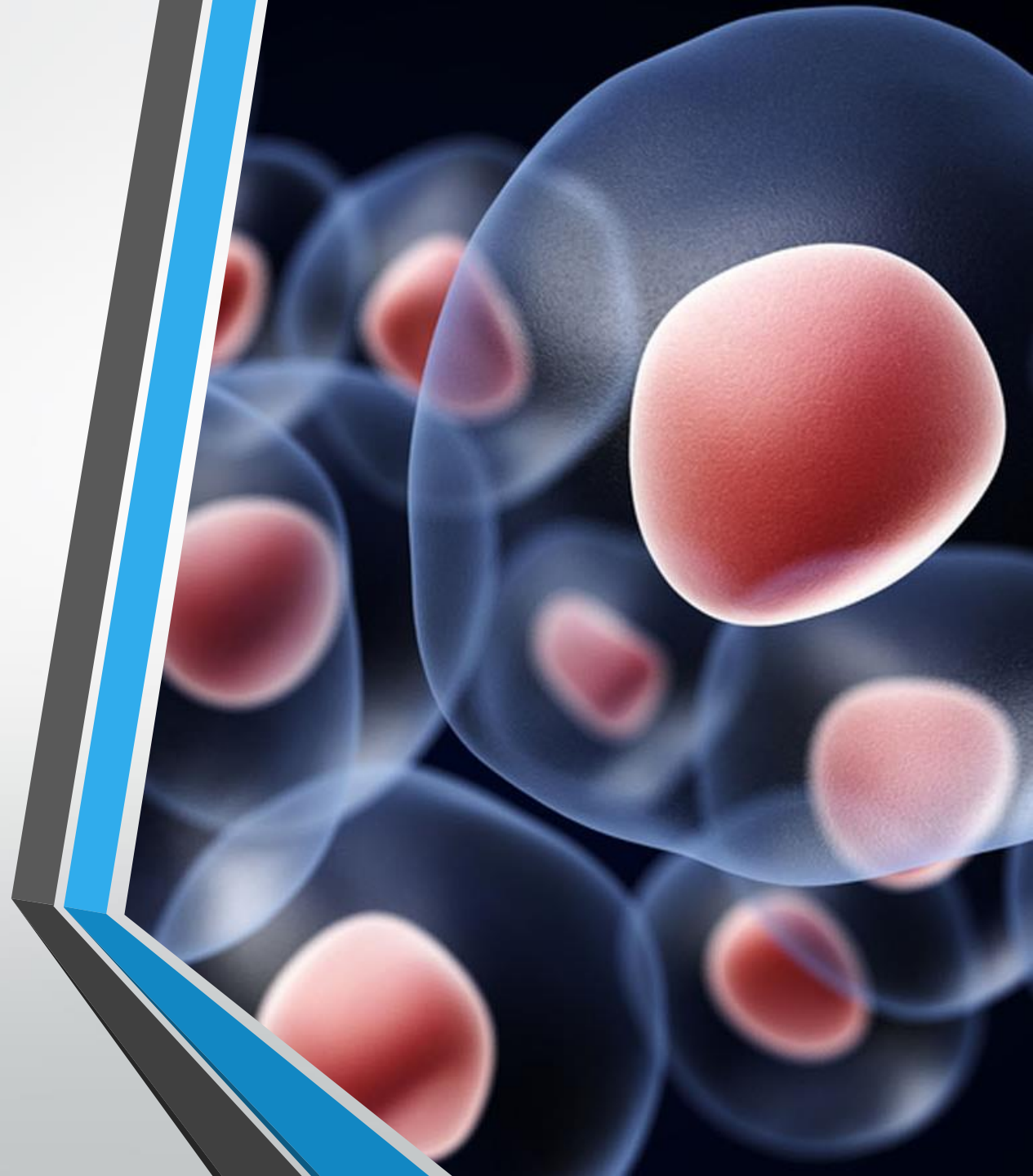
- The main component of connective tissue
- Found in ligaments, tendons, skin, blood vessels, cartilage, and many other parts of the body
- New collagen shrinks as it matures – tightening damaged tissue – making it stronger



How Does PRP Work?

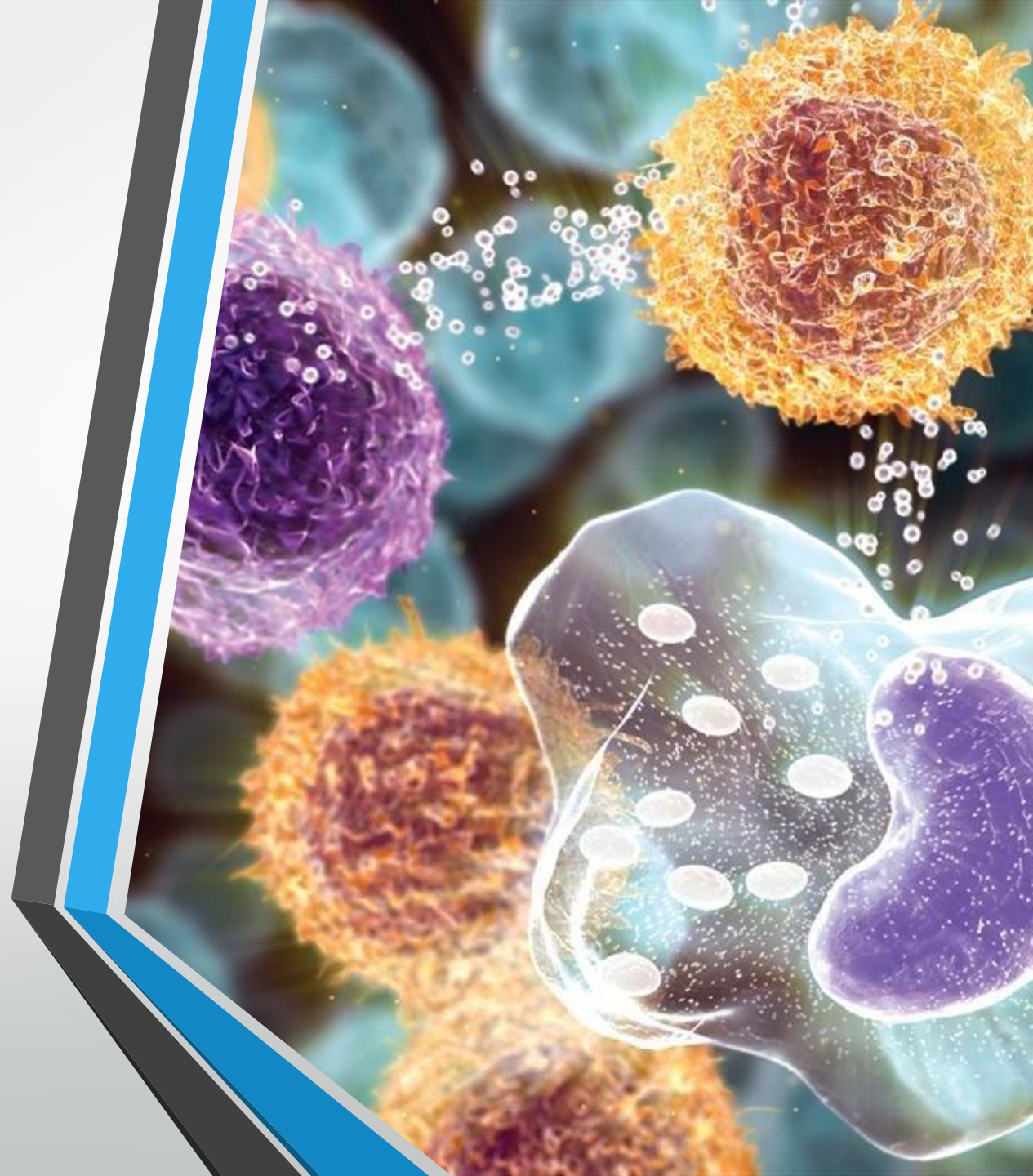
2) Releases Growth Factors

- Regulates cell division and cell survival
- Activates cellular proliferation and differentiation
- Promotes cell growth
- Functions as hormones-like regulator signals



How Does PRP Work?
3) Secretes Cytokines

- Proteins released by cells
- Lymphokine, monokine, chemokine, and interleukin
- There are anti- and pro-inflammatory cytokines



Injuries Treated by PRP

- Chronic Sports Injuries (ex. Tennis Elbow, Achilles Tendonitis, and Runner's Knee)
- Degenerative Joint & Disc Disease
- Chronic Sprains and Strains
- Cervical, Thoracic, and Lumbar Spine Strains
- Traumatic Brain injuries
- Arthritic Joints
- Shoulder Pain, Hip Pain, and Knee Pain
- Ligament Laxity or Tears
- Tendon and Ligament Injuries
- Carpal Tunnel Syndrome

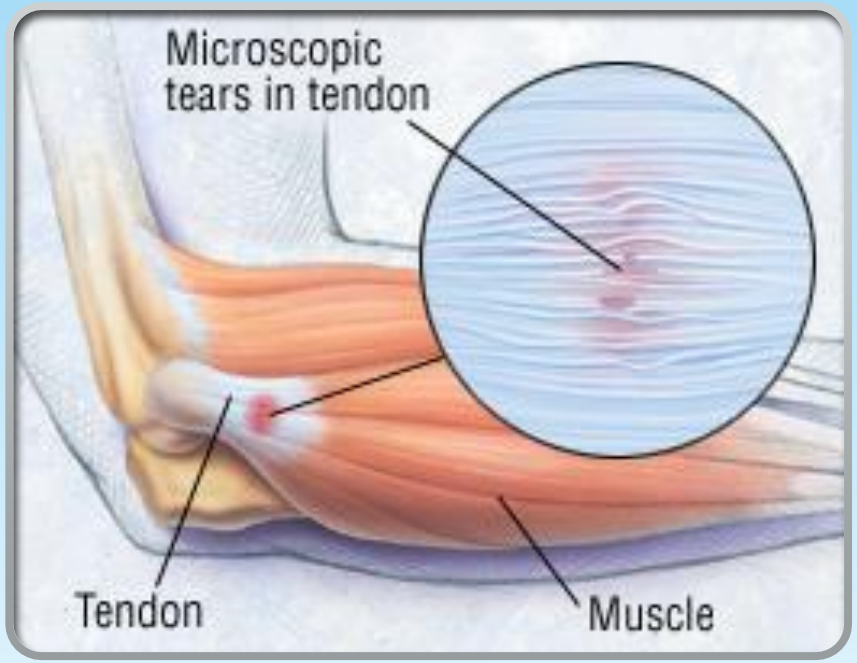
Over time, the body stops recognizing the area as something to repair

PRP creates a purposeful, mild inflammation response to the damaged tissue

This restarts the healing process and allows new fibers to grow back

PRP Helps Treat Unresponsive Chronic Pain & Injuries

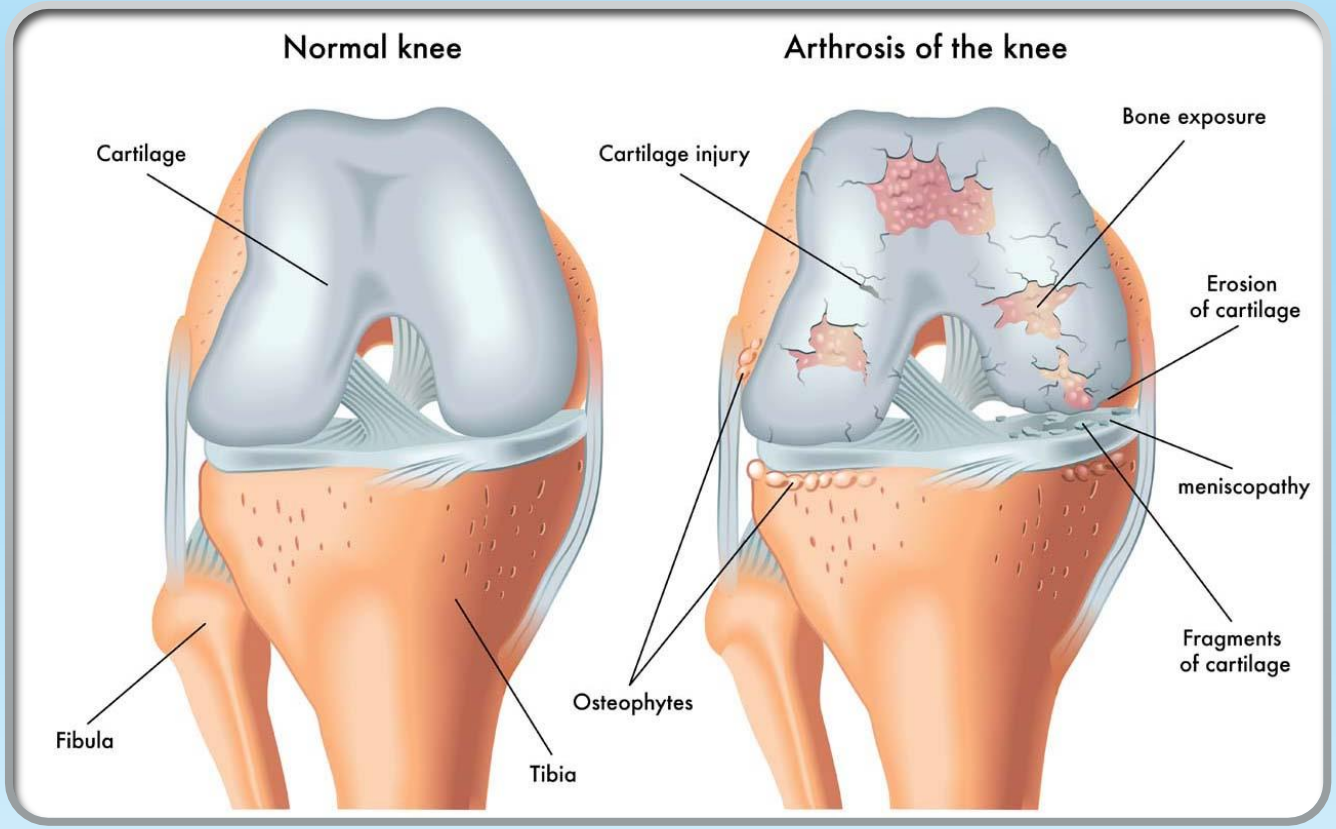
PRP Reduces Tendonitis Symptoms



- 30 – 50% of all sports-related injuries are tendon disorders
- 93% reduction of pain at the 2 year follow up
- Achilles tendon or elbow, extensor or flexor tendonitis/tendonosis or tears
- Collateral ligament tears

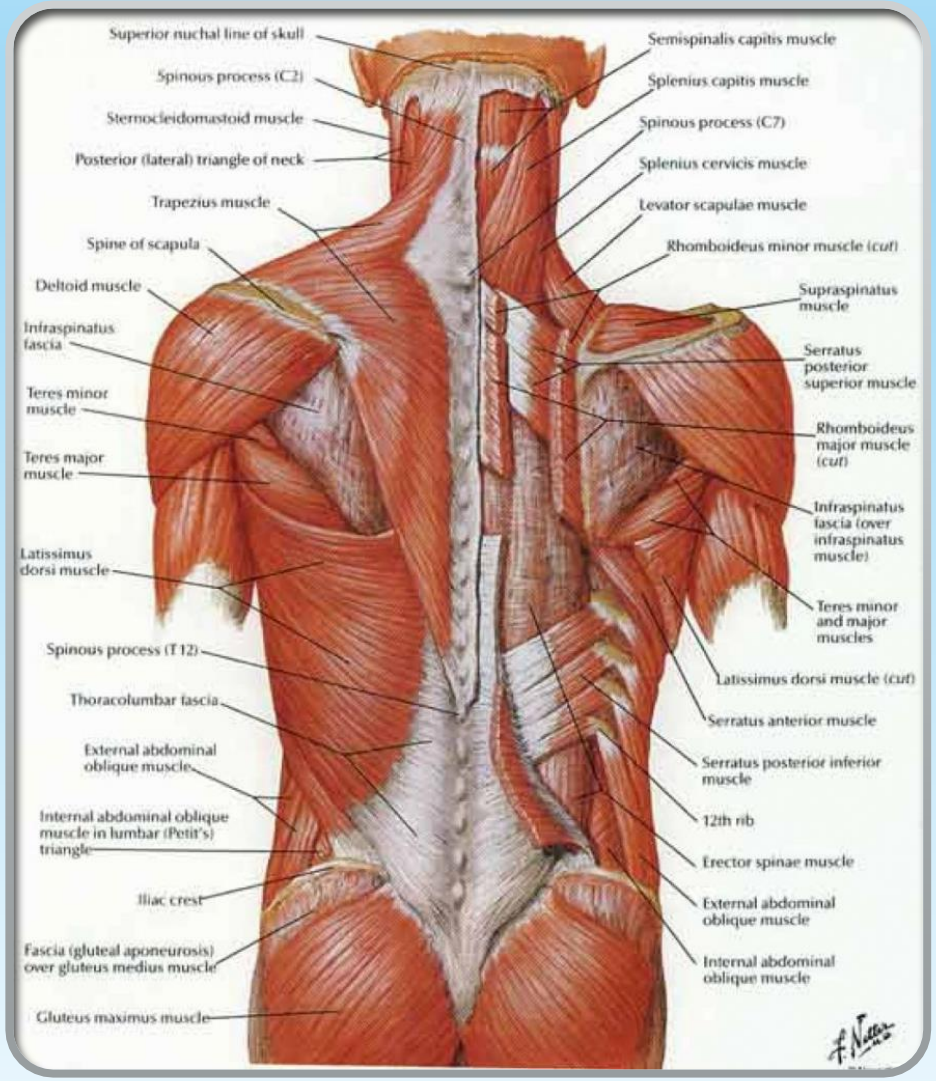
https://draxe.com/prp-treatment/

- Restores hyaluronic acid concentrations
- Improves angiogenesis
- Reverses joint damage and stops disease progression



PRP Helps Decrease Osteoarthritis Symptoms

https://draxe.com/prp-treatment/



PRP Reduces Lower Back Pain

- Treats structural ligaments (such as iliolumbar, sacroiliac, lumbosacral and supraspinous ligaments), muscle strains, and muscle fibrosis
- Improve stability and dispersion of weight

https://draxe.com/prp-treatment/

Other Uses of PRP

- Reversing hair loss
- Facial rejuvenation

Celebrities for PRP

Angelina Jolie: It has been reported that Angelina Jolie took the PRP skin rejuvenation treatment to boost her collagen.

Tiger Woods: In 2008, Tiger Woods had a serious ACL injury. After reconstruction Woods received PRP injections to recover faster. And due to his speedy healing, 2009 was one the best years of his golfing career.

Alex Rodriguez: The Yankees player A-Rod had 5 PRP sessions after his hip surgery back in 2009. He was able to get back into shape for playing again way sooner than anticipated by his physician.

Kobe Bryant: Kobe Bryant used to fly to Germany to heal his knee faster and avoid the threat of having to retire early.

http://www.chicagostemcelltherapy.com/five-celebrities-who-chose-prp-treatments/

ASPEN INTEGRATIVE MEDICINE

970-927-0308 | aspenintegrativemedicine.com