



## PRP –

### Three Little Letters

### Making Big Changes

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Consider the following three scenarios:

*First, you wake up in the middle of the night and accidentally stub your toe on the way to the bathroom. You cry out in pain and clutch your injured toe. It swells, throbs, and turns red.*

*Second, you are out working in your yard and you get stung by a wasp. The skin around the sting swells, turns red, and begins to itch and burn.*

*Third, you start feeling dizzy and your throat begins feeling scratchy and irritated. You take your temperature and discover that you have a fever, and when you check your throat in the mirror, you see that the back of your mouth and your tonsils have swollen and turned red.*

What do all of these scenarios have in common? They are all examples of inflammation – your body's first line of defense against damage and disease!

## WHAT IS INFLAMMATION?

Inflammation is a response your body creates when it is damaged or when an invading pathogen is detected. It is a way for your body to protect itself. Inflammation signals the immune system to repair damaged tissue or deal with an invading foreign substance such as microbes like bacteria or irritants like splinters or pollen. When tissues are inflamed, blood flow to the area increases, allowing white blood cells, hormones, and nutrients required for tissue repair to flood the affected area. All of this excess fluid causes the area to swell, turn red, and generate heat. Unfortunately, this swelling can also cause varying degrees of pain, as the buildup of fluids can press on sensitive nerve endings.

Inflammation can be classified into two forms: acute and chronic. Acute inflammation is an immediate response to a short-term problem. It can be mild such as a summer sun burn, or serious such as anaphylactic shock (where the body over-reacts to a harmless threat to the extent

of causing major harm or death). Chronic inflammation occurs over months or years and, due to the prolonged period of discomfort or pain, can severely affect one's quality of life regardless of the severity of its symptoms. Chronic inflammation results from the immune response to perceived threats the body cannot remove – injuries that do not heal properly, repeated exposure to irritants (such as cigarette smoke), or auto-immune disorders (where the body attacks its own healthy cells) are all sources of chronic inflammation. In addition to the symptoms listed above, chronic inflammation also contributes to conditions like fatigue, depression, obesity, and cancer. Chronic inflammation causes a continuous cycle of tissue healing and tissue death which slowly changes the quality of the cells in the affected area. Once this cycle starts, it can lead to mobility issues (caused by arthritis), organ failure (caused by nephritis, pancreatitis, or appendicitis), nerve damage (caused by encephalitis or myelitis), or heart attacks and strokes (caused by myocarditis). Inflammation is a necessary tool the body uses to maintain its health, but if it gets out of control it can cause a great deal of suffering. It is no wonder, then, that doctors have been searching for procedures that can successfully combat chronic inflammation.

## HOW DOES PRP HELP MY PET'S PAIN?

There are many drugs that are currently used to mask chronic pain in pets. These drugs, while very helpful in maintaining quality of life, do not combat the cause of the pain and may have side-effects associated with prolonged use.

One of the simpler



solutions to combat chronic inflammation at its source is the use of Platelet-Rich Plasma (PRP). The body naturally produces many different proteins and cell types that help make up blood, with each part of the blood fulfilling a vital function. An oversimplified explanation would be that blood is primarily made of four substances: plasma, red blood cells, white blood cells, and platelets. Plasma is the liquid component of blood, and provides water and nutrients to the whole body. Red blood cells carry oxygen to all of the body's tissues. White blood cells seek out and destroy harmful substances across the body. Platelets are responsible for closing and healing wounds, and have been found to play several major roles in the reduction of inflammation. Platelets work to form clots to cover open wounds, release signaling proteins to summon stem cells to multiply and rebuild lost tissue, and release proteins that control which nearby cells live

or die based on the amount of damage sustained. When using PRP, a large blood sample is taken from the patient, processed to form PRP, and reintroduced to areas of the body experiencing chronic inflammation. The goal is to remove as much of the red and white blood cells from the sample as possible, concentrate the platelets within the plasma, and prepare the platelets for their role in healing. Platelets normally circulate in the blood stream in an inactive state, so part of the PRP process is to activate or “wake up” the platelets, to maximizing their effectiveness.

PRP has a wide range of uses within veterinary medicine, and has been demonstrated within our office to be effective in treating chronic skin infections, arthritis pain, torn tendons, chronic anal gland issues, stomatitis and gingivitis of the mouth and gums, and ulcers of the cornea of the eye. While not as regenerative as a full stem-cell treatment (where the patient’s activated stem cells and PRP are both administered to affected areas to allow new tissue growth), PRP on its own is much less invasive, requires less anesthesia, and costs much less than stem-cell therapy.



*Shown above is a photo of a dog's severe corneal ulcer after not responding to standard medications (left) and photo of the same eye after two weeks of aggressive PRP treatment.*

## HOW DOES MY PET GET A PRP TREATMENT?

Ardent Animal Health partners with veterinary offices like Coffey's Veterinary Center to provide specialized PRP treatments for pets across the country. This company provides thorough training and medical materials that allow veterinarians and veterinary technicians to generate PRP in-house, reducing costs and wait times for pet owners. As a result, Ardent's PRP can be administered the same day the patient is admitted. The process is simple – a sample of blood is taken from the patient and a centrifuge is used to separate the red and white blood cells from the platelets and plasma. The platelets are then changed into their activated state before being re-introduced to the body. PRP is usually administered to localized areas of severe pain and inflammation via needle while the patient is under general anesthesia (to reduce pain and increase the accuracy during the PRP administration). Although a dramatic reduction in symptoms is commonly observed shortly after the first treatment, generally at least three

treatments of PRP over a period of a few months is recommended to prevent symptoms from returning.

We at Coffey's Veterinary Center encourage our interested readers to learn more about PRP treatments from Ardent Animal Health ([ardentanimalhealth.com/purevet-prp/](http://ardentanimalhealth.com/purevet-prp/)), talk to their current veterinarian about PRP treatments, or schedule a consultation with us about PRP for their pet.