

# **The Use of Dilute Hydrogen Peroxide to Inject Trigger Points Soft Tissue Injuries and Inflamed Joints**

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For over 75 years physicians all over the world have been injecting patients with all forms of strange concoctions in an attempt to relieve inflammation, pain and other discomfort. Some work, some do not. Some even make the problem worse or have serious side effects.

Steroids, anesthetics, antiseptics, analgesics, sclerosing agents and anti-inflammatory substances are all used as agents for therapeutic injections. The common denominator for these agents is they are classified as drugs and certainly are capable of being toxic to the patient. None of the agents used today for injection into torn, fractured, strained, sprained, bruised, inflamed, infected, damaged or otherwise messed up tissue are capable of inducing healing and repair. None are non-toxic or naturally occurring.

Most new drugs being introduced are not new at all. They are usually a variation of a substance or drugs categorized above. It is a rare event when you can experience the introduction of an entirely new therapeutic tool. It is especially rare when this substance proves to be very effective yet is relatively non-toxic and functions through promoting natural healing and repair.

The new substance we are introducing, new to be used in musculo-skeletal medicine, is hydrogen peroxide. This is a brand new use of a long existing product.

Hydrogen peroxide, first discovered in the mid 1880s, has been used extensively as a medical agent, mostly for topical application. In 1920, in India, it was first used as an injectable to treat persons dying from influenza. The report of this remarkable experience appeared in the Lancet showing the death rate was reduced by 50%, but it was largely ignored. Millions of people would not have died of influenza, pneumonia, and other forms of respiratory illness if only physicians would take the time to read what is being published.

The two most important nutrients in the body to sustain life are oxygen and water. Hydrogen peroxide is the reduction and combination of these two substances forming a singular molecule. This event, the formation of hydrogen peroxide, takes place normally in the body as a result of transportation and utilization of O<sub>2</sub> and, without its formation and employment in normal metabolism, life supporting functions would cease and life end.

A significant amount of knowledge exists about the metabolism and chemical activity of hydrogen peroxide. There are in excess of 8,000 articles in the peer review journals alone. It has been said this probably represents only about 40% of the actual information which has been published in all worldwide sources. It is well recognized in this literature that hydrogen peroxide is the source of hydroxyl radicals (free radicals) in the body and their presence may be destructive to cells. This understanding has led many to misinterpret the meaning and caused much unwarranted concern. The process of producing hydrogen peroxide is beneficial to the body and is essential to life and tissue repair. Contrary to the popular belief that “you should avoid hydrogen peroxide”, once you understand the process of tissue repair, you will welcome hydrogen peroxide with open arms into your metabolic life.

Without cell death there can be no healing! This statement may sound foreign, but understanding the metabolism and purpose of hydrogen peroxide becomes important to understanding the healing process. The production of hydroxyl radicals from hydrogen peroxide occurs under specific conditions and is initiated by a cell becoming weak and losing its integrity. As a cell ages and becomes weak, the transitional metals within the cells become reduced to a form which stimulates hydroxyl radical production. This self destruction mechanism causes cellular death, stimulates cell differentiation and replacement with a new, healthy cell. The presence of hydrogen peroxide also stimulates the production of cytokines by the T and B cells. Cytokines are cellular messengers which regulate all cellular activity and direct the healing process. Hydrogen peroxide is the master conductor which orchestrates the healing process.

I discovered and reported the possible therapeutic benefits of hydrogen peroxide, especially when used intravenously, many years ago. We have now administered intravenous hydrogen peroxide to several thousand patients who suffered with a large variety of pathological conditions. These treatments have been administered without side effects or complications in 98% of the cases. Any side effect which occurred was local and very minor. The beneficial effects have now been well documented by many physicians and reported world wide. Therapy with hydrogen peroxide has proved to be extremely safe and, as an observation of its lack of tissue toxicity, caused us to explore its use by local injection. We had observed that occasionally, a patient receiving an intravenous infusion would infiltrate. They had no knowledge of anything wrong until they observed the large amounts of subcutaneous fluid in the arm receiving the infusion. We have seen infiltration of 200 ml to 250 ml of fluid and there was no pain. Long term follow up showed these events to be without sequelae.

Based upon the impressions of physicians who are confused about the action of hydrogen peroxide in the body, one could expect such an infiltration into the soft tissue would be irritating and cause considerable damage by the free radicals which are produced. Obviously, many concepts about hydrogen peroxide are in error because the damage does not occur. Contrary to what was expected, just the opposite happened. In patients who had any type of local pain syndrome or inflammatory reaction, prior to the infusion, it was found the infiltrated hydrogen peroxide would abate the pain and within a few hours, the inflammatory reactions would disappear or be considerably better.

These observations prompted us to design a study of injecting inflamed, damaged or injured tissue and inflamed nerves such as herpes or trigger points causing pain and muscle spasm. Our patient population were mostly older people with chronic degenerative illness. Our experience and technique of neural and joint injection was sadly lacking. A solution of 0.03 to 0.375% of hydrogen peroxide prepared in 5% dextrose in water was used as our active agent.

The proper protocol and recommendation for the use of hydrogen peroxide must be followed. You must understand hydrogen peroxide is a very powerful oxidizer and in large concentrations can be very damaging to the tissue. Therefore you should keep your concentrations at or below the recommended levels and adjust your dosage by the volume you use for your injection. Do not exceed 0.0375%. We use anywhere from 1 or 2 ml up to 10 ml depending on the size of the area we are injecting.

In addition to trigger points in soft tissues, we have injected nerves, tendons, ligament, muscles, bursa, joint spaces, tendon insertions and anything else we though might benefit. We have also injected joint spaces and surrounding tissues in both osteo and rheumatoid arthritis patients. There have been no side effects or complications as a result of these injections.

Many areas which we injected had been previously treated by other physicians using local anesthetics and/or steroids with limited or no success. In most of these cases, when we used hydrogen peroxide, the pain or inflammation had resolved within a week and often within 24 hours. We occasionally have someone who we have to inject a second time but none, so far, more than twice. In these cases, where the response was not as good as we expected, we feel it might be our technique instead of the peroxide. If presented with the need to inject an area more than once, we would have no hesitation because we have given up to 100 intravenous infusions to a single person with no adverse effects. We feel there is no practical limit to the number of local injections you could safely give to any one person, provided you space them out with a few days between injections.

Most of the responses we have observed, for the relief of pain or the relief of muscle spasm, have occurred within 2 to 3 days and are long lasting. Sometimes relief is as short as 12 hours or as long as 7 days. If the initial injection reduced the pain or spasticity, but did not completely relieve it, then give a second or third injection. When treating inflamed joints and tissues the response is much slower. Measurable response is more often counted in weeks, one or two, for the inflammation to resolve.

In our hands, the local injection of 0.03% of hydrogen peroxide in joints, soft tissues, nerve, tendons, ligaments, etc. has been very successful in relieving pain and inflammation and has been without systemic or local side effects or other complications. Other physicians, who practice sports medicine, have reported to me very rapid healing and a return to normal function of injured tissue when treated with injection of hydrogen peroxide. Based on our increasing knowledge of the mechanisms of healing which are stimulated and under the control of hydrogen peroxide in the body, we can appreciate the rapid recovery being seen in the treatment of these sports injuries.

***We hope physicians who are skilled in injecting materials into joints and soft tissues and also those who practice sports medicine will explore the use of hydrogen peroxide. Since the action of hydrogen peroxide is basic to significant metabolic pathways necessary for tissue healing and repair, the discovery of its usefulness in injuries and disease is limited only by the imagination and curiosity of the investigator.***

#### CAUTION:

Hydrogen peroxide is a highly reactive molecule. Please do not add anything to your peroxide solution. If you do, one of two things may happen:

- 1 The peroxide is used up in the chemical reaction and no longer exists, or
- 2 The peroxide reacts with the substance you added to the mixture and creates an entirely new substance