

## An Assessment of Diseased Cats and Dogs Stifle Joints Treated with Sonotron

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### Introduction

Osteoarthritis or degenerative joint disease account for 37% of lameness in dogs (Bennet, 1980). The sonotron (Sonotron Medical System Inc., ADM Tronics et al. Unlimited., Northvale, New Jersey), a pulsed radio frequency therapy (PRFT) is a non-invasive device which employs modulated radio frequency energy of 430 kHz (430,000 cycles per sec., long waves) in the form of a visible and audible (1 kHz or 1,000 cycles per sec.) discharge beam emanating from a discharge electrode. The discharge is emitted through a hand-held applicator and is applied in a circular motion directly over the joint or injured area as a form of treatment units (TU). The number of TU depends on the size and degree of inflammation. Studies had been performed on rats (Sciubba, unpublished report) and horses (Crawford et al., 1991; Equi-Tech.). A multi centre, placebo-controlled comparative clinical trials involving human patients with osteoarthritis of the knee, patients receiving PRFT (sonotron) treatment reported greater reduction of pain, improvement in function and no adverse effect. The effect of PRFT on arthritic and non-arthritic joints could be measured by comparing synovial fluid parameters, the degree and duration of lameness, the range of stifle motion for the treated and untreated groups. Lesions could also be examined radiographically, at gross pathology and histopathology between these two groups. However the synovial fluid analysis is the most effective clinico-pathologic procedure available in determining the cause, type, duration and prognosis of the joint disorders. The current interest in canine stifle joint diseases together with the numerous orthopaedic approaches for the correction of canine stifle injuries, and the use of the canine stifle as a model

for human operative techniques and prosthetic substitutions for knee injuries, has led to extensive investigations in canine arthrocentesis and joint fluid analysis.

*Objectives/Purpose of the work:* The objectives of the work include the following:

To determine the safety and effectiveness of PRFT treatment of stifle joints in cats and dogs; to record and assess the outcome of PRFT treatment as degree of pain and mobility of the stifle joints; and to observe how cat and dog patients react towards this type of therapy.

For this study, 30 healthy local breed dogs compounded by Dewan Bandaraya Kuala Lumpur would be selected. The dogs both males and females weigh between 20-30 kg. The dogs selected would be normal on physical examinations, gait examinations and blood profiles. During the period of study routine rectal temperature, pulse and respiration would be monitored. Daily gait examination would be scored. The dogs would be divided into three groups with each dog's left stifle and right stifle being treated differently. Within each of the three groups, dogs would receive either no PRFT treatment, level 1 PRFT or level 2 PRFT treatments. All the left stifles would undergo arthrocentesis only. The right stifle in the first group would be induced with arthritis at day 1 and PRFT treated; the second group would undergo arthrocentesis at day 1 and PRFT treated; while the third group would be induced with arthritis at day 1, 5, 15 and PRFT treated.

A scoring system had been tabulated for the purpose of Lameness evaluation; Radiographic evaluation; Synovial fluid evaluation; Gross pathology evaluation; and Histopathology evaluation of synovial membranes,

synovial fibrous tissues, and articular cartilage and bone.

### Results and Discussion

Experimental study has not commenced. However preliminary work on PRFT on cats and dogs with joint problems, both traumatic and non-traumatic had been conducted. All the cats and dogs underwent the therapy without sedation and did not object to the audible discharge from the applicator; the patients seem to allow the application without much disturbance and seem to indicate at ease while undergoing the treatment. There were signs of improvement in the ease of using the affected joints and longer distance and time of use of the treated limbs.

The output power of the sonotron device is 8 watts and a human patient is exposed to the corona output for short periods between 45 seconds to 3 minutes depending on the size and density of the joint. After a series of 3 to 5 treatments, human patients have reported pain-relief, which lasted for comparatively long periods, typically averaging 4 to 6 months. There has been no reported side effects or hazards.

### Conclusions

When the study is completed it would enhance the non-invasive treatment using PRFT in both the human and veterinary patients. However the understanding of how the PRFT works may not be available as yet.

### Benefits from the study

This study benefits the pet owner as well as the surgeon and increase students' skills in orthopedic management of joints using PRFT.

The safety and effectiveness of PRFT on affected joints could be determined.

The non-invasive therapy could benefit the human as well as the veterinary patients with joints problems.

A new dimension of treatment for joint arthritis would change the function and lives of patients affected.

#### Literature cited in the text

Brenner, S., Dutkowsky, C. 1996. Non-invasive treatment of nerve entrapment syndrome with the sonotron: a pulsed radio frequency therapeutic device. <http://www.sonotron.com/dukowsky.htm>

Crawford, W.H., Houge, J.C., Neirby, D.T., Di Mino, A., Di Mino, A.A. 1991. Pulsed radio frequency therapy of experimentally induced arthritis in ponies. *Can. J. Vet. Res.* 55: 76-85.

Tronics, A.D.M.1997. Sonotron Fact Sheet. <http://www.sonotron.com/factsheet.htm>.

Tronics, A.D.M.1997. Electronic device found effective in treating Carpal Tunnel Syndrome.

<http://www.sonotron.com/pr97mr31.htm>

Tronics, A.D.M.1997. Vet-Sonotron Equi-Tech Therapy. <http://www.admtronics.com/vet-sono.htm>.

#### Project Publications in Refereed Journals

None.

#### Project Publications in Conference Proceedings

None.

#### Graduate Research

None.