

The Effects of Tapotement on the Piriformis Muscle
Shumin Yang Coleman
March 2, 2020

The piriformis is a small muscle located deep in the buttock, behind the superficial gluteus muscle. It rises on the lateral surface of the third sacral and first caudal vertebrae and inserts on the same site as the tendon from the middle gluteus muscle at the greater trochanter of the femur. It is completely covered by the superficial gluteus muscle, and when flexed, rotates internally and abducts the hip. In a neutral position it acts as an external rotator of the hip. It is one of the muscles affecting the pelvic girdle and is one of the rump muscles.

The piriformis is not blended with the gluteus medius. It arises from the border and ventral surface of the sacrum and from the sacro-sciatic ligament and ends on the trochanter major (of the femur) with, or close to, the gluteus medius.

Pain in or around the Sacroiliac (SI) joint is commonly recognized in human medicine, but it has received little attention in veterinary medicine. The SI joint serves to transmit the propulsive forces from the pelvic limbs to the vertebral column. It also supports the weight of the torso and may help buffer ground impact forces. SI pain is recognized in horses, but not well documented in dogs. However, given its innervation and similar anatomy, it can be postulated that disease at the SI joint could cause pain in dogs. A retrospective study evaluating canine survey radiographs found over 60% of radiographs to have calcification of the interosseous SI ligaments, and 44% have calcification of the dorsal and/or ventral SI ligaments.

As it is not a well-defined syndrome in dogs, a definitive diagnosis of SI joint pain is difficult to make. In humans, SI joint disease can cause sciatic pain secondary to compression from piriformis tension (piriformis syndrome) manifesting as buttock pain, without radiation of pain down the limb. In dogs, it has been hypothesized that piriformis tension and muscle spasm may also occur with SI joint dysfunction and pain. Diagnosis of SI joint dysfunction has been proposed to be based upon movement and stress testing, as well as evaluation of anatomic landmarks for asymmetry. Similar methods have been proposed for use in dogs as well.

Massage could be a form of relief for the piriformis muscle, however, with the piriformis being completely covered by other muscles, it can prove to be difficult to get to with hands or fingers. Tapotement is a technique which may help resolve this. It is a rhythmic percussion, usually administered with the edge of the hand, a cupped hand, or the tips of the fingers. There are five types of tapotement, including beating, slapping, hacking, tapping and cupping.

Tapotement is a repetitive staccato, striking movement of the hands, simultaneously or alternately. If performed well, it has a stimulating but relaxing effect. Applied across large muscles, hacking stimulates the muscle spindles and causes minute muscle contractions. It stimulates nerve endings, aids in decongestion and increases local blood

flow. It also tones the atrophied muscles and relieves pain and gives one access to deeper structures, such as hip rotators.

Tapotement has a hyperemic effect. That is, it increases local blood circulation, which in turn, helps to warm and soften the underlying tissue. The skin will feel warm to the touch and appear flushed. It is often used to warm up an athlete prior to an event.

With this technique, nerve endings are stimulated, which produce tiny muscular contractions, resulting in an overall increase in muscle tone. This is thought to happen because of the stroke pressure being registered by the muscle's mechanoreceptors in the fascia and Golgi tendon organ. A reflex action follows, resulting in the contraction of both voluntary and involuntary muscles.

When used in combination with other massage techniques, tapotement helps to reduce fatty deposits and tone flabby muscle areas.

Massage therapy relaxes the piriformis muscle, which can prevent spasming and reduce the pressure on the sciatic nerve. A massage also spurs the release of pain-fighting endorphins, which can reduce the pain from piriformis syndrome. Richard (1978) reminds us that a working muscle will mobilize up to 10 times the quantity of blood mobilized by a resting muscle, so massage is a means of enhancing circulation of the pelvic organs.

Information for this paper was obtained from several online sources, including the following:

- Piriformis Syndrome in Canines, by Tammy Callahan, April 12, 2019
- Is Piriformis Syndrome a Tangible Diagnosis in Animals? A Case Study by Maja Guldborg, DVM
- WikiVet.net Canine Hindlimb –Anatomy & Physiology
- www.ojaischoolofmassage.com Canine Muscle Origins, Insertions, Actions and Nerve
- Google Books, Canine Lameness, p373, Felix Duerr
- Science Direct, Leon Chaitow, ND DO, Judith DeLany LMT, in Clinical Application of Neuromuscular Techniques, Volume 2 (Second Edition), 2011
- Spine Health, Two Little-Known Treatments for Piriformis Syndrome, by Jahanna Levy, DO, 12/20/2017
- Clarysage College Website, Tapotement or Percussion
- Institute for Integrated Healthcare, Linda Fehrs LMT, Massage Stroke Review Part 3: Tapotement, June 24, 2010