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TENDONS

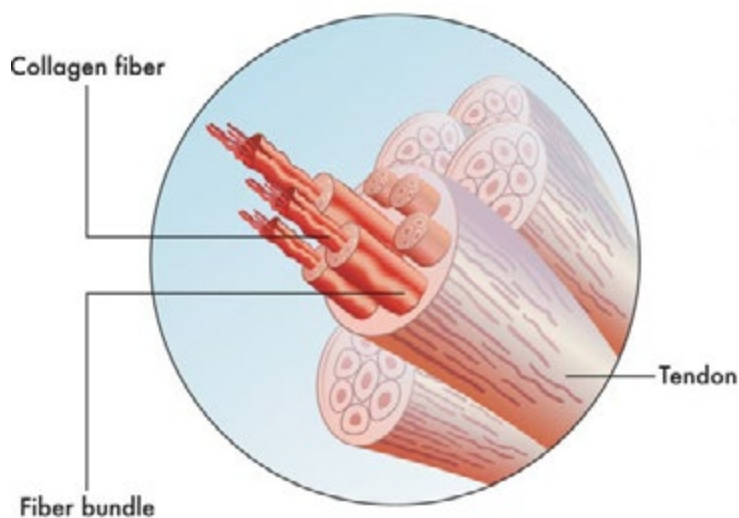
PART ONE

Somewhere in the vicinity of 30% of our elite equine athletes in the eventing and show jumping worlds will experience some sort of strain to their superficial digital flexor tendon (SDFT) during their careers. Numerous Olympic medals have been won by horses with a history of SDFT strain. So, when a horse in training experiences a tendon injury it is by no means a career ending catastrophe!

Tendon strains are usually a fatigue injury. As horsemen and women, we need to be aware of predisposing factors that lead to fatigue: fitness level, body weight and balance of both horse and rider, deep or shifty surfaces, high speed, long distance events, mild lameness in the opposing limb, long sloping pasterns and poor hoof balance.

Our management of 'bowed' tendons has changed over the last seventy years. Gone (hopefully) are the days of "pin-firing" or "blistering" the tendon and putting them in the bush paddock for twelve months. On returning to work around 50% would compete successfully at their prior level of performance. Nowadays, some owners are up around the 80% or more success rate with rehabilitating tendon injuries.

With the advancement in ultrasound (both diagnostic and therapeutic), physiotherapy techniques, biologics (Platelet Rich Plasma, Stem Cell, and gene therapies), and most importantly the use of controlled and graded exercise programs (including treadmills), you can produce elite performance/competition horses with a history of tendon injuries. You just need to treat them well in the first twelve months post injury.



THE STRUCTURE OF A TENDON

A tendon is a bundle of elastic fibres, made up mainly of collagen, which attaches a muscle to a bone. Ligaments are similar structures but attach bone to bone. Their structure is comparable to a bungy rope, that is a whole heap of elastic parallel fibres. Now, when fibres tear, that is called a strained tendon. Tearing of fibres sets up inflammation within that tendon and that is called tendonitis.

A 'bow' in the tendon describes the shape or the profile seen when the tendonitis of the superficial digital flexor tendon, is very severe or chronic.

A BOWED TENDON

Just because you have a few dodgy strands in your bungy doesn't mean that you can't use that bungy, or that the bungy is obviously broken. But, if you keep using that bungy then a few torn fibres will become a few more then a lot, until the thing snaps all the way through.

It is the same with mild tendon strains. The initial signs are only minor, a little bit of heat, swelling and pain on palpation, and usually no sign of lameness. It is quite a common mistake of riders and trainers to notice the heat and swelling, but because the horse is not sore then they continue work as per

usual. This usually leads to further fibre tearing and a worsening of the inflammatory response until finally help is sought – usually a fortnight or so later.

Diagnostic ultrasound is extremely useful in evaluating tendon injuries. You don't need an ultrasound necessarily to diagnose tendonitis, once you've seen a few they are easy to diagnose. But the ultrasound machine gives you a very good picture of the exact location, size, and severity of the tear. It is therefore very useful in diagnosing early minor tears and monitoring the progress of the healing of the tear. So, when you get your vet out to conduct an ultrasound examination, that is a great time to discuss all the various treatment options, but more importantly to come up with a long term graded exercise plan for the next twelve months.



A bowed tendon

DIAGNOSTIC ULTRASOUND



So, if your prize OTT has strained a tendon why do so many people consider it a curse? Two reasons. Firstly, tendon injuries take a long time to heal and secondly, depending upon management, there is a reasonably high rate of recurrence.

One of the main reasons they are slow to heal is the poor blood supply to tendons. Next time you are looking at the gristly tendon of a lamb shank, take the time to look for blood vessels in that tendon. If you have got really good eyes, you'll see only one little blood vessel in the very centre of the tendon. This means that all the supplies for cell division and tendon repair come from one tiny little vessel or diffuse in from surrounding tissues. The fibres that are torn are replaced with a different type of collagen to the original collagen. The replacement collagen (scar tissue) is not as stretchy as the original, so going back to bungy jumping, it is like repairing a slight tear in the bungy rope with strands of bailing twine. Obviously, this is going to be the weak link in the structure.

IN THE NEXT ARTICLE (TENDONS PART 2) WE WILL COVER THERAPIES USED IN MANAGING TENDON INJURIES.