



**EXTRACORPOREAL SHOCK WAVE THERAPY:
PRINCIPLES, TECHNOLOGY, AND CLINICAL
APPLICATIONS**

TheHorse.com: Welcome to The Horse’s webcast “Extracorporeal Shock Wave Therapy,” brought to you for FREE by our sponsor PulseVet. The video presentation and corresponding chat with our experts will start at 8 p.m. EDT.

TheHorse.com: I’m your host and moderator, Michelle Anderson, digital managing editor of The Horse

TheHorse.com: Dr. Allen’s presentation should start playing soon.

TheHorse.com: I am joined by Dr. Kent Allen, whose presentation you’re watching.

Dr. Allen: I’m happy to be here tonight.

TheHorse.com: Please feel free to start sending us your questions!

TheHorse.com: We are also joined by Dr. Jenny Johnson. Welcome!

Jenny Johnson, VMD: I’m looking forward to our presentation on shock wave therapy tonight.

TheHorse.com: We’re going to start with some questions sent in during registration.

TheHorse.com: Kent Allen, DVM, ISELP, is the owner of Virginia Equine Imaging. He is the vice president of the International Society of Equine Locomotor Pathology, U.S. national head FEI veterinarian, and chairman of United States Equestrian Federation Veterinary and Equine Drug and Medication committees. He served as an FEI foreign veterinary delegate for the 2010 Alltech FEI World Equestrian Games and the 2012 London Summer Olympics.

TheHorse.com: Jenny Johnson, VMD, is the owner of Oakhill Shock wave and Veterinary Chiropractic in Calabasas, California. She completed her veterinary education at The University of Pennsylvania School of Veterinary Medicine and earned her certification in veterinary chiropractic from the International Veterinary Chiropractic Association. She combines her veterinary education and years of experience utilizing shock wave therapy and chiropractic techniques, along with her background in riding and showing, to help ensure Southern California’s equine athletes have access to premium veterinary care. Johnson is a frequent presenter on the principles and applications of veterinary chiropractic and shock wave therapy, as well as the most recent research findings.

Susan from Sarasota, Florida: Is this therapy useful only on acute or recent injury or also on older “healed” injuries that still cause discomfort? Also, is it useful for tendon inflammation (without fiber disruption) or mostly for tears or disruption?

Jenny Johnson, VMD: Shock wave therapy can be used in both acute and chronic injuries with success. I generally prefer to treat an injury in the acute phase, but I also frequently see injuries that for one reason or another have become chronic and I have found that shock wave therapy can be very helpful in those cases. When soft tissue injuries are healing, they sometimes reach a point where the healing process becomes very slow, what I like to call a “lag” phase. In cases like this, shock wave therapy can serve to “jump start” the healing process. It basically re-activates the body’s own healing process. This can be very helpful in getting those injuries to progress to a more complete state of healing.

Mary from St. Louis, Missouri: My 18-year-old mare has a bone spur on her pastern that is hitting the suspensory ligament and causing her to be off and stumble. Would ESWT be helpful in her case?

Dr. Allen: Yes it will help both the bone spur and the ligamentous damage. It will help the pain as well.

Lee Barnes, Equilibrium Equine Massage, Delray Beach, Florida: Are these just for vet use, or can equine massage therapists use them as well, and where could we get trained on them?

Jenny Johnson, VMD: Shock wave therapy is considered the practice of veterinary medicine and, as such, can only be used by veterinarians.

Cheryl in Ontario, Canada: Is there any indication that this type of treatment would benefit horses with a history of chronic OCD conditions in the area of the stifle?

Dr. Allen: Yes it will help an OCD if the shock wave energy can reach the OCD lesion; it will also help the associated arthritis.

TheHorse.com: For everyone watching, you might be experiencing a sound issue. It is being resolved. In the meantime send us your questions!

Theresa: Is this available in San Diego?

Jenny Johnson, VMD: Yes, there are a number of veterinarians in the San Diego area that provide shock wave therapy. Typically, veterinarians whose practice is focused on performance horses will have the capability to provide shock wave therapy.

Lucia R.: Good evening, I’m researching electrotherapy devices for use in horses, and I wonder whether shock wave is considered electrotherapy or what type of therapy is it considered?

Dr. Allen: No it is not electrotherapy. It is very powerful soundwaves that are generated within the probe by a specialized spark gap. No electricity touches the horse. It is much more powerful and effective than most electrotherapy.

TheHorse.com: For anyone who isn’t able to see the presentation, the video will be archived on the site after tonight. In the meantime, Drs. Allen and Johnson are happy to field your live questions.

Cheri from Orange Co., California: My horse received stem cell in his torn superficial tendon in his front leg. We are also doing shock wave and did his first treatment of three today. Have there been any studies that you are aware of that demonstrate whether that combined therapy is better than either one alone?

Jenny Johnson, VMD: It is common to use stem cell therapy and shock wave therapy in combination when treating tendon and ligament injuries. Typically, the first shock wave treatment is done prior to the stem cell injection and then there is a 30-day waiting period after the stem cell injection prior to the second shock wave treatment. I am not aware of any studies that have evaluated the effectiveness of this combination of treatments.

Teree from California: Will the shock wave reach a deep digital flexor tear inside the hoof wall?

Dr. Allen: Shock wave cannot penetrate the hoof wall. But shock wave can be applied from the heel and affect the DDFT. If ultrasound can see it shock wave can affect it.

Wayne: Is shock wave therapy mainly for problems in the legs or can it be used on other parts of the body such as the neck with nerve compression?

Jenny Johnson, VMD: Shock wave therapy can be used almost anywhere in the body. It should not be used over gas filled areas, such as the lungs or the intestines. It is very useful in treating neck pain and back pain, as well as both soft tissue and bony issues on the legs.

Diana Faccini, DMV: The number of shocks is per point of treatment? Treating a back problem you would use many target points of 2000 shots each?

Dr. Allen: We use shock wave commonly on Backs for both kissing spines and dorsal articular process osteoarthritis. The most common dose is 1000 to 2000 pulses with the 35 mm probe at highest power.

Jane from Lawrenceville, New Jersey: Is the effectiveness of ESWT dependent on the skill of the clinician?

Jenny Johnson, VMD: It is essential that the veterinarian have a very thorough knowledge of the anatomy of the affected area. If the probe is off by as little as 5 degrees from the targeted area, the treatment will be of no use.

Jane from Lawrenceville, New Jersey: Would ESWT be effective in treating a horse with Chronic intersesmoidean ligament injury?

Dr. Allen: Yes I have used it for that before and found it to be effective for the ligament injury and the pain. That is a difficult problem that still has a moderate to poor prognosis

Anna from California: Unfortunately I am having trouble with the sound and now the video stopped. My question is how successful will shock wave be if there is scar tissue involved? My horse is currently having shock wave for an old suspensory injury. This most likely came with him when I got him two years ago. Not that noticeable until the training moved to a higher level. I am hoping it will help.

Jenny Johnson, VMD: Shock wave therapy can be very helpful in treating old suspensory ligament injuries that have some associated scar tissue. The shock wave therapy essentially “jump starts” the body’s healing process and will stimulate the in-growth of new blood vessels and remodeling of the fiber pattern. I have managed some horse’s chronic suspensories with periodic treatments on a regular basis (say every 3-5 months) depending on their show schedule or work load.

Ellen in Henderson, Tennessee: Can this help when multiple pathology is present (i.e., arthritis, navicular, sidebone, ringbone)?

Dr. Allen: Yes, it will help multiple treatments but you have to direct the shock wave to each one individually. Shock must be directed directly on to the lesion or injury very specifically so the injury diagnosis must be accurate and the beam directed straight at it.

Jane from Lawrenceville, New Jersey: If you were to treat the intersesamoidean ligament, what would be the standard number of treatments?

Dr. Allen: 3 treatments three weeks apart

Lucia R.: How do you determine the intensity used for different pathologies? Is it dependent on which machine you're using, or is there a general guide of settings to use?

Jenny Johnson, VMD: Typically, the level of intensity is based on the type of injury and how acute it is. In very acute injuries, I will frequently reduce the intensity of the treatment. In most cases (other than the very acute), I will use the highest intensity level.

Teree from California: Do vets do these treatments or are there also technicians trained to do it and working under the vet's direction?

Dr. Allen: Shock wave, because it is very specifically applied, is the practice of veterinary medicine and it requires a specific knowledge of anatomy. Veterinary Technician's can do it under the specific guidance of veterinarians.

Jane from Lawrenceville, New Jersey: Do you have to rest the horse in between treatments?

Jenny Johnson, VMD: It entirely depends what you are treating. If you are treating a horse with a suspensory ligament injury, the horse is going to be on rest regardless. If the horse is in competition and is having his back treated, then it may not be necessary to rest the horse. Each case must be evaluated individually. I always advise owners that there is a 48-hour period of analgesia and this should be taken into account with whatever the horse's circumstance presents.

Anna Macomber in Kelseyville, California: If scar tissue is present and constricting blood flow to the suspensory ligament, will shock wave therapy be successful?

Jenny Johnson, VMD: Shock wave therapy stimulates neovascularization, or the in-growth of new blood vessels, and would therefore likely be particularly useful if there is scar tissue that is impeding the blood flow to the suspensory ligament. Additionally, the shock wave therapy will also likely stimulate some remodeling of the scar tissue of the suspensory as well as decrease any associated inflammation. I would highly recommend shock wave therapy in a case like this.

Marie: How useful is shock wave therapy on fibrotic myopathy and impar ligament of the navicular bone

Dr. Allen: Shock wave will help fibrotic myopathy minimally because it is formed scar tissue. However it will help the impar ligament because it is where a ligament attaches to a bone and is inflamed not a scar.

TheHorse.com: For anyone who had issues with sound, the archive of this video presentation will go up immediately after this chat discussion is over. I will post a link for you so you can watch it at your leisure.

Julie: What are your thoughts on this treatment for my 29-year-old gelding who was diagnosed with ringbone and navicular on the left front.

Jenny Johnson, VMD: Shock wave therapy can be especially useful in treating ringbone - it is one of the few things that can be done to treat ringbone aside from shoeing changes and anti-inflammatory medications. It is most successful in treating the earlier stages of ringbone, but can also provide relief to fairly advanced cases of ringbone. Shock wave therapy is also useful in treating navicular disease. Statistically, shock wave will decrease the degree of lameness by at least 1 grade in horses with navicular pain.

Catherine: My 7-year-old mare has been lame for three years with navicular disease and has two treatments if Tildren and has recently been started on isoxsuprine. If I'm considering shock wave therapy does the isoxsuprine interfere and what are her chances of a normal life?

Dr. Allen: It will be more effective than Isoxsuprine and will not interfere with it. An MRI would be indicated for soft tissues if it hasn't been done.

Minka Kulenovic, California: Can high-energy shock wave be applied to dogs, as well?

Jenny Johnson, VMD: Yes, there are many applications for the use of shock wave therapy in dogs, including hip dysplasia, lumbosacral pain, arthritis of any joint, bursitis, wound healing including lick granulomas, stimulation of fracture healing, and cruciate ligament injuries. Typically, dogs will need to have a short-acting anesthetic for shock wave therapy to be completed.

Samantha: Can this treatment help my 17-year-old English Shire Draft with pain from stringhalt?

Dr. Allen: Stringhalt is a neurologic issue and will not be helped with shock wave.

pablomac: what is the evidence for the length of analgesia. I have heard varying reports on the duration. Also, how profound is the analgesia?

Jenny Johnson, VMD: Dr. Scott McClure at Iowa State University completed a force plate study documenting a analgesic effect of approximately 48 hours and in some cases up to 3-4 days.

TheHorse.com: For anyone who would like to rewatch the presentation, it is now archived at <http://www.thehorse.com/videos/webcasts/34317/extracorporeal-shock-wave-therapy>

TheHorse.com: You can watch it at your leisure.

Wayne: Could shock wave therapy be beneficial in treating a young foal that is showing symptoms of wobbler syndrome and may have spinal compressions in several areas?

Dr. Allen: No it will not help a wobbler or cervical malformation. That would require surgical intervention.

Jane from Lawrenceville, New Jersey: Are all ESWT machines created equal or should I be looking for a vet with a particular type?

Jenny Johnson, VMD: All shock wave machines are not the same. There are machines that generate a radial wave, and this is not a true shock wave - the physics are completely different from a true shock wave. A true shock wave has a very rapid rise (nanoseconds) to a very high pressure (1000 times atmospheric pressure), with a short duration, and a component of negative pressure, whereas a radial wave has a longer time to rise to a much lower pressure and has no negative pressure component. The true shock wave can be precisely focused so that the energy is delivered only to the area that is being treated, while a radial wave applies pressure to the entire surrounding area and the energy level drops off very rapidly. Insurance companies typically will only cover treatment with focused or true shock wave, not radial wave therapy. Radial wave therapy is basically only useful at the level of the skin, whereas true shock wave can penetrate much deeper, depending on the probe used.

pablomac: If the duration is only for 2 to 4 days, why would you recommend it for ringbone or other pathological chronic conditions that are painful. It is not inexpensive therapy.

Dr. Allen: The short term potent pain relief that would not be indicated for a horse showing or doing hard work is short term but the downregulation of the pain receptors that reduces the overall pain and starts the healing process lasts for months and is very effective for ringbone.

TheHorse.com: Well, that's all the time we have for answering questions tonight. Thank you to everyone who joined us!

TheHorse.com: The presentation is now archived and you can watch the video at <http://www.thehorse.com/videos/webcasts/34317/extracorporeal-shock-wave-therapy>.

TheHorse.com: Thank you Dr. Allen for doing this presentation and responding to questions tonight.

Dr. Allen: I hope everyone enjoyed it and learned something that might benefit their horse tonight.

TheHorse.com: Thanks also, Dr. Johnson, for answering questions for us.

Jenny Johnson, VMD: It was my pleasure being here tonight and helping to broaden the understanding of shock wave therapy and it's role in veterinary medicine.

TheHorse.com: And thank you to our sponsor, PulseVet. If you'd like to watch this presentation again, it is now archived and available to view at <http://www.thehorse.com/videos/webcasts/34317/extracorporeal-shock-wave-therapy>. Good night, and I hope you can join us in September when we have a webcast on EPM.