



HIGHLANDER

FITNESS & THERAPY CENTER
SPA • REHABILITATION • RECOVERY



BENEFITS OF THERAPY & FITNESS PROGRAMS FOR THOROUGHBRED RACEHORSES

White Paper
February, 2022

Contributors:

Dr. Larry Bramlage DVM, MS, DACVS
Rood and Riddle Equine Hospital
Lexington, Kentucky

Dr. Ali Broyles, DVM, DACVS-LA
Equine Sports Medicine & Surgery
Weatherford, TX

Benefits of Therapy & Fitness Programs for Thoroughbred Racehorses



Contributors
Dr. Larry Bramlage DVM, MS, DACVS
Rood and Riddle Equine Hospital
Lexington, Kentucky



Dr. Ali Broyles, DVM, DACVS-LA
Equine Sports Medicine & Surgery
Weatherford, TX

“Active rehabilitation is very useful for getting horses with some conditions back to training efficiently and in better condition to resume training without excessive delays.” - Dr. Larry Bramlage



Dr. Bramlage Q&A:

Do you recommend active rehabilitation for your patients?

Bramlage: Yes. I believe it is very useful for getting horses with some conditions back to training efficiently and in better condition to resume training without excessive delays.

Isn't more time better than less?

Bramlage: No, in a heavily training horse they accumulate wear and tear that needs time and sometimes surgical or medical treatment to recover. But, excessive time is not beneficial to horses who have very active skeletons due to their training level. Their bones are very active in responding to training in order to build and maintain the skeleton in racing or performance fitness. But if you stop the training the bones are just as active at “de-training” the skeleton as they are at training it.



So, how much time is ideal?

Bramlage: That depends on the injury. Some injuries require stall rest. Some do best with controlled exercise. Some do best in the field and some do better with a combination of the options.

How do you know?

Bramlage: Your veterinarian should be the best source of advice here. There is no substitute for pasture exercise for healing wear and tear in a skeleton. Horses evolved as grazing animals so their bone circulation is most efficient with the horse grazing. They will eat a few bites, then walk three or four steps, then eat a few more bites, then walk again. This is the exercise that is best for routine skeletal remodeling, and for healing. Some of our injuries are promoted by the amount of time a heavily training horse must spend in the stall.



“When you “de-train” the horse and then re-train, the soft tissues will train faster than the bone.” - Dr. Larry Bramlage



Why is “de-training” the skeleton bad?

Bramlage: A horse that has had lots of high level training will have trained his muscles, heart and lungs as well as his bone to fitness. *When you “de-train” the horse and then re-train, the soft tissues will train faster than the bone.* This can result in recurrence or in “re-training injuries” like tibial or humeral stress fractures. Bone is always the slowest tissue in response to training because horses have such wonderful heart and lungs, and very good muscles for their particular use.



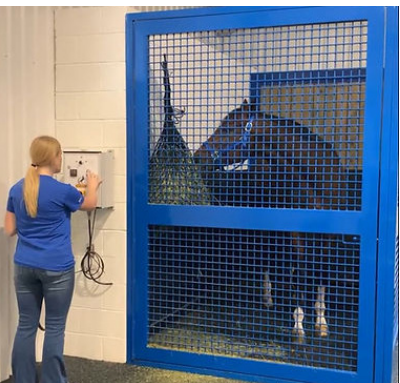
So where does the active rehabilitation fit in?

Bramlage: As a guideline most significant bone injuries will require 60 to 90 days to heal. Healing will necessarily cause some “de-training” in comparison to the normal training schedule. But in instances where you can insert active or controlled exercise you will minimize the “de-training,” reduce the chance of recurrence and prevent re-training injuries. Plus, it reduces the total exercise load to return to fitness if you can keep the horse “toned up” and not let them lose all of the results of previous training.



How do you do this?

Bramlage: It depends on the injury, but especially in *instances where there is no structural damage and you are mostly wanting the horse to remodel wear and tear you can make good use of tools like the water treadmill to allow some weightbearing and preserve some fitness while the healing is taking place,* especially during the second or third month when it is not detrimental to the healing of the primary problem.



What about things like the salt water spa or the vibrating plate?

Bramlage: The first step in many injuries is to reduce the inflammation. Salt water can be cooled more than plain water. *This is very useful in some injuries, especially of soft tissues.*

And the vibrating plate?

Bramlage: This is less well documented, and is no substitute for pasture exercise, but *in some instances it can potentially help bone remodeling while you can't allow free choice exercise.* There is not much data to know, but you don't have to force a horse to stand on the vibrating plate. Given the choice they will preferentially stand on a vibrating plate when you expose it to them in a situation where they have a choice. This must feel good to them. That gives you some indication it a positive influence.

“The goal of a therapy and rehabilitation program is to prevent injury, speed up recovery from an injury so there is less time out of training, and prevent re-injury.” - Dr. Ali Broyles

Dr. Broyles Q&A:



Describe the key benefits of underwater treadmill exercise in horses. How can incorporating a 30-day transition period of Aqua-treadmill exercise be beneficial in horses coming out of a lay off from an injury?

Broyles: Underwater treadmill exercise provides cardiovascular condition and improves muscle strength without excessive stress on the joints, tendons, or ligaments. Both the in-ground and above ground aqua-treadmills at HTC have the capability to adjust the water level which allows for targeted therapy of specific joints or injuries. The higher the water level the more buoyancy the water provides and the less weight bearing stress is placed on the horse. The aqua-treadmill provides an environment for controlled exercise for rehabilitation in which the height of the water and therefore weight bearing can be tailored for specific horses and their particular injury.



In addition, moving through the water requires increased effort by the horse which results in increased muscle strength and cardiovascular endurance. Specifically, *horses recovering from arthroscopy (joint surgery) or in horses with osteoarthritis the aqua-treadmill has been used to increase the joint range of motion* which reduces joint capsule fibrosis (stiffening). In addition to improved range of motion, the hydrostatic pressure from the water and the low temperature of the water improves inflammation in the synovial membrane. For recovery of tendon and ligament injuries in the later stages of healing, the buoyancy of the water provides controlled weight bearing of these structures which is necessary to stimulate the remodeling process.



Overall, a 30 day transition period from paddock turnout to training, allows the horse to become strong cardiovascularly and muscularly which decreases their chances of fatigue and re-injury when they return to training on the racetrack.

What conditions benefit from the cold saltwater spa and how can this therapy modality be used not only for treatment but also prevention of injuries in the racehorse?

Broyles: The saltwater spa has been reported to benefit a variety of conditions including tendonitis, desmitis, wounds, arthritis, synovitis, bruising, and bucked shins. The temperature in the salt water spa can be chilled more than plain water (between 35-37F) and at this temperature the water is more efficient at reducing inflammation and heat and even provides a pain relieving effect. In addition, water at this low temperature has an increased ability to carry oxygen which strengthens the horse's natural healing mechanisms. Salt water also has an increased density which increases pressure on the limb which aids in reduction of swelling and edema formation. Cryotherapy has long been used in injury prevention by reducing blood flow to the extremities which in turn reduces tissue metabolism and subsequent inflammatory mediator release and hypoxic injury. Using the salt water spa after intense exercise such as a breeze might help prevent common injuries that develop post workout such as bucked shins and synovitis.





Tell us some of the issues that are positively benefited from using the therapeutic laser that HTC has? In layman's terms how does the laser work?

Broyles: Low-level laser therapy (LLLT) has been applied in veterinary medicine for a long period of time, however more recently high power laser therapy (HPLT) has become available. HPLT applies a much higher power output compared to LLLT which allows deeper tissue penetration and makes the therapeutic process more efficient.



At the cellular level, *laser therapy works by accelerating cellular regeneration and thus healing.* HTC has a class IV therapeutic laser which applies this high power laser therapy. Recent work has shown that treatment with this type of laser showed significant overall improvement in lameness and ultrasonographic appearance of tendon or ligament injuries treated with HPLT versus similar injuries that were not treated with the laser.

My clinical impression after utilizing this treatment for proximal suspensory ligament desmitis and superficial digital flexor tendonitis is that it is very useful in speeding up the healing process for these injuries and potentially decreasing the re-injury rate.

Overall what are the benefits of the rehabilitation modalities at HTC and how can they be incorporated into a successful training program?

Broyles: More than 50% of TB racehorses experience a period of lameness during their career which not only affects the welfare of the horses but also has a significant economic impact. The economic impact is realized by days out of training, decreased performance, reduced income from winnings, loss of training fees, and cost of replacing the horse.



The goal of a therapy and rehabilitation program is to prevent injury, speed up recovery from an injury so there is less time out of training, and prevent re-injury. A specifically tailored program for each horse using a variety of modalities such as those available at Highlander aims to get your racehorse back to work at its highest level of performance with the least amount of time lost from training and lowest chance of re-injury.

Using modalities such as the aqua-treadmill, salt water spa, laser therapy, and vibration plate is fairly novel, but could be a game changer in the future.



What are the benefits of vibration plate therapy and what cases might benefit from this type of treatment?

Broyles: Human studies have found vibration therapy to *improve bone density, increase muscle mass, improve circulation, and reduce pain*. Fewer studies are available in horses but some of the known benefits include increased back muscle development, increased hoof growth rates, and ligament healing. Personally, I find the vibration plate to be most helpful in horses that have bone or tendon/ligament injuries that require a period of stall confinement. The vibration plate provides stimulation of the bone or tendon/ligament to heal without the risk of re-injury from exercise.



What about hyperbaric-oxygen therapy (AKA HBOT)? How does it work and what cases are best suited for this type of therapy?

Broyles: With HBOT the horse breathes 100% oxygen under pressure which significantly increases oxygen delivery to the tissues. There are many benefits of HBOT as an adjunctive therapy and it is most commonly used to *treat infections, wounds, maladjusted foals, tendon injuries and EIPH* (AKA “bleeders”). In my experience HBOT has been extremely beneficial in treatment of large wounds and for treatment of EIPH. I have treated several horses suffering from EIPH when traditional medical therapies have not succeeded and seen very positive results. There are only a few facilities that have HBOT for horses and while HTC does not have a HBOT chamber, we are able to refer out horses that might benefit from this form of therapy to Equine Sports Medicine & Surgery in Weatherford, TX.





Dr. Lawrence Bramlage, DVM, MS, DACVS

Shareholder
Rood and Riddle Equine Hospital
Lexington, Kentucky

Larry Bramlage is a 1975 graduate of the Kansas State University College of Veterinary Medicine (DVM) and received a Master of Science degree from Ohio State (MS) in 1978. He holds a Diploma of the American College of Veterinary Surgery (Diplomate ACVS).

Bramlage is an internationally recognized equine orthopedic surgeon, and practices at Rood and Riddle Equine Hospital in Lexington, Kentucky. He is a past President of the American Association of Equine Practitioners, and of the American College of Veterinary Surgeons.

In recognition of his dedication and contribution to Thoroughbred racing, Bramlage was awarded the 1994 Jockey Club Gold Medal for contributions to Thoroughbred Racing in the United States. He is also a past chairman of the Research Advisory Committee of the Grayson-Jockey Club Research Foundation and serves on the Board of Directors for that organization. His additional honors include the 1997 Tierlink Hochmoor Prize for his work regarding the internal fixation of fractures, the 1998 distinguished alumnus award from The Ohio State University, Alumni Fellow Award from Kansas State University, a British Equine Veterinary Association's Special Award of Merit, and the American College of Veterinary Surgeons Legends award for the development of the fetlock arthrodesis procedure for horses in 2009, and the Thoroughbred Club Testimonial Award in 2014. He has received the American Association of Equine Practitioners Distinguished Service Award twice. He was elected to membership in the Jockey Club in 2002 and to Distinguished Lifetime Membership in the American Association of Equine Practitioners in 2010.



Dr. Ali Broyles, DVM, DACVS-LA
Equine Sports Medicine & Surgery
Weatherford, TX

The primary attending veterinarian for the Highlander Fitness & Therapy Center, Dr. Ali Broyles graduated from Middle Tennessee State University in 2004 with a bachelor's degree in animal science. After graduation she moved to Guthrie, Texas where she worked at the Four Sixes Ranch before attending veterinary school. Dr. Broyles earned her veterinary degree from Texas A&M University in 2010 and went on to complete a one-year internship at Rood and Riddle Equine Hospital in Lexington, Kentucky. Upon completion of her internship, Dr. Broyles, along with her husband, purchased a veterinary practice in Spur, Texas.

While working with her husband she also served as a part-time racetrack veterinarian for Equine Sports Medicine and Surgery in Oklahoma, Iowa and Florida. Dr. Broyles returned to Rood and Riddle in June 2014 to begin an equine surgery residency program. At completion of her three-year residency program in Lexington she joined the Rood and Riddle team in Saratoga Springs, New York as an associate veterinarian, working mainly on thoroughbred racehorses. After working for Rood and Riddle, Dr. Broyles returned to Texas and joined the staff at Equine Sports Medicine & Surgery in Weatherford as an associate surgeon. She obtained board certification and became a diplomate of the American College of Veterinary Surgeons in 2019.

During her surgery training at Rood and Riddle, Dr. Bramlage was a close mentor and was instrumental in sparking her passion for helping the Thoroughbred equine athlete. Her professional interests include lameness, colic surgery, and orthopedic and upper airway surgery especially in racehorses.



Offering a complete suite of services for the care, fitness & therapy of your Thoroughbreds.

COLD SALT WATER SPA

Cold Salt Hydrotherapy is used to treat and lower the risk of a multitude of injuries. The soothing salt solutions act as a hypertonic poultice, reducing heat while having a natural healing effect.

AQUA TREADMILLS

In ground and above ground, the aqua treadmills at HTC are designed to relieve stress and promote healing and fitness. They have been proven to be powerful tools for rehabilitation, training and conditioning of horses.

VIBRATION PLATE FLOOR STALLS

Vibration plate therapy can lead to improved performance and even prevent injuries and accelerate healing. Vibration therapy has also been used to treat tendon and ligament injuries, decreased bone density, bucked shins, and arthritis in horses.

REGENERATIVE LASER THERAPY

Once considered career ending injuries are being met with renewed confidence and optimism around the globe. SOUND® brings the ground-breaking RLT Vet Regenerative Laser Therapy to equine medicine.

THERAPULSE BLANKET THERAPY

By stimulating and regenerating cell tissue, it is a highly popular form of therapy for muscles, ligaments, bone repair, wound healing and blood revitalization.

NEBULIZER

Great for respiratory issues • Treat coughs & excessive mucous
Delivery system for respiratory medications

VETERINARY CARE & SERVICES

Highlander Training & Therapy Centers rest on 189 acres near Sulphur Springs, Texas, 80 miles east of Dallas. Highlander was founded on the core principle of forging champions. The combined 80 years of experience among the three resident trainers have led to over 300 stakes winners over the past 30 years.

We are located within easy shipping distance of nine major racetracks, and we regularly ship horses to and from tracks in Kentucky, New York and across the country. At Highlander Training Center, we strive to produce winning horses through meticulous horsemanship, carefully balanced nutrition, complete veterinary care, and attention to detail. Our riders, grooms and therapy center personnel are also experienced professionals focused on bringing each individual horse to its maximum potential.



Dakota Holmes
Director - Fitness & Therapy Center



Highlander Training Center
5247 Texas Highway 19 South
Sulphur Springs, Texas 75482
Phone (903)485-8440
Text (817)992-0609

Jeff Hooper
Chairman, CEO

Jon Newbold
General Manager, Asst Trainer

Shannon Ritter
Senior Consultant

