

The SMX AirRide™ Equine Saddle Pad: Development, Scientific Analysis & Testing and The Science of Fitting Your Horse.

Overview

All athletes benefit from training and equipment that can maximize performance and minimize stress. IN equestrian events we strive to find harmony that creates movement as a singular, balanced unit between the horse & rider. Correct saddle fit between the horse, pad and rider is a critical factor in minimizing stress to the horse's back and maximizing performance. Professional's Choice Sports Medicine Boots, Inc. decided to challenge tradition and move the equine art of saddle pad development and fitting into the 21st century. They scientifically re-examined traditional saddle pads by using equine veterinary sports medicine experts, researchers, horsemen, new computerized technology and technical knowledge of equine anatomy and kinesiology to develop the best fitting and most scientifically researched protective saddle pad available to the equine athlete, the SMX™ saddle pad.

The process of saddle pad development and proper fitting require an extensive knowledge base of horse anatomy and saddle fit and a carefully designed scientific effort utilizing computer software, calibrated pressure sensing pads and significant technical expertise. Dry areas or "hot spots" represent superficial areas of improper fit or increased pressure between the horse, pad and rider. These areas may not always adversely affect the animal's performance but correct pad thickness, fit, and optimal energy distribution and absorption can minimize these areas of improper fit and optimize the function and protection of the pad. Saddle trees are built of various materials on an inverted "V" with the widest part resting on the horse. The bars of the tree are the weight bearing surface, and the top of the bars are narrow and keep direct saddle contact and pressure off the withers and spine of the horse. Saddle fit problems can develop from several areas: saddle design, tree design, pad design, and conformation of the horse's back. The tree must be designed properly, made of quality materials, and must match or fit the horse's back conformation. Horsemen must always be aware of wear and tear of their equipment and detect broken trees, worn and fatigued saddle pads. A critical piece of equipment for the horseman to obtain correct or optimal saddle fit is the pad. Tradition has created too many improper fitting pads that either narrow the inverted "V" or shift the pad-saddle fit by improper length (too long) that creates pressure along the back. The use of improper pads under a saddle can be compared to the use of thick

socks inside of shoes that are too small. The increase in pressure created by the use of incorrect pad can lead to areas of increased pressure that can develop into white hairs (pressure alters the hair follicle which produces the white hair, this may disappear at the next coat change or be permanent and usually is only cosmetic and not be associated with pain or discomfort), injury and muscle atrophy on the horse's back or to soft tissue pain in the back and or neck areas. This pain and discomfort to the horse can be associated with behavioral problems. A properly scientifically designed pad will assist proper saddle fit and act as an interface and shock absorber for the horse. Optimal pad specifications to maximize performance and minimize stress to the horse's back must provide low to medium pressure along the bars of the tree, no pressure on the spine, equal distribution of pressure to both sides of the saddle and provide a comfortable form fit to the horses back. The pad must also be of the correct thickness to prevent "bridging" (this is when a saddle is too far forward or too narrow or the pad causes this by being too thick and improperly distributing weight on four points; on each side of the wither [2] and on each side of the back at the rear of the saddle [2]). Additionally, correct pad thickness allows the pad to rest on the horse's back and conform to the horse's anatomy forming continuous contact and even areas for weight distribution. In some cases, a properly designed pad may correct slight saddle imperfections by bridging gaps in pressure distribution (areas where the bars are not meeting in the back) and help disperse areas of excessive pressure.

Professional's Choice Sports Medicine Products, Inc developed the SMX™ saddle pad by applying technology from the human medical field to the equine athlete. This allowed scientific and precise reading of "pressure mapping" of the critical interrelationships between saddle, pad, and ride. The testing system utilized a pad composed of 225 force-sensing resistors that transmitted pressure readings from the prototype pads during development to a computer that stored the information obtained by a color graph, numerical spreadsheet or a 3 dimensional grid display. The development of the SMX™ pad also involved placing the prototype pad on the horse's back, than applying the saddle and mounting the rider. Development of this SMX™ pad involved extensive testing of many prototypes while the horse was standing, walking, and performing strenuous athletic activity (roping) by using remote data collection during the activity. This provided accurate scientific information on the prototype pads effectiveness during the development stages in a "real use" environment. With this system and scientific design we were able to determine actual saddle fit pressure points and weight pressure distribution over the back. By altering materials and thickness we were able to correct problems with "fit" during the developmental stages and achieve an end product that was scientifically developed quality fitting and even pressure distribution pad for the equine athlete.

The scientifically developed and tested SMX™ pad provides optimal length, thickness, fit, comfort, and pressure distribution characteristics necessary to minimize excess pressure and provide optimal fit between the pad, saddle, and the horse's back. The pad has extremely good longevity, is made of high quality natural products and provided optimal protection and function for a wide range of equine activities. Proper saddle fit is critical to performance in our equine athletes and improper fitting pads or saddles contribute to the poor-performance syndrome, behavior and lameness problems we see frequently in horses in all equine sporting events.