

EQUINE MICROCHIPS 101

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EQUINE MICROCHIP BASICS

A microchip is an electronic circuit that uses radio-frequency identification (RFID) technology, specifically a wireless electromagnetic signal, as a form of communication. Each microchip has a unique number which is encoded into the chip at the time of manufacturing and cannot be altered or deleted after manufacturing. It is a read-only chip. The microchip remains inactive in the horse and is only activated when a reader sends a signal to the microchip. The microchip reader emits radiowaves at the international standard frequency of 134.2 kHz which stimulates the chip to respond back to the reader with the unique identification number.



ADVANCES IN MICROCHIP TECHNOLOGY

In the early days of microchipping animals, there were issues with microchip and reader compatibility, as both were developed at various frequencies. However, global standards have addressed this issue. Many companies follow the international standards (ISO 11784 and 11785) of 134.2kHz, which resulted in the use of a universal scanner that can read any ISO compliant microchip. Additionally, in 2007, a registration authority was established to register manufacturer codes for the microchips. These manufacturer codes include the country code prefix or specific manufacturing code. The registry ensures ISO compliant microchips meeting the standards have a unique number to prevent duplicative microchip numbers. Based on these advances, the ISO compliant microchip have become the primary microchip used in horses.

Currently, equine microchips are read-only, meaning no information can be uploaded or stored on the chip. However, research is ongoing on microchips that could store health data, such as vaccinations records and Coggins test results.



BIOTHERMAL MICROCHIPS

One additional advancement in microchip technology was the development of a biothermal microchip. This microchip contains a built-in temperature biosensor that measures the horse's temperature at the implantation site. The microchip can be read by a universal reader for just the identification number or by a designated reader which captures and displays the temperature. This is an easy, safe and quick alternative to taking multiple rectal temperatures.



MICROCHIP IMPLANTATION

In horses, microchips are typically implanted with a syringe in the left nuchal ligament at a point halfway between the poll and the withers. Recent studies have evaluated implanting microchips in the pectoral or splenius muscle, however the internationally recognized location for microchip implantation in the horse is the nuchal ligament. Many newer microchips, contain an outer polymer coating that helps keep the microchip from migrating by favoring tissue adhesion. Several publications have shown that properly implanted microchips generally do not migrate after implantation in horses (Stein et al. 2003; Gerber et al. 2012). Horses may exhibit a local inflammatory response characterized by swelling and sensitivity to pressure at the insertion site which typically resolves in one day (Gerber et al. 2012).

Although anesthesia is not required for microchip implantation, some states considered the process a veterinary procedure, and thus require the implantation to be performed (or at least supervised) by a licensed veterinarian.



BENEFITS OF MICROCHIPS

Microchips are a safe, reliable and cost-effective means of permanently identifying horses. The additional benefits to the horse owner include:

- Theft Recovery - A permanent unalterable identification that can be used to prove ownership.
- Fraud Prevention - When utilized at competitions, it confirms identification assuring credibility.
- Emergency Response – A quick horse identification system that reunites horses with owners.
- Health Monitoring – Biothermal chips allow for a consistent, quick method of horse health monitoring.

Several concerns with microchipping, such as their potential to cause cancer, to negatively impact horse health, or to significantly migrate, have been thoroughly researched over the last decade and been proven false or non-existent. When considering the costs of a stolen horse, a displaced unrecoverable horse or sick horse, the one-time cost of microchipping becomes irrelevant. Thus, there are no disadvantages to microchipping a horse and significant advantages to the horse and its owner and the national horse industry.