

PRODUCT FOCUS

Can sports technology be applied to racing?

When Michael Dickinson recently announced his plans to return to training, he told The TDN that he planned on using “a lot of technology” as part of his set up.

But how should a trainer go about accessing which technology can be used in a training environment?

So, at Trainer Magazine we teamed up with J Lyons Marketing, a tech scout firm for many Fortune 500 companies.

A technology marketing company is a

specialist for finding advance technologies based on Fortune 500 company new technology roadmaps. Companies plan near term (1-2 years out) what features can be added to enhance a better product. Firms like Apple have over 100 technology scouts that search the world to evaluate new technology.

The same principle can be applied to sports to enhance a players performance by evaluating latest technology based on new

technology roadmaps.

So which technologies used in other sports that could be applied by horse racing? Whilst some technologies aren't actually new to racing, it's the way that they are applied that gives them the edge.

Put simply, the mobile phone was around for along time before Apple introduced the Iphone but it's what can be added to the technology that takes it to the next level.

Regenerative therapy aids in development during training and repairs injuries

The Miracle of Childbirth may not be new or different – but what if that miracle was recycled to become an all-natural, regenerative treatment for horses with wounds and leg injuries?

AniCell Biotech's EquusCell captures miracle-laden mesenchymal stem cells from amniotic material during parturition and puts them back to work accelerating regeneration of tissue and bone in injured horses.

EquusCell Brand is different than any other regenerative therapy on the market, due to the significant regenerative effects of amniotic material with natural anti-inflammatory, anti-microbial and anti-adhesion properties. Their products include fetal amniotic stem cells (not adult) as well as collagens, proteins, carbohydrates, hyaluronic acid, laminin, fibronectin and other growth factors necessary for rebuilding extra cellular matrix tissues.

“The EquusCell product line can be used to treat suspensory lesions, superficial digital flexor tendon ruptures, stifle and hock inflammation and other orthopedic injuries. It can even be used as a preventative treatment in young horses to aid in development during training.” – Dr. Moises Fimbres-Barcelo, DVM.

Amnion is immune privileged; it lacks cellular blood markers (type



2 MHC) that would typically cause rejection of this type of transplant. This allows for the treatment of injuries the same day in like species animals.

EquusCell is non-invasive – it does not require painful harvesting of bone marrow or fat or the risk of sedation or anesthetics.

Treatment with EquusCell does not require lab work, shipping of harvesting kits for fat or bone marrow samples or the resources to culture them and there is no need for multiple applications.

Brandon Ames, CEO of AniCell Biotech said: “Quite simply, we are in the recycling business, collecting the miracles of nature's blessings that would otherwise end up on the ground.”

For further information please visit www.AniCellBiotech.com



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Thermal imaging in equestrian veterinary medicine

Properly diagnosing injuries and ailments in horses can be a significant challenge for equine veterinarians, given the fact that symptoms often change and their patients can't communicate.

As a result, acute problems can remain undiagnosed for long periods of time.

Although thermal imaging isn't new to veterinary medicine, veterinarians and equestrian professionals are still just beginning to see it as a cost-effective way to practice preventive medicine, diagnose illnesses and injuries, and monitor the healing process. Regularly using thermal imaging can save substantial amounts of time and money, while providing an effective and humane way to evaluate horses. In fact, thermal imaging can detect subtle injuries long before there is visual evidence of swelling or lameness.

A thermal camera measures specific electromagnetic wavelengths produced when something emits heat. It then electronically converts this heat energy into a video image that displays differences in temperature using a wide range of colors. For example, warmer temperatures might appear as white or yellow and cooler temperatures as blue.

Thermal cameras don't see through skin, or solid objects for that matter. They only measure surface temperature. However, differences in a horse's skin temperature can quickly reveal changes in blood flow resulting from injury or illness. In a 2002 study at Cairo University, veterinarians successfully used a thermal camera from FLIR Systems, based in Portland, Ore., to

examine and monitor 45 racehorses presenting a range of ailments, including laminitis, tendonitis, thrush, bursitis, and soft tissue injuries. In one case, visual hot spots on screen indicated inflamed ligaments. In another, summer sore appeared as a massive area of orange on the neck and pectoral areas of a horse.

While thermal imaging compliments other diagnostic equipment, such as X-Ray machines or sonograms, it has quickly become a far more affordable and convenient tool by comparison.

Handheld thermal imagers, in particular, have seen a dramatic drop in price over the last few years. In 2013, FLIR introduced the E-Series, the company's first handheld thermal camera priced under \$1,000.

Soon after, FLIR released the FLIR ONE, a thermal and CMOS camera combination that fits like a case on the iPhone 5/5s and costs \$349. Earlier this year, FLIR

launched the second generation FLIR ONE, this time priced at \$249 and available for both iOS and Android devices with a micro-USB connector or lightning connector.

Now that equine professionals can easily turn their smartphones into thermal imagers, there is huge potential for thermal technology to play a more significant and regular role in the care and training of horses. From pre-purchase medical examinations to post-race screenings, thermal imaging can help keep horses healthy. Veterinarians and trained thermographers will be able to help you get the best understand out of the images generated.

For further information please visit www.flir.com



THE RACEHORSE

A Veterinary Manual

By Pieter H.L Ramzan

Written by one of the UK's leading equine veterinary practitioners, this textbook is dedicated wholly to the veterinary management of the racehorse. The Racehorse: A Veterinary Manual brings together all the major orthopaedic and non-orthopaedic conditions likely to be encountered in racehorse practice and concisely details state-of-the-art 'best practice' for diagnosis and management. The book spans the full range of fields relevant to the clinician, including topics as diverse as rehabilitation, respiratory medicine, exercise physiology, pre-purchase and 'herd health.'



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Pony Up Technology launch VetCheq

VetCheq® is a new product developed by PonyUp Technologies that is scheduled for release in late 2015. The technology used in this product is the first of its kind to enter the market. Using pulse decomposition analysis (PDA), a patented technology developed by Empirical Technologies for the US Military and other conventional human medical applications, VetCheq is soon to be available for equine use in the United States.

The human version, CareTaker® is currently part of the Navy's critical care system. CareTaker will improve health care in three significant areas. It provides wireless "connected patient" hospital vital sign monitoring. It gives the remote, home care "telemedicine" market a reliable, accurate, and cost effective means of monitoring an aging or home-bound population. And, it acts as a non-invasive, hemodynamic monitoring alternative to an invasive arterial line.

VetCheq uses this same patented technology in its advanced monitoring system to remotely and non-invasively monitor a horse's health and conditioning from anywhere with internet access. The unit is fastened to one of the horse's front legs in a wrap boot to provide remote, continuous, real-time monitoring of cardiac function including pulse and central blood pressure, along with respiration rate. Data is then transmitted to the VetCheq cloud application where it is formatted and available for access by any internet-enabled device.

The VetCheq units are rechargeable with a battery that provides 24 hours of continuous monitoring. The unit uses an ARM7 processor that is housed inside a light-weight, rugged, water resistant (IP67 certified) enclosure. A bladder inside the boot is placed directly over the radial artery where it continuously analyzes the pulse for trending changes in heart rate, blood pressure, and respiration. When an upward or downward trend is observed, an SMS or audio message is sent to the user.

Veterinarians will use VetCheq to replace their arterial catheters, to monitor horses in the ICU, and provide more accurate physiological data to their clients and colleagues. VetCheq is the only device other than an arterial catheter that records central blood pressure. It provides all data normally seen on a catheter screen, and also allows collaboration. It then stores the data for further analysis and comparison with historical data. It provides unparalleled benefits in an equine ICU by providing continuous monitoring, alerts and an interface to connected veterinary record keeping systems.

Trainers and competitors can easily monitor conditioning to see improvement over time. VetCheq will help manage medications by showing how effective they are, how long they last, and when re-dosing is required. VetCheq will show stress levels that occur during transport and events, as well as the length of time it takes to recover from athletic activity.

For the first time, an equine focused device, VetCheq, will provide the superior physiological data that is currently available in most human hospital wards.

For further information please visit www.ponyuptechnologies.com



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Equilume™ Lighting the way in the global equine industry

An exciting and innovative new product is seeing its third season of use across the Northern Hemisphere's Thoroughbred racing and breeding industry this year. Equilume, an Irish-based company, has become the world leader in the research and development of light therapy solutions to assist the global horse industry maximise reproductive efficiency and performance.

The Equilume Light Mask is a breakthrough product developed from novel research conducted at University College Dublin in Ireland. It is an automated headpiece for horses that provides the optimum level of blue light to a single eye to successfully advance the breeding season, but with other important applications for trainers.

The universal birthday for Thoroughbreds of January 1st poses a number of significant problems for breeders, including difficulty ensuring mares are reproductively active early in the year, prolonged gestation lengths and lower than average foal birth weights.

The Equilume Light Mask has been scientifically shown to advance the reproductively active period of the mare as effectively as standard indoor lighting regimes.

An ideal application is for use on maiden mares in their final months of training to kick-start their reproductive activity before beginning a stud career. For pregnant mares, 90 days of extended daylength prior to foaling prevents prolonged gestations and increases average foal birth weights, preventing dysmaturity in early foals.

For maiden foaling mares, the use of Equilume light prior to foaling ensures post-foaling fertility and sufficient milk production post-foaling.

An additional application for the light treatment is to induce early shedding of the winter coat, a desirable consequence for many performance and sales animals. In fact, a recent scientific study conducted by the JRA revealed that an extended light regime early in the year increases muscle mass and training response in Thoroughbreds.



The mask itself fits comfortably under the halter and provides low intensity blue light to the horse's right eye. It is completely labor free and once activated at 4pm between Nov 15th and Dec 1st, will come on automatically each day at dusk and stay lighting until 11pm. Rigorous testing of the durability and reliability of the light mask were conducted across three continents during the mask's development and the company guarantees the performance of the unit during the season.

Sales of the Equilume Light mask attained record numbers this year in Australia as more and more breeders availed of this flexible breeding solution.

Equilume hopes to expand across the US in the 2015/16 breeding season.

For further information please visit www.equilume.com

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