NINTH CHUKKA MARCH 2022



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|  35 Horse Puns — Funny Horse Puns  |

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| MARCH - UPCOMING TOURNAMENTS5/6 Ladies tournament @ Bishopstowe – cancelled due to predicted rain12/13 Bethal tournament @ Bethal26/27 TWK and Mpumalanga Champs @ BethalPlease make sure all players affiliations are up to date. A reminder that the TWK / Mpumalanga tournament, players must be fully affiliated as they are a classic and championship tournament.There is NO finalization of a vets tournament at this stage and it has been removed off the calendar.  |   |

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| **PASA FIXTURE LIST 2022 AMENDED** |

5/6 March ladies tournament @ bishopstowe

12/13 march bethal tournament @ bethal

26/27 March twk classic @ bethal

2/3 April Underberg tournament @ Underberg

15-17 April outgoing scholars development & VETS tour to Zimbabwe @ Bulawayo

30 april-2 may junior classic @ bishopstowe & pe autumn tournament @ pe

14/15 may provincial champs @ provincial venues

21/22 may outgoing snr development tour to Zimbabwe @ Bulawayo

28/29 May presidents cup 1 @ bishopstowe

11/12 june bishopstowe @ bishopstowe

16-19 june u14 official tour to Zambia

24-26 june shongweni high goal @ shongweni

4-10 july official snr incoming tour vs uk @ Underberg

23/24 july timm memorial & official u21 tour vs Zambia @ mooi river

6-8 august sa club champs @ ngwenya

20/21 august cgk memorial @ pe polocrosse club & Walkerville tournament @ walkerville

3 – 4 September picknpay north west classic @ Huhudi

16-18 september ngwenya medium goal & snr development incoming vs zim @ ngwenya

1 / 2 october cape classic @ swartvlei, george

**Conditioning Young Equine Athletes**

***Learn how young horses’ bodies adapt to exercise and how to prepare them for successful careers***

Over the years researchers have shown that appropriate levels of exercise while horses’ bodies are growing and developing can benefit their musculoskeletal health, no matter the discipline.

The physiological adaptations that occur in response to exercise and training are vital to developing a horse that can withstand further training and athletic endeavors for years to come. Fortunately, young, growing horses are incredibly well-suited to adapt to conditioning. However, much like professionals who train human athletes, horse trainers must be thoughtful and strategic with their methods to promote soundness and good health in their charges.

Exercising conditions many physiological systems within the horse’s body to adapt to work—the cardiovascular and musculoskeletal systems top that list. The musculoskeletal system often takes center stage because it’s typically the limiting factor in horse training. Injuries that result in economic loss and the ends of horses’ careers are largely related to musculoskeletal injury.¹ We must manage the young equine athlete in such a way as to maximize athletic potential while reducing risk of musculoskeletal failure.

**Adaptation To Exercise**

Trainers adapt exercise to increase the body’s ability to withstand repeated bouts of similar exercise. Ideally, with each introduction of a new intensity level, each of the horse’s systems copes by ­strengthening to perform at this new level. The [cardiovascular system](https://thehorse.com/topics/horse-care/anatomy-physiology/cardiovascular-system/) improves its ability to supply oxygen to the working muscles. The working muscles better their capacity to use oxygen and energy. The skeletal system adjusts to support these functions.

The adaptation period for each of these physiological systems, however, differs. The cardiovascular system makes rather rapid adjustments, adapting at the onset of exercise, whereas muscles can take much longer to fully adjust to new exercise and the skeletal system even longer. This is an oft-overlooked consideration when training equine athletes, says Brian Nielsen, MS, PhD, professor in Michigan State University’s Department of Animal Science, in East Lansing, who studies equine exercise physiology and nutrition.

“In a completely rested horse beginning training, the cardiovascular and muscular systems may take weeks to reach adequate adaptation to exercise,” he says. “At this time, trainers may be tempted to increase the workload and intensity of the training program. However, during this initial period of perceived fitness, the skeletal system and supporting structures, such as tendons and ligaments, may not have fully adapted yet. If the intensity of the training program overwhelms the capabilities of the skeletal system and supporting soft tissues, injury is a likely outcome.”

**Bone Modeling and Remodeling**

During growth and development, long bones (those in horses’ legs) undergo substantial longitudinal and radial growth through the process of bone modeling. Longitudinal growth begins at the growth plate as cartilage that eventually proliferates into the epiphysis and diaphysis (end and shaft of the long bone, respectively) and becomes mineralized to form new bone. When this process is complete, the growth plates close.

Bone modeling changes the shape of bones to better withstand mechanical forces placed on the skeleton. In healthy individuals modeling predominately takes place during growth and development and becomes minimal in adulthood.² During growth, bone undergoes a substantial amount of modeling to ultimately reach its genetic potential for size and mass and can be influenced by exercise.

The skeleton renews continually through a process called bone remodeling. During remodeling, bone cells called osteoclasts remove old or microdamaged bone and osteoblasts lay down new bone to sustain a balance. Bone is a vital living tissue that’s constantly undergoing remodeling to maintain its health and strength.

The appendicular skeleton (the bones forming the limbs and pelvis) of the horse undergoes tremendous strain, especially during extreme locomotion. Horses typically have four gaits they use for locomotion: walk, trot, canter, and gallop. Depending on the gait, the limb bones experience different levels of strain during movement. The skeleton is highly sensitive to mechanical loading (strain) and, by remodeling, it adapts structurally to increase bone mass and strength.

**Exercising the Young Horse**

Numerous studies and data reports tracking racehorses have found that the commencement of race training as a 2-year-old resulted in reduced risk of injury, more race starts, greater earnings, and decreased odds of enduring a catastrophic musculoskeletal injury. The Jockey Club’s Equine Injury Database (2009-2018) reported that per 1,000 starts, 1.37, 1.79, and 1.86 fatal injuries occurred in Thoroughbred horses aged 2, 3, and over 4 years of age, respectively.

[RELATED CONTENT | Young Horse Growth and Development (Podcast)](https://thehorse.com/180947/young-horse-growth-and-development/)

“Due to the dynamic change in structure of the skeletal system during growth, imposed exercise at a young age has the potential to influence the skeleton as the horse matures, possibly leading to decreased injury,” says Nielsen.

“Although we know that exercise and conditioning are essential to the normal development of tendons and joints and that bones are capable of extensive adaptive modeling and remodeling, we still do not have a good understanding of the timing and intensity of exercise that strengthens the musculoskeletal system without causing undo damage,” says Kyla Ortved, DVM, PhD, Dipl. ACVS, ACVSMR, the Jacques Jenny Endowed Term Chair of Orthopedic Surgery at the University of Pennsylvania’s New Bolton Center, in Kennett Square. “There remains a paucity of literature evaluating the prevalence of nonfatal musculoskeletal injuries in young Thoroughbred racehorses in training; however, we do know that stress fractures are more common in young racehorses while degenerative conditions such as osteoarthritis are more common in older racehorses.”

Nielsen and his colleagues recently performed a literature review assessing how different exercises affected bone in young growing horses and found that training typically resulted in a desirable adaptation to exercise.³ Some lower-intensity exercises, such as endurance training, resulted in no change to the bone structure. “However, while speed and training are good, if overdone or not done properly, they can result in damage,” says Nielsen.

**Confounding Factors**

Many determinants go into a young horse’s training success. In addition to age and exercise, nutrition, genetics, conformation, and environmental factors all play vital roles in a horse’s development as an athlete. For example, a young horse fed a diet deficient in calcium and phosphorus or at an improper ratio is prone to osteopenia (reduced bone mass) because these minerals, among others, are important components of skeletal bone and, thus, are necessary for training success.

Environmental factors come into play, as well, as seen in the athletic capabilities of cloned horses. Although exact genetic replicates of their donors, clones possess varying athletic abilities when compared to their donors, which scientists attribute to the many factors that influence training outcomes. Managing each of these components closely can help minimize injury risk in young horses in training.

The recovery period for a horse can be just as important as the actual training itself.

**Dr. Brian Nielsen**

**Managing Young Horses for Success**

Horses typically enter training with a human’s end goal in mind. Perhaps the long yearling is destined to run in the Kentucky Derby or be a contender in the barrel racing futurities. Either way, most training programs begin with a deadline. As human athletes, we get the luxury of taking breaks, withdrawing from competition, or quitting if training becomes too intense for our bodies to endure. Training horses should follow a similar approach.

“We need to listen to our horses and let their conditioning dictate whether we can continue to push forward or need to back off or even take a break,” says Nielsen. “The recovery period for a horse can be just as important as the actual training itself. Horses should be allowed adequate periods of recovery after bouts of strenuous exercise. Repair and ­restoration to the body’s physiological systems is vital to continued movement forward.”

Owners and trainers should take signs of horse discomfort seriously and pick up on the slightest hints of decline during a horse’s training program. Early warning signs to back off work include soreness, stiffness, changes in behavior toward work, intermittent lameness, and physical expressions of discomfort, such as fatigue and dullness.

Nielsen advocates for allowing horses time to rest to encourage repair versus using medicinal methods that can mask the problem and enable further damage if the horse continues to train. [Non-steroidal anti-inflammatory drugs](https://thehorse.com/155468/nsaids-helpful-harmful-horses/) such as phenylbutazone, flunixin meglumine, and firocoxib, for example, are commonly used to manage acute and chronic pain. Veterinarians might inject joints with drugs such as corticosteroids to manage certain musculoskeletal pain and ­inflammation.

“Corticosteroids are a common medication used to manage pain during injury, but they shouldn’t be used to keep the horse going,” Nielsen says. “Pain is our indicator that it’s time to back off the training regime and allow for healing.”

Also avoid administering [bisphosphonates](https://thehorse.com/180773/special-report-what-we-know-about-bisphosphonates-for-horses/)—drugs approved for managing navicular pain that reduce osteoclastic activity—in horses younger than 4.

“In joint research with Texas A&M University, we are in the midst of a USDA-funded study to try and determine some of the risks and/or benefits of bisphosphonate administration while an animal is still growing,” Nielsen says. “Until those results are known, I would suggest extreme hesitation in administering bisphosphonates to a young horse or one that has a bone-related problem other than navicular disease.”

Another consideration is the availability of free exercise. Nielsen says the confinement that typically comes with the onset of training or detraining, such as with injury, can be detrimental. Musculoskeletal tissue weakens with disuse. Similar to a human on bed rest, a lack of weight-bearing activity over prolonged periods results in significant bone loss and increases the risk for developing osteoporosis and sustaining fractures. It’s the body’s natural response to get rid of excess tissue to maintain efficiency. It’s not going to dedicate resources to maintaining a dense bone if the animal has no need for it to be that strong. Adequate loading and stress to the system is ultimately what stimulates the body to develop stronger tissues to withstand further exercise. It follows the old saying “use it or lose it,” and horses are especially susceptible to losing it because of the way we manage and stall them.

“Horses should also be trained in a way that is fitting with their intended competition or workload,” Nielsen says. “For example, horses that experience increasing frequency of short-distance, high-speed work earlier during race training are less likely to suffer from bucked shins.”

**How Much Is Enough?**

Research has yet to define how much is enough exercise when it comes to conditioning the mature or young horse in training. Considerations for discipline, breed, and individuality all amplify the difficulty in determining what should be a sufficient amount of exercise to elicit a beneficial adaptation but avoid injury. However, the science is clear that exercise during a young horse’s growth can shape their performance and longevity.

**References**

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3. Logan, A.A. and Nielsen, B.D. (2021) Training Young Horses: The Science behind the Benefits. *Animals* 11, 463. [mdpi.com/2076-2615/11/2/463](https://www.mdpi.com/2076-2615/11/2/463).

Thank you to Debbie Dick for this submission.

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|  |  110+ Best Happy Birthday Wishes in March 2022 March 2022 |
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| 1 | Morgan Du Toit 27 Willem Louw |
| 2 | Keighly Van Wyk 28 Gordon Shaw |
|  | Chanelle Bothma 29 Luke Davis |
| 3 | Vanessa Gilks Jessica Newcombe-Bond |
|  | Ross Beukes Jade Janse Van Vuuren |
| 6 | Brian Cooper 30 Nicki De Franca |
| 7 | Tharine Schabort |
| 8 | Caley Higgs |
| 10 | Trent Cocker |
| 11 | Christo De Villiers |
|  | Marischke Groenewald |
| 12 | Allan Oates |
| 13 | Francois Du Toit |
|  | Wilru De Vries |
| 14 | Andrew Brink |
|  | Melissa Pettitt |
| 15 | Lindsey Williams |
| 16 | Olivia Taylor |
| 17 | Heather Campbell |
|  | Brigiette Britz |
| 18 | Dries De Villiers |
|  | Attie Van Wyk |
|  | Nico Van Wyk |
|  | Emmy-Lou De Jong |
| 19 | De Wet De Villiers |
|  | Graham Maclarty |
|  | Thomas Lynn |
| 20 | Trace Price-moor |
| 23 | Mandy Rapson |
|  | Eric Kuhn |
| 24 | Marc Ward |
| 25 | Izabella Joubert |
| 26 | Nikki Crook |
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