

The Bovine PD Improvement Exercise App:

A novel approach to improve bovine trans-rectal palpation (TRP) and pregnancy diagnosis (PD) skills



Annett Annandale¹ and Dietmar E Holm²

¹Skills Laboratory, Faculty of Veterinary Science, University of Pretoria, South Africa

²Deputy Dean: Teaching and Learning, Faculty of Veterinary Science, University of Pretoria, South Africa

Welcome to the exercise program!



Hand Web Exercises 1&2



Theraband Exercise 1



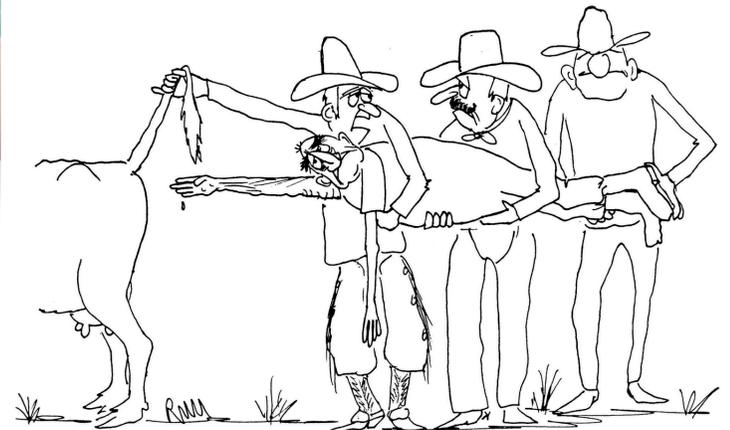
Standing Rowing



Powerball Exercise



Exercise equipment

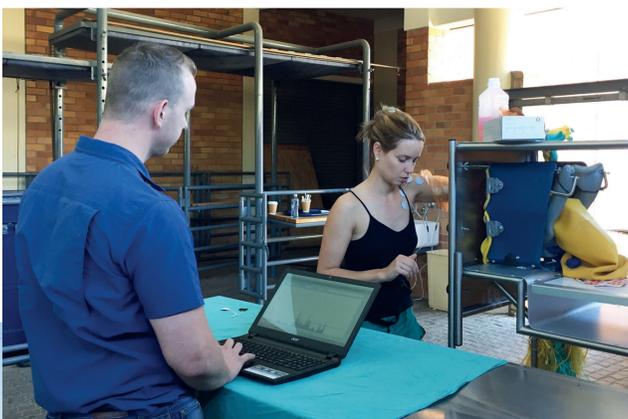


"Old Doc gets tired after a hundred head or so, and we try to help him out."

CartoonStock.com

The fairly unusual and tiring physical activity of bovine TRP requires a novel approach to improve students' TRP and PD skills. A recent study evaluated the effect of a physiotherapy exercise program on students' TRP and PD skills.^{1,2} Two important findings were discovered: 1. students who participated in the exercise program, and 2. students who had a grip strength (GS) of more than 30kg performed better in PDs. A subsequent electromyography study showed

that hand muscles, extensors and flexors of the forearms, shoulder stabilizers, back muscles and core muscles are strongly activated during TRPs, confirming the role that forearm muscles (GS) play during TRP.³ It was also seen that muscle endurance is more important than total muscle strength.³ Based on these findings¹⁻³ a three month exercise program targeting exactly those muscle groups, was developed with the help of an experienced biokineticist. The program is divided into three levels starting with easier entry level exercises and building up to more advanced exercises. It is available to students as narrated video clips on a mobile application for smart phones and tablets and uses readily available exercise equipment. This enables students to choose when and where they would like to exercise. The program requires the participant to exercise for 30 minutes three times a week and should not only increase GS and improve TRP accuracy but also increase stamina and wellbeing, shape arms nicely and add some fun to busy study schedules.



1. Influence of a physiotherapy exercise program, arm muscle strength, proprioception and arm length on veterinary students' bovine pregnancy diagnosis skills. Annandale, Holm, DE, Fosgate, GT, Bok, HGJ. Currently under review in a veterinary scientific journal.
2. A novel approach to improve undergraduate veterinary training in bovine trans-rectal palpation (TRP) and pregnancy diagnosis (PD) skills. Annandale, A, Holm, DE, Fosgate, GT, Eksteen, C, Bok, HGJ, (2016). In VetEd Symposium. Glasgow, Scotland, 7-8 July. Conference proceedings.
3. Identification of arm muscles used during bovine trans-rectal palpations using electromyography. Annandale, A, Eksteen, C, Holm, DE. To be submitted for review in a veterinary scientific journal.