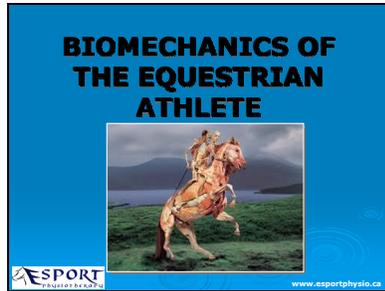
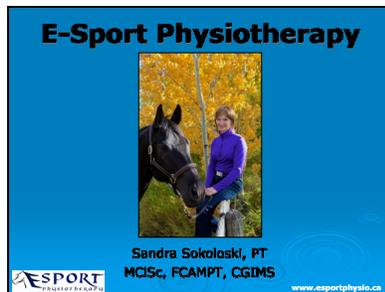


Slide 1



Slide 2



Slide 3



To help a rider become physically able to perform the tasks associated with riding is much easier than creating awareness.

Slide 4

**PEOPLE LOVE WHAT THEY KNOW,
THEY KNOW WHAT THEY LEARN,
THEY LEARN WHAT THEY ARE TAUGHT**



jacques cousteau



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Slide 5



**"Everybody is ignorant, only about
different things"**

Will Rogers, from "how good riders get good"



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All members have varying experience and individual qualities and experiences

Slide 6

WHO, WHAT & WHERE

Identify what you don't know.
"Hard to know about what you don't know about."

Are there people or programs that could support & benefit equestrian athletes in your community?

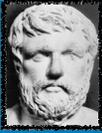


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Try to establish a 'team' in your area of people who can help riders be better in their bodies. Yoga, pilates, somatics, physio, massage, workout trainer, etc

Slide 7

"For what the horse does under compulsion.... is done without understanding; and there is no beauty in it either, any more than if one should whip and spur a dancer".



XENOPHON
Synchron EQUITATION Unison
Balance

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Equitation is the result of the human and horse having a meaningful and constructive dialogue...with their bodies

Slide 8

BIOMECHANICS OF EQUITATION

Understanding functional human equestrian anatomy and how it relates to the horse.
How to cue rider position.
Where things go awry (aka 'root causes').
Performance enhancement tools.

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What we will look at in today's presentation

Slide 9



RIDE WITH YOUR BONES
Sally Swift

MUSCLES WILL LIE!
Sandra

Muscles easily establish neural pathways that become entrenched.....for good or for ill.

Slide 10



Neutral is the place through which all movement will occur

Slide 11



Balance is a perpetual state of unbalance therefore what is 'optimal' will be constantly changing and is relative to the demands of the task.

Slide 12



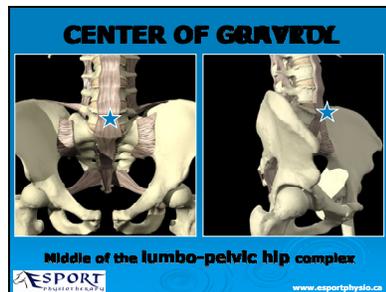
All of the visible issues with the horse and rider are related to the fact that the rider sits left. Almost always shows up the same when rider is standing on the ground and causes compensatory issues.

Slide 13



Don't try to fix anything else until the pelvis is in the right place and moving in the correct pattern. I like to correct the sagittal plane first (bowl tipped forward or backward)

Slide 14



The pelvis is the keystone of static and dynamic posture- it is the center of control whether we are stationary or are moving.

Slide 15



If the pelvis is moving correctly in response to the horse's movement, the forces imparted to the body by the horse are absorbed and distributed, leaving the rest of the body able to impart aids or maintain positions as appropriate. The pelvis is **a force transducer**.

Slide 16



As the pelvis moves, some of these forces are distributed up through the spine and down through the legs. Stillness is an illusion.

Slide 17



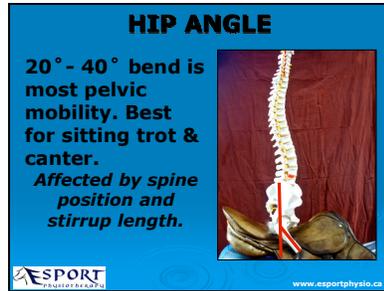
The spine is curved to optimize mobility and stability. Different spines have different degrees of curves. The curves should never be reversed. I.E. rounded lower back, arched upper back. Looking down limits the ability of these curves to change with movement and stiffens the spine.

Slide 18



The ball and socket joint is designed to move in all 3 dimensions simultaneously. They are the perfect pivot points for the pelvis to move on. We typically move in life primarily with leg swinging on pelvis, riding is the opposite.

Slide 19



Doing good flat work in jumper length stirrups is much more difficult. Even a few holes lower is better.

Slide 20



Notice that the positions change at the hip, not in the spinal curves.

Slide 21



Horse and human spines both move in 3 dimensions. Flexion/extension, sideflexions, rotations. These are all occurring simultaneously but will vary in proportion depending on the task being performed. The key to accurately following the movement of the horse's back is for the rider to notice and allow the 3 dimensional movement in their spine. It can be used to both follow the horse's movement or influence it to do something slightly different.

Slide 22

How does your pelvis move?

All 3 dimensions
Look down
Arch your back
Squeeze your butt
Shift side to side



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Slide 23

3D IN MOTION



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Slide 24

CORE MUSCLES

Stabilizers for lumbo-pelvic-hip complex
diaphragm
pelvic floor
psoas
multifidus
transverse abdominus
(deep gluteals)

Form a canister



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Slide 25

THE 'CORE'

Deepest layer of muscles around 'the Center'
The control board
Most efficient for controlling movement & holding positions (*ie staying tall, 2-point*)
Increase activation with thoughts of activity
Most weakened with injuries

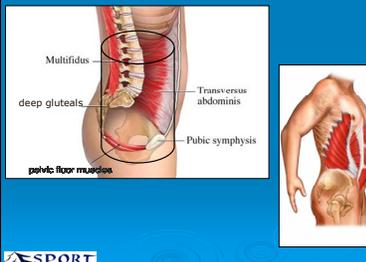


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The pelvis is the keystone of static and dynamic posture- it is the center of control whether we are stationary or are moving. The core muscles control and coordinate the movements of the lumbo-pelvic-hip complex (aka the seat)

Slide 26



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Slide 27

PHYSICS OF RIDING

The 'core' controls where the movement of the horse's back is imparted to... creating the ever-changing optimal posture



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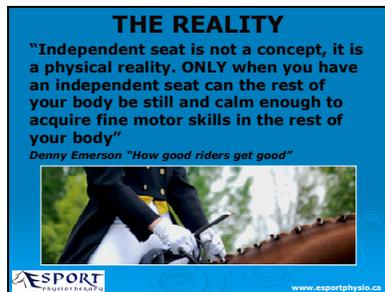
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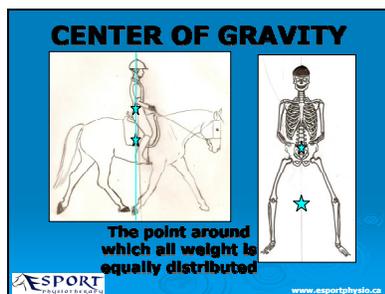


From 'butt clencher' to floppy middle syndrome to much more correct. She fixed the pelvic bone position, then the muscles that were controlling it.

Slide 29



Slide 30

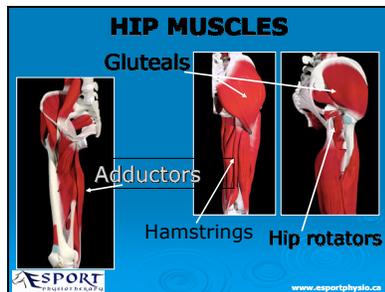


The closer the centers of gravity are aligned, the happier the horse is.

Slide 31

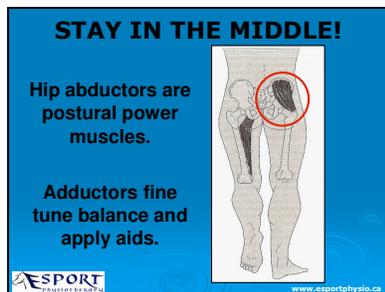


Slide 32



These muscles are the strength and movement producing muscles- must be well balanced between the front and back of the body, and on either side.

Slide 33



And again....The pelvis is the keystone of static and dynamic posture- it is the center of control whether we are stationary or are moving.

Hip abductors keep rider in the middle. They are the most commonly weakened muscle in lumbo-pelvic-hip (the seat) dysfunction/injury.

Slide 34



Slide 35



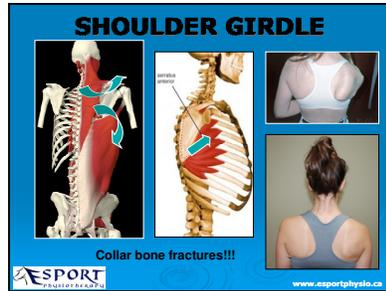
No part of the body can hold stiffness if the independent seat, and accurate and well communicated aids are to occur.

Slide 36



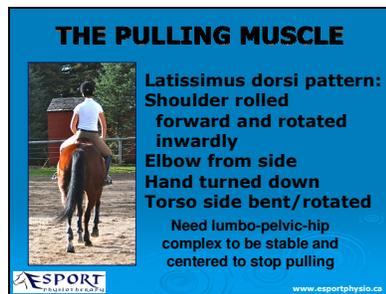
The feet are a very proprioceptive and adaptable part of our body in life. This needs to be harnessed in riding and at no time is 'pushing heels down' useful. Results in negative tension that radiates up the leg and through the body.

Slide 37



Shoulder posture issues are very common off the horse and often easier to address off the horse. The shoulder relies heavily on having good muscle balance and coordination. Very difficult to change shoulder 'habits' while riding. That being said, other parts of the body will create what looks to be a shoulder problem. Example. If a rider sits right, they often collapse to the left and the left shoulder will drop. Conversely, if the rider sits right and butt clenches on that side, the torso will often sidebend and twist right, the left shoulder pushing up and forward.

Slide 38

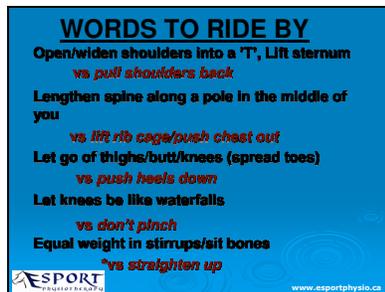


Slide 39



Words are very powerful. Thoughts always have a physical response in the body. Hearing, then visualizing a set of words will create a physical intent.

Slide 40



Slide 41



Slide 42

...AND MORE WORDS
Balance the triangle of bones touching the saddle on either side of the horse's backbone
Paper towel rolls
Nerf ball behind knee
Feel thigh bone gently holding muscle against saddle; compare side to side
Let pelvis drip down into boot

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Slide 43

DYSFUNCTION



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Slide 44

WEAK LINKS
...AND GROIN STRAINS



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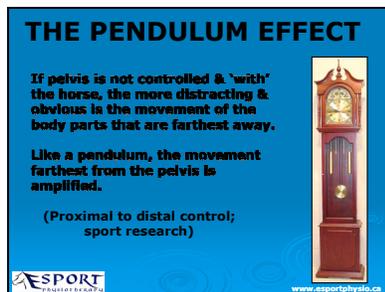
Slide 45



Slide 46



Slide 47



Slide 48

PHYSICAL ELEMENTS

- Balance
- Coordination
- (agility)
- Strength
- Suppleness
- Stamina
- Speed



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How much of each element is required will depend on the discipline and level of performance.

Slide 49

WHAT IS BALANCE?

A continuous state of unbalance controlled by muscles.
To be in balance the unbalance must be equal in all directions



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Bodies don't have a system to detect 'middle', only systems to detect off of middle. A well balanced rider/horse move symmetrically around the middle

Slide 50

MUSCLE TIMING

Balanced movement requires an orchestra of muscles
All muscle types and contractions work together
There is ideal timing and intensity of the contractions to create balanced movement



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This intricate timing is what allows horses and riders to stay in balance

Slide 51

BALANCE CENTERS

Eyes (must stay level with world)
Ear (auditory & vestibular system)
Proprioceptors (nerve endings in tendons, ligaments & muscles that detect the position of the body in space)
Skin (via the fascia)

All affected by tension (physical/mental), injury, habitual/adaptive posture (scoliosis)

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Slide 52

TENSION



Movement patterns must be efficient; *Optimal postures*
Compensatory patterns are not efficient;
Increased effort increases tension;
Tension decreases mobility/adaptability.

Always ask 'What effort is not required?'

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This is referring to global or unnecessary tension. Negative tension.

Slide 53

THE TURTLE EFFECT

Stiff/Weak rider working hard

Limits horse's ability to move

Rider works harder & gets stiffer



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Slide 54

FATIGUE CREATES TENSION



Muscles quivering & tense
Pain
Loss of correct motor pattern
(crosses the wires!)

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Slide 55

POSTURE

Feet grounded and level, more weight in heels
Neutral pelvis- hip bone over ankle bone, sit bones over heel bones
Level the pelvic bowl
Lengthen spine, back of head reaching for ceiling & balanced over tailbone
LIFT pelvic floor
Collar bones wide
Hands turned inward or forward
Knees soft
NOW BREATHE! Assess waist space!

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Slide 56

POOR BREATHING CREATES TENSION



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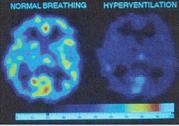
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Slide 57

BREATHING

Tail relaxed posture
Mouth closed and tongue to roof
Collar bones stretch outward
'Open' lower rib cage to draw air into 'center'; uses diaphragm (core)
Longer exhale than inhale; time with horse's steps



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Slide 58

A 'HOT SEAT'?



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Twisting post is excellent to loosen a rider up but also to allow them to determine which leg is tighter and in what direction (as sit sitbone to the middle, one thigh rotates outward and one rotates inward). A good self awareness exercise.

This rider is not a butt clencher but holds a lot of tension in his seat and thighs...he has been told he has a hot seat, but has never had tools to correct it.

Slide 59

RAGDOLL



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This rider is a typical novice rider, gripping her legs and pinching her knees, heels often coming up as a result. Not all horses tolerate 'ragdoll', but surprisingly many love it, especially the 'lazy' ones.

Slide 60



Slide 61



Slide 62



The outside of a circle gives much more information than the inside. In front or behind are useful for specific tasks.

Slide 63

NORMAL....OR NOT

Asymmetry...how much is OK?
Left Handed
Hip Structure
Body Types
Body Proportions
Gender



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Slide 64



Different body shapes.

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Slide 65

PERFORMANCE ANALYSIS

Pelvis first (always)
Centered & Mobile
Spine lengthened
(eyes must be up)
Leg springs
Shoulders open
BREATHING



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Slide 66

START IN THE MIDDLE
"only when you have an independent seat can the rest of your body be still and calm enough to acquire fine motor skills in the rest of your body"
Denny Emerson



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Slide 67

OVER-EQUITATOR
Curvier spine; weak core; trying not to slouch; tight hip flexors
Back pain, neck tension
Created with "pull shoulders back", "lift rib cage", "chest out"
Improved with "stretch tall, let tail bone hang freely, belly button to spine, let bowl tip water out the back"
Breathe **Pelvic bowl tipped forward**



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Horse never truly rounds and softens because the rider is stiff.

Slide 68

BUTT CLENCHER
Weak gluteal, core & inner thigh muscles,
Use more leg by turning toes out, squeezing butt & using hamstring muscles. Open too early in air and sit too fast.
Difficulty with "deepen hip angle", tight hamstring muscles, may roll to outside of foot or heels up
Improve with "sink/widen sit bones (the upside down V), tip bowl forward, paper towel tucks"
HOT SEAT
Pelvic bowl tipped back.



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Horses often resent the pressure on the back caused by the rider being behind their center of gravity and the pressure down on their back. Jumper riders get bucked off after the fence.

Slide 69

BEHIND VERTICLE

Braced back and hip flexor muscles. Locked in place and only lower back hinges. Often with knee pinch, arms braced.

Correct with finding neutral pelvic bowl position (more water out the front) nerf ball behind knee, Stack back of head over tailbone,



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Slide 70



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This rider started with a significant butt clench that she was able to correct with some cuing. Maintaining positive changes is the hardest in transitions and if the horse is inconsistent.

Slide 71

HAMSTRING MUSCLES



"Deeper/softer/close the hip crease"

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Weak glutes to control upper body and tight hamstring muscles often go together.

Slide 72

ARM BRACER

Shoulders over hands, reins too long, arms rigid or drift downward, horse "heavy", leans back to "whoa"

Weak gluteals/core, poor balance, poor shoulder strength & flexibility

Use "lets down" to stabilize arm and trunk, hand turns or drifts down, elbow wings

Correct with "belly button to spine, butt to back of saddle, sink into saddle, breathe", use a driving rein or jousting elbow



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Jumpers- horse frequently stops before the fence, rider prone to falling off as they are holding too much tension higher in their body and are not malleable. Arm(s) stiff and/or drift out or down, hands turn down; **horse blamed for having a hard mouth-** driving rein breaks up the pattern of the lats pull

This may be one sided in which case the rider may be a twister (i.e. a pelvis issue)

Slide 1



Heel also too low and counter balances by using arms to hold body forward

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Slide 2

TWISTER

Almost always due to a muscle imbalance and/or joint or ligament damage

Usually originating from an injury (old or recent)



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The main problem with being a rider is that they fall off and **sustain injuries that once they aren't painful, go undetected** Although riders aren't the only athletes prone to falling, our subsequent **asymmetries affect the horse's ability to perform quite profoundly**

Slide 3

Ducking upper body
Hip shift
Hip 'circles' at the canter
One leg frequently comes off or is weaker; loses stirrup
Difficulty staying centered with lateral movements
Slow/weak to cue in one direction; leads
One shoulder forward or 'drooped'



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Slide 4

MORE 'TWISTER'



Check boots, saddle flaps & panels, rub marks, stirrup leather length

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Slide 5

COMPENSATORY MUSCLES

ON:	CAUSES:
Hip flexors	Knee pinching/hip pain
Hip rotators	Butt clenching/slouching
Back muscles	Over-arching/ back pain
Lats dorsi	Pulling/ u. back round & ache
Deep plantar flexors	Foot tipped/ankle & calf pain

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Slide 6

TESTING TOOLS

Single leg side lift:

- Outer gluteal muscle
- Core & other hip stabilize



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Slide 7

Single leg back lift:
Posterior gluteal muscle
Core and opposite hip muscles stabilize



Often arch back, clench butt, tip forward

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Slide 8

Want a strong glute-core connection



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If hip flexors are tight, often because of weak glutes, the back muscles need to work much harder. Back pain ensues.

Slide 9

RIDER INJURIES

Role of fatigue/weakness and imbalances?
Injury prevention haphazard.
What are the injury patterns??
Need to take out the guess work; Injury surveillance.



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78% of hunter-jumper riders have lumbo-pelvic-hip pain. 77% of those were due to a fall. The majority of these injurious falls were when riders were novice and riding over fences at the time.

Slide 10

'Twisters' require treatment & an exercise program



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Slide 11

CENTERING

Concept of centering is being mindfully centered within body and with the environment (i.e. on horse)

Clearing then focussing the mind to the inner body allows for body awareness & movement control (conscious breathing control, posture)

Ultimate tool for re-educating movement & reproducing visualized movements

Riders habitually focus 'outward' to horse

Change it up to break habits
(Close eyes, one stirrup, arm on head, lunging)

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Coaches learn and encourage techniques to have riders focus inwards- closing eyes, change the movement (no reins, lose one stirrup), encourage feel through thoughtful cuing.

The best athletes do this the best, the best coaches teach this the best

Slide 12

BREATHING AS A TOOL

Balances blood pH and neurochemistry

Focuses the mind for body AWARENESS

Ultimate tool for movement retraining

How many steps for your breath in,
how many steps for your breath out?



Yoga?

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Slide 13

INJURY PREVENTION & MANAGEMENT



Balance and proprioceptive training (3-5 mins) vs pre-activity stretching

Sport specific warm-up drills (no stirrups walk w/ leg swinging, diagonal patting, rotating, standing)

Early return to activity (not full sport) (focus on proprioception retraining)

Fitness Testing, baseline measurements

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Slide 14

SO SIMPLE

3 minutes

Marching fwd/bwd

Sideways x-overs (grapevine)

One leg (eyes closed), head/body rotations, spiral toe touch

Skipping, 'cantering'

Two leg hop over broomstick

Opposite arm swing

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Skipping is a highly touted exercise for fitness and training the brain via contralateral stimulation, Excellent for riders

Slide 15

Corrective Taping



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Slide 16



Balance, strength, coordination

Slide 17



Think of flexibility as ease of movement in the required range of motion. Goal is to release tension, not to become Gumby.

Slide 18



Slide 19

SPORT SPECIFIC TOOLS

Integrated and functional exercise
Technology: equitrainer, racewood horse, balimo stool (*Eckhart Meyners*), rein and pad sensors (*Jane Savoie*), inclinometers
Proprioception Tools (balls, bands, etc.)
(body position and movement sense)
Video analysis for visual feedback and coaching assistance (Dartfish)



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Ultimately riders need to respond to intrinsic cuing...feeling within. Extrinsic cuing can start this process.

Slide 20

"that restless physical impulse to seek the still unachieved in the domain of material things".



physical energy #1816c, Kensington Gardens

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Slide 21

THE END



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