

Equine Chiropractics: Building & Rebuilding a Balanced Horse

Susan Parry D.V.M.

**Certified Veterinary Acupuncturist
Certified in Veterinary Manual Therapy
www.yourbalancedhorse.com**



HEALTH

A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.

World Health Organization

A state of physical, mental, and social well-being.

Dorland's Medical Dictionary

Synonyms: vigor, vitality, strength, fitness, stamina

Continuum of Function/Health

- Optimum
- Fitness/wellness
- Good function
- Asymptomatic Dysfunction – No “symptoms”
- Minor Dysfunction / Symptoms
- Moderate Dysfunction / Symptoms
- Severe Dysfunction / Symptoms – Disease, Pathology
- Death

CHIROPRACTICS aka MANUAL THERAPY aka SPINAL MANIPULATIVE THERAPY

Look well to the spine for the cause of
disease.

Hippocrates

What is an “Adjustment”?

- Any chiropractic therapeutic procedure that uses controlled force, leverage, direction, amplitude & velocity directed at specific joints or anatomic regions
 - Gatterman 1995
- Usually refers to a high velocity, low amplitude thrust
- Osteopathic adjustments often refer to long lever techniques

Terminology: Adjustments

- Lots of styles – some dramatic, some subtle
- “Principles & Practice of Chiropractic” lists more than 80 named adjusting techniques
 - Haldeman 1992

Terminology: Mobilization

- Movement applied singularly or repetitively within or at the physiologic range of joint motion, without imparting a thrust or impulse, with the goal of restoring joint mobility.
 - Gatterman 1995

Bridging the Communication Gap

- “OUT” is not on the list of chiropractic terms for subluxation 😊
 - As in “out” at the poll, “out” in the withers, etc
- Restricted in Range of Motion (ROM)
 - Right/left lateral
 - Dorsal/ventral
 - Axial rotation

Terminology: Subluxation

- From the Greek *sub* and *lux* , meaning “less than a dislocation”
- An incomplete luxation or dislocation, though the relationship is altered, contact between the joint surfaces remain.
 - Stedman’s 1990
- Incomplete or partial dislocation.
 - Saunders 1986
- No mention of radiographs

Terminology: Subluxation

CHIROPRACTIC DEFINITION:

...subluxation of joints is recognized by lessened motion of the joints, by a slight change in position of the articulating bones & pain.

Hieronymus 1746

...a motion segment in which alignment, movement integrity, and/or physiologic function are altered though contact between the joint surfaces remain intact

- Gatterman, Foundations in Chiropractic, Subluxation

Terminology: Communication Gaps

- Conflicts in communication within the chiropractic world and between chiropractic & D.V.M. worlds
- Gatterman goes on to list over 100 synonyms for subluxation

Vertebral Motion Segment

Two adjoining vertebrae contain:

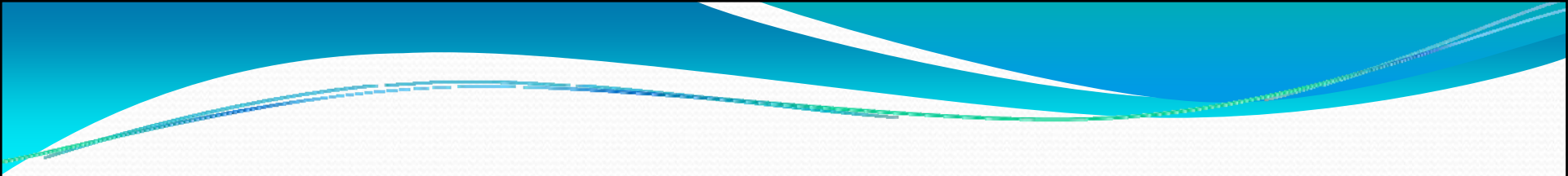
- Intervertebral articulations
 - Dorsal paired articular processes (joints)
- Connecting soft tissue structures
 - Intervertebral disc
 - Joint capsules
 - Ligaments
 - muscles



PHYSIOLOGY & NEUROLOGY: WHY ADJUST?

Science or just quacking?





Why Move the Spine
or any other joints?

The Effects of Immobilization

- Day 1
 - Increased chondrocyte activity & blood flow
 - Decreased GAG content in opposed surfaces
 - Increased GAG content in unopposed surfaces
- Day 2
 - Decreased chondrocyte activity
 - Loss of proteoglycan matrix with associated loss of water content

The Effects of Immobilization

Day 3

- Degenerative changes in areas of contact opposition

• Day 4

- Marked decrease in proteoglycan content of matrix

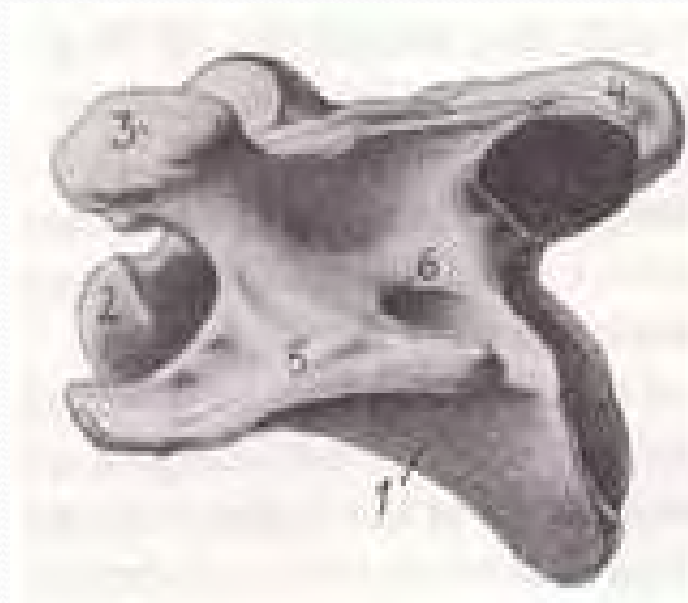
• Day 6

- Almost complete loss of proteoglycans

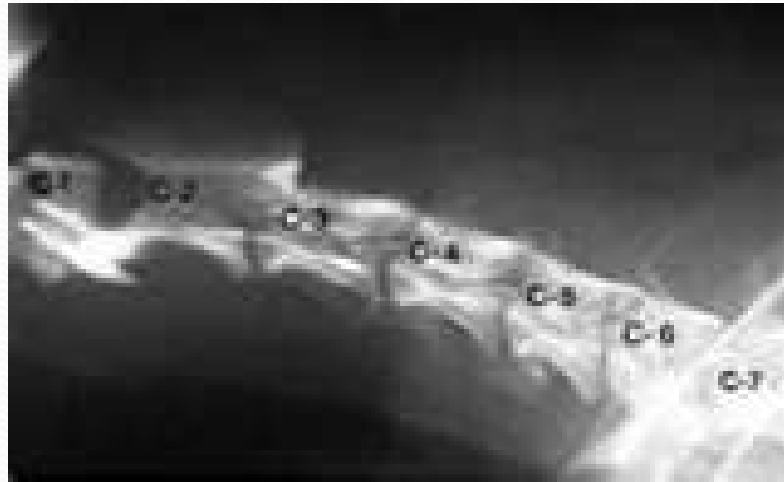
The Effects of Immobilization

- Day 15
 - Flattening of opposed cartilage surfaces
- Day 45
 - Adhesion formation between articular cartilage & menisci
 - Cyst formation which develops into ulcerations
- Day 90
 - Ulcerations have penetrated subchondral bone
 - Extra-articular adhesion formation

Equine Spinal Articulations



Equine Spinal Articulations



Equine Spinal Articulations

- The atlas & axis (C₁ & C₂)
- Cervical (C₃-C₇), thoracic (T₁-T₁₈) & lumbar (L₁-L_{5/6}) vertebrae all have additionally 2 cranial & 2 caudal articulations each
- All 18 ribs attach to the spine via demi-facets (costovertebral joints) and 8 of the 18 ribs have a sternal (costosternal) joint
- In the lumbar region (L₄-S₁) there are also 4 intertransverse joints

Equine Spinal Articulations





Equine Spinal Articulations

That's a lot of joints!

But the spine doesn't move, does it?

- “the fact is that the spine of the horse exhibits little movement apart from the neck and tail”
 - Smythe, Goody “The Horse: Structure and Movement” 1975

But the spine doesn't move, does it?

- “Only small movements are permitted to the back and loins except at the very mobile lumbosacral joint.”
 - Dyce, Sack, Wensing, “Textbook of Veterinary Anatomy”
1987

But the spine doesn't move, does it?

- “the thoracolumbar portion of the horse’s vertebral column is virtually a rigid column....”
 - Rooney , “The Mechanics of the Horse” 1980

But the spine doesn't move, does it?

- Each vertebral segment in the thoracic & lumbar spine moves from 1 – 3 degrees.
- That gives us approximately 8 degrees of lateral bending.
- Just because spinal articulations don't have a large range of motion doesn't mean it's not important.

NEUROLOGY: BRAIN STUFF

“the first priority of the nervous system is to keep the brain from hitting the ground”

Judith Shoemaker D.V.M.

Brain Stuff

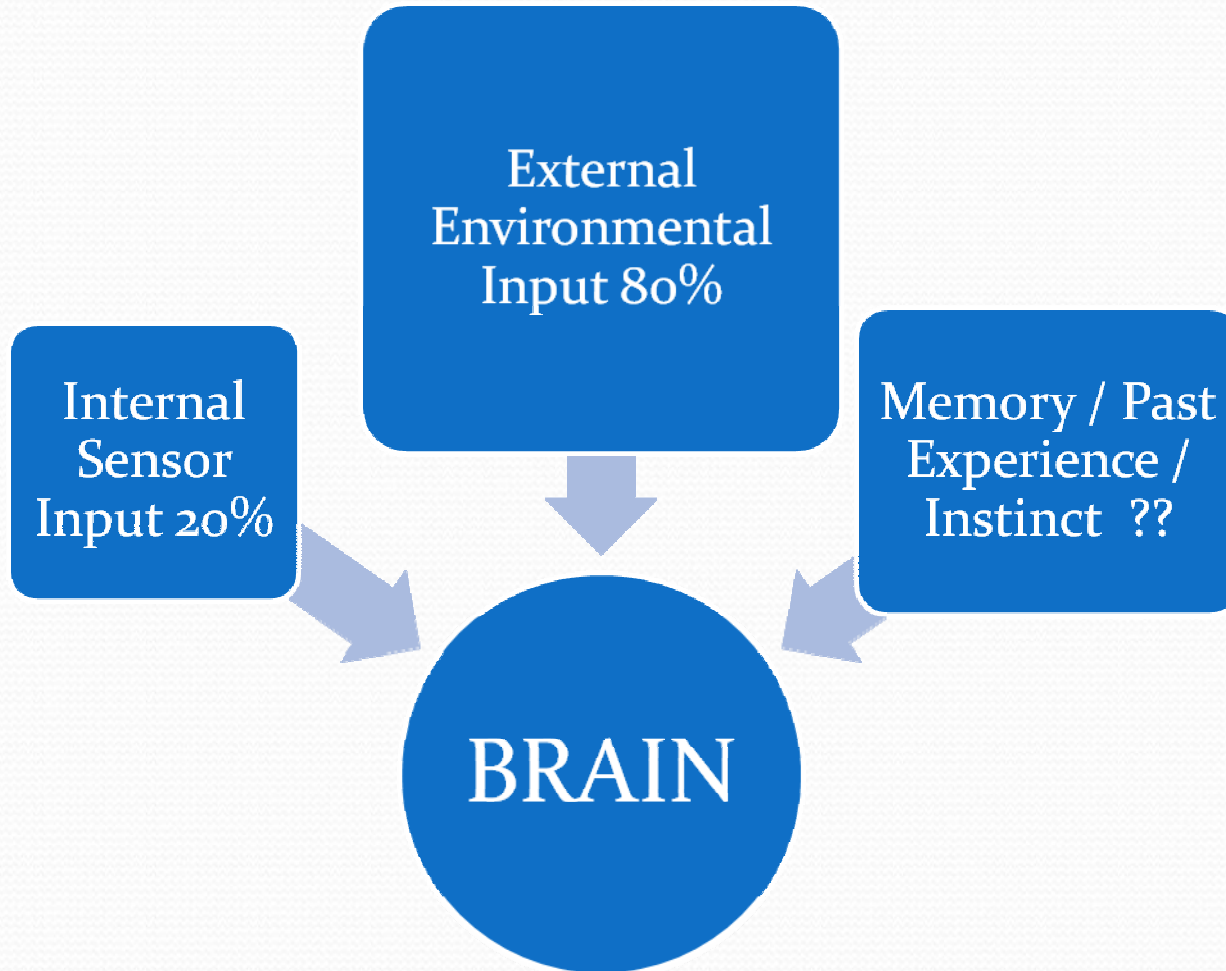
- Approximately 20% of the input to the brain is from our body's internal sensors
 - pH, pressure, chemical mediators
- The vast majority of the information to the brain is from joint mechanoreceptors telling us our relationship to gravity/earth
 - Environmental input: temperature, visual, auditory, etc

Joint receptors

- Type I: globular corpuscles in the outer layer of joint capsule
 - (mechanoreceptor)
- Type II: conical corpuscles in the deeper layer of the joint capsule
 - (mechanoreceptor)
- Type III: larger Corpuscle receptors on the surfaces of joint ligaments
 - (mechanoreceptor)
- Type IV: unmyelinated nerve fibers that weave through the joint capsule
 - (pain)

Joint Receptors

- It has been estimated that approximately 80% of the external information that the brain receives is from joint receptors
- This information tells the brain how the body is oriented to the earth

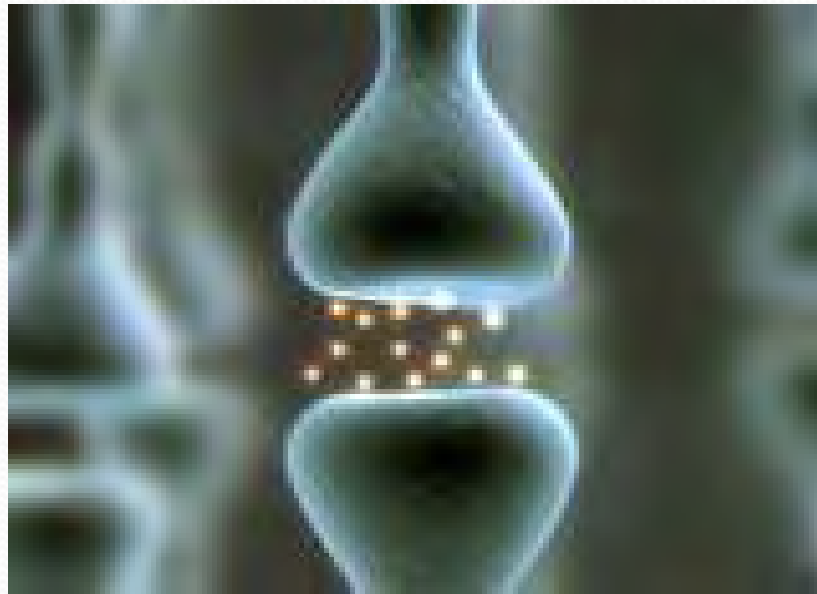


Joint Receptors

- Why so much information from joint receptors?
- GRAVITY!
 - “it’s not just a rule, it’s the LAW”

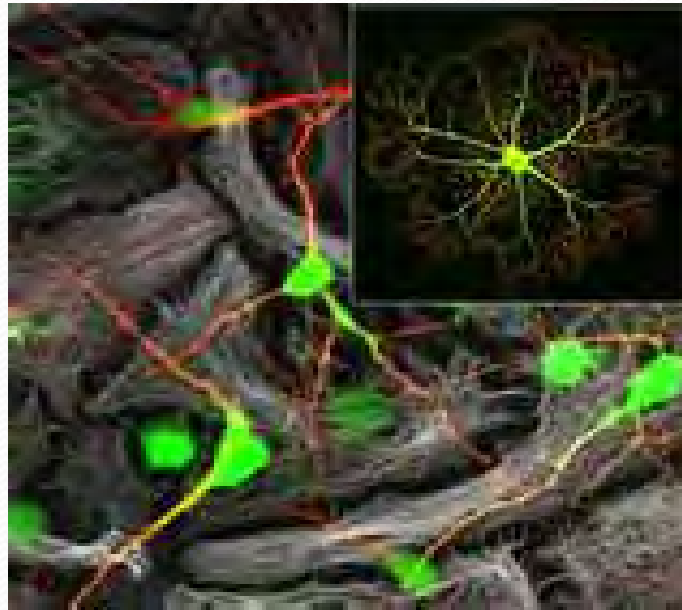
Brain Stuff

- Sensory information into the brain/CNS is not linear,



Brain Stuff

- Input to the CNS is DIVERGENT



Brain Stuff

Loss of a small amount of input from the body (stall rest, splints, wraps, visual isolation) results in a large loss of stimulation to the brain



Brain Stuff: Use it or Lose it!

- So the old adage applies to the entire body.
- Stop using a joint & you not only lose that function, you affect the brain as well!

**FOUR PRINCIPLE FACTORS To
CONSIDER IN ATHLETIC
DEVELOPMENT & REHABILITATION:**

4 FACTORS

- PAIN
- STIFFNESS
- WEAKNESS
- FEAR

4 FACTORS

- *PAIN.....STIFFNESS.....WEAKNESS.....FEAR*

OR

- *STIFFNESS.....WEAKNESS.....PAIN.....FEAR*

OR

- *FEAR.....STIFFNESS.....WEAKNESS.....PAIN*

OR

- *WEAKNESS.....FEAR.....STIFFNESS.....PAIN*

“Mind – Body Connection”?

- Are there three “physical” components & one “mental”? Probably not.
- It’s not just a mind-body “connection”; they are parts of a whole.
- This is an old philosophical concept of church vs. science ; I suggest you discard it.

MAJOR FEAR REACTIONS

THE FIGHT-or-FLIGHT ACTIONS

- BUCKING
- REARING
- KICKING
- STRIKING





FEAR ALSO LOOKS LIKE....

- ANXIETY
- FRUSTRATION
- ANGER
- DULLNESS
- EXCESS ENERGY
- ILLNESS: ulcers

SUBTLE SIGNS OF FEAR

- Tension – body, face
- Nervous defecation
- Sweating out of proportion to the work & weather
- Mouthing
- Tail wringing
- Dullness
- Excess energy, over-reactive
- Illness – ulcers

SUBTLE SIGNS OF FEAR

- Behavioral issues:
 - Rushing
 - Lack of Forward
 - Stopping
 - “Fussy”

***These can also indicate PAIN/STIFFNESS/WEAKNESS



BEHAVIOR and PAIN/STIFFNESS/WEAKNESS

- It has been said the brain does not know the difference between what happened in the past & what is happening now.

BEHAVIOR and PAIN/STIFFNESS/WEAKNESS

- It controls the body, causes movement, based on **past experience** and the perception of danger.



BEHAVIOR and PAIN/STIFFNESS/WEAKNESS

- If only the pain/stiffness/weakness are successfully treated then the memories & neuro-muscular patterns may remain, interfering with our successful return to function
- Think of Post Traumatic Stress Disease

What kind of Treatment does my horse need?

HEALTH CARE vs. DISEASE CARE?

Medical/Surgical

- Diagnose & treat the “problem”.
- Focus on the lesion or broken part
- Pharmaceuticals, surgery, interventions at the “problem” site

Acupuncture

- Stimulate nerves, brain, circulation, endorphins, serotonin, etc
- Local effects on circulation, release of tissue factors
- “Wake up” neglected areas?
- Reprogram chronic pain nerve firing

Chiropractic

- Stimulates the nervous system by taking a joint through its' full range of motion
- Triggers mechano-receptors in the joint, changing input through the spinal cord & to the brain

Posture & Balance

- Stabilizing muscles – the small muscles of posture & balance
- Mobilizing muscles – used for locomotion
- Posture vs. balance reflexes and exercises need to be specific

Exercise Programs

- They need to be specific to each horse
- Stall rest, hand walking & Eurocisers do not promote corrections to the body if the animal is practicing poor balance, posture or movement

Training

- If the horse can't do it on the ground, he/she probably can't do it under saddle with the weight of a rider
- Break movements into small pieces
- You may go faster by going slower
- Remember to pause & let them learn

Overall Fitness

- Without general fitness a strong & healthy back is not possible
- A common finding in my practice

FOUR BIG FACTORS

Don't miss these!

FOUR BIG FACTORS

- TEETH
- FEET
- SADDLE
- RIDER

TEETH

- Comfort
- Digestion
- Postural Influence

TEETH

- A huge amount of information comes from the mouth & mechanoreceptors in the jaw
- If the misalignment of teeth causes the head to be held even slightly off balance then the brain is getting bad information

FEET

- A constant influence 24/7
- Comfort
- Posture
- Proprioception
- Who do you like better, your horse or your farrier?
- Don't guess, get radiographs



Saddle

- It has to fit or it is like hiking in the wrong boots!
- More pads only make a good or tight saddle worse, like adding more socks when your shoe already fits or is too small.
- Re-fitting is needed as a horse changes shape – weight, fitness, age

RIDER

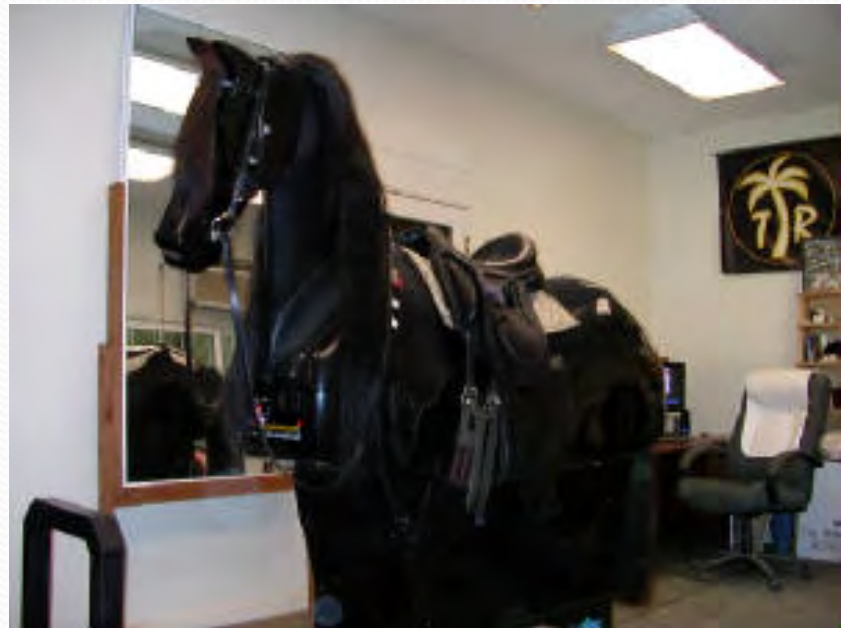
- Veterinarians tend to avoid this subject 😊
- Pain – stiffness – weakness – fear
- Fitness
- Balance
- Symmetry
- Style: aggressive, tactful, etc

RIDER TREATMENTS

- Fitness & Balance:
 - Balance Balls
 - Yoga
 -
- Symmetry & Flexibility
 - Chiropractics, Acupuncture

RIDER TREATMENTS

- Riding Simulator
 - www.electricschoolmaster.com



RIDER TREATMENTS

- Psychology
 - EMDR, hypnosis, personal development
- Lessons on a different horse
- Change horses ? Is it a match?

The Five Questions of Chinese Medicine

The Five Questions of Chinese Medicine

- WHO? what kind of a horse has the problem
- WHAT? Is the problem? Was there trauma?
- WHEN ? Long term vs. short term problems
- WHERE? Initial location of problem, compensations
- HOW much? Amount of pain, compromise in function, compensation



The Five Questions of Chinese Medicine

- The one most often overlooked is the first
- What kind of horse has the dis-ease is more important than what kind of dis-ease the horse has.