Introduction to a new understanding of causation for chronic pain of the musculoskeletal system.

What is the problem?
Most disease, other than for musculoskeletal, is a metabolic or anatomic defect.

Musculoskeletal disease has chronic mechanical stress as a predominant causative factor, in addition to metabolic/anatomic defects.

Needed is method for minimization of chronic mechanical stress.

Primary Sources of Mechanical Stress:

1. Repetitive action.
2. Poor ergonomics.
3. Limited traumatic event.
4. Obesity.
5. Increased prevalence of level ground promotes postural imbalance.

Because gravitation is inexhaustible, and living tissues are not, even subtle (normal) imbalance of posture can gradually organize disease/dysfunction.
“Machu Picchu: unveiling the mysteries of the Incas”

Paucity of degenerative joint disease (DJD) of the hips of the skeletons for servants that worked the mountain sides.

IN CONTRAST TO

Higher prevalence of DJD of the hips for those servants who worked on the level ground.

John Verano, Ph. D.

Contemporary Definition of Causation

Cause is:

1. prior to effect, and is

2. productive of effect (operational linkage between cause and effect) in two ways.

There is no issue with cause being prior to effect.

The issue lies with the 2 ways cause produces effect.

The operational linkage of cause to effect, currently, has 2 senses:

1. A single cause that is bordering to or in direct contact with effect.

Degenerative Joint Disease

There is no issue with bordering or direct operational linkage.
2. Multiple causes can act as a mechanical chain that links to the final effect.
Practical issue: it is difficult to discern a mechanical chain for reason of complexity.

The issue with the usual 2 forms of causation is that they are not sufficient to enable effective treatment for the preponderance of chronic musculoskeletal disease.

NEW CLASS OF CAUSATION:
3. Centric cause with whole body effects.
Centric Causation:
Physicians trained with this new understanding of causation routinely alleviate the preponderance of chronic musculoskeletal pain.

Origin of This Discovery

For an adult population (N=42) with chronic, multiregional pain, leveling the sacral base is followed by alleviation of 70% of the number of regions with pain.

Use of foot orthotics to correct pes planovalgus and reduce genu valgus.
1987

For a population for whom the sacral base had been leveled, correction of pes planovalgus alleviated the remainder of regions of chronic pain (anecdotal observation).

2003

Professor Benno Nigg, biomechanist at Calgary University, concludes his career that includes >100 papers on orthotics:

“There is no reliable, significant predictive value for foot orthotics and relief from any clinical condition. I recommend that you try them, and see if you like them.”


NEW CLASS OF CAUSATION:

3. Centric cause with pan corporal effects.
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2014
Broadened Definition of Causation

Cause is:
1. prior to effect, and is
2. operationally linked to effect by 1, 2, and/or 3 means:
   a. bordering/direct.
   b. mechanical chain.
   c. centric.

Correction of the centric boundaries of posture is postural balancing, and such correction enduringly relieves pain throughout the body.

Indication for postural balancing:
chronic pain that is not sufficiently relieved by therapeutics that presuppose that the cause is either metabolic, anatomic, bordering to, in direct contact with, or is a mechanical chain linked to, effect.
Postural therapeutics for alleviation of chronic pain:

1. Foot orthosis to correct feet and ankles.
2. Pelvic orthosis to level sacral base, standing, and left in usual seats, to level sacral base, seated.
3. OMT to reduce arthrodiol restriction and rotation reflective of prior postural imbalance.


Traditional Measurement of Pelvic Attitude

For the the standard radiographic study, measured is unlevelness of 1) iliac crest, 2) sacral base, and 3) femoral head heights. Physicians corrected 50% of the unlevled reference, as they weren’t sure which reference was best.

Advanced Measurement of Pelvic Obliquity (1991)

Method for measurement of pelvic obliquity, standing

A = Line parallel to sacral base.
B = Line of horizontal reference.
C = Vertical line (Rt. & Lt.) that intersects the apex of the femoral head, Line A, and Line B.
Cα - Cβ = Sacral Base Unlevelness

Radiographic Delineation Of the Sacral Base In the Standing and Seated Stance

(A) Line drawing of the radiographic reference for the delineation of the base of the sacrum that directly bears the load of the lumbar spine and is geometrically centric to the overall skeletal frame. (B) Radiograph of the base of the sacrum (center) with arrows has emphasized the transverse strands of greater radio-opacity that is the sacral base.

An average of 30% reduction of lateral angularity of the lumbar spine follows leveling the sacral base.


Seated Postural Radiography
Unlevelness of the sacral base, seated, can be corrected via an pelvic orthosis beneath ischium on the low side of the sacral base.

Implementation of Custom Foot Orthotics.

Initial | Orthotics In Place

Pes planus directly increases the amplitude of the physiologic curves, with an increasing effect the further cephalic-ward.

Pelvis obliquity directly increases the disarray in the coronal plane.
By use of foot orthotics to optimize amplitudes of the arches, the shape and attitude of the entire frame in the sagittal plane can be corrected.
Manipulability of Posture: Correction of Pes Planovalgus.

Correction of Torsion of Transverse Plane With Heel Lift/foot Orhtotics:

Time = 2 minutes →

Case Study of Traumatic Pelvic Obliquity

His initial panel of chronic disconcerts, all onset after the an MVA with multiple hire of legs was as follows:
1. Swelling of the lateral margin of the left foot
2. Painful feet
3. Decrease of the calves and shin
4. Painful knees
5. Tightness of the posterior right thigh
6. Ache of the low back, while both standing and seated
7. Intercapular ache
8. Neck ache

Physical and radiographic examinations revealed the following:
1. Antalgic gait
2. Feet and ankles are markedly restricted
3. Right ankle is pes varus; left ankle is pes valgus
4. diffuse restriction of the thoracic, lumbopelvic, and lower extremity regions
5. Pelvic obliquity while standing
6. Pelvic torsion about the vertical axis
7. Lateral instability of the lumbosacral
8. Compression fractures, L3-5, pathologic (lymphoma)
9. Multi-regional somatic dysfunction with chronic pain
10. Postural lumbar scoliosis, traumatically induced
11. Craniofacial region is irregularly shaped.
Treatment over 3 & ½ years.
1 & 5/16 in. Rt. heel lift with 1 in. sole and bumper shoes.

To a surprising extent, the craniofacial shape had normalized.
This evidences the mechanical linkage of the boundary conditions (central proximities) for posture to all regions.
Broadened Definition of Biomechanical Causation

Cause is:

1. prior to effect,

2. operationally linked to effect in 3 ways:
   1) bordering/direct.
   2) mechanical chain.
   3) centric.

Summary:

Summary (cont.):
2. Best therapeutic outcomes for chronic pain necessitates correction of all 3 causal linkages, where present.
Summary:

3. Where one controls both the bordering and centric causations, the causation that is mechanical linkage is controlled indirectly.

Thank You.