Postural Analysis / Leg Check

How is it of value?

Educates the patient about postural distortions and imbalances
Indicates area of biomechanical stress
Insightful as to where the VSC can be chronic
Categorized as kinesiopathology
Postural distortions may be the result of VSC
Personalize your approach to care

Visualizing Posture

Important to use a frame of reference for reliability and reproducibility
Have a protocol / procedure (‘views’)   
Have the same examiner take measurements for pre/post validity
Explain / Demonstrate to the patient
Take a picture to document
Document findings from the patients perspective (Right / Left / Ant / Post)

Anthropometrics

Anthropometry refers to the measurement of the human individual. An early tool of physical anthropology, it has been used for identification, for the purposes of understanding human physical variation, in paleontology and in various attempts to correlate physical with geo-cultural and psychological traits.

Postural Analysis

How is it of value?

Explains visually and logically, the muscular causes of pain
Outcome measure for patient and other interested parties (insurance, research, parent, concerned family member, etc...)
Indicator of pathology (sensory neural adaptation, scoliosis, emphysema, Cushing’s syndrome, juvenile discogenic disease, arthritis, compression fracture, etc...)

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Postural Analysis

Patient Stance
- Consistent distance away from the reference
- Feet equidistant from a baseline
- Relaxed and “normal”/neutral stance
- Best if the patient is gowned so that symmetry / asymmetry can be visualized accurately

List vs. Lean

List
- Originally a nautical term utilized to describe a ship’s overall appearance or tendency to favor the starboard or portside.
  - Merriam-Webster Dictionary

Anterior View Stance

Postural Analysis

Anterior View
- Overall or global list
- Sight a line from the patient’s sternum to the baseline
- Always use a parallel gridline for frame of reference
- Record the list as Right / Left / Neutral

List vs. Lean

List
- Posturally this will describe a patient’s overall tendency to favor their right or left. The sternum and baseline will be utilized as the reference points.
**List vs. Lean**

**Lean**
To be in or to move into a sloping position. Voluntarily breaking from true horizontal or vertical.

-Merriam Webster Dictionary

Posturally, this describe a patient’s “regional” tendencies to break from an established baseline vertical.

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**Head Tilt**

- **Glabella – Nose – Chin - Parallel Grid Line**

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**Thoracic Tilt**

- **Acromioclavicular Joints - Parallel Grid Line**

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**Postural Analysis**

**Lateral View**

- Overall or global list
- Sight a line from the patient’s AC joint to the baseline
- Always use a parallel gridline for frame of reference
- Record the list as Ant / Post / Neutral
Postural Analysis

Patient Stance
Consistent distance away from the reference
Feet equidistant from a baseline
Relaxed and “normal”/neutral stance
Best if the patient is gowned so that symmetry / asymmetry can be visualized accurately

Global List: AC Joints – Baseline (mid-foot)

Head Carriage
EAM – AC Joint - Parallel Grid Line

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Lateral View Stance

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Head Carriage
EAM – AC Joint - Parallel Grid Line

Head Carriage
EAM – AC Joint - Parallel Grid Line

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Thoracic Kyphosis

Can be caused by:
- Degenerative diseases of the spine
- Fractures caused by Osteoporotic compression fractures
- Injury (trauma)
- Endocrine diseases
- Connective tissue disorders
- Infection (tuberculosis)
- Muscular dystrophy
- Polio
- Spina bifida
- Tumors

Symptoms:
- Difficulty breathing (in severe cases)
- Fatigue
- Mild back pain
- Round back appearance
- Tenderness and stiffness in the spine

Detection:
- Physical examination and visualization of a “rounded back appearance”
- Radiological mensuration (Cobb Angles)

Thoracic Kyphosis

Thoracic Rotation

Chest – Back Prominence

Lumbar Lordosis

Can be caused by:
- Chronic poor posture (muscle imbalance)
- Injury (facet syndrome)
- Ricketts (in children)
- Abdominal visceral adiposity
- Pregnancy
- Degenerative disease

Detection:
- Physical examination and visualization of a “swayback”
- Radiological mensuration
Lumbar Lordosis

Posterior View

Overall or global list
If confirmation is needed use VP - Baseline
Consistent distance away from the reference
Feet equidistant from a baseline
Relaxed and “normal”/neutral stance
Best if the patient is gowned so that symmetry / asymmetry can be visualized accurately

Head Rotation

Facial Prominence (Jaw or Cheek)

Head Translation

EOP – VP – Parallel Grid Line
Scoliosis
Can be caused by:
- Congenital scoliosis is due to vertebral malformation or fused ribs during development
- Neuromuscular scoliosis is caused by poor muscle tone, or paralysis due to diseases such as cerebral palsy, muscular dystrophy, spina bifida, or polio.
- Idiopathic scoliosis is scoliosis of unknown cause. Idiopathic scoliosis in adolescents is the most common type.
- Some are prone to increased curving of the spine. Most cases occur in girls. Curves generally worsen during growth spurts.

Symptoms:
- Difficulty breathing / compromised capacity
- Fatigue
- Mild back pain
- Altered curvatures
- Tenderness and stiffness in the spine
- Compromised visceral function

Detection:
- Physical examination and visualization of a spinal curves - Scoliomter
- Radiological mensuration (Cobb Angles)

Scoliometer

- Have patient bend forward almost touching toes.
- Place scoliometer over mid-thoracic area, slightly below lower end of scapula, and read and record degree measure.
- Repeat scoliometer reading over mid-lumbar area, approximately 2 inches above iliac crest, and record degree measure.
- If either scoliometer measure is 5 degrees or more, then consider referral to a scoliosis center for evaluation, digital scoliosis X-ray, and long-term longitudinal follow-up. Scoliometer readings of 5 degrees or more have high likelihood of Cobb angle greater than 10 degrees on X-Ray.

Scoliosis – Vizualize Spinouses

Scoliosis – Scapular Inferior Angles (prominency also)
Pelvic Tilt
Iliac Crests – PSIS’s - Parallel Grid Line

Pelvic Rotation-Gluteal Prominence

Pop Quiz....
- Right thoracic tilt
- Scapular prominence
- Scapular tilt
- Pelvic tilt
- Asymmetric skin fold
- Most likely pathophysiology?

Prone Leg Check
Used throughout the profession with various interpretations
We will utilize it in SA and in Toggle Recoil as an indicator of postural distortion
In Cervicals you will learn a Derifield Cervical Syndrome (neuromechanical)
In Pelvic you will visualize changes relative to specific misalignments
**Prone Leg Check**

Hydraulic HyLo table is the most consistent way to perform the check

Otherwise utilize a consistent method to ensure reproducibility

Have patient place knees on the table evenly – ankles off the table

Lay face down and remain still until assessment is complete

A shoe with a rigid outsole can aid in creating a frame of reference

Do not use the bottom of the shoe as it is subject to different wear due to gait patterns

Use the “seam” of the shoe or “like points”

Medial malleolus can be used but is subject to anatomical variance
Prone Leg Check

Visualize for asymmetry in:
1. Inversion / Eversion
2. Foot flare
3. Plantar Flexion / Dorsiflexion

Then conduct the leg length check with consistency.
This takes practice!!!
Prone Leg Check

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