Who Knew????

* Malocclusions
* Airway
* Vision
* Breathing
* Foot orthotics

Shedding Light...

- Traditional PT/Postural Restoration
- Diaphragm *THE HIDDEN STAR * IO/TA
- Respiratory mechanics
- Neutrality (Joint position and respiration)
- FHP influences occlusion and beyond
- Reducing FHP-Whole Body Asymmetries via Respiratory mechanics and whole body patterns of exercise impacts mandibular position and occlusion.

PRI trained physical therapists

- Common Integrated Patterns:
  - Stance
  - Extremity use
  - Respiratory Function
  - Vestibular Imbalance
  - Mandibular Orientation
  - Foot Dynamics.

PRI trained therapists

Body is not symmetrical:
- Liver on the right
- Heart on the left
- Left brain dominant for language and speech so right UE dominant for communication/growth and development
- Left diaphragm smaller, tighter and weaker
- Leads to twist in trunk and anterior rotated left ilium
Proper Breathing

- Diaphragm-Key! “Bigger (dome) is Better”

Right Side Dominance/Habits

- Normal imbalances must be regulated by reciprocal function during walking, breathing or turning.
- If not then a strong pattern emerges creating structural weaknesses, instabilities and musculoskeletal syndromes. (Teeth to Toes)
- Balancing muscle activity around the sacrum, sternum and sphenoid through PRI approach best positions multiple systems of the body for integrated function.

Forward Head Posture

- Promotes:
  - Pelvic floor and abdominal weakness
  - Imbalance of hyoid muscle
  - Hyperactive mandibular elevators, accessory respiratory muscle & posterior cranial rotators
  - Compression of occipital, upper cervical, temporal mandibular and sphenoid structure
  - Loss of orbicularis oris
  - Limited mandibular opening
  - Structural imbalance of head & neck influencing centric occlusion’s relation
  - Trigger point pain patterns

Act 2

- How we assess and refer
New Patient Evaluation

- Subjective report
- Medical history
- Previous treatment
- Medications
- Health/social history/lifestyle/work/exercise
- Posture/Orientation/Gait
- Objective Tests and Special Tests
- PRI Tests: classify patterns
- Physical evaluation/Outcome measures
- ROM and strength
- Reflexes
- Pain/Palpation
- Shoe wear
- Eye wear
- Spinal/hist of braces/dental history
- Review diagnostic summary and consult from Dara Chira

Medical History

Please answer each section below even if information seems unrelated to your current problem.

MUSCULAR:
- Do you experience localized pain or discomfort?
- Do you feel weak or tired, or is your energy level lower than normal?
- Have you lost any weight in the last year?

NUTRITION:
- Do you drink alcohol?
- Do you eat a balanced diet?
- Do you exercise regularly?

MEDICATIONS:
- Do you take any prescription medications or vitamins?
- Do you take any over-the-counter medications or supplements?

Allergies:
- Do you have any food allergies?
- Do you have any medication allergies?

Medical History Form

Objective Tests

- Neutrality/Position
- Adduction drop
- Apparent Leg length
- Trunk rotation
- Cervical spine rotation
- TMJ AROM
- Sternal/Rib angle
- Breathing pattern
- Rest position supine

PRI Evaluation Form
When to refer?

- Gayle
  - Dizziness
  - Headaches
  - GI issues
  - Fatigue
  - Amplified pain
  - Sxs not fully resolved
  - Can not maintain or achieve Neutral

- Dara
  - TMJ sx, HA
  - Airway
  - Occlusal
  - Tongue depressor test
  - Splint ck +
  - Can not maintain or achieve Neutral

Act 3

- Case studies

Jennifer: Non-pathological Patient

Visit 1: IE 8/17/17

Mand open 28mm Lat dev L 5mm R 10mm

Shoe wear

PRI Exercises

Pre rx

Post Repos ex

Mand open 28mm
L 6mm R 10mm

Mand open 35mm
L 8mm R 10mm
"I can not believe those exercises changed my jaw motion!"

"How does shifting my knees do that???

- Mandibular open- Pre 28mm / Post 35mm
- Mandibular L lat dev 5mm R 10 mm
- Post L lat dev 8mm R 10 mm

Gait Reciprocal Alternating

- Assessment
- Pelvis, hips
- Trunk
- Arm swing
- Ankle/foot
- (Sphenoid, Sternum, Sacrum)
Lisa T: Hypo-mobile Patient

5/18/17 First visit
- Objective findings- HYPO MOBILE throughout
- Mandibular opening 28mm
- Lat dev L-6mm/R-0mm
- Protrusion 1 mm
- AIRWAY MAJOR issue/ Hyper-inflated, could not tolerate being supine

Visit 3: 5/31/17
- Mand open 34mm (IE 28mm)
- Lat dev L 7mm R 5mm (R improving was 0mm)
- Rib sternal angle pre 110 post rx 100
- Improving trunk and brachial chain tests
Shoe wear

• “The new sneakers have made a big difference with my exercises!”

Airway

“I haven’t used my Albuterol in a few months since starting the PT exercises!!”

Mandibular AROM

• Opening 34 mm (IE 28mm)
• Protrusion 5mm (IE 1MM)
• Lat deviation L 5mm R 5 mm (IE 6/0mm)
• (right very difficult motor control uses neck)
• Post final exs(SASSF)
• Bilateral Lat Dev 10mm
• No pulling on left TMJ.

Oral facial muscles

• Lip closure difficult with Emma rest position
• Good orbicularis oris control
• Good tongue protrusion
• Good tongue left and right upper molar
• Improved motor control ability for R lat dev after exercises.

SUBJECTIVE REPORT

• Patient notes she has not had clicking or popping in her jaw.
• She is much less fearful with talking and chewing
• Patient asked to pay attention to soft chew on left side.
• Integrating to left chew now that her mandibular AROM is normalizing and she can be in her left side.
Holly Spence, PT, PRC 10/5/2017

**TMJ Disability Questionnaire**

- 5/18/17: 58% Impairment
- 8/22/17: 32.5%

**Neck Core**

- Pre-exercise
- Post-exercise

**Abdominal Core**

Visit 10  9/7/17

- Mand open pre 30mm post 35mm
- Lat dev pre B 8mm pull on left TMJ
- Lat dev post B 8mm no pull or pain left TMJ
- Good motor control with lat dev
- “Breathing is getting easier”
- “I feel I can breathe through my nose better”

Visit 11  9/19/17

- Pre-Treatment: 36 mm opening
- Post-Treatment: 40 mm opening
- Lateral deviation: 10 mm bilateral
- Chewing without pain
- No pain at rest
- Sleep is better
- Reported her pre-surgical braces in October

Visit 11  9/19/17

- Chewing food now (Apple)
- Sleep better
- Jaw movement better
- − CS SF, −OA SF, min + CS ext & L CS Rot
- Open Pre 36mm * Post 40mm
- B Lat dev 10mm pre and post
- Progressed Exs
- In great shape for next phase, Braces Oct

**In-Office PRI PT Exercises for Lisa T**
Jessica P: Hyper-mobility
First visit: 7/10/17

SLR 80-90 is Normal

Left rib flare
Apparent Leg Length

Cervical Rotation Restricted Left
CS rot L50 R 85
Mand open 25mm lat dev 5 B

Repositioning exercise

Pre exs 50° Post exs 80°
Pre and Post exercise

Mandibular open Pre 25mm post 28mm
No change lat dev.

Dara built up left posterior teeth prior to visit

CS rot L 65 R 85  Mand open 27mm
lat L10mm R8mm

2nd visit Jessica 8/7/17
“My exs are going well” I think yoga really messed me up

1st visit 2nd visit

3rd Visit 8/31/17
Patient reports L click

- Left TMJ click with blowing, tongue right
- CS, TS, LS, Pelvis neutral, HADLT 4/5B
- Mand open 30mm
- Lat dev L10 R8mm Pro 5mm
- Unable to get lips together when relaxed (braces) What is from CS lack of core???

Lip seal

Standing repositioning exs

Straw increase IO/TA, orbicularis oris activity
Decreases temporalis, masseter activity

Scapular Stabilization-IO/TA-Lumbo/Pelvic

More Scapular Stab-IO/TA-CS

Scapular-IO/TA-OA

Improves anterior cranial rotation- OA flex, mid cs
lordosis, core (diastasis/IO/TA fcn) resp mech!
Relaxed Lip Seal

No L Click with right lat dev
No pain/tension left masseter

“The straw helped loosen my jaw, neck and face muscles.”

4th visit pre Dara

• C/o Work Stress, Left side soft tissue issue pain, still no click
• Pre rx mand open 25mm -Post 32mm
• Pre ex lat dev L10/R6mm Post L10 R8mm
• Repos exs, left SL, D/C straw
• New sneakers!
• Pain 75% reduced after exs

90% reduction temporalis pain
Lat dev L 10mm right 10mm
“How does shifting my knees do that??”
Conclusion

• Our interventions are interrelated and the body functions as a whole system. TMD/Dental-Occlusal patients require a whole body multi disciplinary approach to treatment for optimal outcomes.

References

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THANK YOU !!