PRI Integration

A Clinical Perspective: When PRI "Orthotics" of the Feet, Occlusion and Visual System are Needed and When Should They be Removed.

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PRI Clinical Goals:

1. **Re-position** the pelvis, trunk, and neck.
   Think inhibition.

   A. Pelvis = - (B) ADT

   B. Trunk = - (B) HGIR and Horizontal Abduction

   C. Neck = - (B) CAR

PRI Clinical Goals:

2. **Re-train** the pelvis, trunk, and neck.
   Think facilitation of pressure regulation, airflow, peripheral vision awareness flow, vocal cord vibration and grounding with sense/perception.

   A. Pelvis = - (B) PADT and PART with SLR to 90 degrees.

   B. Trunk = - (B) Apical and Posterior Mediastinum Expansion tests.

   C. Neck = - (B) CLF

PRI Clinical Goals:

3. **Re-store** the pelvis, trunk, and neck.
   Think alternation, oscillation, and resonation.

- The pelvis can go left, the trunk right, and the neck left.

- The pelvis can go right, the trunk left, and the neck right.

Your patients should be able to get PRI neutral in the pelvis (-B ADT), trunk (-B HGIR and Horizontal Abduction) and Neck (-B CAR and CLF) after PRI manual and non-manual technique integration and maintain it. They should be able to return to the clinic with an appropriate PRI Home program and demonstrate PRI neutrality as indicated above without manual or non-manual integration. This should not take a lot of time to achieve, possibly 1-5 visits.

If your patients can get PRI neutral in the neck, trunk, and pelvis, however, can't maintain it between visits, please consider the following PRI interventions:

- Inhibition of the right posterior inlet (the right proximal iliacus) via the right glute max and distal fibers of the right iliacus. + R PART and decrease R FAER less than 45 degrees with R HABLT 3/5.
- Inhibition of the right respiratory diaphragm, IO/TAs, the intercostals via the left IO/TAs for right apical expansion. Limited right apical expansion tests with right HALT 3/5.
- Progress to upright supported activity and ground sense. You can get your patients upright with HALT or HABLT are <3/5 if supported. Ground sense and upright activity assist with neck inhibition and pressure regulation.

- Appropriate footwear for grounding and floor sense. Can your patient's sense the floor? Heel, arch, Big Toes?
- Integration of left peripheral vision and bilateral peripheral flow with upright activity.
- Identify and treatment of Superior T4 patients. + L PADT and/or + R PART with + L CAR, - R apical expansion and + L apical expansion test with some or all of R BC PRI objective tests still positive after PRI L AIC and R Superior T4 manual techniques. Integrate right subclavius manual technique with left low trap and serratus anterior program (Postural Respiration Course) or upright alternating reciprocal rib rotation activity (FLM Course).

- Inhibition of the left anterior inlet (the left proximal sartorius and rectus femoris) via the left inlet extension with the left IO and TAs. + L PADT and + R PART with R HABLT 0/5.
- Inhibition of the left Posterior Mediastinum. Limited Posterior Mediastinum Expansion Test with SLR < 80 or > 90 degrees and right HABLT 2/5.
- Lack of Pterygoid activity.

- Correct diaphragmatic breathing with PRI exercise techniques and functional activity? (Inhibition of the Rectus abdominus, proximal hip flexors, and anterior neck.)
- Progressing patient's too aggressively with PRI techniques. Test and re-test PRI objective tests during treatment.

PRI Integration Indicators for PRI "orthotics" of the Feet, Occlusion and Visual System

PRI Foot Orthotic Indicators

The following are considerations on when to integrate with a Podiatrist. These are typically patients that can Re-position in the pelvis, trunk, and neck, but they can't maintain it without a right sensory arch or left lateral heel awareness despite PRI non-manual techniques or they can get PRI neutral in the pelvis, trunk, and neck but are challenged to integrate a frontal plane as indicated by + L PADT and/or + R PART with HALT and HABLT 2/5 to 3/5.

Please be aware of WHEN to integrate PRI orthotics. You want HALT and/or HABLT at a minimum of a 2/5 and preferable 3/5 for the pelvis, trunk, and neck to integrate with the floor and to allow the foot and ankle to work with the orthotic versus being regulated by the orthotic.

- Patient who can't get to a Hruska Adduction Lift score of 3/5 despite good footwear and they have been through a Myokinematic and Pelvis Restoration program. (challenged to integrate a frontal plane)
- Pes Planus, Rigid mid-foot, or Bunions.
- Calcaneal movement. Decreased eversion of 0-5 degrees and increased inversion of 30-40 degrees.
- Individuals who toe out who shouldn't toe out. These patients are PRI neutral in the pelvis, trunk, and neck and have a frontal plane as indicated by HALT and HABLT of 3/5.
- Adduction lift scores of 3/5 but decreased Hruska Abduction lift scores 2/5 (overworking peroneals for push-off versus gluteus medius).

- People who like to walk barefoot and/or wearing sandals to decrease tension or relax.
- Superior T4 (despite correct PRI treatment), left shoulder patient, left hallux limitus, and left or right plantar fasicitis. (no frontal plane)
- Tall, narrow pelvis, poor hip translating, sagittal-minded and heavy heel strike individuals (decreased SLR and PRI functional squat test, + PART and limited calcaneal eversion).
- Limited FAER strength after establishing neutrality with PRI program with continued compensation during toe off through back extensors versus glutes.

- Poorly organized upright sensation/grounding and instability with upright position with PRI MOOO/MMOO and Visual integration with a neutral neck.
- Tibia Varum
- Shoe break down (holes where Big Toe has worn vast of shoe or inside heel counter)
- Previous back surgery (PEC pattern)

PRI Occlusion Indicators MOOO/MMOO

The following are indicators when you need to integrate with a Dentist. These are patients who are unable to maintain neutrality despite integration of a PRI manual and non-manual program. These patients usually demonstrate (+) or (-) L ADT, (+) L PADT and/or R PART, (R) BC/TMCC pattern or (+) or (-) B ADT, (+) B PADT or PART, (B) BC, (R) TMCC pattern.

- Patient does not have full occlusion when they bite down. Usually anterior or posterior teeth do not touch on one or both sides.
- >50mm of opening. The patient has been taught how to stay on their discs, but they can't stay on them.
- Cross bite.

- Anterior temporalis or masseter hypertonicity. (Patients that grind or clench)
- Severe whiplash injury with cervical instability. OA LF > 10 degrees and patient clench their teeth for stability.
- Missing molars or worn canines.
- Patients that have been through orthodontia more than once.
- Airway/sleep disorder.

PRI Visual Indicators

The following are considerations as to when to integrate with an Optometrist. These are patients who are unable to maintain neutrality despite integration of a PRI manual and non-manual program. These patients usually demonstrate (+) or

(-) L ADT (+) L PADT and or R PART, (R) BC/TMCC pattern or (+) or (-) B ADT, (+) B PART, (B) BC, (R)TMCC pattern with CLF and OA LF (+) or pathologically (-) and SLR >90 degrees OR all PRI Re-positioning tests are (-) ADT, HGIR, Horizontal Abduction Drop test, and CAR, but (+) L PADT and/or (+) R PART and (+) (R) CLB.

- Increased vestibular symptoms including dizziness with PRI program.
- Increased neck tension or headaches with PRI program.
- Monovision, multi-focal contacts, and weighted contacts.
- Progressives utilized for computer work for long periods of time.
- The left and right eyes are not working together. One eye might turn in (esophoria) or another eye might turn out (exophoria).

- History of concussion(s)
- History of Lasix eye surgery.
- People who stare or fixate at the ground or objects for stability.
- History of ankle instability/fractures.
- High Sphere power >5.00 or Cylinder power >1.00
- Not comfortable with current eyewear.

Which PRI "Orthotic/s" Does my Patient Need for Integration?

Your objective is to get PRI objectives tests that are + in the pelvis, trunk, and neck to go negative by making one change at a time with SLR to 90 degrees. Have your patient walk up and down a hallway two to three times between each change. Have them get into left and right stance. Can they sense the floor differently? Can they sense they are holding themselves up with different muscles? Can they sense less tension? Can they sense it's easier to breathe? Do they have improved lateralization and trunk rotation? Can they sense peripheral flow? Can they sense a change?

Which PRI "Orthotic/s" Does my Patient Need for Integration?

Start with the feet first. Are you sure they are in the correct shoe? Try different shoes. Did they get PRI orthotics too soon (not enough glute strength)? Take them out and use shoe liners? Right sensory arch? Left lateral heel awareness?

- Do any of the PRI objective tests change at the pelvis, trunk, or neck? Do they sense anything differently? Most likely, if it's a pelvis/hip issue your patient will be able to achieve PRI neutrality and maintain it in the pelvis, trunk and neck with SLR at 90 degrees after walking up and down the hallway. They will also be able to sense their entire foot on the ground heel, arch, and toes in left and right stance.
- If your patient can get – B ADT you more than likely have the correct footwear, but if your patient still has + B PADT or + L PADT and/or +R PART with + R or B BC, R TMCC with SLR <80 or >90 degrees you more than likely have an occlusion and/or vision issue.

Which PRI "Orthotic/s" Does my Patient Need for Integration?

If your patient can get – B ADT you more than likely have the correct footwear, but if your patient still has + B PADT or + L PADT and/or +R PART with + R or B BC, R TMCC with SLR <80 or >90 degrees you more than likely have an occlusion and/or vision issue. Your patient is likely being driven by their neck.

- Do they have any of the dental indicators? If so, take your patient out of their bite by utilizing a mouth guard or a tongue depressor. Make sure your patient doesn't "bite" into the guard or tongue depressor. Keeping the same footwear that allowed for – B ADT, have your patient walk up and down the hallway with a new occlusion sense. Have them get into left and right stance. Can they sense the floor differently? Can they sense they are holding themselves up with different muscles? Can they sense less tension? Can they sense it's easier to breathe? Do they have improved lateralization and trunk rotation? Can they sense a change? Are there any changes to the PRI tests as they indicated?
- If your patient can sense a change and they achieve PRI neutrality in the pelvis, trunk, and neck they need a MMOO/MOOO dental orthotic as directed in the Cervical Revolution and Occlusion Course work.

Which PRI "Orthotic/s" Does my Patient Need for Integration?

If your patient was unable to get PRI neutral with footwear and taking them out of their bite and they still have + B PADT or + L PADT and/or +R PART with + R or B BC, R TMCC with SLR <80 or >90 degrees and your patient has a visual indicator you more than likely have a vision issue that is driving the neck.

- Keeping the same footwear that allowed for – B ADT and then consider the following: 1) Are the two eyes working together? If not, patch an eye 2) What is their current eye wear? Progressives? Monovision? Multi-focal contacts? Bi-focal contacts? Based on #1 have your patient walk up and down the hallway with a patch over one eye. Have them get into left and right stance. Can they sense the floor differently? Can they sense they are holding themselves up with different muscles? Can they sense less tension? Can they sense it's easier to breathe? Do they have improved lateralization and trunk rotation? Can they sense peripheral flow? Are there any changes to the PRI tests? Then patch the other eye. One eye will possibly make them worse, and the other eye will allow them to get PRI neutral. Based on #2 try to assess your patient with their distance only correction and re-evaluate as directed above. (You can do this with a trial frame if you have them in your clinic or by working with their Optometrist).

- If your patient can sense a change and they achieve PRI neutrality in the pelvis, trunk, and neck with SLR to 90 degrees they likely need Vision Integration. Ideally, you would have your patient in their footwear and get a standing refraction with the lights on and have each eye corrected to 20/20. Place this script in trial frame (if you have them) and ensure they are PRI neutral in the neck, trunk, and pelvis prior to getting new glasses. If they are neutral get the script filled. If they are not neutral, but they were able to get neutral with eye patch they may need a referral to PRIME program or a Neuro-Optometrist that will respect PRI neutrality with a visual change that allows the patient to "see" and allows for the patient to sense peripheral flow and sense the ground. This is discussed more thoroughly in Forward Locomotor Movement Coursework.

Which PRI "Orthotic/s" Does my Patient Need for Integration?

If your patient was unable to get PRI neutral with footwear and patching an eye or distance only correction and they still have + B PADT or + L PADT and/or +R PART with + R or B BC, R TMCC with SLR <80 or >90 degrees and your patient has dental and visual indicators, you more than likely have both a dental and vision issue that is driving the neck.

- Keeping the same footwear that allowed for – B ADT, have your patient walk up and down the hallway taking them out of their bite with a patch over one eye or distance only correction. Have them get into left and right stance. Can they sense the floor differently? Can they sense they are hold themselves up with different muscles? Can they sense less tension? Can they sense it's easier to breathe? Do they have improved lateralization and trunk rotation? Can they sense a change? Are there any changes to the PRI tests as they indicated?
- If your patient can sense a change and they achieve PRI neutrality in the pelvis, trunk, and neck with SLR to 90 degrees they need Dental and Vision Integration. You will need to determine which integration piece is needed first for your patient. Typically, you can have your patient get a standing refraction with the lights on with correct footwear and take them out of their bite, as you did in the clinic, while they get refracted by the Optometrist. The patient then would go to the Dentist with a PRI Therapist with their shoes and glasses for their bite registration and splint calibration for their MMOO or MOOO appliance. (See PRI Dental Occlusion Course)

WHEN DO I REMOVE PRI ORTHOTICS?

Once your patients demonstrate ALL PRI tests that are negative in the pelvis, trunk, and neck with HALT and HABLT B at a 4/5 their need for PRI "orthotics" should be reduced and their symptoms they are experiencing should be significantly improved. They should be able to stay PRI neutral in the pelvis, trunk, and neck without their PRI "orthotics." Remove an "orthotic" and have them walk up and down the hallway and re-evaluate PRI tests in the neck, trunk, and pelvis to determine that they no longer need this intervention as indicated by these PRI tests staying negative and HALT and HABLT maintaining at their current level.

Considerations for PRI Foot Orthotics

- Your patient might need PRI foot orthotics indefinitely if they have bunions, pes planus, rigid mid-foot decrease calcaneal eversion, increase calcaneal inversion or tibia varum.
- Your patient should be able to have footwear variability. They should be able to wear different shoes and not fall apart with PRI objective tests in the pelvis, trunk, and neck.
- Your patient should be able to have right sensory arches, right Big Toe, and left lateral heel inserts removed if placed in shoes.

Considerations for PRI MMOO and MOOO Dental Orthotics

- The Dental orthotics should be able to be removed and PRI objective tests should all remain negative in the pelvis, trunk, and neck and SLR to 90. If your patient is unable to stay PRI neutral, Orthodontia integration should be considered if they don't want to continue to wear their appliance during the day and night indefinitely. If your patient proceeds with bracing, please work with the Orthodontist to ensure as the bite closes that PRI neutrality is maintained.
- The MMOO or MOOO dental orthotics (if no orthodontia) will more than likely need to be utilized indefinitely at night and possibly during times of physical or mental stress during the day.

Considerations for Vision Integration

- If your patients start to experience some of their symptoms, straining to "see," or PRI tests that have been negative become positive they may need to be re-fracted by their Optometrist again.
- If your patient is PRI neutral in their pelvis, trunk, and neck with HALT and HABLT of a 4/5, please consider an upright standing refraction with the lights on with each eye corrected to 20/20 prior to discharge and educate them on doing this indefinitely.

- Vision integration requires the wearing distance only corrected glasses. The larger lenses allow your brain to process and integrate the world around your patient easier. At the conclusion of care, your patient should be able to resume wearing their habitual eye preference of contacts, bi-focals, or progressives and stay PRI neutral in the neck, trunk, and pelvis.
- Strong recommendation to avoid monovision and bi-focal contacts indefinitely. Caution weighted/toric contacts and progressive glasses. If long hours spent at computer, consider computer glasses.
- Assist your patients with finding the correct frames (size and darker color) and lenses (two pairs? bi-focal? or progressives? Or contacts?) to meet their habitual needs. Can they stay PRI neutral in their neck, trunk, and pelvis.

PRI Orthotic Integration

- If you're just learning this, please consult with another PRI trained PT who does PRI orthotic integration in your area.
- Observe with another PRI Therapist who does PRI orthotic Integration.
- Proceed with caution.
- Build relationships with a Dentist and Optometrist in your area. Your patients help build the bridge.
- PRIME at the Hruska Clinic was designed to help you and your patients.

Thank you for attending!!

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