POSTURAL RESTORATION CERTIFIED™ (PRC)
Application Deadline – September 15, 2014

The Postural Restoration Institute® (PRI) has implemented a credentialing process for Physical Therapists (PTs), Physical Therapist Assistants (PTAs), Occupational Therapists (OTs), and Chiropractors to take place annually in December. Postural Restoration Certified™ (PRC) recognizes expertise in a specialized area of physical medicine. PRC is offered to those who have completed all required courses and demonstrated an advanced knowledge and application of Postural Restoration Institute® concepts. PRC is an educational process that credits the applicant for their PRI knowledge and their ability to apply this knowledge, where and when appropriate, in a professional manner. PRI strongly recommends clinical experience and implementation of Postural Restoration® concepts for two years before applying for PRC.

Inclusion of other healthcare professionals for PRI credentialing program eligibility will be continually and comprehensively reviewed by PRI for potential policy revision in the future.

PRC Eligibility

- You are eligible to apply if you are a Physical Therapist or Physical Therapist Assistant. Verification of current PT licensure status is needed (a photocopy of your current license is sufficient).
- OR
- You are eligible to apply if you are an Occupational Therapist. Verification of current OT licensure status is needed (a photocopy of your current license is sufficient).
- OR
- You are eligible to apply if you are a Chiropractor. Verification of current Chiropractic licensure status is needed (a photocopy of your current license is sufficient).

PRC Course Requirements

The following course attendance criteria are required for eligibility to apply for PRC:

- Completion of *Myokinematic Restoration*
- Completion of *Postural Respiration*
- Completion of *Pelvis Restoration*
- Completion of *Advanced Integration*

Note: Courses must be sponsored by the Postural Restoration Institute® (PRI) and therefore presented by PRI Faculty using PRI materials. Courses must be completed in entirety, 15 contact hours each. Home study courses are applicable for the primary course requirements.

Reasons for Establishing the PRC Credential

- Establish and maintain continuity between sites implementing Postural Restoration Institute® concepts and techniques.
- Recognize individuals with PRI interest, specialization and expertise.
- Protect the use and application of PRI science, reasoning, processes, techniques, and materials.
- Provide avenues for professional development, collaboration between multidisciplinary specialists with PRI interests, and enhancement of scientific approaches using PRI concepts.
- Allow educational institutions, students, and researchers access to PRI specialists.

PRC Applications and Testing

PRC applications are due annually on or before September 15th. There is no fee to apply. In order for PRI to set a high standard for the credentialing process, applicants are asked to provide a number of objective resources illustrating integration of Postural Restoration Institute® concepts and techniques. In addition, PRI requires that the information supplied with your application be current and accurate.

The Postural Restoration Institute® will review all applications and notify applicants of the resulting feedback and recommendation for PRC readiness between October 15th and November 1st. If you choose to apply and do not complete credentialing the same year, PRI will retain your application for review the following year. Please contact us to re-submit your application.

The PRC credentialing process will take place annually in December. For 2014, PRC will take place on **December 8-9, 2014** immediately following our *Advanced Integration* course at the Postural Restoration Institute® in Lincoln, Nebraska. PRC testing is an educational and learning process that will include both practical and analytical written examination. ***PRC Testing will be limited to 30 candidates yearly. To ensure that you are considered for PRC testing we recommend that you submit your application early.***

PRC Fees and Benefits

A one-time credentialing fee of $2000 will be due prior to the testing process. This is the only monetary requirement and renewal is not required. This fee directly offsets costs associated with testing, assessing competency and completing training. The fee will also assist us in developing the process, advancing individual knowledge of Postural Restoration Institute® concepts and in growing a network of professional support. Individuals who earn the PRC credential will receive Postural Restoration Institute® course updates quarterly, ongoing clinical discussion and dialogue, discounted tuition to all courses (50% off the regular tuition rate; discount excludes *Interdisciplinary Integration, PRI Affiliate Courses, and PRI Vision courses*), advertising and promotional opportunities, and other benefits to be determined by the Postural Restoration Institute®.

While we encourage and anticipate a high level of involvement from those who earn the PRC credentials, status will not be affected by future Postural Restoration Institute® support and involvement. Rather, in good faith we ask that you keep abreast of all Postural Restoration Institute® activity and development by taking advantage of the tuition discount offered. If other requirements are deemed appropriate in the future they will be determined with the involvement and support of the Postural Restoration Institute® faculty and PRC group. Ron Hruska is very excited to work with all PRC applicants through the testing process as well as continued collaboration thereafter. This credentialing process allows PRI to continue to develop a close and integrated network for future Postural Restoration Institute® leaders.

Again, we truly appreciate your interest and look forward to reviewing your application. Please let me know if you have any questions or if I can assist you in any way.

Jennifer Gloystein, Director of Education and Credentialing

Postural Restoration Certified™ (PRC) Application:

Please submit by SEPTEMBER 15th to be considered for DECEMBER credentialing of the same year. Please submit 2 copies of your application (double sided). Do not include your application in a binder or folder.

PART ONE (Demographics)

Today's Date _____

Name _____

Professional Title _____

Employer / Company _____

Work Address _____

Work Phone and Fax _____

Home Address _____

Home Phone _____

Email _____

Education Background _____

_____

_____

_____

PRC date for which you are applying (Circle One)

December 2014 December 2015

PART TWO (PRI Experience)

Course Attendance

- Please list PRI course attendance. Course requirements: Myokinematic Restoration, Postural Respiration, Pelvis Restoration and Advanced Integration.

  Course **Date** **Location** **Speaker**

  _____

  _____

  _____

  _____

  _____

  _____

  _____

  _____

  Please abbreviate course titles: Myokinematic, Postural, Pelvis, Cervical, Impingement, and Advanced.

Clinical / Academic Experience

- Please attach thorough evidence of clinical or academic application. Evidence must be provided in the form of **three anonymous clinical cases** using actual patients from initial evaluation through discharge. Be sure to include your **Postural Restoration® assessment and rationale for each manual and non-manual technique chosen**. Clinical cases should demonstrate correct use of **PRI terminology and treatment methodologies from the *Myokinematic Restoration*, *Postural Respiration* and *Pelvis Restoration* courses**. Please refer to the example case study provided on page 7.

  In addition, evidence can be provided in the form of research or case studies authored or co-authored, in-service materials presented to staff or colleagues (include handouts, slides or outline), and other education materials you have developed based on PRI concepts.

  We encourage applicants to submit multiple forms of evidence.

- Please list your three favorite PRI non-manual techniques and explain why.

  (Consider the following when answering: What is the purpose of the technique? In your experience, what is the likely outcome of the technique? What techniques would you use before, after or even in the same program in conjunction with the technique? What cues

do you find helpful when instructing your patient? What patient diagnoses or objective test outcomes indicate that this technique is appropriate?)

- Please list your three favorite PRI manual techniques and explain why.

  (Consider the following when answering: What is the purpose of the technique? In your experience, what is the likely outcome of the technique? What techniques would you use before, after or even in the same program in conjunction with the technique? What cues do you find helpful when instructing your patient? What patient diagnoses or objective test outcomes indicate that this technique is appropriate?)

PART THREE (Critical Research Review)

- Please attach five articles supportive or related to PRI concepts and your interpretation of each article. The brief discussion (1-2 pages) should fully demonstrate your ability to integrate PRI concepts with current concepts in literature. (Please see example review provided on page 12.)

  Suggested journals:
  American Journal of Obstetrics and Gynecology
  American Journal of Respiratory Critical Care Medicine
  Behavioral Neuroscience
  British Journal of Sports Medicine
  Cephalalgia – An International Journal of Headache
  International Journal of Osteopathic Medicine
  Journal of the American Podiatric Medical Association
  Journal of Applied Biomechanics
  Journal of Applied Physiology
  Journal of Bodywork and Movement Therapies
  Journal of Clinical Pediatric Dentistry
  Journal of Geriatric Physical Therapy
  Journal of Hand Therapy
  Journal of Manual and Manipulative Therapy
  Journal of Neurobiology
  Journal of Neurologic Physical Therapy
  Journal of Neurology, Neurosurgery, & Psychiatry with Practical Neurology
  Journal of Neurophysiology
  Journal of Neuroscience
  Journal of Orthpaedic and Sports Physical Therapy
  Journal of Physiotherapy
  Journal of Science and Medicine in Sport
  Journal of Vestibular Research
  Manual Therapy
  Physical Therapy
  Physical Therapy in Sport
  Physiotherapy
  Physiotherapy Research International
  Physiotherapy Theory and Practice
  Spine
  Thorax – An International Journal of Respiratory Medicine

- Please list two or three ideas or suggestions for future clinical research or case studies based upon your review of current related research. This information assists with the future publication of PRI research and case studies.

PART FOUR: (PRI Advocacy)

Please answer the following questions:

- Explain your current professional situation. Are you currently using PRI concepts and techniques in clinical practice? In what capacity are you utilizing or integrating these PRI concepts and techniques? Are you involved in academia? If so, in what capacity? How are you able to integrate PRI concepts in the classroom?

- How have you promoted or recognized the Postural Restoration Institute®? Please provide evidence of this recognition or support. For example: Have you presented or coordinated in-services related to Postural Restoration Institute® concepts or techniques? How do you plan to further promote the Postural Restoration Institute® and be a catalyst in the future growth of the PRI approach?

Example: Clinical Case Study (Part Two)

Right Piriformis Syndrome

Initial Visit

Subjective:

Patient is a 32-year old female who presents to physical therapy with right buttock, hamstring and calf pain. She has seen her physician and has been diagnosed with a disc herniation at L4-L5. Patient reports her onset of symptoms occurred after a weekend of participating in a competitive volleyball tournament as a setter on the team. She reports that she experiences increased discomfort with prolonged sitting, standing and walking. She also experiences difficulty lifting her 2-year old daughter, sleeping and working full time at her desk job. Patient is currently scheduled to receive the 1st of a series of cortisone injections.

Past Medical History:

Past medical history includes chronic low back pain. She has received physical therapy from another facility but has not found relief from the treatments and the activities suggested by them have increased her symptoms. She has delivered one child vaginally and has had laparoscopic surgery to remove an ovarian cyst.

Objective:

	Left	Right
Adduction Drop Test	+	–
Extension Drop Test	– (snap)	–
SLR	60°	35°
Leg Rotation	8 inches	6 inches
FA IR	29°	43°
FA IR Strength	4- (TFL)	4 (TFL)
FA ER	56°	41°
FA ER Strength	4	3+
Hruska Adduction Lift Test	Not tested due to pain	Not tested due to pain
Standing Reach Test	16 inches	16 inches
Horizontal Abduction	0°	30°
Shoulder Flexion	130°	180°
HG IR	85°	70°
Elevated and ER Ant Ribs	yes	no

Assessment:

Patient was in significant pain during the evaluation. Difficulty was noted with gait and sit to stand transfers. Left AF IR is needed to get patient off of her right hip as well as inhibit her hip flexors and right gastroc. Patient demonstrates left iliofemoral ligament laxity and will therefore require left glute med activity.

Treatment:

1. *90-90 Hip Lift with Balloon*
    - Emphasis was placed on left AF IR and right ankle dorsiflexion to inhibit right gastroc and hip flexors.

2. *Right Sidelying Respiratory Left Adductor Pull Back*
    - Emphasis was placed on left AF IR to promote left ischial femoral ligamentous stretching.

3. *Sidelying Posterior Mediastinal Opening with Ipsilateral Iliacus and Psoas Inhibition*
    - Emphasis was placed on activation of left gluteus medius secondary to laxed iliofemoral ligament and inhibition of hip flexor activity.

4. PRI Positional Guidelines
    - Emphasis was placed on left AF IR with dynamic sit to stand transfers and positional AF IR with sitting and standing.

<u>Second Visit</u>
Subjective:
Patient reports that she received a cortisone injection to her right piriformis per her physician's recommendations and this aggravated her symptoms significantly. Her chief complaint today is pain in her right buttock region with radiating symptoms down the back of her right leg. Patient also reports that she is having difficulty feeling her left adductor with her home program.

Objective:

	Left	Right
Adduction Drop Test	+	–
FA IR	27°	31°
FA ER	50°	40°
SLR	40°	40°

Assessment:
Patient is lacking left AF IR and posterior mediastinal opening with thoracic flexion. She still needs inhibition of hip flexors, right gastroc, inferior glute max and right adductor magnus to help promote left AF IR.

Treatment:
1. *Prone Inferior Glute Max, Adductor Magnus and Quadratus Femoris Stretch*
    - Emphasis was placed on mediastinal flexion and inhibition of her right piriformis.

2. *Seated Adductor Left Pull Back with Right Trunk Rotation*
    Emphasis was placed on left thoracic abduction and mediastinal flexion by having her place her left forearm on her left thigh. Instructed the patient to dorsiflex her right toes to inhibit her right gastroc and to press her left thigh down into toweling to activate her left glute med with IR vs. her TFL.

3. *Active Left Ischial Femoral Ligamentous Stretch with Adduction*

    - Emphasis was placed on right ankle eversion to inhibit right adductor magnus and promotion of left thoracic abduction and activation of left gluteus medius to assist with "feeling" her left adductor.
4. Continue *Sidelying Posterior Mediastinal Opening with Ipsilateral Iliacus and Psoas Inhibition*

Third Visit

Subjective:

Patient reports that the pain in her right leg is less intense. She states that she has cancelled all future appointments for cortisone injections.

Objective:

	Left	Right
Adduction Drop Test	–	–
FA IR	41°	40°
FA ER	55°	55°
SLR	75°	40°
Hruska Adduction Lift Test	2+	2+

Assessment:

Patient requires integrated activity between her right glute max and left adductor as well as upright frontal plane activation of her left quad with her left adductor and right quad with right abductor. The patient was started on an upright program with only 2+/5 Adduction Drop Test scores secondary to inhibition of her piriformis, hamstring, calf, and adductor magnus and for promotion of proprioceptive left AF IR.

Treatment:

1. *Standing Supported Left AF IR*
    - Emphasis was placed on inhibition of her right adductor magnus, hamstring, and piriformis and also to promote frontal plane control.

2. *Standing Supported Right Squat with Left Hip Approximation*
    - Emphasis was placed on integration of right glute max and right quad with left AF IR and FA IR control.

3. Continue *Seated Adductor Left Pull Back with Right Trunk Rotation*
    - Emphasis was placed on left medial hamstring and left glute med with integration from her right quad.

Fourth Visit

Subjective:

Patient reports that she has minimal pain and some days she has no pain. She hasn't experienced any radiating pain down the back of her right leg. She reports having one day of increased pain after shopping all day but found relief with her home program.

Objective:

	Left	Right
Adduction Drop Test	–	–
FA IR	41°	40°
FA ER	57°	58°
SLR	80°	55°
Hruska Adduction Lift Test	3	3
Passive Abduction Test	–	+
Standing Reach Test	10 inches	10 inches

Assessment:
Patient requires advancement of left squat activity to promote upright left AF IR with mediastinum/thoracic flexion. Also discussed with patient the need for proper footwear and she plans on purchasing a new pair of shoes.

Treatment:

1. *Standing Un-Resisted Wall Ischial Femoral Ligamentous Stretch*
    - Emphasis was placed on paravertebral inhibition and mediastinal opening.

2. *Standing Supported Left Squat Lateral Dips*
    - Emphasis was placed on frontal plane control and inhibition of right adductor magnus.

3. *Standing Supported Left Squat with Right Glute Max*
    - Emphasis was placed on left AF IR and FA IR control with FA ER control on the right.

4. Continue *Seated Adductor Left Pull Back with Right Trunk Rotation*
    - Emphasis was placed on strengthening the right quad and inhibition of her right calf.

<u>Fifth Visit</u>
Subjective:
Patient reports no pain during normal activities of living but slight pain with higher level activities. Patient purchased new shoes and states that these have helped as well.

Objective:

	Left	Right
Adduction Drop Test	–	–
FA IR	40°	40°
FA ER	59°	58°
SLR	85°	85°
Hruska Adduction Lift Test	4	4
Hruska Abduction Lift Test	5	4-
Standing Reach Test	0 inches	0 inches
Passive Abduction Test	–	+

Assessment:
Patient needs more right abduction with right glute max in the sagittal plane.

Treatment:

1. *Standing Supported Right Squat with Left Glute Med and Right Trunk Rotation*
    - Emphasis was placed on right quad and right glute max control. The patient needs to learn how to fire her right quad with terminal knee extension vs. her right calf. She also needs to learn how to push off with control of her right glute max and right quad.. Left glute med emphasis secondary to patient's iliofemoral ligament laxity.

2. *Standing Unsupported Right Squat with Resisted Left Hamstring and Right Trunk Rotation*

3. Continue *Standing Supported Left Squat with Right Glute Max*

Sixth Visit

Subjective:

Patient reports no pain with activities of daily living. She states that she started running again and did experience mild aggravation. She was able to relieve this by completing her home exercise program.

Objective:

	Left	Right
Adduction Drop Test	–	–
FA IR	41°	43°
FA ER	59°	57°
SLR	85°	85°
Hruska Adduction Lift Test	5	4+
Hruska Abduction Lift Test	5	4+
Standing Reach Test	0	0
Passive Abduction Test	–	–

Assessment:

Patient needs increased pelvic floor stability and strength. She needs to maintain left AF IR to keep her left pelvic floor "open" and her right glute max to "close" her pelvic floor on the right.

Treatment:

1. *Standing Supported Upright Left Squat Lateral Dips*
    - Emphasis was placed on advancement of squat program to promote frontal plane control, left glute med and inhibition of right adductor magnus.

2. *Standing Unsupported Left and Right Lift with Right Trunk Rotation*
    - Emphasis was placed on sagittal plane control with right quad and right glute max.

3. *Retro Walking*
    - Emphasis was placed on dynamic standing control with integration of sagittal, frontal and transverse plane. Bilateral hip shifting was emphasized to promote increased pelvic stability.

Example: Critical Research Review (Part Three)

Title:
Respiratory Effects of the External and Internal Intercostal Muscles in Humans

Complete Reference:
Wilson TA, Legrand A, Gevenois PA, De Troyer A. Respiratory effects of the external and internal intercostal muscles in humans. J Physiol. 2001;530:319–330.

Article Summary:
The purpose of this paper was to study the theories of Hamberger (1749) which stipulated that the external intercostals have an inspiratory effect and the internal intercostals have an expiratory effect. In this study, various techniques were used to study the function of the intercostals, including studying muscle orientation in cadavers, dissecting and weighing intercostals in a cadaver, CT scans of healthy individuals to determine the position of the ribs while breathing. This information was integrated to determine the mechanical advantage and the potential effects of the muscles on the lung.

PRI Clinical Application:
Before this study, it has already been determined that the parasternal intercostals (internal intercostal muscles) elevate the ribs causing an inspiratory effect. The results of this study showed that external intercostals have a total inspiratory effect. They have their greatest inspiratory effect in the 2nd dorsal interspace and this effect decreases as you move caudally and ventrally, so much so that the ventral 6th and 8th interspaces were found to have an expiratory effect. If all of the external intercostals are contracting simultaneously upon inhalation, could the expiratory effect of the ventral, dorsal intercostals be trying to assist the IO's and TA's in maintaining a zone of apposition? The ventral caudal external intercostals contract to maintain a zone of apposition for the diaphragm while the dorsal rostral external intercostals contract to open up the apical chest wall to increase chest volume and inspiratory effect. To confirm this assumption I would need more information on the innervation pattern of the external intercostals. If they contracted simultaneously my assumption could be correct.

The findings for the internal intercostals were that the majority of their mass was found ventrally, however there was little difference in mass between interspaces. The internal intercostals have the greatest mechanical advantage in the ventral caudal interspaces. The internal intercostals were found to have an expiratory effect.

If all intercostals muscles were to contract maximally the internal intercostals would have an expiratory effect throughout the ribcage, whereas the external intercostals would only have an inspiratory effect in the upper 6 interspaces. In a L AIC, R BC the R external intercostals from T8 (possibly T7) and up are in a lengthened position such that with the pump handle action of the upper 6 ribs (there is also some bucket handle motion at these ribs, but less so) the sternum and manubrium will not be elevated and pulled forward so it will have a tendency to deviate to the left. Also in a L AIC, R BC, R

TMCC there is a tendency towards a L anterior rib flare and a R posterior rib hump. The L anterior rib flare can be explained by a decreased expiratory effect caused by a short static L internal oblique a long phasic external oblique and ventrally lengthened internal and external intercostals.

Other interesting facts from the study were the weight distributions between some of the costal respiratory muscles. The combined weight of the external intercostals is 104g, internal intercostals is 70g, parasternals is 16.5g and the triangularis sterni is 10g. The internal intercostals were found to have 15x the expiratory effect of the triangularis sterni.

PRI Clinical Limitations:
My biggest gripe with this study is that with the CT scans, subjects were asked to maintain a constant lung volume with a closed glottis. I believe that if you are going to study how the intercostals move the ribs, the glottis should have been open so that the diaphragm and the intercostals maintained the rib expansion, rather than have the ribs maintained in passive expansion with a closed glottis. My other gripe is that the subjects were respiratory physicians who would have been almost overly aware of how they were breathing. A better group might have had less conscious respiratory experience.

In this study as in all other studies on intercostals that I have found, there is no mention of the innermost intercostals. I have not figured out why they are neglected.

By Oliver Hall, PT