

Accessing the Centre:
Complementary Conditioning & Somatic Wellness
for Competitive Irish Step Dance
by
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A Bound Document Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Fine Arts

Approved November 2012 by the
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ARIZONA STATE UNIVERSITY

December 2012

ABSTRACT

This thesis examines the integration of somatic principles into Irish Step Dancing. The researcher conducted a twelve week case study that explored how utilizing the Centre-line Support System in training competitive Irish Step Dancers, through integrating Alexander Technique and Bartenieff Fundamentals of Total Body Connectivity can generate increased height and efficiency in jumping and an improvement in upper-body carriage, while longitudinally reducing the occurrence of over-use injuries. Research occurred between January and March 2012 in Tucson, Arizona and Dublin, Ireland. Additional research and reflection occurred in Belfast, Glasgow, and London, United Kingdom; Limerick, Cork, and Galway, Ireland; Amsterdam, The Netherlands; Chicago, Illinois; Phoenix, Arizona; and Los Angeles, California.

DEDICATION

To those that supported me through every step of the journey and helped to guide me to finding my own centre, I would be lost without you to anchor me. Thank you!

ACKNOWLEDGMENTS

This thesis would never have been written without the help of the following:

Brian & Catherine Buck for your continual and unconditional love and support, always!

Pegge Vissicaro, Naomi Jackson, Kristin Hoffner for the incredible support as my thesis committee and mentors

Taryn, Sunshine & the whole Howells family for your hospitality, support, inspiration, perspiration, and faith in my research

Trude Cone, John Cullinane, Becky Dyer, Kathleen Maguire-O'Shea and the Maguire family, Christopher Miller, as well as so many others for the knowledge you shared, your inspiration, encouragement, and support at various points along this thesis journey

The Maguire Academy of Irish Dance

TABLE OF CONTENTS

Page

LIST OF TABLES.....	vii
LIST OF FIGURES	vii
PREFACE.....	viii
CHAPTER	
1 IRISH STEP DANCE.....	1
Background.....	1
Aesthetic & How it Leads to Injury.....	3
2 THE CENTRE-LINE SUPPORT SYSTEM.....	9
Background.....	9
Physiologically	9
Somatically.....	14
3 SOMATIC INFLUENCES.....	17
What is Alexander Technique?	17
What is Bartenieff Patterns of Total Body Connectivity?	19
4 RATIONALE FOR DESIGN OF THE CLSS.....	22
Rationale From Personal Experience	22
Summary of Previous Studies in Irish Dance.....	25
Hypothesis	29
5 METHODOLOGY	31
Framework.....	34
Delimitations	36

CHAPTER	Page
5 METHODOLOGY	31
Assumptions	38
Limitations.....	38
6 DESCRIPTION OF SESSIONS	41
7 ANALYSIS	45
8 DISCUSSION.....	48
Subsequent Program Revisions	48
What Did Not Work.....	57
Recommendations for Future Study	58
References	61
 APPENDICES	
A 12-week Accessing the Centre-Line Program	63
B 9-Week Accessing the Centre-Line Program	67
C Quantitative Data Results	81
D Qualitative Data Results & Session Notes.....	85
E Pre-session Examination	98
F Initial Inquiry-Preceding Study	101
G Letter of Consent	109
H Child Assent Form	115
I IRB Exemption Email	118
J Glossary of Gaelic Terms	120
Biographical Sketch.....	123

LIST OF TABLES

Table		Page
1.	Ease vs Height	46
2.	Relax vs Control	47

LIST OF FIGURES

Figure	Page
1. Dancer on stage at the World Championships 2012	2
2. Dancers on stage at the All Ireland Championships 2012.....	3
3. Dancer standing in first position	4
4. Dancer standing in first position as viewed from the side	5
5. Dancer demonstrating over crossing.....	5
6. Dancer demonstrating over crossing as viewed from the side ..	6
7. Dancer high on toes at Celtic Harvest Festival 2010.....	6
8. Light Shoes	7
9. Heavy Shoes.....	8
10. Sketch of the CLSS	10
11. Five points of the CLSS in the body.....	13
12. Dancer pointing toe, ready to dance	23
13. Dancer performing “rocks”	28
14. Subject working on Purple Sacrum Ball	33
15. Subject applying Core-Distal Patterns to Reel	34
16. Dancer Leaping at the All Ireland Championships 2012.....	49
17. Dancer Leaping at the World Championships 2012	49
18. Sketch of Lemniscates	53
19. Subject conducting self-designed experiment	54

PREFACE

The impetus for this thesis is rooted in my experience and passion for Irish Step Dancing and somatic practice. As a dancer, I was highly competitive. At an early age I began competing at regional, national, and world levels. Despite the attempts of the teaching staff to warm up/cool down and condition the dancers, I found myself coping with frequent injury.

Eventually, I discovered a lot of relief to the pains and strains of dancing in Pilates and yoga. This is where my exploration into somatic practices began. Following an unfortunate biking accident, I began to explore new methods and patterns for executing daily activities. I was forced to find different ways to sit down and stand up and eventually this changed how I looked at my movement habits as a dancer. This experience laid the foundation for what emerged as the focus of this thesis.

In returning to competitive Irish Step Dance after over a decade, and most significantly after studying several different movement disciplines and various somatic practices (that will be outlined later in this thesis), I discovered that the aesthetic desired in competition could be reached without me falling into the same patterns of movement and subsequent injury from my previous experiences. In this way, Irish Step Dance became the platform population and medium for my thesis exploration.

Chapter 1

IRISH STEP DANCE

BACKGROUND

Irish Dancing is an ongoing practice that, for some, culminates the performance of a given competition. One of the main aims in Irish Dance is competition. The ritual of practice and preparation is conducted over and over again with the hope of obtaining the winning prize.

Irish dancing is many things: a social network, a cultural form, an expressive practice, an individual achievement, a family investment, a ritual drama, a national symbol, an endless series of entertaining events, and one of the most extraordinary and highly developed dance forms in the contemporary world. (Hall, 2008, p. 4)

Irish Dance's existence within a competitive framework creates a degree of variance between the preservation of tradition and the progressive aesthetic of a contemporary context. This dynamic is both a point of pride and contention within the community. For the purpose of my study, it is the contemporary aesthetic, as governed by *An Coimisiun le Rinci Gaelacha* (see Appendix J), which will be at the heart of the inquiry. More about this will be described later.

The term *Irish Step Dancing* encompasses seven different dances: Reel, Light Jig, Single or Hop Jig, Slip Jig, Treble Jig, Hornpipe, and Set Dances. Each dance has distinct styles, music, and origins. There are two

basic divisions: (1) light or soft shoe, and (2) heavy or hard shoe. The first is reminiscent of ballet in its lightness and execution. Dancers skip, leap, and turn, while dancing high on their toes. The latter is reminiscent of tap dancing as it is percussive and rhythmic, but still involves much of the same leaping and jumping as in the light shoe dances. Much can be said about the historic and national identification of this dance form, but little of it is relevant to this particular inquiry. What is pertinent is that Irish step dance is a progressive dance form that exists mainly within a competitive framework. As a consequence, certain styles, steps, and aesthetic changes have emerged as popular – rewarded with winning prizes – and the denouement is a progressive aesthetic within the dance form. This contributes greatly to the extremeness of the aesthetic and subsequently intensity of the training.

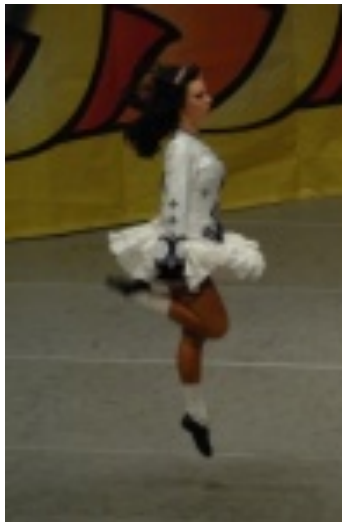


Figure 1 - Dancer performing light shoe round at the World Championships 2012 (Belfast, United Kingdom); photo courtesy of Feispix



Figure 2 - Dancers waiting on stage to dance the heavy shoe round recall at the All Ireland Championships 2012 (Dublin, Ireland); photo courtesy of Sunshine Howells

AESTHETIC & HOW IT LEADS TO INJURY

Irish Step Dance is marked with a very distinct aesthetic. Feet are to be turned out and crossed, over the medial line of the body (see Fig. 5 and 6), and dancers are to balance on their toes, as high on the big toe as possible (see Fig. 7). This distribution of weight puts significant strain onto the toes, ankles, knees, hips, and lower back of the body. The arms are placed at the sides, shoulders drawn together towards the spine (see Fig. 3 and 4). Hands are held loosely in a fist and expected to remain stationary. The head is balanced on the top of the body and moves with the body as one unit. Unlike many forms of dance, Irish Dance does not allow spotting, or the turning of the head to mind balance while spinning. The chin is held high and the dancer's face should appear pleasant.

The most striking feature of Irish dancing for many people is the posture, a ‘contradiction in terms’ the held upper and moving over halves of the body. This is a defining feature of the form, and rarely fails to raise comment among first-time observers. (Hall, 2008, p. 13)

Once the dancer begins her routine, she maintains this posture while dancing, leaping, and beating the floor.¹ The dancer travels quickly across the stage, changing direction quickly and gracefully; all the while, the upper-body remains still. The legs and feet move wildly and tirelessly in dramatic juxtaposition to the stillness of the upper body. The dancer is expected to be aggressive yet graceful, expressive yet controlled, and perform exhaustingly difficult material with a sense of ease. Ideal posture is both relaxed and energized, with no movement of the upper body while achieving extreme height in jumps in both the soft and hard shoes.



Figure 3 - Dancer standing in first position. Feet are turned out, arms held to the side. 2012 (Tempe, Arizona)

¹ Both men and women participate in Irish dance, and there are some differences in which dances are performed by each gender, but for simplicity’s sake, the feminine pronouns will be used herein to refer to the dancer. The somatic principles apply equally to both.

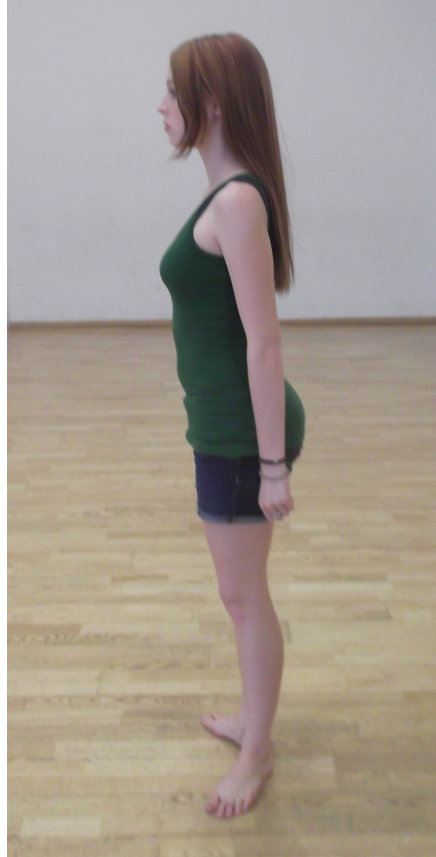


Figure 4 - Dancer standing in first position as viewed from the side. 2012 (Tempe, Arizona)



Figure 5 - Dancer demonstrating the expected over-crossing. 2012 (Tempe, Arizona)

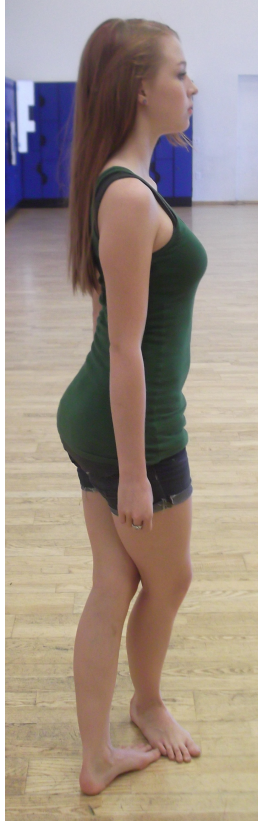


Figure 6 - View of the overcrossing from the side. 2012 (Tempe, Arizona)



Figure 7 - Dancer performing at the Celtic Harvest Festival 2010 demonstrating dancing high on the toes (Sedona, Arizona); photo courtesy of Mic Croitoru

The shoes worn provide various degrees of support. The light shoe is akin to a ballet slipper (see Fig. 8). Made of a soft leather it laces up the top and provides some support to the arch of the foot when dancing and can provide some assistance in standing high on the toe. Over the last decade there have been some advancements in the ergonomics of the design, most notably the addition of padding under the ball of the foot, but the shoe remains relatively unchanged. The heavy shoe is akin to a tap shoe, in some ways, but has minimal support for the arch or top of foot when dancing or standing on the toes or *en pointe* (see Fig. 9). Additionally, little advancement in the design of the shoe has occurred in the last decade. One company, Ryan and O'Donnell, did premier a shoe in the summer of 2012 with an ergonomic approach to increasing shock absorption (reducing the shock transferred into the body) and attempted to provide more support and stability in the design of the shoe. From my experience, this lack of support only augments the risk of injury already set down by the aesthetic.



Figure 8 - Soft Shoes or Light Shoes, aka "Ghillies"; Photo courtesy of ReelAngelGirl 2006 license by Creative Commons



Figure 9 - Hard Shoes or Heavy Shoes; Photo courtesy of ReelAngelGirl 2006 license by Creative Commons

Training requires the frequent repetition of movements that make up the routine, and this creates wear on the joints and predisposes the dancer to overuse injuries. Dancers practice the same routine, or “steps” for months at a time in preparation for a competition. Additionally, the dance form is highly right dominant. Steps always begin with the “right foot” then are repeated on the reverse side. Often one side is worked more than the other, however unintentionally.

The aesthetic demands, minimal support from the shoes, frequent repetition, right dominance, and other reasons to be outlined in Chapter 2 were the motivating factors for designing a training practice that reduces the risk of injury while encouraging improved performance. The central idea behind designing the training practice is the Centre-line Support System.

Chapter 2

THE CENTRE-LINE SUPPORT SYSTEM

BACKGROUND

In 2011, I developed the idea of the Centre-line Support System (CLSS) as an adaptation from the pathway research of Irmgard Bartenieff and F.M. Alexander (both explained later in this chapter).

The CLSS, a system for understanding and improving individual movement performance, in regards to this thesis refers to two things:

- 1) Physiologically: The medial neuro-muscular pathway from the big toe, up through the inner leg, through the hip flexors and pelvic floor, into the core, and interdigitated into the diaphragm, with the head balanced on top
- 2) Somatically: The notions of bringing oneself to the 'centre' to recognize, relearn, and reflect on ones patterns and habits in addition to understanding the centre as relational, unfixed, and mutable

CENTRE-LINE: PHYSIOLOGICALLY

Physiologically, the centre-line extends through the medial vertical of the body. Beginning with the point of contact with the floor, the big toe, it continues up through the musculo-skeletal structures of the body into the psoas². From here the bifurcation merges in the pelvis and the support

² The psoas is a hip flexor that connects the thigh to the spine by tracing over the pelvis.

system of the lower legs becomes interwoven into the core and eventually the diaphragm. The head balancing unencumbered on top of the structure completes the pathway of the centre-line (see Fig. 10).

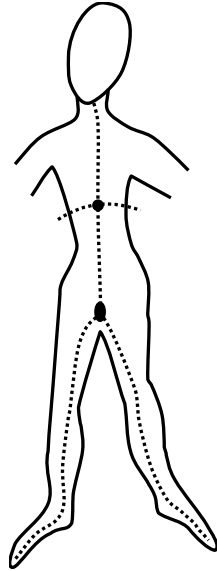


Figure 10 - Sketch of CLSS from thesis notes; digitization courtesy of Brian Buck

Various different fields of study define the core differently. In an anatomic perspective, the core is defined as four muscles located in the abdomen: (1) rectus abdominis, (2) external oblique, (3) internal oblique, and (4) transversus abdominis. These four muscles work both cooperatively and independently. Most fascinating is how, as Nancy W. Dail, Timothy A. Agnew, and R. T. Floyd explain in their 2011 text, *Kinesiology for Manual Therapies*, the transversus abdominis interdigitates with fibers of the diaphragm. This is key because it demonstrates the direct connectivity between the abdominals and the breath cycle (more on the importance of this will be explored later).

Serge Paolette (1998), renowned French osteopath explains that the iliopsoas additionally interdigitates with the diaphragm at the twelfth thoracic vertebrae connecting the breath cycle to both the upper half of the body and the lower half – connected by the transversalis fascia (1998). This is significant because it demonstrates a direct connection between the lower body to the breath, and more importantly it shows the connection between the CLSS and breath. More on this is described in Chapter 8. This connection is key in the work of Irmgard Bartenieff (explained in Chapter 3) and proved to be a main focus in the inquiry of this thesis. It is for these reasons, that I extend the definition of core to include the psoas and the diaphragm.

Five Points of the CLSS in the Body. These points are the guideposts for the medial neuro-muscular pathway. Their interplay, relationships between themselves, the internal, and surrounding support system create the foundation for matrix thinking and moving. Careful attention should be brought to these points during the various session topics.

1) Big toe

Activation of the big toe into the floor stimulates a neuromuscular pathway in our innate core-distal patterning that allows us to access the support of our core.

2) Psoas/Pernineum

While distinctly two different parts of the body, the relationship and joint of these two fascial structures are significant.

3) Diaphragm

“The diaphragm represents a continuation between the fasciae of the base of the skull, the neck, and the thorax, and those of the abdomen. It is a relay point and an important shock absorber (Paoletti, 1998, p. 83).”

4) Head

The relationship of the head to the body and to the surrounding space demonstrates a readiness to action. A simple action is always initiated by a thought.

5) Space around the body

A centre can only exist as a result of surrounding space. Therefore, attention to what is around oneself is necessary to access the centre.

5 Points of CLSS in Body

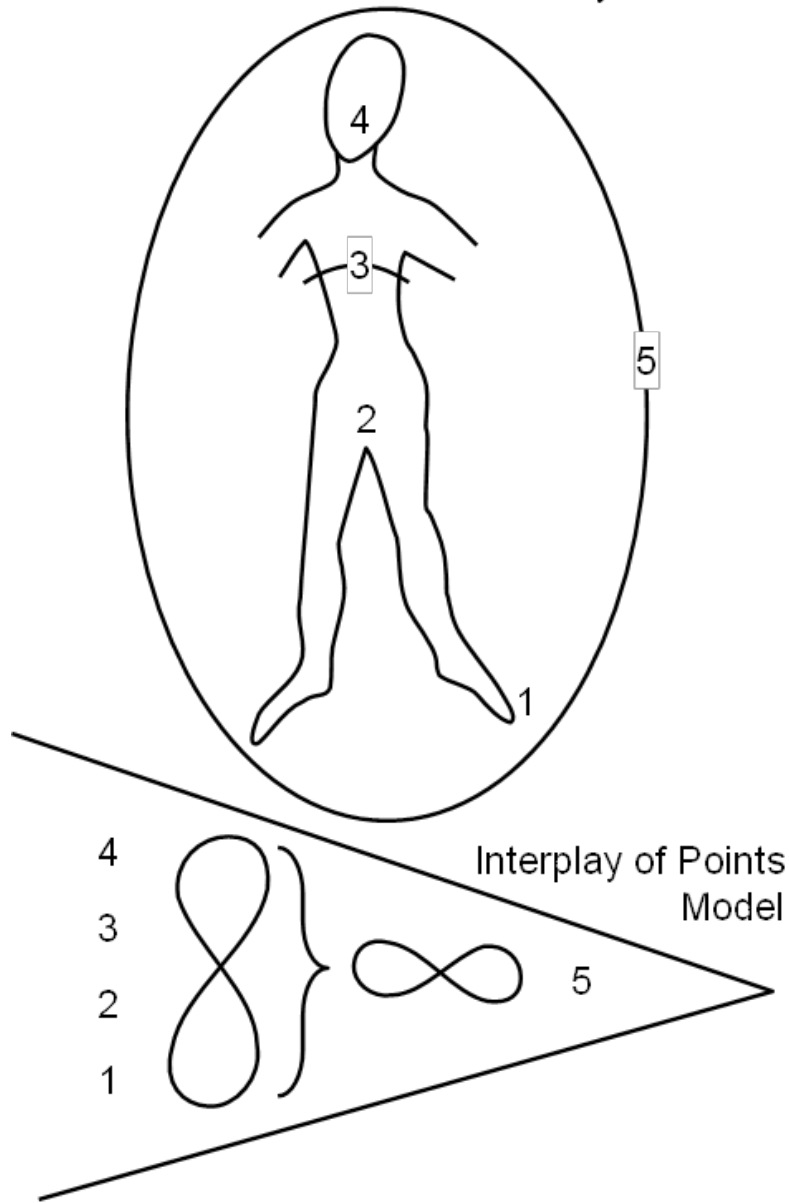


Figure 11 - 5 Points of the CLSS in the Body from the reflection notes taken (London, United Kingdom) after the research trip through various cities in Ireland and Amsterdam, The Netherlands; digitization courtesy of Brian Buck

CENTRE-LINE: SOMATICALLY

The CLSS in terms of a psycho-somatic approach addresses the mind-body as a whole, paying close attention to the power of thought and neuroplasticity. Dr. Norman Doidge (2007) explains how without surgery or medication, the brain is capable of reorganizing itself.

[Neuroplasticity] renders our brains not only more resourceful but also more vulnerable to outside influences. Neuroplasticity has the power to produce more flexible but also more ridged behaviors – a phenomenon I call ‘the plastic paradox.’ Ironically, some of our most stubborn habits and disorders are products of our plasticity. Once a particular plastic change occurs in the brain and becomes well established, it can prevent other changes from occurring. It is by understanding both the positive and negative effects of plasticity that we can truly understand the extent of human possibilities. (p. xx)

This suggests that neuroplasticity has the potential for humans to relearn, repattern, and consciously develop habits, movements, and traits. The autonomic responses developed through life (like how to sit or how to stand) can be re-patterned in our brains. For the terms of this thesis, new approaches to movement execution can be learned and experimented with, offering a wealth of possibility, as Doidge suggests.

As Becky Dyer stated in 2009 in her article, “Once knowledge is achieved, the ‘known’ becomes a habitual process (p. 28).” This is to say that once something is learned, it becomes a pattern in the brain. Without conscious intention, these patterns can function autonomically. Through the process of reflection, examination, and experimentation, these autonomic patterns—also referred to as neuro-muscular pathways—become intentional and chosen, rather than unintentional and assumed.

It is relevant to consider one’s previous background in designing a system that responds to the ways people learn and know. Penny Hanstein expands upon the notion of ‘knowledge’ by suggesting that dancers concern themselves with three differing aspects of knowledge

Knowledge is a process of inquiry leading to understanding of one’s body and oneself. *Knowing how* requires the development of skills which involves the shaping of habitual patterns and approaches to moving. *Knowing that* necessitates reflection and articulation of ‘objects of knowledge’ (Dyer, 2009, p.28).

The application of knowing how is the common understanding of knowledge within dance: learning a technique. Knowing that is demonstrated through teaching. But, knowledge is a process, rather than a destination. Here is how accessing the centre-line is not simply a kinesiological and somatic exploration, but also a reflection upon self as one constructs a unique epistemology. The two main influences to the

Accessing the Centre-line training practice are Alexander Technique and Bartenieff Fundamentals of Total Body Connectivity.

Chapter 3

SOMATIC INFLUENCES

The following techniques represent the base materials that were synthesized, unified, and extended to create my approach developed within this thesis. For the purposes of this thesis, somatics is defined as the practice(s) of coming to know the body/mind, and subsequently the self. Important to the practice is the process of reflection and self-discovery.

WHAT IS ALEXANDER TECHNIQUE?

Alexander Technique is based upon the research and practice of F.M. Alexander (1869–1955). An actor who struggled with chronic laryngitis, Alexander discovered his solution through the releasing of body tensions by the power of thought. He began by observing himself reciting and “realized that he had several unconscious beliefs about his body (Vineyard, 2007, p.8).” He found that his thoughts about his speaking influenced how he in fact spoke. This notion is central to the work of Alexander.

A change in the way one thinks about movement can elicit a physical change. He found that in freeing ourselves of our inhibitions and patterned responses that we find new ease of movement.

The Alexander Technique is a method that works to change (movement) habits in our everyday activities. It is a simple

and practical method for improving ease and freedom of movement, balance, support and coordination. The technique teaches the use of the appropriate amount of effort for a particular activity, giving you more energy for all your activities. It is not a series of treatments or exercises, but rather a reeducation of the mind and body. The Alexander Technique is a method that helps a person discover a new balance in the body by releasing unnecessary tension. It can be applied to sitting, lying down, standing, walking, lifting, and other daily activities...
(<http://www.alexandertechnique.com/at.htm>)

The principles of Alexander Technique became foundational as a methodology for examination within my thesis. The first principle in Alexander Technique involves the neck and head. Freeing of the head is achieved through wish or will. By using thoughts to ask my neck to relax, it does. This seems rather simple, and really is. The trick, as Alexander says, is remembering to ask the question. Leading with the head, the way that a child does naturally, we discover more efficient ways to move. Much of Alexander is about relearning. Our bodies are intelligent and have excellent memories, so we carry patterns of movement with us—often without our awareness. Therefore, central to the work of Alexander is providing the space for relearning, removing our inhibition towards new patterns, and willing them to happen by the simple act of thought.

WHAT IS BARTENIEFF PATTERNS OF TOTAL BODY CONNECTIVITY?

Irmgard Bartenieff was a student of the renowned Rudolph von Laban, whose studies of human movement inform this research. Laban, a dance artist and theorist, divided up the organization of the body into six patterns. Bartenieff expanded upon Laban's work regarding the body's organization and connections. Laban's six patterns in the organization of the body are: (1) Breath, (2) Core-Distal, (3) Head-Tail, (4) Upper-Lower, (5) Body-Half, and (6) Cross-Lateral.

Laban is known mainly for his movement notation system. As Carol-Lynn Moore wrote about Laban in 2011, his reputation was not based upon his skill as a dancer or the choreography he made. His contributions to dance and movement studies were more ideational. Laban gave us a way to look at movement, to discuss, analyze, and study phenomena in a more tangible manner. From this foundation, Laban's student Bartenieff further developed the six principles of body developmental patterns.

Bartenieff, a dancer, choreographer, and physical therapist that developed Laban's theories concerning human relationships to the environment, looked at how the body develops sequences and patterns.

Some patterns, such as the primitive reflexes, righting reactions, equilibrium responses, and the tendency to progress through stages of movement development...[that] are built into our neuromuscular systems. Other patterns

come through habits we chose later on in life. (Hackney, 2002, pg. 13)

Bartenieff observed that dancers generally do not understand how to provide support from their internal core to facilitate "fluid muscular sequencing, weight shift and three-dimensional movement (Geber & Wilson, 2010, pg. 53)." To paraphrase, the dancers may understand the steps but not the initiation or proper means for control. While the goal of Bartenieff was to, "facilitate a lively interplay of Inner Connectivity with Outer Expressivity to enrich life (Hackney, 2002, pg. 34)," rather than to instruct dancers how to gain increased control over their movement and core support, her work does assist in accomplishing this as a goal. This is one of the foundational reasons for incorporating Bartenieff's work with fundamentals into my thesis project.

Hackney (2002) also discussed how through executing neuromuscular sequences the neuromuscular system developed habitual firings of various pathways. These automatic responses, patterns, cycles, and conditioning, without conscious intention, are involuntary. Through repetition, conditioning, and the creation of habits or familiarity we establish these autonomic response. Careful examination and intentional conditioning of these neuromuscular pathways and autonomic responses could permit re-patterning to occur. More on this will be discussed in later chapters. Without the process of reflection, examination, and experimentation, these cycles remain involuntary.

The initial twelve-week program tested in this study was structured off the six patterns of organization Bartenieff described. Two weeks were spent on each of the six patterns of organization. More details pertaining to this will be explored in Chapter 5.

Chapter 4

RATIONALE FOR DESIGN OF THE CLSS

RATIONALE FROM PERSONAL EXPERIENCE

With over two decades of Irish Dance training, competition, and teaching, I observed gripping and contracting in the shoulders, arms, wrists (particularly on the left side), rigidity in the upper body, and clenching in the butt muscles. The tension seen, and experienced, within the left arm begins with the initial pose and continues through the movement, particularly exaggerated in leaping and jumping. I observed dancers jerking their arms about as they approached a leap (something counter to the aesthetic of a still upper carriage) and frequently saw bobbing of the upper body and head that appeared to be reactionary to the movement executed. This suggests that competitive Irish Dancers execute their routines with a surprising lack of medial/core support. From these observations, other concerns outlined in Chapter 1, and through my own experiences and observations of my own tendencies, I drew the conclusion that there was a need for a complementary conditioning program for competitive Irish Step Dancers. This was then supported by several research studies that will be enumerated later in this chapter.

Dialogues with dancers in Phoenix and Tucson, Arizona; Dallas and Houston, Texas; New York, New York; and Chicago, Illinois, USA; Limerick, Ireland; and London and Glasgow, United Kingdom, as well as research gathered on trips to Anaheim, California, USA; Glasgow, Belfast,

and London, United Kingdom; and Dublin, Ireland, demonstrated that there is an epidemic of overuse injuries in young dancers (specifically ages 12–18). An inability to support oneself through one's core can cause a plethora of avoidable injuries. Injuries based upon overuse, misuse, and incorrect use can be prevented through a system of more embodied care.

Most dancers, including myself, have hip pain, ankle strains, sprains, and breaks. In my case, I suffered from bursitis and eventually a stress fracture in my femur and stress fractures and ripped ligaments in my ankles. Knee and back injuries are also incredibly common. From the conversations with dancers and my own experience, stress fractures, strains, sprains, acute pain, and lower back pain were among the chief complaints of dancers. This is supported by the research conducted by Doody and McGuinness in 2004 and will be explained in detail later in this chapter.

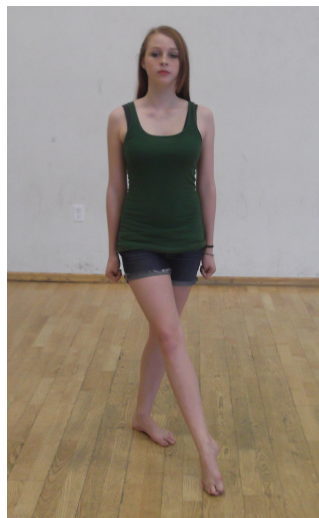


Figure 12 - Dancer demonstrating the starting position. 2012 (Tempe, Arizona)

As discussed in the first chapter, aesthetic demands of Irish Dance predispose dancers towards many overuse injuries. Over-crossing puts strain on the knees, hips, and lower back which can result in sprains, strains, stress fractures, and acute pain. This position and the extent of the turn out in the feet encourage a lateral support system. In conjunction with the stillness of the upper body, the arms often take over as the primary stabilizer. Additionally, the starting position of the dancer is standing turned out, on the left leg, while pointing the right leg in front and across the body (see fig. 12). This tends to create a shortening in the quadratus lumborum (or lower back), hiking the hip up and pulling the left shoulder down. That supporting pattern is seen carried through the execution of steps (which, as mentioned in Chapter 1, are also very right-side dominant).

I found that by utilizing the CLSS and through incorporating Alexander Technique and Bartenieff Patterns of Total Body Connectivity, my ability to achieve the aesthetic of Irish Dance became easier in my own practice. I felt less strain, pain, and experienced less injury. Starting with the simple notion of changing the way I thought about Irish Dance allowed me to break free from many patterned responses and behaviors that were at one time integral to my Irish Dancing and allowed me to build new neuromuscular pathways and patterns while still achieving high ranking placement within competition.

By maintaining and accessing a strong medial-support system I was able to increase my ease and efficiency of leaping and jumping, and maintain the ideal upper body aesthetic of relaxed yet still. Jill Green of the University of North Carolina at Greensboro suggested in 2002 that somatic modalities, such as Alexander Technique and other active modalities, could assist in the release of excess muscular tension and re-pattern the nervous system. The Accessing the Centre program pays attention to initiating movement from the CLSS and the means by which the nervous system is reeducated.

It is problematic that Irish Dance adheres to a very strict aesthetic. One of the risks of changing movement habits is the possibility that the aesthetic of Irish Dance could be modified. While this is not the goal in proposing a new training system, it is a potential outcome.

Much of the traditional pedagogical praxis in Irish Dance is imitation, or more specifically, learning by watching the community. Little education regarding proper warm up/cool down or care specific to Irish Dance is taught within the community. Additionally problematic is the lack of scholarly research regarding conditioning and healthy practice specific to this dance form.

SUMMARY OF PREVIOUS STUDIES IN IRISH DANCE

Donna McGuinness and Catherine Doody of the University College Dublin, Ireland conducted a study of 159 competitive Irish Dancers at the

North American National Championships in 2004. The study showed that 32% of all injuries in Irish Dance are ankle-related. Additionally, the study found that 25% of injuries were located in the foot, and 12% in the hip. The study concluded that there is a lack of empirical study in this type of dance and the researchers encouraged further investigation into training and injury prevention within Irish Dance.

What McGuinness and Doody's study did demonstrate was that by changed footwear and more shock absorbing floors, less impact and subsequent injury occurred. This study did not look at training methods currently being utilized versus complementary conditioning programs that could prevent these injuries. Despite the fact that the study did not explore training methods, it did report that dancers using a warm up program had a decrease in injury rates from 60% to 20%.³ This was a large motivating factor and a grounded launch point for the research conducted in my study.

In 2009 Susanne Cromie, Julian G. Greenwood, and John F. McCullagh of Stranmillis University College in Belfast, United Kingdom performed a study to see if Irish Dance training influenced lower-limb asymmetry. Of the 100 dancers surveyed 99 of them preferred to step up with their right, as opposed to 62 of the 100 non-dancers surveyed, 99 dancers preferred kicking with their right as opposed to 80 of the non-dancers, and 98 dancers preferred to hop on their left leg as opposed to 53 of the non-

³ These results were reported by professional dancers (dancers performing in shows) rather than competitive dancers.

dancers having the same preference.⁴ While the study was limited to exploring only four tasks, the study concluded, “the rigidity of the Irish-dance form has influenced the choice of lower-limb for the four tasks in this study” (p. 504). This supports the assertion that Irish Dance has a propensity towards right dominated movement.

A study conducted at Cappagh National Orthopaedic Hospital in Dublin, Ireland in 2009 stated, “Irish dancers land from jumps with an extended knee and plantar flexed ankle, and frequently perform on their top tips and metatarsal heads, predisposing to recurrent stresses (p. 3).” Excessive landing on the ball of the foot without releasing the heel into the ground shortens the Achilles tendon and puts excessive strain on the legs causing tendonitis, sprains, strains, cartilage damage, shin splints, and broken bones. These types of injuries are avoidable. The article also suggested that incorporating conditioning and stretching into the training program might benefit the population.

Certain movements which are unique to Irish Step Dancing place additional demands on the dancers’ body that generate increased potential for injury. James Shippen and Barbara May of Coventry University in the United Kingdom conducted a study in 2010 that examined the muscle loading and joint contact forces an Irish Dancer endures while executing the ‘rock step’ (see Fig. 13).

⁴ The dancer’s preference to hop on the left leg is likely due to the fact that it is the supporting leg when executing kicks or stepping up. Although, this study did have a majority of right handed participants (as determined by the participants writing their name to determine their ‘handedness’), the right side preference in dance tasks was not limited to the right handed participants.

The rock is a step unique to Irish dance, where the dancer synchronously inverts and everts both ankles while on the balls of the feet so that one ankle is pushing the other ankle and the dancer rocks from one hallux to the other hallux.

(ibid, p. 14)

The study concluded that while performing a “rock,” the ankle contact forces were 14 times the body weight of the dancer. Shippen remarked that this level of force on the ankle is equivalent to the load pulled by a fighter pilot, but by the dancer’s feet. In an interview published to the blog of Coventry University’s Industrial Design school, he remarked, “if you were subjected to 4.5G long term, you would be at great risk of blacking out...obviously, Irish dancers are doing it in short bursts.” This force is quite extreme and puts an incredible strain upon the body.



Figure 13 - Dancer performing a rock on stage at the All Ireland Championships 2012 (Dublin, Ireland); photo courtesy of Feispix

The study also stated, “there is little evidence in the literature that Irish dancers or other contemporary dancers engage in training regimens designed specifically to develop the muscular strength and endurance that might help reduce the risk of injury (ibid, p. 15–16).” Because of the unique demands Irish Dancing places on the dancer’s body, it was paramount that the design of the program focused on and addressed the peculiarities and defining aesthetic factors of Irish Dance.

HYPOTHESIS

These aforementioned factors informed the design of my investigation, which involved developing a training program and methodology that focused on accessing the centre-line support system (CLSS). The measurable outcomes of the study were:

- 1) Increased height in jumping/leaping while maximizing efficiency of movement,
- 2) Reduction of excess and lateral tension in the body, and
- 3) Improvement in the relationship between stability and relaxation in the upper body carriage.

In an attempt to accomplish the overall goal of designing a program that would longitudinally reduce the occurrence of overuse injury, each session had sub-objectives that directly correlated to the session’s topic.

The first, and most prominent avenue of exploration was the role, function, and execution of breath (further explanation regarding this can

be found in Chapter 5). From there, each session explored different neuro-muscular and autonomic patterns; each having individual sub-objectives to also augment the encompassing hypothesis.

Because of these changes, the intent was to see a longitudinal effect of reduction the occurrence of overuse injuries, although it was not measured in this study. If my hypotheses are supported, I believe in the future there may the potential for many champion Irish Dancers to enjoy longevity of performance, increased ease and efficiency in leaping/jumping, and a reduction in avoidable injury.

Chapter 5

METHODOLOGY

I conducted a case study with one champion Irish Dancer following the twelve-week Centre-Line Support System Exercise Program (see Appendix A). The program was structured by spending two weeks exploring the six patterns of organization that was outlined by Bartenieff. The first week was intended to mainly study the pattern and the second week mainly focused on application of the topic into Irish dance. Principles of Alexander Technique were applied to the approach to movement and exploration. One of Alexander's core ideas was the notion of relearning and this was the foundational idea that led to the 3-R system used in this thesis. A further description of this system will be outlined later in this chapter. It should be noted that mixed methods were used as a strategy to provide balance between the somatic inquiry and scientific facets of the inquiry. I chose to integrate the grounded elements of quantitative research with qualitative methods likened to somatic research.

The launching point was the collaborative exploration of five questions of inquiry all around activating centre-line support systems. The subject answered the initial five questions that served as the basis for the independent movement exploration experiences and provided answers throughout the session period. The questions were modeled off an initial inquiry that preceded this thesis (see Appendix G). The questions were intended to determine the perceived areas of tension within the subject's

body and to track when and where tensions occurred, and if they increased or diminished throughout the study. Each answer was coded either with a rating scale of 1-10 or with classifications relating to locations within the body.

1. Neck and Shoulders
2. Right Arm and Wrist
3. Left Arm and Wrist
4. Chest
5. Hips and Butt
6. Upper Leg
7. Lower Leg
8. Ankle
9. Feet and Toes
10. Other

The subject and I each wrote our reflections on the sessions, which were later reviewed and reflected upon again. The survey was filled out each month throughout the process to gather more objective data. The quantitative results can be viewed in Appendix C and the qualitative reflections of the sessions can be found in Appendix D.

The dancer was chosen on a volunteer basis from the Maguire Academy of Irish Dance in Tucson, Arizona. She and I then followed a twelve-week plan structured from the Bartenieff Fundamentals of Total Body Connectivity (See Appendix A). Each week, the subject warmed up, using the outlined warm-up, performed a series of re patterning exercises, and then explored the concept of the week before cooling down and finishing. We worked one-on-one in private sessions, conducted movement experiences, and looked at how the five questions of inquiry could be applied to and embodied in her Irish Dance practice. The use of balls, blankets, yoga blocks and mats, and other props were utilized to create tactile feedback for the subject (see Fig. 14). Once the session topic was

explored, the subject experimented with integration and application of the topic into Irish Step Dancing (see Fig. 15). Video recording and reflective writing from all parties were acquired as documentation.



Figure 14 – Subject explores body half and cross lateral pathways while accessing breath and releasing the psoas on the purple sacrum ball 2012 (Tucson, Arizona)



Figure 15 - Subject applies Core-Distal patterning work into her reel 2012 (Tucson, Arizona)

In addition to answering the five-question survey every month, the process included observing movement, discussing movement and sensation, and participating in movement experiences that involve the use of imagery, stretching, balancing on balls, and some physical exercises. A full account of the exercises conducted within the study can be found in Appendix A. The study commenced in January 2012 and lasted for 12-weeks. The Institutional Review Board at Arizona State University determined this study was exempt from further review (see Appendix H-I).

FRAMEWORK

The exploration followed the 3-R system of knowledge gathering as follows:

- 1) Recognize: Identify the body/mind patterns, acknowledge, and accept.
- 2) Reflect: upon these patterns, their efficiency, and determine if they are autonomic or conscious.
- 3) Relearn: Discover new ways to activate within the body/mind.
Synthesize and create new neuro-muscular patterns.

I developed this system in 2010 after studying the work of Alexander. Inspired by the notion of removing the inhibition, the 3-R system was designed as a threefold method towards general knowledge gathering and was applied to my project as a framework for examination.

The daily sessions were modeled and constructed based on this system (i.e. look at one's own habit, consider it, and look at new ways to do the same thing). After the twelve-week session concluded, the system underwent some major revisions, including a revision of the 3-R System. These and other changes will be outlined further in Chapter 8.

The Five Questions. As explained earlier, the subject answered a questionnaire at regular intervals throughout the session. These questions were designed to measure the progression of subject's perception of the program's hypothesized goals.

- 1) Where are you sensing places of pain, tension, or weakness in your body?

- 2) When jumping and leaping, what parts of your body do you feel engaging/supporting/activating?
- 3) When jumping and leaping, rate your sense of ease vs. height
1 being ease/10 being tense or painful
1 being low height/10 being high height
- 4) When dancing, how would you rate your upper body posture?
1 being relaxed/10 being tense
1 being uncontrolled/10 being very controlled
- 5) In daily activities (sitting and standing, walking, etc...) do you sense the same pains or tensions in your body?

The questions regarding daily activities was used to judge if tension was resultant of the dance practice or ongoing due to other causes.

DELIMITATIONS

The delimitations of the study were that the participant be female, between the age of twelve and seventeen, and be competing at least at the preliminary championship level.⁵ As stated before, I observed the peak age of champion Irish Dancing is between 12 and 17 as a result of the time it take to progress to a champion level and because in North America, dancers tend to fall out of practice upon entering university. For this reason, I chose to work with an adolescent in this age group to explore the benefits of this proposed research. Because of the differing styles between

⁵ There are several levels of Irish Dancing, beginning with *bun grad* or Beginner level and they advance from there up to *ard grad* or open prizewinner level. These are considered the 'grades' level of solo competition. When a dancer has met the regional requirements to move into the championship level of competition, then there are two championship levels available to the dancer: Preliminary and, the more advanced, Open Championship.

the genders in Irish Step Dancing, I wanted to maintain consistency between my own knowledge and experience and that of the subject's. Additionally, the majority of dancers are female and the styles of dance differ between genders, so I chose to work with a female subject. This was to maintain consistency from my own experience to that of the subjects. The decision to work with a preliminary or open championship level dancer was made because I was also training as an open champion level dancer and had experimented with the training regimen on myself. In the future, it would be interesting to explore the effects of the Accessing the Centre-Line program on younger and beginner level dancers.

The program was designed to be twelve weeks long. This delimitation was determined by the structure and intention of the study. Two weeks were to be spent on each of the six Bartenieff principles, the first week introducing the principle, the second exploring and applying the principle.

Additionally, I chose to accept the limitations and goals of the aesthetic of Irish Dance, as currently practiced within the *An Coimisiun* competitive platform. The goal of the thesis was not to challenge what is currently expected, but rather to find new – safer and more efficient – methods with which to achieve the said aesthetic. While there are other governing bodies with competitive platforms, each with a degree of variance in aesthetic, *An Coimisiun* is the platform that I competed within, am a certified instructor, and am therefore the most familiar. It should also be noted that

in North America it is the most common platform for Irish Dance competition.

ASSUMPTIONS

In undertaking this inquiry, I assumed the participant had a working knowledge of Irish Step Dance and had achieved a certain level of competency through their champion status. I had the assumption that within our sessions together, the participant was fully honest in their responses and not withhold information that either supports or defies my goal with the study. Similarly, I am assuming that I, through my twenty years of dance and the recent study of somatic practices (specifically Alexander Technique and Bartenieff Patterns of Total Body Connectivity) that I possessed enough knowledge to be able to conduct an inquiry within the framework I have set. I assume that my personal embodied experience and knowledge allowed me to be able to interpret and disseminate the information gathered through my case studies.

LIMITATIONS

With somatic work, there is an emphasis on efficiency of movement and personal experience; and with Irish Step Dancing there is an emphasis on the aesthetic. This presented a potentially problematic conflict.

It should be noted, though, that potential problems can arise when somatics, or even science, influences aesthetics to the exclusion of other

factors. For example, movement efficiency is considered a central theme of somatics and can be an area of emphasis in dance science courses.

However, aesthetic range immediately decreases if efficiency becomes the primary goal of movement. Perhaps a more appropriate term than "efficiency" would be ease or "movement effectiveness" using only the desired amount of force for a specific aesthetic. Since so many young dancers tend to overwork their musculature, understanding how to reduce the expenditure of force to what is minimally needed might offer a broader range of choices. The dancer may realize that the muscular tension she was holding onto was really a product of habit rather than choice, and thus be able to distinguish between desired muscular effort and excessive work (Gerber & Wilson, 2010, p. 54).

The goal of my study was to achieve more efficiency of movement from the subject while adhering to the aesthetic of Irish Step Dance. I attempted to maintain a level of impartiality in my exploration, but at various times might have been unsuccessful. As her one of teachers, I still struggled with the goals for her success within the Irish Dance world.

It should be additionally be noted that the results were based upon self-reported perception from the subject. For example, the objective of increased height was objectively assessed.

Between session four and session five, the subject was diagnosed with a hip injury. She had partially dislocated her femur from her acetabulum, which led to some disintegration of the bone in the hip socket. The cause

was diagnosed as inappropriate stretching and warming up in her previous training. After speaking with the supervising physiotherapist and discussing my research project and the previous training, the program was determined not to be the cause, and that the study could continue after a suspension for a few weeks. There was a month-long hiatus between session five and session six.

As a result, several amendments had to be made to the program. Application to full movement had to be excluded from the process while the subject was healing and due to her injury and more emphasis was placed on relearning how to use the hip joint. The strengthening and conditioning regiment was kept the same with the omission of the cardio warm up (as the subject was not able to run or jump). By session nine, the subject was able to begin dancing again, and the full body movement application was reintroduced.

Sessions ten, eleven, and twelve were combined into one session in order to complete the research before my seven week research trip to Ireland, England, and The Netherlands. I determined that a two month suspension of the study would be more detrimental than combining the last three sessions. This decision was based upon the experiences of the first nine sessions, the injury of the dancer, and the concern that too much elapsed time would compromise the sessions.

Chapter 6

DESCRIPTION OF SESSIONS

The following is an excerpt from the initial observations of the subject, T.⁶

Having watched T dance many times, I observed that she uses her eyes to stabilize herself and grips tightly in her shoulders. She is an Open Champion level dancer in the U14 category (in 2012). She has limited flexibility and mobility in her ankle and complains of popping and dislocation in her hips and ankles.

After recapping the questions, I placed T on the purple ball and prompted her to find her balance and explore her support systems. Purple ball under sacrum: *“I feel like I’m leaning.”*

I asked her to imagine sand pouring out through her sitz bones, which caused her psoas to release and relax. As she released her psoas on the ball, she remarked, *“It felt easier.”*

From there I added the small grey ball between her knees and asked her to lift up her legs. She couldn’t lift her legs. I asked her where in her body she was stabilizing. She told me that her arms were supporting her. I asked her how this relates to her dancing and she explained that she also uses

⁶ For the sake of confidentiality, the subject will be referred to as T rather than by her name.

her arms to support her dancing. I asked her from where she should try to support. She said her abs.

I then explained to her that her quad or thigh is not meant to lift the leg rather that it is the job of the psoas. She tried again. *“I started using my abs instead of my arms,”* and she lifted her legs (see Appendix D for more session notes and descriptions).

Each session began with a warm up. The first five to seven minutes consisted of a cardio warm up that incorporated running, jumping jacks, and other cardiovascular activities. Following the cardio warm up, a stretching and conditioning routine was executed that lasted approximately ten minutes (more details about the warm up can be found in Appendices A and B). The goal of the warm up was to raise the heart rate, warm up the body, and prepare it for more rigorous movements. Additionally, taking the time to go through a warm up offers a transition for the mind from the outer world, into the work of the studio. Because the aesthetic of Irish Dance is very specific, the warm up activates both the similar and the contrary movements. Twisting in the core and use of the arms are two examples of the contrary movements incorporated within the warm up.

Then a series of neuromuscular re patterning exercises (see Appendix A) were executed to reinforce accessing support through the CLSS and to augment the achievement of the aesthetic of turn out and

crossing. These exercises were conducted slowly and methodically. The first exercise was:

Step Together: R Leg crosses medial line and L same. Toes touch on the 'together' portion. Repeat on L.

This exercise draws attention to the medial neuromuscular pathway and activates the CLSS through attention to breath and the contact of the big toe to the floor. The exaggerated position both alleviates lateral support and supports the over crossed aesthetic of competitive Irish Dance.

The sessions involved a segment where the topic goals were integrated into the execution of Irish Step Dancing. For example, after exploring breath patterns, the subject experimented with applying the concepts gained into her reel. More discussion about this session can be found in Chapter 5. Each session was concluded with constructive rest and reflective writing to document the progress and revelations made.

In order to accomplish the goals of the various session topics, a variety of tools were used. Yoga mats and Mexican healing blankets were used to lie out on for warm up and floor work. Various sized balls and yoga blocks were used for tactile aid, support, and feedback. (One of the balls used can be seen in fig. 14). A variety of movement scenarios, facilitations, and explorations were conducted to experience the topics of each session.

In session four, we explored the action of rising up onto the ball of the foot or toes while exploring the topic of core-distal patterning. The goal was to minimize the dependence on external or lateral support (in the case

of the subject we were looking to reduce her dependence on her arms, wrists, shoulder/collar-bone, and gluteal muscles). She observed herself inconsistently distributing her weight between her two feet while performing the *toe-raise*.

I feel lopsided; the core is what keeps me stable & straight.

When I don't use my core, I tense my butt (see Appendix D for more session notes).

While the subject stood with her feet in a neutral position spaced about an inch apart, I placed small balls between the subject's big toes, ankles, knees, and inner thigh. These balls provided tactile feedback while the subject repeated the *toe-raise*. Drawing the attention to the medial line of the body, the subject attempted to support using the CLSS, rather than her arms, wrists, shoulders/collar-bone, or gluteal muscles. After experimenting a few times with the balls, I removed them and asked the subject to do the *toe-raise* again. She was able to maintain the same alignment and medial support. More about the individual session topics and the activities in each session can be found in Appendix A.

Chapter 7

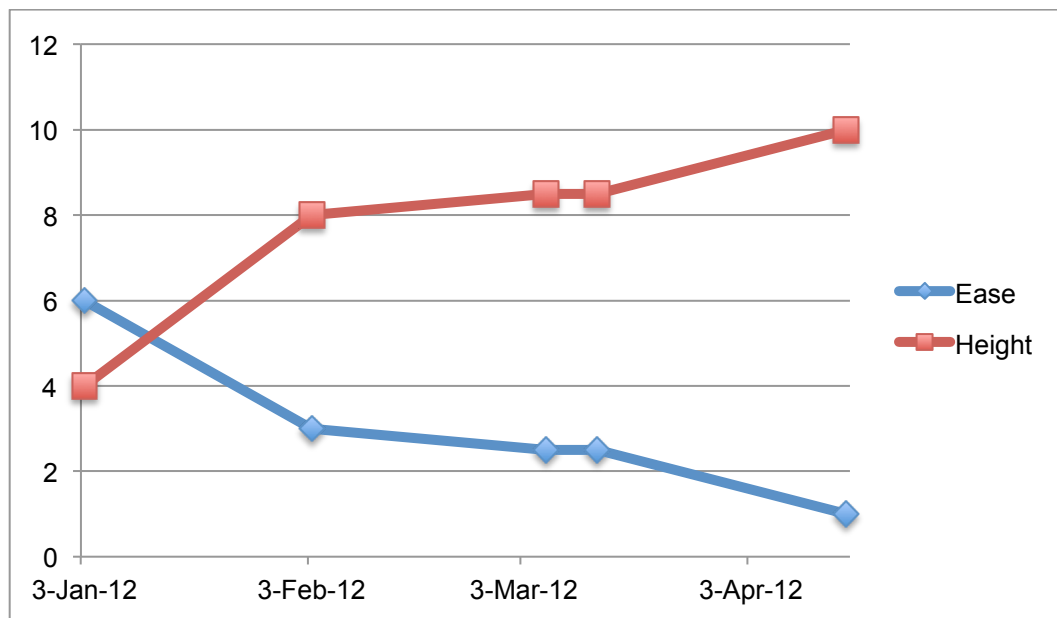
ANALYSIS

I found that integrating the somatic principles of Alexander Technique and Bartenieff Fundamentals of Total Body Connectivity in a complementary conditioning and training program, that the aesthetic and technique of Irish Step Dance can be achieved with more ease, efficiency, and reduced injury. The subject experienced a reduction in pain and tension in her dancing while discovering new ways to increase height in her leaps, access stability and support through her core, and improved carriage (see Appendix C). There was a marked improvement in the perceived ratings for increased leaping height/ease and upper body carriage controlled/relaxed (see Tables 1 and 2). This was determined based on answers given by the subject on the questionnaire at various points in time during the process. As described in Chapter 5, result gathering incorporated both qualitative and quantitative assessment.

My hypothesis predicted three things: (1) ease of leaping and jumping while increasing height, (2) reduction of lateral tensions, and (3) ease of stability while improving upper body carriage. In the first survey, taken on 3 January 2012, the subject rated the ease with which she performed jumps and leaps as a six (one signified easy and ten tense or painful). She also rated her height as a four (on being low and ten being high). In the second survey, taken on 3 February 2012, the subject reported a drastic change in her perceived ratings. She rated her ease at a three (one being

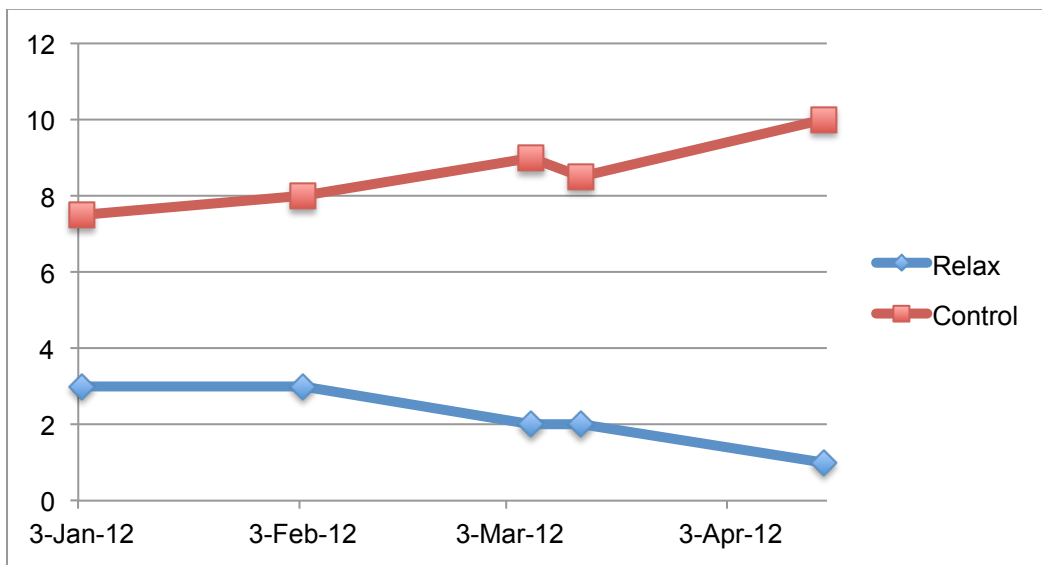
easeful and ten being not easeful) and the height at an eight (one being low and ten being high). By the completion of the program, she was reporting the ease at a one and her height at a ten (see Table 1 and Appendix C). The drastic change in the initial ratings could be a result of drawing attention to the ease and height of leaping, but I believe that the subject matter covered largely influenced the change of rating.

Table 1 - Perceived Ease vs. Height



In regards to measuring relaxation of the upper body as compared to control of the upper body, the subject initially reported a rating of three for relaxation (one being relaxed and ten being tense) with a rating of seven and a half for control (one being uncontrolled and ten being very controlled). At the end of the sessions, the subject reported a relaxation rate of a one and a controlled rate at a ten (see Table 2).

Table 2 - Perceived Relaxation vs. Control



The expected and measurable outcomes of the project were: (1) an increase in height in leaping and jumping while simultaneously finding more ease and efficiency (measured as perceived improvement), (2) reduction of excess tension and, (3) increased stability in the upper body carriage with improvement in posture. The tables demonstrate changes in the subject's perception of the hypothesized outcomes were accomplished by the study.

Chapter 8

DISCUSSION

SUBSEQUENT PROGRAM REVISIONS

After the completion of the twelve-week program, I spent some time in Limerick, Ireland; London, UK; and Amsterdam, The Netherlands reflecting upon my research. Each location provided me with new perspectives and reflections upon the process I had just experienced. One major change involved shortening the program to a nine-week plan.

Breath emerged as a prominent and influential element through the research process, so I chose to keep breath as the foundational element. As predicted in the goals of the individual sessions (see Appendix A), I found that my subject did not access her breath fully when dancing. As the foundation for movement and the core access to the CLSS, this is paramount as the first element to examine. Improper use of the breath leads to: (1) quick fatigue, (2) rigidity of movement and excess tension, (3) difficulty executing technique, (4) inefficiency manifested in low jumps and utilization of lateral support, and (5) inability to engage through the CLSS.

It is significant that the psoas interdigitates with the diaphragm. When performing a leap, the front leg is brought up at a 90-degree angle in front of the body while the rear leg is tucked in so that the heel is touching the butt (see Figure 16 and 17). As the psoas' function is to lift the leg, and the psoas is connected to the diaphragm, timing of inhalations and exhalations

become integral to efficiency in leaping. If the dancer exhales just before commencing the leap, the diaphragm – which is contracting as it pushes the air from the lungs – pulls on the psoas, and triggering a pathway response that aids in the lifting of the leg.

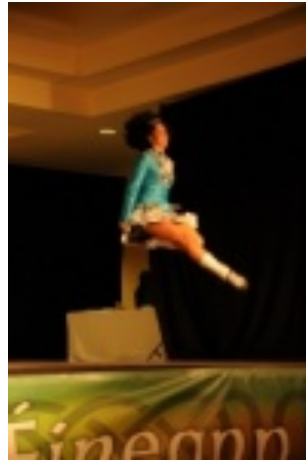


Figure 16 - Dancer performing a leap at the All Ireland Championships 2012 (Dublin, Ireland); photo courtesy of Feispix

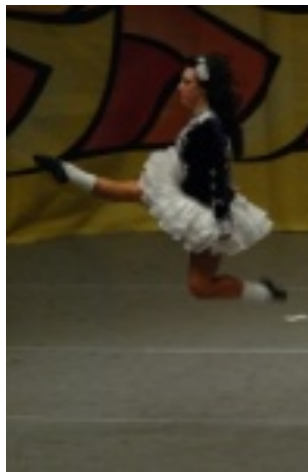


Figure 17 - Dancer performing a leap at the World Championships 2012 (Belfast, United Kingdom); photo courtesy of Feispix]

Within the session, we explored three types of breath: (1) low belly breath, (2) high chest breath, and (3) lateral breath. Initial observations of

the subject's breath were that she filled her lungs at the mid point first, then preceded to high chest breathing while holding in her abdominal muscles. The subject responded to the first prompt to breath into the lower portion of the lung by saying that it was "easier, more air, natural." When prompted to breath by expanding into the top parts of the lung, the response was, "sucking in, hard." The subject found the notion of lateral breathing, or filling in the sides of the lungs to be "weird." After the second session focusing on breath, she went home and wrote the following reflection:

"I feel like with the stomach breathing Helen taught me I can jump higher and easier. I find that it is easier to breathe and I don't feel as tired after I dance even if I had given it my all. I find myself trying to breath with my lower lungs now instead of my upper like I was before. It's sometimes hard to remember to breathe while I'm dancing, but I hope and I do it more often it will become easier." (See Appendix D for full session notes.)

The subject did choreograph her breath into her dances and observed more efficiency as a result.

"Reel: every jump in the lead around I with exhale on the and one two switch one twos I with inhale. On the turn I will exhale and on the one twos before it I will inhale. This will be the same for all jumps and turns in the reel. I will

also exhale on the swizzes in the third step and exhale on the entrechat.”

From my time spent working in Amsterdam with Trude Cone, I began to look at breath as an exchange rather than an action. This became significant as I started to explore additional forces of organization on the body. Irish Step Dance has a predominant vertical patterning with much attention to front to back, top to down, and right to left dimensionality. Of the Bartenieff Fundamental Patterns, breath, core-distal, and upper-lower (although mainly the pathway ran lower activate while upper stabilizes) emerged as patterns inherent in the existing training of the Irish Dancing body.

After the research was completed, I spent some time in Amsterdam, The Netherlands, working with Trude Cone and her coaching method called *Moving Thought*. While I worked with Trude Cone, I began to discover that there are forces that underlie even the patterns of breath within my own body, and likely that of other Irish Dancing bodies. I chose to incorporate one week of exploring the seven forces of organization as defined by Jaap van Waal: (1) Periphery to Centre, (2) Back to Front, (3) Top to Down, (4) Right to Left, (5) Inside to Outside, (6) Far to Close, (7) Crosslateral as a way of strengthening the underlying patterns inherent in the educated Irish Dancing body.

Bartenieff Fundamental Patterns for Total Body Connectivity look at the connections of our body from birth to adulthood, but; if we go further back

into our development we find that growth and development begins as an embryo. In our sessions, Cone explained that Jaap van Waal teaches that we grow from periphery to centre; that is to say that our fingers grow before our arms and our capillaries are formed before our heart. Our centre is only defined by the periphery of our space. The CLSS functions similarly to overlapping lemniscates. This evokes the notion of interplay or a continuum, similar to the infinity symbol. The first lemniscate exists between the self and the surrounding world; the second runs along the vertical axis of the body with its intersection point between the psoas and the diaphragm; and a third that latches on the surrounding space and itself (see Fig. 17). These lemniscates run in all directions throughout the body and about the body. These various “poles” as Cone refers to at the ends of the lemniscates, help define the positive and negative space that we occupy. The intersection points of these various lemniscats are all the same, yet they are mutable, relational, and unfixed. Like the plastic potholder looms from our childhood, we latch on to the hooks of our periphery to define the unknown and potential of the centre.

Paradoxically, the centre between us and the space occupies the sameness of the centre within our body and the sameness as the centre of the periphery defined. Through our defining of the periphery, the centre becomes defined and discovered.

This notion of the centre being unfixed challenged my previous understanding and definition of centre. This revelation gave new light to the research and became a major factor in the program revisions.

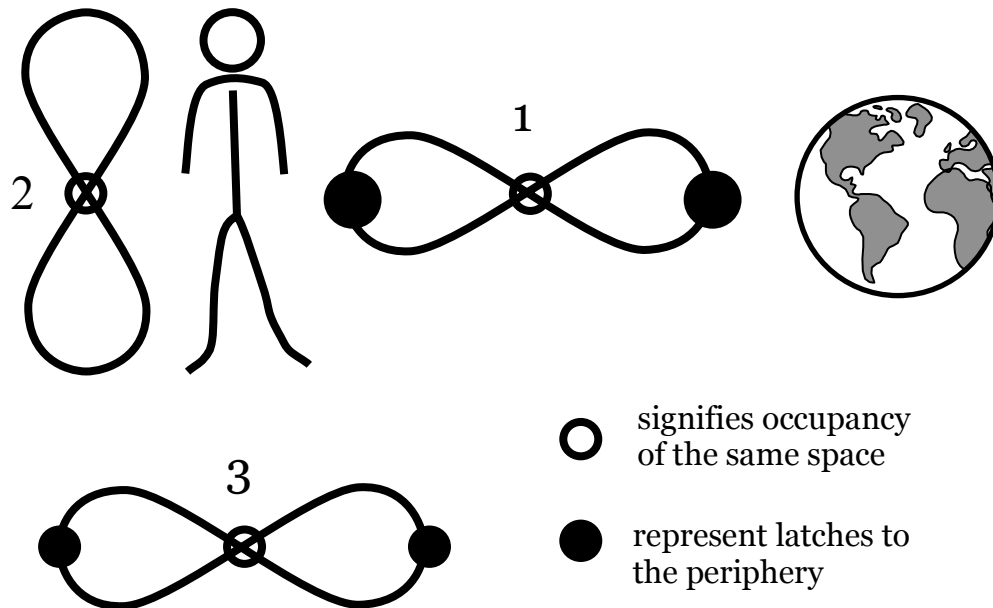


Figure 18 - Sketch of lemniscates

What was interesting in reflection was that within the initial research sessions there was attention given, albeit unintentional, to the periphery and its relationship to centre. In session four, Core-Distal, the subject constructed an experiment (see Fig. 19). The initial query was “what do we gain by differentiating core from distal?” The subject then designed the experiment, hypothesis, and methodology:

My hypothesis is when I use my distal to fill my shoes with my feet I will be able to make noise on the trebles instead of just hitting the floor with hollow shoes.

The following are the three ideas she intended to explore in order to achieve her hypothesis.

- 1. Engage distal while stabilizing core.*
- 2. Think about feet*
- 3. Think down so my feet go down and hit floor while engaging my core so my body and carriage stays up.*

She then proceeded to experiment with the three ideas. By embodying the ideas, she put on her heavy shoes and performed a series of trebles. She and I both wrote down our observations to compare. The following are the results:

- 1. Engage distal while stabilizing core: It seemed louder. Trying to feel my toes*
- 2. Think about feet: thinking about feet helped, but engaging was better*
- 3. Think down so my feet go down and hit floor while engaging my core so my body and carriage stays up: Front foot louder – Rhythm more solid & drum like, This is what I'm going to do. They all work, but that one is really nice.*



Figure 19 - Subject conducting self-designed experiment in use of Core-Distal to increasing the volume of sound in her 'trebles'; 2012 (Tucson, Arizona)

Her post experiment reflection:

So my experiment went as I thought it would. All the things I thought would work did. The best one was thinking that I had feet, remembering it. I know it sounds like a silly concept but it worked. The next time I danced at class I even sounded louder!

Self-reflection and self-discovery are important elements of somatic practice, and this experiment highlights the valuable role that somatic inquiry played in the thesis process. This particular exercise of a self-designed and hypothesized experiment will remain a part of the revised nine-week program.

Additionally important to my thesis process was reflection. The subject and I wrote regular reflections, and after the completion of the process, I continued to reflect upon the data gathered. These reflections were both solo and through dialogue with other practitioners. Through dialogues with Trude Cone and my own experiences conducting the three months of research, the three-step methodology was revised. It was determined that experimenting on different methods of activation within the body/mind before reflecting upon it better facilitated the process of relearning. The reflection process tends to put a stop on learning in the sense that the focus reverts to past actions, rather than focusing in on the now and the action. The new model looks as such:

- 1) Recognize: Identify the body/mind patterns, acknowledge, and accept.
- 2) Relearn: discover new ways to activate within the body/mind.
Synthesize and create new neuro-muscular patterns.
- 3) Reflect: upon these patterns, their efficiency, and determine if they are autonomic or conscious.

Dialogue based reflection and collaboration was not initially part of the framework for inquiry, but it resulted naturally and was extremely helpful for the final dissemination of the research. The continual cycle through the 3-R System provided insight and breadth that would have otherwise not been achieved.

During the sessions of inquiry, due to various factors articulated in Chapter 4, the last two sessions topics were combined. Body-Half and Cross-Lateral. Upon reflecting upon this, I determined that the subject was able to compare and contrast these two patterns when explored simultaneously and rather than keep the topics separate. Many of the exercises to access these patterns are similar (see Appendix A and B) so I chose to combine the topics in the revised program. As the previous patterns became reinforced through subsequent sessions, T took to new concepts much faster than earlier in the sessions. This led to the decision to combine Body-Half and Cross-Lateral into one week of exploration in the revised program.

WHAT DID NOT WORK

In session 3, Core-Distal, we explored the core by means of the rooting reflex and digestive tract. While the results were very interesting, they did not contribute anything significant to the accessing of the CLSS.

Other things I found ineffective were the structure of the sessions. It was not that the elements themselves were ineffective, but rather the rigidity with which I intended to uphold them was problematic. This concern about the apparent contradiction between somatic inquiry and scientific inquiry was a point of struggle throughout the process. Integral to somatic inquiry is permitting things to rise to the surface as they emerge within the sessions. I chose to have a hypothesis for my thesis in order to have guide-posts along the way and keep the sessions. As discussed within Chapter 5, mixed methods of inquiry were chosen for this thesis, but not without awareness of the potential incongruities.

Circumstances caused me to have to amend the structure on the fly as injury, illness, or various other issues arose. The fixed structure of conducting the warm up, followed by the four NMR Exercises (see Appendix A), exploring the topic of the session, applying the topic of the session, then finishing with constructive rest became more of a guideline than it did an actuality. Permitting the sessions to be structured more somatically, gave more individual attention and importance to the subject, rather than the study goals. It was unclear to me at the time, but in reflection I feel that was the correct choice. In adhering to the strict

structure, I was allowing for fewer study variables, but simultaneously disregarding the most important element of the study: the subject.

RECOMMENDATIONS FOR FUTURE STUDY

This study was an initial exploration of the twelve-week training program. As articulated in Chapter 5 and earlier in this chapter, many revisions to the program occurred as a result of reflection on the process and its results. From the various studies conducted previous to this inquiry (as described in Chapter 4), the need for developing and testing a conditioning program was made apparent. It is recommended that the revised nine-week program (see Appendix B) be tested with a larger and more diverse population, over a longer period of time, and with a control group to test for significant and specific results. Objective measurement of height and objective measurement of ease/relaxation, by use of an electromyogram to test for muscle tension, may present useful insight.

The longitudinal goal of the study was to reduce the occurrence of overuse injury. This was not measured within this preliminary study, but the results suggest that further research should be conducted to measure the validity of this expectation. In concurrence with previous studies, my thesis did demonstrate the suggestion that complementary conditioning could result in a reduction of overuse injuries over time.

The positive results from the perceived ratings on the questionnaire suggest that the benefits of the program are not limited to those that were

measured, but that with long-term use the program would result in a reduction in over-use injury for dancers as it teaches a safer and more efficient approach to movement. Concurring with previous studies conducted (Doody and McGuinness, Cromie, Greenwood, and McCullagh, Cappagh National Orthopaedic Hospital, and Shippen and May) there is a need of further study into not only the biomechanical demands of Irish Step Dancing, but training and conditioning programs and methods and how they can prevent or reduce overuse injury.

Additionally, exploring how integrating this system on a wider scale would affect the aesthetic of Irish Step Dancing could prove to be very interesting. Problematic is that the driving factor for progression of the aesthetic in Irish dance is what is successful in competition. The aesthetic is also confined by the traditions and codification of the style. For example, dancing with the arms placed at the side has become more exaggerated over time, but it is doubtful that it will ever be eliminated. Likewise, as described previously, the rock step is proven very strenuous on the body, yet is still taught in beginner dances, such as St. Patrick's Day.⁷

It should be considered that this study was conducted within the framework of one governing body of Irish Dance, *An Coimisiun le Rinci Gaelacha*. There are other organizations that have variances to their aesthetic and different curriculum for competition (for those possess a

⁷ St. Patrick's Day is a traditional set dance taught as the first set dance. A set dance is a heavy shoe dance that is performed to music of irregular meter.

competitive platform). Research comparing the occurrence of injury and the conditioning practices of the various organizations would prove to be most interesting and potentially enlightening.

While the focus of this study was on Irish Step Dancing, in essence the program is an approach to movement. That being said, it would be possible for this system to be integrated into different movement practices; two suggestions that have been presented are equestrianism and martial arts training. The system has the potential to be applied to any form of movement as an approach to pedagogical praxis, reeducation of movement, self-reflection and discovery, and for conditioning or somatic wellness for sport, dance, physical activity, or general pedestrian activities.

REFERENCES

- Cromie, S., Greenwood, J., & McCullagh, J. (2007). Does Irish-dance training influence lower-limb asymmetry? *Laterality*. 12 (6) 500-506.
- Dail, N., Agnew, T., & Floyd, R. T. (2011) *Kinesiology for manual therapies*. New York: McGraw-Hill Publishing.
- Doidge, N. (2007). *The Brain that changes itself: Stories of personal triumph from the frontiers of brain science*. New York: Viking.
- Dyer, B. (2009). Theories of somatic epistemology: An inspiration for somatic approaches to teaching dance and movement educations. 10 (1), p. 24
- Gerber, P., Wilson, M. (2010). Teaching at the interface of dance science and somatics. *Journal of Dance Medicine & Science*. 14 (2), 50-58.
- Green, J. (2002). Somatic knowledge: The body as content and methodology in dance educations. *Journal of dance education*. 2 (4), p. 114-18
- Hackney, P. (2002). *Making connections: Total body integration through Bartenieff fundamentals*. New York: Routledge
- Hall, F. (2008). *Competitive Irish Dance: Art, sport, duty*. Madison, WI: Macater Press.
- McGuinness, D. & Doody, C. (2006). The injuries of competitive Irish Dancers. *Journal of dance medicine & science*. 10 (1 &2), p. 35
- Moore, C. (2011). The harmonic structure of movement, music, and dance according to Rudolf Laban: An examination of his unpublished writings and drawings. *American journal of dance therapy*. 33 (1), 78-81.
- Paoletti, S. (1998). *The fasciae: Anatomy, dysfunction, & treatment*. Seattle: Eastland Press.

Shannon, J. (2009). Irish dancers suffer from overuse injuries. *Irish medical times*, Feb 27, 3.

Shippen, J., & May, B. (2010). Calculation of muscle loading and joint contact forces during the rock step in Irish Dance. *Journal of dance medicine & science*, 14 (1), 11-18.

Vineyard, M. (2007). *How you stand, how you move, how you live*. Philadelphia: Da Cap Press.

2010 (March, 23) G-Force. Retrieved from <http://cublogs.coventry.ac.uk/covid/2010/03/23/g-force/>

2012 (Nov 5) Retrieved from <http://www.alexandertechnique.com/at.htm>

APPENDIX A

12-WEEK CENTRE-LINE SUPPORT SYSTEM PROGRAM

Yoga Warm Up

4 Neuro-Muscular Repatterning Exercises for Crossing and Turn

Out

Unit Focus Exercises

Application

Constructive Rest

Warm Up

3-5 Minutes of cardio

Running, jumping jacks, slalom jumps, butt kickers, Frog Jumps

(up to 30)

5-7 Minutes of Pilates/Yoga/Buck Training

Mountain Pose, Forward Fold, Monkey, Forward Fold, Down Dog

Vinyassa

Plank, Side Plank R & L, Plank, Down Dog

Extend R Leg - stretch and hang stretch, flip dog, extend, 1 leg

Vinyassa

Extend L Leg - repeat above

Down Dog, Plank, R Knee to R Elbow, R Knee to L Elbow, R Knee

through Center, Runners Lunge, Warrior I, Side Lunge Stretch,

Runners Lunge

Repeat with L Leg

Down Dog, Extend R Leg parallel to floor, Pigeon

Repeat with L Leg

Down Dog, Elephant Walks to Forward Fold, Roll up to Mountain

5 Cross and Turn Out Exercises

1. *Step Together*

R Leg crosses medial line and L same. Toes touch on the 'together' portion. Repeat on L.

2. *Step Together, Step Lift*

Feet are positioned as before, but lift the back leg - foot to butt - and hold

3. *Side Step*

Step together to the side, same foot position. Repeat on L.

4. *Step Back*

Similar to *Step Together, Step Lift*, the same placement is used, but the direction of travel is backwards

5. *Backward Heel Walk*

Walk on heels, feet turned out, stepping backwards

12 Week Program Outline and Goals

W 1-2 Breath

Problem: Many Irish Dancers do not breath properly or fully when they are dancing. This leads to: 1) quick fatigue, 2) rigidity in movement, 3) difficulty in technical execution

Objective: Discover : 1) how to breath more deeply, 2) when to breath while dancing, 3) more fluidity in movement through breath connection.

Activities:

Finding Breath Patterns

Breath in New Ways

Write Breath into dances [Insert T's Homework here]

W 3-4 Core-Distal

Problem: Irish Dancers typically support laterally, specifically in the wrists, shoulders or sides of hips. This causes: 1) excessive fatigue, 2) inefficient core support, 3) reduced ability to extend through the limbs.

Objective: Reduce: Over-dependence on external muscles,
Discover: the CLSS

Exercises: Floor work

Fetal Patterns

Find CLSS Toe-Diaphragm

Purple Ball w Orange between knees

W 5-6 Head-Tail

Problem: Without the connection between the head and the tail, the sense of vertical is non-existent within the body. This causes: 1) poor posture/carriage, 2) reduced presence and command, 3) lower jumps

Objective: See improvement in 1) posture/carriage (specifically spinal posture), an increase in 2) stage presence and command, and increased 3) height in jumps (as a result of improved spinal posture).

Activities: Cat-Cow

Monkey Runs (AT)

Pelvic Partnered Bounces

Use of CLSS

W 7-8 Upper-Lower

Problem: Many Irish Dancers have dominant patterning in support with the upper and movement in the lower, as demanded by the technique. This creates 1) rigidity in the upper body and 2) constant lifting/disconnection from the floor, as well as 3) inefficiency in jumping

Objective: Discover: 1) increased ease in the upper body while stabilizing (rate between [#], 2) connection with the floor and ceiling, 3) efficiency in jumping (rate between 1-3)

Activities:

Taurus, Mountain Climber, Yield and Push, Breath connection to Psoas-the bridge between

W 9-10 Body Half

Problem: This pattern is less obvious in Irish Dancers, as the use of the upper is limited while the lower extremities move, but with frequent weight shifts from one side of the body to the other, the need for

body-half patterning is still there. Lack of stability from one half of the body leads to leaning on certain jumps and balance poses. Also, weakness in body-half manifests in the initial stance of the right toe pointed in front of the body and crossing the centerline. Many dancers over grip in the left arm to balance.

Objective: Look to see more balanced support between sides and improved starting stance.

Purple Ball leg lift and slide, Circle Rolls, Use CLSS and find connection

W 11-12 Cross Lateral

“Develops diagonal connection through the body and graduated rotation in the proximal joints to facilitate three-dimensional movement and the ability to spiral with complex level change and locomotion; prepares one for multidimensional relational thinking and commitment to action.”

Problem: At this stage of patterning, we look for full body integration in movement. Can the body move fluidly through space in all directions? Often, movement is limited to very linear pathways and tentative movements. This is seen in floor patterns, turns, and in leaping.

Objective: See more dynamism of floor patterns and see increased ease and height in jumping. A full integration of the previous body patterns should be evident. Primarily, the ease and height of jumps should improve and posture improved.

'Claussen' Stance, Purple Ball x lift and slide, Mountain

Climb, CLSS integrated

APPENDIX B

REVISED 9-WEEK CENTRE-LINE SUPPORT SYSTEM PROGRAM

#1/2 Breathe

Breath is an exchange, and the foundation for all life and movement.

Careful examination of ones breath patterns can provide powerful insight into their movement tendencies and potential.

Problem: Many Irish Dancers do not access their breath fully when they are dancing. As the foundation for movement and the core access to the CLSS, this is paramount as the first element to examine. Improper use of the breath leads to:

1. Quick Fatigue
2. Rigidity of movement and Excess tension
3. Difficulty executing technique
4. Inefficiency – lower jumps and utilizing lateral support.
5. Inability to engage in the CLSS

Objective: Discover:

1. Individuals unique breathe patters and tempos
2. New breathe patters and tempos
3. How and when to breathe
4. A reduction of the 5 problems above

#3 Underlying Forces of Organization

Follow Jaap Van Waal 8 Forces of Organization

Periphery to Centre, Back to Front, Top to Down, Right to Left, Inside to Outside, Far to Close, Crosslateral.

Problem: Irish Dancing is a predominately top to bottom, right to left, and far to close oriented movement. Without exploring and developing the full range and underlying forces of organization in the body, the mover cannot fully activate the neuromuscular pathways in the body. Bartenieff looks at the connection of the core to the distal. But if we go further back into our development we find that we actually begin our growth and development by growing from periphery to centre. Our centre is only defined by the periphery of our space. In this unit, the notion of centre being relational is explored.

1. Rigidity of movement
2. Unengaged and flat performance

Objective:

1. Discover a full range of movement that engages the full range of the body and the full range of the space.

#4 Core-Distal

Problem: Irish Dancers typically support laterally, specifically in the wrist (observed mainly the left), shoulders, sides of the hips, and butt muscles. This causes:

1. Excessive fatigue
2. Inefficient core support
3. Reduced ability to extend through limbs
4. Poor upper body carriage

5. Inability to fully engage in CLSS

And all of these things generate a propensity towards injury – specifically avoidable overuse injuries.

Objective:

1. Reduce over dependence on external muscles
2. Discover use of CLSS
3. Increase in height in jumps with less effort
4. Improved upper body carriage

#5 Head-Tail

Problem: Without the connection between the head and the tail, the sense of vertical is non-existent in the body. This connection also plays a major factor in how we present ourselves to the world. As a result, one finds:

1. Poor posture or carriage
2. Reduced presence or command
3. Lower jumps

Objective: See improvement in:

1. Posture and carriage
2. Presence and command
3. Height in jumps (without a reduction in the ease)

#6 Neck and Head

Once the connection has been made from head to tail, the full integration into the body is the next step. Learning how eases in the neck and head affect the body/mind as a whole permits the access of the CLSS to be fully realized. The simple act of will or thought can generate a powerful response in a body/mind ready to respond. By paying mind to the neck and the head, a person discovers a new balance in the body by releasing unnecessary tension elsewhere.

Problem: Many Irish Dancers grip tightly in their jaw, neck, or head when performing leaps and jumps, even while engaging through the CLSS.

This causes:

1. Unnecessary tensions in the body.
2. Unnatural or forced sense of initiation.
3. Reduced height in jumps.
4. Poor placement of the head in regards to the remaining upper body carriage.

Objective: Discover:

1. Freeness and ease in the neck and the head and the subsequent ease in movement in the rest of the body.
2. Improved fluidity of movement and support.
3. Improvement in carriage.
4. Improvement in height of jumps.

#7 Upper-Lower

Problem: Many Irish Dancers have dominant patterning in support with the upper and movement in the lower, as demanded by the technique.

This creates:

1. Rigidity in the upper body.
2. Constant lifting/disconnection from the floor
3. Inefficiency in jumping.

Objective:

1. Increased ease in the upper body while stabilizing (rate between [1-3])
2. Improved height when jumping (rate between [8-10])
3. Connection with the floor and ceiling through Yield-Push

#8 Body-Half and Cross Lateral

Problem: This pattern is less obvious in Irish Dancers, as the use of the upper is limited while the lower extremities move, but with frequent weight shifts from one side of the body to the other, the need for body-half patterning is still there. Lack of stability from one half of the body leads to leaning on certain jumps and balance poses. Also, weakness in body-half manifests in the initial stance of the right toe pointed in front of the body and crossing the center-line. Many dancers over grip in the left arm to balance.

Additionally, at the Cross-Lateral stage of patterning, we look for full body integration in movement. Can the body move fluidly through space in all directions? Often, movement is limited to very linear pathways and tentative movements. This is seen in floor patterns, turns, and in leaping. Deficiencies in these two patterns causes:

1. Lack of stability and propensity towards lateral stabilization
2. Excess tension, markedly in the upper body carriage and more specifically, the left arm.
3. Linear floor patters and difficulty executing complex jumping or turning techniques.

Objective: Look to see more balanced support between sides and improved starting stance. See more dynamism of floor patterns and see increased ease and height in jumping. A full integration of the previous body patterns should be evident. Primarily, the ease and height of jumps should improve and posture improved.

1. Improvement in stabilization, particularly an engagement in the CLSS
2. Reduction of tension in the upper body carriage.
3. Fluidity of movement in a dynamic dimension.

#9 CLSS Integration-Application Examination

Look at the dancer as a whole and touch on any of the previous 8 week lessons as seem fit for the full integration and application

Glossary of Exercises:

Warm Up

3-5 Minutes of cardio and context- (influenced by the work of Trude Cone)

1. Run around the outside of the room in a circle, and draw towards center of the room
2. Run forwards, then backwards
3. Frog Jumps (10)
4. Run Sideways/Grapevine
5. Slalom Jumps/Butt Kickers (alternate 8)
6. Run about, no pattern (eye contact with others in room)
7. Jumping Jacks

5-7 Minutes of Pilates/Yoga/"Buck" Training

1. Plie and gather breath, stretch to side
2. Forward Fold, Inhale halfway up (extension in spine), Forward fold, Down Dog (hold for 3 breaths)
3. Plank, R & L Plank, exhale back to Down Dog
4. Vinyassa
5. Extend R Leg – Stretch and Hang Stretch, (flip dog opt) 1 leg Vinyassa; Repeat on L
6. Down Dog, Inhale to plank, R leg forwards to lunge, Warrior 1, Side Lunge, Lunge, Pigeon; Repeat on L
7. Down Dog, Elephant Walks forwards to Forward Fold, Slow roll up

(The following are designed as predecessor exercises for NMR Exercises, but still relevant)

Turn Out, Crossing, and Point (TCP)

Start with feet turned out and heels together. Take right foot and place the heel to the toe of the left foot. Be sure that the knees are crossed and knee caps drawn up. Slide the right foot forwards leaving the tips of the toes on the ground and lifting the heel, ankle, and calf muscle towards to ceiling. Be sure that the knees are still crossed and that no weight is on the front foot. Place the right foot back heel to toe, then place the right foot along side the left, turned out, with heels touching.

Cross Walks

Start with one foot placed in front of the other, feet turned out, and front foot heel to back foot toe. Place the other foot in front in the same fashion. Continue walking forwards for 8 steps, then reverse.

“Kissing Heels” Steps

Stand with feet turned out and heels touching. Press the feet into the floor to rise up to standing on the balls of the foot. Step feet together so that the heels are touching again. Step the right foot forwards, and then bring the left foot along side. Repeat alternating feet.

Orientation of “Center”

1. See the whole space
2. See the stage space/judges/etc...

3. See your mark and walk into the whole

5 NMR Exercises (Neuro-Muscular Re-patterning Exercises)

1. *Step Together*

R Leg crosses medial line and L same. Toes touch on the 'together' portion. Repeat on L.

2. *Step Together, Step Lift*

Feet are positioned as before, but lift the back leg - foot to butt - and hold

3. *Side Step*

Step together to the side, same foot position. Repeat on L.

4. *Step Back*

Similar to *Step Together, Step Lift*, the same placement is used, but the direction of travel is backwards

5. *Backward Heel Walk*

Walk on heels, feet turned out, stepping backwards

Core Conditioning Exercises:

CLSS Hip Raises - Laying supine, place a small ball between the knees and place a small ball between the knuckle of the big toes. Draw the navel to the floor and feel a gentle pressure holding the balls in place. Take a preparatory inhale and on the exhale raise the hips off of the floor. Pay mind to maintaining inward pressure on the balls and keeping the big toe pressed into the floor. Feel the support of the backs of the legs, the

abdominal muscles, and the inner thigh holding the hips off of the ground. Hold for 5 breaths, then lower on an exhale and relax. Repeat 5-10 times.

CLSS Crunch 1 - This exercise is done similarly to the Pilate's exercise of the same name, but at a much slower tempo. Laying supine, draw the navel down into the floor, feeling all of the bones in the back gently pressing down. Draw the chin to the chest and roll upwards, bringing the shoulder blades slightly off of the ground. Bring the right leg into the chest with a bend in the knee holding the knee with hands, and extend the left out off of the ground (the height is determined by how low the leg can be without losing contact of the spine to the floor). Hold for one breath, then switch the legs. Perform 10 switches

CLSS Crunch 2 - The posture and movement of the lower body is the same as Crunch 1, but the hands are placed behind the head and the elbow is drawn in towards the knee of the opposite leg on the exhale (feeling the connection of the diaphragm pulling on the psoas) and returning to centre on the inhale. Reverse. Switch 10 times.

Deep Abs Curl - Assuming the same position as CLSS Hip Raises and moving on the exhale, curl the tail bone up towards the sky and the chin down to the chest as the shoulder blades come off of the ground as the fingertips reach for the heels. Inhale and lower to the ground. Repeat this 10 times.

Exercises with Balls:

1. Accessing the CLSS supine

Subject lays on back and facilitator places a small ball between the knuckles of the big toes, between the knees, and the medium sized ball under the sacrum. Feel the sensation of sand draining out of sitz-bones and the suppleness of the psoas (“Poop sand”). Breath all the way down into the toes. Feel the connection from the big toe up through the diaphragm.

2. Accessing the CLSS standing

Subject stands with feet in neutral and under the hips, weight evenly dispersed between the three points of the feet (the heel, the big toe, and the pinky toe). The facilitator places three small balls: between the ankles, knees, and thighs. Subject feels the connectivity from floor into big toe up through diaphragm and breath down into floor. Perform 3 relevés, slowly rising up onto the balls of the feet, maintaining the center-line support. Repeat in turn out.

Breath and Balloons:

Subject places balloon in mouth and on the exhalation inflates the balloon. On the first time, the subject will observe breath alone. After a few breaths, the facilitator will place their hands on the chest, stomach, side, and back of the subject and observe their breath patterns. Discuss observations. Then the facilitator will coach the subject through three breathing

experiences. 1. high chest breathing, 2. low belly breathing, 3. lateral breathing.

Miscellaneous Exercises for Session Topics:

Fetal Extensions:

1. With facilitation

Subject lies on side and curls up into the fetal position. Facilitator sits behind and places one hand over the back of the head to brace, and the other along the feet. Subject extends from the centre-line outwards feeling the resistance of the facilitator.

2. Without facilitation

Subject assumes same position and explores range of motion between core and distal and sources of initiation between core and distal.

Subject Designed Experiment:

This exercise will vary depending upon the design of the participant.

Taurus:

Both the subject and the facilitator position themselves on their hands and knees, placing the tops of their heads gently together. Without speaking, the two maintain contact while exploring the balance of yield and push and the connectivity between the head and the tail. One advances and the other retreats and vice versus, changing at the will of either.

Pelvic Bounces:

The subject stands in front of the facilitator feet either in neutral or turned out. Facilitator places hands on the ilium ridge of the subject and gently gives pressure down and the subject yields and plies. While thinking about the spine as a spring and the will to go up, the facilitator continues to give pressure downwards as the subject begins to jump. The subject should not make an attempt to jump, but rather pause at the inhibition and permit it to happen when it does.

Monkey Runs:

see video.

Mountain Climber:

Subject lies prone on the ground and draws their right knee up and their left elbow down (contracting on the one side), and extends the left arm in front of the body. Pressing both the right foot into the ground and left hand, the subject yields, pushes, pulls, and draws the left leg up as the left arm pulls down. This is repeated on the other side. Looking at how diagonal patterns, the lower to upper initiation patterns, and the yield and push patterns manifest within the body, this exercise can fit a variety of different patterning deficiencies.

High Five Ups:

Subject lays supine with knees bent and a ball or card placed between the knees. Subject then performs a sit up while maintaining the connectivity of the CLSS, the ball or card as a tactile reminder.

APPENDIX C
QUANTITATIVE DATA RESULTS

1. Where are you sensing places of pain, tension, or weakness in your body?

1. Neck and Shoulders 2. Right Arm and Wrist 3. Left Arm and Wrist 4. Chest 5. Hips and Butt 6. Upper Leg 7. Lower Leg 8. Ankle 9. Feet and Toes 10. Other

1. Pain	6. Both legs, Weakness	5. Left hip	3. Left shoulder	Nowhere
4. Asthma		10. Lower back	10. Lower back	
5. Tension, Pain				
8. Weakness, Tension				

2. When jumping and leaping, what parts of your body do you feel engaging/supporting/activating?

1. Neck and Shoulders 2. Right Arm and Wrist 3. Left Arm and Wrist 4. Chest 5. Hips and Butt 6. Upper Leg 7. Lower Leg 8. Ankle 9. Feet and Toes 10. Other

2. Wrist	2. Left wrist	2. Left wrist	10. Core	10. Abs
3. Wrist	wrist	10. Core	("don't feel comfortable jumping with	
5. Sometimes butt	10. Core	(occasionally)		

10. When consciously thinking, abs			injury right now, but running, walking, stabilizing, only using core. Been told I have more of a presence lately”	
--	--	--	--	--

3. When jumping and leaping, rate your sense of ease vs height

1 2 3 4 5 6 7 8 9 10

1 being ease

10 being tense or painful

1 2 3 4 5 6 7 8 9 10

1 being low height

10 being high height

	1	2	3	4	5
Ease	6	3	2.5	2.5	1
Height	4	8	8.5	8.5	10

4. When dancing, how would you rate your upper body posture?

1 2 3 4 5 6 7 8 9 10

1 being relaxed

10 being tense

1 2 3 4 5 6 7 8 9 10

1 being uncontrolled

10 being very controlled

	1	2	3	4	5
Relax	3	3	2	2	1
Control	7.5	8	9	8.5	10

5. In daily activities (sitting and standing, walking, etc...) do you sense the same pains or tensions in your body?

YES

If Yes, where?

1. Neck and Shoulders
2. Right Arm and Wrist
3. Left Arm and Wrist
4. Chest
5. Hips and Butt
6. Upper Leg
7. Lower Leg
8. Ankle
9. Feet and Toes
10. Other

5.		5. Hip	3. Left	No pains
6.			shoulder	
			4.	

APPENDIX D

QUALITATIVE DATA RESULTS/SESSION NOTES

Session 1

Jan 3, 2012

Warm up-

Reluctance towards twists in toroso

Difficulty w/ dynamic core motion

Weakness in chataranga

Only did 20 of the 30 frog jumps* (program amended for subsequent weeks)

Very tight in the hips – minimal range of motion in pelvic tilt

Breath Exercise 1-

Lay on back, breathe, feel out breath w/ hands as sensorial mediary

Observations: fills lungs at mid point first, then high chest, holding tense in abdominals.

Repeat sitting

Still no belly breath

T Talks: start in abs and fills up top half of lung

Feeling breath – w/ partner tactile stimulant and exchange

3 types of breath:

1. Low belly breath “easier, more air, natural”

2. high chest breath “sucking in, hard”

3. lateral “weird”

Application:

“poop sand” = low belly breath – exhale on leap, psoas -> diaphragm

interdigitation

HW write breath into dances

Breathing

Reel: every jump in the lead around I with exhale on the and one two switch one twos I with inhale. On the turn I will exhale and on the one twos before it I will inhale. This will be the same for all jumps and turns in the reel. I will also exhale on the swizzes in the third step and exhale on the antichar.

Hornpipe:

Constructive Rest – towel under head, tennis balls in thut, lower back rest, yoga blocks under ankles.

T observed a calming sensation from the belly breath

Personal reflections on sessions with Helen.

#1

Helen told me to visualize what I'm thinking. She told me that when I'm lifting I'm using my arms to support myself instead of my abs. She told me using my abs would give me the height, strength and posture to get higher. She told me that when I'm coming I need to think "up". No matter if your coming up, going down, or trying to stay in the air think light and up. It will help your ankle to bare the weight and it will make your fall softer. Also relax your butt. It will support your posture without the use of you arms and without making it look like your in pain..

Session 2

Jan 9, 2012

Warm up & stretch 4 placement exercises

Belly breath review

Application

See video for notes

I feel like with the stomach breathing Helen taught me I can jump higher and easier. I find that it is easier to breathe and I don't feel as tired after I dance even if I had given it my all. I find my self trying to breath with my lower lungs now instead of my upper like I was before. It's sometimes hard to remember to breathe while I'm dancing, but I hope ad I do it more often it will become easier.

Session 3

Jan 26, 2012

Core distal, we examined distal

“What do we benefit from differentiating core from distal?”

fetal pushes, rooting reflex w/ clementine: blue, purple -> colors brought to mind, mother. * (after reflection, this portion has been removed from the program as it is not significant in accessing the CLSS)

Session 4

Feb 3, 2012

Releves core vs distal

“I feel lopsided, the core is what keeps me stable & straight”

“when I don’t use my core, I tense my butt”

“I don’t Poop Sand”

“I see butt tucking”

T’s experiment w/ hornpipe:

Hypothesis: By using my distal sense to fill my shoes w/ my feet, I can increase the sound of my trebles.

1. Activate distal w/ core support

2. Think about feet
3. Core up, feet down to ground

My hypothesis is when I use my distal to fill my shoes with my feet I will be able to make noise on the trebles instead of just hitting the floor with hollow shoes.

1. Engage distal while stabilizing core.
2. Think about feet
3. Think down so my feet go down and hit floor while engaging my core so my body and carriage stays up.

Results:

1. “It seemed louder” “Trying to feel my toes”
2. back foot is louder (my own observation) “thinking about feet helped, but engaging was better”
3. “Front foot louder” – Rhythm more solid & drum like, “This is what I’m going to do. They all work, but that one is really nice”

HW reflect on experiment

So my experiment went as I thought it would. All the things I thought would work did. The best one was thinking that I had feet, Remembering it. I know it sounds like a silly concept but it worked. The next time I danced at class I even sounded louder!

Session 5

Feb 7, 2012

Head Tail

Taryn sick – cardio eliminated and stretch adjusted

Plan:

1. child's pose w/ breath (sensing spine)
2. yield & push, crawl/Taurus (feel yield and push)
3. Head tail w/ cat cow (find connection)
4. 4 pg 99, heel rock (did not get to)

See video for complimentary notes

Head Tail relationship

Standing right can show confidence “piece of cake”

See picture of Ta drawing spine

Did yoga, paying mind to spine

Cat cow

Yield-push T pushes first – observed

y/p to crawl, easier forwards

AT pelvic bounces “Feels easier to jump bc the floor is more a spring board than hard floor”

How does this apply to leaping?

“I feel lighter”

After doing flick leaps

When using spring board it was easier to get up, but harder to do the flick...so much running through mind...like I was floating

Session 6

March 5, 2012

Took time off due to a hip issue. Femur dislocated from acetabulum and causing disintegration of the bone socket. Cause – inappropriate stretching and warm ups, behavior modified

Goals: look & yield and push into reach sequencing find connections between head and tail, explore relationship and spinal sequencing

Check in L hip sore, R hip better

1. Free exploration of head and tail

Hips minimal movement

Head and hip hurt at same time

Taryn defines Yield – “stop” like sign on road

Tell me about sign “yellow”

“giving in “ in UK signs are Give Way (just returned from Dublin and London together)

Synonyms “obey” albeit harsh...try again, what about pause?

A break, not a full stop.

Mountain climbers: (see pics)

Think about yielding into the ground

Think about pushing into the ground 2 forearms

Taryn Talks: when I yielded into the ground, I felt relaxed, tension when pushing

Filmed crawling lead around * (SD card corrupted and file lost)

Reach, Taryn defines – trying to grab something that’s in front of me

Monkey runs * (video lost)

Breathing is the foundation of all movement!

Session 7

Mar 6, 2012

Upper Lower

Mountain climber, not using feet, think about this like a dance, use the foot.

Upper lower ball patterns

Facilitation leg lifts – w/ exhale “felt nothing” on inhale “felt sharp”

Use CLSS to lift, not outter hips

Forcible inhale when lifting R left facilitated, “protecting” says Taryn

Emotional response occurred when working on R hip:

Source of protective: having to stand up for sisters bullied, after that she will in the future, protective of self...don't let a lot of people in..."I don't like to talk to people, let them in my head" "I like animals, animals don't hurt you" Had a turtle, it died, had a dog who went insane...

Session 8

Upper Lower

Mt Climber video* (lost)

Taryn talks: When I pushed, could feel – foot-hand, the shock of... went from the foot up...made me want to pull with my hand

How does this apply to Irish Dance?

Purple Ball, Upper Lower Access

Video of leg lift, supple psoas* (lost)

Left psoas, pulsating strongly, gripping at the top, but easful movement until up. Support/Protection

Word document analogy for repatterning

Upper to lower shift

Yield& Push upper shift, lower, reverse

Pushes far on return shift, patter to push w/ legs dominant

Taryn Talks: not the same, but sim to climber

When pushing using feet – sense of direction that pulls out the window...strong and sometimes not.

Summary of all 4 experiences

Tell me about: the connection between the upper & lower portions when moving

Head tail: “there was an outer sense”

In upper lower: “inner/internal sense telling me where I wanted to go”

Rate before section sense of ease before

1-10 (not easy to easy)

3

After

7

explanation: “wasn’t paying attention before. Realizing how the connection works, helps. I’m listening to my body, not forcing my body into movement.

“I understand when my body needs something: to eat, to rest, to move. I’m not forcing it, I am paying attention.”

Session 9

March 13, 2012

Body Half

See Videos* (lost)

Taryn Talks: Application

When dancing “standing in ready, use one half to not lean

Synthesis: Slip Jig using both halves to stabilize, can look less ridged.

Rocks, swizzes, developpes, battemems, all utilize body half.

Session 10-12 (combined due to circumstances of injury, illness, and travel)

See video for notes

APPENDIX E
PRE-SESSION EXAMINATION

Having watched T dance many times, I observed that she uses her eyes to stabilize herself and grips tightly in her shoulders. She is an Open Champion level dancer in the U13 category (in 2011). She has limited flexibility and mobility in her ankle and complains of popping and dislocation in her hips and ankles.

After recapping the questions, I placed T on the purple ball and prompted her to find her balance and explore her support systems. Purple ball under sacrum: “I feel like I’m leaning”

I asked her to imagine sand pouring out through her sitz bones which caused her psoas to release and relax. Released the psoas on ball and then: “It felt easier”. From there I added the small grey ball between her knees and asked her to lift up her. She couldn’t lift her legs. I asked her where in her body she was stabilizing. She told me that her arms were supporting her. I asked her how this relates to her dancing and she explained that she also uses her arms to support her dancing. I asked her where she should try to support from. She said her abs. I explained to her that her quad or thigh is not meant to lift the leg, rather that it is the psoas. She tried again. “I started using my abs instead of my arms”, and she lifted her legs.

Leaping: It felt different, tense yet relaxed....

It feels easier, I felt like I was able to get off the ground instead of having to work to get up”

“Felt easier to spring up coming from the foot”

The smile on her face said it was easy, “that was fun”

“ I know when I come down harder it hurt, that’s how I knew I tensed my wrist”.

APPENDIX F

INITIAL INQUIRY-PREDECESSOR TO RESEARCH

S and the ball

I was working with a student of mine, S⁸ (age 13), who is a Novice/Prizewinner level dancer. She has been at the studio I teach at for eight months now, having transferred from another school. Summer is a solid dancer who has an immense joy and passion for Irish Dancing. However, she has some issues with her upper body posture: she is extremely rigid, gripping in her shoulders and wrists/hands, and swinging arms to support her. She also has a tendency to stick her hips forwards on leaps, jumps, and toe stands. These issues result in a “jerky” upper body while dancing.

One day I was sitting in the office inputting attendance when S came over and asked me about the small purple ball I carried around with me. I told her that I used it to relax my hips and to access my psoas for improved centerline support. “Show me!” she said. So, I prompted her to lie on her back, on the lobby floor with her knees bent and feet planted on the floor. I adjusted her back to find a neutral pelvis and observe her body in this position. Then I placed the purple ball under her sacrum. She was rather wobbly. I noticed that she was supporting and balancing herself by engaging in her gluteal muscles and on the outside of her hips. I had a

⁸ Previously published online, as a blog entry on helenbuck.wordpress.com, the inquiry with S was a proceeding experiment to the eventual thesis research. It is included to demonstrate the progression the study underwent in its initial stages.

thought! This lateral support system is likely related to S's issues with upper body posture. So, to test my hypothesis that S was supporting her movement using a lateral (sides of the body) support system rather than by accessing the centerline support system – specifically her psoas – I pulled her off the ball.

The Hypothesis

“S,” I said, “I’d like you to just breathe for me”. Like many dancers, myself included, her inhalations were incredibly shallow and very high up in her chest. I encouraged her to breathe more deeply by placing my hand on her lower abdomen. C, another student was sitting nearby watching this exchange. “Ok, S, now imagine your thigh bones are spilling sand out the back of them and spreading along the floor”. I observed the signature creasing in her shorts that indicated relaxation in the psoas. “Did you see that C?” I asked. C nodded. “Do you feel anything S?” She said that she felt more relaxed in her hips. Great. Next, I asked S to breathe in fully and then exhale. At the end of her exhalation, I observed the change in shape in her belly as the diaphragm ascended and lifted her right leg up. “Woh!” S said. “That was so easy!” I put her leg down. I explained to S what her psoas is. That it connects at her hip socket, runs up along her hips, through her abdominals, and connects at her spine, mid back. I traced the muscle with my fingers, pausing at her abs. “Oh! I feel that”

“What’s really neat,” I explained, “is that the diaphragm also connects to your spine at your mid back, in the same place! In fact, the muscle fibers interdigitate! That means that two muscles are woven together at this point. So, when you exhale, your diaphragm rises and gently pulls on your psoas. Let’s explore this connection again”.

So, together we explored her breathing and its connection to raising her leg. “That is so cool!” S said.

“Ok, great! Now that you understand this sensation, let’s discuss how this applies to Irish Dancing.” I told her what she was accessing was referred to as a centerline support system. The purpose of the psoas is to raise the leg, so when we use our thigh muscles or butt muscles we are inefficiently lifting our leg. When I dance, I find many muscles fatigue, but I have never felt my psoas fatigue. I have felt it cramp, pinch, pull, and all sort of other pains from accessing it incorrectly, but never tire when I am using it as intended. So, I asked S, what in your body engages to support you when leaping, jumping, or raising your leg?

She thought about it for a while. I suggestively placed my hands on her shoulder and arm. “My arms, shoulders, and my hips,” she placed her own hands on the outside of her hips.

I smiled. “Yes.” She smiled and then I helped her up to standing.

“Wow, I feel awesome! So energized! That ball is amazing!” she remarked.

“Well, you’re very aligned right now. And your body is remarkable, when aligned the body is ready to spring!” I began to walk back to the office to

finish up my attendance, leaving S with the ball. “And please think about how to access that same sensation when you are dancing! I’ll see you in class in a few.” And I left her in the lobby.

Class that night

That night I was teaching ceili class. S was practicing her ‘hop 123s’ (or skips). It was remarkable. She was springing off the ground with such ease and presence and with out the aid of her arms supporting and propelling. She was beaming! This was drastically different from earlier that day when her legs were bowing, arms swinging, shoulders rigidly gripping to hold still. She looked so powerful.

“This feels different, is this right?” she asked.

“S, I’ve never seen you dance like this before! You look lovely, very at ease, powerful. Your arms are still, and your height is... well, how do you feel?”

“Her face was beaming, “I feel great! Easy!” I laughed as I ran over to her to high five her. She looked just like a spring bouncing! I encouraged her to remember this sensation.

Later in class, S was frowning. “I’m doing it all wrong!” She put her hands on the outsides of her hips to say that she was supporting laterally again. I had to hold back a laugh, as she got frustrated. “I can feel the difference. And I don’t like the way this feels”. I explained to her that her ability to sense the difference is more important than her ability to recreate; that it will come back again.

S's reflection

The thing that I worked on was a breathing boost. I learned that if I breathe in before jump, it makes my jump higher and my leg go up higher. I also figured out that I waste more energy when I do my jumps when I use my hips, but if I use my [core], it will let me stay strong through the whole dance. I did this by placing a ball under my tailbone when I lay down and relaxed and took deep breaths. That is what I did today.

Helen's reflection from S's writing

S responded very strongly to the idea of breath and to the imagery of her psoas connecting to the diaphragm. After only one session and a few questions, she is able to sense the different modes of support that her body can provide. While in some ways S is 'endgaming' her results – looking for an outcome – this is natural of a 13 year old girl in a highly competitive sport. She responds strongly to things she can measure or see, rather than what she can sense. Her noticing her jumps increasing in height and the range of motion increased in her leg signifies this. However, the competitive nature of Irish Dance does call into question the usually non-objective nature of somatic studies. Finding the balance between self-discovery and achieving results is tricky, but entirely possible. After the session, I asked Helen to answer five questions for me that have been the basis of my inquiry into her movement.

A few questions for S

1. Where are places of pain or tension in your body?

my hips

2. Where are you sensing tension in your upper body? Arms? Hands?

Shoulders? Neck? etc?

upper arms/ shoulders

3. Are you breathing? When do you breathe? Where do you sense your breath? How do you breathe?

i dont really breath but i inhale before a leap and exhale during the leap. If i do breath it is very short quick breaths.

4. In leaping and lifting of the leg, what muscles are being recruited? How do they feel?

butt and hamstrings, they feel a little tight and i feel my self tighten up

5. Is the a 'usual pattern'?

Not really i don't feel any thing

A few questions for Helen

1. Where are places that appear held or favored?

S holds in her hips and tends to favor her lower body when dancing.

2. Where am I as the observer seeing tension held in the upper body?

The collarbone and left wrist appear very tense and respond with increased tension during leaps and jumps. This tense upper body creates

a jerkiness that resonates through her, moving from upper to lower and affects her leg placement.

3. Where do I as the observer see breath being utilized? How is it being used and when?

S tends to hold her breath when dancing, with the exception of during her leap overs – and this is only after prompting. There is not attention to the phrasing of the breath and its relationship to the dance which leaves her dancing without energy and ease. She appears stifled, as if she is running out of air to breathe.

4. In leaping and lifting of the leg, what do I observe as the primary muscles being recruited?

The primary muscles used are the gluteus maximus, gluteus medius, and the rectus femoris.

5. Does this appear consistent with other movement traits?

S has a slight stiffness in her upper body in her pedestrian movements, but not to the same extent

APPENDIX G
LETTER OF CONSENT

CONSENT FORM (SOCIAL BEHAVIORAL)

MINIMAL RISK

ARIZONA STATE UNIVERSITY

Accessing Center-Line Support Systems in Champion Level

Irish Dancers

INTRODUCTION

The purposes of this form are to provide you (as a prospective research study participant) information that may affect your decision as to whether or not to participate in this research and to record the consent of those who agree to be involved in the study.

RESEARCHERS

Helen Buck, MFA Candidate, Arizona State University School of Dance, has invited your participation in a research study.

STUDY PURPOSE

The purpose of the research is to develop training methods for Irish Dancers to create more ease and efficiency, as well as reduce injury.

DESCRIPTION OF RESEARCH STUDY

If you decide to participate, then you will join the research of accessing centerline support systems in championship level Irish Dancers. Both parties will write their reflections, which will later be reviewed and reflected upon again. The answers will be coded and a survey filled out monthly throughout the process. We will work one on one in private sessions, conduct movement experiences, and look at how four questions of inquiry can be applied to and embodied in Irish Dance practice. There will be video documentation of sessions.

If you say YES, then your participation will last for 7 months at both your home and the studio you attend. You will be asked to answer survey questions, participate in movement experiences to augment your training, and to write about your personal experience.

RISKS

There are no known risks from taking part in this study, but in any research, there is some possibility that you may be subject to risks that have not yet been identified.

BENEFITS

The possible/main benefits of your participation in the research are improved performance in competition, reduction of injury, and confidence in performance.

CONFIDENTIALITY

Due to the nature of the study, the research team cannot guarantee complete confidentiality of your data. It may be possible that others will know what you have reported. While all data will be stored on a password protected laptop and pseudonyms will be used, the written materials will be included in the publication of the thesis document. There is the possibility that videos of the sessions will be included in the final document and presentation. While the subjects name will not be attached to the video, there is minimal possibility of identification from the video.

WITHDRAWAL PRIVILEGE

Participation in this study is completely voluntary. It is ok for you to say no. Even if you say yes now, you are free to say no later, and withdraw from the study at any time. Any documentation will be destroyed if you decide to withdraw from the study.

COSTS AND PAYMENTS

There is no payment for your participation in the study.

VOLUNTARY CONSENT

Any questions you have concerning the research study or your participation in the study, before or after your consent, will be answered by Helen Buck, 948 S Alma School Rd Unit 19, Mesa, AZ 85210; 630.363.3480. Additionally you may contact Pegge Vissicaro, Arizona State University School of Dance, Tempe, AZ; 480.965.4764.

This form explains the nature, demands, benefits and any risk of the project. By signing this form you agree knowingly to assume any risks involved. Remember, your participation is voluntary. You may choose not to participate or to withdraw your consent and discontinue participation at any time without penalty or loss of benefit. In signing this consent form, you are not waiving any legal claims, rights, or remedies. A copy of this consent form will be given (offered) to you.

Your signature below indicates that you consent to participate in the above study. Your signature also grants to the researchers the right to use your likeness, image, appearance and performance – whether recorded on or transferred to videotape, film, slides, and photographs – for the presenting or publishing of this research.

Subject's Signature Printed Name Date

Legal Authorized Representative Printed Name Date

APPENDIX H
CHILD ASSENT FORM

ACCESSING CENTER LINE SUPPORT SYSTEMS IN CHAMPIONSHIP
LEVEL IRISH DANCERS

My name is Helen Buck. I am a graduate student at Arizona State University.

I am asking you to take part in a research study because I am trying to learn more about training methods for Irish Dancers. I want to work collaboratively with you to promote better use and efficiency in your dancing. Your parents have given you permission to participate in this study.

If you agree, you will be asked to fill out a survey (written set of questions). You will be asked how to describe places of tension or pain in your body. You will also be asked to participate in movement experiences and to write reflectively about your experiences. Answering these questions will take about 5 minutes. You do not have to put your name on the survey. The sessions will last for 1 hour, once a week. You do not have to answer any questions or do any activity that makes you uncomfortable.

You do not have to be in this study. No one will be mad at you if you decide not to do this study. Even if you start the study, you can stop later if you want. You may ask questions about the study at any time.

If you decide to be in the study I will not tell anyone else how you respond or act as part of the study. Even if your parents or teachers ask, I will not tell them about what you say or do in the study.

Signing here means that you have read this form or have had it read to you and that you are willing to be in this study.

Signature of subject _____

Subject's printed name _____

Signature of investigator _____

Date _____

APPENDIX I
IRB EXEMPTION EMAIL

Dear Pegge Vissicaro and Helen Buck,

Your application “Accessing the Center-Line Support System in championship level Irish Dancers” has been reviewed and it has been determined that IRB oversight is not required because the study does not meet the criteria under Federal Regulations, 45 CFR Part 46 for research involving human subject participation. However, the reviewer suggests that you still obtain parental permission and documentation for the video aspects of the project. Since this will not require IRB oversight, please remove the IRB contact information from your forms to participants.

Good luck with your project.

Sincerely,

Tiffany

Tiffany Dunning IRB Coordinator

Office of Research Integrity and Assurance Center Point, 660 S. Mill

Avenue Suite 315 Arizona State University Tempe, AZ 85287-6111 (Mail

Code 6111) Telephone: 480 965-6788

Fax: 480 965-7772 <http://researchintegrity.asu.edu/humans>

APPENDIX J
GLOSSARY OF GAELIC TERMS

An Coimisiun le Rinci Galecha - The sub-committee commissioned by *Conradh na Gaeilge* to oversee and regulate dance in competition. The first of several governing bodies in Irish Dance, and is self-appointed as the premier governing authority. It is also the organization that the author Helen Buck is a long-standing member as a competitor and, now, certified teacher. More information can be gained by visiting www.clrg.ie.

Ard Grad – The highest level of competition before the championship level. It is the Irish equivalent to Open Prizewinner in North America.

Ar Rinci Foirne - The collection of thirty Ceili dances from all over the country of Ireland. It is published by *An Coimisiun le Rinci Gaelacha* and is the manual for Irish Dancing.

Bun Grad – The beginning level of competition. It is the Irish equivalent to Beginner grade in North America.

Ceili or Ceiledh - A group form of dance involving two to 16 dancers. Manifesting in both a social and competitive form, ceili translates to gathering. (the second spelling is the plural in Irish Gaelic and also the spelling in Scottish Gaelic)

Conradh na Gaeilge - Gaelic League. An organization founded in 1893 to oversee the rejuvenation of Irish Culture after the Penal Laws were lifted.

Feile - means competition. Originally a part of a feis, the words in modern day are interchangeable.

Feis - plural is fesianna. Means festival. In olden days it referred to the festival gathering in fields to support Irish Culture. It included dancing, music, and baking competitions.

Oireachtas - means gathering. It is now the term used to describe a major competition starting at a regional level and moving upwards.

Oireachtas Rince na Cruinne - World Championships of Irish Dance. This is the most prestigious competition, and this highest honor to compete at. It was introduced in 1970 and is run by An Coimisiun le Rinci Gaelacha.

Oireachtas Rince na hEireann - All Ireland Championships of Irish Dance. This is the oldest major competition and is run by An Coimisiun le Rinci Gaelacha. Originally called Oireachtas na Gaeilge, the name was changed to differentiate it from its sibling competition Oireachtas Rince na Cruinne.

Teastas Coimisiún le Rincí Gaelacha - TCRG, translates to certified with the Commission for Irish Dances. It is the certification from An Coimisiun le Rinci na Gaelacha to teach Irish Step Dancing and Ceili. The exam tests the teachers knowledge of the 30 ceili dances in the Ar Rince Foirne, the traditional set dances, the traditional music, and their ability to teach.

Information obtained at <http://www.clrg.ie/en/history.php>

BIOGRAPHICAL SKETCH

Helen Buck began her study in somatics in 2006 when she received her certification in Mat Pilates through the Pilates Institute of America. In 2010, Helen began to study Laban and Bartenieff Total Body Connectivity with Becky Dyer, Alexander Technique with Eileen Standley, Body Mind Centering with Gresha Coleman, and in May of 2012 she worked with Trude Cone and her research in Moving Thought in Amsterdam, The Netherlands.

Helen received her undergraduate degree in Theatre Performance from North Central College with minors in Vocal Performance Music and Religious Studies in 2005.

A native of Chicago, Helen began studying Irish Dance at the age of four, with the Trinity Irish Dance Academy, under the direction of Mark Howard. She worked with guest artists such as Rosetta McConomy-Bradley and Elizabeth McConomy in Derry, Northern Ireland (both featured in Jig, the Irish Dancing Documentary) and Marie Duffy (choreographer of Lord of the Dance). As member of the Trinity Irish Dance Company (Varsity Tour) for two years, Helen performed with Doc Severson and the Milwaukee Symphony Orchestra, The Drovers, Hubbard Street Dance Company, and Bozo the Clown. She was ranked 7th in the Nation (1999), 2nd in the Mid-America Region (1997), won multiple gold medals for team figure choreography at regional and national championships, and a silver medal in figure choreography at the World Championships of Irish Dance (1997).

She retired from competition and performance in July of 1999, but returned 12 years later to dance with the Maguire Academy of Irish Dance in Phoenix and Tucson, Arizona (directed by Darren Maguire) where in only 6 months of training (augmented by the conditioning program developed and tested in this thesis) qualified for the World Championships by placing 9th in the Western Region. In 2012, Helen recalled in her Heavy Jig at the All Ireland Championships placing 14th and finished her competitive career after placing 12th at the North American National Championships in her home town. She received her TCRG (teaching certification) in 2012 and teaches for the Maguire Academy of Irish Dance in Phoenix.

It was through these experiences competing and battling crippling injury for the majority of her career that Helen decided to undertake this thesis research project. In returning to competitive Irish Step Dance over a decade later, and most significantly after studying several different disciplines and somatic practices, Helen found that the desired aesthetic of competition could be reached without falling into the same patterns of movement and injury from her previous experiences. Maguire Academy of Irish Dance (and its older sibling school in London, UK: Maguire O'Shea) became the platform population for Helen's thesis exploration.