

## The Pelvis Is The Centre

Lecture presented by Glenn Ruscoe, Specialist Musculoskeletal Physiotherapist of Riseley Physiotherapy, at Dance Explo, South Perth Yacht Club, 22<sup>nd</sup> February 2009 on behalf of Dance Sport WA.

Thank you for the opportunity to present to you again. I will begin by reviewing last year's presentation in order to lay the groundwork for today's presentation. I hope no one is shy, because today we are going to focus all our intention on your pelvis and then as promised last year, we are going to look at bringing two dancers together and how we can use your pelvis's to build a connection.

Last year I started by talking of the similarities and differences of the athlete and the dancer. I provided a quote, "It takes an athlete to dance, but an artist to be a dancer". The point was that whilst a dancer is just as physical as the athlete they are required to maintain an expression of detached effortlessness, focusing on their acting or expressive role rather than details of technique. Precision and efficiency of movement are admired.

**I proposed that the key difference between dance and sport was "Grace". And I defined Grace as "Seemingly effortless beauty OR charm of movement, form, or proportion. An elegance of manner, motion and action."**

I am sure you will readily agree that "beauty or charm of movement, form or proportion" are vital for the successful dancer and I am sure today we will see many examples of this, but what really separates the great dancers is that it is achieved in a "seemingly effortless way..." Effortlessness – the movement flows without signs of strain, effort or concentration. Dancing, after all is an illusion. Just like the swan gracefully moving across the lake, but under the water working like a Trojan.

Effortlessness is not only more beautiful to watch but is also incredibly efficient on the body, and therefore (from a physiotherapist's perspective) significantly reduces the likelihood of discomfort, strain, pain and injury.

Last year I touched on a range of issues relating to core stability and I explained how we do not want a concrete corset but a dynamic neuromotor control system - the right muscles, working at the right time with just the right amount of strength. All movement is a marvellous balance between mobility and stability. Too much mobility and our movements are jerky and uncoordinated. Too much stability and we are stiff and awkward. However, somewhere between the two is not always right either. Rather we need a perfectly coordinated interplay where at the right time a modicum of stability is provided and moments later, as the

movement demands, mobility is allowed. It is our neuromuscular system that provides such marvellous control.

Last year I talked about alignment and posture and how these must be held gracefully – without effort or strain. And I hope I made it clear that through good alignment and posture we are in the optimal position to facilitate the coordinated interplay between stability and mobility.

I also talked about how that to achieve good neuromotor control we need greater awareness of our movement or kinaesthetic intelligence - the perception of body position and movement and muscular tensions - the ability to feel movements of the limbs and body. Through your kinaesthetic sense, you know your body's exact position in space and you know how it is changing as you move. And we talked about how poor most people's kinaesthetic intelligence is and the only way to improve it is through practice, especially with some form of external feedback – via video and/or coaching. And no matter where you lie in the spectrum of ability, your kinaesthetic intelligence can be improved further with practice, and that's what we do at Riseley Physiotherapy with our Dance Body program. Somewhere are some fliers advertising the program plus there are 100 x \$20 discount vouchers available if you are at all interested. Last year we have had the pleasure of working with a number of dancers to improve their body awareness and ultimately, their performance.

As I said in the introduction, today we are going to focus our attention on the pelvis. This is our most primal area – containing all the pleasures of its perfect function and all the embarrassment and discomfort of any dysfunction.

**STAND: Play Music. With eyes closed, where do you feel the rhythm? Where do you want to move? If you are like most people it is your pelvis. Try again.**

Movement of the pelvis is associated with sexual, primitive instincts and desires. The chest is associated with emotions and feelings, whilst the head symbolises intellect, rationality and the process of thinking. The central body is considered intuitive, whilst the periphery is seen as more expressive and intelligent - complex actions of the feet are almost articulate and mimed gestures of the hands express our thoughts.

The pelvis is the hub of the body - a centre of stability and originator of motion. Any large action in space necessitates a weight shift of the pelvis. Located between the legs and the spine the pelvis is a mediator - cushioning excess impact from below before it can reach the delicate spinal cord. The strongest muscle in our body, the gluteus maximus attaches to the pelvis, and many other

large muscles either attach or cross through it. Cradled within, we find our abdominal organs lending tone and interconnectedness to the pelvis.

The pelvis means “basin”. Much like a slanted bowl of fruit in a renaissance painter’s still life, the hydrostatic and fluid qualities of the organs mesh with the bony, muscular and ligamentous elements to create a balanced whole.

Viewed from the front, the pelvis appears to be an arched structure similar to ancient Roman Bridge. Arched structures are incredibly stable with many wonderful examples remaining intact today. The blocks are narrower at their lower ends, forming thick wedges. Each wedge pushes outward harder against their neighbouring stone, compressing and increasing the stability of the structure. But an arch is only as strong as its foundations are held in the ground. Imagine a stone arch built in loose sand. As the wedges of stone in the middle push down and out the foundations stones would move apart and the arch would fail.

The pelvis contains two arches, a higher main arch in the rear and a smaller lower arch in front. The keystone of the posterior arch is the sacrum (which forms the base of the spine). Its small counterpart in the front is the pubic symphysis. Often the posterior arch is overused while the anterior arch, the strong pubic symphysis, is neglected.

As I said earlier the demands of dance require moments of stability and moments of mobility and most often, something in between. At times the pelvis must be solid and stable to provide a lever from which the rest of the body can move, but at other times it must be fluid and flexible. How does the pelvis manage to perform these two diametrically opposed functions? The key is a foundation that can alternate between strong and soft, and this is achieved by clever use of muscles. The transverse muscles of the lower abdomen, the deep back and the pelvic floor provide the foundation for the arches of the pelvis but through their perfectly timed switching on and off they can provide the support required at the right time and in the right amount and when mobility is required they can release.

I cannot emphasise enough the importance of strong, well coordinated function of the lower abdominal, low back and the pelvic floor muscles. Whilst talking of the pelvic floor muscles our Women’s Health & Continence Physiotherapist insisted that 15-18% of you that have weak pelvic floor muscles that it is not normal to leak urine and that you can be helped by simply seeing a Women’s Health & Continence Physiotherapist. At the same time your dancing will be improved.

Back to the pelvis! Physically the centre of our body is in the pelvis and the centre of all movement is the pelvis. Many ancient cultures and martial arts have seats of energy located in the pelvis. The Sacro-iliac joints are among the least

mobile joints in the body yet have more joint receptors than any other joint in the body. Control about the pelvis is central to quality movement.

Changing the position of the pelvis effects the position of the legs and the back. This in turn changes the length-tension relationships of the muscles that connect to and through the pelvis. Prolonged, positioning in any particular direction create an unsightly imbalance that eventually leads to dysfunction, pain and injury. As more of our modern work day involves sitting, it is not uncommon to find a tightening of the muscles at the front of the hip – the hip flexors. In a standing position, the effect of tight hip flexors is to pull our pelvis into an anterior tilt and increase our lumbar lordosis, thereby reducing our effectiveness and increasing the likelihood of injury and damage. Tight hip flexors reduce the amount of hip extension available and for the female dancer, who spends the majority of her time moving backwards, this can spell big trouble. With a restriction of range in the hip joint then something else has to give and most commonly it is the low back, arching further and further backwards – compressing the facet joints. And/or the other leg, the weight bearing leg has to bend at the hip and knee to allow the pelvis to anteriorly tilt – an unsightly look for a dancer seeking Grace.

**Ladies to Stand: Walk backwards. Feel how large a step you can take before you feel the tension at the front of the hip. Now tighten your tummy muscles below your navel and hold your pelvis steady. Walk backwards again and compare how large a step you take. In many cases it will be a lot less. Ideally there would be no difference.**

Of course during dancing some movement of the pelvis is necessary, but in the middle of all movements lies a natural position we physiotherapists call neutral. Dancers may know of it as centre. The term 'centre' is used persistently in dance technique classes. 'Engage your centre!' and 'Use your centre!' are phrases that many dance teachers say but rarely explain. 'Dance class has been described is a ritual that hunts for the ever-elusive centre.'

In neutral the body is in balance. The muscles are placed in their optimal position to provide perfect power and the nervous system is alert and ready for coordinated action. And in this neutral position lies the true essence of grace - "Seemingly effortless beauty or charm of movement, form, or proportion. An elegance of manner, motion and action."

**Stand: Close your eyes. Shift your weight left and right. Where do you feel most comfortable? Is there a little more weight on one leg? Can you shift the weight to the middle? Shift left and right like a metronome. Gradually**

**reduce the size of the shift, making it smaller until you are right in the middle.**

**Stand: Tilt you pelvis forward and backward. Gradually reduce the size of each shift, making them smaller until you are in neutral**

Alignment is achieved with the bones up straight—the leg bones, then the pelvis on top of the leg bones, the spine, and the head—gives you a wonderful core to start from. You can move off that centre, but you have to start by aligning the body. By dropping energy down the back of the leg, and letting the pelvic bone sit balanced on the leg bone, you free the body ready to move in any direction, and to move really well. Moving through space by instigating with the pelvis, whether in a contraction or release, propels the body with a physical and also emotional strength. Through the loins passes the metaphysical energy up into the intellectual energy. When the pelvis shifts, and shifts clearly, it takes the whole body with it. One cannot shift weight without engaging the pelvis.

Gaining strong lines is seen as good dancing. The foundation of all good lines starts in the pelvis. This Neutral pelvic-spine position provides the best opportunity for communication between the parts of the body.

Speaking of communication lets move to two people

When two people dance together, without touching we admire the choreography and the dancers' ability to keep in time. But when two people dance together in contact something beautiful can happen. No longer are they just keeping in time but their synchronicity hints at a much greater communicative power.

In ballroom dancing, when both partners know their steps and are focussed on performing them accordingly, in order –dancing by numbers - we see a neat coordinated affair. But when the relationship becomes lead/follow then we begin to see communication and connection. Through subtle movement the man must express his intentions clearly so that the lady can understand, prepare and execute his desire. As obviously patronising as this is today's society, if we can ignore the political incorrectness, it does create a natural beauty and grace. The man has been described as the frame and canvas upon which he paints the beauty of his female partner.

When two people come together to dance like this they become one. Through the lead/follow relationship the dancers create a shared centre. No longer are they individuals with separate will and destiny. They are a unit, separately together, with a shared centre between them.

When a couple is successful in creating this shared centre it allows them to sense the shift of weight together and to move in the same momentum path. If

their momentum is flowing together, it results in a beautiful union of two dancers connecting. To share a centre, it is obvious both dancers need to have their own centre organised and to be grounded through the pelvis.

**Stand and Jive: Stand slightly further away from your partner and lean in a little. Now you are not individually centred. Try a few steps. Now try centring yourself.**

As the majority of contact is through or via the arms, the arms are the main form of communication. As the arms are connected to the pelvis via the trunk it is essential that there is a strong but flexible connection between these body parts. Too much stability or rigidity in the trunk and momentum shift will move your partner off balance. Too much flexibility or softness in the trunk and communication will be lost. The balance I spoke of earlier of stability and mobility, at the right time, in the right amounts, is essential for the communication between partners.

**Stand and Jive: I would like you to Jive and I would like less single handed movements**

- 1) Try a jive
- 2) Excess stability – Just before you start take a big breath in and hold your shoulders and arms tight.
- 3) Excess mobility – Posteriorly tilt your pelvis
- 4) Now neutral

Thank you for the opportunity to speak with you today. The central message was the need for centring through achieving a neutral pelvis and spine. I cannot express enough how important a neutral spine is in achieving health, well being and optimal performance. Every pain, ache, discomfort and poor performance is the result of poor awareness of neutral. I am sure wars would cease, if only we could get in touch with our bodies and find neutral.

If you are seeking help to find neutral then we have expert physiotherapists, exercise physiologists and pilates instructors who can help you be a dancer and an athlete.