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*The Official Newsletter of Sport Physiotherapy Canada
A Division of the Canadian Physiotherapy Association*

*Le communiqué officiel de la physiothérapie sportive du Canada
Un groupe de l'Association canadienne de physiothérapie*

**Welcome to Momentum
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Rugby Issue**

“MOMENTUM”

Sport Physiotherapy Canada Newsletter Communiqué de physiothérapie sportive du Canada

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Tell us what you think about Momentum!!!

If you have any comments or would like to contribute to Momentum, please send your comments/submissions to the Newsletter Editor at the SPC National Office info@sportphysio.ca.

Need information about your CPA Membership or you would like receive additional information about the other CPA Divisions, contact CPA directly at:

Canadian Physiotherapy Association (CPA)

**410-2345 Yonge Street
Toronto, ON M4P 2E5
416-932-1888 (voice) or 1-800-387-8679 (toll-free)
416-932-9708 (fax) or www.physiotherapy.ca
(website)**

**Sport Physiotherapy Canada
5330 Canotek Road
Unit 4 (upstairs)
Gloucester, ON K1J 9C1
613-748-5794 (voice)
613-748-5792 (fax)
info@sportphysio.ca (e-mail)
www.sportphysio.ca (website)**

National SPC Newsletter Committee
Shannon Estabrooks, Newsletter Editor

Production/Design/Layout:
Korri Grant, SPC National Office

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Chairperson's Message/Newsletter Editor's Message

Hello Everyone,

Time continues to fly by as we head into another summer! I hope you are all healthy and happy heading into the warmer months!

I just returned to the East Coast from a great trip to Edmonton to attend the Canadian Academy of Sport Medicine conference. Once again this was an incredible opportunity to reconnect with old faces, and meet new one's. I had great opportunities to chat with several of our SPC members. With the approaching Vancouver Olympics the hot topic in everyone's mind was once again our education system, the selections grid, the promotion of SPC, and its relevance to the Olympic Committee, the National Sport Organizations, and the Local Organizing Committee. As you can imagine- everyone has ideas, and strong one's at that.

Out of all of these productive discussions came an idea. The idea was to attempt to get all of these great minds in one place for a Super Dooper brainstorming session. This session would be one in which we can develop an action plan to shape where SPC needs to go.

So here is the proposed plan: Unfortunately our budget does not allow for us to fly the key players in, so this would be a voluntary investment into the future of Sport Physiotherapists, costs covered by those attending. In saying that we thought that tagging it on to a conference already well attended by our group would work best. CASM doesn't run on Sunday, so we figured people could come into Quebec City – March 28th to March 31st, 2007 for the CASM Conference and stay for our brainstorming session on Sunday. In order to make this work- we need buy in from many key players- from those involved in high levels of sport to those with no desire to be involved in high levels of sport.

Please, send me your feedback.

Wishing you all a healthy, happy, and sunny summer!

Shelly Malcolm
SPC Chairperson

Newsletter Editor Message

Dear Momentum Readers:

The summer issue of Momentum celebrates the **“Athletic Arts”**; sports that require great athletic prowess and pleasing aesthetics.

Thank you to all our contributors. Martha Purdy and Ian Goodwin provide us with their unique perspective as PTs with Cirque du Soleil. Sarah Gordon-Yanofsky's case report describes the assessment and treatment of a young ballerina's pelvic girdle pain. Agnes Makowski offers a clinical tidbit on the management of sacroiliac and lumbar pain of a champion figure skater and describes her experiences at the Junior World Championships.

The fall issue is open to submissions. All SPC members are invited to submit topic ideas, clinical tidbits and articles. Also, remember that Momentum is also a forum for discussion; send a **“Letter to the Editor”** at activelife@ns.aliantzinc.ca or post a message or photos in the **“Members Corner”** by e-mailing info@sportphysio.ca .

Shannon Estabrooks, BScPT, Sport Physiotherapy Cert.
SPC Newsletter Editor



World Physical Therapy thérapie physique mondiale 2007

15th International WCPT Congress 15e congrès international de la CMTP

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Join over 3,000 physical therapists from around the world at the 15th International Congress of the World Confederation for Physical Therapy (WCPT)

**2006 CPA Congress
Saint John, NB**

The 2006 CPA Annual Congress will be held in Saint John, NB from June 29th to July 2nd, 2006.

Information about the Congress is now available on the CPA Website at www.physiotherapy.ca or you can contact the CPA National Office directly at 1-800-387-8679 for additional information.

Past Issues of Momentum!!!!

SPC has a large quantity of past issues of Momentum available through the SPC National Office.

If you are giving a presentation to students and would like to include a hand-out in your presentation package or you would like some additional reading materials for your clinics, please contact the SPC Office for a complete listing of available issues and topics.

Keep the National Office Informed!!!!

If you have recently moved, changed your name or e-mail address, please ensure that you notify the SPC National Office in writing (**via e-mail is acceptable**) of the changes as soon as possible.

Sport Physiotherapy Canada
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613-748-5792 (fax)
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Be heard - Share your thoughts or ideas!!!

All feedback is welcomed and appreciated. If you have an article that you would like to submit to Momentum or have some ideas for SPC in general, please send your comments or ideas to the SPC Newsletter Editor at the following e-mail address: activelife@ns.aliantzinc.ca

Mark your Calendars!!!!

The CASM Scientific Symposium will be held **March 28th to March 31st, 2007 in Quebec City, QC.**

For complete Symposium details visit the CASM Website @ www.casm-acms.org or contact the CASM National Office at 613-748-5851(voice), 613-748-5792 (fax) or via e-mail at dhaworth@casmacms.org.

Send in the Clowns by Martha Purdy and Ian Goodwin

Cirque du Soleil first began in 1984 as a small troupe of street performers, led by Guy Laliberté. Since then, Cirque has grown to become the world's largest entertainment company, with six permanent shows based in Las Vegas and Orlando and six touring shows circling the globe. Cirque du Soleil's artists are known worldwide for their ability to challenge human movement, astonishing audiences with their grace, precision, and athletic ability.



The Health Services department at Cirque du Soleil is an essential tool for keeping the artists at top performance level. Cirque employs 30 full time therapists, a combination of athletic therapists and physiotherapists, as well as ten part-time massage therapists and eight part-time Pilates/yoga instructors. We have been working together as physiotherapists on Cirque du Soleil's *Alegria*, a touring show, for the past three years.

Alegria is a troupe of 56 artists, who have been cast and recruited from all around the world with a wide variety of backgrounds. Our caseload consists of acrobats, contortionists, fire dancers, clowns, tumblers, trapezists, handbalancers and musicians.

By definition, the injuries sustained are work-related injuries but this is not an average workers comp caseload. The variety and types of injuries as well as the attitudes amongst this group are what make this population unique, even in

comparison to professional athletes and traditional circus performers.

Physiotherapy under the Big Top

The role of a physiotherapist at Cirque is to promote health and wellness through the prevention and treatment of injuries. Education regarding nutrition, hydration, injury management, physical conditioning, warm up, stretching, rest, and workload modification, plays a huge role in our injury prevention strategy. Our treatment approaches are varied, with a strong emphasis on manual therapy and exercise.

Physiotherapists at Cirque function and operate within an “artistic team” on the show. The team consists of an artistic coordinator, wardrobe, stage managers, coaches and therapists. On a show by show basis, therapists are responsible for making decisions on an injured artist’s workload, including his/her main act and secondary assignments in the show. The health and safety of each individual artist is our number one priority.

Physiotherapy treatments occur in the morning or afternoon before a show, between shows and during the intermission. Our clinic is set up inside a training tent which connects to the big top. The entire clinic is essentially on wheels and can be packed away into road cases which are then loaded onto one of 50 transfer trucks that transport the big top, stage and infrastructure of the tour.

Prior to arriving in each city on tour, therapists contact and establish local medical specialists for consultations, imaging, and surgical interventions that may be required. These physicians are often team physicians for professional major sports teams or university sports medicine clinics. They are then invited to opening night of the show to have a better appreciation of the extreme loads and movements associated with different acts in a particular show.

Cirque therapists are also responsible for establishing and implementing emergency care protocols. Like many sport physiotherapy assignments, Cirque therapists are the primary first responders in the event of an accident in training or during a show. On many shows, therapists change into black clothing and are physically backstage or under the stage during high-risk acrobatic acts.



While on tour, we live, eat, hang out, and travel with our patients. The positive side to this is that we get to know them very well. We see the artists every day and are able to treat them a couple of times throughout the day if needed. We see the immediate effects of treatment on their function as we observe training and the show. There is plenty of time to observe their daily routines and to provide constant feedback. We can see dysfunctional movement patterns developing, and implement an injury prevention exercise program, before symptoms start. As we become closer to the artists, and learn more about their acts and their bodies, prevention plans and treatments become more comprehensive and efficient.

Here on Alegria, we have adopted a teamwork approach to treatment. Each artist’s case is followed by both therapists with daily treatment updates and shared decision making regarding progression of treatment, exercise programs and workload. This is a benefit to both the artist and the therapist. It encourages a collaborative approach and ensures clear communication between therapists and artists, as well as within the artistic team. We also work closely with the coaches on injury prevention strategies, as well as the rehabilitation and integration

Send in the Clowns can't

of an injured artist back into the show. Together we modify and monitor overall workload and create specific strength and conditioning programs. The training backgrounds of these artists and coaches are very diverse, and so are their beliefs about health and wellness. Alegria performers speak a total of twelve different languages and range in age from 12 to 65 years old. Recognizing and respecting these cultural differences will help the therapist, coach, and artist to work together to establish a strategy to promote health and longevity of their career.



Clinical Challenges at Cirque

The biggest challenge for us on Alegria, as with many other Cirque shows, is treating and effectively managing repetitive strain and overuse injuries, muscle imbalances, and clinical instabilities. A typical tour plan for a touring show consists of 6-8 weeks in each city, performing 9-10 shows per week with only one day of rest. This can be a grueling schedule, with an average of 350 shows per year.

There is no pre-season training and no post-season recovery period. Cirque is in “high season” all year round, with great expectations from every performance. Many of these artists come from an athletic background in which their training and performance or competition contained variety. Prior to Cirque, their training schedule had built in rest periods and was designed around peaking for competitions. Given the volume and repetitive nature of the loads on the artist’s bodies, it is not surprising that the majority of injuries that we see are related to overuse and instability.

At Cirque, many artists are trained and hired to do one act wherein the movement patterns and loads are repeated many times every week in training and during the shows. Often times part of their exercise program will involve training opposite movement patterns, or exercises designed to unload the overworked tissue.



Anyone who has ever seen a Cirque show will remember the contortionists. The sometimes shocking image of a young girl bending herself in half will stick in your mind long after the show ends. This is an interesting and at first, intimidating, patient population to work with. In many ways their physical limits would normally be considered pathological but, in terms of their work, this is highly functional.

Injury prevention in the hypermobile population must focus on training control of movement throughout range, with specific emphasis on end range joint stability. The normal passive stabilizing system you would expect to limit this end range may have lost its ability to protect the joint after many years of prolonged, aggressive stretching.

Send in the Clowns con't

By focusing on training the deep stabilizing system in end range positions, the repeated stress on the osseous and ligamentous structures will be reduced.

Life on Tour

Life on tour as a physiotherapist is definitely an adventure. Since joining Alegria we have toured throughout Canada and the US, Japan, and now Europe. This year alone, we will visit London, Milan, Rome, Amsterdam, Brussels and Madrid. In between cities, there is one week of rest as the equipment is transported and set up to get ready for the next city. Most of this time is spent traveling or visiting with friends and family.

There are almost 150 people in the Alegria family. Besides the artistic department, we have technical, human resources, tour services, accounting, kitchen, site crew, and public sales teams on tour. Many artists will have their family on tour with them. We even have our own school, with 3 teachers and 14 students.

At times, it can be difficult to be away from home for such extended periods. But, we hang our Canadian flag proudly in our clinic, and reminisce about the Atlantic Ocean, downtown Halifax and Alexander Keith. Life is good.

Who is Ian Goodwin BScPT, FCAMT?. Ian is a graduate of Dalhousie University. Prior to running away with the circus in 2003, he worked in private practice in Halifax and assisted with the orthopaedics labs at Dalhousie. Ian plans to finish his work with Cirque later this year and move to Calgary.

Who is Martha Purdy BScPT?. Martha is a graduate of Dalhousie University. She is a former member of the Canadian National Trampoline and Tumbling Team, which led her to pursue a career at Cirque du Soleil. She plans to continue touring with Alegria throughout Europe and South America.



All pictures for this article were taken by Al Seib.

The pictures contained within this article have been re-printed with permission from the photographer.

A promotional banner for Cirque du Soleil. On the left, the text "Join Cirque!" is written in a large, white, stylized font. To the right, there is a photograph of a performer in a vibrant, multi-colored costume with a large, ornate headpiece. The performer is striking a dynamic pose with arms outstretched. The background of the banner is dark with a blue and yellow color scheme. Text on the banner includes: "Our talent isn't restricted to the stage. In fact, Cirque du Soleil™ has over 2,500 employees who provide support for our shows 365 days a year. Cirque du Soleil is always looking for talented physiotherapists/athletic therapists to provide our artists with curative treatments and design rehabilitation programs. For a detailed description of this position, please consult our website under the 'Working at Cirque' section and apply online." The Cirque du Soleil logo, a stylized sun, is visible in the bottom right corner, along with the website address "www.cirquedusoleil.com".

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Dance has many physical demands, such as strength, flexibility, co-ordination, and aesthetic appearance. In addition, there is a “year-round” performing season allowing little rest from daily training. Timely appropriate injury management is imperative for survival as a professional dancer, with outright prevention being the preferred approach. The following article discusses the key factors influencing injuries in dance and highlights their impact in a working case example of a young pre-professional dancer. The assessment and subsequent treatment plan will be presented using a prospective model of clinical reasoning (1).

Dance Injury Profile

Dance injuries can be **acute** or **chronic**. Acute injuries, such as an ankle sprain resulting from a poor landing, are relatively uncommon (35%) (2,3). Dancers tend to suffer more from chronic injuries (65%) (2-5), such as a “snapping hip” or shin-splints. These injuries are the result of repetitive strain from aberrant movement patterning due to a combination of intrinsic and/or extrinsic factors (Table 1). All of these factors need to be considered when assessing either a dancer with a presenting injury or screening dancers for potential injury risk. The physiotherapist must also keep in mind that many of the intrinsic characteristics will change as younger dancers mature (3).

Table 1. Intrinsic & extrinsic factors influencing dance injuries (2-6).

Intrinsic Factors	Extrinsic Factors
Anatomical Alignment	Technique & Choreography Demands
Muscle-Tendon Length Balance	Quality of Instruction
Technical Ability	Footwear
General Health	Floor Surface
Nutrition	Studio Temperature
Psychological Stressors	
Growth Pattern	

Case Example: Prospective Clinical Reasoning of a Dance Injury

The Prospective Model of Clinical Reasoning states that hypothesis development and building of potential differential diagnoses are inter-related during the subjective examination stage of assessment, when observational and history question responses are compared in light of one’s core knowledge in anatomy & physiology (1). Instead of a highly structured & sequenced testing protocol, pertinent information is gathered by recognizing the characteristics of clinical patterns and using further objective screening to confirm or refute the differential diagnoses (1). A useful tool in approaching assessment is the Star Model (7), which organizes the collection of signs & symptoms to identify a relevant issue into 1 (or more) of 5 key body systems most commonly encountered by physiotherapists in clinical practice: osseous, vascular, neurological, muscular, or articular. Thus, each patient will uniquely influence the structure of the assessment as seen in the following example of a 13 year old ballet dancer (1).

Subjective Examination

History of Present Injury & Nature of Pain

A 13 year old 155 cm petite female ballet dancer presented in clinic with complaints of left (L) hip pain 2 weeks prior to her ballet exam. She described the symptoms coming on over the previous week of classes and pointed to her L gluteal area as the primary locus of pain. There was no referral down the L lower extremity, and does not complain of any paresthesia, numbness, or significant weakness in the lower extremity.

Aggravating Factors

Any movement involving extension of the L leg aggravated her symptoms (dégagés or grande battement derrière, arabesque – Figure 1), as well as grande pliés (deep squats in a turned out position), pirouettes (L leg supporting), and jumps.

Easing Factors

Rest, moist heat, and ice all helped to relieve her pain.

Training Intensity

Her regular training schedule included 4 classes or 6 hours/week (2 ballet, 1 jazz, and 1 modern). She had already stopped attending jazz and modern and was being tentative with the aggravating exercises in ballet class. She felt she needed to continue training due to her upcoming exam, thus she did not want to take a complete rest.

History of Previous Injury

Her past injury history included right (R) sacroiliac joint (SIJ) pain, bilateral patellar tendinitis, and bilateral posterior compartment (tibialis posterior) shin-splints. Each injury episode had settled within 7-10 days with rest, ice, and exercise education.



Subjective Examination Analysis

Using the Star Model to identify the body system(s) involved, there were no presenting symptoms of significant loss of bony integrity. The only vascular symptom described was her positive response to an anti-inflammatory agent (ie. ice), indicating a degree of inflammation may have been present. The localized pain in the L posterior buttock with no referral down the leg, along with a lack of paresthesia, numbness, or complaint of significant weakness negated a neurological deficit. However, there were a significant number of symptoms suggestive of a mechanical pain mechanism involving an articular and/or a muscle dysfunction.

The mechanical nature of her pain was apparent in the progressive aggravation by an increase in height of hip extension movements, as well as loading through the L leg in pirouettes and jumps. Bilateral vertical shear also provoked discomfort as seen with grande pliés and 2-foot jumps. Her symptoms responded well to treatment that would address mechanical issues (ie. rest, altering technique performed, moist heat for muscle cramping). She had been training intensively with little rest and had the added physical and mental stress of an impending ballet exam. Additionally, she had a history of lower extremity joint hypermobility and muscle imbalance injuries.

Analysis of the preceding subjective findings suggested there were two differential diagnostic categories for this dancer: an articular dysfunction (lumbar, SIJ, or hip) and a functional muscle imbalance (lumbopelvic core, gluteus maximus, gluteus medius, psoas major, quadriceps, hamstrings, etc.). These differential diagnoses then directed the objective exam to collect the relevant data to confirm or refute each differential diagnosis with the final goal to establish a working diagnosis (1).

Objective Examination

Differential Diagnosis #1: Articular Dysfunction

Results of passive range of motion & mobility tests:

- Lumbar spine AROM: full no abnormal waist creasing
- Standing forward bend: performed preferentially from the lumbar spine more so than the hips
- Passive hip flexion: full, bilaterally
- Gillet's test positive L side only (minimal movement in the L sacroiliac joint (SIJ) during both ipsilateral and contralateral test components)
- PIVMs lumbar spine: lax with a late onset of a ligamentous end-feel
- Hip quadrant negative, bilaterally

Dance Injury: A Case Exam con't

- Passive mobility of the R SIJ: lax with a late onset of a ligamentous end-feel
- Passive mobility of the L SIJ: early end-feel, quite “guarded”, but no painful spasm

Differential Diagnosis #2: Muscle Dysfunction

Objective screening for muscle imbalance issues involved a combination of muscle length, strength, and patterning tests:

- Increased R hip “hiking” (R innominate elevated) with concurrent internal rotation of the L femur during L single leg balance
- Hip extension achieved predominantly by the hamstrings, bilaterally
- Hip abduction driven primarily by the tensor fascia lata (TFL) (L>R side)
- Active Straight Leg Raise (ASLR) test displayed an anterior shift of the instantaneous centre of rotation (ICR) of the L femur. This was accompanied by pain, which improved with bilateral anterior pelvic compression (mimicking transversus abdominis) but worsened with bilateral posterior pelvic compression (mimicking multifidus).
- Modified Thomas test: shortened TFL & rectus femoris (L > R side) with relatively lengthened psoas muscles, bilaterally
- L piriformis shortened on passive length testing & TOP
- Muscle strength testing reported
 - o L gluteus medius 3+/5
 - o R gluteus medius 4/5
 - o L & R gluteus maximus 4/5
 - o lower abdominals Sahrmann Level 1A (8).

Objective Examination Analysis: Working Diagnosis

Given the predominance of muscle imbalance findings, especially with respect to aberrant motor control patterning, the resultant working diagnosis was a muscle imbalance affecting the dancer’s movement strategy through her L hip & pelvic girdle. Although there was abnormal L SIJ movement, this appeared to be secondary to the strength and patterning imbalance between her hamstrings, gluteals, hips abductors, and quadriceps rather than a primary local joint restriction. Thus, the treatment plan focused on spinal stabilization exercises and motor control patterning tasks to improve her movement strategy. The dancer’s response to treatment was monitored to further confirm the appropriateness of the diagnosis and assist in developing effective treatment goals.

Intervention

The treatment plan began with learning the basics of isolating transversus abdominis, anterior pelvic floor, and multifidus activation (in the absence of excessive gripping of the posterior pelvic floor and deep hip external rotators) (9). The activation of these inner core muscles were further challenged through integration with multi-muscle movement patterns (9). As a result, she was able to perform the ALSR test with the ICR centralized and achieve hip extension with the gluteus maximus as the prime mover(8). Exercises were modified to incorporate the motor patterns of technique demands, such as tendus, dégagés, passés, pliés (2 and 1 leg support), rises (2 and 1 foot), and relevés (2 and 1 foot), which assisted integration of concepts into ballet class. Physical modalities (ultrasound & interferential current) were used to assist in decreasing local adverse muscle guarding and pain in the L piriformis.

Outcome: Benefits to Dancer

The young dancer was gradually able to return to full ballet class participation over the subsequent 4 classes and was prepared to successfully challenge her examination. Due to her absence of pain, she chose to return to her full class load without further therapy. Thus, she was educated to continue her physiotherapy exercises daily and as a “warm-up” to technique class for another 4 weeks to ensure effective integration of motor pattern learning.

Ideally, treatment would have continued to progress the dancer’s exercises beyond the goal of improving motor patterning to incorporate exercises geared for strengthening. Her predominant weakness lay in her abdominals and gluteus maximus. She would have benefited from resistance exercises to target these areas, including upper

extremity strengthening which concurrently challenges trunk muscle strength. Given her history of lower extremity joint hypermobility and muscle imbalance related injuries, she has an increased likelihood of reoccurrence of a similar injury unless she progresses to the level of sufficiently strengthening the muscles of noted weakness. Furthermore, a period of rest during a dancer's training schedule should be considered to provide a break from the daily demands of dance training. This period could include either physical activities of another nature to change the neuromuscular demand on the body or participation in related fields such as music or visual arts for a variation in mental stimulation.

Conclusions

In conclusion, dance injuries need to be managed with the influential intrinsic and extrinsic factors in mind (2-6). Given the majority of injuries are chronic, successful rehabilitation results from understanding the technical demands of dance and how these are reflected in the presentation of the injured dancer (2). As shown here, the use of the prospective model of clinical reasoning helped guide the physiotherapist to collect relevant data in a timely fashion and reach a valid working diagnosis through integration of observational & subjective history findings with physical characteristics (1). Accurate identification of an injury mechanism is key for developing an effective treatment plan to retrain and optimize functional movement patterns to meet the physical demands of dance and allow symptom-free performance of the art form.

Acknowledgements

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Dance Injury: A Case Exam cont'/Clinical Tib-Bits from the 2006 World Junior Figure Skating Championships

Who is Sarah Gordon-Yanofsky? Sarah graduated with her Bachelors and Masters in Physical Therapy from the University of Western Ontario in 1999. Her thesis research was conducted in the field of dance exercise physiology. She is currently a Fellow of the Canadian Association of Manual and Manipulative Therapists (FCAMT) and an Intramuscular Stimulation (IMS) practitioner. She is presently a full-time student in an Interdisciplinary PhD program at Dalhousie University, combining Physiotherapy, Biomedical Engineering, & Industrial Engineering disciplines in her doctoral research. She also maintains part-time clinical work within the Halifax Regional Municipality, and remains active in personal dance training with the ThirtySomething Dance Co-operative.

Clinical Tid-Bits from the 2006 World Junior Figure Skating Championships by Agnes Makowski

Skate Canada had strong athlete representation at this year's World Junior Figure Skating Championships in Ljubljana, Slovenia. Sixteen Canadian skaters competed in total: three pairs' teams, three dance teams, two men's and two ladies' teams. Therapy and medical coverage were provided for all practices and competition over a ten day period, from March 3-12, 2006. This was the first major international competition for most of our young Canadian athletes. Despite this, many of our skaters accomplished personal best performances, including several top ten finishes. This particular event was also special as Canada celebrated its first ever gold medal at the Junior World ice dancing level. Ice dancers Tessa Virtue and Scott Moir were the champions and had an outstanding competition. They will be leading the pack of talented Canadian figure skaters who are aiming to compete at the 2010 Vancouver Games.

Competition in the sport of ice dancing is high. Male and female partners perform a series of difficult routines to different types of music. There are three required components to ice dancing: a compulsory dance (specific dance routine that all competitors must perform), an original dance (2.5 minutes in duration) and a free dance program (3 minutes in duration at the junior level). The required technical moves are challenging and include complex footwork, small lifts and short spins. Ice dancing teams train with an emphasis on intricate, close footwork and symmetry in timing of movements on the ice. The sport also features high velocity and rapid sequencing of steps. Falls may occur at all levels of performance. Lacerations may also occur as partners become entangled in the complex footwork. Therapists should be aware that the physical demands of this discipline of skating stress the skaters' knees and backs in particular. The athletic demands require endurance, strength and flexibility.

The following lists the types of injuries/conditions treated amongst this year's Canadian World Junior figure skaters: chronic ankle sprain, sub-acute patellofemoral pain syndrome (PFPS), acute quadriceps strain, sacroiliac (SI) joint contusion, chronic foot pain/possible stress fracture, SI joint sprain/repetitive strain and low back pain, hip abrasion, finger laceration (superficial), gastrointestinal (GI) upset, and upper respiratory illness.

Skate Canada support staff for international events usually consists of a minimum of one team leader, a physician affiliated with the Canadian Academy of Sport Medicine (CASM) and a physiotherapist with Sport Physiotherapy Canada (SPC) membership and training.

Therapy and medical duties for this year's World Junior Championships were divided between two skating rinks (practice and main) depending on the athletes' needs each day. The majority of therapy intervention was performed in the athletes' hotel pre-and post-event, since therapy space was very limited at the rinks. However, all countries hosting an International Skating Union (ISU) competition have medical/therapy support available at the venues in order to assist the athletes and the traveling health care teams as needed throughout the event.

Physiotherapy treatments at World Juniors consisted of the following: manual therapy techniques for peripheral joint, SI joint and low back pain; athletic taping for ankles, knees, SI joints and low back sprains/strains; pre- and post-event massage for low back, quadriceps and ankle strains; supportive tensor wrapping for quadriceps and lower leg strains; electrotherapy (therapeutic ultrasound and interferential current) for pain management; pre- and post-event education regarding stretching, hydration and general principles of recovery between training sessions.

Clinical Tid-Bits from the 2006 World Junior Figure Skating Championships con't

It is important to note that the competitive figure skating season is a long one. The World Championships always occur near the end of the season and many skaters have been training and traveling for several months, without the opportunity to taper adequately between events. As a result, many of the injuries encountered were repetitive strain and over-use related.

During this year's competition there were two significant lumbo-pelvic injuries that required effective, yet discreet taping. Two of the Canadian female skaters required supportive low lumbar spine and SI joint taping for 3-4 days' worth of practices and competition. The types of athletic tape that were essential included hypafix, leucoplast, elastic tape (elastoplast) and coband (light stretchy tape). Skin-tone colored taping materials were in high demand, since the costumes for many of the female competitors can be very revealing and often leave the skaters' back area exposed. Figure skaters are judged on their technical skills performance however marks are also given based on artistic expression which includes appearance and costume. Any exposed athletic tape, especially white tape can be very distracting to judges and observers who are following the skaters as they perform in the midst of the bright arena lights.

The following pictures demonstrate a series of progression for a lumbo-pelvic taping technique that was performed for a skater who sustained a repetitive extension low back injury and additional SI joint irritation. The goals for athletic taping were to reduce strain on the L4-5/L5-S1 spinal segments and to facilitate force closure of the SI joint. This taping technique emphasizes the principles of form and force closure of the pelvis advocated by Vleeming and Lee (1999, 2000, 2002).



Figure 1 & 2: Application of hypafix on skin that is adequately sprayed with tape adherent. Tape focus is over L5-S1 and the PSIS. Tape applied in prone to promote neutral spine position.

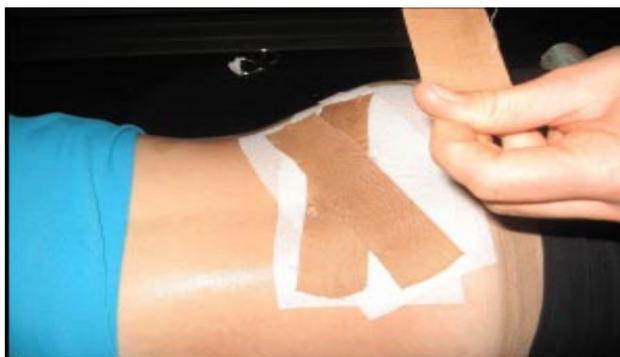


Figure 3: Application of leucoplast for increased stiffness and support.

Clinical Tid-Bits from the 2006 World Junior Figure Skating Championships con't



Figure 4: Application of skin-coloured elastoplast



Figure 5: Hypafix application is done in standing to facilitate form closure of the SI joint. The hypafix base layer protects the athlete's skin.



Figure 6 & 7: Leukoplast is applied. Pulled towards the PSIS is thought to facilitate multifidus and towards the ASIS, the transversus abdominus. Taping both sides promotes greater form closure around the pelvis.

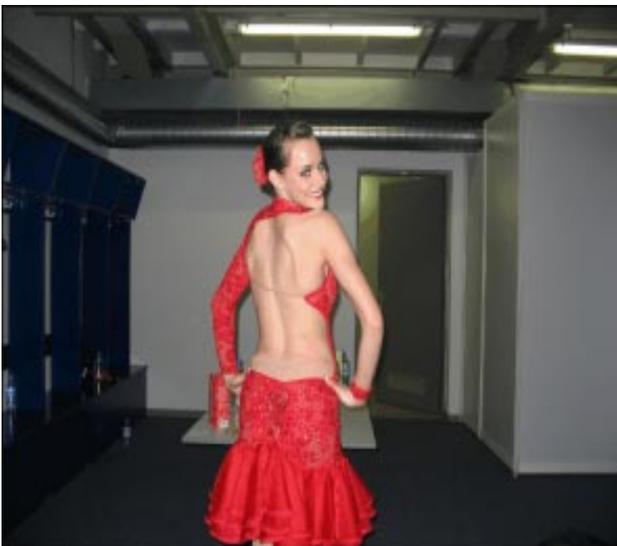


Figure 9: 2006 Jr. World Ice Dancing Champions Tess Virtue and Scott Moir of Canada

Figure 8: Tessa Virtue in her lovely ice dancing dress and a well concealed tape job! (Clinical tidbit: Skin-coloured coban should be applied over the entire tape job; any sign of white tape can be very distracting to skating judges and observers).



In summary, low lumbar spine and SI joint repetitive strain is not uncommon in figure skating. Physiotherapists working with competitive figure and/or synchronized skating teams should stock their therapy kit with supplies appropriate for potential lumbo-pelvic taping needs (ie. hypafix, leucoplast, elastic tape and coband). Skin-tone colored athletic tape can be functionally effective and respects the unique needs of costume artistry.

Who is Agnes Makowski BSc PT (University of Toronto), MSc PT (Orthopaedic Stream, University of Western Ontario), Diploma Sport Physiotherapist, RCAMT? Agnes currently working with Catherine Striowski & Associates Physiotherapy in Toronto, Ontario. Agnes has provided physiotherapy coverage for Skate Canada at the divisional, provincial, national and international levels for both figure and synchronized skating and is presently presently SPC Chair-Elect and looking forward to the role of SPC Chair for the fall of 2006 - 2008



Figure 10: Figure skating is a team effort; Agnes, Tessa and Skate Canada Team Leader Carolyn Albright.

All pictures for this article were provided by Agnes Makowski and re-produced with permission.

Pictures Always Wanted!!!

Have you recently travelled with a Provincial or National Team to local or international events - or have you been member of the Canadian Health Care Teams for any of the Major Games - Send us your pictures and we will share your experiences with other SPC Members.

Send your pictures to the SPC National Office in JPEG format if possible.

Thanks!

SPC Certification Candidate Application Form

Personal Information

Name: _____ Date of Birth: _____

Mailing Address: _____

City: _____ Province: _____ Postal Code: _____

Tele: () _____ (w) _____ E-mail: _____

() _____ (h) _____

() _____ (f) _____

Academic Information

Qualifications: _____

Name of School _____ Year _____

Name of School _____ Year _____

For Student

Members Only:

Name of School _____ Expected Graduation Date _____

Employment Information/Membership Information

Place of Employment: _____

of Years: _____

Are you currently an SPC Member in Goodstanding: _____ Yes _____ No CPA Number: _____

Please indicate the format that you would like to receive your SPC Education Syllabus: _____ Paper Copy _____ On CD

Certification Candidate Requirements:

- * A member in goodstanding with CPA
- * A member in goodstanding with SPC (Student Membership in SPC fulfills the membership requirements for the Certification Candidate)
- * Copy of **current** standard St. John's First Aid Certificate (or equivalency***) Please note that a First Responder, BTLs, CSPS or such advanced courses are strongly recommended although the criteria remains basic first aid plus CPR. (***) **Equivalency means the First Aid Course must meet the standards are established by the St. John's Ambulance and the Heart and Stroke Foundation of Canada respectively for acceptance by SPC. It is the member's responsibility to contact St. John's Ambulance or the Heart and Stroke Foundation. SPC requires written verification of course equivalency.)**
- * Proof of a **valid** CPR Certification at a minimum "Basic Rescuer - Level C" or its equivalency.
- * **Registration fee of \$50.00 for graduate Physiotherapists. For Students the registration fee is \$25.00 and then \$25.00 upon graduation (proof of graduation is required - a photocopy of your Certificate is sufficient proof).**
- * Please make your cheques payable to Sport Physiotherapy Canada (SPC), unfortunately SPC is not equipped to accept Credit Cards at this time.
- * **Proof of all appropriate requirements must be submitted with the application along with the registration fee before it will be processed. All incomplete application forms will be returned for completion.**

Submit completed application forms to the SPC National Office at:

Sport Physiotherapy Canada
5330 Canotek Road, Unit 4 (Upstairs)
Gloucester, ON K1J 9C1
613-748-5792 (fax)
info@sportphysio.ca (e-mail)

2006-2007 SPC Examination Cycle Deadline Dates

The SPC Oral/Practical Examination for the 2006-2007 Examination Cycle will be held in Eastern Canada. The exact location and confirmed date has not yet been finalized. Watch for future issues of Momentum and e-mail notices to announce the location of the Oral/Practical Examination.

Certificate Exam Fee Structure:

Application fee	\$ 50.00
Written exam fee	\$150.00
Oral/Practical exam fee	\$400.00
Total	\$600.00

Diploma Exam Fee Structure:

Application fee	\$ 50.00
Written exam fee	\$200.00
Oral/Practical exam fee	\$500.00
Total	\$750.00

To ensure the safe arrival of all documentation, the use of registered mail, certified mail or a courier service is strongly recommended. "Deadline date" means the postmark must read a date no later than that in the timetable below. Listed below are the deadline dates for the 2006-2007 SPC Examination process:

Step #1:	Receipt by the Credentials Officer of the candidate's application, all supporting documents and application fee. Application Fee: \$50.00	Friday, July 7th, 2006
Step #2:	Notification of the candidate by the C.O. of the candidate's status.	Friday, July 21st, 2006
Step #3:	Receipt by the C.O. of the candidate's written component fee: Certificate: \$150.00 Diploma: \$200.00	Friday, August, 11th, 2006
Step #4:	Presentation of the written submission to the exam invigilator.	Friday, September 22nd, 2006
Step #5:	Written examination. The Written Examination takes place in your home city.	Friday, September 22nd, 2006
Step #6:	Notification of the candidate by the C.O., regarding their results.	Friday, October 6th, 2006
Step #7:	Receipt by the C.O. of the candidate's oral/practical component fee: Certificate: \$400.00 Diploma: \$500.00	Friday, November 3rd, 2006
Step #8:	Oral/Practical Exam – Location to be confirmed – Eastern Canada	February/March 2007
Step #9:	Notification of the candidate by the Chief Examiner regarding their results.	March 2007
Step #10:	Receipt by the Chief Examiner of any appeal on any component of the exam.	April 2007

If you are interested in attempting your SPC Certificate or Diploma Holder levels, please contact the SPC National Office for a complete Examination Application form.

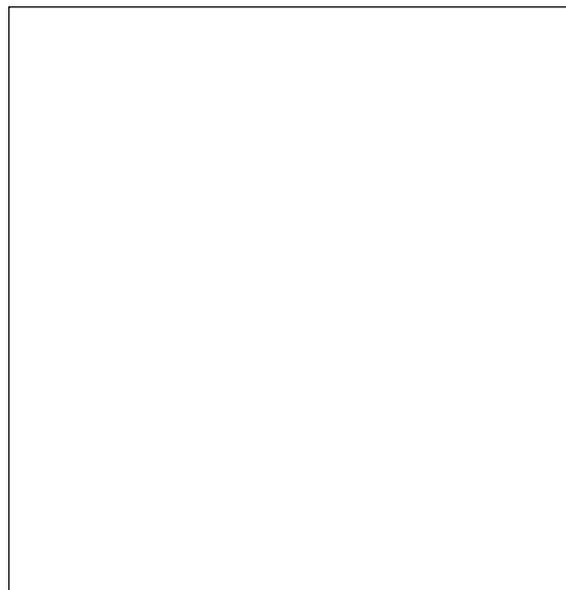
Certificate Level Exam Requirements:

1. Proof of graduation in physiotherapy (eligible for CPA Membership).
2. A member in good standing with CPA and SPC.
3. Successful completion of Certification Candidate status.
4. Copy of a **valid** CPR Certificate at a minimum "Basic Rescuer" Level.
5. Experience: A **minimum of 200 hours** of documented practical experience as a graduate Physiotherapist. A minimum of 75 hours of which must be in a contact sport. Proof of reports to Credentials Officer.
6. Letter of recommendation from a recognized Mentor in the SPC Education System.
7. Application/Administration fee payable to **Sport Physiotherapy Canada (SPC)**.

Diploma Level Exam Requirements:

1. A graduate Physiotherapist
2. A member in good standing with CPA and SPC.
3. Successfully met the requirements of the Certificate Level.
4. Copy of a **valid** CPR Certificate at a minimum "Basic Rescuer" Level.
5. A firm understanding of the recommended Canadian entry to practice physical therapy curriculum.
6. Experience: A **minimum of 200 hours** of documented practical experience to successfully complete the Sport Physiotherapy Diploma. Hours used for the SPC Certificate Application **cannot** be used again when applying for the Diploma Exam. It is strongly suggested that the Candidate work with one of the sports that provide a high incidence of injury so that they will develop their skills in acute care and assessment techniques.
7. Letter of recommendation from a recognized Mentor in the SPC Education System.
8. Application/Administration fee payable to **Sport Physiotherapy Canada (SPC)**.

Contact Sport Physiotherapy Canada for additional information
5330 Canotek Road, Unit 4 (Upstairs)
Gloucester, ON K1J 9C1
613-748-5792 (fax) or info@sportphysio.ca (e-mail)



**2004-2006 National Executive Committee / Comité
de direction 2004-2006**

Chairman/Présidente

Shelly Malcolm
c/o The Physioclinic: Woodlawn
114 Woodlawn Rd
Dartmouth NS B2W 2T3
Bus: (902) 435-2300
Fax: (902) 420-5844
E-mail: smalcolm@physio.ca

Chair-Elect/Présidente désignée

Agnes Makowski
S1703 - 380 King St.
London, ON N6B 3L6
Bus: (519) 452-4253
Fax: (519) 452-4415
E-mail: amakowski@rogers.com

**Treasurer/Trésorière & Special Projects/
Projets spéciaux**

Alison Buckley (Treasurer & Special Projects)
45 Stoneham Drive
Moncton, NB E1G 4Z5
E-mail: abuck01@hotmail.com

Sushu Parab (Special Projects)
P.O. Box 27111
Halifax, NS, B3H 4M8
Bus.: 457-6471 (w)
E-mail: sparab@physio.ca

Newsletter Editor/Redacteur du bulletin

Shannon Estabrooks
Director, Active Life Physiotherapy & Massage
Clinic
535 East River Road
New Glasgow, NS B2H 3R5
Bus. (902)752-9926
Fax: (902)752-8251
E-mail: activelife@ns.aliantzinc.ca

Chief Examiner/Examinatrice en Chef

Sarah Marshall
c/o SPC National Office
5330 rue Canotek Road
Unit #4 - Upstairs
Gloucester, ON K1J 9C1
Bus: (514) 457-3440 ext. 2567
Fax: (514) 457-4199
E-mail: Sarah.Marshall@vac-acc.gc.ca

**Education Chair/Présidente de
l'Éducation**

Susie Renaud
c/o Physio Sport Plus
1-1190 Place d'Orleans Drive
Gloucester, ON K1C 7K3
Bus: (613) 830-4806
Fax: (613) 830-1229

Credentials/Accréditations

Lois Pohlod
7 Westbluff Place
Calgary, AB T3Z 3N9
Bus: (403) 289-0040
E-mail: slopoh@shaw.ca

**Maintenance of Credentials/Maintient
d'accréditation**

Shirley Kushner
P.O. Box 62
Victoria Postal Station
Westmount, QC H3Z 2V4
Bus: (514) 938-3628
Fax: (514) 938-9532
E-mail: physiokushner@videotron.ca

**SPC Provincial/Territorial Council Representatives
Le Conseil des représentants provinciaux et régionaux du PSC**

Alberta - Interim Chairperson

Lois Pohlod
7 Westbluff Place
Calgary, AB T3Z 3N9
Bus: (403) 289-0040
Fax: (403) 289-2035
E-mail: slopoh@shaw.ca

British Columbia/Colombie-Britannique

Laura Andrews - Co-Chair
2436 West 12th Avenue
Vancouver, BC V6K 2P1
Bus: (604) 730-9478
Fax: (604) 730-9483
E-mail: laura@uniserve.com
and

Denise Morbey - Co-Chair
274 East 9th Street
North Vancouver, BC V7L 2B1
Bus: (604) 990-7851
Fax: (604) 984-7543
E-mail: dgmorbey@telus.net

Saskatchewan

Daysha Shuya
3154 Renfrew Pt. East
Regina, SK S4V 2Y3
Bus: (306) 337-2640
Fax: (306) 761-1596
E-mail: dayshakym@hotmail.com

Manitoba

Lori Piscelevich
c/o Vista Place Physiotherapy
1633 St. Mary's Road, Unit E
Winnipeg., MB R2N 1Z4
Bus: (204) 253-2165
Fax: (204) 253-2229
e-mail: piscelevich@hotmail.com

Ontario

Tricia Hayton
20-3221 Derry Road West
Mississauga, ON L5N 7L7
Bus: (905) 785-0136
Fax: (905) 785-2018
E-mail: progressiverehabilitation@bellnet.ca

Québec

Carol Gilbert
780 Union Street
Ste. Dorothée, QC H7X 1X6
Bus: (514) 745-3100
Fax: (514) 745-6083
E-mail: carol@action-sport.com

New Brunswick/Nouveau Brunswick

Laurie Boisvert
99 Tipperary St.
Shediac, NB E4P 2V6
Bus: (506) 532-2117
Fax: (506) 532-2715
E-mail: woovert@hotmail.com

Nova Scotia/Nouvelle-Écosse

Andrew White
24-3343 Westerwald St.
Halifax, NS B3N 2S6
Bus: (902) 479-2063
Fax: (902) 479-2809
E-mail: gawwhite@is2.dal.ca