Strength and Conditioning in Dance: Power, Performance and Rehabilitation

30 October 2015
Elmhurst School of Dance
Birmingham
Welcome to Strength and Conditioning in Dance: Power, performance and rehabilitation. Our Healthier Dancer Conferences are always designed in response to feedback from members and from delegates at previous events. This time you told us you wanted practical sessions that put some of the theory behind performance enhancement into practice. We hope you’ll find we deliver on that today. This conference is also a timely response to recent calls from dancers, artistic directors and choreographers to revolutionise training and performance to improve dancers’ fitness and physical capacity.

Improving dancers’ fitness and strength and the impact that has on performance is something that dance scientists have been studying and advocating for some time. The 1996 Brinson and Dick report Fit to Dance? highlighted that dancers should really be fitter and that this might help to prevent injury as well as improve performance. Dance has been learning a lot in the intervening years from the successful use of supplementary training in elite and Olympic level sport and has even been leading the way in reaping the benefits from a range of body conditioning techniques such as Pilates and yoga. And crucially, a growing body of dance specific research is now beginning to bear out the idea that fitter dancers are able to perform better and may be better protected from injury.

We are extremely excited that so many of you are here today, ready and willing to learn from and with experts in physiology and strength and conditioning for dance and elite sport. We hope you will enjoy, sweat, question and end up taking home an embodied understanding of effective strength and conditioning for dancers, as well as a theoretical one, that you can put into practice wherever you work.

Dance as an art form is pushing both artistic and physiological boundaries. Throughout their training and careers, dancers must be prepared for the demands of many styles, choreographic voices and physical demands.

Erin Sanchez, Sarah Beck, Helen Laws
The Healthier Dancer Programme / NIDMS team

With thanks to our funders and sponsors
about us

National Institute of Dance Medicine and Science &
Dance UK’s Healthier Dancer Programme

This Strength and Conditioning in Dance: Power Performance and Rehabilitation conference has been organised by Dance UK’s Healthier Dancer Programme (HDP) the primary education programme of the National Institute of Dance Medicine and Science.

Dance UK’s Healthier Dancer Programme is a worldwide leader in the promotion of dancers’ health and well-being. Since 1990, it has undertaken a programme of advocacy and education for all those involved in dance, from grass roots to elite. It provides information and advice and undertakes and facilitates research with the aim of improving the physical and psychological health and wellbeing of dancers and enhancing their performance.

Dance UK’s HDP was the driving force behind establishing The National Institute of Dance Medicine and Science (NIDMS), a network of multidisciplinary partners who work together to provide better and more affordable access for all dancers to high quality, evidence-based, dance specific health care and dance science support services.

Launched in 2012, the founding partners of NIDMS are Dance UK, Trinity Laban Conservatoire of Music and Dance, University of Birmingham, University of Wolverhampton, Birmingham Royal Ballet's Jerwood Centre for the Prevention and Treatment of Dance Injuries, and the Royal National Orthopaedic Hospital (RNOH). These organisations include some of the UK's leading dance medicine and science researchers and clinicians and the most state-of-the-art dance medicine and science facilities available to dancers in the UK.

NIDMS’ three main areas of work are in Research, Education and Clinical Services. Find out more about everything we do at www.nidms.co.uk.

Research – Dance UK carried out the two major Fit to Dance inquiries into dancers’ health and injury (1996, 2005), surveying 2000 professional and pre-professional dancers and highlighting the fact that 80% of dancers incur an injury each year affecting their performance.

Education – since 2012 the HDP has delivered more than 200 educational talks to over 3600 dancers and dance teachers.

Clinical Services - to date more than 500 dancers have been treated through the three NIDMS dance injury clinics within the NHS, which are freely accessible to dance professionals through GP referral. These are based at:
- Royal National Orthopaedic Hospital (RNOH), London
- Queen Elizabeth Hospital Birmingham (QEHB)
- Royal United Hospital (RUH), Bath

Strength and Conditioning in Dance: Power, Performance and Rehabilitation
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<tr>
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<tr>
<td>9.00 - 9.30</td>
<td>registration, tea and coffee</td>
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<td>9.30 - 11.00</td>
<td>morning dance classes</td>
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| break dance conditioning | Johannes ‘Hatsolo’ Hattunen  
FlowMo Crew, Finland |
| ballet | Brian Maloney  
Teacher and Rehabilitation Specialist  
The Royal Ballet |
| contemporary floorwork choreography | Khyle Eccles  
Director Athletic Artist |
| 11.00 - 11.30 | tea and coffee                                                            |
| 11.10 - 11.25 | welcome from Sue Wyatt and Peter Knott                                    |
| 11.30 - 12.00 | keynote 1 - strength and conditioning: dancers’ perspective  
Khyle Eccles, Johannes ‘Hatsolo’ Hattunen, Brian Maloney, and Glenn Wilkinson |
| 12.00 - 12.25 | keynote 2 - in context: dance application, uses and training in strength and conditioning  
Greg Retter, Clinical Director, The Royal Ballet |
| 12.25-13.00 | keynote 3 - introduction to the theory  
Professor Matthew Wyon, Course Leader MSc Dance Science, University of Wolverhampton |
| 13.00 - 14.00 | lunch                                                                     |
| 14.00 - 15.30 | breakout session 1 - select one of the six sessions on the next page       |
| 15.30 - 16.00 | tea and coffee                                                            |
| 16.00 - 17.30 | breakout session 2 - select one of the six sessions on the next page       |
| 17.45 - 18.15 | integrating recovery into training  
Dr Benjamin Rosenblatt, Senior Strength and Conditioning Coach GB Hockey and English Institute of Sport |
| 15.30 - 16.00 | sum up and closing remarks  
Dr Nick Allen, Clinical Director, Birmingham Royal Ballet |
practical strength & conditioning
breakout sessions

14.00 - 15.30
breakout session 1

16.00 - 17.30
breakout session 2

deleagtes are asked to select one of the six sessions below

Stretching for Recovery and Regeneration
Nikos Apostolopoulos, Founder of Stretch Therapy and microStretching

Power and Plyometric Training
Nick Grantham, Performance Enhancement Specialist

Simple and Practical Solutions for Supplementary Training
Nico Kolokythas ASCC, Performance Enhancement Coach and PhD researcher at Elmhurst School for Dance

Cardiovascular Training
Dr. Emma Redding, Head of Dance Science and Sonia Rafferty, Senior Lecturer at Trinity Laban Conservatoire of Music and Dance

Strength and Conditioning in Injury and Rehabilitation
Dr. Benjamin Rosenblatt,
Senior Strength and Conditioning Coach GB Hockey and English Institute of Sport

Pilates
Natalie Rogalski and Ming George, Physiotherapists and Certified Pilates instructors at the English National Ballet and the Australian Physiotherapy and Pilates Institute (APPI)

Strength and Conditioning in Dance: Power, Performance and Rehabilitation
Khyle trained at The Rambert School of Ballet and Contemporary Dance before touring internationally on large and small scale productions with numerous companies reaching South Korea, United Arab Emirates, USA, Spain, Norway, Germany and Ireland.

As an independent dance artist Khyle is the co-founder of Tall Tales Big Moves, creating small scale spectacles for younger audiences, as well as working with multiple UK venues, organisations, and companies to create exciting work and opportunities for the wider dance community and global audiences.

As a strength and conditioning specialist for dancers Khyle is the Director of Athletic Artist - a dancer training initiative based in the UK. Athletic Artist also delivers professional movement intensives, education events and lectures to support the larger dance community. He is a workshop leader for Dance UK's Healthier Dance Programme and a seasonal lecturer at multiple universities and vocational dance schools.

Khyle strives to create physically demanding and challenging choreography and movement to excite and inspire.

The moment Johannes Hattunen saw a friend sliding on his head at school disco was the moment the now-B-Boy Hatsolo fell in love with the dance.

Born and raised in Jyväskylä, Finland, Hatsolo took his B-Boy name, inspired by his Star Wars hero, Han Solo. Keeping to his ultra-energetic and surprising style, Hatsolo– who has also gone by Thor and White Gorilla- uses his strength and agility to come out on top in battles. He admits that while his technique is not always the smoothest, his commitment, speed and flow are not only eye-catching but also get the audience and judges going strong. “Breaking keeps my mind and body young. I jam on the streets and continue to go strong with my crew,” he says. “My key inspirations are my friends, music, and all of the awesome people across different sports and cultural scenes that I meet through dance.”

Hatsolo runs a dance school called Saiffa with his crew, Flow Mo. He teaches both dance and culture there, alongside Finland’s top breakers. He also owns TFW Helsinki (Training for Warriors), a Helsinki gym, where the White Gorilla makes his living as a certified strength and conditioning coach. Implementing Finnish culture into both his own style and the local breakdance scene have been career-long projects for Hatsolo. He describes his dreams as learning something new every day. His personal goals are to keep improving as a B-Boy while enjoying the scene. He is grateful for each day he can continue to participate. As he said himself, breaking is what keeps him young!
Glenn Wilkinson
Teacher/Choreographer

Born in Leeds, Glenn trained in theatre dance at his mother and sister’s school, Armley Dance Studio, and in contemporary dance at Intake High School with John Auty. Following his formal dance training at The Rambert School, he joined Rambert Dance Company in August 1987 and danced there for a record-breaking 17 years. Whilst there he worked with many choreographers, including Christopher Bruce, Richard Alston, Siobhan Davies, Mats Ek, Jiri Kylian, Peter Darling, Ashley Page, Glen Tetley, Trisha Brown, Merce Cunningham, Twyla Tharp, Raphael Bonachela, Javier de Frutos, Laurie Booth, Lucinda Childs, David Gordon, Ian Spink and Paul Taylor. He was a member of the company when they won two Laurence Olivier awards; in 1997 for performances in AIRS, EIDOLON, PORT FOR ANGELS and STREAM and in 2001 for their performance of Mats Ek’s SHE WAS BLACK. He was also one of only four company members to work with Trisha Brown in New York on “Opal Loop” in 1989 and one of only seven Rambert dancers to work with Merce Cunningham in New York on a new commission “Touchbase” in 1992.

Glenn’s choreographies Brown Ballet One, Twin Suite Two, Tree Finger Soup and Six Pack were all integrated into Rambert’s repertoire. After leaving Rambert in 2004, he was appointed Head of Performance at the Northern School of Contemporary Dance in Leeds, overseeing all the school’s performance and technique work. He also assisted the school in setting up its own performance company, Verve, which performed his choreography Four Point Five in 2006 and Niner’s in 2009. Glenn has over thirty years’ experience of teaching contemporary technique to professionals/students nationally and internationally. Teaching credits include: Central School of Ballet, Rambert Dance Company, Michael Clark Dance Company, Phoenix Dance Theatre, Nubian Steps, Bonachela Dance Company, Rambert School, London Contemporary Dance School, Northern School of Contemporary Dance, Australian Ballet School, Laban Centre, The Open Dance Group, Dance Exchange, Swindon Dance, Dance East, University of East London (Urban Dance), Millenium School, Mathew Bourne, Manchester CAT, Leeds CAT, Royal Ballet School, YDA Exeter and Pineapple. In 2007 Glenn ventured into commercial theatre as Dance/flight captain in Lord of the Rings choreographed by Peter Darling. He returned to Rambert in 2008 as Rehearsal Director/Artistic Associate. Glenn became Resident Choreographer for the London stage show of Dirty Dancing in 2008. He has since been promoted to Associate Choreographer UK/South Africa/Asia re-staging and re-envisioning the choreography. For the Olympics 2012 he choreographed a new work for the Olympic Torch Relay. Resident choreographer Billy Elliot 2014. Mentor to the contemporary section of BBC young Dancer 2015 where his mentee Connor Scott won the overall competition. Glenn choreographed the new production of Sinatra which opened at the London Palladium on the 10th July 2015.

Brian Maloney
Teacher and Rehabilitation Specialist, The Royal Ballet


A catalogue of major injuries during Brian’s career sparked a passion in the rehabilitation pathway of dancers. Brian teaches company class for the Royal Ballet as well as coaching injured dancers through their strength and conditioning programs and return to dance.
Strength and Conditioning (S&C) is now widely recognised as a well-integrated, core component for all elite athletes, and is increasingly being delivered by well-informed S&C Coaches with advanced knowledge and training of the principles underpinning this discipline.

Yet there remains a resistance around the integration of S&C principles within a dance setting, despite an increasing body of evidence demonstrating its efficacy both for performance enhancement and injury recovery.

This presentation will look at models of best practice from the world of Olympic Sport and explore how these can be successfully implemented within a dance setting. It will discuss how S&C delivery can be complimentary to the more traditional modalities used in dance, and when used effectively in a truly interdisciplinary way, how S&C can improve performance, free up artistic expression, and help create multidisciplinary goal-driven objectivity around return-from-injury pathways.

Greg Retter
Clinical Director, The Royal Ballet

Greg joined the Royal Ballet to take up the new post of Clinical Director in October 2013.

His background is in sport where he had previously managed the British Olympic Association’s Intensive Rehabilitation Unit for elite Olympic athletes, based at Bisham Abbey National Sports Centre. He has a long association with Team GB having worked as a Headquarters Physiotherapist at 5 Summer and Winter Olympic Games, starting with Sydney 2000, and culminating in London 2012.

Greg’s passion lies in accurate clinical diagnoses with comprehensive management of a dancer’s rehabilitation utilising a full team approach. He believes that the success of rehabilitation depends on building a strong foundation of support across all areas from Sports Science, through Pilates, Gyrotonic, Psychology, Nutrition, Soft Tissue Therapy and Sports Medicine, at all times placing the injured dancer at the heart of the process.

Greg’s role at the Royal Ballet is to oversee and lead the Healthcare Team consisting of 15 talented individuals across this wide range of disciplines as they deliver a world-class service to the dancers of the Company.
Introduction to theory of strength and conditioning

The talk will address the concept of the reactive adaptive body and how present training in dance can cause deconditioning to occur. The talk will then examine some of the fundamental theories in strength and conditioning and how they can be applied to dance to enhance performance and help reduce injury incidence.

Matthew Wyon, PhD, is a Professor in Dance Science at the University of Wolverhampton, UK and a Visiting Professor at the Division of Surgery and Intervention Science, Institute of Orthopaedics and Musculoskeletal Science, University College London and ArTEZ, Institute of the Arts, The Netherlands. At Wolverhampton he is the course leader for the MSc in Dance Science and Director of Studies for a number of dance science and medicine doctoral candidates. He is a founding partner of the National Institute of Dance Medicine and Science, UK. Prof. Wyon is President of International Association for Dance Medicine & Science and a past chair of the Research Committee. He has worked with numerous dancers and companies within the UK and Europe as an applied physiologist and strength and conditioning coach.

He has published over 80 peer-reviewed articles in dance medicine and science.
Stretching is an integral part of the physical preparation for sports and the performing arts.

In the clinical setting it has been used as a means of injury rehabilitation. The force generated during stretching, both internally and externally, has been credited for increasing the ROM about a joint. Interestingly, a controversy exists as to whether this increase in ROM is caused through an actual physical change in the musculoskeletal tissue or due to an increase in the individual’s tolerance to the stress or strain during stretching.

Regardless, recent evidence has shown that the intensity of the stretch, the magnitude of the force generated during stretching, may be responsible for causing tissue damage and inflammation, or aiding in its recovery from training and performance.

Therefore, stretching intensity, in conjunction with duration, and frequency represents a paradigm shift with regard to the purpose of stretching. In these sessions we explore stretching more deeply with an emphasis on this paradigm shift in thought.

Besides the presentation of the theory participants will be shown proper stretching exercises to facilitate proper recovery and regeneration of the musculoskeletal system.
Power and Plyometric Training

In this session Nick will share with you the simple strategies that he uses on a daily basis to enhance lower extremity explosive power.

To perform at the highest level and reduce injuries, an integrated performance conditioning programme is needed to develop functional strength and neuromuscular efficiency. A systematic and progressive plyometric training programme can be integrated into any training structure and Nick will discuss the fundamental training principles that are central to the development an effective plyometric training programme.

- Components of explosive exercise
- Force Velocity Curve
- Strength development
- Landing mechanics and postural alignment
- Exercise selection and progression
- Safety factors

The concepts that Nick will discuss can be incorporated into your existing programmes and will expand your ability to design and implement safe and effective plyometric training as part of an integrated programme.
Simple and Practical Solutions for Supplementary Training

The session will focus on evidence based ways of training in and outside the gym and with or without equipment.

Using the body as the main resistance training instrument either with the use of bodyweight exercises or with the use of a partner, progressing to light weight overloads and the use of the Swissball.
Cardiovascular Training

This practical session will explore ways of enhancing cardiorespiratory endurance through progressive dance specific material.

It will demonstrate the relationship between participants’ heart rate and training zones in order to recognise effective means of training aerobically.

The session will also include examples of high intensity circuit training for dance.

The session will conclude with a discussion on the role and relevance of this type of training for dancers and how it might be incorporated within a dance training programme.
Strength and Conditioning in Dance: Power, Performance and Rehabilitation

Practical Strength and Conditioning

Dr. Benjamin Rosenblatt
Senior Strength and Conditioning Coach
GB Hockey and English Institute of Sport

Dr. Ben Rosenblatt is the Head of Physical Preparation for the GB Women’s Hockey team.

He is responsible for an environment for athletes to become training and tournament durable and work with the coaches to have a game impact at the Rio Olympics in 2016.

Previously Ben led the Sports Science and Fitness at Birmingham City FC before moving on to the BOA / EIS Intensive Rehabilitation Unit (IRU). The role of the IRU is to accelerate the rehabilitation of injured Olympic athletes.

Ben was responsible for providing S&C support and coaching to injured Olympic athletes and developing innovative solutions to rehabilitation problems within his inter-disciplinary team. He held this role through the cycle to the 2012 London Olympic Games.

Ben has completed his PhD in biomechanics and S&C (Cardiff School of Sport) and coaches several members of the British Olympic Judo team.

He research and applied interests lie in the biomechanical basis effective exercise selection and effective training regimes to deliver the needs of athletes and coaches.

Strength and Conditioning in Injury and Rehabilitation

Dancers get injured when the load placed through their body exceeds their capacity to tolerate it.

This workshop aims to provide practitioners with practical solutions to:

- Determine whether dancers can tolerate the load going through key joints
- Increase the capacity of the musculoskeletal system to tolerate the load
- Improve their body control to ensure that excessive loads do not get placed through structures which cannot tolerate them
- Put together a rehabilitation plan based on the need of the dancer and what they have to return to
Pilates

Pilates has long been a form of training closely linked to the dance world however when considered with regard to strength and conditioning of dancers, may not necessarily be seen as truly belonging within this category.

APPI are proud members of the English National Ballet Dance Medicine team and bring along to the conference an up to date understanding of where Pilates lies on the spectrum of Strength and Conditioning and how valuable its role is when looking at dance technique, skill, rehabilitation and preparation for later stages of strength training.

The session will be largely practical, taking you through our core programme completed by the dancers at the ENB as well as challenging your skills with a progressive and dynamic programme for the dancers hip.

Ming George
Physiotherapist, Pilates practitioner and Presenter for APPI

Ming graduated in 2001 with honours in a Bachelor of Physiotherapy from the University of Melbourne, and has since dedicated herself to Pilates for rehabilitation and training.

Having trained with APPI and Polestar Pilates, she has worked in numerous clinical settings using the method, including the English National Ballet.

With many years’ experience training hundreds of clients, Ming enjoys coaching people to progress through movement re-training and core strengthening.

Natalie Rogalski MCSP
Physiotherapist and Certified Pilates Instructor

Natalie is an Australian trained Physiotherapist, Pilates rehabilitation practitioner and dancer.

Her dancing background includes over 20 years of training in classical ballet, tap, jazz and contemporary dance. Natalie now works at APPI Hampstead in musculoskeletal physiotherapy and pilates based rehabilitation as well as at the English National Ballet as a member of the Dance Medicine Team.

Her passion for dance and dance physiotherapy extends across the spectrum of abilities from beginners through to professionals, enjoying the opportunity and challenges that come with working with such an exciting, unique and diverse population.
Professional dancers experience extreme volumes of training/rehearsal, up to double the quantity of some Olympic athletes. Due to an imbalance between training stress and appropriate recovery, unpublished evidence suggests in a large dancing school, 33% of dancers were ill or injured at any one time.

This presentation will discuss the options available to professionals working with dancers to optimise the recovery process. There will be a focus on the 3 main basics of optimal recovery: sleep, nutrition and rest. Evidence and anecdote will be provided from a range of Olympic sports. There will also be a discussion surrounding which recovery strategies could be used in addition to the basics, i.e cold water immersion, compression garments, active recovery, foam roller and muscle stimulation.