

Summary points from

Dance medicine: the female athlete triad and hypermobility

Monday 20 April 2009

Venue: The Royal Society of Medicine

Organised by: the Royal Society of Medicine and Dance UK

Participating Sections: Sport & Exercise Medicine Section, Rheumatology & Rehabilitation Section

Wayne McGregor: **What is expected from dancers?**

- the question should be what is expected of choreographers – choreography is not *done* to the a dancer – perhaps the status of the choreographer and dancer needs to be addressed
- What is technical facility?
 - Technicity
 - about redefining a language
 - flexibility being balance by strength and control like a “knife cutting through butter”
 - being able carry out specific actions *accurately* and *on demand*
 - using ‘technique’ as a point of departure
- Dancer should be able to take and use instructions
- Being able to place action in time (musicality)
- Having a good sense of proprioception, a sense of own body
- Being able to work without mirrors (later clarified in the questioning that being able to work without mirrors gives a greater kinaesthetic sense, that at times dancers have an idea of what is good/bad technique and will sometimes iron out the very movement that he loves if they see themselves in a mirror)
- being able to carry out actions through time, accurately
- In an audition he finds he can tell a lot from the plie and tendu exercises
- Be aware of the different qualities of moving muscularly versus skeletally (later clarified in questioning: meaning the different freedom or control of movement that can be created through the notion/image of moving from the bones or the muscles)
- Detailed ability to articulate body points, including having plural timings in various body parts
- Dancers having an individual signature – a moving away from the focus on ‘sameness’ of traditional corp de ballets and more towards the embracing of ‘differences’
- The importance of the mental state – open, curious, push boundaries, explore. A “*can-do* attitude” and a sense of humour. “*Autonomous creative spirit*” – The ability to embrace creative tasks and work autonomously – only

- through creativity and autonomy can boundaries really be pushed – dancers need to be able to create their own strategies
- The use of image building – having a level of vividness in imaging and the controllability of that vividness of imaging
 - Choreography is a decision making process
 - 3 ways to make work: didactic/bodies as objects to think with (architectural forms)/ set tasks or boundaries
 - Kinds of bodies selected ‘needs to fit’ in with what already have or fill in what is missing – physicalities
 - Ability to work without mirrors – sense of own body – “the knowing body” and being “empowered to talk about it”
 - A healthy body and mind
 - Training institutions should develop technicity – “sometimes technique impedes creativity”, resulting in “a series of unlearning”
 - Should expose dancers to various movement types and styles – allows the brain to “hardwire” that movement so that the action can then be completed in another context
 - Wayne’s response to what is his definition of a healthy dancer
 - Screenings
 - Training programmes to work on weaknesses
 - Proper break times
 - Psych/physical preparedness
 - Stamina/energy
 - Wayne’s response to what he thinks the needs of intrinsically lax (loose/hypermobile) dancers are
 - Knowing body
 - Dancer taking responsibility and being able to verbally express difficulties

Rachel Peppin: **The dancer's perspective**

Former Principal Dancer, Birmingham Royal Ballet

- Suffered from Female Athlete Triad
- Suggests that there needs to be early education on the links between over exercise, poor diet and menstrual health and its impact on bone density and strength
- Take the focus away from ‘weight’ and more towards ‘energy levels’
- Re/educate dance teachers, directors and choreographers
- Prevention and education when female is young

Dr Roger Wolman: **Female athlete triad**

Consultant in Rheumatology and SEM, Royal National Orthopaedic

- Amenorrhoea in Athletes first reported in 1970’s/80’s in mostly endurance athletes

- F.A.T first described in literature in early '90's – as the link between eating disorders, amenorrhea and osteoporosis more recently the determinants of the F.A.T have been broadened to include disordered eating, menstrual dysfunction, osteopenia (An abnormal reduction in bone mass. This may be generalized, as in some bone diseases, or localized, as a response to inflammation, infection, disuse, etc.) AND excessive exercise
- Link between the hypothalamus (in the brain) and the ovaries – more hardy in older individuals, meaning younger individuals are more susceptible to negative influence on this link thus affect beginning of menarche or interrupting current menstrual cycles
- Average population 12-14 years old when starting menarche
- F.A.T. is not so much about training but reduced energy intake. E.g. light weight and heavyweight rowers have the same training regimen but in a study, 40% of lightweight rowers were amenorrheic and 20% oligomenorrheic as opposed to 0% amenorrheic and 30% oligomenorrheic in heavyweight rowers.
- Occurrence of F.A.T. results in increased risk of bone and soft tissue injuries (2-4 fold increase according to Bennall et al, Clin Sport Med 1997 16(2) 179)
- Impairment of skeletal muscle oxidative metabolism (Herber, Can Journ App Phys 1998) which results in delayed healing and reduced energy metabolism
- Many hormonal considerations – not just oestrogen, therefore replacing oestrogen alone may not be sufficient.
- The presence of menstrual cycle does not mean that all is ok with bone health (especially if that presence is as a result of oral contraceptive)
- Screening is important and the following information should be gathered
 - Menstrual history
 - Age at menarche (older start more @ risk)
 - Previous menstrual cycle regular/irregular
 - Changes in cycle (in recent months)
 - Weight loss
 - BMI below 19 (erring on the cautious side)
 - Fall in body fat
 - Recurrent injuries (bone and soft tissue)
- 33-50% of dancers likely to have menstrual dysfunction (review of articles)
- Important to emphasise energy balance - energy in/energy out
- Change behaviour – involvement of teacher/choreographer/dancer
- Multidisciplinary approach – dietician/nutritionist, psychologist
- In some cases drug intervention
 - Calcium and vitamin D increase
 - Oral contraception (caution re maintaining Bone density checks)
 - HRT – no evidence yet, may be dangerous to those in teens or 20's and early 30's.
- Rodney Graham commented the link between hypermobility syndrome and osteopaenia was not addressed. That there should be screening that

- includes looking for hypermobility syndrome and the laxity of connective tissues
- Drew-ann from Bird College asked about body fat % recommendations for measuring – RW said not very accurate across systems so ensure the same methodology is used repeatedly and comparisons are made across time rather than at individual points in time.

Dr Matthew Wyon: Modifying Training

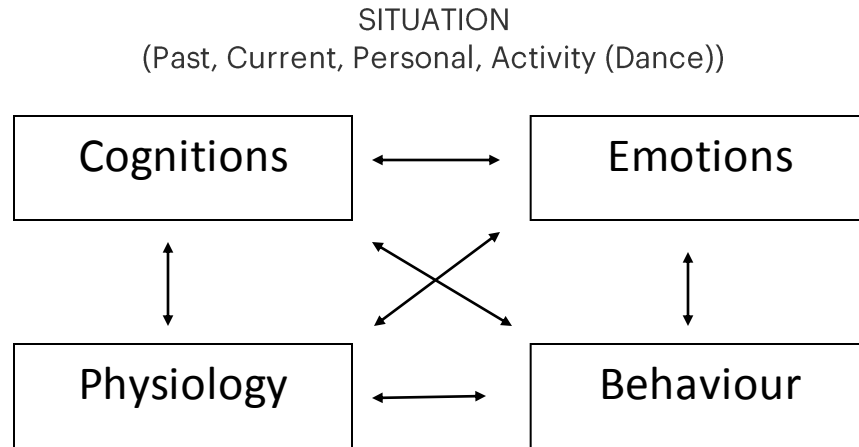
*Reader in Performance Sciences School of Sport, Performing Arts and Leisure,
University of Wolverhampton*

- Studies repeatedly show poor levels of fitness in dancers – levels comparable to sedentary individuals
- His study looked at 27 professional ballet dancers wearing Sensewear armbands (measuring Total Energy Expenditure, METS, time lying down, quantity of quality sleep and more) 24 hours a day, over an average of 2.7 days
- Mean total energy expenditure per day 2024kcal, Range 1482-5417kcal per day
- Lying down mean 6.75 hrs per day, Range 3-9hrs
- Sleep 5hrs 20mins mean, range 2hrs 20min-8hrs
- Study shows
 - those with the harder physical demands were more active in rehearsal and generally
 - dancers took little rest, even if it was provided to them (run out and get food rather than come prepared)
- Need to consider
 - QUALITY rather than quantity of training
 - Initial level of fitness of dancers before rehearsal and performance period
 - Diet (eating as preparation and recovery, providing education if necessary)
 - Rest (scheduled in and education on HOW to rest)
 - Sleep (strategies for quality, restful sleep to aid muscle recovery)
 - Forward planning (break time, using time wisely, coming with lunch/dinner prepared or knowing where to get it in advance/not calling all dancers in if some will only be needed for 30 minutes of the whole day)
 - Potentially psych intervention (psychological skills)
 - Supplementary training – STRENGTH and CARDIO.
 - Strength linked to bone mineral density, need to focus on upper body strength to compliment lower body strength, especially female ballet dancers

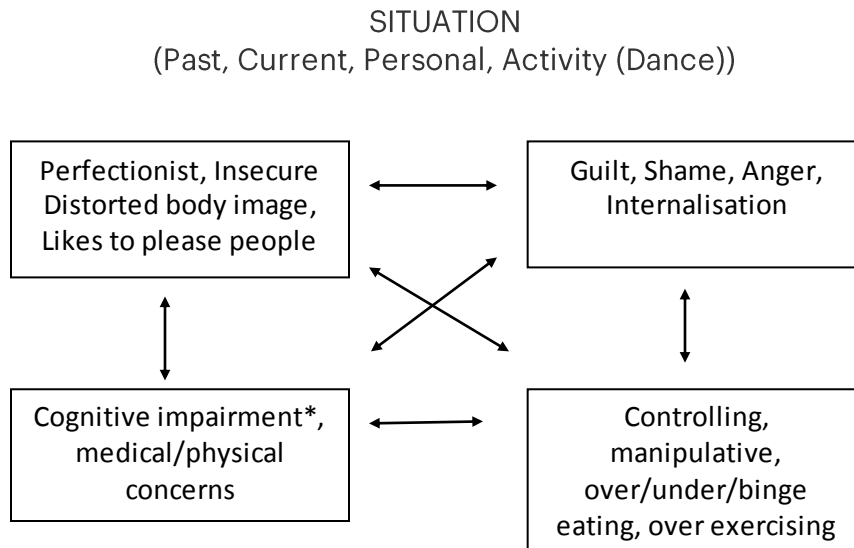
Dr Johnathan Katz: Psychological Aspects

Sports Psychologist, Psychologist to the British Paralympic Association

- Need to consider the context (environment/stage/audience/teacher/etc)
- An intervention Framework from Cognitive Behavioural Therapy Theory



- An Eating disorder profile



* Cognitive impairment – ‘rational’ thought not possible due to physiological nutritional restrictions

- As psychologist:
 - You can't know how someone feels
 - Only know what you are told

- Need to refrain from making judgements
- Within eating disorders the eating behaviour is a coping strategy, a means of being 'in control'
- It is important to separate the person from their behaviour
- Intervention – needs to manage the specific eating behaviour plus its consequences as well as to promote effective interpersonal relationships, so personal well-being is not exclusively based on perceived weight and body image
- Positive reinforcement – of positive steps, these are generally people who like to please so this should be effective. But also importance to realise the need for control of the situation.
- What do you put in the place of 'doing nothing' – advising dancer to 'rest' or take time 'to do nothing' rather than over exercising may not work. Need to find an appropriate alternative (meditation, imaging, etc etc)
- Sports that are common to eating disorders are those where
 - The person is required to make a weight
 - The person is judged in part on aesthetic presentation
 - The person is required to wear skimpy clothing in public settings
- Certain other environments where the person has a tendency to feel vulnerable – but the problem is you may not know about the vulnerability until it is too late
- Case study illustration points:
 - Misrepresentation of truth by person suffering
 - Importance of confirming athlete behaviour from a third person
 - Importance to label the behaviour (manipulation) and not the athlete as being negative (manipulative)
 - Importance of understanding relationships between person and the organisational/institutional factors
 - Including athletes family (parents) in the assessments and particularly appreciating the significance of the maternal relationship
 - Appreciating how the eating behaviour was 'being used' by the person to gain a sense of mastery
 - Desire to achieve success can drive person into patterns of unhealthy eating (over/under)
 - Concerns over returning to 'normal' eating patterns
- Importance of investment in personal and process goals
- Importance of tolerating 'good enough' on occasion
- Tips on managing individuals with Eating Disorders
 - Listen carefully
 - Resist making an assumption
 - Build a relationship
 - Invite discussion rather than labelling

- Duty of care to refer on if there is medical risk – get their permission first
- In response to question on the appropriate amount/quantity of provision of care from a psychologist – enough consistency so that relationships can develop with coaches (and coaching practice) and the athletes in questions, minimum suggested would be once monthly

Ms. Heather Walker & Ms. Kim Pedrick: Towards a global approach to management

Student Co-ordinator, London Studio Centre & Physiotherapist for Tring

- Bring issues out into the open
- Have a firm policy
- Communication and team approach
- Case leader
- Knowledge to get right support and help
- So not punish or judge
- Act quickly
- Education – health and performance related
- Observation/health monitoring
- Open door policy
- Consistent messages
- Encourage discussion
- Lead by example

Dr. Richard Hull: Hypermobility, Developmental aspects of hereditary and acquired problems

Immediate past President, Section of Rheumatology and Rehabilitation, RSM

- Male hormones tighten up ligaments while going through growth spurt
- Fracture risk is related to peak bone mass
- We are the most hypermobile at 18 months old
- Try to avoid abnormal postures in daily life
- Inadequate levels of Vitamin D and protein can be an issue for bone and connective tissue health
- Hypermobility Syndrome Common Presentations
 - Pain after exercise
 - Pain after unaccustomed exercise
 - Anterior knee pain
 - Enthesitis and tendonitis
 - Joint effusion
 - Bruising – ‘bruising like a peach’

Ms. Moira McCormack: When is hypermobility counterproductive to a dancer?

Physiotherapist, Royal Ballet Company

- Longer/slower training time
- Reduced proprioception
- Reduced stability
- Reduced coordination
- Reduced strength
- Vulnerable to injury
- Take longer to heal
- Often end up with less training time (even though they might require more due to longer/slower training time)
- End result could be de-selection

Interesting observations from research (McCormack, Briggs, Graham et al 2004)

- Incidents of hypermobility syndrome decreased from Royal Ballet Lower School all the way up to principal dancer (self deselected or institution??)
- Improvement seen with stability and proprioception training
- Left side tends to be more hypermobile in dancers that are right handed

Ms. Elizabeth Sharp: Management of Hypermobility

Physiotherapist, ES Physical Health

- Increased episodes (ongoing treatment for one particular injured area) of treatment were seen in the knee, back and pelvis
- Hip turnout affecters
 - Lumbar hyper lordosis
 - Tight iliopsoas muscle
 - Weak hip external rotators
 - Femoral antiversioin
 - Rearfoot pronataion
 - Knock knees
 - Rearfoot supination

Ms Helen Laws: A joined-up approach to dance medicine and science research and practice

Healthier Dancer Programme Manager, Dance UK

- Pilot scheme of providing health care for 100 independent dancers
- Laban, Olympic Sports Institute, Jerwood Centre, Wolverhampton Uni
- 80,000 already donated, 420,000 required
- more info on Dance UK website
http://www.danceuk.org/metadot/index.pl?id=25400&isa=DBRow&op=show&dbview_id=22589