

Dance Wellness: Why, How and The Future; *A Model at Case Western Reserve University*

Karen Potter
Director of Dance
Department of Theater and Dance
Case Western Reserve University

Gary Galbraith
Artistic Director, Dance Program
Department of Theater and Dance
Case Western Reserve University

Introduction - The purpose and goal of a dance wellness program and dance screens

Dance is a demanding neuromuscular, skeletal event, a temporal, spatial, kinetic interface, a kinesthetic, aesthetic syzygy anchored by the universality of human motion and propelled by creative forces. It is by its very nature a transient mode of expression that manifests in many styles and forms and therefore requires a delicate balance of perfection and freedom in the moving architecture of the human body. The very essence of this phenomenon implies an extraordinary exploration and refinement of what may be deemed normal human movement potential and an extreme in variation or deviation from the norm such that both ballet, contemporary dance forms and those ethnic dances that are woven into 'fusion dances' are in a constant state of contemporary expansion.

The student of dance must be prepared not only with the typical technical skills required in executing normal range of motion at all articulating surfaces but with skills to exceed normalcy and embrace extreme or variable deviant motion that may be required for creative explorations. The goal is to achieve the aforementioned with optimal correct mechanical advantage, balance and efficiency such that longevity is ensured and that maintenance of joint integrity, muscle strength and flexibility will all yield a lower incidence of occupational injuries. Researchers have suggested that the combination of flexibility, strength, power and endurance required of professional dancers equals or exceeds that of most professional sports.¹ Historically, dancers who were injured had few medical professionals conversant in the specifics of their art form. Often, injured dancers lacked basic health information for self-care or the financial means to obtain high quality medical care.

This comprehensive goal of biomechanical efficiency, career longevity, injury prevention, and education serves as the basis for what is currently referred to in Dance Education as "*dance wellness*" and is being endorsed on some level by a growing number of organizations including the International Association of Dance Medicine and Science (IADMS), the National Association for Schools of Dance, the Association of Health, Physical Education, Recreation, and Dance, and the World Dance Alliance to name a

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

few. The major tenets of "*dance wellness*" as defined by Marita Cardinal, Ed.D and Sarah Hilsendager, Ed.D include:

- effective injury prevention, treatment and rehabilitation
- effective and efficient dance training
- optimal levels of conditioning and health
- increased self care among dancers

Including "dance wellness" within the panoply of typical dance education programs can be achieved through various measures. Wellness programs may include screening protocols and educational components not only in kinesiology and anatomy but also in both Nutrition and Psychology in the hopes to address a fuller scope of dancer health. Dance specific screening protocols are becoming more prevalent. U.S. based professional companies such as the Boston Ballet and Alvin Ailey Dance Theater and some university dance programs such as Case Western Reserve University (Case) have implemented screens as have other companies around the world such as the Australia Ballet. At the Royal Ballet School in London, cross training protocols have been implemented into the daily regimen of training for young dancers.

The emerging field of dance medicine and science is serving as a vehicle for educators and artists to forge a bridge with the scientific spirit on the path to human knowledge. Organizations such as IADMS further contribute by publishing articles that define "dance wellness", prescribe sample programs and present various examples of screening profiles, and by spearheading conferences and seminars to disseminate information such as this conference hosted by Taipei Physical Education College. During the last two decades, Dance Medicine and Science has rapidly become a distinct field of study and is providing much needed information to guide the training and care of dancers. A large number of individuals from various fields (e.g. biomechanics, psychology, exercise science and education) have reported extensively on the incidence, etiology, and treatment of dance injuries.^{ii, iii, iv, v, vi} Journals and books regarding the science of dance and the care of dancers are now common.^{vii, viii, ix, x, xi, xii, xiii, xiv, xv}

One of the most consistent and urgent pleas in much of the recent literature concerning dance medicine is the need for Dance Wellness programs in institutional settings. The implementation of such programs is becoming increasingly endorsed among professional organizations and receives attention at several international conferences. The Dance Wellness Program at Case has been continually developing and expanding since its inception in 2000 and serves as a model for other institutions.

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

The Dance Wellness Program at Case Western Reserve University

The Dance Wellness Program at Case Western Reserve University (Case) was originally planned to be implemented as a multi-year project and an ongoing aspect of the Dance Program.. It has been designed to provide a wealth of information about the dancers' individual instrument, that being their body not only to the dancer but also to the instructors, faculty and medical professionals with whom the dancer may interact. The general structure includes an annual screen, education modules, seminars or roundtable discussions, the integration of theory in lecture classes such as kinesiology, review sessions and evaluations.

The specific goals of the Case Dance Wellness Program include:

- Aid in making the dancers' training more efficient and effective
- Aid in preventing injuries
- Provide valuable resources and information to assist in the rehabilitation of injuries
- Promote career longevity^{xvi} as a dancer
- Assist educators and medical care professionals who work with dancers by providing valuable quantifiable information about the dancer that can not be derived by simple observations in the dance technique class nor in the rehearsal studio
- Continue to develop a body of quantifiable data that uniquely addresses the physical characteristics and demands of dancers' musculoskeletal system in order to promote the ongoing research into dancer health, physical attributes, injury prevention and biomechanical efficiency.

History of the Case Dance Wellness Program

The Case Dance Wellness Program, designed by directors Gary Galbraith and Karen Potter, was modeled after the Long Island University (LIU) program which Potter co-founded in 1998 with Marshall Hagins, PT. Preliminary research on similar wellness programs was investigated by Potter and Hagins. Incorporated into the LIU program was a battery of biomechanical tests and technique evaluation developed and by Shaw Bronner, PT, for the Alvin Ailey Dance Theater. The team refined and expanded the technique screen and determined which biomechanical tests should be performed to measure flexibility and strength in particular muscle groups and to determine the overall physical profile of the dance majors. Together they developed a written test to be administered for pre-test evaluation of the dancers' knowledge base, developed a series of exercises to be demonstrated in an instructional class, and compiled an exercise handbook.

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

Since its inception, the Case model has partnered with Chad Fortun, PT, clinical director of with the University Hospitals Rehabilitation and Sports Medicine Clinic (formerly Ohio Physical Therapy Clinic). It has grown to include numerous other assessments related to dance as well as a nutrition component and is currently investigating ways to embrace psychological components as well. At the heart of this model is the emerging interface between the medical professional and the dance educator. The Case Dance Program and will be setting up similar programs at other institutions.

Dance Wellness Website (<http://dancewellness.case.edu>)

Unique to the Case Dance Wellness Program is a web-based computer program which was designed to minimize time involved in analyzing data. Historically, the data collected was manually analyzed, a task that required a great deal of time and energy by the administrators and investigators. The development and implementation of this distinct and comprehensive website has greatly reduced the amount of data analysis and has provided extensively greater means of presentation and analysis not previously possible. This website has sparked a great deal of interest amongst various organizations and has been the subject of several presentations at international conferences.

The prime benefits of the Dance Wellness website are:

1. Allow users to view their data via secured access.
2. Access data or norms that are used to evaluate individual performance. The logic of the website allows for the application of particular norms such as gender specific norms.
3. The ability to cross reference data collected and analyzed with in the screen. Web links allow the users to see how one noted aspect may or may not have ramifications with regard to other observations noted during the screening process.
4. Analyze individual data and create unique training protocols tailored to each dancer.
5. Provide audio and video clips to help explain and demonstrate various stretches and strengthening exercises that can assist with noted issues.
6. Most importantly, provide application of physical data to dance technique. For example, if it is observed that the dancers did not maintain outward rotation of the hips (turnout) during a particular dance technique movement, the logic of the website is able to analyze other relevant data to help determine if there are any underlying causes. In this example, strength assessment of hip external rotators as well as flexibility and joint laxity is made to determine if there are any relevant issues that may contribute to the cited issue.
7. Provide a central location for screening data collection instruments, testing protocols and detailed instructions via video.

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

The Dance Wellness Screen

The implementation of an amalgam of screening tests can identify risk factors that may predispose a dancer to injuries or complications, and can provide specific results which can be used to cite strengths and weaknesses. The screening process uses established physical therapy protocols which yields data that is used to create an individualized profile for each dancer. The designing of a healthy regimen includes adjunct training methods beyond the dance technique class and is aimed at maximizing biomechanical potentials. Areas of concern can be identified using established norms. Through the access of data and analysis via the Dance Wellness Website, suggested course of actions for such areas of concern are presented. The annual process allows for follow up and because of the extensive use of the computerized website, progress reports on such areas/issues can be generated using historical data for each dancer.

Setting up a Screen

Determining the scope of a wellness program is the first step. Factored into the program should be an inspection and assessment of the training environment and recommendations made when citations warrant. A wellness team should be identified and organized early in the development of a Dance Wellness Program. Identifying potential contributors from the community such as dancers, dance educators, orthopedic specialists, physical therapists, athletic trainers, university faculty from departments of Nutrition, Exercise Physiology, Psychology and even Biomedical Engineering is a critical step. Once a team is identified the scope of the program can be clarified and a potential screening process can be crafted. . Training volunteers to do specific measurements can be built into a screening day.

The screening process consists of a battery of tests including both a technique screen and a physical screen. Ideally the individual tests should be organized and grouped together in a series of stations. Each of these stations at which each dancer will visit during the course of the screen will concentrate on perhaps a certain issue such as strength or flexibility. This will allow the administrator of the test to remain focused on a single area of testing as oppose to trying to administer too many disparate tests.

The screen itself will involve the development of a data collection instrument which will need to be reproduced for each dancer. An administrator will be needed to insure that all the necessary tracking of data collection is adhered to. Additionally, in order to maintain consistency across the dancers as well as years of screening, the order of the tests must remain consistent. The administrator can be used to insure 'traffic' flow of dancers through the various stations.

Additionally, depending on the number of tests being administered, it may be wise to schedule dancers at regular intervals so as not to bog down the testing process. The examining process for each dancer within the Dance Wellness screening process at Case

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

takes approximately 30-45 minutes. Therefore, a schedule is created requiring each dancer to begin the testing process at half hour intervals.

Specific tests/measurements

A dance specific screening test is designed to measure the functional capacity in dancers and to provide objective data. Screenings can range from a variety of quick tests that do not require equipment to more specialized tests employing the use of simple to sophisticated equipment. Each dance wellness program that administers a screen has its own unique tests. However, most of them have similar types of tests and the most common of these include: Strength, Flexibility/Laxity and some include dance technique screens which may be 'technique or style specific'. The screen at Case includes other measures such as upper body strength, body fat composition, aerobic response, as well as turnout and plie assessments.

Most screens that incorporate strength testing use established Physical Therapy assessments of strength and that dictates the use of Manual Muscle Testing. Even though this assessment does have a subjective component, it is the most succinct means of assessing strength. And in cases where there are several dancers to test, it provides the most expeditious means of testing what may be several muscle and muscle groups for each dancer.

Logistics of Data Collection and Analysis

With the data collection comes a great deal of data analysis. This data has to be managed in such a way that it has direct application for the dancer for it to have any kind of substantial benefit. History and experience has shown that the more pertinent and applicable the data and its analysis is for the dancer the more likely the dancer will be able to incorporate the information into their approach to their dance training and performing.

Dancers are by nature highly critical especially of themselves given the professional demands. After a screening the amount of data can be extraordinary and for some dancers, they may find it to be overwhelming. Great care needs to be taken in planning and implementing the analysis and the reporting of the data so that is done in a way that provides value and applicable meaning for the dancer. Additionally, some dancers may see certain areas that were cited as "needing attention" as being areas of failures. It is important to stress to the dancers that the screen results are intended for them to implement cross training and that they can learn and grow rather than viewing themselves as sub-standard or worse, as having failed in some way.

It is important to stress that a Dance Wellness program is designed to assist dancers and not to judge. The screening process should not be viewed as a test of acceptability.

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

Future goals of the Case Dance Wellness Program

1. Collaboration with other institutions and organizations

The Dance Wellness Program at Case continues to venture outward and establish and build ties with other institutions that either currently have such a program or are looking to establish such a program. The Case program will be used as a prototype at Western Michigan University where the Case Wellness Team will train volunteers to screen the dancers at WMU. Additionally, further development of the Case program and it's one of a kind website will be possible with the establishment of stronger ties to Long Island University which currently has an established wellness program.

2. Inclusion of other performing arts

The Dance Wellness program is expanding to encompass other performing arts. The benefits gained for the Dance Program at Case are now being enjoyed by the acting program at Case. Importantly, the entire Dance Wellness Program and its associated screening process as well as the website will be revised in order to support student musicians from the Department of Music.

3. Establishment of international standards for dance wellness screens

One of the goals in expanding the work of the Dance Wellness Program at Case is to work with other institutions conducting Dance Wellness screens in order to help establish standardized dance wellness screening protocols. Of the few institutions currently exercising such a program, little effort has been made to draw from the strengths of the various programs to help develop a protocol that all can share, learn and develop. Additionally, with the establishment of internationally recognized protocols, information can be more easily exchanged.

4. Establishment of dance specific norms

An additional goal is to use the Dance Wellness website to help collect extensive dancer specific data. This enlarging database could be used to help establish norms or parameters in alignment, anatomic deviations, range of motion, muscle strength, cardiovascular fitness and neuromuscular coordination - something that currently does not broadly exist.

Conclusions

Dance Wellness continues to gain popularity and interest amongst many dance companies, dance programs and departments within universities and is being considered a mandate in dance education by many major committees and organizations. As dance

Dance Wellness: Why, How and The Future; A Model at Case Western Reserve University

continues to develop and grow so too will the range of physical expression. The need to support and enlarge dance education, dancer care, dancer health becomes increasingly important. The development of various Dance Wellness Programs like the one at Case Western Reserve University as well as the promotion of such programs through various international organizations is a means to address these issues. That a growing number of dance programs in institutes of higher education as well as international professional companies are including Dance Wellness guidelines in their dance panoply is evidence that this mandate is being heeded. Together, with dancers, teachers and educators, medical professionals and organizations such as IADMS, the collective efforts of all will provide much needed support for the implementation of this vital aspect of dance education and dance training. The dancer benefits, the art of dance benefits, and science and art enjoy the mutual mapping of truths and experiences.

ⁱ Nicholas J.: Risk Factors, Sports Medicine and the Orthopedic system: An Overview. *Journal Sports Medicine* 3: 243-258, 1975

ⁱⁱ Quirk R: Injuries in Classical Ballet: *Austr Fam Physician* 13: 802-4, 1984

ⁱⁱⁱ Leiderbach M.: Performance Demands of Ballet: A General Overview. *Kines and Med for Dance* 8: 6-9, 1985

^{iv} Solomon R., Micheli, L: Technique as a Consideration in Modern Dance Injuries. *Phy Sports Med* 14: 83-90, 1986

^v Garrick J., Requa R: Ballet Injuries: An Analysis of Epidemiology and Financial Outcome. *Am J Sports Med* 21: 586-90, 1993

^{vi} Solomon R., Micheli L., Solomon J: The "Cost" of Injuries in a Professional Ballet Company: *Med Prob Perform Artists* 10: 3-10, 1995.

^{vii} Ryan A., Stephens R: *Dance Medicine: A Comprehensive Guide*. Chicago, IL: Pluribus Press, Inc., 1988

^{viii} Howse J., Hancock S: *Dance Technique and Injury Prevention (Second Edition)*. London, England: A & C Black, 1992

^{ix} Arnheim D: *Dance Injuries: Their Prevention and Cure (Third Edition)*. Pennington, NJ: Dance Horizon Books, Princeton Book Company, 1991

^x Wright S: *Dancer's Guide to Injuries of the Lower Extremity: Diagnosis, Treatment, Care*. Cranbury, NJ: Corwall Books, 1985

^{xi} Watkins A., Clarkson P: *Dancing Longer, Dancing Stronger: A Dancer's Guide to Improving Technique and Preventing Injury*. Pennington, NJ: Princeton Book Publishers, 1990

^{xii} Goldberg N: *International Journal of Arts Medicine*.

^{xiii} Clippinger K., Brown S: *Journal of Dance Medicine and Science*.

^{xiv} Brandfonbrener A: *Medical Problems of Performing Arts*.

^{xv} Arcier A: *Medicine des Arts*.

^{xvi} Cardinal M., Hilsendager S: A Curricular Model for Dance Wellness Education in Higher Education Dance Programs. *Journal of Dance Medicine and Science*, Vol. 1, #2. 67-72, 1997.