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# Screening for Improved Dance Function

Karen Potter, M.F.A., Case Western University, Ohio, Gary Galbraith, M.F.A., Case Western University, Ohio, and Jane Baas, M.F.A., Western Michigan University, Michigan, USA

*“When you do dance, I wish you  
A wave o’ the sea, that you might ever do  
Nothing but that.”  
William Shakespeare*

This simple quote represents the deep feelings that many teachers have for their students of dance – a wish, in a sense, that one could dance forever with ease, minimal problems, and injury free. Freedom to a dancer, as Martha Graham stated, “...means discipline. That is what technique is for – liberation.”<sup>1</sup> This liberty is the result of motivated pursuit, year after year, aspiring to perform with skill, grace, and efficiency, attributes that may be considered the ultimate in physical expression. Dancers strive to dance, as Isadora Duncan said, with “highest intelligence in the freest body”<sup>2</sup> for as long as possible. And, it is dance teachers who play a critical role in their students’ accomplishments.

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## Enter Dance Medicine, Dance Science, and Dance Screening

Imagine a world where dancers are able to learn specifics about their physical condition similar to what commonly occurs with other athletes. Then imagine that by performing some simple exercises given by the teacher and/or a team of medical professionals cognizant of the unique demands of dance, the dancer happily reports later that many of her basic dance skills have improved and she generally feels better about herself and her dancing. These worlds do exist, and new ones are being created by dedicated teachers and medical professionals in dance companies, schools, conservatories, and universities.<sup>3-5</sup>

As is the case with modern fact finding, dancers use the internet to get information about various issues related to dance, health, nutrition, anatomy, and injury prevention, and are also learning about the value of wellness and screening.<sup>6</sup> They are also becoming aware of the growing number of medical professionals who are conducting research in dance medicine and science and are dedicated to helping dancers train more effectively and efficiently and dance longer. In many countries there is an emerging trend toward preventative medicine in health care systems that involve screenings. The implementation of dance screening has immediate and potentially long term

benefits for dancers.

So what is dance screening and why do it? A typical dance screen is a series of tests designed to assess the overall well-being and functional capacity of dancers. The data collected are used to provide a physical, medical, nutritional, and/or psychological profile for each dancer. The results of a screen can help teachers and other dance professionals enable dancers to realize their full potential, and may also “help detect potentially life-threatening or disabling medical or musculoskeletal conditions that may limit a dancer’s safe participation and help to detect medical or musculoskeletal conditions that may predispose dancers to injury and/or illness during their season.”<sup>7</sup> More importantly, many professionals have suggested that screening can play a role in enhancing a dancer’s ability and may help them change patterns of movement that might result in stronger bodies and better dancing.<sup>8-10</sup> It is very important that screens are **NOT** used as a test of acceptability into a company or school. Rather, at the very heart of contemporary approaches to screening is the goal of providing a set of tools to support dynamic interactions between dancer, teachers, and other professionals for the benefit of the dancers.

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## What Goes Into a Functional Screen?

There are many different screens in use by various professional companies and schools. Basic tests and measures can be used to assess and improve dance function for teachers, schools and health care professionals who work together as a team but do not have screening experience. Common components of a screen include orthopedic assessments that examine a dancer’s overall structure, strength, flexibility and laxity. Also commonly included are various functional components such as dance technique or related movement-based assessments intended to help identify areas where a dancer may benefit from refinement exercises or changes in motor patterning that can be done during or outside of the technique class. Tests that examine balance and general cardiovascular fitness are

also conducted, given that these are part of most training and performance demands.

### Components of a Functional Screen

Well designed screens may identify deficiencies which, once corrected, may improve function. The goals of a screen and many specific factors may influence the type of screen that is appropriate and the number of assessments that can be feasibly included. The screening team may include physical therapists, athletic trainers or other equally qualified medical professional, dance teachers, and movement science researchers. In some cases students may be trained to screen as part of an educational component.<sup>11</sup>

Planning for what to do with the data that are collected is very important, and screening teams should discuss in advance how this information is to be used. Confidentiality of all screening information is paramount. Therefore, the screening team should decide in advance who is to have access to what information. Prior to any screen dancers must be fully informed of the following: 1) what is going to happen, 2) what information is being collected, 3) how the information is going to be used, and 4) who will have access to this information. When dancers are minors, this information must be disclosed and agreed upon with the parents or legal guardians of the dancer prior to any screenings. One example of a project that addresses all of these issues and is currently available to assist teachers and professionals in screening dancers is the Dancer Wellness Project (DWP).<sup>12</sup> On the web site there are sample screens that can be customized to suit individual needs.

### A Starter Functional Screen

Through a collaborative effort of experienced wellness professionals, a “starter” screen was designed to support the needs of those people initiating their respective screening programs. This screen includes assessments that can be performed by dance educators who have a basic understanding of kinesiology or anatomy, along with assessments that can be performed by a physical therapist, athletic trainer, or equally qualified individual who may not have experience working with dancers.

A starter screen could include the tests and measures listed below. These were chosen because attributes or deficiencies in these areas affect dance function and performance. Once the screeners become experienced, they will begin to recognize successful movement patterns or impairments. Additional tests and measures can be added as necessary.

- I. TECHNIQUE: look for attributes or faulty movement patterning
  - A. Parallel position to first position
  - B. Demi-plié in first position
  - C. Grand plié in first position
  - D. Relevé in first position
  - E. Passé balance flat
  - F. Développé devant, à la seconde, derrière
  - G. Single pirouette en dehors

- H. Port de bras first to fifth and first to second
- I. Jumps in first

### II. FITNESS

- YMCA 3-minute step test

### III. BALANCE TEST

- 60-second stork test

### IV. STRUCTURAL

#### A. Anterior

1. Iliac crest alignment
2. Leg length
3. Knee alignment
4. Tibial torsion
5. Morton's short toe

#### B. Lateral

1. Forward head
2. Shoulder alignment
3. Kyphosis/lordosis
4. Pelvic tilt
5. Genu recurvatum

#### C. Posterior

1. Head tilt
2. Shoulders level
3. Scapular winging
4. Scapulohumeral rhythm
5. Adams forward bend test
6. Foot alignment
7. Hallux valgus

### V. STRENGTH: general movement patterns or synergies

- A. Serratus anterior
- B. Trapezius
- C. Rhomboids
- D. Quadratus lumborum
- E. Upper and lower abdominals
- F. Hip internal/external rotation as well as abduction and adduction
- G. Gluteus medius and maximus
- H. Flexor hallucis longus
- I. Peroneals
- J. Foot intrinsics

### VI. FLEXIBILITY/LAXITY

#### A. Turnout

1. Total turnout
2. Standing - floor and discs

#### B. Beighton score

#### C. Range of motion(ROM) & special tests

1. Cervical spine ROM
2. Trunk spine ROM
3. Shoulder and scapular ROM
4. Thomas test
5. FABER
6. Hip internal and external ROM
7. Knee ROM
8. Knee ligaments
  - a) Lachman's

- b) Valgus stress
  - c) Varus stress
9. Ankle ROM  
10. Hallux rigidus

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### Post-Screening: Applying the Results

A successful screen must include a post-screening follow up with the dancer. The teacher and/or medical professionals on your team should meet with each dancer to help frame the information for the dancer, educate them as to the findings about themselves, and help them develop realistic strategies to address the areas where they can improve. At first this may seem like a lot of additional work, but immediate benefits for the dancer are significant.

It is important to keep in mind that a dance teacher may be an impacting figure during a dancer's years of training, and may be the individual who notices potential issues. However, while student dancers may be trusting of their teacher's feedback in technique classes, they may not feel comfortable with that teacher knowing other personal details. After all, the teacher may make casting choices or be responsible for advancement from one level to another. Therefore, if a teacher has access to a dancer's screening profile, the information must be carefully used so as not to make casting/placement or similar important decisions solely based on screening profiles. Anecdotal evidence suggests that dancers are more interested in participating in screens if they know the screen is designed to help them become better dancers and that it will not be used as a tool for judgment.

An observant and concerned teacher who has participated in screenings can help a dancer by interfacing with other professionals when appropriate. In the long run, teachers and medical professionals, together, can help to bridge the science of the art and the art of the science for the dancer's benefit.

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### Immediate Outcomes of Screening

- Each dancer receives a profile of their screening results. The information is useful to a teacher and associated health care professionals in assisting individual dancers with their training and technique goals. A personalized conditioning/intervention program aids in developing efficient and effective cross training.
- Screening can help teachers and administrators augment the dance curriculum to better meet the training needs of groups of dancers.
- Repeated screenings can help track changes for individuals and groups, which can be especially helpful in pre-professional dancers.
- Screenings introduce dancers to the concepts related to their own bodies, which for some dancers may be the first time they have understood their bodies in this orientation.
- Screening results may contribute to the greater body of scientific knowledge of dancers and thus

may be of use in research efforts, the results of which can ultimately impact dancers and their teachers around the world.

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### Summary

Screenings are valuable tools in the training, education, and care of dancers. During the last two decades the field of dance medicine and science, and specifically that aspect related to screenings, has rapidly become a distinct area of interest, and the development of screening programs at many schools and dance companies is a testament to this growth.

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### A Screening Checklist

1. Below is a list of some issues/questions to consider when designing a screening program
2. Be clear as to why you are screening and what you hope to accomplish.
3. Identify who can assist in conducting your screen. It is important to have a dance specialist (such as a teacher) and at least one medical specialist (such as a physical therapist, athletic trainer, or equally qualified professional).
4. Based on your team, what can you include in your screen? It is wise to start with a smaller screen and expand and adjust it over time.
5. It is recommended that screenings be conducted at the beginning of a season, school year, or an extended rehearsal period. A screen may take 20 minutes to an hour, depending on the assessments included.
6. Screening data must be treated as confidential information. Be specific on who will have access to the information and why.
7. Consider how you will process the information from the screen, how the dancers will get the results, and how they can be helped in applying this information to their training. Post-screening follow up is very important.

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