

A Screening Program for Dancers Administered by Dancers

Margaret Wilson, Ph.D., and Jennifer L. Deckert, M.F.A.

Abstract

Students enrolled in a dance kinesiology class were trained to administer a screening protocol on younger dancers in the same department. The dance kinesiology students gained experience assessing alignment and functional symmetry in their peers, and then recommended exercises for gaining awareness and developing balanced patterns of movement. This “low stakes” assessment created both dialogue and peer support centered on helping the screened dancers understand and effectively work with their individual capacities and limitations. The project was designed to contribute to a culture of wellness and education within the dance department.

The use of screening programs in professional companies, schools, and university dance programs is well documented. In 1997 a full issue of the *Journal of Dance Medicine and Science* was devoted to screening, in particular identifying the issues encountered in the process and introducing screening protocols used at different levels of dance around the world.¹⁻⁴ Following this publication, efforts at centralizing data on wellness screening have been undertaken by Gary Galbraith and Karen Potter at Case Western Reserve University.⁵ This has developed into a multi-year,

on-going project that includes an annual screen, education models, and integration of the information into lecture and technique classes. In addition, Case Western has invited other universities to be involved in this initiative.⁶ Shaw Bronner, working with professional and student dancers, advocates for the development of an objective profile of a dancer’s capabilities and the implementation of long-term functional changes that result from a screen.⁷

Bonnie Weigert addressed the training level of new students entering a university dance program, questioning whether they were sufficiently developed in terms of such physical capacities as strength, flexibility, and skill to avoid injury.⁸ While she found no correlation between prior training and injuries, she argued that focusing on risk factors (as might be revealed in a screen) could be effective in preventing injuries.

Marijeanne Liederbach and colleagues undertook a survey identifying the range of information collected in dancer screenings and found tremendous variability in the assessment tools being used. They emphasized the importance of screening for: 1. promoting dancer education, 2. building

rapport with health care professionals, and 3. positively influencing injury-reporting behavior. Ultimately, their recommendation was to draw from the “strengths of our diverse areas of expertise to address the assessment, treatment and training of the whole dancer.”⁹

Solomon and associates’ *Preventing Dance Injuries* devotes an entire section to screening, including a chapter on the young dancer and one introducing a somatic approach to evaluating dancers.¹⁰ In this latter chapter Sandra Kay Lauffenburger advocates for one-on-one work with a somatic (in this case Bartenieff Fundamentals™) practitioner who can observe and diagnose movement patterns that are characteristic of the individual dancer. In this way somatic practices can serve as a pro-active screening tool by “drawing the dancer’s attention to an inefficient pattern [and] facilitating the development of full functional usage.”¹¹

A recent resource paper on dance screening sponsored by the International Association for Dance Medicine & Science states that the purpose of a screening program is to “gain important information about a dancer... that can be used to promote ongoing health and well-being.”¹² At any level, frequent assessment is recommended to evaluate and analyze an individual dancer’s strengths and limitations.

While screenings are often conducted by professional medical practitioners who have a background in

Margaret Wilson, Ph.D., and Jennifer L. Deckert, M.F.A., are in the Department of Theatre and Dance at the University of Wyoming, Laramie, Wyoming.

Correspondence: Margaret Wilson, Ph.D., University of Wyoming, Department 3951, Theatre and Dance, 1000 East University Avenue, Laramie, Wyoming 82072; mawilson@uwyo.edu.

Table 1 Participant Data

	Age	Year in School	Years Serious Dance Training	Hours/Week in Class and Rehearsal
Year 1	20 (± 1.09)	1.6 ($\pm .816$)	7.33 (± 2.42)	18.5 (± 4.80)
Year 2	20.3 (± 1.96)	1.5 ($\pm .547$)	4.33 (± 3.14)	18.3 (± 6.88)

For year in School: freshman = 1, sophomore = 2, etc.

dance, teachers of dance can also play an integral role in the screening process.^{4,5} An additional, as yet untapped resource for screening is the students themselves.

At the University of Wyoming the Dance Kinesiology course includes practical work in musculoskeletal evaluation. Students learn about the structures and functions of the body, and observe these systems and variations in their classmates. This practical observation provides them with an additional means of understanding the information presented in class, synthesizing their knowledge of the kinesiological material in application. This project has taken the dance kinesiology students one step further by training them to administer a screening protocol to other dancers outside of the kinesiology class. The screening protocol includes observation of align-

ment (static and dynamic), range of motion (passive and active), relative right and left side range of motion and strength, shoulder girdle mobility, and femoral external rotation.

Approval for human subjects' participation was obtained, and the dance kinesiology students were trained to evaluate dancers new to the University of Wyoming dance program. The entire screening process was designed as a gateway evaluation to be administered by the students, with one or both of the dance kinesiology faculty in attendance for clarification and follow-up. While this "low stakes" evaluation was not meant to be a substitute for a comprehensive medical assessment, it generated useful information for the dancers and instructors. As with other screening projects, the long-term benefits of collecting data on freshman dancers and tracking this

data throughout their training program will, we hope, help to increase self-awareness, understanding of their bodies, self-confidence, and responsibility for their progress.¹²

Methods

This project includes data collected from two consecutive years. Ten female junior and senior level dance students enrolled in Dance Kinesiology were trained to administer a dance screening assessment designed to help identify muscular strengths and weaknesses, bilateral asymmetries, and to document past injuries. These students will be referred to as "dance screen administrators" (DSAs).

Twelve students (nine females and three males), in their first or second year in the dance department, volunteered to be screened over the two years. These students will be referred

	Deviations/ Inclination/ Irregularities	Acceptable	Follow-up
Spine structure L/P: roll down check for lateral curves Pelvis orientation A/P/L			
Legs: Bone structure and muscle tone			
Foot structure weight bearing Pronation/supination Flat and relevé			
Alignment in plié and jumping from anterior, lateral and posterior views Parallel and rotated first position			
Range of motion a la seconde right and left legs 1. active développé 2. assisted développé			
External and internal rotation Standing			
Ankle range of motion Plantar/dorsi flexion (sitting)			
Shoulder joint range of motion Anterior/Lateral			
Leg strength Abductor strength, (Side lying) Leg Length (supine) Hamstring strength (prone) Tibial length			

Figure 1 Screening assessment sheet.

NAME:	TODAY'S DATE:
ADDRESS:	TELEPHONE:
CITY/STATE:	WORK:
DATE OF BIRTH:	SEX:
PARENTS' NAME:	HEIGHT:
ADDRESS:	IS YOUR WEIGHT STABLE?
INSURANCE COMPANY:	

AGE STARTED STUDYING DANCE SERIOUSLY and AGE STARTED POINTE:
 MAIN AREA OF DANCE FOCUS: YEARS TRAINING:

TECHNIQUE CLASSES ENROLLED IN
 DAYS/WEEK, HOURS/DAY SPENT IN TECHNIQUE CLASS: _____ , _____
 IN REHEARSAL: _____ , _____
 ENGAGED IN SUPPLEMENTAL TRAINING: _____ , _____

TYPE OF SUPPLEMENTAL TRAINING, CURRENTLY OR PREVIOUSLY:
 ON WHAT TYPE OF SURFACE DO YOU USUALLY TRAIN? (Be specific about floor and covering)
 How do you warm up prior to classes or rehearsals?

 HEALTH HISTORY (check those that apply)
 LIST LAST KNOWN DATE FOR:
 ___ Heart Disease ___ Epilepsy ___ General Physical/OB/GYN
 ___ Diabetes ___ Bladder Problems ___ Eye examination
 ___ Menstrual Irregularity ___ Asthma ___ Hearing examination
 ___ Recent Surgery If yes, specify where, when and who performed

Are there any other conditions we should know about?
 Are you currently taking any medications?
 When was the last time you received information or education about nutrition?
 Have you ever been screened for scoliosis? If so, when and was any deviation determined?
 Do you wear orthotics in your street shoes or dance shoes?
 Past injuries: Please include date, how it occurred, treatment, and note if injury has re-occurred
 Current concerns or questions for us:
 What are your strengths as a dancer? (for example, I am a strong jumper and turner)
 Do you have a side preference?
 What things do you feel you need to work on? (For example, I would like to find more balance between flexibility and strength)

Figure 2 Health survey.

to as “screened dancers” (SDs). All volunteer SDs were informed of the nature of the research and signed consent forms for their participation. The screenings were supervised by one or two faculty members. Participant data for both years can be found in Table 1.

The evaluation project included three phases: initial screening, exercise prescription, and re-screening. In the initial screening the DSAs worked in pairs, with each pair screening three dancers, supervised by a faculty member. Following the screening the DSAs met with the faculty members to discuss their findings and identify

areas for follow-up or action. Items on the screen included assessment of alignment, active and passive range of motion, analysis of bone structure and muscle development, observation of mechanics of selected dance movements, and bilateral comparison of strength and flexibility. Figures 1 and 2 illustrate the screening data collection form and health history form.

During the exercise prescription phase the DSAs researched and recommended exercises or activities for the SD to address any noteworthy findings, such as weaknesses and over-used or underused sides of the body.

For example, if the screen revealed that the SD had weak abductors on the right leg, appropriate exercises were recommended to strengthen this muscle group to match the other side. The selected exercises were taught and demonstrated to the SD by the DSA. The DSAs recommended exercises from two principle sources, *Dancing Stronger*, *Dancing Longer*¹³ and *Dance Kinesiology*.¹⁴ In addition, they drew on their knowledge of other exercises to help them in selecting activities for the SD's to perform.

The re-screening took place during the last week of the semester. This

Table 2 Screened Dancers' Comments

	Year One (n = 5)	Year Two (n = 5)
What information have you gained?	Learned exercises to alleviate pain and make me stronger Aware of habits and weaknesses (2 responses) Need to stretch and strengthen Discovered asymmetry in muscle development Learned about my body	Identified imbalances (2 responses) Identify what to work on Increased awareness Learned specific exercises
Have you been able to apply this information?	More aware of my hyperextension, strengthened my legs Trying not to sink in my hips (2 responses) More aware of foot placement in parallel Work my rotation more at the barre	Yes (3 responses) Increased body awareness (2 responses) Began to concentrate on strengthening legs
Will you continue with the exercises?	Yes (4 responses) Want to make them more challenging (4 responses) The application of ideas has been most helpful	Yes (5 responses) Want to make them more challenging (4 responses)
Were you comfortable with students assessing you?	Yes (5 responses) Very comfortable It allowed me to be more relaxed Glad teachers were there for supervision Seemed less stressful	Yes (5 responses) Gives the students a good experience—felt very comfortable Useful hearing suggestions from a student Was relaxing and a learning process for both of us
Were you confident with the students' ability to assess you?	Yes (5 responses) They were helpful and knowledgeable Helped that there were two of them Excited to take the class to learn information myself	Yes (5 responses)
Were all questions answered?	Yes (5 responses)	Yes (5 responses)
How would you rate this experience?	Very interesting 10 on a scale of 1-10 Very informative and helpful (2 responses) Very interesting—need more time for the exercises	9 on a scale of 1-10 Very good (2 responses) Excellent Nice to see improvement from suggested exercises Experience was very positive

evaluation focused primarily on any identified areas of concern revealed in the initial screening. The SDs completed a questionnaire at this time that was intended to summarize their responses to participation in the study (Table 2).

Results and Discussion

There were no remarkable findings in the conducted screenings. While there were two cases of scoliosis, the dancers involved were aware of this condition prior to the screening.

As the timeline for training the DSAs occurred during the academic semester in which they were enrolled in the Dance Kinesiology course, the duration of the exercise prescription

phase was limited to approximately four weeks. With an abbreviated period of time in which to perform the recommended exercises, the primary changes for the SDs were realistically limited to an enhanced understanding or awareness of their bodies. In spite of the time constraints the SDs gained a better understanding of the benefits of the prescribed exercises as they pertained to their specific conditions. For example, students with weak abductors gained an understanding of how to strengthen these muscles and utilize them when standing on one leg. In particular, one dancer discovered that the lack of strength in her supporting leg affected the height of her *développé à la seconde*. While there were

no observable physical changes that developed, the information the SDs took forward relative to understanding their capacities and limitations was a valuable aspect of the project. This information was revealed in the questionnaire the SDs completed, as seen in Table 2.

Involving the DSAs in this screening process was valuable in two very tangible ways. First, it challenged them to apply the knowledge and experience they had gained thus far in their university careers, particularly in the Dance Kinesiology course. Applying evaluative skills in context can take the student beyond memorizing kinesiological concepts to a broader understanding of the information.

Second, the screening experience asked the DSAs to look at bodies analytically. Evaluating other dancers (having different training and dance backgrounds) served a pedagogical function for the Dance Kinesiology course as well as an analytical one. As many of the students in the program will likely teach dance at some point in their career, this is a vital skill for successful teaching that they can develop while at the university.

Indeed, while it is clear that success is possible in this program on many levels, for these two years of the study the most salient results came from the DSAs, and are revealed in their project summary statements:

By evaluating other dance students I was able to step back and take an outsider's view of the body. I learned more about how muscular imbalances can affect technique and efficiency than I would have by looking into my own body. By seeing what a muscular imbalance does in the body, I am better prepared to recognize the same thing in myself and to correct it as well.

This assessment was hands on and really involved and incorporated what we learned and experienced in the kinesiology class. I felt this assessment was a great way to experience kinesiology first hand.

Through the process I learned the importance of simply being aware of your body. Our dancers learned a lot about themselves and even though they weren't consistent with the exercises, they learned a lot about why they do things the way they do. Ideas seemed to "click" for them and they could apply the information we provided to their dancing everyday.

Ethical Considerations

To the fullest extent possible, the results of the screen were kept confidential. The supervising faculty maintained copies of the collected data for analysis. The information in no way affected the grades, class placement, or faculty opinion or expectation of

the SDs. Arrangements or referrals to a physician or sports medicine personnel would have been made for conditions that exceeded normative findings.

The DSAs were carefully supervised in the screening process to maintain professional distance, especially as the SD volunteers were their classmates. This professional expectation added another dimension of skill for the DSAs. When the SDs were queried at the end of the project, all of them felt at ease with the DSAs. In one of the dancer's words: "I felt comfortable with the student assessing me. I was more comfortable because it was a relaxed environment. I felt very confident with the student's ability."

In fact, on one level the more relaxed environment achieved through working with peers helped the DSAs to see the SD's normal habits. In retrospect it was determined that if the SDs had been screened by dance faculty they might well have tried to create a more perfect alignment, and that would have interfered with a clear understanding of their alignment tendencies. One dancer commented on this: "I was *very* comfortable with the student assessment. I think it allowed me to be more relaxed. This may have allowed for bad habits to show through a bit more because I was not thinking about them, I was just following instructions." As a student is in class only a portion of the day, habitual postures can serve to enhance or inhibit desired postural or movement goals. For example, if a dancer *sits in her hip* in casual posture, the hip abductors will be overstretched and possibly weak. This would have ramifications for standing on one leg in a movement such as *développé à la seconde*. Therefore, one notable outcome of the screening process was seeing both habitual postures and dance postures and practices.

Another very strong argument for having peer assessment, and a second notable finding of this study, was that the SDs were quite receptive to the advice of their peers. One case in particular had remarkably positive results. An SD with extreme hyperextension

had been encouraged, instructed, and admonished to address this issue by every faculty member in the department. There was little or no evidence to suggest that these corrections and urgings had been put into practice. However, with the interest of her peers in understanding and addressing the recurvatum, the dancer suddenly became quite proactive in addressing the limitations of this condition and integrating the suggestions given to her by her peers.

To the best of our knowledge, no other assessment program of this sort exists. The program has grown over its short life span, as information gained from the first year was integrated into the second year. Two students who were SDs the first year had their interest piqued for taking the Kinesiology course because of the experience.

Conclusion

Including dance students in the screening process was a useful way to enhance their knowledge of the body and establish a gateway screening tool. Several considerations are recommended for further implementation:

1. Adherence to prescribed exercise regimens requires consistent meetings with the SDs by the faculty and the DSAs. Having a specific time set aside for this in the department schedule would promote better results.
2. As the scheduling for this project limited the possibility of affecting physiological changes for the SDs based on the recommended exercises, means should be found to allow for longer interventions. In addition, more time is needed between pre- and post-assessment for the DSAs to make unbiased final evaluations of progress.
3. Involve more students as SDs and other dance faculty to validate the screening process.
4. Add somatic practices into the screening process as a means of developing and evaluating self-awareness in the SDs.

Administering this "low stakes"

assessment as SDs enter the dance program supports a departmental philosophy that advocates for artistry, education, wellness, and health. Helping the SDs understand their bodies through information gained in the screen develops responsibility and agency. For the DSAs, practical application of information learned in a dance kinesiology class develops a deeper understanding of the material. This gateway screen has the potential to become a vital component in an environment dedicated to educating healthy and informed dancers.

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