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Preliminary assessment of conditioning practices in support of multiple discipline dance training

Dallman, Paula Ann, M.A.

THE UNIVERSITY OF ARIZONA, 1987

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PRELIMINARY ASSESSMENT OF CONDITIONING PRACTICES IN SUPPORT OF MULTIPLE DISCIPLINE DANCE TRAINING

by

Paula Ann Dallman

A Thesis Submitted to the Faculty of the

DEPARTMENT OF DRAMA

In Partial Fulfillment of the Requirements
For the Degree of

MASTER OF ARTS

In the Graduate College

THE UNIVERSITY OF ARIZONA

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APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

Nina Janik
Associate Professor of Dance

Apr. 8, 1987
Date

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I am eternally grateful to my Committee members, Nina Janik, Dr. John Wilson and Mary Wolff of the Committee on Dance, for their insight, clarity and excellent suggestions throughout the writing process. Working with them has been a rewarding and very positive culmination to my graduate school experience.

Special thanks to my husband, Bill, whose constant encouragement, support and positive spirit are always there for me.

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ABSTRACT

In an effort to enhance the development of dance artists within the college setting, the author devised a conditioning program which was included in the undergraduate curriculum of the University of Arizona dance program in Spring, 1987. The conditioning program includes a floor barre, nutritional information relevant to dancer's needs and discussions of body image. The floor barre is illustrated and described.

The study asked the following questions:

- will flexibility, strength and alignment improve due to participation in the conditioning program?
- will any improvements be reflected in ballet and modern dance technique classes?
- will participating students and their technique teachers see the same results?

At the end of eight weeks, students and faculty concurred that the conditioning program was beneficial. Rather than teaching specific technique skills, the conditioning program provided students with knowledge of the basic neuromuscular work necessary to support all dance movement and was directly applicable to multiple discipline dance training.

CHAPTER 1

INTRODUCTION

Dance is rarely found in the American educational system at the elementary and secondary levels. This gives other post-secondary educators a distinct advantage over college level dance educators. This situation has profound implications on the level of technical expertise that can be expected of incoming undergraduate students.

The problems associated with teaching a discipline which is largely ignored by the educational system are compounded when students are trained at private studios. There are no mandatory educational or professional standards required of dance studio operators. Therefore, even those students that have studied dance prior to college entry cannot be assumed to have received physiologically sound training. The college dance instructor inherits this widely diverse student population.

The goal of college dance programs is to develop performers, teachers and choreographers during the traditional four years of an undergraduate curriculum. Dance educators and professionals agree that it requires years of work to train the body to dance. Completing that training within the four-year curriculum (concurrent with general college and fine arts requirements) creates very real problems.

Dancers bridge the gap between aesthetics and athletics; consequently, the dance educator must develop students' bodies as they develop and expand artistic sensitivities. The physical condition of a dancer determines technical level, stamina, performance quality and ability to avoid injury. A dance conditioning program specifically developed to increase strength and flexibility, to improve alignment, and to enhance energy use may facilitate the development of a dancer within the four years of college training.

Objectives

The dance conditioning program should be a synergistic approach to developing the college dance student. This program should include:

- specific work to increase flexibility.
- resistance training to increase strength to support gains in flexibility.
- nutritional advice presented in conjunction with information on the function of the human body to stress the importance of diet on physical performance.
- discussions of body image as it relates to nutritional (and other lifestyle) choices.

A floor barre designed to increase strength and flexibility concurrently should relate in a directly complementary manner to a multi-disciplined approach to dance at the college level. Attention to breathing and the use of energy during simple movement sequences on the floor might be incorporated into more technical

movement sequences in technique class and performance. The incorporation of resistance training methods within the floor barre should serve to increase strength beyond the base level essential to support dance technique. This increase in strength should serve to prevent injury and improve muscle tone.

The aesthetic demands of low body weight for dancers can result in eating disorders in the college dancer in the same manner as has been well documented in the professional dancer. Few college dance programs include nutritional counseling or general nutrition courses within their curricula. The dance conditioning program would seem to be an appropriate vehicle for presentation of some nutritional information.

Body image must change before changes occur in either dance technique or physical appearance. The conditioning class may be an appropriate forum for discussions on body image.

Description

A floor barre which seems highly applicable to dance technique has been taught by Professor Nina Janik at the University of Arizona Dance Program as an introduction to her beginning major level ballet course. I have studied with Professor Janik for two years and find the material very beneficial personally. She compiled the material for her floor barre based on her experiences as a student at the Finis Jhung Studio in New York. The imagery used, which is essential to translating the floor work to dance technique, is Professor Janik's. Additionally, my study of the Pilates system

and resistance training methods have been incorporated into her material.

The faculty of the University of Arizona Dance Program created an experimental course in dance conditioning for majors during Spring semester, 1987. I taught the course under the direction of Professor Nina Janik. The course consisted of a controlled semesters' application of the conditioning material to determine resulting effects on multi-discipline dance techniques. The study is concerned with operational efficacy rather than data collection.

Limitations and Delimitations

Space and time constraints within the Dance Program have limited the conditioning course to 50 minutes, twice per week. As a result, the course focused primarily on the strength, flexibility and alignment work of the floor barre. A small amount of time at the beginning and the end of the semester were spent discussing nutrition and body image as they relate to dancers. Daily course outlines are included in Appendix A.

The course listing was not included in the Spring class schedule. This limited the number of students in the class. In addition, the intermediate level modern dance class was scheduled during the same class hour, which excluded a large group of dance majors from the class.

There are several excellent teachers using floor barre methods for injury rehabilitation and exercise. Zena Rommett has been teaching her floor barre to dancers since 1969. Carola Trier

has been using the Pilates system with dancers in New York City for several years. Sally Fitt of the University of Utah Department of Modern Dance has used floor work with college dancers. Their work has not been published. It has not been possible for me to study with these women.

Definitions

Dance Condition: The physical status of a dancers' body as a whole.

Floor Barre: Series of breath-supported exercises designed to strengthen and stretch the body in a manner supportive of the movement demands of ballet and modern dance. The exercises are performed on the floor to remove the effects that fixed postural habits may have on alignment.

Flexibility: The capacity of the joints to articulate through a full range of motion without affecting the alignment of the body; joint range determines degree of flexibility.

Strength: The capacity of the muscles to produce force and to withstand stress.

Alignment: The functional relationship of body parts; good alignment is a reflection of balanced, efficient muscle use.

Resistance Training: A regimen designed to require specific muscular effort to overcome the application of an opposing force through a complete range of motion.

CHAPTER 2

REVIEW OF RESEARCH

A survey of the research points to benefits to dancers from alternative training methods (Benson, Gillien, Bourdet and Loosli 1985; Cohen, Kim, May and Ertel 1980; Fitt 1981; Olson 1984; Peterson 1982; and Van Gyn 1986). The demands of technique class have been found to be far lower than the physical demands of rehearsal and performance (Schantz and Astrand 1985). Comparing studies of the aerobic capacities of professional dancers with college dance majors indicates that while the former have aerobic capacities similar to those of endurance athletes, the latter are in poor condition aerobically unless they participate in some activity other than dance training for cardiovascular fitness (Fitt 1981, and Rimmer and Rostensweig 1982).

The low energy demands of dance technique class combine with an aesthetic demand for low body weight to create nutritional problems for dancers. Benson et al. (1985) and Peterson (1982) have documented chronic calorie restriction and nutritional deficiencies in dancers. They recommend that nutritional advice be included in dance training. Peterson (1982) has found in case studies that changes in eating habits must be accompanied by changes in body image in order to be effectual.

Strength and flexibility are important determinants of technical achievement in dance. Gains in strength and flexibility are also strongly linked with injury reduction. Traditional technique classes do not cause significant increases in strength and flexibility (Fitt 1981, and Schantz and Astrand 1985). Proprioceptive neuromuscular facilitation (PNF) has been found to be the most effective method for increasing both strength of agonist and antagonist muscle groups at the same time that flexibility is increased (Van Gyn 1986). PNF requires more time than is generally allotted for stretching during a techique class. Strength and range of motion increase simultaneously in dancers involved in resistance training programs (Fitt 1981, and Olson 1984). While a small increase in strength has been documented in traditional technique classes, a decrease in range of motion occurs in control groups not involved in an additional training procedure (Fitt 1981). Since dance movements consist of both isometric and isotonic contractions (Cohen et al. 1980), a training program composed of these kinds of contractions should be directly applicable to dance technique.

Lulu Sweigards' (1974) constructive rest position is beneficial to dancers to facilitate improved alignment. The pull of gravity aids in reducing muscle strain and promotes balanced relaxation of muscles. No muscle action is needed to maintain constructive rest position. Sweigards' (1974) alignment work does not relate directly, however, to the kinetic (or fully moving) body.

Rationale

A conditioning program for dancers to be included in the curricula of college dance programs should facilitate the development of physically well-prepared dancers. Dance technique improves with gains in strength and flexibility. Resistance training and PNF both serve to increase strength and flexibility but are not included as part of most ballet and modern dance technique classes. Floor barre incorporates resistance training methods and PNF to directly increase strength and flexibility. Isometric and isotonic contractions are used, which should relate directly to dance technique.

Nutritional information must be presented concurrently with discussions of body image to affect personal food choices. A course in conditioning for dancers that includes floor barre, nutritional information and dialogue on body image should be included as a part of dance training.

Due to the time constraints outlined in Chapter 1, the conditioning class focused primarily on whether gains in strength and flexibility occurred using floor barre, and if these gains translated directly into the dance technique class. An introduction to nutrition for dancers and body image was presented at the beginning and at the end of the semester.

The goal of the conditioning for dancers course was to stretch and strengthen the body to improve dance technique while accommodating individual structures, strengths, weaknesses and

technical levels. The material was modified to meet individual needs and to support beginning, intermediate and advanced dancers equally. The rate of progress, the number of repetitions and specific individual modifications within the sequences were variables for the students and the instructor to manipulate.

Format

This study of the effects of the floor barre on dance technique is not an experimental design. It is a descriptive, preliminary overview. Any results are based upon the subjective impressions of students in the class, the opinions of their principal technique teachers, and my own observations.

Student and faculty opinions were solicited by questionnaire (see Appendix B) at the beginning of the semster, and again after the eighth week of class. My observations were based upon progress with the conditioning material as well as a standard technique class videotaped during the second class meeting and repeated after the eighth week of class. I also met with the principal technique teachers of students in the conditioning class to discuss student progress over the eight week period.

The coercive effects of grades were mitigated by offering the conditioning course on the pass-fail grading system. The student only needed to participate on a regular basis to meet the course requirements. Consequently, the honesty of student reflection upon their experiences during the eight weeks were believed to be reliable.

The Floor Barre

One primary image is continually referred to throughout the floor barre. The student imagines the spine suspended in a strong, flexible tube of air. The tube surrounding the spine expands evenly on each inhalation and lengthens on each exhalation. Students are directed to fill the entire tube surrounding the spine with air from the coccyx (the base of the spine) to the top of the head as they inhale. Special reference is made to specific areas of common tension (the lower back and the back of the neck, in particular). On the exhalation, air is "blown" evenly out the top and the bottom of the tube to slightly lengthen the spine. As with Sweigards' (1974) use of imagery, there is no muscular action in the body to facilitate the imagery. Keeping the image clearly in mind, the student releases chronic tension patterns. The student then begins to work the body, free of residual tensions that might distort alignment.

The image of a long, released, breath-filled spine is the focus of Sequence 4 and is continually referred back to as the floor barre progresses. The image is reinforced briefly at the end of each class before the students come to a standing position. The class then ends with simple movements (plié, battement tendu, port de bras) with the image of breath in the spine to support full movement. Kenneth Laws (1984, 17) refers to the importance of a supple, responsive torso to accommodate dance movement:

> ... the accepted technique for maintaining balance involves keeping the lower body strong and rigid while

> keeping the upper body relaxed and sensitive to small departures from balance, without losing the quality of line. This technique is not only aesthetically and conventionally "correct," but it makes sense in terms of the physical principles of balance.

The floor barre should be presented in a quiet room woth individual mats for students. Each exercise leads into the next. Once students are familiar with the material, the entire barre can be completed in 50 minutes. Each exercise is led by the instructor, speaking in a peaceful and rhythmic manner, while circulating throughout the room to provide individual attention to students. The number of repetitions and intensity of each sequence builds with time.

In the following sequences, plantar flexion of the ankle is referred to as "extended" and dorsiflexion of the ankle is described as "flexed."

Sequence 1: Preliminary Standing Stretch

Begin standing in parallel with the feet hip width apart.

Inhale - interweave fingers and reach palms toward the ceiling.

Exhale - stretch the arms and upper body to the right side in the frontal plane, feeling both sides of the torso reaching right.

Inhale - return to straight position with palms toward the ceiling.

Exhale - stretch the arms and upper body to the left side in the frontal plane, feeling both sides of the torso reaching left.

Inhale - return to straight position with palms toward the ceiling.

Exhale - reach sternum and chin up toward ceiling as arms press open to sides.

Inhale - bend forward at hip joints, leading with sternum, until hands reach or approach the floor.

Exhale - reach the coccyx up toward the ceiling and the top of the head toward the floor with slightly released knees.

Inhale - slide the right leg back as the left leg bends in a low lunge, hands on either side of the left foot.

Exhale - arch the upper spine (forehead reaches up toward ceiling).

Inhale - place the left foot back beside the right foot, knees slightly released.

Exhale - reach heels toward the floor and coccyx toward the ceiling.

Inhale - slide the right foot forward between the hands, bent in a low lunge.

Exhale - arch the upper spine, reaching the forehead up toward the ceiling.

Inhale - place the left leg alongside the right with knees slightly released.

Exhale - reach the coccyx up toward the ceiling and the top of the head toward the floor with knees slightly released.

Inhale - demi plié.

Exhale - slowly roll up to standing through the spine (head last).

Repeat the sequence, alternating legs.

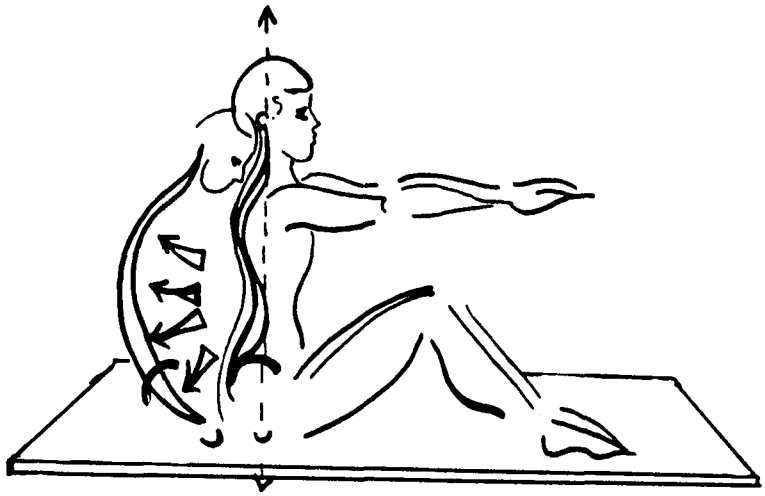

Fig. 1. Preliminary Spine Stretch

Sequence 2: Preliminary Spine Stretch

Sit on mat with legs flexed, soles of feet on mat.

Inhale - extend spine long, from coccyx through top of head, arms reaching forward.

Exhale - contract abdominal muscles and stretch spine, rounding back off ischial tuberosities.

Repeat slowly, ending in the "exhale" position.

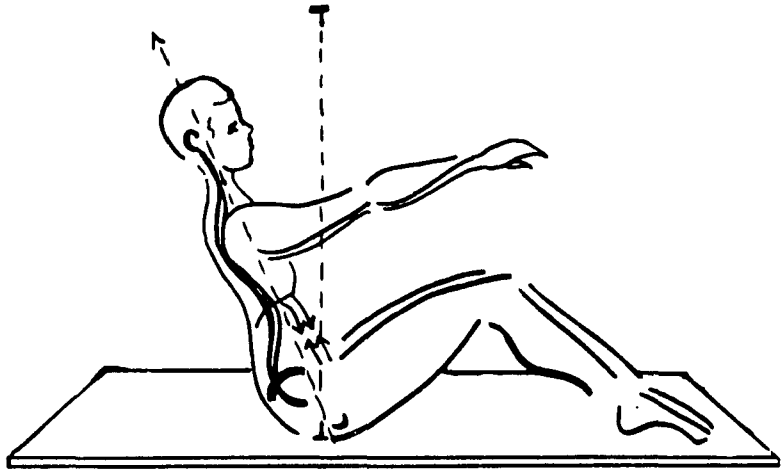

Fig. 2. "V" Sit

Sequence 3: "V" Sit

Part A.

Inhale - extend spine into "V" sit with legs flexed, soles of feet on the floor, abdominal muscles engaged and arms extended forward (beginning position).

Exhale - stretch legs forward strongly along the floor with ankles flexed, and press arms open to sides (to a position horizontal with the floor) with hands in fists.

Inhale - return to beginning position.

Exhale - stretch legs forward strongly along the floor with ankles flexed, and press arms overhead with hands in fists.

Repeat on a slow four count.

Part B.

Inhale - return to beginning position.

Exhale - extend right knee at 45 degree angle off floor directly in front of hip joint (either parallel or turned out at the hip joint) and press arms open to sides (to a position horizontal to the floor) with hands in fists.

Inhale - return to beginning position.

Exhale - extend left knee at 45 degree angle off floor directly in front of left hip joint (either parallel or turned out at the hip joint) and press arms overhead with hands in fists.

Repeat on a slow four count.

Part C.

Inhale - return to beginning position.

Exhale - extend both knees forward at 45 degree angle off the floor directly in front of the hip joints (either parallel or turned out at the hip joints) and press arms open to the sides (to a position horizontal to the floor) with hands in fists.

Inhale - return to beginning position.

Exhale - extend both knees forward at 45 degree angle off the floor directly in front of hip joints (either parallel or turned out at the hip joints) and press arms overhead with hands in fists.

Repeat on a slow four count.

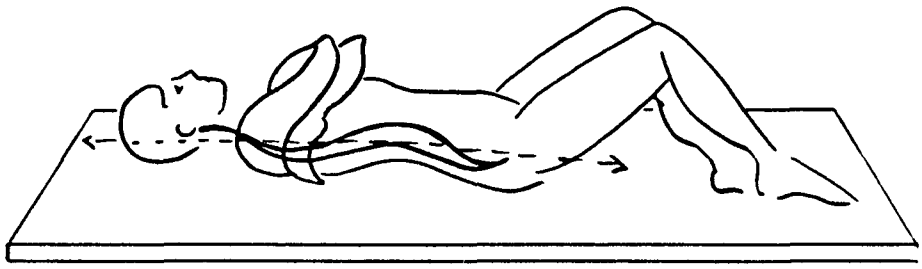

Fig. 3. Spine Lengthens

Sequence 4: Spine Lengthens

Roll down through spine to lie supine (on back), leaving legs flexed and soles of feet on the floor. Cross arms in front of the chest and turn attention to the breathing. Breathe easily and deeply, with a slow four count inhalation and a slow four count exhalation. After repeating as needed, open the arms to low side diagonals along the floor. Imagine the spine suspended in a strong tube of air that expands on the inhalation and lengthens on the exhalation. In the minds' eye, imagine that every exhalation is "blown out" the bottom of the tube (the coccyx) and the top of the tube (the top of the head) evenly. Feel the spine becoming longer with each exhalation. After a few breaths, allow the arms to "float" along the floor to overhead on the exhalation and return to low side diagonals on the inhalation. Maintain the flexible tube of air and continue to breathe out both ends of the tube on the exhalation as the arms move. After several repetitions, extend the legs along the floor under the hip joints as the arms float overhead to stretch the entire body without disturbing the length and "breath" of the spine. Return to the starting position on the inhalation. Move the arms and legs simultaneously.

Sequence 5: Spine Lengthens with Peripheral Movement

Lie supine with legs flexed and soles of feet on mat (see Fig. 3). Open the arms to low side diagonals.

Part A.

Inhale - flex the right leg softly to the chest.

Exhale - press the right heel toward the ceiling, stretching the back of the right leg with the ankle flexed.

Inhale - flex the right leg to the chest with the ankle extended and toes reaching toward the right buttock.

Repeat several times on a slow four count. End with the extension on an exhalation.

Part B. Rotate the right leg outward at the hip joint.

Inhale - lower the right leg straight toward the floor directly underneath the right hip joint with the ankle flexed. Imagine directing energy out the right heel.

Exhale - raise the right leg forward with the ankle flexed, heel reaching toward the ceiling, with awareness of the length of the leg and the length of the spine.

Repeat several times with the right leg.

Repeat the entire sequence (parts A and B) with the left leg. Then repeat the sequence using both legs at the same time. Pay particular attention to the lower back area during Part B as both legs are lowered together. The legs only lower to the extent that is possible with the lower back long and released. Move the legs with abdominal support and a long, released spine.

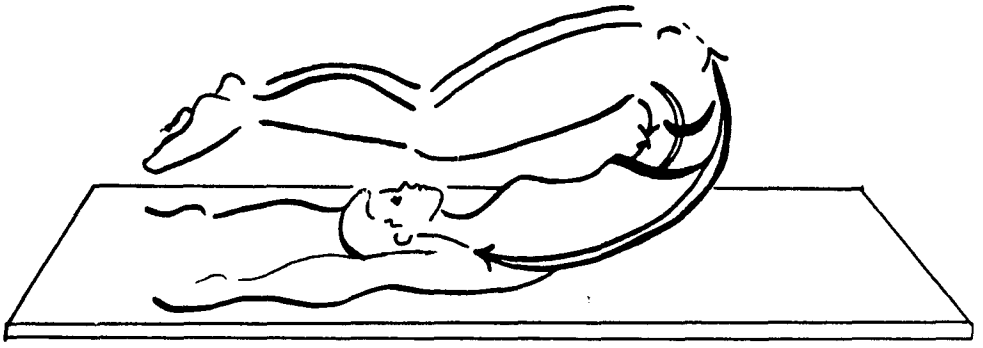

Fig. 4. Lower Back Stretch

Sequence 6: Lower Back Stretch

On the last exhalation and leg raise of Sequence 5, reach the toes overhead and roll onto the thoracic vertebrae. Allow the feet to approach the floor with knees released and breathe easily in this position to release the lower back. Strongly contract the abdominal muscles to maintain the position.

Part A.

Inhale - move the arms overhead and grasp the toes, with knees released.

Exhale - smoothly extend knees, stretching the outside surface of the body.

Repeat on a slow four count.

Part B.

Inhale - smoothly roll down through each vertebrae until the pelvis is resting on the mat and legs are extended toward the ceiling.

Exhale - contract the lower abdominal muscles and slowly roll onto the thoracic vertebrae, toes moving toward the

hands which are on the floor overhead, and knees close to the face. It is important not to accelerate at the beginning of this motion, but to move smoothly through the spine while contracting the abdominal muscles. There should be no tension in the shoulder, neck or lower back areas. The most critical phase of this sequence is the initial moment of lifting the hips off the mat with the lower abdominal muscles. Repeat on a slow six count.

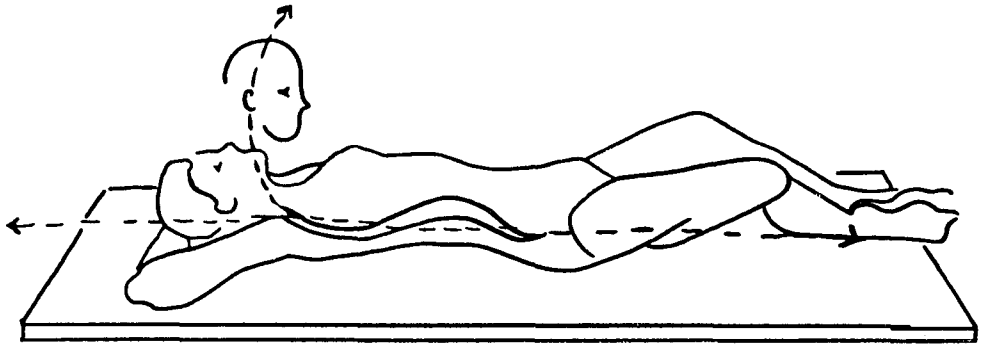

Fig. 5. Abdominal Strengthener

Sequence 7: Abdominal Strengthener

On the last exhalation after Sequence 6, lower the legs to the floor in a "low diamond" position with the legs rotated outward at the hip joints, knees flexed and soles of the feet together (see Fig. 5). Place the hands on the rib cage and focus on the breathing. Feel the rib cage expand and separate on the inhalation, and drop and come together on the exhalation (breathing "side to side") while maintaining the length and "breath" of the spine. After several breaths, extend the lower legs diagonally from the "low diamond" position to turned out second position and feel the toes dropping toward the mat on the exhalation while maintaining the length of the spine. Outward rotation occurs without loss of alignment or tension in the lower back area.

Part A.

Inhale -- place the soles of the feet together in the "low diamond" position and place the hands behind the head.

Exhale - contract the upper abdominal muscles to lift the head and shoulders up off the mat in a smooth, rolling motion.

Inhale - slowly roll back down onto the mat, imagining the spine lengthening and "pouring" onto the mat while the abdominal muscles are "hollowed out" or pulled up and in. The ribs remain easily relased throughout.

Repeat several times.

Part B. On the last inhalation, release the hands from behind the head.

Exhale - contract the upper abdominal muscles to lift the head and shoulders smoothly off the mat, and reach forward with the arms.

Inhale - remain in that position and "breathe into the tube surrounding the spine."

Exhale - using the abdominal muscles, with the back long and released, smoothly roll up until the waist leaves the mat.

Inhale - remain in that position and "breathe into the tube surrounding the spine."

Exhale - using the abdominal muscles, with the back long and released, smoothly roll up onto the gluteal muscles.

Inhale - remain in that position and "breathe into the tube surrounding the spine."

Exhale - release the torso forward over the legs and relax the abdominal muscles.

Inhale - remain in that position and "breathe into the tube surrounding the spine."

Reverse the pattern to return to supine in four breaths and repeat. This is an intense abdominal strengthener, and some students may need to begin with the legs in parallel and the soles of the feet on the mat. This allows the quadriceps to engage slightly to assist the abdominal muscles in completing the action. The lower back must be kept long and released throughout the sequence. It is more important that the sequence be performed smoothly, without acceleration at any point, than that a predetermined number of repetitions be achieved.

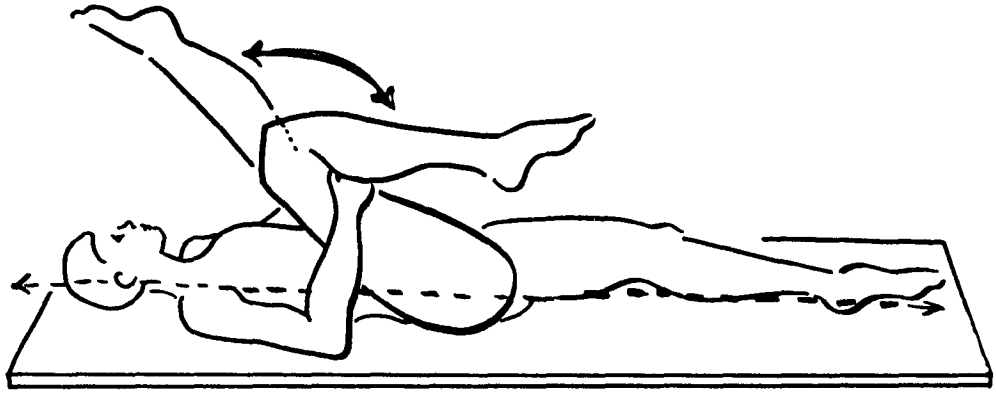

Fig. 6. Hamstring Stretch

Sequence 8: Hamstring Stretch

Lie supine on mat with the right knee to the chest and the left leg extended beneath the left hip (see Fig. 6).

Part A.

Inhale - grasp the right leg to the chest with the arms.

Exhale - move the right leg easily in the hip joint and allow the hip to relax.

Repeat.

Part B.

Inhale - grasp the right thigh under the knee (as in Fig. 6).

Exhale - slowly extend the right knee, maintaining the relationship between the right thigh and the chest.

Inhale - maintain this position and "breathe into the spine and into the tight area behind the right knee.

Repeat until the right leg is extended as far as possible without losing the relationship between the right thigh and the chest.

Depending upon the shape of the acetabulum, some students may

want to open the leg slightly to the side as they extend the knee. The leg should be moved in front of the torso once it has been extended, however. Maintaining the alignment is more important than fully extending the knee.

Repeat this sequence using the left leg.

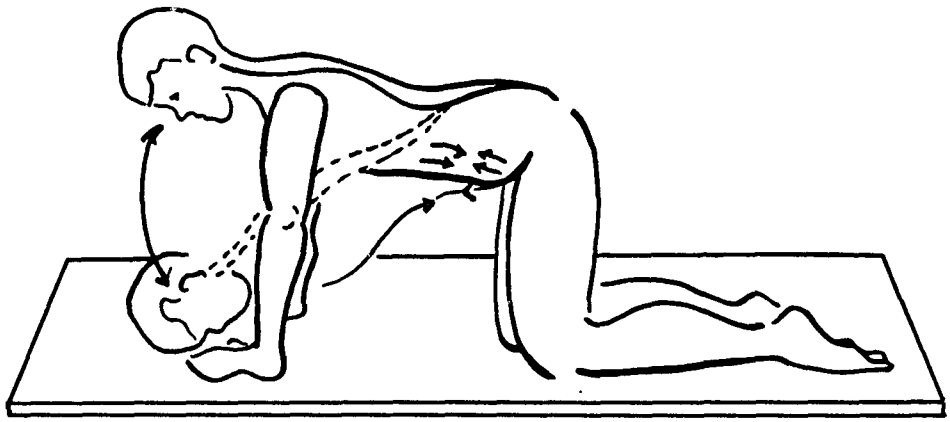

Fig. 7. Push-up

Sequence 9: Push-up

Kneel on the mat with hands beneath the shoulders and knees beneath the hips, fingers pointing forward (see Fig. 7). The abdominal muscles are firmly contracted throughout the sequence.

Inhale - slowly flex the elbows and lower the torso toward the mat.

Exhale - slowly extend the elbows to return to the beginning position.

Repeat.

Rotate the arms inward so the fingers point toward each other and repeat the sequence to strengthen the triceps muscles. This exercise may also be done with the knees slightly extended (intermediate version), or with weight on the hands and feet with the body forming a "bridge" and the abdominal muscles strongly contracted (advanced version).

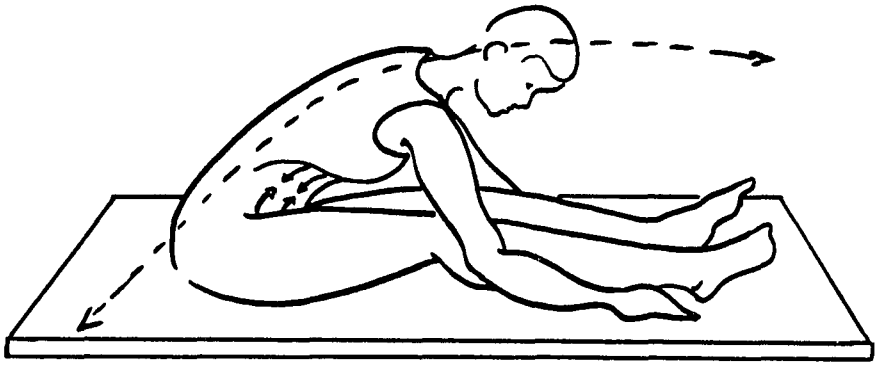

Fig. 8. Torso Lengthens Over Legs

Sequence 10: Torso Lengthens Over Legs

Sit on mat with legs extended in front of hips.

Inhale - "breathe into the tube surrounding the spine."

Exhale - lean forward over the legs, reaching the top of the head forward and the coccyx backward.

Inhale - breathe "through the spine" in the new, more fully extended, position.

Repeat. Place weight on the hands and "walk" hands backward to return to sitting.

Place the soles of the feet together, flexing the hips and knees in the "low diamond" position and lean forward over the legs. Repeat the sequence to release the inner thighs.

Open the legs to second position and reach the torso forward over the center of the legs. Repeat the sequence, "walking" the hands backward to return to sitting. Reach the torso over the right leg with both shoulders square to the mat, and then over the left leg. "Walk" the hands backward to return to sitting between positions.

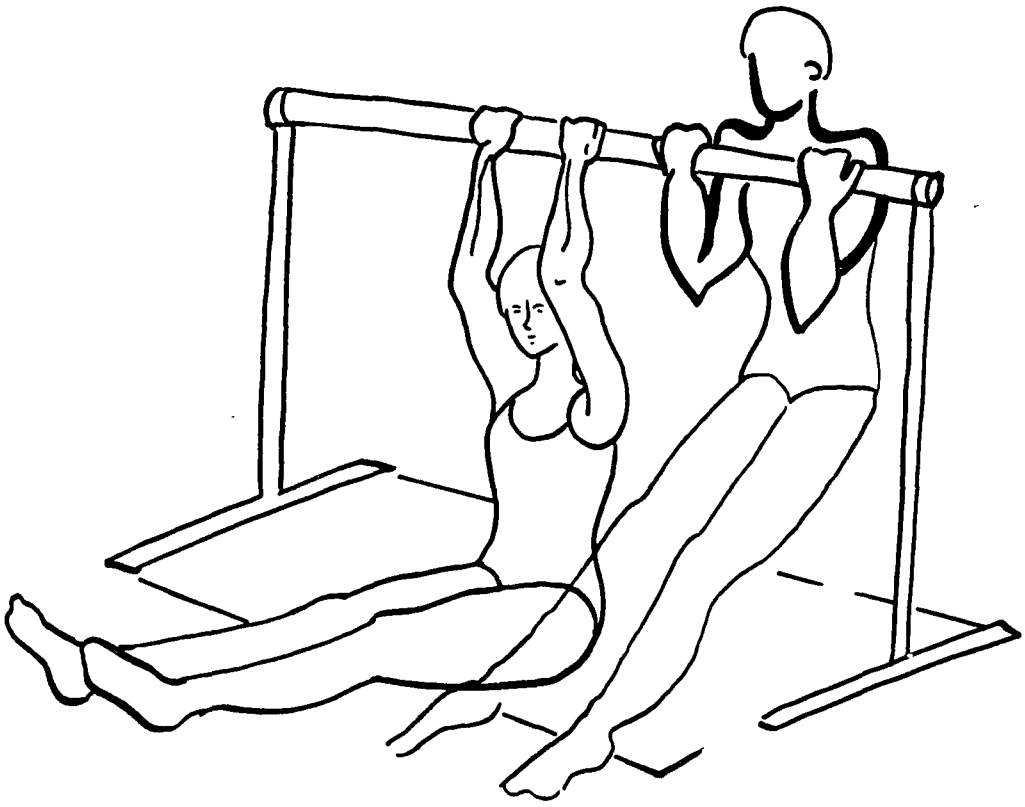

Fig. 9. Pull-up

Sequence 11: Pull-up

Grasp portable barre underhanded from a seated position beneath the barre (see Fig. 9).

Exhale - slowly flex the elbows and lift the body upward toward the barre (see Fig. 9).

Inhale - slowly lower the body back to the starting position.

Repeat.

This sequence may be performed as an isometric contraction in which the body does not move (beginning version), as described (intermediate version), or with the legs maintaining a 90 degree angle with the torso as the body lifts to the barre and lowers toward the floor (advanced or mens' version).

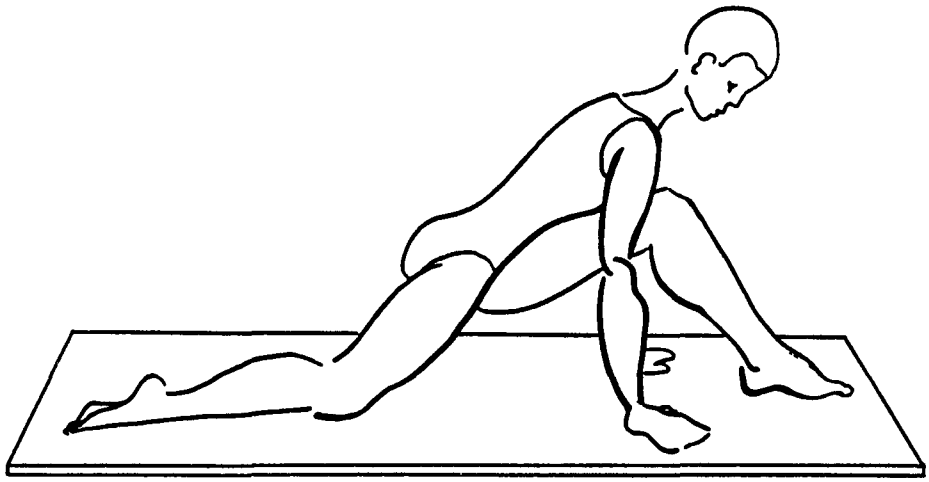

Fig. 10. Split Stretch

Sequence 12: Split Stretch

With weight on the hands, place the sole of the left foot forward on the mat and extend the right leg back with one hand on either side of the left leg (see Fig. 10).

Part A.

Exhale - slowly slide the legs apart, left leg forward and right leg back, keeping weight on the hands.

Inhale - "breathe through the spine" and maintain the stretch.

Repeat.

Part B.

Inhale - move the hands to the open hip (right side of the torso).

Exhale - gently lower the front surface of the right hip toward the mat to stretch the iliopsoas.

Repeat.

Part C.

Inhale - move hands to either side of left leg (as in Part A), and "direct energy" equally out the legs, extending the left leg forward and the right leg back with the ankles extended.

Exhale - extend the torso forward over the left leg, reaching the top of the head forward and the coccyx backward.

Inhale - roll up to straight through the spine (head last).

Exhale - arch the spine, reaching the sternum up toward the ceiling.

Inhale - roll up to straight through the spine (head last).

Repeat.

Repeat the entire sequence with the right leg forward and the left leg back.

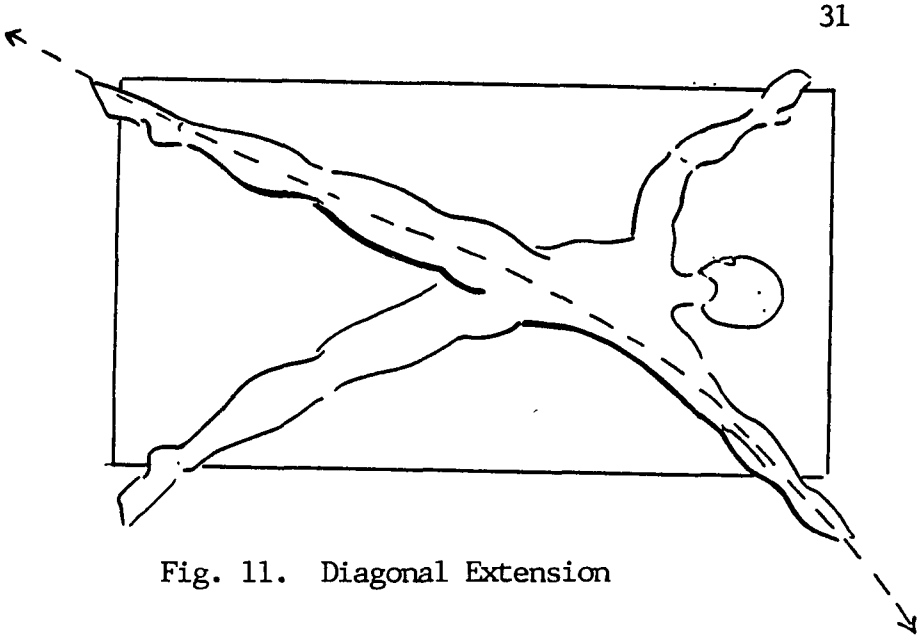

Fig. 11. Diagonal Extension

Sequence 13: Diagonal Extension

Lie prone (on abdomen) on mat with arms and legs extended in an "X" shape (see Fig. 11). Legs are rotated outward at the hip joints and the forehead is against the mat.

Exhale - extend the right arm and the left leg in opposition, feeling the extension begin in the center of the pelvis and lengthening equally out the right arm and left leg. The limbs will raise slightly off the floor, but only due to the lengthening process rather than "pinching" or shortening the lower back. The forehead remains firmly presed against the mat to protect the lower back.

Inhale - lower the arm and leg to the floor.

Repeat the sequence using the left arm and right leg. Repeat and continue to alternate diagonals.

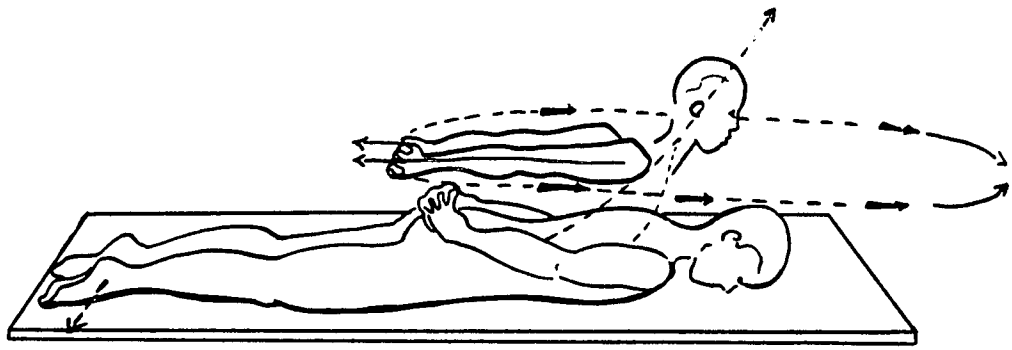

Fig. 12. Upper Back Arch

Sequence 14: Upper Back Arch

Lie supine on mat with legs parallel and tops of the feet pressed firmly against the mat. Arms lie at sides.

Inhale - grasp hands behind buttocks with arms straight.

Exhale - reach arms toward the heels and arch upward with the head and upper spine. Imagine sending energy simultaneously out the top of the head and into the floor through the tops of the feet in opposite directions. The abdominal muscles are strongly engaged and the feet remain pressing against the mat throughout to protect the lower back.

Inhale - release the hands behind the back, maintaining the position.

Exhale - reach the arms outward to trace a circle to the sides of the torso and meet in front of the chest (see Fig. 12). The torso may lower toward the mat as the arms move (depending upon individual torso length).

Inhale - lower torso, head and arms to mat and relax.

Repeat on a slow two count. Sit on heels to relax the back when completed.

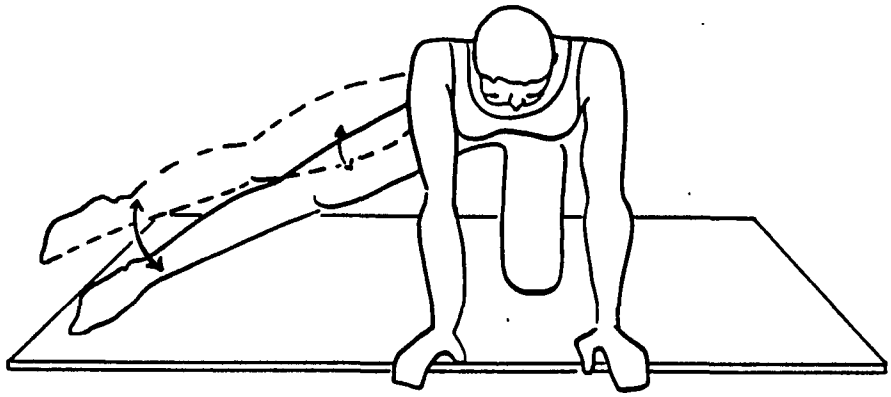

Fig. 13. Turnout Strengthener

Sequence 15: Turnout Strengthener

Kneel on mat with hands directly under the shoulders and knees directly under the hips. Extend the right leg to the right side at hip level, ankle extended, and foot resting on mat.

Exhale - raise the right foot off the floor slightly; flex and then extend the right ankle. Imagine "directing energy" out the heel and then the toes of the right foot as the ankle flexes and then extends. Keep the pelvis square to the mat; this is a small leg movement.

Inhale - slowly lower the right foot to the mat.

Repeat on a slow four count. On the last repetition, with the right leg off the mat, circumduct the right leg while breathing on a moderate two count.

Repeat this sequence with the left leg.

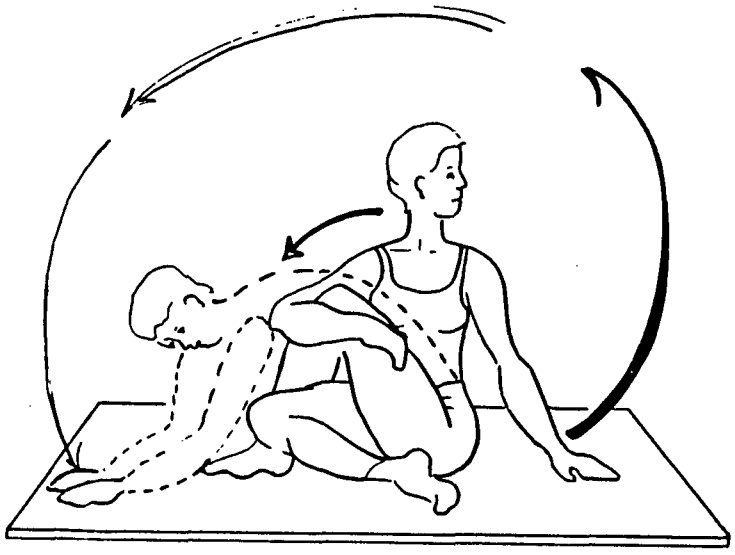

Fig. 14. Seated Spiral

Sequence 16: Seated Spiral

Sit on mat, folding the right leg under and crossing the left leg over the right with the sole of the left foot resting on the mat (see Fig. 14).

Exhale - turn the head and spiral the torso to the left.

Inhale - describe an arc with the left arm, up and over the head (see Fig. 14).

Exhale - reach the torso forward over the left foot, with the top of the head reaching toward the left foot and the coccyx reaching toward the floor.

Breathe easily in this position to release the gluteal muscles. Repeat this stretch with the right leg crossed over the left, spiraling to the right.

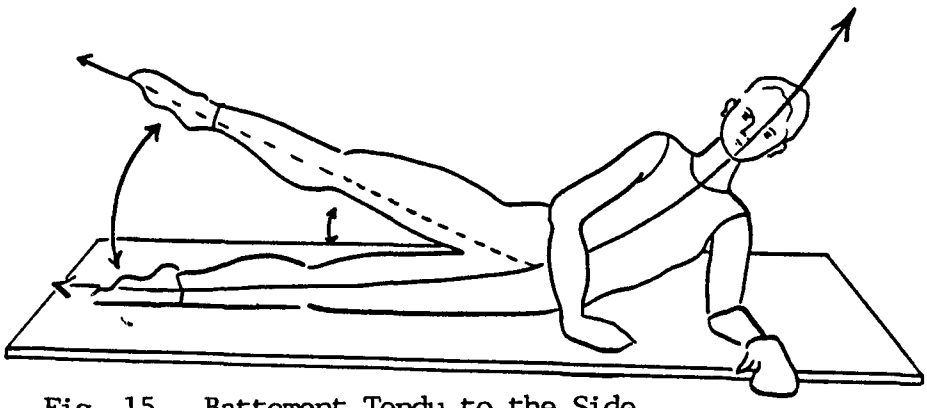

Fig. 15. Battement Tendu to the Side and to the Back

Sequence 17: Battement Tendu to the Side and to the Back

Lie on the left side on the mat, with the left forearm on mat for support and the right hand in front of the torso for balance. Rotate the legs outward at the hip joints (see Fig. 15).

Part A.

Exhale - raise the upper (right) leg slightly off the left leg in the outwardly rotated position. Imagine sending energy out the upper leg and through the support side (as in Fig. 15).

Inhale - lower the right leg to the left, feeling the inside of the right thigh increase its outward rotation as the leg is lowered.

Repeat on a slow two count.

Part B.

Exhale - stretch the upper (right) leg back, maintaining the position of the pelvis square to the front, thus slightly stretching the anterior surface of the right hip.

Inhale - return the upper (right) leg to the left leg, slightly increasing the outward rotation of the right inner thigh. The capacity for rotation is on a continuum; the leg may increase its outward rotation as the leg returns to its position directly under the hip joint.

Repeat on a slow two count.

Repeat the entire sequence with the left leg.

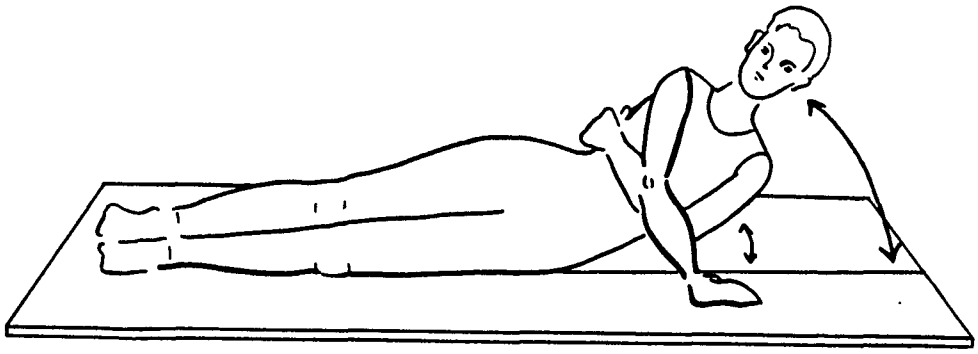

Fig. 16. One Armed Push-ups

Sequence 18: One Armed Push-ups

Lie on mat on the left side with the left arm crossed in front of the torso (holding the waist) and the right hand on the mat in front of the torso.

Inhale - slowly flex the right elbow and lower the torso toward the mat, leaving the legs straight but relaxed on the mat.

Exhale - slowly extend the right elbow to resume the beginning position shown in Fig. 16.

Repeat. Lie on the right side and repeat the sequence using the left arm.

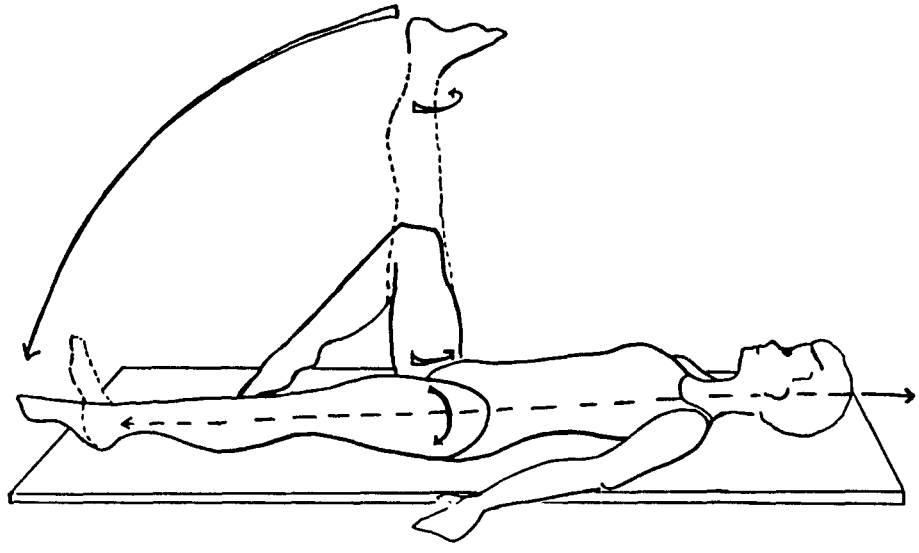

Fig. 17. Développé Forward

Sequence 19: Développé Forward

Lie supine on mat with legs together in parallel and arms at sides of torso to low side diagonals.

Inhale - draw the right leg to retiré at the side of the left knee in parallel with both ankles extended (see Fig. 17).

Exhale - flex both ankles and extend the right leg forward, heel pressing toward the ceiling. Imagine "directing energy" equally out the top of the head and out the left heel.

Inhale - rotate both legs outward at the hip joints without lowering the right leg.

Exhale - slowly lower the right leg to the mat. Imagine "directing energy" equally through both legs and out the top of the head. Rotate the legs in to parallel after the right leg returns to the mat.

Repeat, alternating legs, on a slow two count.

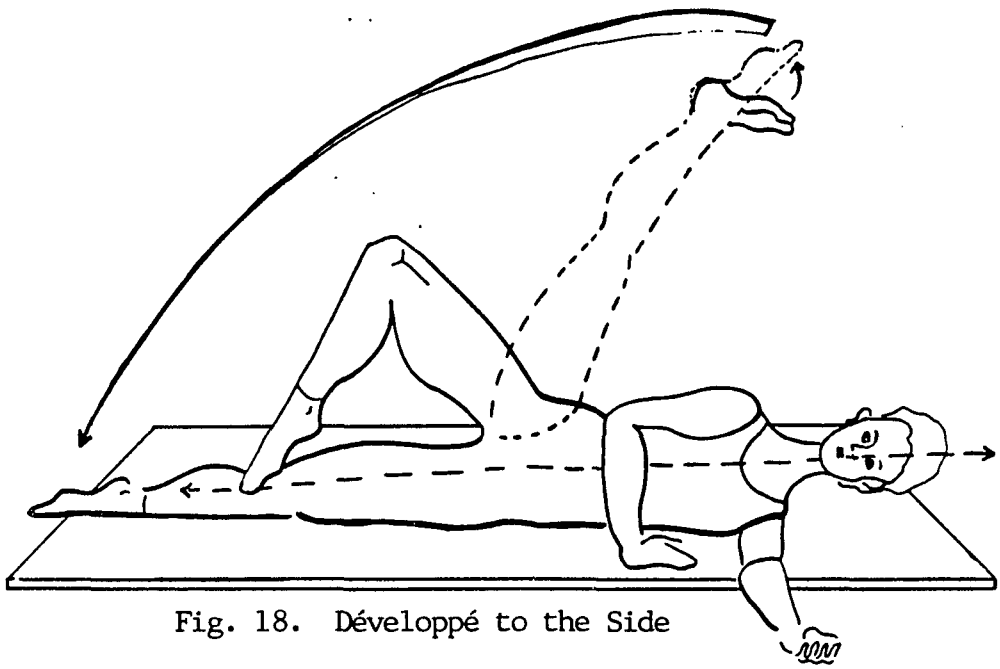

Fig. 18. Développé to the Side

Sequence 20: Développé to the Side

Lie on mat on the left side with legs rotated outward at the hip joints and ankles extended. Place the left arm forward along the mat at shoulder level and the right hand in front of the torso for balance. Move the body weight forward over the left iliac crest (the waist is lifted off the mat) and extend the head in line with the spine (the head is slightly off the mat).

Inhale - retiré right foot to the left knee, ankle extended, in a fully outwardly rotated position, keeping the body weight forward over the left iliac crest and the waist lifted off the mat.

Exhale - extend the right leg to the right side without rolling back onto the gluteals (leg will be slightly in front of the torso), with the right ankle flexed. Imagine

"directing energy" through the torso and left leg, and out the right heel.

Inhale - extend the right ankle without lowering the right leg.

Exhale - lower the right leg slowly with full extension through both legs and a "lengthened" spine to return to the beginning position.

Repeat. Perform this sequence on the other side.

Sequence 21: Relax and Stand Up

Lie supine on mat in the resting position described in Sequence 4 (see Fig. 3). Breathe slowly with a four count inhalation and a four count exhalation, reestablishing the image of the spine suspended in a tube of air. After several breaths, roll onto one side and crouch with weight on the hands and feet, legs flexed.

Exhale - extend the legs, reaching the coccyx toward the ceiling and the top of the head toward the floor.

Inhale - flex the knees.

Repeat.

Roll through the spine with slightly released knees after the final repetition to come to a standing position. Demi plié on an inhalation, "breathing into the tube surrounding the spine;" exhale and extend the legs as "the tube surrounding the spine slightly lengthens." Port de bras with breath support; battement tendu with breath support, relevé with breath support, and développé with breath support.

Summary of Floor Barre Sequences

The floor barre begins with a full body stretch to increase circulation, and to warm the muscles and joints for the work to follow. The concept of breathing to support full movement is introduced. Sequences 2 and 3 prepare students to extend the limbs with abdominal support and a lengthened spine. These concepts are referred back to frequently as the floor barre progresses.

Sequences 4, 5 and 13 focus on breathing and the length of the spine. These patterns introduce the concepts of energy use and opposition in movement. Sequence 6 releases and gently stretches the lower back and shoulder area while strongly working the lower abdominal muscles. Movement is instigated by the abdominal muscles, a step beyond the work begun in Sequences 2 and 3.

Sequences 13 and 14 strengthen the lower back for port de corps, arabesque and attitude to the back. Sequence 10 stretches the lower back and hip joints; Part B releases the inner thigh muscles. Sequence 12 stretches the inner thigh and the iliopsoas muscles. Sequence 17 strengthens and tones the inner thigh. Part B of Sequence 17 stretches the iliopsoas and strengthens the turnout muscles. Attention must be given to maintaining alignment during this sequence.

Sequence 7 uses gravity to discover the full range of turnout available at the hip joint and is a powerful strengthener of the abdominal wall. Sequence 15 strengthens the turnout muscles, and stretch 16 follows to release the gluteals.

Sequence 8 stretches the hamstrings. It is important to stress energy use and breathing "through the spine" while performing this sequence to guard against distorting alignment while obtaining a full stretch. Exercises 19 and 20 strengthen the "working" and "standing" sides for fully supported développés forward and to the side, respectively. Strengthening and stretching the legs while breathing "through the spine" is the focus of these sequences.

Sequences 9, 11 and 18 strengthen the upper body. Traditional dance techniques demand highly qualitative use of the upper torso and arms, but technique classes tend to ignore the development of upper body strength. These exercises strengthen the biceps, triceps, shoulder girdle, deltoids, trapezius and pectoralis muscles to allow for a more expressive, responsive upper torso and to facilitate full, energetic port de bras.

CHAPTER 3

RESULTS OF THE CONDITIONING CLASS

The purpose of this study is to present a preliminary overview of the effects of a conditioning program on dance technique. Subjective opinions of students participating in the program and their primary technique instructors were obtained by quesionnaire during the first and following the eighth week of the semester. As part of the course design, a technique class was videotaped during the second class meeting and repeated following the eighth week.

Fourteen female students participated in the Conditioning for Dancers course during Spring semester, 1987. Based upon the technique classes for which they were concurrently enrolled at the University of Arizona, the group consisted of three advanced, seven intermediate and four beginning dance students. Eight of the students participated in ballet classes, two studied modern tecnique, and four enrolled in both ballet and modern dance classes.

Results of the Questionnaires

Four questionnaires were used in this study (see Appendix B). Two were distributed to students and two to their primary technique teachers, Questionnaire #1 during the first week of class and Questionnaire #2 following the eighth week of the semester.

Student A

Student A was studying advanced undergraduate modern dance, advanced ballet and advanced pointe. At the beginning of the semester, she stated that her energy level was highly variable. She rated her hips and shoulders quite flexible, but felt that her upper back and feet were not very flexible. She considered her endurance high, but felt she needed more strength to support her flexibility.

After eight weeks, she felt that her energy level and endurance level had increased and become more consistent in both class and rehearsals. She felt that her hamstring flexibility had improved. She noted that her abdominal, upper body and turnout strength had all increased. She felt that her balances and extensions had improved over the eight week experimental period.

Early in the semester, her instructors rated her energy level as high, and her flexibility and strength levels as very good. They agreed that she needed work on the articulation and extension of her spine. After eight weeks, her ballet technique teacher noticed improved strength, increased "vigor and attack," and felt she was using her abdominal muscles to improve her alignment. Her modern technique teacher felt she had increased the flexibility of her lower spine, had become "more daring in her use of weight and flow," and that her working attitude had become more focused and direct.

Student B

Student B was enrolled in the advanced graduate level modern dance class. She felt that her energy level was quite variable at the beginning of the semester. She rated her upper body as highly flexible, and her lower body as average in flexibility. She felt that she had no problem with endurance, but that she lacked the strength to support her turnout and degree of flexibility.

On the second questionnaire, she stated that her energy level had become more consistently high. She rated her hamstring flexibiity as improved and felt her upper body strength had increased. She stated that she felt "more in control" in technique class, "more integrated" and better balanced, and that she moved with "greater ease."

Her technique teacher noticed no change in her strength or flexibility, but did see improvement in her endurance. He stated that her movement had become "more incisive, direct and focused" in his class.

Student C

Student C was enrolled in advanced ballet and advanced pointe class. She rated her energy level and endurance as variable at the beginning of the semester. She rated herself as very flexible but felt that she needed to increase her strength level.

After eight weeks, she noticed that her energy level was consistently higher. She felt that her degree of flexibility had decreased slightly, but felt that her improvements in turnout strength

and alignment might have affected her range of motion. She noted that her upper torso had increased in strength. She rated her greatest improvement in endurance level and felt the attention to breathing helped her to move with more "energy and grace."

On the initial faculty questionnaire, her instructor noted that student C had a high energy level, was very flexible, had excellent endurance, but needed more strength in her extensions. After eight weeks, her teacher felt that she was "holding her center more consistently" and had begun using her abdominal muscles more consistently.

Student D

Student D was an intermediate level ballet dancer. She felt that she began the semester with a variable energy level. She rated her flexibility as average and her strength level as low.

On her second questionnaire, she noted improvement in her energy level. She rated her flexibility and endurance as improved, and felt that her strength level had increased. She felt that she was working much harder in technique class, but moving with "greater freedom and ease." She strongly recommended that the conditioning class be held daily, prior to technique class.

Her technique teacher initially rated her as above average in flexibility but low in strength. After eight weeks, she noticed improvement in student D's extensions to the side. She also observed that student D had improved her ability to maintain her alignment.

Student E

Student E was an intermediate level ballet and pointe student. At the beginning of the semester, she rated her energy level as highly variable, dependent upon the amount of sleep that she received. She rated herself as very flexible and quite strong, but felt she needed to improve her endurance.

After eight weeks, she felt that her energy level was still highly dependent upon her inconsistent sleeping pattern. She noted increased hamstring flexibility, increased upper body and abdominal strength, and improved endurance. She felt that her balances had improved and that she could "support herself better."

Her technique teacher felt she began the semester high in energy, very flexible, with good alignment and endurance, but with a low strength level. At the end of the experimental period, she noticed an increase in student E's strength and a faster rate of general progress than that apparent in the class as a whole.

Student F

Student F was an intermediate modern dancer. She began the semester by rating her energy level as medium. She felt that her hips had an extremely limited range of motion while her shoulders were very flexible. She rated her strength and endurance levels as needing improvement.

On the second questionnaire, she stated that her energy level had become higher and more consistent. She rated her degree of flexibility as greatly improved, and felt she had gained strength

in her torso, abdominals and back. She felt somewhat stronger in her arms and legs, but felt the most improvement had been made in increased strength of her center. She stated:

> I feel much more centered and my energy is focused and grounded. My body seems to be allowing me to do more, especially my hips and back. I also think that because my energy is more focused and grounded, and my back and stomach are stronger and more flexible, that I am more able to let my neck and shoulders release. I don't feel like I'm gripping them as much in order to find strength or keep my balance. I am learning how to work certain parts of my body and let others relax.

Her technique teacher noticed these improvements as well. On the second faculty questionnaire, she wrote: "(Student F) really seems to have a better understanding of alignment, and her energy level is up. She has probably improved more than anyone in the class in terms of understanding and performance of the material."

Student G

Student G was enrolled in intermediate ballet. At the start of the semester, she rated her energy level as high, and her body as very flexible. She felt that she lacked strength in her abdominals and upper body.

After eight weeks, she noticed that her energy level had become more consistently high. She stated that she was "much more flexible" and that her abdominal muscles were much stronger. She noted that her alignment had improved, and had been commented upon during technique class. She felt that her degree of turnout had increased and that her breathing had become "more useful."

Her teacher rated her beginning energy level as quite high, her flexibility as above average, and her endurance and strength levels as good. After eight weeks, she felt that student G was definitely stronger, and better able to support her extensions and her alignment. She noted excellent improvement in student G's performance in technique class, beyond the level perceived for the rest of the class.

Student H

Student H was an intermediate student in ballet and modern dance. At the beginning of the semester, she rated her energy level as variable, her body as quite inflexible, and her strength level as quite low.

At the end of eight weeks, she felt that her energy level was unchanged. She noted a slight increase in flexibility, and improved strength in her upper body and abdominal muscles.

Her instructors agreed that she was inflexible and low in strength at the beginning of the semester. They also felt that her endurance level was low. After eight weeks, they noticed an increase in strength and endurance. They felt that the conditioning class helped her to keep up with their technique classes.

Student I

Student I was enrolled in intermediate ballet and modern dance. She rated her energy level as variable at the beginning of the semester. She felt that her degree of flexibility was average

and felt that she needed to increase her strength level. She also stated that she needed to improve her alignment.

After eight weeks, she noted that her energy level had become higher and more consistent. She saw a small increase in her degree of flexibility, and felt that her upper body and abdominal strength had improved.

Her teachers felt that she began the semester with a medium energy level, was below average in flexibility and low in strength. They felt she had alignment problems. After eight weeks, they did not see much change. Her modern teacher felt that her alignment had improved a bit, and her ballet instructor noted that, while she had not previously used her abdominal muscles, she now sometimes engaged them.

Student J

Student J was an intermediate student in ballet and pointe. On the first questionnaire, she rated her energy level as variable, and her flexibility as average. She felt that she needed to work on improving her strength level.

At the end of the experimental period, she felt that her energy level was unchanged. She noted that her legs and lower back felt stronger and more flexible, and noticed an increase in strength of her upper body and abdominal muscles. She suffered from shin splints throughout the semester and felt that they inhibited her rate of progress in conditioning and technique classes. Her injury could have been due, in part, to participation in an aerobic

dance class held on a concrete floor. She did not participate in four of the 14 conditioning classes due to her injury.

Her technique teacher felt that student J began the semester with a medium level of energy and endurance, average flexibility and low strength. At the end of eight weeks, she saw no change in this student's performance in class.

Student K

Student K was a beginning student enrolled in ballet. On the first student questionnaire, she recorded her energy level as variable and her flexibility as average. She felt that her lower body strength was below average.

After eight weeks, she noted that her energy level had become more consistent. She felt that she was more flexible, and had gained strength in her arms, abdominals and inner thighs. She also noted that her endurance level had increased noticeably, and that her degree of turnout had improved.

At the start of the semester, her teacher rated her energy level as medium to low and her flexibility as average. She noted alignment problems and felt that student K was low in strength. At the end of the experimental period, she noted that student K was stronger and that her alignment had improved. She felt the conditioning class kept this student, a complete beginner, in the upper half of her technique class which included many students with quite a bit of training.

Student L

Student L was a beginning ballet student. She started the semester with a medium energy level, and rated herself as very flexible. She felt that her strength level was in the moderate range.

On the second questionnaire, she noted that her energy level had not changed, but felt that her degree of flexibility had increased. She noticed increased abdominal strength and a slight increase in endurance. She felt that her balance had improved.

Her teacher stated that student L's energy level had improved and that she moved with "more attack." She also felt that this student understood and used her degree of turnout in an improved manner.

Student M

Student M was a beginning level student in ballet. She felt that her energy level was quite consistent at the beginning of the semester. She rated her joints as quite flexible but felt that she needed more strength.

After eight weeks, she noticed an increase in the level and consistency of her energy. She saw a "dramatic increase" in her flexibility, and felt stronger in her abdominals, lower back, upper body and inner thighs. She stated that she felt more "relaxed and graceful in class."

Her teacher felt that she began the semester with a variable energy level, average flexibility and a low level of strength.

After eight weeks, she noted that student M had improved her energy level and degree of flexibility. She noted increased strength and an improved level of endurance. She further noticed an improved "clarity of line," a focused concentration level, and that student M's arm movements were under improved control.

Student N

Student N was a beginning level ballet student. She began the semester feeling variable in energy level. She rated her degree of flexibility and strength as low.

After eight weeks, she noticed that her energy level had improved and become more consistent. She felt that her degree of flexibility had increased a great deal. She noted increased strength "all over" and felt that she had "less tendency to grip under pressure."

Her instructor noted that student N began the semester with a consistently good energy level, average flexibility, and low strength. She noted a great deal of upper body tension. On the second faculty questionnaire, she noted an increase in student N's energy level and endurance. Her degree of flexibility had improved somewhat. She noted a great deal of improvement in strength level, alignment, control, concentration and clarity of movement.

Results of the Technique Classes

A stylistically neutral technique class including movement fundamental to all dance styles, was videotaped during the second

class meeting. This class was repeated following the eighth week of the semester. These technique classes consisted of warm-up stretching and centering work standing in center floor, a 20 minute barre (pliés, tendus, relevés, leg extensions and supple torso movements, in both parallel and turned out positions), turns and jumps in center floor, and a locomotion sequence across the floor.

During the initial class, the disparity of technical levels among students in the class was very apparent. Many students seemed to engage and release their abdominal musculature quite arbitrarily. There was a lack of lower abdominal usage in a large percentage of the class members.

The necks were held quite rigidly by several students, and there was a tendency to initiate or complete movements by gripping in the neck and shoulder areas. There was little or no energy directed through the torso and spine in many of the students. As a result, their movements were quite bound rather than freely flowing. Extensions involved gripping in the upper torso by many students. Alignment was often not maintained, particularly when the weight was on one leg.

In center floor work, many students moved their arms in a weak manner that seemed unrelated to the rest of their bodies. Their arm movements became even more weak and uncontrolled when the students moved across the floor. Only the advanced dancers were able to maintain their alignment consistently while traveling across the floor.

When the technique class was repeated following the eighth week of the semester, the disparity in technical levels between students was much less apparent. The beginning and intermediate level students improved to the point that their skill levels more closely approached those of the advanced students.

All of the students appeared stronger and more relaxed in their execution of movement phrases. Increased breath support resulted in a freer "flow of energy" through their bodies. Their movements appeared more direct and full.

Summary of Results

Students and faculty agreed that the conditioning class was beneficial to dance technique. However, the students participating in the class perceived more direct and tangible benefits than their instructors perceived. A possible explanation for this anomaly might be that the conditioning class does not teach specific technique skills, but deals more with the basic neuromuscular work that supports all movement. Also, the time period for this study was very short. While students might have gained awareness of how to effect certain changes, they might not, in eight weeks, have gained consistent physical command of these changes. A follow up study would be necessary to determine whether or not the changes that students perceived are reflected in their future dancing. Because the conditioning material is not technique-specific, it was equally valid for both ballet and modern dancers. The conditioning class did not discriminate stylistically.

Conclusions

Initially, I had assumed that the conditioning class would increase flexibility and strength, and improve alignment of the participants. Thirteen of the participants noted some increase in flexibility. One student that began the semester ranked as very flexible by both herself and her technique teacher, felt that her degree of flexibility had decreased slightly due to gains in strength and new attention to utilizing her range of turnout. The faculty noted improvements in flexibility for the beginning level dancers, but noticed no change in flexibility for the intermediate and advanced level dancers.

Students and faculty agreed that gains were made in strength. Faculty members saw the strength gains in terms of improved alignment and "ease of motion." Every student involved in the study remarked upon her increased abdominal and upper body strength at the end of eight weeks. Based on the evidence, I conclude that gains in abdominal and upper body strength are reflected as improved alignment in dancers. The students noted their improved alignment as "less gripping" or "a new ease of motion." Most of the participants also noted improved inner thigh strength and that they could support a larger range of turnout.

The students also remarked on their increased energy level and improved endurance after eight weeks of conditioning class. The faculty noticed these improvements in two advanced, two intermediate and all of the beginning level students.

Based on comments by students and faculty on the questionnaires, and on my observations during both the technique and conditioning classes, I believe that the beginning level students made the most dramatic technical gains. While all of the participants improved, the changes made by the beginning students were most apparent to their technique instructors. The fourteen conditioning classes presented during this study constitutes a larger proportion of the total dance training of the beginning level students than of the intermediate or advanced stuents. This might explain why the beginners made the most dramatic gains.

Teachers noticed less improvement in the intermediate students than the students noticed in themselves. The faculty commented most often on increases in strength and improved alignment in the intermediate level students. The students felt they had improved their energy level, endurance and flexibility as well.

The advanced dancers made highly qualitative improvements upon which both they and their faculty commented. Qualitative improvements are based on but exceed technical gains in strength, flexibility and alignment. Student changes tended to be perceptual with subtle outward manifestations labelled by the faculty as "more direct," "more daring use of weight and flow," and "more incisive, direct and focused." Two of the advanced dancers also felt that they improved their flexibility, and all three noticed increases in their energy level and strength.

I conclude that the conditioning material is most advantageous to the beginning level student. It appears that students benefit from participating in the conditioning program early in their college curriculum. Participation in conditioning class early in the training program enables students to use the basic neuromuscular foundations inherent in the work during their future dance training. Once a student has completed the conditioning class, the material is available to sustain their training level during semester breaks, or to utilize during periods of recovery from illness or injury.

Recommendations

The preliminary investigative nature of this study resulted in broadly defined questions on the student and faculty questionnaires (see Appendix B). This resulted in a wide range of responses which were difficult to tabulate. Rewording the questions in a more specific manner would have yielded more specific information regarding the changes that occurred. The nature of the investigation, however, seemed to preclude that kind of specificity in the study design. Additionally, the study results might have been clearer to trace had the initial questionnaires been returned to students and faculty prior to completing their second questionnaires.

When creating a conditioning program, it is important to create the proper atmosphere in the classroom. The conditioning material is hard work, and constant attention must be given to maintaining the proper imagery, breath support and biomechanical

action throughout each sequence. There is no musical accompaniment to relieve the hard work being performed. The instructor, therefore, must give special attention to using his or her voice in a supportive, encouraging and positive manner throughout the class. Circulating around the room while leading the sequences permits the instructor to correct individuals without stopping the flow of the class.

I am grateful for the positive attitude that students maintained about the work, and their delight with small discoveries that improved their dance technique. I believe that the students registered for this class were a highly motivated group of dancers with an excellent attitude toward improving themselves. The results of a conditioning class are dependent upon the motivation of the participating students.

While not part of the plan for this course, I spent a great deal of time outside the classroom working with students on a one-to-one basis. The time was spent counseling students on the proper execution of certain sequences, adapting material to meet their defined goals, dispensing nutritional advice or encouragement, and discussing improvements in body image and how body image relates to change. I believe that this informal, close working relationship with students is quite essential to create an atmosphere conducive to change and is a necessary element of the conditioning class.

Students participating in the course recommended that it be offered in the morning, prior to technique class. Some students in the class had a technique class prior to conditioning, and they

agreed that the course material would be of more benefit before, rather than after, technique.

Further study is needed to determine the most beneficial number of class meetings per week, as well as the optimal class length. It is possible that gains would be more dramatic if the course met three times per week rather than two times per week. Expanding the course from 50 minutes to one hour and 20 minutes would enable the instructor to allocate more time to nutritional information and discussions of body image. I believe that a team-taught course with a faculty member from the Nutritional Sciences Department would be advantageous to the dance students.

This study was only concerned with a preliminary overview of the effects of a conditioning program on performance in the dance technique class. Subjective opinion of studednts and their teachers shows that this conditioning program is beneficial to dance technique. Quantitative study of the benefits of such a program is the next step required to prove the efficacy of conditioning training in the college curriculum.

It is possible that this material would be beneficial to a larger population than undergraduate dance majors. Further experimentation with gymnasts and other athletes seems appropriate. The general population might also benefit from this work, or from a modified version of it. A study should be done to assess the benefits of such a program for the general public.

APPENDIX A

CLASS OUTLINES

The basic floor barre sequences used in the experimental conditioning class are described in Chapter 2. This material is open to manipulation by the instructor regarding order, number of repetitions, individual modifications and additions.

Sample class outlines (one per week) are included for the eight week experimental period. The order, number of repetitions, additions and modifications to the basic material are described. These variables should be freely manipulated by the instructor to respond to specific student needs, strengths and weaknesses.

An outline of the initial class meeting is also included. Discussions on nutritional choices continued on an individual basis with students in the class throughout the semester. Near the end of the semester, this material was again discussed during class time by the entire group.

CONDITIONING FOR DANCERS

Initial Course Meeting

I. Introduction

This course is a studio dance class, but not a dance technique class. I will not be teaching you how to dance. Instead, my goal is to help you become a better dancer in your individual technique classes. The prerequisite for this course is concurrent enrollment in a technique class.

II. History of Dance Conditioning

Some of you may be wondering why the University of Arizona dance program is offering a conditioning class. The material presented in this course has been familiar to dancers in many professional companies for years; Merrill Ashley and Gelsey Kirkland refer in their books to using similar work for rehabilitation and injury prevention. Modern dancers used this kind of work in support of technical demands before it was incorporated into ballet training. We will be working on an expanded version of Nina Janik's floor barre, which some of you are familiar with. Nina developed her material from classes at the Finis Jhung Studio in New York. Her floor barre also incorporates principles of Lulu Sweigard's work in idiokinesis. I have expanded her material to include some Pilates sequences, resistance training methods, and, later in the semester, proprioceptive neuromuscular facilitation (PNF) which is a powerful flexibility/strength builder.

III. Distribute and Discuss the First Questionnaire (see Appendix B).

IV. Common Misconceptions Regarding Dance and Nutrition

There are many misconceptions about dance training. Currently, there is a great deal of interest in aerobic dance. How does aerobic dance differ from dance technique? Are your modern dance and ballet technique classes aerobic? Studies of profesional ballet and modern classes have shown that up to 60% of the time spent in technique class is spent learning sequences, discussing, receiving correction, and watching others dance. What are the implications of the fact that dance training is primarily anaerobic?

There are definite implications nutritionally which dancers should be aware of. We do not burn off massive numbers of calories in technique class. Yet there is a strong aesthetic preference for lean bodies in dance. As a result, dancers have special nutritional needs.

Many dancers live on "junk food." As aresult, many dancers are chronically nutrient deficient. This has serious effects; primarily a lowered resistance to disease and injury, and a decreased physical energy level. If we expect optimal functioning by our bodies, we must supply them with optimal nutrients.

I am sure that all of you have basic knowledge of nutrition. Food is composed of protein, carbohydrate and fat. Of the three, which is the most efficient and preferred food to fuel

physical activity? Carbohydrate is burned most efficiently by the exercising body.

What happens on a high protein diet? The body is forced to use protein for energy once the small stores of carbohydrate are depleted. Protein is a highly inefficient fuel for physical activity. Harmful waste produces accumulate in the blood (ketones), performance suffers, and the body craves the carbohydrate it needs to function optimally. This often results in "binge" eating and weight gain. Also, most high protein foods (nuts, meat and cheese, for example) are also high in fat.

What is wrong with a diet high in fat? Some dietary fat is essential to life, but the amount we need is present in a low fat diet. Fat is essential for warming and cushioning the internal organs. It is also continually burned along with carbohydrate (in varying percentages) as a source of energy for physical activity. Intense physical activity (anaerobic exercise like technique class) burns a very high percentage of carbohydrate to a very low percentage of fat, because fat is a less effecient fuel. As activity becomes more moderate, dropping to aerobic levels, the percentage of carbohydrate burned lowers, and the percentage of fat used for energy production increases. Therefore, aerobic exercise burns more fat for fuel than anaerobic exercise. This is too simplistic an explanation, really, because duration of

activity, training and diet have a great deal to do with the kind of fuel used to produce energy. However, the implications for dancers are clear; a high fat diet results in a low level of the type of fuel necessary for the intense physical activity required for dance. A high carbohydrate diet is essential for maximum physical performance.

Weight control is a national problem in the 1980's. We live in a body that has not evolved terribly far from that of our ancient ancestors. A body designed to survive famine was a valuable trait in our ancestors, but this adaptation is no longer an advantage. A high protein or high fat diet lowers our basal metabolic rate and we consume fewer calories to perform all activities in our life, from sleeping to reading to dancing. As you might suspect, our capacity for energy in technique class suffers as a result. Unfortunately, our bodies have evolved to become very efficient at saving every possible calorie to store as fat to safeguard our survival in case of famine.

Our metabolic rate also drops when we fast or even on a program on one large meal a day, which our bodies interpret as a modified fast. Spreading the day's calories out over three, or better yet, five small meals a day overrides our tendency to store calories as a guard against famine. This permits the food we eat, and even stored body fat, to be consumed as fuel for physical energy rather than conserved, and stored as fat.

Carbohydrates are an essential component to a diet for optimal physical performance. Current nutritional guidelines call for 60% of our total daily calories to come from carbohydrates, 30% from protein and 10% from fat. A diet high in carbohydrates is our obvious choice as dancers.

There are two different types of carbohydrates. Simple carbohydrates or simple sugars (table sugar, brown sugar, honey and molasses are the common ones) are highly refined and have had essentially all of their nutrients, or food value, removed. The calories obtained from eating simple sugars are, therefore, devoid of any of the nutrients the body needs to function. This type of carbohydrate is a big problem for the "junk food" addicted dancer. Most dancers keep their food consumption low to maintain a lean body, and if the foods they do eat lack the essential nutrients for performance, their resistance to disease and injury is drastically reduced.

Complex carbohydrates are the second type of carbohydrate. They are nutrient-rich, low in calories, and high in fiber which makes them filling without being fattening. They are the perfect primary food source for dancers. Included are such good things as vegetables and fruits, brown rice, potatoes, grains and pasta. Limiting the fat in sauces we use on complex carbohydrates will keep performance energy high and stable.

Simple carbohydrates cause serious disturbances in energy level. A sugar snack causes a rapid rise in the level of

sugar in the blood. This is felt as an immediate surge of energy following a candy bar or soft drink, for example. The body immediately counteracts this high level of sugar in the blood by releasing massive amounts of insulin, a hormone, to absorb the excess blood sugar. This results in an equally rapid drop in energy level, and the body craves more sugar to bring the blood sugar soaring upward again. This is a dangerous roller coaster which can only be controlled by limiting simple carbohydrate intake. This phenomenon can make us feel out of control of our diets and our bodies.

We can control our weight without sacrificing our energy level. Keep in mind:

- limit fat and simple carbohydrate intake.
- increase intake of complex carbohydrates.
- choose low fat protein foods.
- add aerobic exercise to your schedule; three times a week for 20 minutes will result in optimal benefits. Many dancers swim to maintain their flexibility while gaining aerobic benefits. Brisk walking, biking and jogging (preferably on a soft surface) are also possibilities. Most important is choosing an aerobic activity that you enjoy. Near the end of the semester, the floor barre will be performed in an aerobic manner and is an excellent aerobic activity for dancers.

As an experiment, I want each of you to keep a food notebook this semester. No one but you will look at it. Simply record everything you eat for the next two days in the notebook. Also record your energy output for those days (i.e., technique class, conditioning class, aerobic exercise, etc.) Briefly note how you felt physically each day. Then put the notebook away until later in the semester. Periodically, I will have you bring it out and record for another two day period. This simple awareness can be very beneficial in making positive changes in our habits and lifestyles.

Course Outline

Week One: Introduction and technique class.

Week Two:

Sequence 1: Twice slowly, with a four count inhalation and a four count exhalation. Twice at a moderate speed, with a three count inhalation and a three count exhalation.

Sequence 2: Eight times.

Sequence 3: Part A four times, Part B (in parallel) eight times alternating legs, Part C (in parallel) four times.

Sequence 4: Extensive imagery session. Arms "float" overhead four times, arms and legs extend together four times.

Sequence 5: Part A four times right, Part B four times right. Part A four times left, Part B four times left. Part A four times with both legs, Part B four times with both legs.

Sequence 6: Breathe easily four times, Part A four times, Part B four times.

Sequence 7: Breathing side to side four times, Part A eight times, Part B three times.

Sequence 8: Part A three times, Part B four tims.

Sequence 11: Six times.

Sequence 15: Six times right and six times left (no circumduction).

Sequence 16: Right and left.

Sequence 9: Six times with hands parallel, and six times with the arms rotated inward.

Sequence 21: Imagery restated in resting position.

Week Three:

Sequence 1: Same as week one.

Sequence 2: Same as week one.

Sequence 3: Same as week one.

Sequence 4: Four breaths to establish the imagery. Arms "float" overhead four times, arms and legs stretch together four times.

Sequence 5: Same as week one.

Sequence 6: Breathe easily twice, Part A twice, Part B twice. (NOTE: Part B is still very difficult for almost everyone in the class.)

Sequence 7: Same as week one.

Sequence 8: Same as week one.

Sequence 11: Same as week one.

Sequence 15: Same as week one.

Sequence 16: Same as week one.

Sequence 9: Same as week one.

Sequence 21: Crouch stretch three times, roll up to standing. Demi plié with breath support four times.

Week Four:

Sequence 1: Same as week one.

Sequence 2: Same as week one.

Sequence 3: Same as week one.

Sequence 4: Same as week two.

Sequence 5: Same as week one.

Sequence 6: Breathe easily twice, Part A twice, Part B modified due to inadequate lower abdominal strength — contract the lower abdominals as an isometric contraction, or to barely lift the pelvis off the mat on the exhalation; repeat four times.

Sequence 7: Breathing side to side four times in the "low diamond" position, breathing side to side four times with the lower legs open in second position, Part A eight times, Part B four times.

Sequence 8: Same as week one.

Sequence 9: Same as week one.

Sequence 10: With legs extended in front of hips four times, with legs open in second position four times.

Sequence 11: Eight times.

Sequence 15: Eight times right and eight times left (no circumduction).

Sequence 16: Same as week one.

Sequence 12: Part A four times, Part B three times, Part C once (right and left).

Sequence 17: Part A eight times right, Part B eight times right.

Sequence 18: Eight times right.

Sequence 17: Part A eight times left, Part B eight times left.

Sequence 18: Eight times left.

Sequence 19: Eight times total, alternating legs.

Sequence 20: Four times right, four times left.

Sequence 21: Same as week three.

Week Five:

Sequence 1: Same as week one.

Sequence 2: Same as week one.

Sequence 3: Same as week one.

Sequence 4: Three breaths to establish imagery. Arms "float" overhead three times, arms and legs stretch together three times.

Sequence 5: Same as week one.

Sequence 6: Same as week four.

Sequence 7: Breathing side to side three times in the "low diamond" position, breathing side to side three times with the lower legs open to second position, Part A modified

to build lower abdominal strength:
Exhale - contract upper abdominal muscles to roll the head and shoulders up off the mat, then contract lower abdominal muscles to barely lift the pelvis off the mat (gluteal muscles remain released).
Inhale - lift lower abdominal muscles up and in ("hollow out") as the upper spine and head roll down onto the mat, then release the pelvis onto the mat.
Repeat eight times. Part B four times.

Sequence 8: Part A three times, Part B five times and then add PNF:
Exhale - press the right leg into the hands with the leg muscles strongly contracted.
Inhale - maintain the position and keep the leg muscles strongly engaged (arms and abdominals are also contracted).
Exhale - relax the leg muscles and gently allow the leg to extend further and move closer to the torso.
Repeat A and B using the left leg.

Sequence 9: Eight times with weight on the hands and feet (modified for most of the class) with the hands parallel, eight times with weight on the hands and knees with arms rotated inward.

Sequence 13: Eight times alternating diagonals.

Sequence 14: Three times.

Sequence 11: Same as week four.

Sequence 12: Part A three times right, Part B twice right, Part C once right. Repeat on left.

Sequence 21: Resting position and repeat imagery for three breaths. Crouch stretch three times and roll up to standing. Demi plié and port de bras with breath support.

Week Six:

Sequence 1: Same as week one.

Sequence 2: Four times.

Sequence 3: Part A six times, Part B (in parallel) four times alternating legs, Part B (turned out) four times alternating legs, Part C (turned out) eight times.

Sequence 4: Two breaths to establish imagery. Arms "float" overhead twice, arms and legs stretch together twice.

Sequence 5: Same as week one.

Sequence 6: Same as week four.

Sequence 7: Same as week five.

Sequence 8: Part A twice, Part B four times, PNF (as described in week five) twice. Right and left.

Sequence 9: With weight on hands and feet (for most of the class), eight times with hands parallel, and eight times with the arms rotated inward.

Sequence 12: Same as week five.

Sequence 11: Eight times. Rest and repeat four times.

Sequence 15: Eight times right and circumduct eight times; eight times left and circumduct left, eight times.

Sequence 16: Same as week one.

Sequence 13: Same as week five.

Sequence 14: Four times.

Sequence 17: Same as week four.

Sequence 18: Same as week four.

Sequence 19: Same as week four.

Sequence 20: Same as week four.

Sequence 21: Crouch stretch three times, roll up to standing. Demi plié, port de bras, battement tendu and relevé with breath support.

Week Seven:

Sequence 1: Same as week one.

Sequence 2: Same as week six.

Sequence 3: Same as week six.

Sequence 4: Three breaths to establish imagery. Arms "float" overhead twice, arms and legs stretch together three times.

Sequence 5: Same as week one.

Sequence 6: Same as week four.

Sequence 7: Breathe side to side twice in the "low diamond" position, breathe side to side twice with the legs open in second position, Part A (modified as described in week five) eight times, Part B three times.

Sequence 8: Part A twice, Part B three times, PNF (as described in week five) once. Right and left.

Sequence 9: Same as week six.

Sequence 12: Part A three times right, Part B twice right, Part C once right.

Sequence 10: Four breaths over legs in second position with ankles flexed, four breaths over right leg in second position, four breaths over left leg in second position.

Sequence 12: Part A three times left, Part B twice left, Part C once left.

Sequence 10: Four breaths over legs in second position with ankles extended.

Sequence 11: Eight times.

Sequence 10: Four breaths over legs straight in front of hips, three breaths over legs in "low diamond" position.

Sequence 11: Eight times.

Sequence 15: Eight times right, eight clockwise circumductions with ankle flexed, eight counterclockwise circumductions with ankle extended. Repeat with the left leg.

Sequence 16: Same as week one.

Sequence 13: Same as week five.

Sequence 17: Same as week four.

Sequence 18: Same as week four.

Sequence 19: Same as week four.

Sequence 20: Six times right and six times left.

Sequence 21: Crouch stretch three times, roll up to standing. Perform Sequence 20 while standing at the barre with breath support, twice right and twice left.

Week Eight:

Sequence 1: Same as week one.

Sequence 2: Same as week six.

Sequence 3: Same as week six.

Sequence 4: Same as week seven.

Sequence 5: Same as week one.

Sequence 6: Same as week four.

Sequence 7: Same as week seven.

Sequence 8: Same as week seven.

Sequence 9: Same as week six.

Sequence 12: Same as week seven, alternating with Sequence 10.

Sequence 10: Same as week seven, alternating with Sequence 12.

Sequence 11: Same as week seven, alternating with Sequence 10.

Sequence 15: Same as week seven.

Sequence 16: Same as week one.

Sequence 13: Same as week five.

Sequence 14: Same as week six.

Sequence 17: Same as week four.

Sequence 18: Same as week four.

Sequence 19: Same as week four.

Sequence 20: Same as week seven.

Sequence 21: Crouch stretch three times, roll up to standing. Demi plié to relevé with breath support four times; battement tendu forward, to the side and to the back with breath support; développé forward and to the side with port de bras and breath support.

APPENDIX B

PRINTED MATERIAL

The syllabus for the Conditioning for Dancers course was distributed and discussed during the initial class meeting. Expectations and requirements for the class were outlined at that time. A suggested reading list was also handed out for students desiring further information.

Questionnaire #1 was distributed to the students in the conditioning class during the initial meeting. It attempted to assess student knowledge of their individual degrees of strength, flexibility, alignment and technical achievement at the beginning of the semester. Students were given Questionnaire #2 following the eighth week of class and asked for their subjective opinion on changes (if any) during that period of time.

Faculty Questionnaire #1 was distributed to the primary technique teachers of students in the class during the first week of the semester. Their opinions regarding changes (if any) were requested in the second faculty questionnaire, distributed during the eighth week of the semester.

SYLLABUS

DNC 291: Conditioning for Dancers Spring, 1987 1 Credit

Tuesday/Thursday, 9:30 -10:20 a.m. Paula Dallman (office hours by appointment)

This course is designed as a supplement to the training received in dance technique classes. The goals of the course is to make you a better dancer — stronger, more flexible, with improved alignment and an expanded energy level. The class will consist of a floor barre with information geared to helping you improve as a dancer. There will be no examinations, but there are two very important questionnaires to complete (one due at the second class meeting and another due after the eighth week in the semester).

Grades: This is studio class. Your grade will be determined by your attendance and participation in class. Four absences are allowed over the course of the semester for any purpose, but any absences beyond that will affect your grade. Seven absences results in a failure. The questionnaires will not be graded but they must be completed and returned when due to pass the course. Please be totally honest and accurate when completing your questionnaires.

Attire: As this is not a technique class, any attire that is comfortable and permits full movement is acceptable. There are two exceptions — January 20 and March 12 will be standard technique classes, and will be videotaped. Leotards and tights are required for those classes. No cigarettes, food or gum are allowed in the studio.

SUGGESTED READING LIST

Conditioning for Dancers

Nutrition for Fitness and Sport, Melvin H. Williams, 1983, William C. Brown Company, Dubuque, Iowa.

Quantum Fitness, Irving Dardik and Denis Waitley, 1984, Pocket Books, New York, NY.

The Dancer as Athlete, the 1984 Olympic Scientific Congress Proceedings, Volume 8, Carole G. Shell, Editor, Human Kinetics Publishers, Inc., Champaign, Illinois.

Getting Thin, Gabe Mirkin, 1983, Little, Brown and Company, Boston and Toronto.

Human Movement Potential, Lulu Sweigard, 1974, Harper & Row Publishers, New York, NY.

STUDENT QUESTIONNAIRE #1

Conditioning for Dancers

Name _____ Technique Class(es) _____

1. Why did you decide to take Conditioning for Dancers?

2. How would you rate the energy level you usually use in technique class (high, medium or low)? Is your energy level quite consistent from day to day or not?

3. How flexible are you? That is, are your hips, shoulders, feet and spine very mobile, about average, or somewhat stiff?

4. How would you rate your strength level? Are you strong enough to support the flexibility of your joints muscularly?

5. In technique class, what are you particularly good at (i.e., jumps, balance, turns, extension, endurance, use of arms/head/torso, etc.)?

6. In technique class, what is especially difficult for you (i.e., jumps, balance, turns, extension, endurance, use of arms/head/torso, etc.)?

STUDENT QUESTIONNAIRE #2

Conditioning for Dancers

Name _____

1. Have you noticed any change in your energy level over the past eight weeks? Has your energy level become any more or less consistent than usual during this time?

2. Has your degree of flexibility changed in any way over the past eight weeks?

3. Have you noticed any change in strength in any area of your body over the past eight weeks? If so, where?

4. Have you noticed any change since the beginning of the semester in your endurance level?

5. Has any aspect of your dance technique improved over the past eight weeks? If so, in what ways?

6. Has any aspect of your dance technique weakened over the past eight weeks? If so, in what ways?

7. Do you feel that the conditioning class has been beneficial to you as a dancer in any way? If so, how?

FACULTY QUESTIONNAIRE #1

Conditioning for Dancers

To: Regarding:

1. In your opinion, what energy level does this student bring to your class (high, medium or low)? Is this level of energy quite consistent from day to day?

2. How flexible is this student? (Rate their range of joint motion for hips, shoulders, feet and spine based on class average.)

3. Rate this students' strength level. Are they able to support their joint range muscularly?

4. Does this student have any alignment problems (is there a balanced and efficient relationship between body parts)?

5. What (if anything) is this student particularly good at (i.e., jumps, balance, turns, extension, endurance, use of torso/arms)?

6. What (if anything) are this students' particular weaknesses (i.e., jumps, balance, turns, extension, endurance, use of torso/arms, etc.)?

Any additional comments?

FACULTY QUESTIONNAIRE #2

Conditioning for Dancers

To: Regarding:

1. Have you noticed any change in this student's energy level in your class during the past eight weeks that is not apparent in all students taking your class?

2. Has there been any change in this student's degree of flexibility since the semester began that is different from the rest of your class?

3. Has this student's strength level changed in ways not apparent throughout your class during the past eight weeks?

4. Have you noticed any changes in this student's endurance?

5. Has any aspect of this student's technique improved since the beginning of the semester? If so, in what ways?

6. Has any aspect of this student's technique weakened since the beginning of the semster? If so, in what ways?

7. Do you feel that this student's involvement in the conditioning class was beneficial to them in any way?

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