Survey and evaluation of instructor qualifications client risks and associated owner-management liability at selected fitness establishments in Minnesota

Eleanor Challen Laursen

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SURVEY AND EVALUATION OF INSTRUCTOR QUALIFICATIONS, 
CLIENT RISKS, AND ASSOCIATED OWNER-MANAGEMENT LIABILITY, 
AT SELECTED FITNESS ESTABLISHMENTS IN MINNESOTA

A Professional Paper
Presented in Partial Fulfillment of the Requirement for the 
DEGREE OF MASTER OF SCIENCE 
Major in Health and Physical Education

in the 
UNIVERSITY OF MONTANA GRADUATE SCHOOL

by
Eleanor Challen Laursen
November 1988

Approved by:

[Signatures]

June 5, 1989
I wish to express my sincere gratitude to key individuals for their valuable assistance during this project.

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DEFINITION OF TERMS

ACSM: American College of Sports Medicine
AFAA: Aerobics and Fitness Association of America
CEU: Continuing Education Unit
CPR: Cardiopulmonary Resuscitation
IDEA: International Dance and Exercise Association
IRSA: International Racquet and Sports Association
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INTRODUCTION

In the decade of the eighties, the search for optimal health may lead one into health clubs or fitness centers; alias "commercialized fitness." People enter these establishments to discover a world of toning and strengthening, aqua-trimming, therapeutic massage, and year-round tanning. Most of these establishments strive to improve one's mind and body, with a little glitz thrown in. Instructors, trim with no extra bulges and dressed-to-kill, are available as role models and teachers. Our goal is to learn how to take care of ourselves inside and outside of these establishments in order that we might attain healthier lifestyles.

In order to help people attain a healthier lifestyle through exercise programs, fitness establishments need to teach from an accurate and current knowledge base. They need to utilize effective instructional techniques in a safe operating environment. Fitness establishments have a responsibility to hire employees with adequate training, knowledge and technical prowess to ensure the safety of their clients and place them at low risk to physical injury. Without trained instructors, owners and management assume greater liability through increased client risk.

The American College of Sports Medicine (ACSM) and the International Dance and Exercise Association (IDEA) Foundation are two organizations that provide training and certification for owners and instructors of fitness establishments. Enrollment in these training and certification programs is voluntary. Currently,

1
there are few statutory requirements for training or certification of fitness instructors in proprietary clubs.

This paper addresses what fitness establishments can do to maintain an effective, successful business while providing services that minimize client risks and associated owner-management liability.

Objectives

1) Interview owners or management or both at selected fitness establishments in Minneapolis and St. Paul, to determine minimum qualifications for hiring exercise and aerobic dance instructors, strength training instructors, and fitness testing and assessment specialists.

2) Interview instructors at selected fitness establishments to determine their actual qualifications and credentials.

3) Compare local minimum and existing qualifications to minimum standards of the American College of Sports Medicine (ACSM) and the International Dance and Exercise Association (IDEA) Foundation.

4) Discuss implications for owner liability and client risk.

5) Provide recommendations for reducing client risk and owner liability while maintaining client satisfaction.
METHODS

Selection and Survey of Fitness Establishments

Three fitness establishments representing a range of fitness management philosophy (beliefs or attitudes as determined by their owners and management), were selected for evaluation from a group of 15. Owner/managers were queried on the elements of their management philosophy (Table 1). Establishments A, B and C were chosen as they best represented the elements of management philosophy. Each provided enough variation in their aerobics, fitness testing, and strength training programs to determine strengths and weaknesses. The fitness establishments selected will remain anonymous to preserve confidentiality, and from here on shall be referred to as Establishments A, B, and C.

Interviews with an owner or manager and one employee each from aerobic dance, strength training and fitness testing, were conducted at each establishment. It was also possible for owner or manager to answer employee interview questions. Interview questions (Appendix B) were designed to determine hiring qualifications and training and certification programs for instructors.
Table 1. The elements of management philosophy for fitness establishments.

<table>
<thead>
<tr>
<th>Characteristics of target populations</th>
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<tbody>
<tr>
<td>Number of memberships</td>
</tr>
<tr>
<td>Staff to Client ratio</td>
</tr>
<tr>
<td>Hiring qualifications (required and preferred)</td>
</tr>
<tr>
<td>Staff training and certification (required and provided)</td>
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<tr>
<td>Breadth of services offered</td>
</tr>
<tr>
<td>Profit vs non-profit motive</td>
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<tr>
<td>Primary products desired</td>
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Association Guidelines for Training and Certification

ACSM guidelines for exercise leader/aerobics training and certification were obtained from ACSM’s 1988 Workshop and Certifications publication (ACSM, 1988). Core behavioral objectives for exercise leader and aerobics and fitness testing, as well as specific behavioral objectives for exercise testing, were obtained from ACSM’s Guidelines for Exercise Testing and Prescription (ACSM, 1988). The Exercise Leader Subcommittee of the Preventative and Rehabilitative Exercise Program Committee of ACSM has prepared specific behavioral objectives for exercise leader and aerobics. Core guidelines for training of dance-exercise instructors were provided by the IDEA Foundation.

Hiring and training policies for the surveyed fitness establishments were compared to the recommended guidelines of ACSM and IDEA. Based on these comparisons, recommendations were made for reduction of owner-manager liability and client risks at establishments with similar management philosophies.
RESULTS

Description of Surveyed Establishments

The owner-manager interviews confirmed that there are considerable differences exist in fitness management philosophy among the three establishments surveyed (Table 2). Establishment A is a small business with approximately 30 employees offering fewer than 1,000 memberships. Its primary products are exercise and aerobics classes and on-site instructor training. Emphasis is placed on high quality instruction and training.

Establishment B is a very large business, accommodating a minimum of 1,000 members daily, and catering to a cross-section of the population in the 23-49 year age group. Its primary goal is to provide programs offering physical activity that promote an active, healthy lifestyle. Emphasis is on membership and sales volumes.

Establishment C is a non-profit organization providing approximately 1,100 individual and family memberships. Its primary goal is to serve the community through services and programs that benefit members physically, mentally, and spiritually. All programs reflect this philosophy with emphasis on a clean and healthy atmosphere.
Table 2. Comparison between management philosophies of selected fitness establishments in St. Paul, Minnesota.

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<tr>
<th></th>
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<tbody>
<tr>
<td>ages 23-49</td>
<td>ages 23-49</td>
<td>all ages</td>
<td></td>
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<table>
<thead>
<tr>
<th>Number of memberships</th>
<th>&lt; 1000</th>
<th>&gt; 1000</th>
<th>&gt; 1000</th>
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<table>
<thead>
<tr>
<th>Staff:Client ratio</th>
<th>&lt; 30: &lt; 1000</th>
<th>&gt; 30: &gt; 1000</th>
<th>30-50: &gt; 1000</th>
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<table>
<thead>
<tr>
<th>Hiring qualifications</th>
<th>Related degree and experience preferred</th>
<th>Evaluative interview &amp; interest</th>
<th>Phys. Educ. degree preferred</th>
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<table>
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<tr>
<th>Breadth of services offered</th>
<th>Aerobics, strength training, computer fitness testing</th>
<th>Aerobics, strength training, fitness testing</th>
<th>Aerobics, strength training, fitness testing</th>
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<tr>
<th>Profit motive</th>
<th>profit</th>
<th>profit</th>
<th>non-profit</th>
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<tr>
<th>Primary products desired</th>
<th>High client fitness level, quality exercise programs and qualified staff</th>
<th>Memberships, sales &amp; wide variety of offerings</th>
<th>Variety of programs &amp; physical-mental-spiritual growth for clientele</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Staff training and certification</th>
<th>Required</th>
<th>Required</th>
<th>Required</th>
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<tr>
<td>CPR, IDEA certif., in-house training for all programs</td>
<td>CPR, written exam, in-house aerobics training</td>
<td>CPR, Apprenticeship, fitness test training</td>
<td></td>
</tr>
<tr>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
<td></td>
</tr>
<tr>
<td>Strength training workshops</td>
<td>none</td>
<td>RC first aid, studio &amp; academic aerobic training</td>
<td></td>
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By design, the three establishments differed in their criteria for hiring employees in areas of aerobic and exercise classes, strength training, and fitness testing and assessment. The three fitness establishments also varied in design their training and certification programs.

**Hiring Qualifications, Training, and Certification Guidelines for Fitness Personnel At Surveyed Establishments**

The following will provide an in-depth look at the individual hiring procedures and training and certification programs of the three surveyed establishments. Certification will be defined as the process by which one's instructional skill and basic knowledge of a specific area are assessed for the purpose of determining proficiency (IDEA, 1988). Training will be defined as "the process by which one acquires skills and knowledge encompassing participation in a formal training program, a university degree program, short-term seminars and workshops, individual study, or active teaching or both" (IDEA, 1988).

**Establishment A.** Management decides what qualifications are necessary and what requirements must be met for employment at Establishment A. Although a prospective employee may have a college degree in a related area or previous experience or both, business A requires that anyone seeking employment in aerobics, strength training or fitness testing and assessment participate and successfully pass an in-house training program. Cardiopulmonary resuscitation (CPR) certification and emergency procedures are required, and both training
and certification are provided by the establishment. Continuing education programs are offered weekly, and employees are expected to attend.

In hiring applicants for fitness testing, a college degree is preferred along with a willingness to learn a computerized fitness testing and assessment program. On-the-job training is provided for administration of the following tests: Blood pressure, body fat analysis, respiratory function, cardiovascular fitness (cycle-ergometer), flexibility, and strength. Individuals hired for strength training programs will have acquired knowledge in the area before hiring. They also will have been involved in strength training program instruction. Establishment A recommends applicants complete a workshop in strength training and circuit training that provides instruction on the principles of weight training and development of an on-site program. This training is provided by management in cooperation with a non-staff professional who holds an M.S. degree in exercise physiology.

Applicants who wish to pursue employment as an aerobics instructor must complete the in-house instructor training and CPR, as well as becoming certified by the IDEA Foundation within six months of beginning their employment. Prior to acceptance to the training program for aerobics, an individual is asked to audition. The audition takes place during an aerobic dance class with other applicants. A currently employed aerobic dance instructor acting as a judge is
Individual strength level is measured by the total number of pushups that are executed without stopping using correct technique. The owner or manager and several aerobic instructors evaluate through observation and a checklist each applicant's maturity level, personality, and instructor-participant interaction. If successful, they are asked to solo teach in a second audition. If again successful, they are asked to take the instructor training program. Upon completion of the training program, they become eligible for employment.

The instructor training program is designed to fully prepare instructors for the IDEA Certification Examination. The owner believes that candidates who have received training from a college or private organization in addition to the establishment's training program are more likely to pass the exam. The owner believes that the more education and training the better the test results. In addition, the owner issues an in-house certification to all participants who complete the 44 hour training program at a satisfactory level. The instructor training program follows the Core Guidelines for Training of Dance Exercise Instructors prepared by the IDEA Foundation (Appendix C).
The 44 contact hour training includes the following seminar topics:

- Exercise Physiology
- Anatomy and Kinesiology
- Strength Development Principles
- Exercise Programming Skills
- Nutrition, Weight loss and Control
- Injury Prevention
- Special Populations
- Leadership Technique
- Emergency Training
- Health Screening

In addition, studio workshops include:

- Resistance Training
- Stretching and Flexibility
- Music, Microphone, Taping
- Low Impact Aerobics
- Choreography
- Floorwork
- Individual Critique and Videotaping

All instructor training is done at the employing fitness establishment. The training staff consists of affiliated members of IDEA, AFAA (Aerobics and Fitness Association of America), and IRSA (International Racquet and Sports Association). Instructor backgrounds include sports medicine, nursing, physical education, and public health. The following is a detailed outline of each required seminar and studio session:

1. Exercise Physiology
   a. General Physical Fitness
   b. Physiology of Cardiovascular Endurance
   c. Physiology of Muscular Endurance
d. Physiology of Flexibility

2. Basic Anatomy and Kinesiology
   a. Anatomy (terminology, cardiovascular and respiratory systems anatomy), Identification, Location
   b. Kinesiology (terminology, postural alignment, abnormalities, muscle action of major muscle groups), Identification, Location

3. Injury Prevention
   a. Injury Factors
   b. Injury Treatment Methods
   c. Aerobic Injury Definitions


5. Exercise Programming Skills
   a. Special populations, Older adults, Pre-natal women, Post-natal women
   b. Basic Programming

6. Emergency Training
   a. Terminology and Definition
   b. First Aid Procedures
7. Health Screening
   a. Health Histories
   b. Risk Factors
   c. Drugs

8. Other Related Studio Work
   a. Professionalism
   b. Class Goals and Evaluations
   c. Motivational/Leadership Skills
   d. Videotaping and Teaching

9. Nutrition
   a. Basic Nutrition
   b. Nutrition and Exercise

10. Weight Loss and Weight Control

11. Legal Issues
   a. Music
   b. Instructor Responsibilities
   c. Insurance

**ESTABLISHMENT B.** The Director of Training is responsible for screening and evaluation of aerobic instructor applicants as well as secondary screening and interviewing of strength training and fitness testing applicants. The General Manager (head of sales and supervisor of all department heads) completes the pre-evaluation for strength training applicants. The Director/Manager decides what qualifications are considered and makes final recommendations to the corporate office for approval and hiring. All applicants are required to complete
successfully establishment B’s own academic training program and CPR certification.

Strength training applicants who successfully complete the manager’s evaluation on attitude and general background are subsequently interviewed by the Director of Training. The Director of Training also completes a similar assessment. A third interview is conducted at the corporate office by the Director of Operations and the Director of Training. Strength training employees supervise the strength training area, providing instruction and designing programs for members.

Prospective aerobic instructors participate in a pre-evaluation with the Director of Training, where assessments are made in the following areas: Energy and enthusiasm, learning ability, and appearance. They are also asked to participate in an aerobic dance class where enthusiasm and coordination are observed and evaluated. If they pass, they are required to take aerobics at all levels, and instructors sign a card to verify their attendance in each class. They then audition with the Director of Aerobic Training and Regional Coordinator. If they qualify, they are to attend classes where aerobic instructor training (studio work) is provided by the Director/Coordinator and other facility aerobic instructors. Selected instructors, approved by the corporate office, are then allowed to teach solo.
Establishment B contends that their academic training involves approximately one college quarter worth of work. Although the syllabus for this quarter of work is currently not made available to the general public, management is in the process of readying it for national publication.

Overall strength training instruction is provided by their National Director of Training who holds a B.S. degree in sports medicine. The training covers program design and implementation on weight equipment for beginning and advanced individuals, anatomy and physiology, special populations, and rehabilitation. Aerobic training is led by the Director of Aerobic Training-Regional Coordinator who holds a B.S. degree in physical education and full IDEA certification.

Training covers myths about nutrition and fitness, hormones and drugs and their effect on athletic performance, heart rate evaluation, anatomy and physiology, basic kinesiology, cardiac/respiratory/muscular systems, and studio work according to IDEA guidelines. All individuals are required to pass a comprehensive written exam before teaching. Ongoing monthly educational programs (lectures or handouts) are provided, and employees are quizzed on the information. Those employees who are unsuccessful in their attempt to pass may do further studying and retake the quiz.

Although Establishment B believes they have an excellent training program and that their instructors are well qualified, some changes will be made in the near
future to further improve the caliber of instructors. Emphasis will be placed on hiring people with an educational background that is fitness-related. IDEA certification of aerobic instructors will be required prior to employment or must be completed on the first test date after employment. Furthermore, the Director will soon provide for seminars on current exercise issues presented by the medical community for employees and members.

ESTABLISHMENT C. The Program Director decides what instructor qualifications and requirements are necessary for employment in aerobics, strength training, and fitness testing at Establishment C. The strength training staff is comprised of the Program Director and volunteers. The volunteers are required to complete a strength training orientation session. Fitness testing is provided by a fitness staff comprised of exercise, gymnastics, and aquatic class personnel. The aerobic dance instructor staff are hired by the Program Director and are required to complete in-house training.

A college degree in either recreation or physical education is preferred for aerobics instructional staff. Experience in teaching is also preferred, and experience in dance, rhythms, and aerobic dance is considered valuable. Although experience is not required, a person who is hired with no experience usually has participated in classes at this establishment for a one-to two-year period. The applicant's background is discussed, and previous employers are contacted for reference information.
If approved for hiring, the individual begins a required apprenticeship. This lasts as long as it takes the individual to become ready to teach solo (generally one to four months). The individual is asked to participate in all types and levels of in-house aerobics classes for approximately two weeks in order to learn their format for aerobic teaching. Then they are assigned to work with one instructor. They are allowed to teach part of a class when the instructor believes they have the confidence and mastery of aerobic dance techniques necessary to teach. The Director and the Assistant Director provide hands-on or practical experience on the dance floor. A final evaluation is made by the Director and the Assistant Director while the applicant is teaching solo. If the individual passes, he or she is hired to substitute for any of the exercise classes. Eventually they become responsible for their own classes.

A second training session is recommended and provided by the Minnesota Resource Center and its staff. They award their "Super-certifications Certificate" upon successful completion of the training. Instruction involves basic aerobic dance moves, the correct and incorrect aerobic dance techniques, contraindications to exercise, and principles and concepts of human anatomy and physiology. Areas of certification include: Beginning instructor, advanced instructor, prenatal/post-natal exercise, parent/child exercise, senior citizen exercise, weight management, and stress management.
Strength training is provided to the volunteers by the Program Director with an update session one to two times per year. The Director teaches the basics on how to use the machines and the corresponding muscle groups strengthened by the equipment. These volunteers provide an orientation and workout card to the members. Any one member interested in advanced training is referred to the Director.

Establishment C also offers a strength training class to the staff, and volunteers are all encouraged to attend and participate. The Director also trains his fitness testing staff, and outside nurses assist the staff in the fitness testing process. The Director trains the staff on administration of each test, including resting heart rate, blood pressure, body fat analysis, flexibility (sit and reach), timed situps (one minute), bench press (strength), estimated oxygen uptake on a cycle ergometer, step test, and cardiovascular endurance on a cycle ergometer.

A computer fitness program, developed by the establishment, provides test results which are evaluated by the Director. The Director then provides the club member with recommendations for an exercise program.

Although the training for each area is different, all employees are required to have CPR certification and must complete a basic orientation program. Red Cross Basic First Aid and job related training outside of the establishment are recommended.
In summary, each of the surveyed establishments believes its fitness personnel and instruction reflect its individual philosophy and objectives for meeting the needs of its respective members. They have set their own standards and requirements for certification and believe that in doing so, they provide qualified personnel and safe, effective instruction. The management at all three establishments believes that with or without any related background, experience or training, their in-house training provides instructors with the knowledge and skills necessary to work successfully in the business.

Interviews with instructors revealed that most employees had neither college degrees nor related experience. Most expressed an interest and motivation to gain knowledge and experience via on-the-job training and ultimately to earn some form of certification.

Currently, anyone desiring training or certification, or both, in aerobics and fitness testing, may do so without the benefit of an association with a fitness establishment. The IDEA Foundation and ACSM are two organizations providing training through workshops Both grant certification upon successful completion of practical and written examinations.

Applicants to the establishments surveyed must complete a particular training program designed by the firm. Applicants who enter these training programs who wish to work in the fitness business and who have official outside training or
experience (like that offered by ACSM and IDEA), probably have a broader base of knowledge and skills than those employees who rely solely on the in-house training program.

**ACSM Recommendations and Requirements for Certification**

The ACSM is a national professional and scientific organization representing more than 40 medical scientific specialties. ACSM members represent leadership in research and education in many fields, including exercise physiology, cardiac and respiratory rehabilitation, physical fitness, physical education, athletic training, and physical therapy. ACSM is a nonprofit association dedicated to generating and disseminating knowledge relating to the motivation, responses, adaptations, and health aspects of persons engaged in sport and exercise (Exercise Leader Subcommittee, 1988).

The ACSM certification program evolved from a recognized need for the following:

1. An increase in the competencies of individuals involved in leadership of preventive and rehabilitative exercise programs,
2. An established means by which the fitness consumer can recognize professional competence (Exercise Leader Subcom., 1988).

ACSM certifications are available to all professionals within the preventative and rehabilitative exercise field who meet the established prerequisites. The preventative track provides leadership in programs of a preventive nature for healthy
individuals or those with controlled disease (under a physician's care or on medication or both). The rehabilitative track involves professionals who are primarily responsible for working with diseased individuals enrolled in rehabilitative programs. They are also authorized to provide leadership in programs of a preventive nature (Prevention and Rehabilitation, 1988).

The Exercise Leader/Aerobics certification (preventative track under the Fitness/Leader Specialty category), is provided for those individuals who conduct exercise programs for people who are apparently healthy. These exercise programs should apply scientific principles of conditioning and motivation techniques for establishing an appropriate lifestyle, including healthy exercise habits. The program should offer activities that will improve the participant's level of fitness and positive attitudes toward work and play, as positive physical or psychological benefits are the desired outcomes.

The Exercise Leader/Aerobics individual must be able to evaluate the physiological and psychological effects of regular exercise and possess the ability to incorporate suitable and innovative activities for each individual. Knowledge of the scientific principles of exercise and physical conditioning and the ability to design safe, appropriate, and enjoyable individualized exercise programs are the primary objectives for a well-prepared and competent Exercise Leader/Aerobics professional.
The Exercise Leader/Aerobics certification provides recognition of exercise leaders who have demonstrated the knowledge and performance competence necessary to lead safe, effective and enjoyable exercise programs which feature musical accompaniment to exercise activity (Exercise Leader Subcommittee, 1988). The criteria for Exercise Leader/Aerobics Session include the following:

1. Previous certification by an aerobic/dance exercise group, or documentation of 250 hours of teaching experience in the exercise leader/aerobic field within a two-year period.

2. A high level of knowledge and competence in proper leadership of safe, effective aerobic exercise programs.

3. A basic knowledge of exercise science including kinesiology, functional anatomy, exercise physiology, nutrition, health-appraisal techniques and injury prevention.


A three-day workshop is conducted prior to the certification session. The workshop is not a prerequisite for certification, but is designed to provide a review of the principles of exercise leadership and basic knowledge included in #3 above. The workshop session will also review the knowledge and performance competencies outlined in the ACSM Preventative Tract Core Behavioral Objectives (Appendix D) and the Exercise Leader/Aerobics Behavioral Objectives (Appendix E). Candidates must be able to demonstrate knowledge and performance as outlined in both sets of objectives.

A behavioral objective is a statement indicating what a person should be able to do following some unit of instruction or study (ACSM, 1988). There are no
absolute prerequisites for the workshop, but participants should have experience and competency in monitoring heart rate during exercise and taking resting blood pressure. References are also recommended as study materials to be used in preparation for certification.

The certification is granted to candidates successfully completing separate written and practical examinations. The written exam covers knowledge from the core objectives and knowledge specific to the aerobic exercise objectives. The practical exam covers the following four areas: Case study-health appraisal techniques-blood pressure measurement, teaching and leadership skills, specificity of exercise, and video evaluation (ACSM, 1988).

For certification in fitness testing, the candidate may choose from 2 tracks: the preventative and rehabilitative exercise test technologist or the fitness leader/specialty. Both tracks require thorough understanding of knowledge provided in the core objectives (Appendix D). The core objectives provide a solid base for anyone wishing to conduct fitness testing on healthy or disease-controlled individuals. Therefore, the fitness leader/specialty certification may be chosen.

In testing diseased individuals enrolled in rehabilitative programs and to conduct more comprehensive testing on healthy individuals, exercise test technologist
certification should be chosen. In addition to the core objectives, a candidate must demonstrate knowledge and performance of specific behavioral objectives (Appendix F).

While there is no prerequisite experience or level of education required for the exercise test technologist, study in the fields of the biological sciences and physical education and health related professions are examples of appropriate training for those desiring certification. Work experience under a physician or exercise program director would be a valuable asset to the certification applicant (Prevention and Rehabilitation, 1988).

**IDEA Foundation Guidelines for Certification**

In addition to ACSM, the IDEA Foundation is also recognized as a national certification center. The IDEA Foundation is a nonprofit organization committed to promoting safe and effective exercise to the consumer while adding quality and credibility to the exercise profession (Committee on Standards, 1988).

The IDEA Foundation provides certification in dance exercise which includes a variety of exercise programs performed to music, such as aerobic dance, jazz exercise, slimnastics, and aerobic calisthenics (Committee on Standards, 1988). Currently, IDEA is creating standards for recognition of training programs in
aerobic instruction at colleges, universities, and private organizations. The Foundation plans to establish an accreditation program in fall 1988.

A written exam is based on IDEA's Core Guidelines for Training of Dance-Exercise Instructor (Appendix C), as prepared by the Committee on Standards and Certification in Dance Exercise of the IDEA Foundation. These guidelines represent the minimum level of proficiency and theoretical knowledge essential for the dance-exercise instructor to design a safe and effective class, lead and instruct average healthy people in dance exercise, and respond to the typical questions and problems that arise in a class setting. These training guidelines apply only to instructors teaching healthy persons who have no apparent physical limitations or special medical needs.

The foundation does not intend to provide recommendations for instructors teaching specialized dance-exercise programs for highly trained athletes, pre-natal women, post-natal women, older students, the physically handicapped, the severely obese, or persons known to have coronary heart disease (Committee on Standards, 1988). The exam does not qualify instructors as specialists in dance-exercise programs in the aforementioned special populations, but certified instructors will have a basic understanding of these areas.
In order to qualify for certification, an individual must be 18 years of age or older and hold a current CPR card. For Dance-Exercise Instructor certification to remain current, it must be renewed every two years. This is accomplished by accumulating CEU'S (Continuing Education Units) through approved colleges, universities, training organizations, instructor workshops and seminars (IDEA, 1988).

There is no practical exam. To prepare for the written exam it is recommended that an individual study the Guidelines and determine if additional preparation for the test is necessary. If so, it is recommended that an individual study the Aerobic Dance-Exercise Instructor Manual published by the IDEA Foundation, based on the Guidelines for Training of Dance and Exercise Instructors. A recommended reading list is provided and a list of instructor training organizations was made available in the fall of 1988. Supervised teacher training is recommended if an individual does not have prior aerobics teaching experience.

The Foundation is not a training organization and does not have control over the content or program of any of the training organizations that it lists. An individual may use the guidelines to determine which training program is best for meeting his or her particular needs. The Certification Committee also recommends that individuals take 25-60 hours of supervised coursework covering the areas identified in the guidelines. The length and type of coursework should reflect the individual's background, education, and subsequent deficiencies and needs.
Evaluation of Surveyed Establishments Relative to ACSM and IDEA Published Guidelines

Individuals seeking employment in the fitness field must be able to make wise choices concerning their training and certification. IDEA and ACSM recommend comprehensive and extensive preparation for successful completion of their examinations and certifications.

Where the individual businesses surveyed in this study may or may not recommend similar levels of preparation, each does recommend its own unique training/certification program and believes it provides employees with knowledge and skills to serve the public safely and effectively. There are similarities and contrasts and strengths and weaknesses among the fitness establishments surveyed relative to the guidelines of ACSM and IDEA.

One key similarity among the establishments which meets the expectations of the ACSM and IDEA is the requirement for CPR certification. CPR training and certification are either recommended or required and often are provided during employment.

A major difference between shops lies in the amount and type of preparation required for strength training. ACSM and IDEA offer no training or certification, but their guidelines and objectives provide substantial baseline information for those interested in beginning training. Establishment B provides additional
knowledge on special populations and advanced programs and rehabilitation, and Establishment A teaches principles of strength training and offers a workshop.

Although fitness testing certification is available through ACSM for those wishing to work as fitness testing specialists in preventative or rehabilitative fitness areas, fitness testing and assessment are low priorities at Establishments A, B, and C. A person responsible for test administration at Establishment A is viewed as a technician receiving on-the-job training via computer protocol. Fitness testing at Establishment B is minimal. At business C, special training is provided for the testing staff so they can administer the fitness tests, but they are not allowed to make any exercise program recommendations. Recommendations are only made by the Director.

Although emphasis is not placed on fitness testing, members want and need direction when beginning an exercise program and when modifying their fitness routine. Fitness testing can provide valuable information for this purpose. Managers at all three surveyed establishments are planning for more emphasis in the future on fitness testing for screening and monitoring purposes.

**Relative Program Strengths.** Different strengths can be found in each of the three establishments as well as in the ACSM and IDEA guidelines. Establishment A parallels the ACSM and IDEA recommendations for testing preparation.
IDEA recommends and A requires that certification be renewed every 2 years by taking CEU. Establishment C recommends ongoing education after certification.

Both ACSM and IDEA provide a list of published references and study materials (Appendices G and H). These materials would benefit anyone who wished to improve his or her knowledge in the fitness field. Establishment A provides its own training manual and C has a library of resource materials available to staff and members upon request. With ACSM and IDEA, formal training (previous teaching, college education or studies) prior to certification is recommended. C does not require a college degree, but a degree and teaching experience in a related field are preferred.

When establishments recommend prior certification or documentation from previous teaching experience in the exercise field (ACSM), or when they recommend supervised teacher training to those with no prior experience (IDEA), they encourage potential instructors to enter their fitness jobs with knowledge and practical teaching experience. This practice will also make potential instructors eligible to assume solo teaching responsibilities at an earlier date.

ACSM and Establishment A require practical and written exams for testing competency in aerobics. Establishment B requires a complete orientation of its facility and programs to ensure the personal safety of both members and
instructors. Basic instruction on the use of their facility is provided during the introductory membership tour at Establishment B.

**Relative Program Weaknesses.** Weaknesses were determined at both the organizations and the establishments. IDEA recommends extensive preparation for a written exam, but offers no practical exam where practical application of the knowledge is inherent in proving competency and proficiency. ACSM provides training, but preparation prior to the workshop is recommended.

All of the surveyed establishments provide training, but A is the only one that comes close to national organizational standards. Establishment C is closely affiliated with the Minnesota Resource Center, which provides off-site training. Unlike IDEA, ACSM has no renewal of their certification, and Establishment B allows their employees to continue teaching even though their CPR has expired.

Although Establishment B's training syllabus was unavailable, the interviews with their management and instructors revealed a paucity of training requirements in the areas of health screening, special populations, and injury prevention.
CONCLUSIONS

If the fitness industry is to maintain its credibility, protect its clients from risk of physical injury, and minimize owner liability, it must establish and maintain uniform standards and procedures for quality control. In response to these needs, the American College of Sports Medicine and the International Dance and Exercise Association have developed and published guidelines and standards for certification of fitness professionals. They are recognized as sound standards based on scientific principles and knowledge of experts in the field.

Incumbent upon each and every fitness management business is the responsibility to ensure its credibility by following ACSM and IDEA guidelines and recommendations. The owners and managers of fitness establishments of all kinds should continually strive for excellence in programming by maintaining their strengths and instituting changes necessary to alleviate their problems and improve upon their weaknesses. Fitness businesses also have a moral and legal obligation to clients to provide the safest, most effective service possible with a minimum of client risk, while at the same time minimizing their own liabilities.

For businesses who don’t live up to this responsibility, the outlook could be bleak. A lawsuit could result in increased premiums for liability insurance, create extensive financial loss, or damage an establishment’s reputation or all three. The hiring of instructors with no reputable certification or a minimal amount of
training or experience or both may lead to physical or psychological damage (injury or death) for clientele. In some situations, resultant non-participation on a long-term basis may cause a client to be stressed, to experience gain or loss of weight, or to refrain from physical activity altogether for fear of re-injury.

Because a certain amount of liability and risks are inherent in the fitness business, owners and managers should create an environment where additional liability and risks are minimized. Some have increased liability by minimizing in-service training or not requiring certification. Furthermore, hiring qualifications that are either ambiguous or vary from interview to interview may result in the hiring of underqualified individuals.

Even if fitness testing is a low organizational program priority or if only a small number of tests is to be administered, training for test administrators should be mandatory. They must have proper and complete training to obtain reliable and valid data, to have the ability to assess the results, and to formulate entry level programs or recommend changes in existing programs. Where fitness and strength training instructional programs may only involve the basics, practical application should also be included in the training, and written and practical testing should be administered.

In spite of the liability and risks involved in owning and managing a business, the owners of the surveyed establishments believe the rewards outweigh the risks.
Sometimes a business owner or manager takes a risk resulting in disaster. Two of the three establishments interviewed were involved in such a situation.

Failure to ensure proper use of a sauna after exercising in a pool coupled with failure to screen a member using a health history form may have contributed to the deaths of two clients at one of the sample facilities. In another of the establishments, failure to supervise a mentally handicapped member in a whirlpool may have contributed to the individual's death. This same facility allowed instructors without CPR certification or with expired certification to work with members, thereby taking unnecessary risks potentially dangerous to the members.

To reduce associated owner-management liability, Establishments A, B, and C have taken steps to protect their businesses should a lawsuit occur. Establishment A is protected both by property and malpractice liability insurance. The landlord requires that a specific amount be purchased for the property insurance. The owner must pay this amount and may decide to pay for additional coverage. Malpractice insurance which protects the employees is determined by gross revenue and whether or not the employees are trained or certified or both. Establishment A pays a lower premium because the employees are trained and certified by IDEA. The property insurance is a $1,000,000 policy and the malpractice insurance premium is a $2,000 per year per facility policy. Establishment B carries liability insurance that covers both the business and the
employees. Information on what determines cost or the actual cost of the insurance was unavailable from the local business and the corporate office.

Establishment C has liability insurance that offers on-site and off-site coverage for its employees and volunteers. The establishment as well as all programs are covered whether the instructor is an employee or a volunteer. The type and cost of the insurance is determined by the central office and an insurance company. The insurance company hires an auditor to observe the facility, preview program guidelines and assess the need for insurance coverage. Due to the nature of its programs, facility design and type of equipment, Establishment C has a very large premium. Over a 5-year period this premium has increased dramatically. It has increased from $15,000 in 1985 to $47,000 in 1987 to $57,000 in 1988, and a $50,000 premium will be paid in 1989. This indicates a possible trend that insurance premiums for fitness establishments are rapidly increasing.

All businesses should require or provide quality training or certification (instructor training, fitness testing, CPR) or both, and maintain a working environment where employees and management are prepared to act as reasonable and prudent professionals. Through training and certification, management and employees can derive a variety of benefits including the following:

1. Uniform procedures and standards provide quality control therefore providing credibility to the fitness industry.

2. Through certification exams, the guidelines for certification provide the establishment of uniform training standards for instructors.
3. The employee is recognized as a professional.

4. Employees have a larger and broader body of knowledge than those employees who have not received training and certification.

5. Employee's knowledge is improved and tested.

6. Employee's confidence level is improved.

7. Classes are safer and more fun.

8. Liability and risks are decreased because the instructor knows right from wrong, do's and don't's of exercise and contraindications of exercise and has acquired the skills to provide an injury and pain-free environment.

Both design and implementation of hiring qualifications, and procedures and requirements for certification and training at the surveyed establishments, are directly influenced by their respective philosophies and attitudes. Business A provides high cost/high quality services to a small population. It has a training program that closely follows the standards created by IDEA. It is also applying for accreditation by IDEA. High quality services are the top priority.

Business B has a large low-cost membership, where membership and sales volumes are high priorities. Quality programming and its perceived fitness image are important. Business C's main objective, to reach all types of people and serve the entire community, is reflected in its programs which provide services designed to create healthier minds and bodies.
While size, sales, memberships, or costs may differ among surveyed establishments, all should maintain safe, quality programming as their top priority. Instructors should provide safe and effective instruction. They should renew certification or continue their education in order to stay current on new methods and techniques. Instructors have the responsibility to keep their CPR certification current. While management should set standards and supervise their employees to ensure they are fulfilling their responsibilities, management and personnel should work together as a team to create a preventative environment.
RECOMMENDATIONS

Following is a list of recommendations for decreasing client risks and associated owner-management liability.

1. Specific recommendations for reducing client risk:
   - Require training and certification of employees in aerobics, fitness testing, and strength training.
   - Provide safe and effective instruction.
   - Screen members at front desk and monitor them in class to ensure proper placement based on interest, needs, and health status.
   - Teach instructors assessment skills and ability to ask the right questions for screening.
   - Issue warnings of inherent risks associated with each activity. (Warnings should be put in writing and participant signature obtained.)
   - Educate participants on their exercise program. Teach self-responsibility. (Monitor heart rate, teach principles of warm-up and cool-down, and teach proper techniques of stretching.)
   - Educate members about exercise classes, strength training instruction, fitness testing, and facility rules. (Use written or posted handouts, and describe prerequisites if any, for classes.)
   - Provide consistency in the content area of all instruction.

2. Specific recommendations for decreasing associated owner-manager liability:
   - Obtain liability insurance (property and malpractice).
   - Obtain signature of member in an exculpatory agreement (waiver).
   - Provide training programs with more structure (length is predetermined), and broader content (studio experience, injury prevention, screening, special populations).
- Those individuals who provide in-house training should have a degree in a related field, previous experience or training, or both.

- Certification should require both a practical and written exam.

- Businesses who provide in-house training/certification should apply for accreditation by a national certification and training organization.

- Class size and space should be suitable for proper supervision and instruction provided.

- Decrease cost of training/certification to attract more potential instructors, therefore having a larger pool of applicants to select from for employment, or have establishments pay for training to increase employees' interest and motivation.

- Increase public awareness of need and importance of trained and certified instructors.

- Increase public education on choosing a reputable business.

- Educate the public on aerobic floor design, attire and equipment, and what to look for in a professional instructor.

- Provide equipment that is safe and properly maintained.

- Provide seminars for owners/management on how to increase business and decrease liability with information on staffing facility with quality people.

- Increase entry level salary to draw advanced trained and educated people who will be motivated to stay.

- Provide orientation of programs and facility to members.

- Supervise and monitor all areas and personnel in aerobics, fitness testing, and strength training.

- Require medical screening of those who are 35 or older and who have a family history of heart disease.

- Recommend to members a complete physical by a physician prior to participation in any program.

- Administer a health history form (screening for exercise program and to get doctor's approval where needed) with space available on the form to...
indicate pregnancy, recent injury/surgery, chemical abuse, eating
disorders, medications, and a space for the word other.

- Document everything (class accidents and injuries, emergency procedures
  initiated, and follow-up).

The desire for healthier living through healthier lifestyles has increased
dramatically over the past decade. People are turning to fitness professionals for
guidance in attaining their personal fitness goals. The increased demand for
these services has created an explosion in the number of suppliers in the fitness
marketplace. Suppliers employ instructors who heighten clients' fitness awareness
and introduce the skills they need to achieve personal wellness.

Those who choose to fulfill the public demand for fitness service have a
responsibility to become aware and knowledgeable of the risks and liability
involved in providing such services. The success of the fitness business depends
upon the success and satisfaction of the client. The management must intention­
ally provide an environment where an individual may derive the important
psychological and physiological benefits of exercise with a minimum of risk. In
the ideal environment, both management and clients achieve success through
good health.
REFERENCES


APPENDIX A

Letter of Introduction to
Fitness Establishment Ownership-Management
September 1988

TO: Owner/Manager
Selected Fitness Training Center

Dear Owner/Manager:

I am currently a graduate student at the University of Montana, completing my MS degree in Health and Fitness Program Management under the guidance of Department Chair Dr. Kathleen Miller. One of the requirements for my degree is a professional paper on some aspect of fitness program management. My chosen topic is a survey and evaluation of personnel qualifications and hiring practices and associated client risks and owner liabilities at a cross section of fitness establishments in Minneapolis and St. Paul. I am concentrating my investigation on aerobics, fitness testing and weight training situations.

I will make my final paper available to professionals in the fitness business but will not divulge the names of any establishments from which I collect data. The final product should assist you and others in the business in hiring and evaluating qualified and knowledgeable people, thereby reducing risk to clients and liability of establishments.

Qualified personnel such as yourself can make a significant and valuable contribution to this process. Obviously your knowledge and expertise would benefit my research and your peers in the fitness business. I hope you will find it possible to serve as one of my selected businesses.

I plan to contact you the week of September 12th to set up a day and time to meet and discuss the project and interview you about your own business. This should not take more than an hour and a half of your valuable time. I hope you will agree to participate. I certainly look forward to learning more about your policies and applying your knowledge and experience to the project.

Thank you in advance for your interest and consideration.

Yours truly,

Eleanor C. Laursen
2335 Gaston Avenue
White Bear Lake, Minnesota 55110
612 / 653-1274
APPENDIX B

Owner-Management Interview Format
OWNER / MANAGEMENT INTERVIEWS

Objective: Survey and evaluate instructor qualifications for aerobics, fitness testing, and weight training, and associated client risks and owner liability.

Name: 
Establishment: 
Date: 
Time:

Background on interviewee: related education, training, and experience that qualifies you to hire these employees.

Questions:

1. In hiring fitness personnel, do you have a list of minimum qualifications they must meet? If so, what are the minimums required and who decides what these qualifications will be? If not, why?

2. Do you require that your employees are certified or trained in any way? If so, what is required?

3. What minimum qualifications do you require for hiring aerobic, fitness testing, and weight training personnel?
   
   Training: Medical, instructor
   
   Education: College, special workshops or seminars
   
   Certification: ACSM, IDEA, National Strength and Conditioning Association
   
   Previous Experience: Other fitness establishments or ...

4. Why only these requirements?

5. Do you feel your employees are over or underqualified or both?
   
   What are your reasons for hiring over/underqualified people?
6. Do you provide training at your facility? If so, who does the training and where? What does the training involve?

7. As a personnel manager, do you feel you are legally liable for the actions of your employees without certification, with limited training, or with only the training that you provide? Why or why not?

How does this make you feel?

8. Have you had any medical emergencies or accidents? If so, what happened and how did this affect your establishment?

9. Have you had any lawsuits involving your fitness testing, aerobics or weight training classes? If so, were they settled in or out of court? Please provide any details you can about the lawsuit.

10. Have you had any significant complaints from your club members about your instructors for aerobics, fitness testing or weight training?

11. What do you feel are the client risks associated with hiring instructors without certification, or with a minimal amount of training?

12. What are your recommendations for reducing client risks?

What are your recommendations for reducing owner liability?

(e.g., Sanctioning local training programs, reducing cost of training to attract more people, advertising to the general public the importance of certified instructors, seminars for fitness shop owners on how to increase business with certified instructors, etc.)

13. Do your instructors or desk staff administer medical release or health history forms? If so, how are these forms used?
INSTRUCTOR INTERVIEWS:

Name: 
Establishment: 
Phone number: 
Date: 

Type of Instruction:  | Aerobics | Weight | Fitness |
                    | Classes  | Training| Testing |

Questions:

1. **What are your qualifications for this particular job?**

2. **Do you have any training? If so, what type of training, where and by whom?**

3. **Do you have a college degree? In what? Where? When?**

4. **Do you have any related previous experience?**
APPENDIX C

IDEA Core Guidelines For Training Of Dance-Exercise Instructors
GUIDELINES FOR TRAINING OF DANCE-EXERCISE INSTRUCTORS

A statement for training organizations and instructors prepared by the Committee on Standards and Certification in Dance Exercise of the IDEA Foundation.
I. CORE KNOWLEDGE AND SKILLS FOR TEACHING DANCE-EXERCISE CLASSES

The dance-exercise instructor will demonstrate an understanding of the basic principles of exercise physiology.

1. General Physical Fitness
   a. List the major components of physical fitness: muscular endurance, flexibility, muscular strength, cardiovascular endurance, and body composition.
   b. Identify the musculoskeletal, cardiorespiratory, and psychological benefits of participating in an aerobic dance-exercise program, such as increased efficiency of heart and lungs, increased bone density, increased stroke volume, or change in body composition.
   c. Identify the benefits of regular exercise on specific disease conditions, such as adult-onset diabetes, arthritis, coronary heart disease, obesity, and asthma.
   d. Define and explain the following terms: specificity, overload, adaptation, progression, frequency, intensity, and duration and mode.
   e. Identify risk factors for coronary heart disease and list those that may be favorably modified by regular and appropriate physical activity.

2. Physiology of Cardiovascular Endurance
   a. Define the following terms: aerobic, anaerobic, cardiovascular endurance, oxygen consumption, heart rate, cardiac output, stroke volume, myocardial infarction, angina pectoris, ischemia, Valsalva maneuver, hyperventilation, interval training, continuous training, metabolism, hemoglobin, resting heart rate, exercise heart rate, heart rate reserve, target heart rate and recovery heart rate.
   b. Describe the normal cardiorespiratory responses to aerobic exercise in terms of heart rate, blood pressure, and oxygen consumption.
   c. Discuss recommendations to improve cardiovascular endurance for the general population with reference to type of activity, intensity, frequency, and duration.
   d. Explain the differences between aerobic and anaerobic metabolism in terms of exercise intensity, exercise duration, oxygen availability, fuel substrates used, and metabolic by-products produced.
   e. Discuss the importance of a proper warm-up and cool-down with respect to cardiovascular and musculoskeletal response.

3. Physiology of Muscular Strength and Endurance
   a. Define the following terms: muscular strength: muscular endurance; isotonic, isometric, and isokinetic contractions; progressive resistance; concentric and eccentric contractions; and muscular atrophy and hypertrophy.
   b. Discuss the common theories of acute muscle soreness and delayed onset muscle soreness (48-72 hours post-exercise).
   c. Discuss the disadvantages and/or advantages of exercising to muscular exhaustion/fatigue ("going for the burn") in a dance-exercise class.
   d. Describe the pros and cons of using hand and ankle weights to improve muscular strength, muscular endurance, and cardiovascular fitness.

4. Physiology of Flexibility
   a. Define and explain range of motion.
   b. Define and compare static and dynamic (ballistic) stretches for the purpose of improving flexibility. Discuss the risks and benefits of each method.
   c. Describe the muscle stretch reflex.
   d. List and describe the limitations to range of motion.

5. Environmental Considerations
   a. Describe the physiological responses to exercising in the cold, heat, humidity, and altitude.
   b. Give precautions and guidelines for exercising in heat, humidity, cold and altitude.

B. BASIC ANATOMY AND KINESIOLOGY

The dance-exercise instructor will demonstrate knowledge of human anatomy and kinesiology.

1. Anatomy
   a. Define the following terms with respect to anatomical position: sagittal, frontal, transverse, anterior, posterior, lateral, medial, supine, prone, dorsal, plantar, superior, inferior.
   b. Describe the general anatomy of the heart, cardiovascular system, and respiratory system.
   c. Explain the properties and function of bone, muscle, nerve tissue, ligaments, and tendons.
   d. Identify major muscle groups and bones.
   e. Describe and locate the following types of joints in the body: hinge, ball and socket, saddle, gliding, pivot and condylar.
2. Kinesiology
   a. Define the following terms: flexion, extension, abduction, adduction, hyperextension, supination, pronation, inversion, eversion, balance, center of gravity, stability in relation to bone of support, and leverage.
   b. Identify good postural alignment for the standing position.
   c. Identify and define the abnormal curvatures of the spine: lordosis, scoliosis, and kyphosis.
   d. Describe the action of major muscle groups such as trapezius, pectoralis major, latissimus dorsi, biceps, triceps, rectus abdominis, internal and external obliques, transverse abdominis, erector spinae, gluteus maximus, quadriceps, hamstrings, gastrocnemius, tibialis anterior, tibialis posterior, hip adductors, hip abductors, deltoids, biceps, and soleus. Identify examples of exercises for these muscle groups.
   e. Identify major muscles involved in specific exercise movements, such as push-ups, sit-ups, jumping jacks, side-lunging leg raises, and standing knee lifts.

3. Injury Prevention
   a. Define and describe the common orthopedic problems associated with dance exercise: shin splints, stress fractures, plantar fasciitis, Morton's neuroma, metatarsalgia, achilles tendinitis, chondromalacia patella, ankle sprains, meniscus tears, bursitis, and low back pain.
   b. Identify precautions to take during the cool-down phase of a dance-exercise class to prevent fainting or lightheadedness.
   c. Discuss common causes of dance-exercise injuries.
   d. Explain the role of abdominal strength, hamstring flexibility, and hip flexor length in the prevention of lower back pain. Identify common exercises advocated to prevent or treat this problem.
   e. Discuss common causes of low back pain.
   f. Identify exercises contraindicated for persons with low back conditions.
   g. Describe the potential risks associated with the following exercises: straight leg sit-ups, double leg raises, full squats, grand plié, full neck circles, hurdler's stretch, plough exercise, and back hyperextension.
   h. Describe desirable floor surfaces for dance exercise.
   i. Identify ways to modify dance-exercise movements to reduce impact stress and or improve safety.
   j. Identify the features of a shoe preferred for aerobic dance exercise.
   k. Identify symptoms and common causes of voice injury. Be able to discuss techniques for preventing injury.

C. Exercise Programming Skills
   The dance-exercise instructor will demonstrate competence in program design for group exercise programs.

1. Basic Programming
   a. Demonstrate an understanding of the components of a typical aerobic dance-exercise class (warm-up, cool-down, aerobic phase, calisthenics) and be able to put these components in sequence to design a safe and effective program. Provide a rationale for the sequence used.
   b. Describe how to individualize an exercise program on the basis of information obtained through health screening, progress made in class, or fitness evaluations; for example, by raising or lowering exercise intensity, placing someone into a beginning or advanced program, or modifying specific exercises.
   c. Recommend proper exercises for improving range of motion of all major joints.
   d. Describe the types of exercises or activities used for developing cardiovascular endurance.
   e. Describe exercises appropriate in dance-exercise classes for the improvement of muscular strength or endurance.
   f. Explain modifications and restrictions in the dance-exercise class for persons suffering from the following problems: arthritis, overweight, chondromalacia patella, and lower back discomfort.
   g. Explain modifications that a physician might recommend for persons in dance-exercise programs who are suffering from acute illness (colds and flu), diabetes, hypertension, and cardiovascular disease.
   h. Describe the signs and symptoms of over-exercising (acute responses), both during and after exercise, that would indicate the need to decrease the intensity, duration, or frequency of an exercise session.
I. Describe the signs and symptoms of over-training. 

II. Describe why physical fitness assessments are important in exercise programs.

III. Identify field testing methods you might use to measure each of the following: cardiovascular fitness, muscular strength, muscular endurance, flexibility, and body composition.

IV. Programming for Special Populations

A. Older Adult

1. Describe the natural aging changes in the sedentary adult that occur in the following: skeletal muscle, bone structure, maximal oxygen uptake, grip strength, flexibility, heart rate, body composition.

2. Identify common orthopedic problems of the older participant and explain how an exercise program could be modified to avoid aggravation of these problems.

3. Describe the physiological, psychological, and social benefits of regular exercise for the older adult.

B. Prenatal Women

1. Be familiar with the American College of Obstetricians and Gynecologists' guidelines for exercise during pregnancy and the postpartum period, especially with reference to: cardiovascular response (specifically blood volume and cardiac output), connective tissue changes, postural changes, hydration, temperature control, exercise guidelines and contraindications, special exercises for pregnancy and postpartum, and warning signs and symptoms for exercise during pregnancy.

2. List recommendations for acceptance of previously exercising and nonexercising prenatal women into regular dance-exercise classes.

3. Identify social and emotional advantages of participation in specialized prenatal classes rather than regular dance-exercise classes.

4. Describe how to adjust frequency, duration, and intensity of exercise for pregnant women who stay in regular dance-exercise classes.

5. Discuss the limitations of using heart rate as an indicator of exercise intensity during pregnancy. Describe other measures that can help gauge exercise intensity.

D. LEADERSHIP TECHNIQUES

The dance-exercise instructor will demonstrate an understanding of principles and practices of teaching and monitoring physical activity.

1. Monitoring Techniques

a. Describe how the heart rate is determined by palpation at radial and carotid sites. Describe the precautions in the application of these techniques.

b. Demonstrate the ability to measure pulse rate accurately at rest, during exercise and immediately following.

c. Calculate a target heart rate using the Karvonen formula.

d. Give precautions and ranges of error when using an estimated target heart rate.

e. Describe methods, other than heart rate, for monitoring physical effort, such as respiration and perceived exertion (Borg scales).

2. Teaching Skills and Practices

a. Identify inappropriate exercise responses from a participant that indicate the need to stop exercising.

b. Discuss techniques for accommodating various fitness levels within the same class.

c. Demonstrate an ability to recognize common student errors and to employ instructional techniques for making individual corrections in a class structure.

d. Demonstrate an understanding of verbal and nonverbal instruction techniques: voice, movement, timing, eye contact.

e. Understand the principles of movement progression used in choreographing and teaching routines: slow to fast, simple to complex, whole approach and part approach.

f. Describe appropriate exercise apparel for a variety of activities and environmental conditions.

2. Motivational strategies and adherence techniques to encourage regular participation in exercise.

h. List traditional dance step patterns that can be used to provide movement variety in a dance-exercise class, such as skip, polka, Charleston, and pony.

i. Define basic music terms: tempo, meter, rhythm.

j. Describe leadership practices to reduce the risk of injury to instructors.

IDEA Foundation

GUIDELINES FOR TRAINING OF DANCE-EXERCISE INSTRUCTORS

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II. OPERATION AND ADMINISTRATIVE SKILLS

The dance-exercise instructor will demonstrate competence in basic life support and be able to implement first aid procedures, should the need arise, either during or after exercise. An instructor should possess a current cardiopulmonary resuscitation (CPR) card or equivalent credentials.

1. Outline emergency procedure appropriate for an exercise facility should an accident occur.

2. Describe basic first aid procedures for heat cramps, heat exhaustion, heat stroke, lacerations, abrasion, contusion, simple and compound fractures, bleeding, shock, hypoglycemia, hyperglycemia, convulsions and seizures, sprains, strains, fainting, cardiac arrest, anemia, and blisters.

3. Explain the use of rest, ice, compression, elevation (RICE), and heat in treating athletic injuries.

B. HEALTH SCREENING

The dance-exercise instructor will demonstrate an ability to screen participants and identify health problems and risk factors that may require consultation with health professionals prior to participation in physical activity.

1. Identify health information that should be obtained prior to admitting a participant into a class: past and present medical history (especially with regard to cardiovascular, respiratory, and musculoskeletal systems), prescribed medication, current activity patterns, family history of heart disease, and smoking history.

2. Identify health problems or risk factors that interfere with a participant's ability to exercise safely in class and that may warrant physician referral, such as recent surgery, diabetes, obesity, pregnancy, orthopedic problems (including arthritis), history of cardiovascular or respiratory disease (including hypertension and asthma), and previous difficulty with exercise (including exercise-related chest discomfort, dizzy spells, and extreme breathlessness).

3. Be familiar with the effects the following substances may have on heart rate response: beta blockers (beta-adrenergic blocking agents), diuretics, antihypertensives, antihistamines, tranquilizers, alcohol, diet pills, cold medications, caffeine, and nicotine.

C. LEGAL ISSUES

The dance-exercise instructor will understand the legal responsibilities of a professional in the field.

1. Explain the 1976 U.S. copyright act and procedures for:
   a. Recording music.
   b. Playing music in class.
   c. Selling tapes of copyrighted music with voice-overs.

2. Describe the professional responsibilities and liabilities of a dance-exercise instructor with respect to responsibility for exercise programming, fitness testing, and medical clearance.

3. Discuss common insurance needs and practices of dance-exercise instructors.

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GUIDELINES FOR TRAINING OF DANCE-EXERCISE INSTRUCTORS

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III. RELATED KNOWLEDGE

A. NUTRITION
The dance-exercise instructor will demonstrate basic knowledge of good nutrition as it relates to exercise.

1. Basic Nutrition
   a. Define the following terms: high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), and total cholesterol HDL cholesterol ratio.
   c. Identify the four food groups and give an example of each.
   d. List the six classes of essential nutrients and describe their general role.
   e. Discuss the importance of an adequate iron intake for active women.
   f. Explain the potential risk of toxicity with oversupplementation of vitamins.
   g. Nutrition and Exercise
      a. Be aware of common areas of nutrition misinformation as they relate to exercise: salt tablets, diet pills, protein powders, sugar, caffeine, and nutritional supplements.
      b. Explain the relationship between a high complex carbohydrate/low fat diet and exercise performance.
      c. Describe the procedures for maintaining normal hydration at times of heavy sweating; contrast plain water replacement with the use of special electrolyte drinks.
      d. Describe the chronic effect of diet and aerobic exercise as they relate to changes in coronary risk factors.
      e. Identify dietary and exercise measures that can be taken to reduce risk of developing osteoporosis. Give common food sources of calcium.

B. WEIGHT LOSS AND WEIGHT CONTROL
The dance-exercise instructor will demonstrate basic knowledge of safe and effective methods for weight loss.

1. Define the following terms: obesity, overweight, underweight, percent body fat, lean body mass, bulimia, and anorexia nervosa.
2. Discuss the misconceptions of spot reduction.
3. Contrast the effectiveness of the following practices for fat weight loss and/or body composition change: diet and exercise combined, diet alone, and exercise alone.
5. Explain the concept of energy balance as it relates to weight control.
6. Explain the set point theory of weight control.
7. Describe the myths and dangers concerning the following as they pertain to body composition changes and weight loss: saunas, vibrating belts, body wraps, electric muscle stimulators, and sweat suits.
8. Discuss misconceptions surrounding the term "cellulite."
9. List the approximate number of kilocalories in 1 gram of fat, carbohydrate, protein, and alcohol.
10. Identify the generally recommended minimum number of calories for men and women for consumption in a safe, unsupervised weight loss program.
11. Identify the maximum number of pounds per week recommended for safe, unsupervised weight loss as identified by the American College of Sports Medicine.
APPENDIX D

ACSM Preventative Track Core Behavioral Objectives
ACSM PREVENTIVE TRACT: CORE BEHAVIORAL OBJECTIVES

EXERCISE PHYSIOLOGY

GO
The candidate will demonstrate a knowledge of basic exercise physiology.

SLO
Define aerobic and anaerobic metabolism in terms of energy expenditure.

SLO
Describe the role of carbohydrates, fats, and proteins as fuels for anaerobic and aerobic performance.

SLO
Describe the normal cardiorespiratory responses to an exercise bout in terms of heart rate, blood pressure, and oxygen consumption. Describe how these responses change with adaptation to chronic exercise training and how men and women may differ in response.

SLO
Define and explain the relationship of METs and kilocalories to physical activity.

SLO
Describe the heart rate and blood pressure responses to static (isometric), dynamic (isotonic) and isokinetic exercise.

SLO
Describe how heart rate is determined by pulse palpation. List precautions in the application of these techniques.

SLO
Calculate predicted maximal heart rate for various ages.

SLO
Define the following terms: ischemia, angina pectoris, premature ventricular contraction, premature atrial contraction, tachycardia, bradycardia, myocardial infarction, Valsalva maneuver, hyperventilation, oxygen consumption, cardiac output, stroke volume, lactic acid, hypertension, high density lipoprotein cholesterol (HDL-C), total cholesterol/high density lipoprotein cholesterol ratio, anemia, bulimia, anorexia nervosa.

NUTRITION AND WEIGHT MANAGEMENT

GO
The candidate will demonstrate an understanding of basic nutrition and weight management.

SLO
Give the recommended ranges for percent body fat (male and female).

SLO
Contrast the effectiveness of diet plus exercise, diet alone or exercise alone for fat loss or body composition changes.

SLO
Define the following terms: obesity, overweight, underweight, percent fat, lean body mass.

SLO
Describe the procedures for maintaining normal hydration at times of heavy sweating; contrast plain water replacement with the use of special electrolyte drinks.

SLO
Define and explain the concept of energy balance as it relates to weight control.

SLO
Describe blood pressure responses associated with changes in different body positions.

SLO
Describe the purpose and function of an electrocardiogram.

SLO
Identify the physiologic principles related to warm-up and cool-down.

GO
The candidate will demonstrate an understanding of the basic principles involved in muscular strength, endurance, and flexibility training.

SLO
Identify the physiologic principles related to muscular endurance and strength training: define overload, specificity, use-disuse, progressive resistance.

SLO
Define muscular atrophy, hypertrophy, hyperplasia, concentric and eccentric contractions, sets and repetition.

SLO
Describe the common theories of muscle fatigue and delayed muscle soreness.

SLO
Describe the muscle stretch reflex.

SLO
Describe blood pressure responses associated with changes in different body positions.

SLO
Describe the purpose and function of an electrocardiogram.

SLO
Identify the physiologic principles related to warm-up and cool-down.

GO
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SLO
Define muscular atrophy, hypertrophy, hyperplasia, concentric and eccentric contractions, sets and repetition.

SLO
Describe the common theories of muscle fatigue and delayed muscle soreness.

SLO
Describe the muscle stretch reflex.
SLO

Explain the difference between fat and water soluble vitamins and the potential risk of toxicity with over-supplementation.

SLO

Discuss the inappropriate use of salt tablets, diet pills, protein powders, liquid protein diets and nutritional supplements.

SLO

Discuss the misconceptions of spot reduction and rapid weight loss.

SLO

Be familiar with the Dietary Goals recommended by the Senate Select Committee on Nutrition and Human Needs and the exchange lists of the American Dietetic Association.

SLO

Identify the basic four food groups and give examples of each.

SLO

Describe the interaction of diet and/or exercise as they relate to the blood lipid profile.

EXERCISE PROGRAMMING

GO

The candidate will understand the role of exercise for persons with stable disease or no disease and demonstrate competence in designing and implementing individualized and group exercise programs.

SLO

Given a case study containing the following information: health history, risk factors, medical information, and results of a fitness evaluation, the candidate will be able to:

A. Use these data for recommending appropriate exercise based on proper intensity (training heart rate), duration, frequency, progression, type of physical activity and whether exercise is to be performed in a supervised or unsupervised program.

B. Modify an exercise program (i.e., intensity, duration, etc.) under such environmental conditions as cold, heat, humidity, and altitude.

C. Describe the importance of flexibility and recommend proper exercises for improving range of motion of all major joints. Describe the difference between static and dynamic (ballistic) stretching.

D. Describe and demonstrate appropriate exercise used in warm-up and cool-down.

E. Describe and demonstrate exercises for the improvement of muscilar strength and endurance.

F. Describe the difference between interval and continuous training.

G. Describe the relationship of the heart rate response to physical activity and perceived exertion. Demonstrate various methods for monitoring physical effort such as heart rate, blood pressure, and perceived exertion.

Certification of Program Personnel

II. Describe the signs and symptoms of over-exercising which would indicate the need to decrease the intensity, duration, or frequency of an exercise session.

SLO

Explain the effects of the following categories of substances on exercise responses: beta blockers, nitroglycerin, diuretics, antihypertensives, antihistamines, tranquilizers, alcohol, diet pills, cold tablets, illicit drugs and caffeine.

SLO

Explain appropriate modications in exercise programs due to acute illness, (colds, etc.), and controlled conditions (such as diabetes, chronic obstructive pulmonary diseases, allergies, hypertension, and cardiovascular disease) that a physician might recommend for your exercising client.

EMERGENCY PROCEDURES

GO

The candidate will demonstrate competence in basic life support and implementation of first aid procedures which may be necessary during or after exercise.

SLO

Possess current cardiopulmonary (CPR) certification or equivalent credentials.

SLO

Demonstrate an understanding of appropriate emergency procedures (i.e., telephone procedures, preconceived written emergency plan, personnel responsibilities, etc.).

SLO

Understand basic first aid procedures for heat cramps, heat exhaustion, heat stroke, lacerations, incisions, puncture wound, abrasion, contusion, simple-compound fractures, bleeding/shock, hypoglycemia/hyperglycemia, sprains/strains, and fainting.

HEALTH APPRAISAL AND FITNESS EVALUATION TECHNIQUES

GO

The candidate will demonstrate or identify appropriate techniques for health appraisal and use of fitness evaluations.

SLO

Demonstrate knowledge of health history appraisal to obtain information on past and present medical history, prescribed medication, activity patterns, nutritional habits, stress and anxiety levels, family history of heart disease, smoking history, and alcohol and illicit drug use.

SLO

Demonstrate the ability to interview individuals on health hazards such as positive family history, chest pain/heart discomfort, orthopedic limitations, present activity levels.
SLO
Demonstrate the ability to measure pulse rate accurately both at rest and during exercise.

SLO
Describe appropriate tests for assessment of cardiovascular fitness.

SLO
Identify the difference between maximal and submaximal cardiovascular evaluations.

SLO
Describe appropriate tests for assessment of muscular strength, muscular endurance and flexibility assessment.

SLO
Identify appropriate criteria for discontinuing a fitness evaluation.

SLO
Identify techniques used to determine body composition.

SLO
Identify the needs for retest evaluations for participants in exercise programs and the appropriate time intervals for reevaluation.

EXERCISE LEADERSHIP

GO
The candidate will demonstrate an understanding of principles and practices of leading physical activity.

SLO
Explain appropriate modifications in the exercise program due to musculoskeletal problems, e.g., arthritis, overweight, chondromalacia, lower back discomfort.

SLO
Describe the components of an exercise class or session from the time the participant enters, until the end of the class.

GO
The candidate will be competent in exercise leadership.

SLO
Describe appropriate exercise apparel for a variety of activities and environmental conditions.

SLO
Describe methods to establish appropriate exercise intensity.

SLO
Identify inappropriate exercise responses which would indicate termination of the exercise session.

SLO
Describe the myths and dangers pertaining to body composition changes and/or improved fitness in relation to the following: saunas, vibrating belts, body wraps, electric muscle stimulators (legal implications), and sweat suits.

SLO
Describe the dangers and precautions of the following exercises: straight leg sit ups, double leg raises, full squats, hurdles stretch exercise, plough exercise, back hyperextension, and standing straight leg toe touch.

HUMAN BEHAVIOR/Psychology

GO
The candidate will demonstrate an understanding of basic behavioral psychology, group dynamics, and learning techniques.

SLO
Given a series of hypothetical situations involving exercise program participants, the candidate will:
A. Describe the appropriate motivational counseling, behavioral techniques and teaching techniques used in conducting exercise and promoting lifestyle changes.
B. Describe how to manage the group facilitator, comedian, chronic complainer, and disruptor.
C. Define each of the following terms: behavior modification, reinforcement, goal setting, motivation, social support, and peer group pressure.
D. Describe factors affecting the learning process by use of part-whole and progressive learning theories.

SLO
Demonstrate and describe an understanding of counseling skills to motivate an individual to begin an exercise program, enhance exercise adherence, and return to regular exercise.

HUMAN DEVELOPMENT/AGING

GO
The candidate will demonstrate an understanding of the special problems of human development and aging.

SLO
Describe the natural changes that occur from childhood through adolescence and aging in the following: skeletal muscle, bone structure, maximal oxygen uptake, grip strength, flexibility, heart rate, and body composition.

SLO
Identify common orthopedic problems of the adolescent and older participant and explain how an exercise program could be modified to avoid aggravation of these problems.

SLO
Identify the predominant psychologic factors involved in the aging process.

SLO
Describe the physiologic effects of the following factors across the age range: smoking, hypertension, obesity, stress, substance abuse, chronic and acute exercise.
FUNCTIONAL ANATOMY AND KINESIOLOGY

GO
The candidate will demonstrate a knowledge of human functional anatomy and kinesiology.

SLO
Explain the properties and function of bone, muscle and connective tissue.

SLO
Describe the basic anatomy of the heart, cardiovascular system and respiratory system.

SLO
Identify major bones and muscle groups.

SLO
Describe the action of major muscle groups, e.g. trapezius, pectoralis major, latissimus dorsi, biceps, triceps, abdominals, erector spinae, gluteus maximus, quadriceps, hamstrings, gastrocnemius, tibialis anterior.

GO
The candidate will demonstrate a knowledge of concepts in the prevention, recognition, and management of injury associated with physical activity participation.

SLO
Define the following terms: shin splints, tennis elbow, stress fracture, bursitis and tendonitis, supination, pronation, flexion, extension, abduction and hyperextension.

SLO
Explain the use of rest, cold, compression and elevation in the initial treating of athletic injuries.

SLO
Discuss the application of heat in the long term treatment of athletic injuries.

SLO
Explain low back syndrome and describe exercises used to prevent this problem.

RISK FACTOR IDENTIFICATION

GO
The candidate will identify risk factors which may require consultation with medical or allied health professionals prior to participation in physical activity or prior to major increases in physical activity intensities and habits.

SLO
Identify primary and secondary risk factors for coronary heart disease which may be favorably modified by regular and appropriate physical activity habits.

SLO
Identify major risk factors which may require further consideration prior to participation in physical activity habits.

SLO
Be familiar with the plasma cholesterol levels for various ages as recommended by the National Institutes of Health Consensus Statement.

SLO
Identify the following cardiovascular risk factors or conditions which may require consultation with medical or allied health professionals prior to participation in physical activity or prior to a major increase in physical activity intensities and habits: inappropriate resting, exercise and recovery HR and BPs; new discomfort or changes in the pattern of discomfort in the chest area, neck, shoulder or arm with exercise or at rest; heart murmurs; myocardial infarction; fainting or dizzy spells; claudication; ischemia.

SLO
Identify the following respiratory risk factors which may require consultation with medical or allied health professionals prior to participation in physical activity or prior to major increases in physical activity intensities and habits: extreme breathlessness after mild exertion or during sleep; asthma; exercise-induced asthma; bronchitis; emphysema.

SLO
Identify the following metabolic risk factors which may require consultation with medical or allied health professionals prior to participation in physical activity or prior to major increases in physical activity intensities and habits: body weight more than 20% above optimal; thyroid disease; diabetes.

SLO
Identify the following musculoskeletal risk factors which may require consultation with medical or allied health professionals prior to participation in physical activity or prior to major increases in physical activity intensities and habits: osteoarthritis, rheumatoid arthritis; low back pain; prosthesis-artificial joints.
APPENDIX E

ACSM Exercise Leader-Aerobics Behavioral Objectives
AMERICAN COLLEGE
of SPORTS MEDICINE

Behavioral Objectives
for
Exercise Leader/Aerobics

Developed by the Exercise Leader Subcommittee of the Preventive and Rehabilitative Exercise Program Committee, American College of Sports Medicine

1987

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### Exercise Leader/Aerobics

#### Behavioral Objectives

The Behavioral Objectives for Exercise Leader/Aerobics identify the knowledge and performance requirements specific to the field of aerobics which shall be met by candidates according to behavioral objectives. A behavioral objective is a statement indicating what a person should be able to do following some unit of instruction or study. Two types of objectives are presented. The **General Objective (GO)** describes the unobservable mental process, while the **Specific Learning Objective (SLO)** describes the behavior in observable terms.

Note: Candidates for Exercise Leader/Aerobics certification must also demonstrate knowledge of the Core Behavioral Objectives outlined in the "*Guidelines for Exercise Testing and Prescription*", 3rd Edition; 1986; $9 United States; $12 Canada; Lea & Febiger, 600 Washington Square, Philadelphia, PA 19106; 1(800) 433-3850.

Specifically, Chapter 9, pages 114-121, outlines the Core Behavioral Objectives which shall be met by all Preventive Tract candidates, including Exercise Leader/Aerobics candidates.

#### Exercise Physiology

**GO**
The candidate will demonstrate an understanding of basic exercise physiology.

**SLO**
List and discuss the major components of physical fitness: flexibility, cardiovascular fitness, agility, muscular strength, muscular endurance. Describe the relationship of heart rate to exercise intensity.

**SLO**
Discuss the physical and psychological signs of overtraining/overuse. Describe causes of and treatment for residual soreness.

#### Nutrition and Weight Control

**GO**
The candidate will demonstrate an understanding of basic nutrition and weight management.

**SLO**
List the six essential nutrients and describe their role.

**SLO**
Give the recommended daily allowance (RDA) of calcium for women and give common food sources.

**SLO**
List the number of kilocalories in 1 gram of fat, carbohydrates, protein, and alcohol.

**SLO**
Identify the minimum number of pounds per week recommended for safe, unsupervised weight loss.

**SLO**
Be able to explain the Set Point Theory in reference to weight loss.
Exercise Leader/Aerobics

Behavioral Objectives

Instruction and Leadership Skills

GO
The candidate will demonstrate the ability to design a safe and effective aerobic/exercise class given: age and fitness level of the participants, environmental and space considerations, and class length.

SLO
Demonstrate an understanding of the components and the sequence of components in an exercise class, i.e., warm up, cool down, aerobic phase, muscular endurance and flexibility.

SLO
Describe desirable floor surfaces and ways to improve floor conditions or modify movement mechanics to improve safety.

SLO
Discuss and describe contraindicated exercises.

GO
The candidate will demonstrate a knowledge of leadership and teaching skills.

SLO
Demonstrate techniques for management, teaching and correction of aerobic exercise class participants.

SLO
Demonstrate an ability to recognize common student errors in body alignment and control.

SLO
Provide instructional techniques for making individual corrections in a class structure.

SLO
Demonstrate proper voice control.

SLO
Demonstrate a knowledge of techniques for accommodating various fitness levels within the same class.

SLO
Describe the pros and cons of low-impact and high-impact aerobic participation.

GO
The candidate will have a basic knowledge of the legal implications as related to the 1976 US Copyright Act and procedures for 1) recording music and 2) playing music in a class.

SLO
Understand and demonstrate an ability to identify suitable rhythmical accompaniment for the various portions of the aerobic exercise class.

Functional Anatomy and Kinesiology

GO
The candidate will demonstrate a knowledge of human functional anatomy and kinesiology.

SLO
Identify, demonstrate and evaluate good postural alignment.

SLO
Describe the pros and cons of using hand/ankle weights.

SLO
Define balance, center of gravity, and stability (in relation to base of support).
The candidate will identify major muscles involved in specific exercise movements.

Describe specific exercises designed to enhance muscular endurance of a specific muscle group.

Describe and demonstrate exercises for enhancing flexibility of specific muscle groups.

Describe and demonstrate adaptations of aerobic exercise classes for various fitness levels and sub populations, i.e., obese, pregnant and low back.

List and describe the types of joints in the body.

Be able to identify and define the abnormal curvatures of the spine; lordosis; scoliosis; and kyphosis.

Define and describe common orthopedic problems associated with aerobic exercise classes: shin splints; stress fractures; Achilles tendonitis; metatarsalgia; chondromalacia; Morton's neuroma; meniscus tears; and, ankle sprains and strains.

Health Appraisal and Fitness Evaluations

The candidate will demonstrate or identify appropriate techniques for health risk appraisal and use of fitness evaluations.

Identify and demonstrate the proper use and limitations of informed consent and medical clearances.

Demonstrate the ability to accurately measure resting and post exercise systolic and diastolic blood pressure.

Recognize the role of anthropometric and circumferential measurements for the evaluation of body composition.

Pre/Postnatal Women

The candidate will be aware of basic physiological changes of pre/postnatal women that influence exercise needs.

Describe how to modify an exercise program for a pre/postnatal woman.

Describe the signs and conditions that signal an early termination of the exercise program and referral to the physician during pregnancy.

Discuss the controversy and precautions of prenatal women participating in aerobic classes.

Describe restrictions and criteria for acceptance for a pre/postnatal female to exercise.

Describe exercises helpful in preparation for delivery.
The candidate will identify major muscles involved in specific exercise movements.

Describe specific exercises designed to enhance muscular endurance of a specific muscle group.

Describe and demonstrate exercises for enhancing flexibility of specific muscle groups.

Describe and demonstrate adaptations of aerobic exercise classes for various fitness levels and sub populations, i.e., obese, pregnant and low back.

List and describe the types of joints in the body.

Be able to identify and define the abnormal curvatures of the spine; lordosis; scoliosis; and, kyphosis.

Define and describe common orthopedic problems associated with aerobic exercise classes: shin splints; stress fractures; Achilles tendonitis; metatarsalgia; chondromalacia; Morton’s neuroma; meniscus tears; and, ankle sprains and strains.

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The candidate will demonstrate or identify appropriate techniques for health risk appraisal and use of fitness evaluations.

Identify and demonstrate the proper use and limitations of informed consent and medical clearances.

Demonstrate the ability to accurately measure resting and post exercise systolic and diastolic blood pressure.

Recognize the role of anthropometric and circumferential measurements for the evaluation of body composition.

Pre/Postnatal Women

The candidate will be aware of basic physiological changes of pre/postnatal women that influence exercise needs.

Describe how to modify an exercise program for a pre/postnatal woman.

Describe the signs and conditions that signal an early termination of the exercise program and referral to the physician during pregnancy.

Discuss the controversy and precautions of prenatal women participating in aerobic classes.

Describe restrictions and criteria for acceptance for a pre/postnatal female to exercise.

Describe exercises helpful in preparation for delivery.
APPENDIX F

ACSM Exercise Test Technologist Behavioral Objectives
BEHAVIORAL OBJECTIVES

The exercise test technologist will demonstrate competency in exercise testing. This includes the following general and specific learning outcomes:

HEALTH APPRAISAL AND TESTING TECHNIQUES

CO

The exercise test technologist will demonstrate skills and have knowledge in administering an exercise test, including but not limited to equipment calibration, patient screening and patient instruction, an understanding of the components of the physical examination, selecting a test protocol, recording test data, and case summary.

SLO

Describe the techniques used to calibrate a(n) motor driven treadmill, cycle ergometer, arm ergometer, electrocardiographic recorder, and mercury or aneroid sphygmomanometer.

SLO

Perform a routine screening procedure prior to testing. Procedures include history taking (particularly facts relevant to exercise test), obtaining informed consent, explaining procedures and protocol for the exercise test, recognizing the contraindications to an exercise test, and providing results of screening procedures to the physician and indicate participants for whom physician supervision is required.

SLO

Describe the components of a physical exam and their significance to exercise testing.

SLO

Perform routine tasks prior to exercise testing, including:
A. Taking a standard 12 lead electrocardiogram on a participant in a supine posture, in an upright posture, and during hyperventilation;
B. Accurately recording right and left arm and arterial blood pressure in different body postures.
C. Demonstrate the ability to instruct the test participant in the use of a rating of perceived exertion (RPE) scale during the exercise test.

SLO

Perform an exercise test.
A. Structure an exercise test protocol (continuous or discontinuous) with reference to the initial exercise intensity in METs, and increments of exercise intensity in METs for the cycle ergometer, arm ergometer and treadmill according to the participant’s age, sex, weight, estimated level of fitness, and health status including modifications for pulmonary patients.
B. Record appropriate measurements and participant responses, e.g., symptoms, ECG, blood pressure, heart rate, and perceived exertion at appropriate intervals during the test.
C. Identify possible test endpoints (e.g. signs and symptoms, or
Guidelines for Exercise Testing and Prescription

inappropriate responses, workload, HR or perceived exertion) which would terminate the exercise test for healthy or high-risk individuals, or for coronary bypass or myocardial infarction patients undergoing either pre or post-discharge testing.

SLO
Demonstrate an ability to measure resting pulmonary parameters, e.g. FEV1, FVC and respiratory frequency.

SLO
Describe standard scales used to evaluate dyspnea and functional class of the pulmonary patient.

SLO
Calculate and organize test data in a sequential manner.
A. Transform or reduce data preparing it for use by the physician, program director, or exercise specialist.

GO
The exercise test technologist will demonstrate knowledge in the operation and administration of an exercise testing facility.

SLO
Describe a plan for organizing an exercise testing laboratory and include facilities and equipment.

SLO
Describe a plan outlining the events of a typical testing day's activities.

EMERGENCY PROCEDURES

GO
The exercise test technologist will demonstrate competency in responding, with appropriate emergency procedures, to situations which might arise prior to, during, and after administration of exercise tests.

SLO
Present valid CPR certification credentials.

SLO
List and describe the use of emergency equipment which should be present in an exercise testing laboratory.

SLO
Identify and describe the use of emergency drugs which should be available during exercise testing.

SLO
Demonstrate ability to assist a physician during an emergency situation.

SLO
Demonstrate competency in verifying operating status of and maintaining emergency equipment.
SLO Describe emergency procedures for a preventive and rehabilitative exercise testing program.

Certification of Program Personnel

FUNCTIONAL ANATOMY

GO
The exercise test technologist will demonstrate a knowledge of functional anatomy.

SLO
Identify anatomic sites for selected measures associated with the exercise test.
A. Locate the appropriate sites for the limb and chest leads of the ECG.
B. Locate the brachial artery and position the cuff for the measurement of blood pressure.
C. Locate anatomic landmarks that might be required in determining the peripheral pulses.
D. Locate anatomic landmarks that might be required in anthropometry.
E. Locate the anatomic landmarks used during cardiopulmonary resuscitation and emergency procedures.

SLO
Identify the major features of cardiopulmonary anatomy, specifically, chambers, valves, vessels, conduction, tracheobronchial tree.

EXERCISE PHYSIOLOGY

GO
The exercise test technologist will demonstrate a knowledge of exercise physiology.

SLO
Define aerobic and anaerobic metabolism.

SLO
Describe the cardiorespiratory responses to postural changes and exercise including heart rate (HR), stroke volume (SV), cardiac output (Q), blood pressure (SBP, DBP) and ventilatory response.
A. Contrast the cardiorespiratory responses to postural changes before and after exercise testing.

SLO
List modifications to exercise testing.
A. List physiologic considerations in the selection of different modes of ergometry, e.g., treadmill, cycle, or arm ergometer.
B. Describe the principle of specificity as it relates to the mode of testing.
C. List the advantages and disadvantages of continuous vs. discontinuous tests.
D. Describe the physiologic importance of the warm-up, rate of exercise progression, and the implications of various post-exercise procedures as these relate to exercise testing.
E. List the effects of temperature and humidity upon the physiologic response to exercise testing.
F. List the signs and symptoms that are used in designating the endpoint of an exercise test.
PATOPHYSIOLOGY

SLO
The exercise test technologist will demonstrate a knowledge of the basic pathophysiology of ischemic heart diseases.

SLO
Define ischemia and explain the methods that are used to record and measure ischemic responses. List the effects of ischemic heart diseases (including myocardial infarction) upon performance and safety during an exercise test.

SLO
Define hypotension and hypertension.

SLO
List major risk factors for ischemic heart diseases.

SLO
Explain why blood pressure should be monitored during the exercise test.

SLO
Discuss the factors that affect myocardial oxygen supply and demand and describe the effects of atherosclerosis, coronary arterial spasm and acute exercise on each of these factors.

SLO
List special considerations necessary when testing participants with obesity, diabetes, renal disease, pulmonary disease, asthma, orthopedic, neurologic problems, hypertension or stroke.

SLO
Describe the effects of the following classifications of drugs on the heart rate and blood pressure. (See Appendix B). A. Antianginal (nitrates, beta blockers, etc.) B. Antiarrhythmic C. Anticoagulant D. Antiplatelet aggregation E. Lipid lowering drugs F. Antihypertensive (diuretics, vasodilators, etc.) G. Digitalis glycosides H. Calcium channel blocking agents I. Bronchodilators J. Tranquilizers, antidepressants, and antianxiety drugs

SLO
Define emphysema, asthma, chronic obstructive pulmonary disease, pulmonary vascular disease, and psychogenic hyperventilation.

ELEcTROCARDIOGRAPHY

SLO
The exercise test technologist will demonstrate a knowledge of normal and abnormal resting electrocardiograms and be able to recognize selected ECG abnormalities during the administration of an exercise test.

SLO
Describe the normal resting electrocardiogram.
A. Draw a normal ECG complex and label important waves, intervals, and points.
B. List functional phenomena or events associated with the various segments of the electrocardiogram.

SLO
Identify the ECG changes that are associated with an ischemic response at rest and during exercise.
A. Draw and label ECG complexes that are representative of either subendocardial or transmural ischemia (also called the injury pattern).
B. Define the limits or considerations in terminating an exercise test on the basis of the signs and symptoms of an ischemic response (e.g. ECG changes, cyanosis, angina).

SLO
Identify the ECG changes that are associated with the following abnormalities: arrhythmias, conduction defects, myocardial infarctions.
A. Draw and label ECG complexes that are representative of the following abnormalities:
1. Acute myocardial infarction.
2. Resolved (old) myocardial infarction.
3. Cardiac standstill (ventricular asystole)
4. Sinus bradycardia (< 60/min.)
5. Differences between supraventricular and ventricular rhythms.
6. Premature ventricular complexes (frequency, multifocal, couplets, salvos, and R on T).
7. Ventricular tachycardia.
8. Ventricular fibrillation.
9. Atrioventricular blocks of all degrees.
10. Atrial fibrillation.
11. Atrial flutter.
B. Define the limits or considerations in terminating an exercise test on the basis of the ECG abnormalities listed.

SLO
Identify ECG changes that may occur in hyperventilation.

SLO
Identify resting ECG changes associated with diseases other than CHD, such as hypertensive heart disease, cardiac chamber enlargement, metabolic disorders, pericarditis and pulmonary disease.
HUMAN BEHAVIOR/PSYCHOLOGY

DO
The exercise test technologist will demonstrate knowledge of psychologic factors which may affect exercise participants.

SLO
List six factors which increase anxiety in the exercise testing laboratory and describe how anxiety may be reduced in a participant.

SLO
List potential manifestations of test anxiety which can influence responses to an exercise test.

HUMAN DEVELOPMENT/AGING

GO
The exercise test technologist will demonstrate competence in selecting appropriate test protocol according to the age of the participant.

SLO
Describe adjustments which might be necessary for testing the younger participant, specifically, instructions for the patient and modification of the testing protocol and equipment.
APPENDIX G

ACSM Recommended Reference Materials for Certification Exam
Recommended Reference Materials.

The following reference materials are recommended as study materials to be used in preparation for the Exercise Leader/Aerobics certification:


Exercise Leader/Aerobics Behavioral Objectives, 1987 (available at no charge to applicants); ACSM National Center, P.O. Box 1440, Indianapolis, IN 46206-1440; 1 (317) 637-9200.

Aerobics, Theory and Practice, 1985; $15.95; Aerobic and Fitness Association of America, 15250 Ventura Blvd., Suite 802, Sherman Oaks, CA 91403; 1 (818) 905-0040.

Health/Fitness Instructor’s Handbook; 1986; $26; Human Kinetics Publishers, Inc., Box 5076, Champaign, IL 61820; 1 (800) 342-5457.

Aerobic Dance-Exercise Instructor Manual, 1987; $21.95; International Dance-Exercise Association (IDEA) Foundation, 2431 Morena Blvd., Suite 2-D, San Diego, CA 92110; 1 (800) 824-9029 (at tone, dial 258)
APPENDIX H

IDEA Recommended Reading for Certification Exam
RECOMMENDED READING

GENERAL

EXERCISE PHYSIOLOGY

BASIC ANATOMY AND KINESIOLOGY

EXERCISE PROGRAMMING SKILLS

EMERGENCY TRAINING

HEALTH SCREENING

LEGAL ISSUES

RELATED KNOWLEDGE