Investigation of the knowledge level of dance exercise instructors

Mary Elizabeth Ellis
*The University of Montana*

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AN INVESTIGATION OF THE KNOWLEDGE LEVEL
OF DANCE EXERCISE INSTRUCTORS

By
Mary Elizabeth Ellis
B.S., Northeast Louisiana University, 1980

Presented in partial fulfillment of the requirements
for the degree of
Master of Science
University of Montana
1991

Approved by

Chairman, Board of Examiners

Dean, Graduate School

Feb. 27, 1991

Date
The primary problem of this study was to investigate the knowledge level of dance exercise instructors. The two subproblems were: 1) determining the qualifications and training of each dance exercise instructor in the study, and 2) comparing the assessed knowledge level of certified and non-certified instructors.

Sixty-five dance exercise instructors from the southeastern cities of Greenville, South Carolina, Charlotte, North Carolina, Columbia, South Carolina, and Atlanta, Georgia volunteered to participate in this study. Each instructor completed a Dance Exercise Instructor (DEI) inventory which included a personal questionnaire on background information and an instructor knowledge exam.

Sixty percent of the dance exercise instructors were self-taught. Only 22% of the instructors had acquired a health-related college degree. Over half of the instructors had some form of aerobic dance exercise certification, with 62% of those being an IDEA Foundation certification.

The mean score on the DEI inventory was 65.31%. Certified dance exercise instructors scored significantly higher on the DEI inventory than the non-certified group. The level of knowledge for IDEA Foundation certified instructors was significantly higher than that of the instructors with other certifications. The dance exercise instructors with college credit in related coursework showed a significantly higher level of knowledge than those without related college credit. Similarly, instructors with a health-related college degree scored significantly higher on the DEI inventory than those without a health-related degree.

The results of the study suggest that the knowledge level of dance exercise instructors is enhanced by formal training in related courses, a health-related degree, and certification.
DEDICATION

This thesis is dedicated to my parents, who have actively supported my educational endeavors, and to my brother, who encouraged me during very difficult times.
ACKNOWLEDGMENTS

My sincere gratitude and respect go to my thesis chairperson, Dr. Kathleen E. Miller, for her patience, encouragement, assistance, and sense of humor in pursuit of this accomplishment. Much appreciation is also owed to committee members Dr. Brian J. Sharkey and Professor Richard O. Shields, for their support, guidance, and assistance. Many thanks go to the participating dance exercise instructors without whose time and energy this study would not have been possible. Finally, special thanks go to my employer, Robert E. Provost, for his understanding of the importance of my pursuit of higher education.
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CHAPTER ONE

THE PROBLEM

Introduction

Aerobic dance exercise is currently one of the most popular forms of exercise. Exercise-to-music classes have proliferated in dance studios, health clubs, YMCAs, recreation centers, corporate offices, and church halls across America. Currently, more than 24 million regular participants attend some form of dance exercise class (Herbert, 1988).

Paralleling the phenomenal growth of the dance exercise industry over the past 15 years has been an increase in the number of dance-related injuries. An investigation by Richie et al. (1985) revealed a 43% injury rate among students and a 76% rate among instructors. Successive studies have demonstrated a reduction of up to 11% in the injury rate for dance exercise instructors and 28% for participants (Davis, 1988). However, the rate of injury in aerobic dance exercise is apparently still significant as evidenced in a 1988 survey by Rothenberger et al. which reported a 49% frequency rate among dance exercise participants.
Unsafe and incorrectly executed exercise under improper guidance may contribute to the incidence and severity of injuries sustained by dance exercise participants. Several dance exercise industry leaders (Richie, 1985; Davis, 1988; Herbert, 1988; Williams, 1989) agreed that instructional technique is one of the possible causes for common injuries. As a result of high injury rates, the dance exercise and fitness field could experience deleterious effects, the most devastating of which would be the termination of fitness programs. Liability is an escalating concern with legal action involving the fitness industry surfacing with claims of negligence on the part of instructors. In the case of Contino v. Lucille Robert's Health Spa (Herbert, 1988), the plaintiff claimed that she injured her back in an aerobics class which was "improperly supervised and negligently conducted by the defendant's personnel." A $135,000 settlement was awarded to the plaintiff in a Washington case in which an aerobic instructor negligently used the contraindicated hurdler's stretch subsequently contributing to a knee injury (Penney, 1990).

Due to the absence of national guidelines and
government regulations, anyone can organize, teach, and charge fees for dance exercise classes. Individuals with virtually no education or training can proclaim themselves as dance exercise instructors. Less than a decade ago, classes were led by scattered individuals experimenting with a new form of exercise (Ryan, 1986). The demand for instructors grew with the dramatic increase in popularity of dance exercise; therefore, instructors were recruited from the student ranks. A 1982 American Aerobics Association study (Mosher, 1984) found the stereotypical image of the aerobic dance exercise instructor to be an average of 22 years old with no training beyond having taken some aerobics classes. More recently, Francis et al. (1985) reported that many aerobic dance exercise instructors are minimally qualified to teach any form of aerobic exercise. Of the instructors questioned, 65% were self-taught. Fifty-eight percent, including some of those self-taught, had received training on the job and only 22% held a degree in physical education. Qualifications of being young, slim, and looking cute in a leotard have unfortunately been frequent standards for hiring instructors. An industry comprised of inadequately trained and unqualified instructors may
eventually take its toll on the consumer.

A need exists for the implementation of quality exercise classes to ensure the future safety and well-being of participants. High standards of excellence should begin with the dance exercise instructor; therefore, the competency of fitness personnel must be of great concern. However, Francis et al. (1985) found that a mere 16% of instructors from a variety of aerobics programs had some form of aerobic dance exercise certification. Only 38% had attended at least one aerobic dance workshop and 27% had taken some form of training course. James Santomier, director of the physical educational program at New York University, found in 1986 that less than 5% of health club instructors had a degree in exercise physiology (Copeland, 1986).

Due to fuel by media hype about potential risks and injury rates, the consumer demand for safe exercise is increasing. A 1987 SRI Research Center/International Dance Exercise Association Survey (Ryan, 1987) found that 54% of dance exercise participants considered certification to be very important. A 1988 Gallup/International Dance Exercise Association fitness consumer survey reported that respondents cited "knows
what s/he is doing" as an instructor's best quality, suggesting that heightened value is being placed on education and expertise. Participants apparently think that instructors should be well qualified, but they do not necessarily know what particular training provided that qualification (Ryan, 1990).

Certification of dance exercise instructors seems to be a logical step toward promoting the high standards of excellence being challenged by increasing public awareness; however, confusion exists for the consumer with no way to discern the differences in certifications. A diversity of organizations claiming to train and certify instructors has inundated the fitness field. Private competition for the aerobic certification dollar has become a financial matter when it should be a health matter (Steiger, 1987). Over 100 certification agents exist offering everything from the mail-order certificate to the technical and comprehensive two-year university program with extensive training (Edleson, 1987). This increased business of certifying has prompted some concern over the trend toward certification. Gilda Marx, a prominent figure in the fitness industry, believes certification will not alleviate the problem of injury.
but possibly produce more harm than good with "everyone giving out certificates" (Van Gelder, 1984). Distressed over the obvious disparity among organizations, Marx proposed the question of whether "certification will actually mean that an instructor is a credible and responsible human being."

Certification is currently being advocated by many dance exercise industry leaders in an effort to overcome the lack of professionalism in the aerobic dance exercise field. Despite differences in focus and requirements, three professional organizations involved in the certification process (AFAA, IDEA, and ACSM) are generally recognized by fitness authorities as the most credible (Copeland, 1986).

The Aerobics and Fitness Association of America (AFAA), a professional training and certifying organization for exercise instructors and enthusiasts, has over 20,000 certified instructors. In a telephone interview (McCormack, 1985), AFAA's Membership Director stated their certification exam is geared toward the individual with some teaching experience and no background. The aerobic instructor certification granted by AFAA can only be maintained if continuing education credits are accrued every two years.
The International Dance Exercise Association (IDEA) Foundation began in 1986 administering a dance exercise certification exam, possibly the most popular, and has also certified over 20,000 instructors. According to a 1986 survey by *Fitness Management* magazine, the majority of fitness center and club owners who advocate or require instructor certification preferred the IDEA Foundation certification (Marks, 1987). The 1990 International Racquet Sport Association-Gallup *Profiles of Success* study also found the IDEA Foundation certification listed as the preferred certification for aerobics instructors.

The IDEA Foundation proclaims their certification is unique. Rather than being both a training and certifying body, the IDEA Foundation is a nonprofit organization established to set standards for dance exercise instructors, administer certification exams, provide consumer education, and promote research for the dance exercise industry (Marks, 1986). The IDEA Foundation certification was developed by a committee of prestigious dance exercise industry leaders and designed to designate the minimum professional level of theoretical knowledge and proficiency necessary to instruct dance exercise classes. As with AFAA's
program, IDEA Foundation instructors must acquire continuing education training every two years to maintain certification.

The American College of Sports Medicine (ACSM), a nationally recognized, professional, scientific, and multidisciplinary organization, launched a certification program for the advanced dance exercise instructor in 1987. According to Neil Sol, chairman of the ACSM's Health Fitness Instructor Subcommittee and director of health promotion at Methodist Hospitals in Memphis, part of the reason the ACSM certification programs carry clout is the in-depth, advanced nature of the exams (Hildreth, 1987). Prerequisite for the ACSM certification exam is current certification from a recognized dance exercise group such as AFAA and IDEA or a minimum of 250 hours of teaching experience. The ACSM certification is not for the novice instructor. ACSM's director of certification, Ann Partlow, claims their certification is on more of a graduate level rather than a grassroots as offered by other groups (Hildreth, 1987). Currently, over 500 instructors have been certified as an ACSM Exercise/Leader Aerobics. To maintain current certification, ACSM requires 40 hours of continuing education over a four-year period.
One major dilemma in determining certification standards is the deficiency of information pertaining to the level or extent of knowledge and background of dance exercise instructors. A review of literature indicated a lack of research concerning the prevailing knowledge level of instructors. The researcher interviewed personnel at ACSM, AFAA, and IDEA and obtained no quantifiable data surrounding the knowledge level of dance exercise instructors with the exception of verification of a 67% passing rate for candidates attempting certification exams. IDEA found that nearly 60% of their members had college diplomas, 11% had graduate degrees, and 95% completed high school (Davis, 1987). IDEA Foundation statistics showed that 70% of candidates who have received training from a college, university, or private training organization are more likely to pass their certification exam (Marks, 1987).

Academia (Ferreira, 1988; Golding, 1987; Marks, 1986) commonly believes that a basic body of knowledge is fundamental to the aerobic dance exercise instructor. The leading fitness industry organizations (ACSM, AFAA, IDEA) agree that the role of the instructor demands a knowledge base in the areas of anatomy, exercise physiology, kinesiology, injury
prevention, exercise programming, special populations, leadership skills, health screening, nutrition and weight control, and emergency training (Hildreth, 1987; IDEA, 1987; AFAA, 1988). IDEA and AFAA also emphasize choreography and dance methods, while ACSM includes focus on psychology and program administration.

Ideally, successful preparation for dance exercise instructors would be a degree in exercise physiology, physical education, or a health-related area (Ferreira, 1988; Williams, 1989; Delia-Loyle, 1991).

The primary objectives of the aerobic dance exercise instructor should encompass knowledge of the scientific principles of exercise and physical conditioning and the ability to design and provide a safe, effective, and pleasurable exercise class. The proper background and knowledge level of instructors, along with a continued effort to update professional skills, should ensure future success in improving the quality of dance exercise classes.

As aerobic dance exercise instruction is a recent phenomenon, little is known about the status of the instructor. This paper was an initial effort to compile information on the level of knowledge, as well as the background and certification, of instructors in
selected areas. This information is an important step in determining the necessary areas of focus in certification and the type of in-service and continuing education needed by aerobic dance exercise instructors.

**Purpose of the Study**

The primary research problem was to investigate the knowledge level of dance exercise instructors. The investigation also consisted of the following subproblems:

1. determining the qualifications and training of each dance exercise instructor in the study, and
2. comparing the assessed knowledge level of certified and non-certified instructors.

**Research Hypotheses**

For the purpose of statistical significance, the null hypothesis was tested. The alternative hypotheses are as follows:

1. Certified dance exercise instructors will score higher than non-certified instructors on the Dance Exercise Instructor (DEI) inventory.
2. Instructors with college credit in related courses will score higher on the DEI inventory than instructors without college credit in related courses.

3. Instructors with a health-related college degree will score higher on the DEI inventory than instructors without a health-related college degree.

4. Instructors of different age groups will score the same on the DEI inventory.

5. Instructors with different educational levels will score the same on the DEI inventory.

6. Instructors with different levels of teaching experience will score the same on the DEI inventory.

7. Instructors with different dance exercise certifications will score the same on the DEI inventory.

The Delimitation

1. The study was limited to dance exercise instructors in four cities in the southeastern region of the United States.
The Limitations

The limitations of the study included the following:

1. The sample size was based on the resources of the researcher and the availability of subjects.
2. The subjects for the study were dance exercise instructors who volunteered to participate.
3. The sample obtained in the study was not a true random sample since a current and inclusive listing of prospective dance exercise sites in each city was not available.

Definition of Terms

For purposes of this study, the following definitions are assumed to be pertinent and relevant:

Dance exercise - Any form of aerobic dance or exercise-to-music class taught by an instructor in a group setting.
Dance exercise instructor - A male or female currently involved in teaching a dance exercise class.
Certified instructor - A male or female dance exercise instructor who has received a certificate for any type of aerobic dance exercise training or workshop attendance.

Knowledge level - The composite score as measured by the DEI inventory.

Basic Assumptions

The basic assumptions of the study were the following:

1. The subjects responded in a truthful manner reflecting their knowledge and experience without the aid of any instructional material.

2. The composite score on the DEI inventory reflects the overall knowledge level of each subject.
CHAPTER TWO

METHODS AND PROCEDURES

This chapter contains a description of the procedures used to conduct the investigation. This chapter is divided into the following sections: 1) Testing Instrument, 2) Pilot Study, 3) Subjects, and 4) Analysis of Data.

Testing Instrument

A dance exercise instructor (DEI) inventory was developed by the researcher as a method of gathering data on knowledge levels of instructors currently active in teaching dance exercise. Components of the DEI inventory included a personal questionnaire and instructor knowledge exam.

The personal questionnaire was designed to collect data regarding background information of each subject. Questions focused on subjects' age, educational level and background, teaching experience, training, and certification. See Appendix A.

The instructor knowledge exam (Appendix B) was constructed by the researcher with the advice and guidance of the research committee chairman in order to
meet the objectives of the study and ask questions in the proper manner. Questions were based upon recommendations of a core of knowledge basic to all dance exercise instructors by ACSM, AFAA, IDEA, and other reputable authorities (Ferreira, 1988; Hildreth, 1987; IDEA, 1987; AFAA, 1988). The exam included 40 multiple-choice questions used to assess each dance exercise instructor's level of knowledge in the following areas of concentration: anatomy/exercise physiology (10 questions), nutrition/body composition (7 questions), teaching techniques (9 questions), medical considerations (6 questions), and leadership skills (8 questions).

Following approval by the committee chairman, test questions were submitted to a panel of 5 experts to substantiate the content validity of the instrument. Each panel member had a specialty in one of the following areas of concentration: anatomy/exercise physiology, nutrition/body composition, teaching techniques, medical considerations, and leadership skills. Revision of some questions was necessary based on suggestions by the experts to omit any ambiguity or controversy. Following several reviews of the instrument, the experts agreed on the content and face validity.
Pilot Study

A preliminary study was conducted to field test the format and instructions of the DEI inventory for data collection. Participation was obtained from volunteers attending an aerobics training workshop at Furman University in Greenville, South Carolina.

Forty-five workshop attendees were personally requested to participate following a verbal description of the study. When consent for participation was obtained, each volunteer received a packet containing a cover letter (Appendix C) which provided a description of the proposed study and a request for cooperation to aid in improving the health and fitness industry. A self-addressed stamped envelope was enclosed for the volunteer to return the DEI inventory to the researcher within a four-week period. Twenty-six of the instructors who attended the workshop returned the DEI inventory, producing a 58% response rate.

The volunteers were asked personally and in the cover letter to refrain from using the assistance of any instructional material in answering or understanding the questions. The volunteers were encouraged to provide constructive comments concerning confusion or misunderstanding regarding any aspect of
Following review of the comments and suggestions on the returned inventories, minimal refinement of questions was incorporated to increase clarity and readability. Based on the response to the preliminary study, the decision was made to use the DEI inventory.

Subjects

Sixty-five dance exercise instructors from the southeastern cities of Greenville, South Carolina, Charlotte, North Carolina, Columbia, South Carolina, and Atlanta, Georgia volunteered to participate in this study. Cities were chosen out of convenience due to the proximity of each to the researcher's home.

The researcher traveled to each city and personally compiled an alphabetic listing of dance exercise sites from newspaper ads, local publications, fliers, and the telephone book. At a local library, the researcher looked through the Saturday and Sunday newspapers for a one-month period to locate advertisements concerning health clubs, exercise studios, or other facilities offering dance exercise classes. Also at the library, the researcher investigated the yellow pages of the local telephone book to find sites with dance exercise classes. The
following sections of the yellow pages were checked: health, fitness, exercise, physical fitness, dance, reducing centers, diet, gymnasiums, recreation centers, and churches. White page sections investigated to discover potential dance exercise sites were the following: county recreation centers, YMCAs, and YWCAs. Confirmation of the facility as a dance exercise site was made by the researcher phoning each one that did not indicate in their telephone book listing or advertisement that classes were offered. While in each city, the researcher stopped at a local grocery to discover any local publications and/or fliers for announcements of dance exercise sites.

The researcher made at least one trip to each city to distribute the testing instrument to potential volunteers. Following selection of dance exercise sites using the table of random numbers method, the researcher went to each site to solicit participation in the study. The DEI inventories were directly distributed to the dance exercise instructor by the researcher or with the help of the aerobics director at each site. To be eligible, instructors were required to be presently teaching dance exercise classes at that facility. Names of individuals and directors receiving
the information were acquired and recorded by the researcher. The researcher went to 53 randomly selected sites until 22 DEI inventories were distributed in each city. No more than four inventories were given out at each site. The last individuals at sites in Greenville, Charlotte, and Atlanta were given an extra DEI inventory.

A total of 91 dance exercise instructors at the randomly selected sites were given a packet containing the cover letter (Appendix D) and DEI inventory. The cover letter explained the purpose of the study and requested participation and cooperation. The letter assured each volunteer confidentiality of the information elicited by the researcher. Coding of the testing instrument was explained in the letter as only a means of classifying responses according to location. A return date of three weeks was written on each cover letter as the packet was delivered.

Fifty-two percent of the instructors returned the DEI inventory by the requested return date. Follow-up calls to each individual contacted by the researcher were attempted to request return of the information. The follow-up calls evoked an additional 19% response, giving an overall response rate of 71% (65 subjects).
Analysis of Data

Data were entered into the IBM computer at the Greenville Racquet and Fitness Club in Greenville, South Carolina. Data analysis was carried out with the Statistics With Finesse statistical software program. The accepted level of statistical significance was $P < 0.05$ for all tests.

Descriptive statistics were used to calculate mean scores and standard deviations. Null hypotheses were tested for significance using a Student's t-test for independent samples.

Differences between group means were tested for statistical significance by a one-way analysis of variance. Post-hoc analysis was carried out when necessary using the Fisher's least significance difference (LSD) test.
CHAPTER THREE

ANALYSIS AND DISCUSSION

This chapter contains an analysis of the data collected including background information on the subjects and scores obtained on the DEI inventory. A discussion as well as a summary of the findings concludes this section.

Subjects

Demographics of the 65 subjects are represented in Tables 1-10. The majority of the dance exercise instructors (57%) were between the ages of 25 and 35 (Table 1). Twenty-five percent of the instructors were less than 25 years of age, while only 18% were over 35. Most of the subjects (49%) were fairly new to the dance exercise industry with two or less years of teaching experience (Table 2). Twenty-three percent had three to four years of experience as an instructor and 28% had been involved in dance exercise for five or more years.

Sixty percent of the instructors were self-taught (Table 3). Seventy-one percent of the instructors had received some on-the-job training, including some of those who proclaimed themselves as being self-taught.
Thirty-two percent of the instructors had taken some form of dance exercise training course and surprisingly, 71% of all instructors had attended at least one aerobic dance exercise workshop during their career as an instructor. However, workshops or seminars in dance exercise appeared somewhat less important to the more experienced instructors as only 27% of those who had been teaching over three years reported having attended a session in the previous two years (Table 4). Fifty-nine percent of the instructors with two or less years of teaching experience had attended a workshop or seminar in dance exercise instruction.

Nearly half of the instructors (46%) had acquired a college degree, while only 20% had completed some graduate work (Table 5). Of all the instructors, only 22% had graduated with a health-related degree (Table 6). Listed in Table 7 are the health-related degrees. Forty-five percent of the instructors had no formal qualifications to teach aerobic dance exercise (Table 8). College credit or formal qualification was attained among the 55% of the instructors in the following areas: anatomy (31%), first aid (29%), nutrition (26%), physiology (26%), exercise physiology
Twenty-eight percent had taken a college course in dance methods. Eighty-six percent of the instructors were certified in cardiopulmonary resuscitation (CPR).

Fifty-two percent of the instructors had some form of aerobic dance exercise certification (Table 9). Of the 34 subjects who had received a certificate for dance exercise instruction, 62% were IDEA Foundation certified instructors. Only 9% held an AFAA certification and 29% had been given a certificate by one of several other groups or organizations (Table 10).

Table 1. Age distribution of subjects.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 years</td>
<td>16</td>
<td>25%</td>
</tr>
<tr>
<td>25 - 35 years</td>
<td>37</td>
<td>57%</td>
</tr>
<tr>
<td>Over 35 years</td>
<td>12</td>
<td>18%</td>
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Table 2. Teaching experience of subjects.

<table>
<thead>
<tr>
<th>Experience</th>
<th>n</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>2 years or less</td>
<td>32</td>
<td>49%</td>
</tr>
<tr>
<td>3 - 4 years</td>
<td>15</td>
<td>23%</td>
</tr>
<tr>
<td>5 or more years</td>
<td>18</td>
<td>28%</td>
</tr>
</tbody>
</table>
Table 3. Training of subjects.

<table>
<thead>
<tr>
<th>Training Method</th>
<th>n</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Self-taught</td>
<td>39</td>
<td>60%</td>
</tr>
<tr>
<td>On-the-job training</td>
<td>46</td>
<td>71%</td>
</tr>
<tr>
<td>Training course</td>
<td>21</td>
<td>32%</td>
</tr>
<tr>
<td>Workshop attendance</td>
<td>46</td>
<td>71%</td>
</tr>
</tbody>
</table>

Subjects may show up in more than 1 category.

Table 4. Workshop attendance by subjects in previous two years.

<table>
<thead>
<tr>
<th>Teaching Duration</th>
<th>n</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Teaching 3 or more years</td>
<td>9</td>
<td>27%</td>
</tr>
<tr>
<td>Teaching 2 or less years</td>
<td>19</td>
<td>59%</td>
</tr>
</tbody>
</table>

Table 5. Highest level of education of subjects.

<table>
<thead>
<tr>
<th>Education Level</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some college</td>
<td>22</td>
<td>34%</td>
</tr>
<tr>
<td>College graduate</td>
<td>30</td>
<td>46%</td>
</tr>
<tr>
<td>Graduate work</td>
<td>13</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 6. Health-related degree status.

<table>
<thead>
<tr>
<th>Degree Status</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>With degree</td>
<td>14</td>
<td>22%</td>
</tr>
<tr>
<td>Without degree</td>
<td>51</td>
<td>78%</td>
</tr>
</tbody>
</table>
Table 7. Health-related degrees.

<table>
<thead>
<tr>
<th>Health &amp; Physical Education/Exercise Physiology</th>
<th>n = 4</th>
<th>29%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>n = 4</td>
<td>29%</td>
</tr>
<tr>
<td>Movement &amp; Sports Science/Kinesiology</td>
<td>n = 3</td>
<td>21%</td>
</tr>
<tr>
<td>Sports Medicine</td>
<td>n = 1</td>
<td>7%</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>n = 2</td>
<td>14%</td>
</tr>
</tbody>
</table>

Table 8. College credit status.

<table>
<thead>
<tr>
<th>With college credit</th>
<th>n = 36</th>
<th>55%</th>
</tr>
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<tbody>
<tr>
<td>Without credit</td>
<td>n = 29</td>
<td>45%</td>
</tr>
</tbody>
</table>

Table 9. Certification status.

<table>
<thead>
<tr>
<th>Certified</th>
<th>n = 34</th>
<th>52%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-certified</td>
<td>n = 31</td>
<td>48%</td>
</tr>
</tbody>
</table>
Table 10. Distribution of other certifications for ten subjects.

<table>
<thead>
<tr>
<th>Certification</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Aerobic Way</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Aerobic Pipeline</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Fitness International</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Exer Safety</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Mary Mayta</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Fit Camp</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Boot Camp</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>National Dance Exercise Instructor Training</td>
<td>1</td>
<td>10%</td>
</tr>
</tbody>
</table>

DEI Inventory Scores

All 65 subjects completed the DEI inventory. Scores ranged from 12 (30%) to 40 (100%). The mean score on the DEI inventory was 26.12 ± 6.91 (65.31%). Mean scores obtained on the DEI inventory are given in Table 11 according to status of certification, type of certification, educational level, age, teaching experience, status of health-related degree, and status of college credit.

The dance exercise instructors were the most knowledgeable in the areas of nutrition and body composition with 70.55% of the answers correct.
The area of concentration with the second highest score by all instructors was leadership skills (67.69%) followed by anatomy/exercise physiology (65.23%), and medical considerations (62.31%). Instructors scored the lowest in the area of correct exercise teaching technique with only 61.2% of answers correct.

Based upon significant results of the Student's t-test, the researcher rejected the null hypothesis that there will be no significant difference between the knowledge level of certified and non-certified instructors as based on the score obtained on the DEI inventory. Results of the t-test showed a significant difference ($P < 0.05$) between the knowledge level of certified (30.06 ± 5.72) and non-certified (21.71 ± 5.42) dance exercise instructors (Table 13). Scores reflected that certified instructors had 75.22% of all test questions answered correctly, while non-certified instructors had only 54.44% right.

The null hypothesis concerning instructors with college credit and without college credit in related courses was rejected based upon significant findings on a Student's t-test. College credit or formal training in related courses contributed to an increased
knowledge level in dance exercise instructors. The mean score for instructors with college credit in related courses (27.72 ± 6.17) was significantly greater (P < 0.05) than those without college credit in related courses (24.03 ± 7.41) (Table 13). Instructors with college credit in related courses scored 69.51% correct on the DEI inventory versus 60.09% for those instructors with no college credit in related coursework.

Analysis of the data using a Student's t-test caused the researcher to reject the null hypothesis concerning the knowledge level of instructors with a health-related degree and those without a health-related degree as based upon the mean score of the DEI inventory. A health-related college degree did have a significant effect on the level of knowledge of instructors. The mean score of instructors with a health-related degree (30.29 ± 5.47) varied significantly (P < 0.05) from those without a health-related degree (24.92 ± 6.91) (Table 13). Instructors with a health-related degree averaged 75.89% on the DEI inventory and those without a health-related college degree had 62.44% correct.

An analysis of variance was performed on the data
for the effect of testing the null hypothesis in each of the following categories: age, educational level, and teaching experience. Results of each analysis of variance produced insignificant differences ($P < 0.05$); therefore, the null hypothesis was accepted in each instance indicating that age, educational level, and teaching experience did not have a significant effect on the level of knowledge of dance exercise instructors.

An analysis of variance was employed to determine any differences in the knowledge level of instructors with different dance exercise certifications. An overall difference in the analysis of variance was detected causing the researcher to reject the null hypothesis. Therefore, a Fisher's post-hoc least significance test was used to find the specific differences ($P < 0.05$). IDEA Foundation certified instructors scored significantly higher ($32.52 \pm 4.74$) than AFAA certified ($26.33 \pm 5.69$) and other certified instructors ($26.10 \pm 5.07$) (Table 11). IDEA Foundation instructors scored 81.31% on the DEI inventory, AFAA instructors averaged 65.83% correct, while the other certified instructors scored 65.25% correct.

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Table 11. Mean scores and standard deviations of overall DEI inventory by variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified</td>
<td>34</td>
<td>30.06</td>
<td>5.72</td>
</tr>
<tr>
<td>Non-Certified</td>
<td>31</td>
<td>21.71</td>
<td>5.42</td>
</tr>
<tr>
<td>IDEA Foundation</td>
<td>21</td>
<td>32.52</td>
<td>4.74</td>
</tr>
<tr>
<td>AFAA</td>
<td>3</td>
<td>26.33</td>
<td>5.69</td>
</tr>
<tr>
<td>Other Certifications</td>
<td>10</td>
<td>26.10</td>
<td>5.07</td>
</tr>
<tr>
<td>Some College</td>
<td>22</td>
<td>24.27</td>
<td>6.57</td>
</tr>
<tr>
<td>College Graduate</td>
<td>30</td>
<td>27.00</td>
<td>6.89</td>
</tr>
<tr>
<td>Graduate Work</td>
<td>13</td>
<td>27.23</td>
<td>7.40</td>
</tr>
<tr>
<td>Less than 25 years of age</td>
<td>16</td>
<td>24.38</td>
<td>5.95</td>
</tr>
<tr>
<td>25 - 36 years of age</td>
<td>37</td>
<td>26.65</td>
<td>7.50</td>
</tr>
<tr>
<td>Over 36 years of age</td>
<td>12</td>
<td>26.83</td>
<td>6.26</td>
</tr>
<tr>
<td>Teaching 2 years or less</td>
<td>32</td>
<td>26.66</td>
<td>6.91</td>
</tr>
<tr>
<td>Teaching 3 - 4 years</td>
<td>15</td>
<td>23.27</td>
<td>6.18</td>
</tr>
<tr>
<td>Teaching 5 years or more</td>
<td>18</td>
<td>27.56</td>
<td>7.15</td>
</tr>
<tr>
<td>Health-Related Degree</td>
<td>14</td>
<td>30.29</td>
<td>5.47</td>
</tr>
<tr>
<td>No Health-Related Degree</td>
<td>51</td>
<td>24.92</td>
<td>6.91</td>
</tr>
<tr>
<td>College Credit</td>
<td>36</td>
<td>27.72</td>
<td>6.17</td>
</tr>
<tr>
<td>No College Credit</td>
<td>29</td>
<td>24.03</td>
<td>7.41</td>
</tr>
</tbody>
</table>
Table 12. Mean scores and standard deviations for each area of concentration for 65 subjects.

<table>
<thead>
<tr>
<th>Area of Concentration</th>
<th>Mean</th>
<th>S.D.</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition/Body Composition (7 questions)</td>
<td>4.94</td>
<td>1.47</td>
<td>70.55</td>
</tr>
<tr>
<td>Leadership Skills (8 questions)</td>
<td>5.42</td>
<td>1.58</td>
<td>67.69</td>
</tr>
<tr>
<td>Anatomy/Exercise Physiology (10 questions)</td>
<td>6.53</td>
<td>2.68</td>
<td>65.23</td>
</tr>
<tr>
<td>Medical Considerations (6 questions)</td>
<td>3.34</td>
<td>1.04</td>
<td>62.31</td>
</tr>
<tr>
<td>Teaching Techniques (9 questions)</td>
<td>5.51</td>
<td>1.80</td>
<td>61.20</td>
</tr>
</tbody>
</table>
Table 13. Means and t-values for DEI inventory scores.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>S.D.</th>
<th>t</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified vs. Non-certified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified</td>
<td>34</td>
<td>30.06</td>
<td>5.72</td>
<td>-6.03</td>
<td>0.00</td>
</tr>
<tr>
<td>Non-Certified</td>
<td>31</td>
<td>21.71</td>
<td>5.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With vs. Without College Credit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Credit</td>
<td>36</td>
<td>27.72</td>
<td>6.17</td>
<td>-2.19</td>
<td>0.02</td>
</tr>
<tr>
<td>Without Credit</td>
<td>29</td>
<td>24.03</td>
<td>7.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With vs. Without Health-Related Degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Degree</td>
<td>14</td>
<td>30.29</td>
<td>5.47</td>
<td>-2.68</td>
<td>0.00</td>
</tr>
<tr>
<td>Without Degree</td>
<td>51</td>
<td>24.92</td>
<td>6.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion

Results of this study indicated that the instruction of dance exercise appeals to a more mature age group than was evidenced by Mosher (1984) in earlier years of the industry. Nearly half of the instructors were new to the dance exercise field, while almost one-third of the instructors appeared to have made a commitment to staying in the dance exercise industry.

Unfortunately, the training of the dance exercise instructors in this study was consistent with the findings of a study by Francis et al. (1985). Over half of the instructors in both studies considered themselves to be self-taught, indicating that very little had changed in the training of instructors on an individual basis. However, on-the-job training had increased considerably in this study as compared to Francis et al. (1985) suggesting that managers and owners of facilities are beginning to place more emphasis on providing appropriate and safe programs for the consumer.

One of the most surprising findings in the study was that almost three-fourths of the instructors had attended at least one dance exercise workshop in their
career. Francis et al. (1985) revealed that only about one-third of the instructors at that time had attended a workshop. With an almost 100% increase in workshop attendance, instructors in this study appeared on the surface to be very concerned with keeping current in the field of dance exercise. However, the findings suggest that the newer instructors in the industry seemed more enthusiastic about their skills or perhaps they used a workshop as a form of acquiring more basic training. The researcher believes that the more experienced instructors may have become complacent with respect to their skills as only a small percentage of them had attended a workshop in the previous two years. Ongoing education in order to stay current in the field, broaden one’s knowledge, and continually improve and increase class quality are the responsibilities of the dedicated fitness professional (IDEA Foundation, 1990). The researcher believes that continuing education was not as important to the instructors in this study who have been involved in dance exercise for several years.

Overall, the dance exercise instructors in this study appeared to be a well-educated group with nearly 70% of them possessing a college diploma. However, the
results again showed very little had improved since the study by Francis et al. (1985) with respect to the area of concentration of college degrees held by dance exercise instructors. According to this study, the field of dance exercise does seem to attract a more educated group. However, not many of the instructors in this study had a college degree in a health-related field suggesting that a small percentage of individuals with the appropriate formal background are employed in the dance exercise industry. The instructors with college credit in related coursework and those with a college degree in a health-related field showed a higher level of knowledge in this study. Therefore, the researcher believes that a need exists for college programs in physical education to offer and promote training in dance exercise.

The overall knowledge level of the dance exercise instructors in this study was well below the recommended standard. IDEA and AFAA both require that candidates attempting their exams must respond with 80% of the answers correct in order to pass and receive certification. Instructors in this study only answered an average of 65.31% of the test questions correctly.
The study showed that certification of dance exercise instructors had increased dramatically since the study by Francis et al. (1985). Like club owners and managers (Marks, 1987), over half of the instructors in this study also preferred the IDEA Foundation certification. Only three of the subjects held an AFAA certification and none of the instructors who participated in this study had an ACSM certification.

Certified instructors in this study were found to be more knowledgeable than the non-certified instructors. Based on the results of this study, certification seems like a logical step toward improving the quality and credibility of the dance exercise industry. However, the act of certification does not provide an absolute guarantee but it does represent an authoritative judgment (Ryan, 1985). Certification tells the consumer that the instructor had demonstrated a certain standard of knowledge and competence (Nash, 1985). However, differences in the knowledge level of instructors with different certifications were shown to exist in this study. IDEA Foundation certified instructors were found to have a far superior knowledge level over other certified
instructors suggesting a deep sense of dedication to professionalism in the dance exercise industry.

Even though certified, and specifically IDEA Foundation, instructors were found in this study to be more knowledgeable, concern exists on the part of the researcher about the ability of the dance exercise instructor to implement that knowledge in order to instruct safe classes. The researcher does believe that the IDEA Foundation certification is credible and does acknowledge that an instructor has met the minimum standards of theoretical knowledge necessary for conducting safe and effective dance exercise classes. However, any type of certification does not guarantee that an instructor is competent in a practical situation. The area of concentration in which the instructors of this study were the most knowledgeable, nutrition and body composition, is the one that affects teaching performance the least, as believed by the researcher. Ironically, the area of concentration that the researcher believes to be critically related to practical application, correct exercise teaching techniques, was the one in which the instructors in this study scored the lowest.

Claremont et al. (1986) found that the ability of
skilled dance exercise instructors to provide effective classes with respect to an appropriate conditioning response was only partially successful. The researcher agrees with the suggestion from the study of Claremont et al. that a need exists for practical instructor training guidelines to minimize injury and maximize physical benefits. Testing of the practical application of theoretical knowledge recognized by certifications is believed by the researcher as important for the future safety of the dance exercise industry.

Consumers cannot discern the differences between certifications. Therefore, the researcher believes that the public needs to be educated about the dance exercise profession. Increased public awareness of the importance of and differences in certifications may enhance the dance exercise industry by increasing the interest of instructors to become certified by a credible organization as well as encourage consumers to demand professionalism.

In summary, the results of this study demonstrate a need for future research on the dance exercise instructor from a theoretical and practical standpoint. The researcher also believes that the consumer should
be analyzed and educated concerning their knowledge of dance exercise certifications.

Summary of Findings

The results of this investigation may be summarized as follows:

1. Dance exercise instructors with any type of certification scored significantly higher than non-certified instructors based on scores obtained on the DEI inventory.

2. Mean scores obtained on the DEI inventory were significantly higher for instructors with college credit in courses related to dance exercise instruction versus those without college credit.

3. Dance exercise instructors with a health-related degree scored significantly higher than instructors without a health-related degree on the DEI inventory.

4. IDEA certified instructors were found to be significantly more knowledgeable on the DEI inventory than AFAA and other certified instructors.
5. No statistically significant difference was reported in the mean scores on the DEI inventory when comparing instructors according to age.

6. Educational level did not significantly influence the mean scores found on the DEI inventory.

7. Length of teaching experience of instructors had no significant effect on the mean scores of the DEI inventory.
CHAPTER FOUR

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The preceding chapters presented the introduction, the problem, the subproblems under study, the methodology, and the statistical analysis of the data. This final chapter includes the summary, conclusions, and recommendations for further research.

Summary

The primary problem of the study was to investigate the knowledge level of dance exercise instructors. The two subproblems were: (1) to determine the qualifications and training of each dance exercise instructor in the study, and (2) to compare the assessed knowledge level of certified and non-certified dance exercise instructors in the study.

The results of the study indicated that the dance exercise instructors had minimal formal qualifications to teach dance exercise. The majority of the instructors in the study were certified and of those, over half were certified by IDEA Foundation. The instructors with a certification were found to be more knowledgeable in this study. IDEA Foundation certified instructors in the study demonstrated a higher level of
knowledge than instructors with other types of certifications. Educational level, age, and teaching experience had no effect on the knowledge level of instructors in the study. The instructors in this study with college credit in related coursework showed a higher level of knowledge than instructors without related college coursework. Similarly, instructors with a health-related degree were found in this study to be more knowledgeable than instructors without a health-related degree.

Conclusions

Based on the analysis of the data collected from 65 subjects in the southeastern cities of Greenville, South Carolina, Columbia, South Carolina, Atlanta, Georgia, and Charlotte, North Carolina, and within the limitations of this study, the following conclusions were drawn:

1. The knowledge level of dance exercise instructors is increased with formal training in courses related to dance exercise instruction.

2. The knowledge level of dance exercise instructors is enhanced by a health-related degree.
3. Certified instructors are more knowledgeable than non-certified instructors.

Recommendations

The following suggestions are offered by the researcher for further related studies:

1. The research should be replicated using a larger sample size with each of the variables studied.

2. Further research should be conducted in several regions of the United States.

3. Future studies should explore the relationship between theoretical knowledge levels and practical application.

4. Dance exercise participants should be studied to analyze knowledge of dance exercise certifications.
REFERENCES


BIBLIOGRAPHY


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APPENDIXES
**BACKGROUND INFORMATION:**

1. **Your age.**
   - [ ] a. under 20
   - [ ] b. 20 - 25
   - [ ] c. 26 - 30
   - [ ] d. 31 - 35
   - [ ] e. 36 - 40
   - [ ] f. 41 - 45
   - [ ] g. 46 - 50
   - [ ] h. over 50

2. **Your highest level of education completed.**
   - [ ] a. less than high school
   - [ ] b. high school graduate
   - [ ] c. some college
   - [ ] d. college graduate
   - [ ] e. some graduate work
   - [ ] f. graduate degree

3. **Please specify your college major.**
   __________________________

4. **Please indicate the area of any graduate study.**
   __________________________

5. **Check the courses for which you have received college credit.**
   - [ ] a. anatomy
   - [ ] b. first aid
   - [ ] c. dance methods
   - [ ] d. exercise physiology
   - [ ] e. kinesiology
   - [ ] f. nutrition
   - [ ] g. physiology
   - [ ] h. sportsmedicine

6. **Please list any other health related courses for which you have received college credit.**
   __________________________
   __________________________
   __________________________
   __________________________

7. **Are you currently CPR certified?**
   - [ ] a. yes
   - [ ] b. no

8. **Your length of experience teaching dance-exercise.**
   - [ ] a. less than 1 year
   - [ ] b. 1 - 2 years
   - [ ] c. 3 - 4 years
   - [ ] d. 5 - 6 years
   - [ ] e. 7 or more years

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9. The type of organization(s) at which you teach on a regular basis. Please check all that apply.

___ a. health club
___ b. school/university
___ c. corporate/business
___ d. hospital
___ e. recreation/community center
___ f. other, please specify

10. Indicate the number of dance-exercise classes you regularly teach per week

___ a. 1 - 2
___ b. 3 - 4
___ c. 5 - 6
___ d. 7 - 8
___ e. 9 - 10
___ f. 11 or more

11. Specify your training for dance-exercise instruction. Please check all that apply.

___ a. self-taught
___ b. on-the-job training
___ c. degree in related field
___ d. dance background
___ e. workshop attendance
___ f. other, please specify

12. Check any training course(s) you have attended.

___ a. AFAA
___ b. Desert Southwest Fitness
___ c. FIT Camp
___ d. Jazzercise
___ e. Jacki Sorenson's Aerobic Dancing
___ f. Kenneth Cooper's Aerobic Center
___ g. National Dance-Exercise Instructor Training Assoc.
___ h. Rhythmic Aerobics
___ i. The Aerobic Way
___ j. other, please specify

13. Please list any workshops or seminars (other than the above checked training courses) related to dance-exercise instruction that you have attended in the last two years. Please include the length of the workshop or seminar.

__________________________________________________________
__________________________________________________________
__________________________________________________________
14. Please list any dance-exercise or fitness instructor certification(s) you currently hold.


Thank you very much for your time and effort.

Libby Ellis
150 Oak Ridge Place #10-11
Greenville, South Carolina 29615
phone (803) 288-7220
DIRECTIONS: The questions or incomplete statements below are each followed by suggested answers or completions. Only one answer is correct in each case. Select only one answer and place an X in the space next to your response. Rather than guess at an answer, please mark the response "I don't know".

1. While exercising in your class, an individual twists an ankle. What should you have the student do?
   ____ a. walk slowly until the pain in the injured foot decreases
   ____ b. elevate the injured leg and apply a warm compress
   ____ c. keep the injured leg lower than the rest of the body and apply a warm compress
   ____ d. elevate the injured leg and apply ice and compression
   ____ e. I don't know

2. Which one of the following food items would be a good source of carbohydrates?
   ____ a. tuna
   ____ b. pasta
   ____ c. chicken
   ____ d. cheddar cheese
   ____ e. none of the above
   ____ f. I don't know

3. All exercises must be performed with proper body mechanics to avoid excess compression of which two areas in the vertebral column:
   ____ a. cervical, lumbar
   ____ b. thoracic, lumbar
   ____ c. sacral, cervical
   ____ d. lumbar, coccygeal
   ____ e. coccygeal, sacral
   ____ f. none of the above
   ____ g. I don't know

4. Heavy sweating, chills, throbbing pressure in the head, dizziness, nausea, a rapid pulse, and cold and clammy skin with a flushed or pinkish coloration are symptoms of:
   ____ a. heat stroke
   ____ b. hypoxia
   ____ c. heat exhaustion
   ____ d. heart attack
   ____ e. none of the above
   ____ f. I don't know
5. Which of the following exercises would be a safe and effective way to stretch the hamstrings in any class?

   a. 
   b. 
   c. 
   d. 
   e. all of the above
   f. I don't know

6. Which of the following pair of movements should be included in an exercise session to prevent or overcome a muscular imbalance that forces the knees into a hyperextended position?

   a. 
   b. 
   c. 
   d. 
   e. I don't know

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7. The American College of Sports Medicine recommends that the maximal weight loss in a one week period should not exceed:

___ a. 1.5 pounds  
___ b. 2.2 pounds  
___ c. 4.4 pounds  
___ d. 5.2 pounds  
___ e. 6.8 pounds  
___ f. I don't know

8. When using calipers to measure skinfolds on a 122 pound woman, you measure the suprailiac fold at 22 mm. In the explanation to her about the skinfold measurement, which of the following would be correct?

___ a. she is approximately 22% body fat  
___ b. her suprailiac skinfold measurement represents about an inch  
___ c. her lean body weight computes to approximately 100 pounds  
___ d. all of the above  
___ e. I don't know

9. A tendon serves to:

___ a. connect bones to bones  
___ b. produce a shortening effect of the muscles upon contraction  
___ c. send signals from the brain to the muscles  
___ d. connect muscle to bone  
___ e. I don't know

10. Medial tibial syndrome, or bilateral pain along the medial edge of the tibia, is commonly referred to as:

___ a. a stress fracture  
___ b. shin splints  
___ c. compartment syndrome  
___ d. achilles' tendinitis  
___ e. a sprained ankle  
___ f. I don't know

11. An enthusiastic and dedicated student in your exercise class informs you that during the previous night, pain was experienced in the middle of her chest associated with a feeling of nausea and sweating. Since the pain has completely disappeared, the individual intends to participate in the exercise session. What, if any, precautions would you take?

___ a. allow the participant to engage in exercise and pay close attention to further complications  
___ b. consider the incident an epigastric problem and advise the student to ignore it  
___ c. refer the participant to the family physician  
___ d. ask the participant to start exercising slowly and report any further discomfort  
___ e. none of the above  
___ f. I don't know
15. Muscular endurance is the ability of a muscle or muscle group to:
   ___ a. exert a maximum amount of force or tension against a resistance in one all out effort
   ___ b. sustain contractions of a given force over a period of time
   ___ c. increase in size independent of general body growth
   ___ d. shorten at a constant speed which is maximal over a full range of motion
   ___ e. I don't know

16. Females tend to have a deficient intake of which two nutrients?
   ___ a. vitamin C and phosphorous
   ___ b. vitamin E and zinc
   ___ c. folic acid and vitamin A
   ___ d. iron and calcium
   ___ e. I don't know

17. According to the Aerobics and Fitness Association of America, which two variables within each exercise session can you teach your students to adjust on an individual basis?
   ___ a. intensity, range of motion
   ___ b. intensity, duration
   ___ c. frequency, duration
   ___ d. range of motion, duration
   ___ e. frequency, intensity
   ___ f. I don't know

18. An appropriate shoe for dance-exercise participation should provide impact protection for which of the following?
   ___ a. humerous
   ___ b. subtalar joint
   ___ c. metacarpal heads
   ___ d. metatarsal heads
   ___ e. coracoid process
   ___ f. I don't know

19. Jim is a 45 year old man with a resting heart rate of 68 beats per minute and a maximal heart rate of 182 beats per minute. Using the Karvonen method for calculations, what would the target heart rate at 80% heart rate reserve be for Jim as he exercises in your class?
   ___ a. 134 beats per minute
   ___ b. 147 beats per minute
   ___ c. a 10 second pulse of 23
   ___ d. a 10 second pulse of 26
   ___ e. I don't know
20. Who should complete health questionnaires before participation in a dance-exercise program?

___ a. individuals over 30 years of age
___ b. individuals over 35 years of age
___ c. individuals over 40 years of age
___ d. all individuals
___ e. high risk populations
___ f. I don't know

21. A 36 year old prospective student's health screening reveals obesity, a slightly elevated blood pressure, excessive smoking habits, and occasional shortness of breath. What, if any, precautions would you take?

___ a. admit the participant
___ b. reject the participant
___ c. admit the student but limit participation
___ d. refer the participant to a physician for further testing
___ e. I don't know

22. In accordance with guidelines established by the American College of Sports Medicine, which of the following would be considered suitable for the length and intensity of the aerobics segment of a class designed to promote weight loss as well as elicit cardiovascular benefits?

___ a. 15 minutes at 65 - 75% of maximum heart rate
___ b. 18 minutes at 60 - 70% of maximum heart rate
___ c. 25 minutes at 65 - 75% of maximum heart rate
___ d. 22 minutes at 80 - 90% of maximum heart rate
___ e. I don't know

23. What is considered the standard minimal level of percent body fat when classifying females as being obese?

___ a. 19%
___ b. 25%
___ c. 30%
___ d. 40%
___ e. 35%
___ f. I don't know

24. Heart rate monitoring should be utilized in an exercise class at which of the following times?

___ a. every 5 to 7 minutes during the aerobics segment and at the end of the cool-down
___ b. at the end of the aerobics and cool-down segments
___ c. at the end of the aerobics segment
___ d. when the participant feels a need to monitor the workout
___ e. I don't know

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25. The burning or painful sensation that may be felt in the gluteus maximus and hamstrings while performing a series of buttock tucks during the calisthenics portion of a class is usually the result of:

___ a. a depletion of muscle glycogen
___ b. a lack of oxygen or blood flow
___ c. delayed onset muscle soreness
___ d. tissue damage in the muscle
___ e. I don't know

26. A female student is interested in weight loss through dietary means in conjunction with your exercise class. What should you suggest?

___ a. a low calorie diet of 800 to 1000 calories per day
___ b. eating only two meals per day
___ c. a low carbohydrate/high protein intake not lower than 500 - 1000 calories below recommended amount
___ d. taking diet pills to control the appetite
___ e. a high carbohydrate/low fat intake not lower than 500 - 1000 calories below recommended amount
___ f. ingesting liquid drinks in place of one meal per day
___ g. I don't know

27. What is the major muscle involved in a side lying leg abduction?

___ a. gluteus maximus
___ b. gluteus medius
___ c. quadricep
___ d. pectineus
___ e. I don't know

28. Which monitoring technique would be the most appropriate for a participant taking beta blockers?

___ a. heart rate
___ b. talk test
___ c. perceived exertion
___ d. observation
___ e. I don't know

29. What would the intensity of conditioning for a 29 year old female be if it were based on 65 to 90% of her maximum heart rate?

___ a. 108 - 148 beats per minute
___ b. 124 - 172 beats per minute
___ c. 128 - 180 beats per minute
___ d. 136 - 189 beats per minute
___ e. I don't know
30. One of your exercise students is a female, 25 years old, 5'3", and weighs 117 pounds. During the peak portion of the aerobics segment, she rates the exercise at being approximately 17 according to Borg's Scale of Perceived Exertion. What would be the estimation of her heart rate?

   a. 140 beats per minute 
   b. 155 beats per minute 
   c. 160 beats per minute 
   d. 170 beats per minute 
   e. 182 beats per minute 
   f. I don't know

31. To assure utilization of agonist/antagonist muscles during the calisthenics portion of your class, which of the following pairs would be exercised?

   a. biceps, triceps 
   erector spinae, trapezius 
   quadriceps, hamstrings 
   
   b. pectorals, erector spinae 
   quadriceps, hamstrings 
   adductors, abductors 
   
   c. erector spinae, abdominals 
   pectorals, rhomboids 
   gastrocnemius, tibialis anterior 
   
   d. triceps, biceps 
   gastrocnemius, abductors 
   pectorals, rhomboids 
   
   e. I don't know

32. Which group of symptoms would be compatible with a heart attack?

   a. burning chest pain which is associated with belching 
   b. chest pain with cough and fever 
   c. substernal chest pain with shortness of breath and heavy sweating 
   d. chest pain which worsens with inspiration and is reproducible with compression 
   
   e. I don't know

33. Which, if any, of the following common injuries in dance exercise can progress to a stress fracture if ignored?

   a. achilles' tendinitis 
   
   b. shin splints 
   c. plantar fasciitis 
   d. condromalacia 
   
   e. compartment syndrome 
   f. none of the above 
   g. I don't know

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DIRECTIONS: The following questions differ from the previous questions in that they all contain words such as NOT, EXCEPT, and LEAST LIKELY. Take time to read every question carefully before placing an X by the correct response.

34. Which of the following characteristics is LEAST important when selecting an appropriate shoe for dance-exercise participation?

   ___ a. weight
   ___ b. lateral support
   ___ c. stability
   ___ d. fit and comfort
   ___ e. cushion
   ___ f. I don't know

35. During the cool-down segment of your exercise class, a participant experiences an attack of syncope, falls to the ground, and remains unconscious. What would your first aid procedure NOT include?

   ___ a. loosening the clothing
   ___ b. helping the participant to a seated position
   ___ c. gently bathing the face with cool water
   ___ d. examining for injuries
   ___ e. holding the chin up
   ___ f. I don't know

36. Which of the following statements is NOT true about the anaerobic energy system?

   ___ a. takes place in the absence of oxygen
   ___ b. results in the formation of lactic acid
   ___ c. releases enough energy to last for 5 minutes to several hours of exercise
   ___ d. uses only carbohydrates as its food fuel source
   ___ e. I don't know

37. All of the following statements concerning low impact aerobic classes are true EXCEPT:

   ___ a. One foot must remain on the floor at all times.
   ___ b. The arms should be held above shoulder level for extended periods to keep the heart rate in the proper zone.
   ___ c. The music should be slower than that used for traditional aerobic classes.
   ___ d. Pregnant women or extremely overweight individuals can safely participate in a low impact class.
   ___ e. I don't know
38. Which of the following would NOT be considered a possible cause for shin splints?
   ____ a. exercising on nonresilient floor surfaces
   ____ b. improperly designed shoes
   ____ c. overuse
   ____ d. flexible posterior compartment and weak anterior compartment of the lower leg
   ____ e. excessive pronation at the subtalar joint
   ____ f. I don't know

39. Which of the following factors DOES NOT contribute to problems in the lower back region?
   ____ a. poor posture
   ____ b. flexible hamstrings
   ____ c. weak abdominal muscles
   ____ d. weak back extensor muscles
   ____ e. use of improper body mechanics
   ____ f. I don't know

40. Which physiological change is NOT a benefit of long-term participation in aerobic exercise?
   ____ a. decreased heart rate during rest
   ____ b. decreased blood lipid levels
   ____ c. decreased total body fat
   ____ d. decreased stroke volume
   ____ e. increased heat acclimatization
   ____ f. increased ventilatory efficiency
   ____ g. I don't know

Thank you very much for your time and effort.

Libby Ellis
150 Oak Ridge Place \#10-11
Greenville, South Carolina 29615
telephone (803) 288-7220

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Dear Dance Exercise Instructor,

The enclosed inventory, focused on the knowledge areas pertaining to proper dance exercise instruction, is a preliminary portion of a regional study. This project is concerned specifically with surveying the present level of knowledge among dance exercise instructors within the southeastern portion of the United States. The results of this study will provide the dance exercise industry with preliminary information to aid in the promotion of quality instruction.

Your participation will contribute significantly to the success of this project since you are currently involved in teaching dance exercise classes. Your response to the inventory will be treated with complete confidentiality and analyzed as part of a group rather than individually.

Please answer the personal inventory to provide the necessary background information. Take care in marking an "X" by only one response for each question on the knowledge inventory. Please refrain from using any personal assistance or the aid of any instructional material while completing the inventory.

I would appreciate your completing the inventory prior to [date] and returning it in the enclosed self-addressed stamped envelope. Additional phases of this research project cannot be initiated until analysis of the inventory is completed. Please include any comments concerning confusion or misunderstanding of any aspect of the inventory. Feel free to make your comments on the inventory at the appropriate question. Your comments will greatly enhance this project.

Thank you very much for your time and participation in this study. Through a spirit of cooperation and sharing, our industry will continue to grow in size and improve in quality.

If you would like to receive a copy of the results of this study, please send me your name and address in a separate letter.

Stay healthy,

Libby Ellis
150 Oak Ridge Place, 10-H
Greenville, South Carolina 29615
phone (803) 258-7220
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Please answer the personal inventory to provide the necessary background information. Take care in marking an "X" by only one response for each question on the knowledge inventory. Please refrain from using any personal assistance or the aid of any instructional material while completing the inventory.

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