

THE NEED FOR CERTIFICATION OF AEROBIC
EXERCISE INSTRUCTORS AS PERCEIVED
BY SELECTED GROUPS

By

KENETHA JACKSON GREEN

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Thesis Approved:

Melvin D. Miller
Thesis Adviser

Craig A. Anderson

John F. Beard

Roman N. Murkum
Dean of Graduate College

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CHAPTER I

INTRODUCTION

Aerobic fitness is now recognized as one of the major health goals of the nation (Goodrick, 1982). There has been increased awareness in recent years in physical conditioning to attain and maintain physical fitness. People exercise by riding bicycles, jogging, swimming, playing tennis, participating in aerobics, attendance at fitness centers, and enrolling in schools of conditioning. Many avenues such as YMCA's, community centers, churches, corporations, small businesses, industries, and colleges provide opportunities to teach or lead individuals toward goals or objectives in structuring their own particular physical exercise needs. More Americans are exercising and playing sports these days than ever. According to the President's Council on Physical Fitness and Sports, 24 percent of the nation's adults reported a regular fitness habit in 1961 and 53 percent of the nation's adults in 1982 claimed they exercised on a regular basis. (Salmon, 1983).

The "signs" are there--thousands entering marathons, health clubs and exercise studios springing up everywhere, newstands selling a dozen or more fitness related magazines, and numerous celebrities promoting their own line of exercise clothing. Yes, it certainly appears that we've become a nation of fitness conscious people (Day, 1984, p. 28).

Within the adult community a profound attitude and lifestyle change is becoming increasingly significant. This new phenomenon has been brought about by having a healthier view of life (Colorado Governor's

Councils on Health Promotion and Physical Fitness, 1983). A major component of this new lifestyle change is physical fitness. Sports experts unanimously agree that this new healthful way of life is not a fad but is deeply intertwined into the fabric of life. People who seemingly have no athletic background are becoming a part of the changing lifestyle community. For the typical 30 year old participant, the most popular manifestation of this lifestyle change is participation in fitness and/or aerobic exercise classes. These classes emphasize cardiovascular fitness and flexibility activities which are essential to a healthier way of life (Colorado Governor's Councils on Health Promotion and Physical Fitness, 1983).

Statement of the Problem

The qualifications and abilities of instructors for aerobic exercise classes vary widely. However, there is not a standardized certification program available enabling aerobic exercise instructors to meet specific criteria. This is the specific problem which this study addresses. The lack of a standardized certification program creates a situation that is potentially dangerous due to the possibilities of persons suffering severe and permanent physical damages according to the President's Council on Physical Fitness and Sports (Colorado Governor's Councils on Health Promotion and Physical Fitness, 1983).

Purpose

The purpose of this study was to collect and analyze data regarding the qualifications for aerobic exercise instructors. The major questions to be answered by the study are:

1. What are the minimum competencies/qualifications that people in the field believe to be important for aerobic exercise instructors?
2. Should aerobic exercise instructors be certified?
3. Is there a preferred level or type of certification/credential perceived for aerobic exercise instructors?
4. Is there agreement among respondents regarding minimum competencies for aerobic exercise instructors?
5. Is aerobic exercise a safe and healthful way to maintain fitness?

Limitations

1. The population for the study was limited to cardiologists, public recreation agency directors and private health club directors in Colorado; members of the Colorado Association of Professional Fitness Instructors; and the National Fitness Coalition.
2. Data from this study reflect perceptions of the individuals surveyed, and are therefore subjective rather than objective.

Definitions

The following definitions are provided to clarify terms used in this study:

Accredited. Having met specific standards required by a governing body.

Aerobic. The ability of a given activity to train and strengthen the heart, lungs and vascular system promoting the supply and use of oxygen (Cooper, 1977).

Aerobic Exercise. (Also referred to as Aerobics) differs from other exercise programs in that its focus is to strengthen the cardiovascular system, whereas other programs are designed to exercise or develop the mind, the body, or a muscle (Cooper, 1977).

Certification. The process by which an organization or an independent external agency recognized the competence of individual practitioners (Bratton and Hildebrand, 1980).

Coaching. The art of instructing and training in physical exercise.

Competence. The state or quality of being capable or competent; skill; ability.

Fitness. A state of physical well-being.

Instructor. One who furnishes others with knowledge; educator; a teacher.

Physical Education. Instruction in the exercise and care of the body.

Profession. A body of individuals who carry on their work in accordance with rules designated to enforce certain standards, both for the better protection of its members and for better services to the public. Its essence is that it assures certain responsibilities for the competence of its members of the quality of its wares (Tawney, cited by Maetozo, 1971).

Qualification. Any quality, knowledge, ability, experience, or acquirement that fits a person for a position.

Organization of the Study

Chapter I introduces the study, including the statement of the problem, purpose of the study, questions to be answered, limitations of the study and relevant definitions. Chapter II presents the review of related literature concerning the studies of certification conducted in the field of aerobic instruction. The rationale of the study is based on the literature cited. Chapter III explains the methods used in this study including the selection of the survey sample, the development and field-testing of the questionnaire, and the collection and analysis of data. In Chapter IV the data from the survey are presented. Chapter V summarizes the study, draws conclusions, and lists recommendations for further studies and future research as well as implications for practice.

CHAPTER II

REVIEW OF LITERATURE

This chapter presents a review of selected materials related to areas of fitness/exercise instruction. The divisions are as follows: (1) aerobic exercise, (2) injuries of clients and instructors in aerobic exercise classes, (3) professional standards, (4) liability issues in physical education, (5) certification of athletic coaches, (6) professional associations/organizations promoting fitness standards, (7) benefits of certification to participating individuals, professional associations and accredited educational institutions, (8) certification for exercise and fitness instruction by professional associations and accredited educational institutions.

Aerobic Exercise

The objective of aerobic exercise is to improve those organs and systems involved in the body's processing of oxygen: the heart, the lungs, and the blood vessels (Cooper, 1977). Aerobic fitness is the basic foundation for any sport (Wilmore, cited in Liptak, 1983). Aerobic fitness results in improvement in the thinking process; originality of thought; duration of concentration; mental response time; ability to change topics and subjects quickly; depth of thinking; duality of thought or the ability to entertain a number of ideas at once; and mental tenacity (Killinger, cited in Cooper, 1977).

Cooper (1977), founder of the Aerobics Center in Dallas, Texas believes that aerobic fitness will make people more energetic both on a chemical level and on a psychological level. He further observed:

In working with a group of men over 50 years of age who had a history of migraine headaches, researchers at the University of Southern California stated in the Executive Fitness Newsletter, the headaches improved without medication after a few weeks of physical exercise. Exercise has also been shown effective in reducing allergy and asthma, long associated with emotional stress. Speculation is that improved circulation helps relieve the congestion that blocks the respiratory tract (p. 180).

Aerobic activities tone up the muscles throughout the body, increase lung capacity, and enhance coordination, agility, rhythm, body balance and stamina. Aerobics also improves self-confidence and well-being, and are ideal for burning off unwanted calories (Liptak, 1983).

Rosenbaum (1984a), a physician and leading authority on aerobic dance, observed that aerobic exercise can dissipate physical problems such as gout, hypothyroidism, high blood pressure, irregular heartbeat, arthritis and a high cholesterol level. Upon retirement from the medical profession, Rosenbaum was suffering from these health problems. After two months of an aerobic program these chronic illnesses were no longer a part of his life and he discontinued taking all medication. Rosenbaum (1984b) experientially found that aerobic exercise improves muscle tone, strengthens tendons, prevents bone brittleness, and increases capacity of the arteries. He believes in an "allness vs. illness" approach to life, observing that a proper physical and mental unity of the body would put most doctors out of practice. (Rosenbaum, 1984c). He suggests that: "Under the guidance of a competent, careful instructor, aerobic dance is a remarkably effective way to promote health and

maintain fitness" (p. 113).

Injuries of Clients and Instructors in Aerobic Exercise Classes

MacIntyre, cited in Rosenbaum (1984), conducted a study with the purpose of investigating the type of injuries occurring in aerobic exercise classes. Of the 319 patients who had been referred to a sports medicine clinic, the average age of the patients being 29.5 years (range 13-63), all identified aerobic exercise classes as a major factor causing their injuries. The most commonly injured area reported was the lower leg with 114 injuries (35 percent of the total injuries). Bone fractures and strain on the shin bone accounted for 76 percent of these injuries. One hundred and ten knee injuries were reported (34.5 percent of the total injuries) with 80 percent of these injuries being "trick knee". This means that there is deterioration of tissue of one or more ligaments or cartilages in the knee or weaknesses in the supporting musculature of the knee. Other knee injuries included were conditions of abnormal joint mobility, sprains and tendon inflammation meaning that the tendon that attaches the knee's extensor thigh muscles to the kneecap is inflamed causing extreme pain. The foot and ankle injuries reported consisted of pain in the forefoot in the area of the instep and toes, tendon inflammation in the heel and inflammation, secondary to strain, involving the sole of the foot accounting for 46 injuries (14.4 percent of the total injuries). Hip, thigh, pelvis, back and upper body injuries accounted for 15 percent of the total injuries. Rosenbaum completed a study of the top 40 aerobic dance programs in the nation and found an average of 55 percent injury rate among aerobic exercise

instructors. Many of these injuries resulting in permanent physical damage. Of 600 aerobic instructors surveyed, the frequency of injuries among them was 20 percent in the ankles, 20 percent in the knees, 20 percent in the foot area and 40 percent for the back. Rosenbaum concluded that approximately 80 percent of the top 40 aerobic programs in the nation are dangerous. According to Rosenbaum, the average instructor is in her mid-twenties with no specialized training equipping her to teach aerobics other than having previously participated in aerobic exercise classes (Grenyo-DeRosa, 1982). Factors responsible for the injuries listed above included incorrect instruction, dangerous exercises, poor supervision, incorrect progression of exercises, biomechanical disorders, improper shoes and incorrect dance floors (MacIntyre, cited in Rosenbaum, 1984a).

Rosenbaum (1983a) conducted a survey in which 500 physicians said they recommended aerobics when patients inquired about an exercise program. The doctors also confessed they knew very little about the intensity of the aerobic dance program and had thought that aerobic dancing was merely exercises set to music.

Hays (1979) emphasized the importance of a kinesiologically sound program for physical exercise.

It would seem that the development of postural concepts and body mechanics should be a major thrust of the physical education and dance programs at all levels, simply because of the potential for decreasing injuries. Instructors must begin to teach an efficient kinesiologically sound technique in dance movement (p.33).

By applying kinesiological principles to the musculoskeletal system, teachers and coaches can instruct more beneficial and safer exercise movements for students.

Professional Standards

Professional standards are an essential part of a profession, according to Tawney (cited by Maetozo, 1971):

A profession is a body of men (sic) who carry on their work in accordance with rules designated to enforce certain standards, both for the better protection of its members and for better services to the public. Its essence is that it assures certain responsibilities for the competence of its members of the quality of its wares (p. 25).

Ryan (cited in Maetozo, 1971) concluded in a recent editorial in the Journal of the American Medical Association that:

Responsibility for competency is a serious obligation, and it involves a number of activities which must be carried on regularly by leaders of a profession. Some of these are obvious and intrinsic, such as the establishment and maintenance of educational standards which govern entrance to the profession, and the enforcement of disciplinary actions against those guilty of unethical practices which would bring the profession into disrepute. Other activities may be less clearly related, but are nonetheless important (p. 24).

In order to maintain a high level of professional standards, many professional associations require some type of certification procedure. According to the American Nurses Association (Cited in Coscarelli, 1984) for example, certification is an opportunity to:

Show that your knowledge and skills surpass the minimum required for practice. Certification validates, based upon predetermined standards, an individual's qualifications, knowledge, and practice. (This) certification process entails meeting education and/or practice requirements set by your peers. The credentials you earn through this voluntary program verify your commitment to the very highest professional standards. They call for the respect (of your peers) and the public. The certification process reinforces the use of theory in practice. It officially recognizes the achievements you've made in your area of practice. Certification acts as an incentive to expand your knowledge and skills . . . a benefit to you, to the profession, and to the public you serve (p. 22).

Liability Issues in Physical Education

Sports and fitness instructors have a growing concern for issues of liability. Recreation agencies and health clubs must maintain large amounts of insurance to cover possible costs of injuries to their clients. Although many sports facilities have people provide medical information and/or sign a waiver of liability before they can participate in some classes or sports activities.

"The business of the law of torts is to fix the dividing lines between those cases in which a person is liable for harm which he has done, and those in which he is not (liable)" (Holmes, cited in Maetozo, 1971). A large part of the law of torts is concerned with determining when a person is liable for negligently caused harm, that is harm caused unintentionally and by conduct which fails to conform to the standard that the law imposed on everyone for the purpose of safeguarding others. Liebee (cited in Maetozo, 1971) concluded:

All persons are held responsible for knowledge they actually possess, and persons who undertake duties requiring special skills may be held to a standard which includes knowledge that they do not actually possess, but which they have undertaken. In the final analysis, the question of what should have been foreseen and what knowledge should have been acquired is answered by the Courts. Thus, although everyone is expected to conform to the standard of the reasonably prudent man, persons with special skills or knowledge are held to a higher standard of care (p. 19).

A recent study proposing state licensing of fitness leaders in Colorado health clubs identified the following legal trends related to health clubs and their employees:

1. To recognize health clubs as public facilities
2. To recognize the duty owed to a patron as being one of ordinary and reasonable care, including protection from negligence and reasonably discoverable hazards created by a third party

3. To hold an employer liable for wrongful acts of his employees while acting in his employer's business and within the scope of his employment

4. To view unfavorably, liability waivers for patrons of health clubs

5. To expect health club employees to be reasonably qualified and accept responsibility for their actions

A review of the statutes of each state revealed that no state has a licensing procedure for fitness leaders at this time (Legel, 1981, p. 40).

Certification of Athletic Coaches

A number of articles on athletic coaching were concerned with the same issues as this study. Because of these similarities and the scarcity of literature directly related to aerobic exercise instruction, the researcher included these in the review of literature.

In research conducted by Maetozo (1971), the majority of professional associations involved in current research pertaining to training and education in athletic coaching believed that specific competencies other than those represented by traditional teacher certification should be established for coaches.

Fritz (cited in Jeppson, 1978) found that nine states had certification requirements for coaches to be certified teachers. As of 1977, 12 states had initiated specialized professional preparation for coaches, and another six were in the process of implementing such requirements (Maetozo cited in Jeppson, 1978). Jeppson (1978), reporting on a study cited by the National Council of Secondary School

Athletic Directors, observed that supervisors of physical education in 15 states, when asked if their state requirements allowed schools to engage non-school personnel as coaches, responded that their school could employ persons who were not certified teachers as coaches.

As of 1978, seven states did not require coaches to also be certified teachers. Nobel and Corbin (Cited in Jeppson, 1978) stated that their study reinforced the general belief of athletic directors that in lieu of requiring improved professional training of coaches, many states are liberalizing requirements and causing it to be easier to employ coaches.

The Illinois Association for Professional Preparation in Health, Physical Education and Recreation (IAPPPER) and the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), as well as other organizations in various states, resolved that a criterion of academic conditioning in athletic coaching is needed (Bucfkellew, 1983). During a session at the 1981 Illinois Association for Health, Physical Education, and Recreation (IAHPER) Convention, over 70 participants heard a report regarding a recommendation for certification in coaching, and great interest was expressed by the group (Buckfellow, 1983). A questionnaire which was distributed to IAHPER members displayed unanimous agreement concerning this issue:

There is a need for coaches of school athletic teams to be certified. The criteria are currently being written into a bill to be presented to the Illinois Legislature. The committee proposed that an explanatory document be written to define the standards by addressing issues dealing with credits, program, institutional approvals, types of courses and experiences that meet the requirements, and the elective

areas (Buckfellow, 1983).

There is evidence to suggest that there would be little cost involved to incorporate a certification program for coaches in accredited educational institutions (Buckfellow, 1983). The IAHPER-IAPHER Joint Committee explained that the program would be a self-supporting organization. However, during the first two or three years, it is anticipated that outside funding would be needed until the program is sufficiently established to provide adequate finances from the certification fee structure.

Since the mid 1930's, research studies and related literature reveal that structured professional planning for those who desire to coach, but who do not wish to teach physical education, has been of continual interest to educators. Whether or not athletic coaches should be required to complete a major or minor in physical education is not the only issue (Maetozo, 1971). The primary concern is whether or not athletic coaches possess the needed qualifications, training and experience to fulfill the responsibilities of their position. Maetozo (1971) stated that it is essential for all coaches to complete at least the minimal requirements in order to prepare them to instruct athletics. He stressed that the legal implications of doing otherwise might have far reaching consequences for home, school, and community.

The AAHPERD Division of Men's Athletics formulated a Task Force on Certification of High School Coaches, with the goal of endeavoring to protect the health and safety of the student (Maetozo, 1971). They recommended that people assigned to coaching positions should meet requirements in the following areas: medical aspects, principles, problems, scientific foundations, theory and techniques concerned with

coaching. Some suggested a minimum of 15 semester hours of preparation; other suggested that a competency-based certification be established by teacher training institutions.

The minimal academic standards which have qualified athletic coaches in Illinois schools since 1981 are as follows:

Any person who is assigned to coach an interscholastic athletic team in Illinois schools must be regularly certified to teach in the schools in Illinois. Each person must also meet a minimal academic standard by completing at least 12 semester hours of credit in courses relating to the coaching of sport. The courses are to be completed at institutions having Illinois State Board of Education approved teacher education programs. A minimum of one course must be completed in each of the following areas:

1. Medical-legal aspects of coaching;
2. Kinesiological and physiological foundations of physical activity and sport;
3. Psycho-social foundations of physical activity and sport (Buckfellow, 1983).

Holden (cited in Maetozo, 1971) conducted a study on the athlete's need for training and protection and surmised that:

Care must be exercised by physical educators to insure that recommendations for coursework for certification to be held to an absolute minimum and be related directly and exclusively to the needs of the student (p. 18).

Holden observed that when the problem concerning athletic training is clearly understood and future research confirms the need for improved training for coaches, school administrators must accept the fact and make the need known to teacher training institutions and legislators as well as the general public.

Professional Associations/Organizations

Promoting Fitness Standards

There are several organizations or professional associations that have been established for the cause of promoting a higher level of physical fitness and sports participation by the American people. One such organization is the United States Fitness Academy, whose overall purpose is to develop programs and provide services that will promote a higher level of physical fitness and sports participation by the American people as well as assisting and enhancing the work of other competent and reliable organizations. The objectives of the Academy are to support and provide opportunities for educational activities, research/information, and program services in the area of fitness and sports. These activities, while interlocking, may be broken down into several categories: Instruction Certification, Education, Professional Services, Fitness Information/Public Interpretation, Education on Fitness, Research, Consumer Affairs, Physical Performance, Testing and Training Center (National Fitness Foundation, United States Fitness Academy, 1984).

The National Fitness Coalition, established in 1980, is another organization whose purpose is to unite the efforts of the President's Council on Physical Fitness and Sports, the National Association of Governors' Councils on Physical Fitness, and the National Recreation and Park Association (NRPA). The Council provides research, a basic philosophy, and national leadership through its White House sponsorship, while the National Recreation and Park Association gathers the support of public recreation departments numbering approximately 4,300, military

bases numbering approximately 800, and private human services agencies numbering in the thousands (Curtis, 1984).

The policy of the National Recreation and Park Association is to:

1. Encourage public park and recreation and military recreation authorities to plan and actively promote the health and fitness aspects of recreation facilities, programs and services
2. Encourage public health authorities to recognize the health and fitness potentials of recreation and park facilities and services and to include such systems in public health and fitness strategies
3. Actively seek inclusion of appropriate references to recreation and recreation values in national public policy, laws and regulations dealing with public and personal health and fitness, health care, and special populations
4. Seek opportunities for cooperative information, education, training and research activities with the U.S. Department of Health and Human Services, specifically the Office of Disease Prevention and Health Promotion, and the President's Council on Physical Fitness and Sports and to publicly support achievement of the Surgeon General's 1990's health objectives
5. Encourage NRPA state affiliates and other recreation-related organizations to initiate or continue programs and functions which have health-specific objectives and to encourage scientific research on specific recreation-health issues
6. Encourage the national and other media to expose recreation-health-fitness relations by periodically providing background information, statistics and examples of health-related activities in public recreation and park settings
7. Continue cooperation and/or co-sponsorship with the private sector of health and fitness special events
8. Continue to support the organization, goals and objectives of the National Fitness Coalition (Blumenthal and Long, 1984, p. 40)

The Colorado Parks and Recreation Association (CPRA) an NRPA affiliate whose purpose is to promote parks and recreation for all publics of the State of Colorado, by:

- Providing a professional organization for all persons, agencies and entities involved in providing park and recreation services
- Furthering the professional development of all entities providing parks and recreations services
- Recognizing and advocating parks and recreation efforts within the state
- Affiliating with the National Recreation and Parks Association (Mission Statement adopted 1984 Colorado Parks and Recreation Association)

Another NRPA affiliate, the National Council for Therapeutic Recreation (NCTR), is an independently administered body of the National Recreation and Park Association. It is a self-financing, not-for-profit, non-governmental body whose purpose is to: (1) establish national evaluation standards for the certification and re-certification of individuals who possess the competencies of the therapeutic recreation profession; (2) grant recognition to individuals who voluntarily apply and meet the established standards; and (3) monitor adherence to the standards by certified therapeutic recreation personnel (National Council for Therapeutic Recreation Certification Application Form, 1985, p. 2).

The Colorado Association of Professional Fitness Instructors (CAPFI) is yet another organization concerned with qualifications of fitness instructors. Established originally as a Task Force of the Colorado Governor's Councils on Health Promotion and Physical Fitness, CAPFI serves as a networking group for people in the field. The overall purpose of CAPFI is to establish standards and ethics and education for training of aerobic exercise instructors. They believe that guidelines or standards are needed to certify aerobic exercise instructors on a state level (CAPFI Bylaws, 1985). Similar to the legal credentials for a

physical therapist, athletic training and credentials are just as important for aerobic exercise instructors (Harberson, 1985). They recommended that a certification program be established which provides a background in anatomy, physiology, bio-mechanics, and psychology (Harberson, 1985).

Benefits of Certification to Participating
Individuals, Professional Associations and
Accredited Educational Institutions

There are many benefits related to certification according to Webster and Herold (1983). These benefits to the individual are as follows:

1. increased self-esteem
2. increased respect and recognition in the industry or profession
3. increased opportunity for upward mobility and better ability to compete in the job market
4. increased remuneration and job benefits
5. increased professional credibility (p. 6)

Galey (1980), added the following benefit to individuals, noting that "Certification is not a diploma but rather a measure of performance quality" (pp. 25-26).

Certification does not only benefit the individual desiring to be certified, but it also benefits the organization/association (Webster, 1983). Potential benefits of certification to a professional association include:

1. reinforcement of membership loyalty to the association
2. favorability reflected on the association's sincerity to promote professionalism

3. a source of income
4. encourages the orderly and efficient collection and consolidation of the body of knowledge
5. increases member interest in continuing education, and
6. provides a vehicle to reward members who have developed a high level of professionalism (p. 6)

Bratton and Hildebrand (1980) perceive certification as being prestigious.

Because professional certification traditionally is a positive symbol, prestige accrues to the certification holder, the profession and the overseeing association. The certificate can also give the holder a sense of economic security by providing a criterion for employees, thereby restricting or even preventing employment of non-certified persons (p. 24).

Bratton and Hildebrand further discuss the benefits of certification to the organization.

Regardless of the noble calls to professional integrity, certification could greatly aid the organization that successfully manages to install itself as the final arbiter of professional competence (p. 25).

Coscarelli (1984) concluded that certification will provide job opportunities for certified individuals, and that "not only will the organization prosper, but individuals closely associated with certification will be sought as consultants" (p. 21).

Exley (1980) published an article emphasizing the importance of certification in the area of recreation in which he stated:

I believe that we in the university have to be leaders in the forefront on mandatory and vigorous certification. The summary of that is we have everything to lose and nothing to gain by the status quo (p. 7).

Certification for Exercise and Fitness Instruction
by Professional Associations and Accredited
Educational Institutions

In the studies reviewed, one report specifically dealt with aerobic dance instructor certification by the American Aerobics Association (AAA) in Durango, Colorado. Certification by the AAA requires:

1. ten hours of training in an approved (safe), supervised aerobic dance program;
2. one hundred hours of teaching experience;
3. proof of current CPR certification;
4. the equivalent of one college course in human anatomy and physiology (Rosenbaum, 1983e, p. 20).

After receiving certification, instructors also receive newsletters geared at keeping them abreast of medical and fitness data and research findings. AAA certification is strictly for choreographed dance exercise and should not be confused with Sports Medicine Certification (Rosenbaum, 1983b).

The American College of Sports Medicine (ACSM) offers certification for Exercise Specialists in Rehabilitative Exercise Programs. They must meet requirements in the following areas:

1. exercise prescription
2. exercise leadership
3. emergency procedures
4. functional anatomy
5. exercise physiology
6. pathophysiology
7. electrocardiography

8. human behavior/psychology
9. gerontology
10. internship

ACSM evaluation of the exercise leader involves a written and oral examination in the content areas identified as well as a practical demonstration of leading an exercise session. The following characteristics must be demonstrated for competency:

- A. Adequate organization of a session into warm-up endurance (aerobic) activity and a cool-down period
- B. Maintaining individual adherence to the exercise prescription
- C. Ability to present a variety of activities
- D. Ability to make quick modifications (individually or for the group) based on observations during an exercise session
- E. Ability to create a relaxed and enjoyable "atmosphere" among participants
- F. Ability to demonstrate competent, emergency procedures (American College of Sports Medicine, 1975, p. 104).

The National Council for Therapeutic Recreation offers certification for Therapeutic Recreation Specialist and Therapeutic Recreation Assistant to those meeting one or more of the following requirements:

Therapeutic Recreation Specialist -- Professional Level

- A. Baccalaureate degree or higher from an accredited college with a major in therapeutic recreation or a major in recreation and an option in therapeutic recreation.
- B. Baccalaureate degree or higher from an accredited college or university with a major in recreation and two years of full-time paid experience in a clinical, residential, or community-based therapeutic recreation program.

Therapeutic Recreation Specialist --Professional Provisional

- C. Baccalaureate degree or higher from an accredited college or university with a major in recreation.

Therapeutic Recreation Specialist -- Professional Equivalency Process

- D. Baccalaureate degree or higher from an accredited college or university in one of the related, or allied health fields plus five years of full-time paid experience in a clinical, residential, or community-based therapeutic recreation program plus 18 semester or 27 quarter hours of upper division or graduate credits in recreation/therapeutic recreation competencies.

Therapeutic Recreation Assistant -- Para-Professional

- A. Associate of Arts degree from an accredited educational institution with a major in therapeutic recreation or a major in recreation and an option in therapeutic recreation.
- B. Associate of Arts degree from an accredited educational institution with a major in recreation plus one year of full-time paid experience in a clinical, residential, or community-based therapeutic recreation program.
- C. Associate of Arts degree or higher from an accredited educational institution with a major in one of the skill areas (arts, drama, music, physical education) and one year of full-time paid experience in a clinical, residential, or community-based therapeutic recreation program.
- D. Completion of the NTRS 750-Hour Training Program for therapeutic recreation personnel, with verification by an official certificate of completion, or
- E. Four years of full-time paid experience in a clinical, residential, or community-based therapeutic recreation program (National Council for Therapeutic Recreation Certification Application Form, 1985, p.2).

The Research and Training Center in Cardiac Rehabilitation at the University of Colorado Health Sciences Center awards a certificate to participants in its Cardiac Wellness Training Project. The curriculum includes one clock hour in the area of Cardiac Wellness, five hours in

the study of Heart Disease, two hours in Rehabilitation, 11 hours in Exercise, and one hour in Emergencies, a total of 20 clock hours, plus a 4-hour course in cardiopulmonary resuscitation (Zinn and Long, 1983). Zinn and Long (1985) pose several questions which must be answered relevant to the provision of exercise/fitness programs. These questions include: (1) Are recreation personnel to be trained in exercise leadership? (2) Do physical education personnel receive training in recreation management? (3) What is the role of the medical community in the training process? (4) Who are the experts and what functions should they perform? In order to enhance training programs and implementation, they believe that emphasis must be placed on utilizing existing scientific knowledge. Within the recreational environment, application of human performance techniques must become the rule rather than the exception. Furthermore, a database which supports the efforts of recreation personnel in fitness and health must be built.

The previously cited study by Legel (1981) offered the following conclusions regarding the need for certification of fitness leaders in health clubs in Colorado:

1. The educational background of Colorado health club employees with respect to health and fitness related certifications is low.
2. The educational background of Colorado health club employees with respect to courses taken in one of the nine related areas is low.
3. Only 59 percent of health clubs have a full time employee trained in cardiopulmonary resuscitation.
4. Only 51 percent of health clubs have a full time employee trained in Advanced First Aid.
5. Fitness leaders receive the major portion of their related education at the university level, with high schools, junior colleges, and health clubs contributing in a minor way.

6. The rapid expansion of knowledge in the exercise field is not being adequately extended to the patrons of health clubs, because about half of the health clubs do not have an employee who has taken related coursework within the last four years.
7. There are no generally accepted standards as to what constitutes a minimum level of knowledge for a fitness leader in the Colorado health club industry.
8. A licensing procedure would be in the self interest of the health club industry. Health club owners could show that they took reasonable care in providing their patrons with knowledgeable personnel, by employing licensed fitness leaders, and thereby reduce their potential liability. Considering the trend of the courts to view liability waivers unfavorably, this becomes important.
9. The conclusions support the need for a state licensing procedure to set a minimum standard of knowledge for fitness leaders, to insure that current and reliable information is being given to the public (Legel, 1981, p. iii-iv.)

From these conclusions the following recommendations were made:

1. The minimum standards should be based on the current state of the art as determined by leading authorities in the exercise field.
2. A practical way to achieve these standards would be to initiate a state licensing program that would test and license fitness leaders.
3. Cardiopulmonary resuscitation should be required.
4. Advanced First Aid should be required.
5. Applicants for a license should be able to demonstrate a basic knowledge of the following topics.
 - a. Exercise Physiology
 - b. Exercise Program Design
 - c. Human Anatomy and Kinesiology
 - d. Diet and Nutrition
 - e. Psychology of Motor Behavior, Sport and Exercise
 - f. Health Evaluation Methods
 - g. Activity Related Injury
 - h. Muscular Training
6. Licenses should be renewed every four years (Legel, 1981, p. iv and v).

Summary

This review of literature provides information which shows: (1) the value of aerobic exercise is to promote health and maintain fitness, (2) certification of athletic and fitness instructors should offer some degree of legal protection while providing safety for the participant, (3) professional standards are essential because they serve as an incentive to expand a person's knowledge and skills providing benefits to all concerned, (4) the mission and objectives of professional fitness associations are to promote and encourage public awareness of health and fitness, (5) the benefits of certification to individuals, professional fitness associations, and accredited educational institutions are numerous, and (6) some types of certification related to fitness instruction exist, but they are quite limited, especially in the area of aerobic certification.

CHAPTER III

METHODOLOGY

This study was a descriptive study designed to report perceptions of selected individuals regarding the need for certification for aerobic exercise instructors. Data were collected by means of a written questionnaire and were analyzed using descriptive research techniques.

This chapter is divided into the following parts: (1) questionnaire development, (2) questionnaire field-test, (3) survey sample, (4) data collection, and (5) data analysis.

Questionnaire Development

A questionnaire was developed which contained specific questions concerning perceptions of the qualifications needed by aerobic exercise instructors (see Appendix A). The majority of questions asked the respondent to rate the relative importance of specific qualifications, using a 1-5 Likert type scale. Other questions requested data describing the respondent (for example, type of employment, academic background, experience with aerobic exercise) and asked respondents to indicate (Yes, No, or Maybe) whether they believed that specific academic or other credentials were necessary. Finally, respondents were invited to offer additional comments to an open-ended question.

To a great extent, the Skill Assessment Form (see Appendix B) designed by the Cardiac Wellness Training Project (Zinn and Long, 1983)

was the basis for the new questionnaire. Many of the areas of competence identified as being important for instructors in the area of cardiovascular fitness, or cardiac wellness, were also appropriate for this questionnaire regarding aerobic exercise instructors. One of the authors of the Cardiac Wellness Training Project Form (Zinn) worked with the researcher to expand and modify the questionnaire for this study. Further suggestions were offered by members of the researcher's thesis advisory committee.

Questionnaire Field-Test

A preliminary draft of the questionnaire was field-tested by six (6) selected individuals. Four of these individuals represented public recreation agencies in Colorado; the fifth was a cardiologist (M.D.); and the sixth was a physical therapist who teaches aerobic conditioning exercise to heart patients. These individuals were asked to (1) respond to the questionnaire, (2) note how much time it took them to complete, (3) identify any questions that were unclear, misleading, or duplicative, and (4) offer suggestions for improvement. In order for the researcher to follow-up on the initial mailing of the questionnaire, code letters and numbers were devised and written in the lower left corner of the first page of each questionnaire. The code letters (C, D, F, N, P) represented the five sample groups who received the questionnaire, as described in the next section of this Chapter. The final form of the questionnaire was printed in four sections, using an 8 1/2 x 14 inch page folded in half, with reduced printing.

Survey Sample

The survey sample included all members of the National Fitness Coalition (n = 62); all members of the Colorado Association of Physical Fitness Instructors (CAPFI, n = 35); Colorado Park and Recreation Association (CPRA) members who are directors of public recreation agencies (n = 50); personnel in all private health clubs in Denver (Colorado) Metropolitan area, as identified by the October 1984 edition of the Mountain Bell Yellow Pages (n = 73); and cardiologists identified by the Cardiac Rehabilitation Program at the University of Colorado Health Sciences Center (n = 102). The total sample survey included 322 individuals.

The overall sample was selected to provide responses from a variety of individuals and agencies concerned with physical fitness and specifically, aerobic exercise. The National Fitness Coalition, described earlier in this study, is comprised of individuals throughout the United States who are concerned with the area of physical fitness. CAPFI members are fitness instructors, many of whom teach only aerobic exercise. CPRA represents the public recreation agencies in Colorado, which offer a variety of exercise classes. Private health clubs also specialize in exercise for physical fitness. Cardiologists were chosen because of their medical expertise specifically related to aerobic exercise (which, as described earlier, is the type of exercise used to improve cardiovascular fitness).

Data Collection

The final form of the questionnaire was mailed to every individual

in the survey sample (n = 322), along with a cover letter (see Appendix C) explaining the purpose of the study and providing instructions for completing and returning the questionnaire. Respondents were asked to return the questionnaire within two (2) weeks. A stamped, self-addressed envelope was sent with the questionnaire.

After the deadline, a follow-up mailing was sent to those who did not respond. Those individuals were identified by the code letters and numbers written on the surveys. The second request also had a deadline of two (2) weeks.

Data Analysis

Demographic data were reported for those completing the questionnaire (n = 111) in order to obtain a profile of respondents. Percentage of respondents and frequency distribution were calculated and reported, describing the academic background, title or function in present occupation, type of employer, and respondent's experience with aerobic exercise instruction.

The remainder of the responses were sorted and analyzed by groups: C, D, F, N, and P. The primary statistical calculations were mean scores, percentages and frequency of responses. Mean scores were used to provide a rank order of minimum qualifications for aerobic exercise instructors. On a 1-5 Likert type scale, a mean score of 3.5 or higher was used to identify competencies considered as minimum for aerobic exercise instructors.

Questions about referrals required a response of Yes, No, Maybe. Those responses were reported by frequency and percent of responses by group. Individual comments were reviewed, interpreted, and reported as

appropriate. Finally, all the data were interpreted, and conclusions and implications were discussed.

CHAPTER IV

PRESENTATION OF FINDINGS

Chapter IV reports and discusses the findings of the survey and is divided into the following parts: (1) questionnaire field-test, (2) response rate, (3) profile of respondents, (4) safety and liability issues, (5) qualifications/competencies needed by aerobic exercise instructors, (6) credentials perceived to be appropriate for aerobic exercise instructors, (7) general comments, and (8) data discussion.

Questionnaire Field-Test

A preliminary draft of the questionnaire was field-tested by six (6) selected individuals. Four of these individuals represented public recreation agencies in Colorado, the fifth was a cardiologist (M.D.), and the sixth was a physical therapist who teaches aerobic conditioning exercise to heart patients.

All six completed the field-test. The completion time ranged from 10 to 25 minutes, with an average of 15 minutes. Comments and suggestions were offered to clarify certain questions. Based on results of the field-test, the researcher then eliminated or modified certain questions. Also, the request for respondent's name and address was eliminated, in order to offer anonymity.

In order for the researcher to follow-up on the initial mailing of the questionnaire, code letters and numbers were devised and written in

the lower left corner of the first page of each questionnaire. The code letters (C, D, F, N, P) represented the five sample groups who received the questionnaire.

C = Private Health Clubs

D = Cardiologists

F = Colorado Association of Professional Fitness Instructors

N = National Fitness Coalition

P = Colorado Park and Recreation Association

These code letters will be used throughout this Chapter to represent each group.

Rate of Response

The survey sample included all members of the National Fitness Coalition (n = 62), all members of the Colorado Association of Professional Fitness Instructors (CAPFI, n = 35), Colorado Park and Recreation Association (CPRA) members who are directors of public recreation agencies (n = 50), personnel in all private health clubs in the Denver (Colorado) Metropolitan area, as identified by the October 1984 edition of the Mountain Bell Yellow Pages (n = 73), and cardiologists identified by the Cardiac Rehabilitation Program at the University of Colorado Health Sciences Center (n = 102). The total sample survey included 322 individuals.

By the end of the two (2) week deadline, a total of 96 questionnaires (29.8 percent of the total sample) were returned. After the deadline, a follow-up mailing was sent to those who did not respond. The second request had a deadline of two (2) weeks. At the end of that deadline, with a return of 111 out of 322 (34.5 percent) data collection

ended and survey results were analyzed.

Overall, more than one-third (34.5 percent) of the survey sample responded to the questionnaire (see Table I). The greatest response (60 percent) was from people working in public recreation agencies. About half (48.6 percent) of the Colorado Association of Professional Fitness Instructors and half of the National Fitness Coalition (48.4 percent) also responded. Only about one-fifth of the private health club personnel (21.9 percent) and cardiologists (17.6 percent) responded.

Profile of Respondents

Almost three-fourths (70.8 percent) of the respondents worked within the area of recreation and fitness, in either public recreation facilities (49.6 percent) or private health clubs (21.2 percent). Almost one-fifth (18.6 percent) of the respondents worked in a hospital or medical practice. Approximately 10 percent reported that they were employed by other types of agencies or institutions including: military/federal agency (3.5 percent), college/university (2.7 percent), community/public school (0.9 percent), homeowner's association (0.9 percent), industrial wellness center (0.9 percent), and self-employed (0.9 percent).

The questionnaire also requested the respondents to list their job title, but the job functions were so varied they could not be easily grouped by titles. A sampling of the job titles included: recreation supervisor, fitness instructor, athletic director, supervisor, cardiologist, park and recreation director, recreation director, program coordinator, and health promotion supervisor.

TABLE I
RESPONSE RATES BY GROUP

	C	D	F	N	P	Total
Questionnaires mailed	73	102	35	62	50	322
Usable questionnaires returned	16	18	17	30	30	111
Questionnaires returned; not useable*		7				7
No Response (not returned)	57	77	18	32	20	204
Percentage of Usable Responses	21.9	17.6	48.6	48.4	60.0	34.5

*Four returned with incorrect address; three returned questionnaire, but chose not to respond

Over one-half (55.9%) of the respondents had a Bachelor's degree or less (see Table II). Slightly under one-half (43.6 percent) held a Master's degree or higher including M.D. (Medical Doctor) degrees. It is difficult to classify the M.D. degree in relation to a Master's or Ph.D., but it is clearly at the level of a graduate degree.

All responding physicians had graduate level degrees. The respondents representing health clubs, public recreation agencies and professional fitness associations had a greater tendency to have Bachelor's degrees and lower. Representatives of the National Fitness Coalition correlated most closely with the overall profile, with 53.3 percent reporting undergraduate degrees and 43.3 percent reporting graduate degrees.

Respondents were asked to identify the academic background and/or the academic department which granted their highest degree. Two-thirds (63.2 percent) of the respondents reported academic degrees in Recreation, Physical Education, and/or Exercise Science. One-fifth (19.5 percent) of the respondents had academic degrees in medicine, health care, health education, and/or nursing. Other academic backgrounds reported were in Arts and Sciences, Psychology, Sociology, Education, Biology, Political Science, Business Communications, and Foreign Languages. A small percentage of respondents (4.5 percent) reported that they had only a high school diploma; thus they did not indicate an academic degree or background.

Respondents' experience in teaching some form of exercise is shown in Table III. About two-thirds (64.9 percent of the total respondents had taught some form of exercise and about one-half (51.4 percent had taught aerobic exercise. The respondent group reporting the highest

TABLE II
HIGHEST ACADEMIC DEGREE BY RESPONDENT GROUP

	C		D		F		N		P		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Medical Doctor (M.D.)			16	88.9							16	14.4
Doctorate (Ph.D., Ed.D.)							4	13.3	1	3.3	5	4.5
Master's (M.A., M.S., M.Ed., MBA)	3	18.8	2	11.1	5	29.4	9	30.0	8	26.7	27	24.3
Bachelor's (B.A., B.S.)	11	68.8			12	70.6	15	50.0	17	56.7	55	49.5
Associate Degree							1	3.3			1	0.9
High School Diploma	1	6.3							4	13.3	5	4.5
NA							1	3.3			1	0.9
NR	1	6.3									1	0.9

TABLE III
EXPERIENCE TEACHING EXERCISE BY RESPONDENT GROUPS

	C		D		F		N		P		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
<u>Any Type of Exercise</u>												
Yes	14	87.5	4	22.2	16	94.1	17	56.7	21	70.0	72	64.9
No	2	12.5	13	72.2	1	5.9	9	30.0	9	30.0	34	30.6
NR			1	5.6			4	13.3			5	4.5
<u>Aerobic Exercise</u>												
Yes	12	75.0	2	11.1	16	94.1	10	33.3	17	56.7	57	51.4
No	4	25.0	16	88.9	1	5.9	19	63.3	13	43.3	53	47.7
NR							1	3.3			1	0.9

percentage of experienced aerobic exercise instructors was CAPFI (94.1 percent). Three-fourths of the health club representatives reported that they had taught aerobic exercise, although a higher percentage (87.5 percent) had taught some type of exercise.

Other types of exercise classes taught by the respondents not specifically including aerobic classes were: calisthenics and stretching, weight training and conditioning, swimnastics, pre-natal exercise, cardiac rehabilitation, senior adult exercise, movement education for children, aqua fitness, body shape, design, and basic stretch.

Safety and Liability Issues

Respondents were asked if they believed aerobic exercise to be safe and beneficial. An overwhelming majority (84.7 percent) replied in the affirmative that participation in an aerobic exercise class is a healthful and safe way to maintain fitness (see Table IV).

Respondents were asked to address the issue of responsibility of the instructors for the safety of their students. Every respondent group agreed that aerobic exercise instructors should feel responsibility for the safety of their students (see Table V). All mean scores fell between 4 and 5, with a rating of 4 being "very important" and 5 being "extremely important".

Another measure concerning perceptions of safety for participation in an aerobic exercise class is whether respondents would be willing to refer clients or patients to aerobic exercise classes, depending upon the qualifications of the instructor. Responses to this issue are summarized in Tables VI and VII.

TABLE IV

PERCEIVED SAFETY AND BENEFIT OF AEROBIC EXERCISE BY RESPONDENT GROUPS

	C		D		F		N		P		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Yes	15	93.8	14	77.8	12	70.6	27	90.0	26	86.7	94	84.7
Maybe	1	6.3	2	11.1	2	11.8	3	10.0	3	10.0	11	9.9
No			2	11.1					1	3.3	3	2.7
NR					3	17.6					3	2.7
	<u>16</u>		<u>18</u>		<u>17</u>		<u>30</u>		<u>30</u>		<u>111</u>	<u>100.0</u>

TABLE V
PERCEPTION OF AEROBIC EXERCISE INSTRUCTOR'S RESPONSIBILITY FOR
SAFETY OF STUDENTS BY RESPONDENT GROUPS*

C	D	F	N	P	Total
4.81	4.41	4.58	4.76	4.73	4.68

*Mean scores from 1-5 scale; 5 = extremely important

TABLE VI

WILLINGNESS BY RESPONDENT GROUPS TO MAKE REFERRALS TO AEROBIC EXERCISE CLASSES
TAUGHT BY TYPE OF CERTIFICATION/TRAINING

	C		D		F		N		P		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
<u>Question I*</u>												
Yes	10	62.5	14	77.8	13	76.5	25	83.3	19	63.3	81	73.0
Maybe	4	25.0	4	22.2	4	23.5	5	16.7	10	33.3	27	24.3
No									1	3.3	1	0.9
NR	2	12.5									2	1.8
<u>Question II*</u>												
Yes	2	12.5	1	5.6	2	11.8	3	10.0	6	20.0	14	12.7
Maybe	6	37.5	7	38.9	6	35.3	21	70.0	14	46.7	54	48.7
No	6	37.5	10	55.6	9	53.0	6	20.0	10	33.3	41	37.0
NR	2	12.5									2	1.8

*Would you refer a patient or client to an aerobic exercise class taught by a fitness instructor certified by a professional agency or state or nationally recognized association?

**Would you refer a patient or client to an aerobic exercise class taught by a noncertified instructor trained only in a specific type of exercise (e.g. Jazzercise?)

TABLE VII

RELATIONSHIP OF CPR TRAINING AND RESPONDENTS' WILLINGNESS TO MAKE
REFERRALS TO AEROBIC EXERCISE CLASSES

	C		D		F		N		P		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
<u>Question I*</u>												
Yes	6	37.5	2	11.1	3	17.6	3	10.0	11	36.7	25	22.5
Maybe	7	43.8	9	50.0	9	52.9	20	66.7	14	46.7	59	53.2
No	1	6.3	7	38.9	5	29.4	7	23.3	5	16.7	25	22.5
NR	2	12.5									2	1.8
<u>Question II*</u>												
Yes	1	6.3			1	5.9	2	6.7	3	10.0	7	6.3
Maybe	1	6.3	3	16.7	1	5.9	8	26.7	2	6.7	15	13.5
No	12	75.0	15	83.3	15	88.2	20	66.7	25	83.3	87	78.4
NR	2	12.5									2	1.8

*Would you refer a patient or client to an aerobic exercise class taught by a noncertified instructor trained in CPR?

**Would you refer a patient or client to an aerobic exercise class taught by a fitness instructor who is not trained in CPR?

As a majority, respondents expressed the most confidence in aerobic exercise classes taught by a fitness instructor certified by a professional agency, state or nationally recognized association (see Table VI, Question I). In contrast, an overwhelming majority of respondents (85.7 percent) were either unsure or indicated they would not refer a patient or client to an aerobic exercise class taught by a noncertified instructor trained only in a specific type of exercise (see Table VI, Question II).

Of the other options considered, over three-fourths (75.7 percent) of the respondents were either unsure or indicated that they would not refer a client to an aerobic exercise class taught by a noncertified teacher even though trained in CPR (see Table VII, Question I). By comparison, more than three-fourths (78.4 percent) of the respondents indicated they would not refer patients or clients to an aerobic exercise class taught by a fitness instructor who is not trained in CPR (see Table VII, Question II).

Qualifications/Competencies Needed By Aerobic Exercise Instructors

A total of 32 questions on the survey asked about the qualifications/competencies most important for an aerobic exercise instructor. Table VIII presents mean scores by group for the qualifications listed. On a 1-5 rating scale: 1 = not important; 2 = slightly important; 3 = moderately important, 4 = very important and 5 = extremely important.

The mean scores on competency questions by group ranged from 2.75 to 4.88, with the overall range of scores being 3.16 to 4.77. The

TABLE VIII
 MEAN SCORES ON COMPETENCY STATEMENTS BY RESPONDENT
 GROUP WITH OVERALL MEAN

COMPETENCY						
	C	D	F	N	P	Overall
1.	4.50	4.47	4.88	4.80	4.67	4.68
2.	4.63	4.56	4.80	4.77	4.53	4.65
3.	4.75	4.28	4.82	4.73	4.83	4.70
4.	4.40	4.28	4.65	4.43	4.40	4.43
5.	4.13	4.11	4.76	4.47	4.53	4.42
6.	4.78	4.33	4.88	4.57	4.67	4.64
7.	4.59	4.39	4.50	4.47	4.53	4.50
8.	2.81	3.72	3.59	3.40	3.17	3.33
9.	3.75	4.00	4.29	4.07	3.90	4.00
10.	3.19	3.22	3.88	3.66	3.28	3.45
11.	3.31	3.50	4.00	3.70	3.66	3.65
12.	3.19	3.72	4.13	3.53	3.63	3.63
13.	4.75	3.83	4.59	4.67	4.77	4.56
14.	4.88	4.44	4.76	4.80	4.87	4.77
15.	4.38	3.06	4.47	4.13	4.33	4.10
16.	4.63	4.06	4.44	4.33	4.47	4.38
17.	4.63	3.50	4.76	4.47	4.62	4.42
18.	4.44	3.67	4.59	4.46	4.41	4.33
19.	4.75	3.75	4.88	4.80	4.66	4.59
20.	4.50	3.61	4.59	4.13	4.17	4.18
21.	3.88	3.28	4.06	3.77	3.67	3.72
22.	4.25	3.39	4.38	3.80	3.90	3.91
23.	4.19	3.72	4.24	3.77	3.70	3.88
24.	3.25	3.33	3.75	4.41	3.48	3.71
25.	2.75	3.28	3.24	3.17	3.27	3.16
26.	3.44	3.28	3.76	3.83	3.70	3.64
27.	3.63	3.33	3.76	3.67	3.40	3.55
28.	4.33	3.67	4.18	4.23	4.03	4.09
29.	4.50	4.11	4.59	4.38	4.07	4.30
30.	3.94	3.72	3.63	3.83	3.38	3.68
31.	4.38	3.78	4.24	4.20	3.90	4.08
32.	4.50	3.94	4.50	4.59	3.83	4.25

private health clubs had the widest range of scores (2.75-4.88). In the group of cardiologists, the highest score (4.56) was lower than the highest score of any of the other groups. The groups representing recreation and fitness had mean scores closest to the overall mean score. A mean score of 3.5 and above was necessary in order for specific competencies to be included among the minimal competencies.

There were a total of 29 competencies that received an overall mean score of 3.5 or above. These competencies are listed in Table IX. Competencies below 3.5 are shown in Table X.

Respondents were given the option to add one or more qualifications/competencies and rate by importance. Additional competencies were suggested by a total of 14 respondents (12.6 percent of the total respondents). With only three exceptions, all of the added competencies were rated 5 (extremely important) by persons who suggested them. These comments were not included in the overall rank order. They included:

- Biomechanics - which specific muscles are used for which exercise
- Professional, personable; learning to extend oneself to participants
- Communication skills; public speaking; know the audience
- Understanding own abilities, knowledge, and limitations
- Know who to contact for more information, for example, exercise physiologist
- Identify risk factors
- Understand the difference between recreation fitness class and medically supervised fitness regimen

TABLE IX
RANK ORDER OF COMPETENCIES RATED 3.5 OR ABOVE

#	Competency	Rating*
14.	Maintaining safeguards for fitness activities	4.77
3.	Demonstrating and teaching appropriate warm-up and cool-down exercises	4.70
1.	Understanding the role and benefits of exercise in promoting health and fitness.	4.68
2.	Identifying appropriate aerobic exercise qualifications for individuals	4.65
6.	Administering cardiopulmonary resuscitation (CPR)	4.64
19.	Recognizing conditions causing stroke, heart attack, heat fatigue, cramps	4.59
13.	Demonstrating enthusiasm and confidence	4.56
7.	Measuring heart rate using pulse, and teaching others to do this	4.50
4.	Teaching aerobic exercise at different levels	4.43
5.	Using exercise equipment correctly and teaching others to do so	4.42
17.	Demonstrating skill in exercise leadership	4.42
16.	Recognizing exercise-related injuries	4.38
18.	Expressing personal commitment to fitness	4.33
29.	Understanding concepts of cardiovascular system	4.30
32.	Possessing ability to distinguish characteristics of aerobic, isometric, and isotonic exercise	4.25
20.	Understanding of the cardiovascular system	4.18
15.	Demonstrating a high energy level	4.10
28.	Identifying acute and chronic responses to exercise	4.09
31.	Identifying characteristics of different types of exercise	4.08
9.	Recognizing high blood pressure levels	4.00
22.	Understanding of anatomy	3.91
23.	Understanding of exercise science	3.88
21.	Understanding of nutrition	3.72
24.	Coordinating a variety of activities related to fitness	3.71
30.	Understanding the purpose and process of cardiac rehabilitation	3.68
11.	Assisting individuals in goal setting and monitoring behavior change	3.65
26.	Using effective methods to disseminate information about exercise and fitness to potential participants	3.64
12.	Assisting individuals in overcoming fear and anxiety	3.63
27.	Establishing and maintaining working relationships with health and medical professionals	3.55

*Overall mean scores on a 1-5 scale

3 = moderately important

4 = very important

TABLE X
RANK ORDER OF COMPETENCIES RATED BELOW 3.5

#	Competency	Rating*
10.	Administering appropriate health appraisal instrument(s) or risk factor assessment	3.45
8.	Measuring blood pressure	3.33
25.	Identifying community agencies that are providing exercise and fitness services	3.16

*Overall mean scores on a 1-5 scale; 3 = moderately important;
4 = very important

- Understand the difference between instructors' workout and the participant's workout
- Remain updated (current) in knowledge and facts dealing with fitness and exercise
- Sense of rhythm

Credentials Perceived to Be Appropriate for Aerobic Exercise Instructors

Respondents' perception of what percentage of aerobic exercise instructors with whom they worked met the qualifications, training and experience needed to fulfill the responsibilities of their position are shown in Table XI. In the respondents' work and/or knowledge of aerobic exercise instructors, over one-half (57.6 percent) believed that 50 percent or fewer of the aerobic exercise instructors were adequately qualified.

Data regarding the type of credential recommended by respondents as "most important" for aerobic exercise instructors are reported in Table XII. Certification credentials were preferred over any level of academic degree. Based on a 3.5 mean score cutoff, the physicians are the only group to indicate the need for anything other than certification.

The need for a certification program for aerobic exercise instructors based on overall mean scores on a 1-5 scale was clearly supported by all. The data related to this need are shown in Table XIII. None of the respondent groups had a mean score below the 3.5 cutoff value.

Respondents were given the option to add a comment concerning the credentials and referrals section of the questionnaire. The following

TABLE XI
PERCENTAGE OF AEROBIC EXERCISE INSTRUCTORS PERCEIVED
TO BE ADEQUATELY QUALIFIED

Percentage	#	%
0 - 25	31	27.9
26 - 50	33	29.7
51 - 75	23	20.7
76 - 100	16	14.4
No Response, Do not Know	<u>8</u>	<u>7.2</u>
	111	99.9

TABLE XII
 MEAN SCORES REGARDING RECOMMENDED CREDENTIALS FOR AEROBIC
 EXERCISE INSTRUCTORS BY RESPONDENT GROUPS

	C	D	F	N	P	Total
Certified by Professional Agency	3.46	<u>3.83</u>	<u>3.57</u>	<u>3.67</u>	3.10	3.49
Certified by State/National Association	<u>3.64</u>	3.22	<u>4.26</u>	<u>3.72</u>	<u>3.53</u>	<u>3.66</u>
Bachelors Degree Physical Education	2.61	2.82	3.24	2.48	2.57	2.69
Bachelors Degree Exercise Science	2.46	3.00	3.06	2.57	2.80	2.76
Bachelors Degree Recreation	1.79	<u>3.50</u>	2.24	2.23	2.12	2.36
Bachelors Degree Physiology	2.25	2.50	2.82	2.57	2.43	2.52
Masters Degree Physical Education	1.39	2.12	2.00	1.66	1.47	1.70
Masters Degree Exercise Science	1.39	2.12	2.05	2.00	1.53	1.80
Master's Degree Recreation	1.07	1.94	1.65	1.50	1.37	1.50
Master's Degree Physiology	1.25	2.06	1.88	1.73	1.43	1.67

*Mean scores on 1-5 rating; 1 = important, 5 = extremely important
 Scores underlined are equal to 3.5 and above.

TABLE XIII
MEAN SCORES REGARDING NEED FOR ESTABLISHING CERTIFICATION
PROGRAM FOR AEROBIC EXERCISE INSTRUCTORS*

C	D	F	N	P	Total
4.21	3.59	4.59	4.29	4.17	4.18

*Mean scores from 1-5 scale; 5 = extremely important

comments were listed by a total of 21 respondents:

Only depending on who sets it up and who is in control.

We are trained by our company which does a thorough job; however, if no training is being done then it is essential.

It has been in Denver but there is no state test yet!

Abilities are more important than degrees, but testing and certification should be helpful.

ACSM current test is too cardiac rehabilitation-oriented. We need to add bio-mechanics.

Licensure is preferable to certification.

To be concerned to establish your own training program and ongoing educational seminars.

Degrees do not necessarily make for good teacher/leader.

I think a Bachelor's degree in any health related field is sufficient . . . a Master's is just that much better!

We need a standard level of education, not a company out to make money.

Do you think that an aerobic instructor requires high energy, leadership skills and cognitive, affective and psychomotor skills regardless of how it was learned?

Teaching skills/communication skills are very important too. I would like to see certification involve monitoring a session taught/led by the applicant!

National certification is the goal to strive for.

All these things would be great basic knowledge but impossible to require!

Kinesiology.

I believe a degree in Physical Education or Exercise Science plus a clear understanding of physiology should be a pre-requisite for any instructor.

I do not have a degree in Physical Education, but with a varied sports background and good training from various instructors, I have become a good instructor.

The Colorado Parks and Recreation Association is in the process of doing this now.

If it is one national or state program with so many certification programs who is to say which one is better than another?

The amount of experience a fitness instructor has is more important than certification. Certification gives knowledge but when the instructor gets in front of a class with no experience it means nothing.

Agencies providing an exercise program should be licensed, for example, the instructor would have to have educational requirements.

General Comments

Respondents were invited to make an overall comment regarding the questionnaire. The following comments were made by a total of 41 respondents (36.9 percent of the total respondents).

In our rural area, it is difficult to find certified employees. I look for an enthusiastic person who is willing to attend workshops to update their skills.

I think a training program or associate level degree concentrated in this area would be sufficient. Professional certification agencies (Aerobic Way, et cetera) seem far from professional, "going through the motions" for a certificate without enough background to deal with

injury/physiology, exercise programs, et cetera.

Too many know what is right for them to get and stay in shape (their own style) which is not always medically sound and push this on society. People must fit the program rather than the program fitting the people!

Most instructors I have encountered have a poor understanding of physiology and are not capable of effectively monitoring their clients' for distress.

Very good questionnaire! Very definitely need a certification program. We are currently having training seminars for our Denver Parks and Recreation Instructors--Departmental certification only.

I feel it is extremely important to develop a standardized certification program for fitness instructors on a national level, perhaps through the American College of Sports Medicine, et cetera. I do not feel there should be many different agencies certifying instructors; most of these certifications are useless. However, a standardized certification program needs to be provided at a reasonable fee so instructors can afford it (for example, not to exceed \$100). Certification should include: exercise physiology, anatomy, do's and don'ts in exercise, heart rate education.

I believe there is a need for a state certification program. I do not really think the private certification programs have much validity and do not recommend them to my instructors. It would be ideal to have all instructors graduate in the exercise physiology area but do not believe at this point in the public recreation area that this is a reality.

You can get qualified people who are not certified. I feel a

certification program would be good, but it must be one with a state or national board. Right now I feel that there are some certification programs that are worthless.

Ability to produce music accompaniment that is safe and follows a progression for the levels of activity. Basic bio-mechanics and the ability to access and analyze the contradiction of body motion.

I would like to see qualified instructors teach this class. Most people who teach it do not know what they are doing.

I believe anyone who can get someone to do regular exercise, who otherwise would not exercise is performing a useful service and we are kidding ourselves if we think anything else is really important.

I have answered the entire questionnaire assuming that "aerobic exercise" means aerobic dance and floor exercises, not running, swimming, et cetera.

Exercise classes or programs for cardiovascular disease patients or others with illness should be under the supervision of a physician not necessarily present. "Normal" should have a check-up first, especially if older.

For setting basic minimum requirements for certification, would avoid degrees, et cetera, for aerobic instructors so that experience and ability count. In this way, health clubs, et cetera, will be willing to prefer certified over noncertified. Then, a higher level person could oversee them. (For example, master's level). Perhaps even one high level person could oversee several "clubs".

I doubt that government, either state or federal, can handle (certification). However, Departments of Parks and Recreation in cities could, I believe, successfully implement and monitor a certification

system for instructors.

I feel aerobic exercise instructors need not necessarily be college graduates with a degree in Physical Education or Exercise Science; however, they should have certain technical skills and be backed by those with exercise science backgrounds, for example, Master's or Ph.D. level. They should be certified by ACSM or some other agency.

They should have some background in Physical Education, Exercise Science, Physiology, preferably a Bachelor's in one of these fields.

They should all be certified in CPR and maybe should be required to attend certain workshops that are held by qualified people during the year. Should subscribe to certain journals and associations.

The "degree" is hard for me to answer. I think the knowledge of exercise and the body's reactions are of vital importance.

A degree may give you the "vehicle" to teach an aerobic exercise class, but motivation, personality and pizzaz is your "fuel".

This club has its own professionally developed and implemented certification program - so 100 percent of my instructors are trained in basic anatomy, physiology and cardiovascular considerations. Movement, music and motivation are also taught. All are CPR certified.

Instructors should be taught how to lead classes and should have an understanding of why they are doing it, but whether certification and a degree are necessary, I would debate.

Poor, they need a lot of help!

The ideal would be to have all instructors with a degree. Unfortunately this is very difficult for all fitness institutions to accomplish, so appropriate in-house training could be obtained or an established certification program. Unfortunately, there are none I have

faith in except our own and ACSM.

Yes, I would like to see some training, but realistic. I think expecting people to have a Master's degree is going a bit too far. Even an undergraduate degree is probably too much. A certification program at a reasonable cost is a great idea.

I think it is important that some kind of certification or qualifying agency be established.

I would like to see written exams and other measures of competencies; move toward a type of registration or licensing. I have concerns for so called certification programs currently being promoted.

I truly hope that these responses will wake up the community to finally approve some type of aerobic certification program!!!

A certification course is definitely needed, but can it be done at a low cost?

I think most people can be trained to instruct safe, beneficial fitness classes. I think it is a waste of time and education to have college graduates in Physical Education teaching classes.

A must to upgrade the level of professionalism in the fitness industry.

State or federal agencies are the only way to be certified! Otherwise it is next to impossible to certify!

This survey makes me curious about a certification program. It can be an extremely positive program.

Selecting activities outside of "class" activities for lifetime fitness.

I endorse an organized aerobic fitness training and certification program wholeheartedly. I think there are too many fitness leaders

currently who are high on energy and low on brains with no credentials. It is a detriment to the fitness management.

National certification is essential to instructors and the facilities employing them. Education and experience should be taken into consideration.

I can not emphasize enough the importance of the instructor knowing the body and being trained in injury prevention. Most participants totally trust a teacher, and will do anything the teacher does; a great responsibility!

There is a need to establish certification programs to enable instructors to add credibility to their program. The better educated they are will influence how comprehensive their program is toward health promotion as opposed to basic exercise classes.

Although certification is important, there are qualified instructors who have not had a certification program. Yet, it (certification) is a step in the right direction.

Although a certification plan would be merit-worthy, it also could be another bureaucratic procedure (licenses, et cetera) required to make it difficult for the practitioner to be able to practice. It would necessitate price increases to the patron and ultimately force such issues such as malpractice insurance for instructors. Read the medical nemesis. Is this what we are trying to do with exercise; to make it an object of mystery that requires special keys to open the door? The exercise corporations would bend the rules and those dedicated to exercise would become frustrated with another system. I do share the opinion that there are many who teach from strictly a vanity standpoint, but realistically speaking quality control has to come from within each

agency, starting with dynamic leadership (based on the hierarchy of learning). A book could be written on this subject.

We have had a very good experience with Jazzercise, Inc. and other similar programs since they train and monitor instructors and are very conscious of legal liability. However, we also have had excellent experiences with individuals who have developed their own exercise programs (pre-post natal exercise). These people have followed the Jazzercise example, however, in terms of requiring doctor's approval and waivers, informing participants of health dangers and benefits and being very knowledgeable of injuries, first aid, et cetera.

Our department holds a semi-annual aerobic instructor training session. All Park and Recreation Association instructors attend. Also, open for response from general public. Workshop Format: 12 hours instruction. Three hours, in physiology of exercise; two hours, in how to teach adults; one hour in Physical Education measurement, testing and goal setting; one hour in how to organize class by session/by day; and five hours in routines to use when teaching. Routines are reviewed by a person with a Master's degree in Exercise Science to ensure soundness to exercise program.

Data Discussion

The research design called for data to answer five questions:

1. What are the minimum competencies/qualifications that people in the field believe to be important?
2. Should aerobic exercise instructors be certified?
3. Is there a preferred level or type of certification/credentials for aerobic exercise instructors?

4. Is there agreement among respondents regarding minimum competencies for aerobic exercise instructors?

5. Is aerobic exercise a safe and healthful way to maintain fitness?

The instrument provided opportunity for respondents to indicate their perceptions regarding those competencies which are important for aerobic exercise instructors. A 3.5 overall mean value was used to accept or reject competency statements. On that basis 29 of the 32 competencies were identified as being the minimum competencies for aerobic exercise instructors.

In response to the second question, the study showed that respondents agreed overwhelmingly that a certification program should be established. Data indicated certification by a state or nationally recognized association.

Regarding the third question, data indicated certification credentials were preferred over any level of academic degree. Only one group, the physicians, preferred a Bachelor's degree in Recreation over certification by a State/National Association.

The fourth question sought to determine the agreement regarding the 32 competencies. The research showed that 20 of the competencies received a value of 3.5 and above on the overall mean score of all responding groups demonstrating their agreement regarding minimum competencies. Only one competency was rejected by all five groups (#25). Additionally, two other competencies were rejected by three of the five groups (#8 and #10). Competencies #11, #12, #15, #21, #22, and #30 were all rejected by one of the responding groups but were accepted based on the overall mean score. Competencies #26 and #27 were

rejected by two groups, but accepted on the basis of the overall mean score. Only competency #4 was accepted on the basis of the overall mean while rejected by three of the responding groups.

For the final question, the data indicated the majority of respondents believed that participation in an aerobic exercise class is a safe and healthful way to maintain fitness.

While the answers provided to the questions above are valid based on the data collected, the researcher also recognizes the limits of generalizing these data to aerobic exercise instructors in other locations. However with the inclusion of the National Fitness Coalition and the similarity of training levels represented by other respondent groups it would seem that these data, although limited to mainly a Colorado population, have application to aerobic exercise instructors wherever they exist.

In summary, the data collected for the study allowed the researcher to provide responses to the research questions in the study.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of the study, conclusions, and recommendations based on the results of the study.

Summary

The purpose of this study was to determine the need of a certification program for aerobic exercise instructors.

The survey questionnaire was sent to over 300 health and physical fitness personnel, of which more than one-third (111) offered their response. The instrument was a questionnaire consisting of five parts. The first part consisted of statements regarding competencies for aerobic exercise instructors designed to determine those competencies considered to be most important for aerobic exercise instructors. The second part was used to determine the level or type of certification/credentials needed for aerobic exercise instructors. The third part was used to determine respondents' willingness to refer patients or clients to aerobic exercise classes taught by an aerobic exercise instructor certified by professional agencies or state/nationally recognized associations, trained in a specific type of exercise, trained only in CPR, or not trained in CPR. The fourth part was designed to determine respondents' perceptions regarding safety of aerobic exercise and responsibility of the aerobic exercise instructor for the safety of

his/her students. Lastly, the fifth part was used to determine respondents' perceptions of aerobic exercise instructors as to how well they met the qualifications, training and experience needed to fulfill the responsibilities of their position and to determine the respondents' experience in teaching aerobic exercise or any other type of exercise.

The data were compiled and analyzed using mean scores, percentages and frequency of responses.

Conclusions

The conclusions that resulted from the findings of the study follow:

1. There are identifiable competencies which can provide the basis for a certification program which would ensure that aerobic exercise instructors are qualified to teach aerobic exercise on a healthful and safe basis.
2. There are at least 29 competencies that should be incorporated as part of a certification program for aerobic exercise instructors.
3. No credential beyond certification is necessary for determining the competency of aerobic exercise instructors.
4. The 29 competencies identified in this study provide a sound basis for developing a curriculum for the training of aerobic exercise instructors to meet minimum certification standards.
5. Certification programs should be administered by state/national associations and /or professional agencies. While the overall mean score for professional agency certification did not meet the cut-off point of 3.5, it was only .01 less than minimally established. The researcher recognized that one group rated this item very low, thus

causing the overall mean to be below the cut-off value.

Recommendations

1. A standardized certification program based on the 29 competencies identified in this study should be established in order to assure that aerobic exercise instructors are qualified to teach aerobic exercise on a healthful and safe basis.
2. Comparable certification standards should be established at state, national or professional agency level.
3. The 29 competencies selected in this study be used as the basis for a core curriculum.
4. Aerobic exercise instructors should be hired only if they meet the 29 competencies identified in the study.
5. Under no circumstances should an aerobic exercise instructor be hired who does not have CPR training.
6. Academic programs granting degrees in the area of Recreation, Physical Education, and Exercise Science should prepare students who want to teach aerobic exercise in such a way that they would be capable of meeting certification requirements.

Recommendations for Further Study

1. As a recommendation for further study the competencies identified in this study should be evaluated by different groups to determine the degree of additional support for these as minimum competencies for aerobic exercise instructors.
2. Additional analysis techniques should be used in any further

studies to determine levels of significance in comparing the perceptions of various groups regarding the competencies identified in this study.

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APPENDIX

APPENDIX A

AEROBIC EXERCISE INSTRUCTION QUESTIONNAIRE

Listed below are a number of competencies which may be desirable or necessary for effective aerobic exercise instructors. Your assessment of the following statements will aid us in determining certification or standards necessary for teaching aerobic exercise classes.

Each competency listed beginning on page 2, is followed by five responses. These responses range from extremely important (5), very important (4), moderately important (3), slightly important (2), to not important (1). To indicate your assessment of each competency please circle the number which best corresponds to how important you believe that statement to be in providing adequate aerobic exercise instruction. Respondents will remain anonymous.

RESPONDENT INFORMATION

TYPE OF AGENCY/INSTITUTION EMPLOYED BY: (Please Check One):

- public recreation agency
- private health club or recreation agency
- hospital
- private or group medical practice
- community or public school
- college or university
- other (Specify) _____

PROFESSIONAL TITLE/POSITION/FUNCTION _____

HIGHEST ACADEMIC DEGREE (Please Circle One):

MD PhD EdD MA MS BA BS Associate Degree High School Diploma

OTHER (Specify) _____

ACADEMIC BACKGROUND/DEPARTMENT GRANTING DEGREE (Please Circle One):

Medicine/ Recreation/ Physical Education/ Political Science/ Exercise Science/
Adult Education/ Other (Specify) _____

This questionnaire was adapted from the Skill Assessment Form for the Cardiac Wellness Training Project, and was designed with the assistance of Lorraine M. Zinn, Ph.D., Associate Director, Research and Training Center in Cardiac Rehabilitation, University of Colorado Health Sciences Center.

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INSTRUCTIONS

Please circle the number which corresponds to your opinion concerning the importance of the following areas of knowledge, skill or personal attributes that should be demonstrated by a well qualified aerobic exercise instructor.

	EXTREMELY IMPORTANT	VERY IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT
1. -understanding the role and benefits of exercise in promoting health and fitness	5	4	3	2	1
2. -identifying appropriate aerobic exercise guidelines for individuals	5	4	3	2	1
3. -demonstrating and teaching appropriate warm-up and cool-down exercises	5	4	3	2	1
4. -teaching aerobic exercise at different levels	5	4	3	2	1
5. -using exercise equipment correctly and teaching others to do so	5	4	3	2	1
6. -administering cardiopulmonary resuscitation (CPR)	5	4	3	2	1
7. -measuring heart rate using pulse, and teaching others to do this	5	4	3	2	1
8. -measuring blood pressure	5	4	3	2	1
9. -recognizing high blood pressure levels	5	4	3	2	1
10. -administering appropriate health appraisal instrument(s) or risk factor assessment	5	4	3	2	1
11. -assisting individuals in goal setting and monitoring behavior change	5	4	3	2	1
12. -assisting individuals in overcoming anxiety and fear	5	4	3	2	1
13. -demonstrating enthusiasm and confidence	5	4	3	2	1
14. -maintaining safe standards for fitness activities	5	4	3	2	1
15. -demonstrating a high energy level	5	4	3	2	1
16. -recognizing exercise-related injuries	5	4	3	2	1
17. -demonstrating skill in exercise leadership	5	4	3	2	1
18. -expressing personal commitment to fitness	5	4	3	2	1
19. -recognizing conditions causing stroke, heart attack, heat fatigue, cramps	5	4	3	2	1
20. -understanding of the cardiovascular system	5	4	3	2	1
21. -understanding of nutrition	5	4	3	2	1
22. -understanding of anatomy	5	4	3	2	1
23. -understanding of exercise science	5	4	3	2	1
24. -coordinating a variety of activities related to fitness	5	4	3	2	1
25. -identifying community agencies that are providing exercise and fitness services	5	4	3	2	1
26. -using effective methods to disseminate information about exercise and fitness to potential participants	5	4	3	2	1
27. -establishing and maintaining working relationships with health and medical professionals	5	4	3	2	1
28. -identifying acute and chronic responses to exercise	5	4	3	2	1
29. -understanding concepts of cardiovascular fitness	5	4	3	2	1
30. -understanding the purpose and process of cardiac rehabilitation	5	4	3	2	1
31. -identifying characteristics of different types of exercise	5	4	3	2	1
32. -possessing ability to distinguish characteristics of aerobic, isometric, and isotonic exercise	5	4	3	2	1
33. -other (please specify and rate)	5	4	3	2	1

CREDENTIALS AND REFERRALS

	EXTREMELY IMPORTANT	VERY IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT
1. Do you think it is important that aerobic exercise instructors:					
a) be certified by professional agencies	5	4	3	2	1
b) be certified by state or nationally recognized associations	5	4	3	2	1
2. Do you think it is important to require aerobic exercise instructors to have a Bachelor's degree in:					
a) Physical Education	5	4	3	2	1
b) Exercise Science	5	4	3	2	1
3. Do you think it is important to require aerobic exercise instructors to have a Bachelor's degree in:					
a) Recreation	5	4	3	2	1
b) Physiology	5	4	3	2	1
4. Do you think it is important to require aerobic exercise instructors to have a Master's degree in:					
a) Physical Education	5	4	3	2	1
b) Exercise Science	5	4	3	2	1
5. Do you think it is important to require aerobic exercise instructors to have a Master's degree in:					
a) Recreation	5	4	3	2	1
b) Physiology	5	4	3	2	1
6. Do you think it is important that a certification program emphasizing fitness activities and Physiology for aerobic exercise instructors be established?	5	4	3	2	1
7. Other (Specify) _____					
<hr/>					
8. Would you refer a patient or client to an aerobic exercise class taught by:					
-a fitness instructor certified by a professional agency or state or nationally recognized associations	Yes	No	Maybe		
-a fitness instructor who is not trained in CPR?	Yes	No	Maybe		
-a non-certified instructor trained only in a specific type of exercise (e.g. Jazzercise)	Yes	No	Maybe		
-a non-certified instructor who is trained in CPR?	Yes	No	Maybe		

LIABILITY/SAFETY

- | | | | | | |
|------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|-------------------------|-----------------------|------------------|
| 1. Do you think that participation in an aerobic exercise class is a healthful and safe way to maintain fitness? | Yes | No | Not Sure | | |
| 2. How important is it that aerobic exercise instructors feel responsible for the safety of his/her students? | EXTREMELY
IMPORTANT | VERY
IMPORTANT | MODERATELY
IMPORTANT | SLIGHTLY
IMPORTANT | NOT
IMPORTANT |
| | 5 | 4 | 3 | 2 | 1 |

EXPERIENCE WITH AEROBIC EXERCISE

1. In your work with and/or knowledge of aerobic exercise instructors, what percentage to you feel meet the qualifications, training and experience needed to fulfill the responsibilities of their position? 0-25% 26-50% 51-75% 76-100%
 2. Have you ever taught an aerobic exercise class? Yes No Have you taught any other type of exercise class? Yes No (Please Specify) _____
-

COMMENTS

Please add any comments you would like to make regarding competencies for aerobic exercise instructors.

When you have completed this questionnaire, please return the self-addressed, self-stamped envelope to:

KENETHA GREEN
3481 S. FENTON STREET
K-302
DENVER, COLORADO 80227

THANK YOU FOR YOUR RESPONSE.

END OF QUESTIONNAIRE

APPENDIX B

CARDIAC WELLNESS TRAINING PROJECT

SKILL ACCESSMENT FORM

You have been identified as a potential participant in the Cardiac Wellness Training Project. The letter you received with this form gives the dates and locations of three training workshops. If you would like further information regarding the Project, please ask the individual who gave you this form.

In order for us to provide training which best meets your needs, we are asking you to give us your own assessment of your ability to do a variety of tasks necessary to implement a cardiac wellness program. Your responses on this assessment form will not be reported back to your sponsoring agency, and will only be used to assist us in planning the training and to provide a measure by which to evaluate the effectiveness of the training.

Please complete the form as soon as possible and send it back to us by Friday, December 17, in the enclosed, self-addressed, stamped envelope. Thank you for your interest and cooperation.

Name _____
 Job function/title _____
 Name of agency _____
 Mailing address _____

 (City) (Zip)
 Telephone _____
 Training location you prefer _____

If return envelope is missing, please return to:
 Dr. Lorraine M. Zinn, Training Director
 Research & Training Center in Cardiac Rehabilitation
 University of Colorado Health Sciences Center
 4200 East Ninth Avenue, Box C-242
 Denver, CO 80262
 Phone: (303) 394-8184 or 394-5144

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 12-82

INSTRUCTIONS ON BACK OF PAGE

Instructions

Listed below are a number of tasks necessary for the successful implementation of a community-based cardiac wellness program. Some of these tasks are technical in nature; others represent program development and support needs. Please give us your assessment of your current ability to carry out each of these tasks, so that we will be able to plan training that will equip you with skills you may not currently have. You may not feel that you individually have all the skills listed, even after the training; but you will probably be working with a team of individuals who will have complementary skills.

Each statement of a task is followed by four numbers which you can circle to indicate your assessment of your ability to do the task. If you have little or no ability or knowledge at this time, please circle #1; if you feel your current ability or knowledge is adequate, circle #2; and if you feel that you have exceptional ability or knowledge (and could perhaps teach others), circle #3. The last number (#4) indicates that you knew the information or could do the task at one time, but need to relearn it or need a refresher. When you have completed the Assessment Form, please return it to us in the enclosed envelope. Thank you.

- 1 = little or no ability/knowledge
- 2 = adequate ability/knowledge
- 3 = exceptional ability/knowledge
- 4 = need to relearn

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12-82

Program Development And Support Skills

1. Identify components of a cardiac wellness education program	1	2	3	4
2. Determine appropriate goals, objectives, and activities for a wellness program	1	2	3	4
3. Plan and implement a cardiac wellness program using the resources of your agency and community	1	2	3	4
4. Select competent individuals to teach classes	1	2	3	4
5. Select and adapt appropriate materials for cardiac wellness education	1	2	3	4
6. Evaluate the effectiveness of cardiac wellness and exercise programs	1	2	3	4
7. Coordinate a variety of cardiac wellness activities	1	2	3	4
8. Provide continuing education and training for staff to keep knowledge and technical skills up-to-date	1	2	3	4
9. Identify community facilities appropriate for housing wellness activities	1	2	3	4
10. Identify equipment appropriate for use for wellness activities	1	2	3	4
11. Identify community agencies that are providing wellness services	1	2	3	4
12. Use effective methods to disseminate information about wellness activities to potential participants	1	2	3	4
13. Promote wellness activities to encourage participation	1	2	3	4
14. Use effective reinforcement strategies for wellness activities	1	2	3	4
15. Determine which agencies and individuals are most appropriate for referrals	1	2	3	4
16. Establish and maintain an effective communication system with referring agencies and individuals	1	2	3	4
17. Develop and maintain working relationships with health and medical professionals	1	2	3	4
18. Identify and select appropriate individuals to serve on a wellness advisory committee	1	2	3	4
19. Clarify the role and function of a wellness advisory committee	1	2	3	4
20. Establish operating procedures for a wellness advisory committee	1	2	3	4
21. Create a sense of purpose and significance to ensure ongoing active participation of the wellness advisory committee	1	2	3	4
22. Determine and provide for the training needs of the wellness advisory committee	1	2	3	4

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12-82

TURN PAGE

Name _____

Knowledge And Technical Skills

1. Understand concepts of cardiac wellness	1	2	3	4
2. Demonstrate an understanding of cardiovascular disease, coronary artery bypass surgery, and myocardial infarction	1	2	3	4
3. Distinguish between primary and secondary prevention in heart disease	1	2	3	4
4. Recognize physiologic sources and symptoms of disability related to heart disease	1	2	3	4
5. Understand the purpose and effects of cardiovascular medications	1	2	3	4
6. Recognize psychosocial disability related to heart disease	1	2	3	4
7. Identify risk factors associated with heart disease	1	2	3	4
8. Identify individuals who are at high risk for heart disease	1	2	3	4
9. Understand the value of risk factor modification	1	2	3	4
10. Understand the purpose and process of cardiac rehabilitation	1	2	3	4
11. Teach risk factor modification	1	2	3	4
12. Understand the role of exercise in risk factor modification	1	2	3	4
13. Identify characteristics of different types of exercise	1	2	3	4
14. Identify acute and chronic responses to exercise	1	2	3	4
15. Write an activity prescription for persons with and without heart disease	1	2	3	4
16. Identify appropriate exercise guidelines for individuals with heart disease	1	2	3	4
17. Teach aerobic exercise	1	2	3	4
18. Demonstrate and teach appropriate warm-up and cool-down exercises	1	2	3	4
19. Use exercise equipment correctly and teach others to do so	1	2	3	4
20. Administer cardiopulmonary resuscitation (CPR)	1	2	3	4
21. Measure heart rate using pulse, and teach others to do this	1	2	3	4
22. Measure blood pressure	1	2	3	4
23. Recognize high blood pressure levels	1	2	3	4
24. Administer appropriate health appraisal instrument(s)	1	2	3	4
25. Assist individuals in goal-setting and monitoring behavior change	1	2	3	4
26. Assist individuals in overcoming anxiety and fear	1	2	3	4
27. Demonstrate enthusiasm and confidence	1	2	3	4
28. Maintain safe standards for wellness activities	1	2	3	4

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TURN PAGE

Name _____

APPENDIX C

COVER LETTER FOR QUESTIONNAIRE

MEMO

TO: Persons interested in Aerobic Exercise Instruction
FROM: Kenetha N. Green
DATE: May 10, 1985
SUBJECT: The Need For Certification of Aerobic Exercise Instructors in Colorado

Increased participation in aerobic exercise classes in Colorado has intensified the need for competent personnel to deal with participants in these classes, decrease liability problems and promote a healthful and safe way to maintain fitness.

A questionnaire is being sent to a representative of the U.S. Fitness Academy, a National Recreation and Park Association staff member, all members of the National Fitness Coalition, all members of the Colorado Association of Physical Fitness Instructors, Colorado Recreation and Park Association agency directors, cardiologists identified by the Cardiac Rehabilitation program at the University of Colorado Health Sciences Center, and fitness supervisors in all private health clubs in the Denver metropolitan area as determined by 1984 edition of Mountain Bell Yellow Pages. The results of the questionnaire could promote improved standards, ensure more safety, and provide professional training for aerobic exercise instructors.

All that is needed is approximately 15 minutes of your time to answer this questionnaire. You may be assured complete confidentiality. The questionnaire has an identification number for mailing purposes only.

This thesis study will be available to you through the Occupational and Adult Education Department at Oklahoma State University in Stillwater, Oklahoma. I will be glad to xerox a copy of the thesis for you if you would like to send me \$3.00 to cover the expense of xeroxing the pages.

Enclosed with this letter you will find the questionnaire and a self-addressed, stamped envelope for its return. Please return the questionnaire by May 25, 1985.

Thank you for the courtesy of your assistance.

Sincerely,



Kenetha N. Green
Lorraine M. Zinn, Ph.D.

VITA³

Kenetha N. Green

Candidate for the Degree of
Master of Science

Thesis: THE NEED FOR CERTIFICATION OF AEROBIC EXERCISE INSTRUCTORS
AS PERCEIVED BY SELECTED GROUPS

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in Oklahoma City, Oklahoma, the daughter of
Mr. and Mrs. Kenneth Charles Jackson.

Education: Graduated from Moore High School, Moore, Oklahoma, in
May, 1979; received Bachelor of Science degree in Business
Administration from Bethany Nazarene College, Bethany,
Oklahoma in 1983; completed the requirements for the Master
of Science degree at Oklahoma State University in December,
1985.

Professional Experience: Secretary, Tucker's Plumbing and
Hardware, Oklahoma City, Oklahoma, 1978-1979 and 1982;
Secretary, Bethany Village Health Care Center, Bethany,
Oklahoma, 1981-1982; Model, Fullerton's Modeling Agency,
1982-1983; Model and shoe-salesperson, Shirley's Shoe Salon,
Oklahoma City, Oklahoma, 1983-1984; Aerobic Exercise
Instructor, Westside YMCA, Bethany, Oklahoma, 1983 (Summer);
Aerobic Exercise Instructor, Oklahoma City Community College,
Oklahoma City, Oklahoma, 1983-1984; Secretary, Student
Development Center, Oklahoma City Community College, Oklahoma
City, Oklahoma, 1983-1984; Executive Secretary, Grace
Fellowship International, Denver, Colorado, 1984-1985.