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A FORMATIVE EVALUATION OF THE CHEMICAL HEALTH EDUCATION AND COACHING PROGRAM FOR HIGH SCHOOL ATHLETIC COACHES

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A FORMATIVE EVALUATION OF THE CHEMICAL HEALTH EDUCATION AND COACHING PROGRAM FOR HIGH SCHOOL ATHLETIC COACHES

By

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ABSTRACT

A FORMATIVE EVALUATION OF THE CHEMICAL HEALTH EDUCATION AND COACHING PROGRAM FOR HIGH SCHOOL ATHLETIC COACHES

By

James Patrick Corcoran

A formative evaluation was conducted of the Chemical Health Education and Coaching (CHEC) program sponsored by the Youth Sports Institute at Michigan State University. The degree to which high school athletic coaches (a) became knowledgeable about chemical health and (b) were confident in their ability to apply that knowledge to their team were the two primary concerns of this study. Two-hundred-eighteen high school athletic coaches comprised the experimental and control groups to whom identical pretest and posttest instruments were administered. The CHEC program consisted of three 1 hr sessions. The subjects were asked to respond to one questionnaire that assessed their knowledge in critical chemical health issues, and to another questionnaire that assessed their confidence in that knowledge and their ability to use it with their athletes. Results indicated that the coaches who were exposed to CHEC were more knowledgeable and more confident than control coaches.

This work is dedicated to the high school athletic coaches in the State of Michigan. It was their participation that allowed me to investigate the effectiveness of the Chemical Health Education and Coaching program. This work is also dedicated to all athletes and coaches who have experienced the pain that chemical use and abuse problems create in one's life. It is my hope that what is enclosed within these covers will contribute to athletic experiences that are chemical-free and natural for athletes and coaches. Finally, I would like to dedicate this work to my Mother, Father, Sisters, Brother, Sponsors, and my Goldens, SunDancer and Shanda. Each of whom, without, I would have struggled to find the courage to pursue and complete this research study.

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CHAPTER I

INTRODUCTION

Nature of the Problem

High school athletes are not protected from chemical use and abuse problems. The adage, "If our young people are involved in sport, they will not become involved with chemicals," is not necessarily true. Although youth are positively influenced to a high degree by sport, sport does not provide a guarantee that experimentation or problems from chemical involvement will not occur. Anderson (1989) examined several studies concerning the use of chemicals by high school athletes and high school students and found that athletes were only slightly less likely to use chemicals than their nonathletic counterparts.

Young athletes may choose to become involved with chemicals for any number of reasons. Some of the reasons for chemical use may include experimentation, peer pressure, rebellion to authoritative restrictions, isolation from people, places, and things, the reduction of emotional, psychological, or physical pain, the drive by athletes to achieve success in sport(s), their desire to proclaim self-identity and self-concept through

sports, or their need to gain peer acceptance as a result of their athletic involvement.

Young athletes are pressured in many ways to win and to perform successfully. In their effort to please those who desire consistent optimal performance (e.g., coaches, teammates, parents, friends, significant others), some athletes may feel it necessary to use chemicals that they believe will help them achieve athletic success, or to deal with the stress that can be associated with attaining or not attaining that achievement. Therefore, young athletes may choose to believe that chemicals will provide a "boost" or "synthetic incentive" that will allow them to train more rigorously or induce a perceived "competitive edge" that will enable them to perform better than the competition.

In their desire to proclaim a feeling of self-identity and self-concept, some athletes may believe that sport represents the only means by which they can begin to acquire a sense of who they are. Asbridge (1984) suggested that one way in which identity is attained is through role acceptance and satisfaction within a group (e.g., a team). Consequently, the athlete may possess a strong desire to be a member of a team that has the potential, in the athlete's perception, to meet his or her identity and concept needs. Some high school athletes may choose to become chemically involved in an

attempt to either maintain their sense of self-identity and concept or to avoid losing what they feel they have presently gained by not challenging the team norms of using performance enhancers or other recreational drugs.

During the high school experience, peer acceptance is a primary goal of athletes and nonathletes alike. One known way to gain popularity or acceptance in high school is through athletics. Weisfeld, Bloch, and Ivers (1983) found that athletes were well accepted by their peers in high school. Therefore, an individual may choose athletics, in part, to win peer acceptance. Once they become members of an athletic team, they may discover that chemical use is accepted or encouraged among current team members. If athletes are to retain what they perceive as peer (teammate) acceptance, they may feel compelled or pressured to become chemically involved.

In recent times many athletes, from youth athletic organizations to professional sports, have been exposed for their involvement with chemicals (Chappel, 1987). Unfortunately, but not unexpectedly, this exposure has tarnished the image of athletics in many ways and has considerably weakened a once pervasive view that an athlete represented a naturally healthy and strong body and mind. Realistically speaking, however, those who follow sport should not be shocked by the athlete's use of chemicals (performance enhancement drugs) because

chemicals have been a fixture in athletic training regimens, practice, and competition for centuries.

Performance enhancement substances have been prevalent since the third century B.C. Ever since human beings have been engaged in athletic competition, they have sought means, ethically and unethically, to improve their performance. The following is a brief look into the past, from the third century B.C. to a 1985 NCAA survey as compiled by Chappel (1987):

--Third century B.C. Greek athletes used psychoactive mushrooms and other stimulants.

--In 1860 Amsterdam canal swimmers used substances to enhance endurance.

--In 1869 cycling racers used chemical assistance.

--The first death due to chemical use in a cycling event was recorded in 1886.

--American cyclists used strychnine in the 1904 Olympic games.

--Amphetamine tablets killed a cyclist in the 1952 Olympic games in Helsinki, and syringes were found in locker rooms at the Winter Games in Oslo.

--Increased stimulant use in cycling was experienced in 1955, as no event was without unethical practices.

--1956 saw the rise of efforts to control the use of chemical substances in sport.

--The American Medical Association's special Committee on Amphetamines and Athletics was formed in 1957.

--The American College of Sports Medicine's 1958 survey found that coaches and trainers were giving amphetamines to athletes.

--An athlete in the 1960 Olympic Games in Rome died due to drug use.

--Many drugs were used by athletes in the 1968 Olympics in Mexico City.

--In 1970 and 1971 amphetamine use in the National Football League (NFL) surfaced, while in 1973 NFL players admitted to using alcohol and marijuana to deaden the pain of losing.

--The Montreal Olympics in 1976 saw three medalists lose their awards due to drug use.

--Athletes at the 1984 Olympic Games experienced extensive drug testing.

--The deaths of at least six athletes were linked to the use of anabolic steroids, as were 35 cases of liver cancer since 1965.

These events are critical to the understanding that the use of chemicals in athletics has increased with time. A few of the more recent and impressionable incidents involving athletes and the deleterious effects of chemical abuse include the following:

--Pelle Lindbergh, of the National Hockey League's Philadelphia Flyers, was killed in 1985 as a result of an alcohol-related automobile accident.

--Len Bias, a University of Maryland standout basketball player and the first draft choice of the National Basketball Association's Boston Celtics, died in 1986 from a cocaine overdose.

--Don Rogers, defensive back for the NFL's Cleveland Browns, died in 1986 from a cocaine overdose.

--West German heptathlete, Birgit Dressel, died in 1987 as a result of a violent allergic reaction to the many (20) different chemicals she took to improve performance (Benjamin, 1988).

--Olympic 100 meter gold medalist, Ben Johnson, had his medal stripped from him in the 1988 Games in Seoul, Korea, for the use of anabolic steroids (Johnson & Moore, 1988); and, subsequently, his records were disallowed ("Johnson Stripped," 1989).

--Charles Thompson, quarterback for the University of Oklahoma, was arrested and charged with selling cocaine in 1989 (Telander & Sullivan, 1989).

--October 31, 1988, an Ashtabula, Ohio, 17-year old, Benji Ramirez, a high school senior and a defensive end in football who abused anabolic

steroids, died from a heart attack (Telander & Noden, 1989).

Need for the Study

Although the image of athletics within our society has been tarnished by chemical use and abuse problems, it must be understood that athletes and the athletic domain merely reflect what currently exists within society in general. The desire by an athlete to alter his or her body and mind in an attempt to enhance performance in athletics is simply another dimension within a societal drug problem. Something must be done to guide our young athletes toward the premise that believing in oneself and one's natural ability is healthier and more rewarding than turning to chemical assistance.

Athletic leaders need to take a more active role in the guidance of their young athletes away from the health-, and potentially life-, compromising results that chemicals can and do create. It is critical that athletic leaders take action toward promoting positive, and chemically healthy, role models. Herein lies the challenge for all athletic coaches, especially those who coach young athletes.

If the health of young athletes is to remain a priority, and the positive image of athletics is to be

restored and maintained, it is paramount that methods be developed to provide an opportunity for athletes to enjoy a chemical-free athletic (and nonathletic) experience. Many of the current chemical education programs within athletics are designed specifically for the athlete in terms of prevention, testing, and treatment. These educational programs are necessary to confront chemical use and abuse, especially at the high school level.

Another equally important approach, however, to fulfill this need is to involve the coach. Few programs have been designed to specifically educate coaches. Coaches need to possess knowledge about the various chemical issues challenging their athletes and how to deal with them. More specifically, there is a need to develop programs that will educate high school coaches so they can become knowledgeable about critical chemical information and methods for developing personal chemical health intervention skills so that they may adequately, intelligently, and successfully discourage their young athletes from engaging in unhealthy chemical behavior. Education programs for coaches are important for combating chemical abuse among athletes because coaches have such a strong influence over the attitudes, values, and behaviors of their athletes.

One approach to solving this problem has been the development of programs for the education of athletic

coaches regarding the prevention of chemical use problems of high school athletes. The Hazelden-Cork Sports Education Program (Svendsen, Griffin, & McIntyre, 1984) is an example of one such program. It is this program that serves as the primary model from which the current study is derived. One commonly accepted premise in the prevention and treatment of chemical use problems is that if alcohol and other drug education programs are to be effective, they must address the everyday issues that are affecting the targeted population (Svendsen et al., 1984). In the case of the high school athlete, this would include the use of chemical health meetings where various pressures that athletes experience could be discussed. For example, some pressures might include academics, relationships, finances, family, performance expectations, earning or maintaining a starting position on the team, and peer influence to use chemicals. One of the main purposes of the Hazelden-Cork Program is to fulfill this requirement.

In a more general sense, Abrams (1973) proposed seven goals of a drug education program that include increasing an individual's knowledge about drugs, affecting an individual's attitude toward personal consumption of drugs, altering an individual's drug use behavior, increasing an individual's participation in alternatives, clarifying an individual's values,

and improving an individual's self-concept. Moye (1984) further postulated that effective and successful programs must stimulate the affective (attitude), cognitive (information), and behavioral (action) domains of those involved in such programs.

The Hazelden-Cork Program has developed a chemical health concept as the foundation of an educational program for the prevention of chemical use problems that can be implemented by athletic coaches with their teams (Svendsen et al., 1984). The issues addressed in the Hazelden Program strive to meet the everyday needs of the athletic coach and include the following: consequences of chemical use, special concerns unique to athletic performers, the role of the coach in responding to athletes' problems, and the role of the coach in promoting chemical health (Svendsen et al., 1984). With the Hazelden-Cork Program as a model, the present author developed the Chemical Health Education and Coaching (CHEC) program as a component of the Program for Athletic Coaches' Education (PACE) for high school athletic coaches in an effort to further prevent unhealthy chemical involvement by high school athletes.

CHEC is similar to the Hazelden-Cork program in a general sense in that it deals with many of the same topics previously mentioned. However, CHEC requires a more intensive involvement by the coaches, including

being an effective communicator; being an individual who must be willing to eliminate negative enabling behavior; and being a successful confronter of questionable, unacceptable, or dangerous behavior that may be exhibited by athletes.

Statement of the Problem

One pervasive discord within chemical health education programs is the degree to which the content of these programs is effective in achieving the program's goals and objectives. Therefore, the main purpose of this study was to conduct a formative evaluation of the CHEC program. While there are many aspects of CHEC that could have been evaluated, and hopefully will be evaluated in the future, it was the investigator's intention to evaluate two fundamental and critical foundations of a chemical health philosophy; (a) becoming knowledgeable, and (b) becoming confident in that knowledge. Specifically, the purpose of this study was to determine the ability of CHEC to enhance the knowledge and confidence of high school athletic coaches in specific critical aspects of the prevention of chemical use problems and the promotion of positive chemical health practices among their athletes.

Research Questions and Hypotheses

This investigation attempted to answer three research questions. First, to what extent did the coaches who received the CHEC program become more knowledgeable about critical chemical information and chemical health intervention skills? Second, to what extent did the coaches who received the CHEC program become more confident in their knowledge about, and their ability to use, critical chemical information and chemical health intervention skills? Third, what was the relationship between coaches' confidence and knowledge?

Based on the above questions, the following hypotheses were investigated:

Hypothesis 1: Coaches who received the CHEC program would be more knowledgeable about chemical health (critical chemical information and chemical health intervention skills) than coaches who were not exposed to the CHEC program.

Hypothesis 2: Coaches who received the CHEC program would be more confident in their knowledge about chemical health (critical chemical information and chemical health intervention skills) and their ability to use them, than coaches who were not exposed to the CHEC program.

Hypothesis 3: There would be a significant positive relationship between the confidence and knowledge scores of the coaches from pre- to posttest.

Delimitations

This study was delimited to high school coaches in the state of Michigan. In addition, the study was delimited to evaluating only selected aspects of the CHEC program, namely, the chemical health knowledge and confidence gained by the coaches.

Assumptions

It was assumed that coaches who attended the parent PACE program did so to improve their coaching skills and were, therefore, motivated to learn the material. It was also assumed that the coaches would put forward a reasonable effort to learn the material, that they would try to do their best on any tests that they took and that they would not be involved in concurrent chemical health education programs. In an attempt to control for this last assumption, coaches were asked if they were involved in any other chemical education programs. The data of those coaches involved in other programs would be deleted from analysis.

Limitations

One limitation of this study was the inability to utilize either random selection or random assignment. Therefore, the study employed an accessible population which affected the sample size. Another limitation was the time constraint placed on the study. Although other

studies suggest more time, administrators of the PACE program allowed only three hours for subjects to be exposed to the treatment.

Definition of Terms

A chemical--is any substance (or unethical doping method) foreign to the body or any physiological substance taken in abnormal quantity or taken by an abnormal route or entry into the body. The chemicals include stimulants, narcotics, anabolic-androgenic steroids, beta-blockers, diuretics, peptide hormones and analogues, marijuana, alcohol, local anasthetics, and corticosteriods. Unethical methods include blood doping, pharmacological, chemical, and physical manipulation of the urine (United States Olympic Committee, 1989).

Chemical abuse--includes a preoccupation with chemicals; continuous planning and systematic involvement with chemicals; a compulsion to use rather than choosing to use; insistence that a chemical(s) be present at all activities; and negative outcomes within legal, familial, psychological, emotional, spiritual, financial, and physiological domains (Bowling Green State University, 1986).

Chemical dependency--is indicated by the use of a chemical to the degree that it causes disruption in one's personal, social, spiritual, economic, psychological,

emotional, athletic, or physiological life; and the individual does not stop using the chemical (Bowling Green State University, 1986).

Chemical health--is a positive and comprehensive response to chemical use issues and problems that face coaches and athletes. Its purpose is to contribute to one's general health and is defined as a state of spiritual, physical, emotional, and social well-being, which results in healthy decisions about chemical use and nonuse (Svendsen et al., 1984).

Chemical health intervention skills--are operationally defined to consist of the following three components: (a) effective communication (cognitive, affective, and behavioral) that is initiated and intended by the coach that concurs with information (cognitive, affective, behavioral) that is received and responded to by the athlete; (b) confrontation technique--a thoughtful and calculated attempt by the coach to help athletes explore the chemically related behaviors that they have exhibited, and which helps the coach guide athletes toward a healthy and reflective examination of their behavior; and (c) identification and elimination of negative enabling behavior(s) that may be exhibited by a coach, assistant coach, or athlete, and that contribute to the continuation of chemical-related problems if left unconfronted.

Chemical use--is defined as the use of a legal and socially accepted substance whether it is naturally or synthetically produced and that is used for legitimate medicinal or therapeutic purposes and that is prescribed and monitored by a medical professional; or the use of a substance that is consumed legally and in a socially accepted way.

Coaches' negative enabling behavior--is defined as behavior in which a coach observes or suspects that an athlete is exhibiting behavior (verbally or nonverbally) that may indicate chemical use or abuse problems and chooses not to effectively confront the athlete, or decides to step forward to protect the athlete from certain consequences (e.g., benched, suspended, or removed from the team).

Critical chemical information--contains information about chemicals that may be used or abused by athletes, why they use or abuse them, and their effect upon the body, mind, and performance; and identification of uncharacteristic behaviors exhibited by athletes who may indicate problems with chemical involvement.

Formative evaluation--is designed to improve, upgrade, or refine a developing or newly existent program. It examines the program's strengths and weaknesses in an attempt to identify ways that the

program can be revised so that it achieves its goals and objectives (Fink & Kosecoff, 1988).

CHAPTER II

REVIEW OF RELATED LITERATURE

One of the most prevalent challenges that society faces today is dealing with the problems of alcohol and other drug abuse. These problems have been avoided or denied for decades, mostly due to an assumption that the problem existed, but, "it was always another community's problem." However, as a result of significant exposure over time to the deleterious effects that chemical abuse problems create, society has acknowledged the need for the implementation of effective action. Much effort has been expended in the development of alcohol and other drug education programs designed to prevent chemical use problems among various societal populations (Buckalew & Daly, 1986; Franklin, 1985; Kinder, Pape, & Walfish, 1980; Milgram, 1987; Svendsen et al., 1984).

The adolescent population is one such population that demands an extensive effort in an attempt to prevent chemical use problems and to promote chemically healthy behavior. This is not meant to imply that other populations are not equally in need. However, adolescents, to a great degree, are more developmentally

diverse in their emotional, psychological, physical, and spiritual make up than are adults. Among other developmental periods, this is a time when the adolescent seeks identity formation, peer acceptance, and independence (Asbridge, 1984). It is also a time, unfortunately, that one may seek a means to alleviate uncomfortable feelings in a socially unacceptable manner that so often accompanies this search for self. A brief review of the current trends in adolescent chemical use and abuse problems, is, therefore, warranted. This chapter reviews the current trends in adolescent chemical use and abuse; presents examples of programs that have been designed to educate and prevent chemical use problems in schools and athletic organizations and the subsequent effects they have upon the populations they serve; and finally, discusses the needs in current evaluative research pertaining to chemical health programs.

Adolescent Chemical Use and Abuse

Alcohol is America's number one drug problem, regardless of which segment of the population is studied. Adolescents are no exception to the potential harmful effects that alcohol can present to one's health when it is misused or abused. In 1985, an estimated 4.6 million adolescents experienced one or more negative consequences

of alcohol use which included arrest, accidents, and impairment of health (National Institute on Alcohol Abuse and Alcoholism, 1985). A 1987 survey of 15,000 high school seniors conducted by the University of Michigan Institute for Social Research (ISR), revealed additional details regarding the misuse of alcohol and other drugs (Johnston, O'Malley, & Bachman, 1987). Approximately 40% of the students surveyed reported having had four or more successive drinks during the preceding 2 weeks, even though 70% of the students perceived the potential for "high risk" in ingesting this much alcohol at one time.

The National Institute of Drug Abuse (National Survey on Drug Abuse, Main Findings, 1982) reported that in 1982, 72% of high school seniors had tried smoking cigarettes, and that 21% were daily users. Additionally, Albrecht, Anderson, McKeag, Hough, and McGrew (1989) found that the highest rate of reported smokeless tobacco use was among teenage and young males. Furthermore, Orlandi and Boyd (1989) indicated that adolescent males were predisposed to smokeless tobacco use. This information regarding adolescent alcohol and tobacco involvement is significant in that these two chemicals are commonly accepted as (a) potentially addictive, and (b) "gateway drugs" that often lead to additional use of possibly "harder" substances for prolonged periods of time. The ISR survey (Johnston et al., 1987) also

disclosed some positive changes as well. For example, cocaine use decreased from previous levels identified in 1986, and marijuana smoking had dropped to its lowest level (3.3%) since the ISR survey began in 1975.

Anderson's (1989) findings, in conjunction with the findings of Johnston et al., (1987), suggest a profile of high school athletes indicating that chemical use is generally similar or slightly lower in comparison to nonathletic student peers. However, athletes are often subjected to additional and unique pressures (e.g., performance expectations and time constraints), that could persuade an athlete to use chemicals.

Current Chemical Health Efforts in Schools and Athletics

To date, many chemical health programs (education, prevention, and intervention) have been developed for students (elementary, high school, and college) and adults (teachers, nurses, social workers, secretaries, counselors, and administrators) (Kinder et al., 1980). These programs were predominately designed to present chemical information and to address chemical health attitudes. They typically utilized lectures, films, speakers, discussions, treatment techniques, role playing, and observations of therapy. There was considerable variance in the duration of these programs. Significant attitudinal changes and increases in

knowledge were observed in programs that ranged from 8 to 240 hours in length, as well as programs that were 2 to 14 weeks in length. However, other programs similar in length reported little or no improvement in attitude or knowledge. For instance, adults who attended a 10-day alcohol and drug education workshop were surveyed regarding their attitudes toward alcohol and other drug use. Researchers found that there were no significant changes in attitude from pre- to post-workshops (Bruhn, Phillips, & Gouin, 1975). Similarly, Einstein and his colleagues surveyed teachers of drug education in a 2-week workshop utilizing pre-post questionnaires for attitude and knowledge, and found that knowledge increased, but attitude did not change significantly (Einstein et al., 1971).

It is apparent that program effectiveness among students and adults varies with at least one variable, length of time (Friedman, 1963; O'Rourke & Barr, 1974; Einstein et al., 1971; Rivers, Sarata, & Book, 1974; Bruhn et al., 1975; Bailey, 1970; Richardson, Nader, Rochman, & Friedman, 1972). For instance, studies that were at least 2 weeks in length (Friedman, 1972; O'Rourke & Barr, 1974; Einstein et al., 1971) showed greater effects than studies that were shorter in length (Rivers et al., 1974; Bruhn et al., 1975; Bailey, 1970; Richardson et al., 1971).

While it is presumed that high school-aged students and athletes are recipients of available programming offered within their educational institutions, far fewer programs, such as the Hazelden-Cork Sports Education Program (Svendsen et al., 1984), the Target-National Federation of State High School Associations, and the Simi Valley High School (The White House Conference for a Drug Free America, 1988) were developed to be implemented specifically with high school athletes and other athletic personnel. However, it should be noted that these programs often include the general student body as well. For instance, the Hazelden-Cork Foundation is involved with chemical health programs within schools. These programs are for administrators, teachers, students, parents, student leaders, athletes, and athletic departments. Although these few programs provide programming for general athletic personnel at the secondary level, still fewer programs of education and prevention focus upon specifically educating high school athletic coaches.

High school coaches have been shown to have a powerful influence on the attitudes and behaviors of athletes. Therefore, it is important to focus programs of education and prevention specifically on coaches. For instance, in an experimental study of the effectiveness of a smokeless tobacco prevention program for high school

baseball players, Feltz, Thornton, Bram, and Albrecht (1989) found that the attitudes and behaviors of players were influenced more by the attitudes and behaviors of their coach than by the program itself. Regardless of whether the coaches were in the control group or treatment group, if their coach used smokeless tobacco or considered the smokeless tobacco prevention program unimportant, the players had similar attitudes and behaviors.

Evaluative Research Needs

There are several programs of alcohol and other drug education in existence (which are beyond the scope of this study to report) that serve many different populations in various settings. Many attempts have been made to study the effectiveness of these programs through evaluative research (Bruvold, 1989; Dill & Rivers, 1988; Kinder et al., 1980; Malvin, Moskowitz, Schaps, & Scheffer, 1985; Milgram, 1987; Pickens, 1985; Sherman, Lojkutz, & Rusch, 1984; Tricker & Davis, 1987). Bruvold (1988) suggested the following recommendations for improving evaluation studies:

1. Use an appropriate control or strong comparison group.

2. Employ pretest, posttest, and follow-up measures.

3. Present evidence of the validity of the measurement used to assess the dependent variable.

4. Control for and report all attrition from pretest to posttest.

5. Employ statistical analyses appropriate for the research design.

6. Provide a full description of the program intervention.

7. Use multiple measures including knowledge, attitude, and behavioral intention.

8. Provide a full description of program participants.

9. Use a large representative sample.

Ringhofer (1989) proposed that in order to achieve program effectiveness, a combination of informational models, affective models, alternative models, social pressure models, and life skills models that consisted of 7 hours or more in length be employed in school-based chemical awareness programs. Current research in program development and evaluation has not disclosed the most effective approach for working with high school athletic coaches. Because the majority of chemical awareness programs within the athletic domain appear to be designed for the athlete, the intent of this study was to determine the effectiveness of the Chemical Health Education and Coaching (CHEC) program that was developed

specifically for the education and prevention of chemical use problems facing high school athletic coaches. Many of the recommendations that Bruvold (1988) and Ringhofer (1989) have proposed for improved programming and its subsequent evaluation have been incorporated in the current study.

CHAPTER III

METHOD

The purpose of this study was to conduct a formative evaluation of the CHEC program. The effectiveness of CHEC to enhance the knowledge and confidence of high school coaches was evaluated in the areas of critical chemical information and chemical health intervention skills. Coaches receiving CHEC were compared to coaches who did not receive CHEC.

Subjects

The sample employed for this study comprised 218 Mid-Michigan high school athletic coaches. Two experimental groups (n = 47) and 66, respectively), and two control groups (n = 64 and 41, respectively), were derived from an accessible population. For analysis purposes, these groups were combined to form one experimental (n = 113), and control group (n = 105). Because an accessible population was the only source of subjects for the study, attempts were made to make the sample as representative as possible. Therefore, from the pool of coaches who attended the PACE program, subjects were drawn according to the sessions that they

enrolled in and that were from both rural and urban settings. One coach out of the entire sample declined to participate in the study. How the coaches were dispersed among the groups are indicated in Table 1.

Table 1

Subjects and Groups

	Experimental		Control	
	n	%	n	%
	133	52	105	48
Rural	47	22	64	29
Urban	66	30	41	19

Demographic data were collected from both the experimental and control groups regarding the following characteristics: age, sex, education, ethnic racial group, sports currently coaching, previous educational experience in chemical health, and years or months of coaching experience. Subjects participating in the study were enrolled in one of the scheduled PACE sessions that were offered through the Youth Sports Institute. They came to the PACE program under one of the following auspices: (a) self-enrolled; (b) enrolled at the request

of their athletic director; (c) enrolled at the request of their principal; or (d) enrolled at the request of their superintendent of schools or curriculum coordinator.

Design

Given that the nature of this research was to study the effectiveness of the CHEC program through the implementation of a formative evaluation, a quasi-experimental design was employed. This design was chosen primarily due to the nature of the sample and the inability to use random selection or random assignment. More specifically, the study included the use of case, comparison group, and time series design applications. A case design is recommended when a new program is examined, for which current data are not available and descriptive information regarding its participants, goals, activities, and results is needed. The comparison group design was used to allow the investigator to determine if differences or similarities existed between the treatment and control groups. The time series design was employed to examine the extent and direction of changes in knowledge and confidence exhibited by the treatment groups over time, as indicated by the coaches' performance on the pretest and posttest instruments. Thus, the total design for this study involved a 2 x 2

(groups by pre/post) factorial design with repeated measures on the second factor.

Instrumentation

Given that the coaches' knowledge and confidence regarding chemical health information and intervention skills were the dependent variables being measured and evaluated in this study, it was the investigator's task to employ instruments that would facilitate a valid assessment of the coaches across the dependent variables. Upon review of the literature no existing measures of these variables for athletic coaches were found. Therefore, the instruments were constructed by the investigator.

Previous efforts to formulate and evaluate chemical health education programs that are specific to the high school athletic coach and that utilized scientific research methodology, were not evident in the literature. Subsequently the investigator found it necessary to draw from research conducted in other educational arenas to assist in the design of the following two instruments: the Chemical Health Questionnaire (designed to measure coaches' knowledge); and the Chemical Health Intervention Efficacy Scale (designed to measure coaches' confidence).

Development of the Chemical Health Questionnaire

The Chemical Health Questionnaire (Appendix A) is a 46-item instrument designed by the investigator to measure the coaches' knowledge of critical chemical information and chemical health intervention skills as presented in the CHEC program. The items consist of 18 multiple answer questions that required a single structured response chosen from a field of four possible responses, and 28 statements that required a true or false response. The instrument was designed to measure information in the following areas: why athletes use chemicals; unique pressures that may lead an athlete to use a chemical; what chemicals are used; the effects of those chemicals on the mind, body, and athletic performance; signs of chemical use; the coach's role in prevention of chemical use problems; elimination of negative enabling behavior; effective communication; confrontation techniques; the teams' role in promoting chemical health; and alternatives to chemical use. All items were objectively scored. For analysis, items were summed to obtain an overall knowledge score.

Development of the Chemical Health Intervention Efficacy Scale

The Chemical Health Intervention Efficacy Scale (Appendix B) consisted of nine items designed to assess

the coaches' self-efficacy relative to their ability to use the critical chemical information and chemical health intervention skills with their athletes. Subjects were asked to rate their confidence for each item on a 10-point Likert scale, ranging from zero (not at all confident) to 9 (extremely confident). For analysis, items were summed to obtain a single score for each coach on efficacy to intervene on chemical health issues with athletes.

Evaluation of Program Content and Instrumentation

A program's content, when in its formative and developmental stages, must be documented as being valid for its stated purpose. Holland (1986) stated that unless the content is demonstrated as valid, the results are of questionable value. Although it was not within the scope of this study to design construct or content validity tests regarding the CHEC content, it was a reasonable expectation to have experts evaluate the content and instruments to assess the content that was designed for this study. As proposed by Holland (1986), content area experts were recruited and requested to rate the content validity of the CHEC program and its evaluative instruments. Three experts in research, development, and program evaluation within the fields of adult education, adult and adolescent chemical education,

and chemical health education program design and evaluation were selected for the purpose of establishing the content validity of the CHEC program, and for each of the questionnaires. One expert was employed at Michigan State University, another was employed at another North American university, while the third was self-employed within private industry. Based on their training, experience, and current responsibilities, each expert was eminently qualified to evaluate the CHEC program content and its evaluative instruments.

Each expert was asked to respond to a content validity form as shown in Appendix C. The experts rated the 12 main content areas within the CHEC program regarding how critical the content was to the coaches becoming knowledgeable and confident about specific chemical information and chemical health intervention skills. Critical aspects of the content were evaluated using a rating scale that ranged from five (extremely critical) to one (not critical).

If a rater gave the score of less than four, he was asked to provide a rationale and suggestions for revision of that particular content area. Table 2 provides a list of the 12 content areas that were rated; the rating for each of those content areas; an average rating for each content area; content means for each rater; and an overall content mean.

Table 2

Critical Aspects of the CHEC Program's Content

Content Area	Ratings: Score Per Rater			Average Rating
Chemicals in athletics/ introduction	2	4	5	3.7
Levels of chemical involvement	2	4	4	3.3
Why chemicals are used	2	4	4.5	3.5
Effects of chemicals	4	4	3	3.7
Pressures to use	3	4	3.5	3.5
Signs of chemical use	5	4	4	4.3
The coach' response	5	5	4	4.7
The coach's role in prevention	4	5	4	4.3
Team involvement	5	5	4	4.7
Enabling behavior	4	5	3	4.0
Effective communication	5	5	4	4.7
Confrontation techniques	5	4	5	4.7
Means	3.8	4.4	4.0	Content mean 4.1

Although the first 3 content areas of the CHEC program received lower scores by one of the experts, and the first 5 content areas were rated less than the desired level of 4, the mean ($\underline{M}$ = 4.1) for the combined content validity did meet the desired level. It was also apparent that one of the expert's scoring negatively affected the average ratings, therefore, indicating that the first 5 content areas were in need of revision. The investigator predetermined that any and all suggestions from the field of experts, regardless of an item's ranking, would be seriously considered. However, those items that receive an average rating of less than four will require more attention than those that were rated four or greater.

Just as the experts were asked to evaluate the content of the CHEC program, they were also asked to evaluate the preliminary Chemical Health Questionnaire (Appendix D) prior to its use in the study. Therefore, each expert received a Questionnaire Validity Form: Aspects of Relevancy (Appendix E), to assist in their evaluation. As indicated in the previously discussed content evaluation, the raters were asked to provide a rationale and suggestions for revision to any item that received a rating of less than four. Any items that received such a rating was reviewed by the investigator and the investigator's primary advisor. Suggestions for

revision, as submitted by the experts, were subsequently included in the final version of the Chemical Health Questionnaire (Appendix A).

Enclosed in a mailing to each of the experts was the Chemical Health Questionnaire and a relevancy rating scale from which the experts were asked to rate each item on the questionnaire. Table 3 contains the 18 multiple answer items and the 28 true/false items; the rating provided by each rater for each item; an averaged rating for both sections of the instrument; means for each rater; and a Chemical Health Questionnaire mean.

The primary purpose for evaluating the Chemical Health Questionnaire was to construct a more relevant and valid test instrument prior to its use in the study. The scores (multiple answer $\underline{M}$ = 3.4; true/false $\underline{M}$ = 3.7; and the Chemical Health Questionnaire $\underline{M}$ = 3.6) that were provided by the experts, and that registered below the established standard for acceptance (4), indicated that the instrument needed revision. One of the goals of a formative evaluation is to identify strengths and weaknesses of a developing program or instrument. Given the time constraints and scope of the current study, it was not feasible to have the experts reevaluate the revised instrument prior it its use. However, the suggestions for revisions that the experts provided were reviewed by the investigator and his primary advisor and

Table 3

Evaluation of the Chemical Health Questionnaire

	Ratings			
Item No.	Score Per Rater			Average Rating
Multiple Answer:				
1.	3	4	4	3.3
2.	4	3	2	3
3.	4	4	3	3.7
4.	2	4	3	3
5.	4	3	2	3
6.	2	4	3	3.3
7.	4	3	3	3.3
8.	5	5	5	5
9.	3	4	5	4
10.	5	5	2	4
11.	4	4	4	4
12.	4	4	2	3.3
13.	3	3	2	2.7
14.	4	4	4	4
15.	4	4	3	3.7
16.	3	3	3	3
17.	3	4	3	3.3
18.	2	3	3	2.7
Rater Mean	3.5	3.8	3.1	Total Mean 3.4
True/False:				
1.	4	3	2	3
2.	4	4	2	3.3
3.	4	4	5	4.3
4.	4	4	4	4
5.	4	4	3	3.7
6.	3	3	3	3
7.	4	3	3	3.3
8.	4	4	4	4
9.	4	4	4	4

Table 3. Continued

Item No.	Ratings: Score Per Rater			Average Rating
True/False (continued)				
10.	5	4	2	3.3
11.	4	5	2	3.3
12.	4	5	3	4
13.	5	4	4	4.3
14.	3	4	3	3.3
15.	4	4	3	3.7
16.	3	4	4	3.7
17.	5	4	3	4
18.	2	4	4	3.3
19.	3	3	2	2.7
20.	4	4	4	4
21.	4	4	3	3.7
22.	2	5	4	3.7
23.	4	4	2	3.3
24.	5	4	4	4.3
25.	4	4	3	3.7
26.	3	4	3	3.3
27.	3	3	3	3
28.	4	4	4	4
Rater Mean	3.9	3.9	3.2	Total Mean 3.7

Chemical Health Questionnaire Mean = 3.6

contributed significantly to the reconstruction of various items within the questionnaire.

A preliminary Chemical Health Intervention Efficacy Scale (Appendix F) that utilized a 10-point Likert scale was designed by the investigator to obtain a measure of confidence from the coaches regarding eight critical aspects of chemical health and intervention skills. The scale ranged from zero, "not at all confident" to nine "extremely confident." Once again, the three experts were asked to evaluate the instrument using the same relevancy rating scale (Appendix E) that they used for the Chemical Health Questionnaire. Any item that received less than a four required their rationale and suggestion for revision. Table 4 contains a list of the confidence scale item numbers; the rating provided by each of the raters for each of the items; an averaged rating for each different confidence item; means for each rater; and an overall Chemical Health Intervention Efficacy Scale mean.

With an efficacy mean ($\underline{M}$ = 4.2) above the level of acceptance (4), this scale was determined to be a valid and relevant instrument that met the standards set forth by the investigator. Three of the experts' scores (items 3, 5, & 8), however, were below the established level of acceptance. Therefore, each of these items were

Table 4

Evaluation of the Efficacy Scale

Item No.	Ratings: Score Per Rater			Ratings: Average Rating
1.	5	4	4	4.3
2.	5	4	4	4.3
3.	3	4	5	4.0
4.	5	4	5	4.7
5.	4	4	3	3.7
6.	5	5	4	4.7
7.	4	4	5	4.3
8.	3	4	4	3.7
Rater Mean	4.3	4.1	4.3	
Chemical Health Intervention Efficacy Scale Mean				4.2

reconsidered along with other suggestions made for other items. Based upon suggestions by the experts, an additional item (No. 9) which asked the coaches how confident they were regarding their ability to seek assistance in the development of a CHEC program for their athletes, was necessary to include in the final revised edition of the Chemical Health Intervention Efficacy Scale (Appendix B).

Program Description

The CHEC program that was evaluated was a component of the PACE program. Prior to describing the CHEC program, it is necessary to provide a brief explanation of PACE. PACE is a 15 hr course for athletic coaches that meets the criteria for coaches' education as determined by the National Association for Sport and Physical Education (Appendix G). The course provides interscholastic coaches with the most current and critical information pertaining to their day-to-day responsibilities.

The topics in the PACE program include essential medical records, insurance, legal responsibilities, conditioning and training, care and rehabilitation of injuries, effective teaching, principles of time management, conducting effective practices, and chemical health education and coaching. Those coaches who

participate in the PACE program receive an 800-page notebook of supplemental reading to accompany the information presented in the 15 hours of lecture and discussion sessions. A mastery-model, open book examination at the conclusion of the course provides a diploma and credits within the Continuing Education Unit for those who complete the course and pass the test. The course content is organized into five 3 hr sessions.

The CHEC program that was implemented for the experimental groups consisted of three 1 hr sessions over the course of 2 weeks, and that was included in the total 15 hr PACE program. The first session focused upon the importance of coaches becoming knowledgeable about chemical use and abuse problems and chemical health issues that face their athletes. Critical chemical information was provided in the following areas: why athletes are using chemicals; what are possible pressures that are unique to the athletic domain that may give an athlete a reason to become chemically involved; what chemicals are they using; the realities about chemicals and their effect upon the body, mind, and athletic performance; and signs of possible chemical use problems that may be exhibited by the athlete.

The second session provided information to the coaches regarding what steps should be taken once coaches have identified uncharacteristic behaviors exhibited by

an athlete that may indicate chemical use problems; the coach's role in the prevention of chemical use problems; and methods for developing chemical health intervention skills that coaches could use with their athletes. These skills included identifying coaches' negative enabling behavior and methods for the elimination of that behavior and chemical problems through the implementation of techniques for successful confrontation. Key components and examples of coaches' negative enabling behavior that contribute to chemical use and abuse problems were introduced and discussed. Finally, techniques for successful confrontation were presented and included explanation of two basic types of confrontation and five criteria that the coaches should implement.

The third session was designed to combine information disseminated in the first two sessions. The main objective was to provide a practical demonstration of how the coaches could apply their knowledge of critical chemical information and intervention skills toward a successful confrontation with an athlete. The coaches viewed a video that was written and co-directed by the investigator with assistance from a producer/director at the Instructional Television Production Department at Michigan State University. Following the video presentation, the investigator

facilitated a discussion in relation to the content presented during the CHEC sessions. If the coaches are to effectively and successfully confront athletes with chemical use problems, they must understand and practice the suggested methods. Following the video, the investigator requested that the coaches participate in a vignette that was a continuation of the video scenario. The purpose was to get the coaches to participate and communicate their thoughts and experiences as they dealt with similar situations related to chemical use problems by their athletes. If coaches are to be successful in the chemical health dimension of coaching, they must first know what they are talking about (critical chemical information), and second, know how to successfully intervene with their athletes (chemical health intervention skills). A more detailed description of this program is contained in Appendix H.

Procedure

For the purpose of this study, an additional 1.5 hours within the PACE schedule was devoted to the pretest and posttest administration of the CHEC instruments. Subjects within the two experimental and two control groups were requested to devote 45 minutes, on two different occasions, to the administration of the pre- and posttest instruments. The purpose of the study was

explained to the subjects on two separate occasions, once during the first session of the PACE program, and again prior to the actual implementation of the study. This step was used to ensure the coaches' understanding of the study. Anonymity of the subject's test performance was discussed and guaranteed. Although each participant of the PACE program enrolled using their name and the name of the high school they represented (for record keeping and financial purposes), names were not used on the questionnaires. Subjects were instructed to use the first initial of their last name and the last four digits of their social security numbers on the pretest and posttest instruments for analysis purposes only. In addition, program sponsors did not have access to individual questionnaires and the investigator did not have access to subjects' names.

Instrument Administration

Pretest administration of both the Chemical Health Questionnaire and Chemical Health Intervention Efficacy Scale for the experimental groups occurred at the onset of the second PACE session. Upon completion and collection of the instruments, the scheduled CHEC programming for that evening commenced. Pretest administration for the control groups occurred at the onset of the second PACE session as well. However,

upon completion and collection of the instruments, the controls were exposed to other PACE content, not the CHEC content. The CHEC chapter within PACE's 800-page notebook was omitted for both the experimental and control groups. The experimental groups received their chapter following the pretest so they could study the content in conjunction with the three CHEC sessions. The control groups, however, did not have access to the CHEC chapter until they completed the posttest which occurred at the onset of the fourth PACE session. This measure was taken to ensure that the test results would not be influenced by the participants' perusal of the course content. Following the collection of the posttest questionnaires from the control groups, the original abbreviated version of CHEC was presented to the coaches so the control subjects would not be denied exposure to the CHEC information. The posttest administration for the experimental group occurred during a 45-mintue period following the completion of the final CHEC session.

The coaches were instructed to raise a hand upon completion of the first questionnaire (Chemical Health Intervention Efficacy Scale), whereupon the investigator or an assistant collected it prior to distributing the second questionnaire. Once the second instrument (Chemical Health Questionnaire) was completed and collected, the coaches were given a break prior to the

start of the CHEC program, or in the case of the control group, prior to different scheduled PACE material. The confidence questionnaire was administered prior to the knowledge questionnaire so that coaches' responses to the confidence questionnaire would not be influenced by performance on the knowledge test.

Treatment of the Data

Descriptive statistics were used to examine the sample regarding age, sex, education, ethnic racial group, sports currently coached, previous chemical health education, and pre-post performance on knowledge and confidence questionnaires. A 2 x 2 (group by pre-post) repeated measures multivariate analysis of variance was conducted using Wilks lambda criterion to determine if the experimental and control groups were significantly different. Univariate F tests were examined to determine the significance of the two dependent variables of knowledge and confidence. Post hoc analysis of simple effects using the Tukey WSD was conducted on the dependent variables across trials. Finally, Pearson's product-moment correlations were used to examine the relationship between knowledge and confidence in both the pretest and posttest for the experimental and control groups.

CHAPTER IV

RESULTS AND DISCUSSIONS

Two hundred eighteen Mid-Michigan high school athletic coaches who were enrolled in the Program for Athletic Coaches' Education (PACE) were selected and questionnaires were administered to assess their knowledge and confidence regarding Chemical Health Education and Coaching (CHEC), a component of the PACE program. The study was conducted over a 4 month time frame and employed a quasi-experimental design utilizing an experimental and a control condition. This chapter provides a report and discussion of the demographic and statistical findings of the subjects.

Results

The results have been organized into three sections. The first provides descriptive statistics regarding the subjects; the second presents results concerning the coaches' knowledge about critical chemical health and their confidence in that knowledge; while the third section presents correlational results regarding the relationship between the confidence and knowledge scores of the coaches.

Descriptive Statistics

Demographic data were collected on the subjects (N = 218) regarding age, sex, education, ethnic racial group, sports currently coached, previous educational experience in chemical health, and years/months coaching sports. Ages of the subjects were widely dispersed ranging from 18 to 65 years with a mean age of 34.8 (SD = 9.5). More males (71%) participated in the study than females (29%). The educational backgrounds of the subjects were represented by the following: high school graduate (11.5%); 1 to 3 years of college (19%); Associate's Degree (4.5.%); Bachelor's Degree (38.5%); Master's Degree (23.5%); Ph.D. or Ed.D. (1%); M.D., D.O., D.D.S. (0.5%); Law (1%); and other (0.5%). The ethnic racial groupings were predominantly dispersed among the White Caucasian (84.2%) and African-American (13.3%). The other categories comprised Spanish-American-Hispanic (1%); American Indian (0.5%); Chicano-Mexican-American (0.5%); and other, i.e., combination of ethnic racial categories (0.5%).

The subjects were asked to indicate what sport(s) they were currently coaching, allowing them to report one, two, or three, but no more than three sports. The first sport listed either represented the sport they were currently coaching and that was in-season, or the sport that they perceived to be their primary responsibility,

while the other sports reported (if any) were either the subjects' out-of-season sports, or the sports that they thought were not their primary responsibility. Table 5 lists the percentages of coaches who were coaching one, two, or three sports.

Of the 185 coaches that responded to this question, the majority (65%) were currently coaching only one sport. As can be seen in Table 5, most of these were in football, basketball, and baseball. For the 18% who coached a second sport, the majority coached football, basketball, and track and field. Only 6% of the coaches indicated coaching a third sport. The majority of them coached football, track and field, volleyball, wrestling, ice hockey, and cycling.

The investigator requested the subjects to indicate whether they had been previously exposed to educational experiences regarding chemical health. Fifty-nine (27.1%) of the subjects reported that they had previous chemical health education, while 138 (63.3%) of the subjects indicated that they had not been previously exposed. A closer examination of previous chemical health education for the experimental and control groups is illustrated in Table 6.

The final demographic data that were collected from the subjects encompassed their coaching experience in

Table 5

Sports Coached by Coaches

Sport	% Coaching one sport (n = 185)	% Coaching two sports (n = 65)	% Coaching three sports (n = 12)
Football	21.6	24.6	33.3
Basketball	20.5	20.0	0.0
Baseball	14.1	0.0	0.0
Softball	10.8	6.2	0.0
Track & Field	8.1	29.2	16.7
Soccer	4.3	1.5	0.0
Volleyball	3.8	3.1	16.7
Cross Country	3.8	0.0	0.0
Swimming	3.2	1.5	0.0
Tennis	3.2	1.5	0.0
Ice Hockey	1.6	0.0	8.3
Golf	1.1	1.5	0.0
Wrestling	1.1	4.6	16.7
Cheerleading	1.1	1.5	0.0
Gymnastics	0.5	0.0	0.0
Diving	0.5	0.0	0.0
Racquetball	0.5	0.0	0.0
LaCrosse	0.0	1.5	0.0
Strength	0.0	1.5	0.0
Roller Skating	0.0	1.5	0.0
Cycling	0.0	0.0	8.3

Table 6

Previous Chemical Health Education

	Experimental (n = 97)	Control (n = 100)
Yes	28.9%	31%
No	71.1%	69%

years and months. Coaching experience ranged from under one year to 34 years (M = 9.08, SD = 7.16).

Knowledge and Confidence Results

As stated in Chapter I, under assumptions, the data of those coaches who had been involved in other chemical health education programs were deleted from analysis on knowledge and confidence. It was assumed that these coaches would have greater knowledge and confidence about chemical health going into the study than would their nonexposed counterparts. Because this assumption could actually be tested, a one-way MANOVA was conducted on the knowledge and confidence scores of the two groups at pretest. Results supported this assumption, F (2, 191) = 10.09, $p < .001$. Coaches who had previous chemical health education had higher knowledge scores (M = 30.00,

SD = 3.84) and confidence scores (M = 57.40, SD = 12.00) than coaches who had no previous chemical health experience (knowledge M = 28.39, SD = 4.21; confidence M = 50.46; SD = 14.40). Therefore, the 59 subjects who reported having received previous chemical health education were not included in the subsequent analyses. In addition, another 54 subjects who had incomplete data were also eliminated from further analyses. However, as an aside interest, additional analyses were conducted and reported in Appendix I to compare subjects who reported having previous chemical health education to subjects not previously exposed after receiving the CHEC program.

Prior to testing any of the hypotheses, descriptive statistics of knowledge and confidence are presented. A summary of these statistics are presented in Table 7. Out of a total possible score of 46, the experimental group had a mean pretest knowledge score of 29.02, indicating an overall test score of 63% correct responses while their posttest results (M = 34.02) increased to 74%. The control groups' pretest knowledge results indicated an overall test score of 62% while their posttest results decreased slightly to 60%.

Out of a total possible confidence score of 81, the experimental group indicated a moderate level of confidence on the pretest (M = 48.14) while their posttest confidence scores (M = 59.29) increased

Table 7

Knowledge and Confidence Measures by Groups and Trials

	Trials				
		Pre		Post	
Groups	n	M	(SD)	M	(SD)
		Knowledge Scores			
Experimental	51	29.02	(4.16)	34.02	(4.26)
Control	54	28.32	(4.17)	27.50	(4.32)
		Confidence Scores			
Experimental	51	48.14	(12.84)	59.29	(10.87)
Control	54	51.13	(15.62)	53.15	(14.00)

approximately 20%. As can be seen in Table 7, the pretest confidence results for the controls were slightly higher than the experimental group, while their posttest confidence scores were lower than the experimental groups.

The first hypothesis stated that coaches who received the CHEC component would be more knowledgeable about critical chemical information and chemical health intervention skills than coaches who were not exposed to the CHEC component. The second hypothesis stated that coaches who received the CHEC component would be more confident in their knowledge about critical chemical information and chemical health intervention skills and their ability to use them than the coaches who were not exposed to the CHEC component. These two hypotheses were analyzed in a 2 x 2 (group by pre-post) multivariate analysis of variance (MANOVA) with repeated measures on the second factor and with knowledge and confidence scores as the dependent measures. Results from the MANOVA indicated a significant multivariate effect for groups, $\underline{F}$ (2,102) = 12.68, $\underline{p} < .001$ and for trials, $\underline{F}$ (2,102) = 34.77, $\underline{p} < .001$ using Wilks criterion. However, these main effects were superseded by a Group X Trials interaction, $\underline{F}$ (2,102) = 35.77, $\underline{p} < .001$. Univariate $\underline{F}$ tests were significant for knowledge, $\underline{F}$

(1,103) = 54.63, < .001, and confidence F (1,103) = 22.73 < p .001.

Post hoc analysis of simple effects using the Tukey WSD indicated that for knowledge, the experimental and control groups showed no differences on the pretest scores, but the experimental group significantly increased their knowledge of chemical health after completing the CHEC program compared to the control. Therefore, this finding supports the first hypothesis. Post hoc results for confidence in their chemical health knowledge indicated that although subjects in the experimental group had significantly lower confidence scores at pretest, they significantly increased their confidence beliefs after completing the CHEC program compared to the subjects in the control group. Therefore, this finding supports the second hypothesis. These interactions are illustrated in Figure 1.

Correlations Between Confidence and Knowledge Scores of Coaches

The third hypothesis stated that there would be a significant positive relationship between the confidence and knowledge scores of the coaches from pretest to posttest. Two correlations were calculated using difference scores (from pretest to posttest): one for the experimental group and one for the control group. There were no significant correlations between confidence

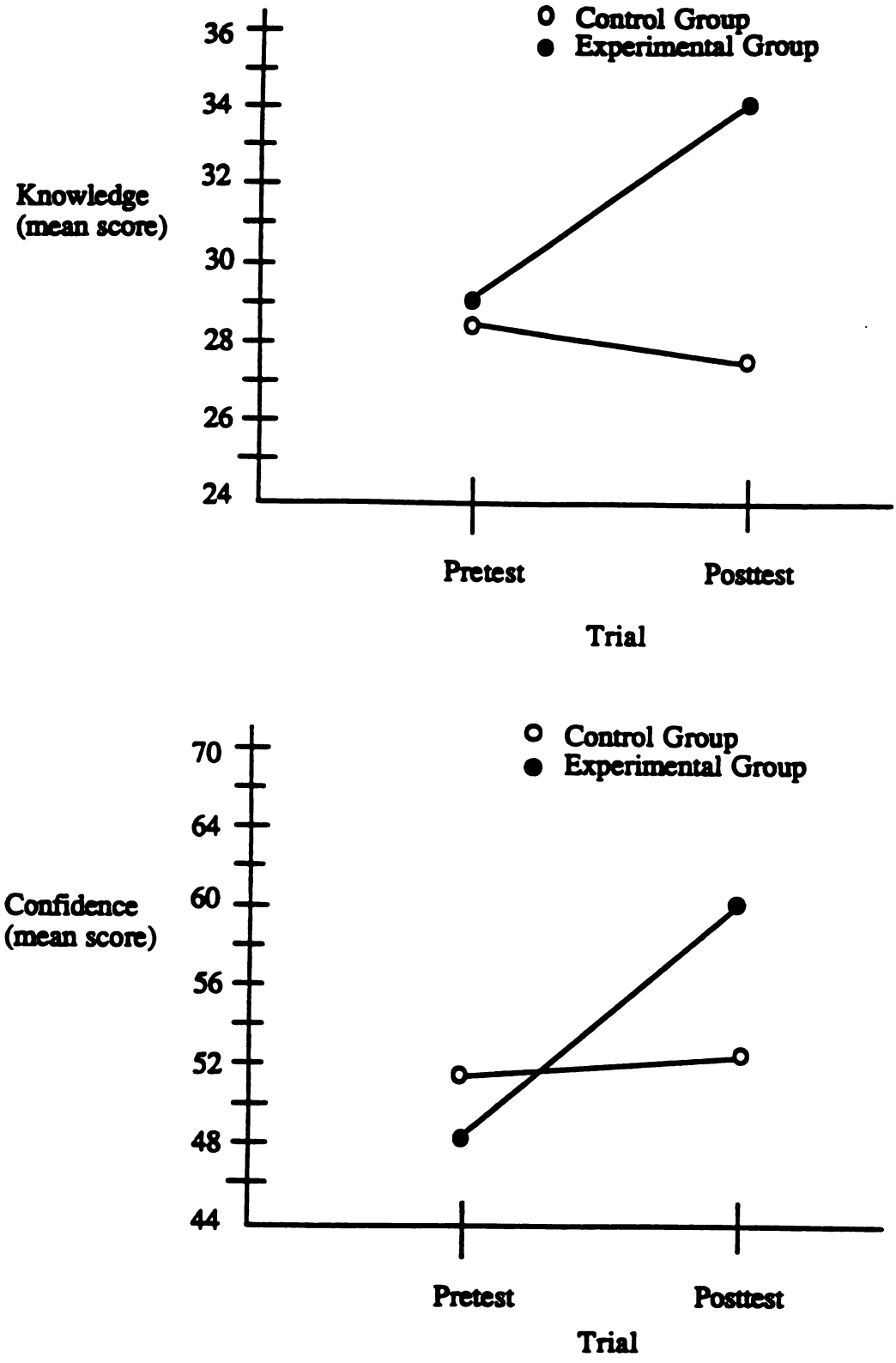

Figure 1. Group by Trial Interactions for Knowledge and Confidence

and knowledge for either group (Experimental $\underline{r}$ = .17; Control $\underline{r}$ = -.001). Therefore, the third hypothesis was not supported.

Discussion

The purpose of this study was to conduct a formative evaluation of the CHEC program. Fink and Kosecoff (1988) proclaimed that a formative evaluation is designed to improve, define, or upgrade a developing or newly existent program. This study was an attempt to achieve these objectives by determining whether the subjects would become knowledgeable and confident in matters regarding chemical health. The main finding of the study was that the subjects who were exposed to the CHEC program significantly improved their scores on chemical health knowledge and increased their levels of confidence in chemical health knowledge.

The first hypothesis stated that coaches who received the CHEC component would be more knowledgeable about critical chemical information and chemical health intervention skills than coaches who were not exposed to the CHEC component. Current findings support this hypothesis. Similar findings have been reported in previous research (Kinder et al., 1980; Einstein et al., 1971) where significant increases on the subjects' pretest to posttest scores regarding drug knowledge were

achieved. One reason for CHEC's effectiveness was that the program was developed to meet the specific needs of coaches who were coaching high school athletes. As previously discussed by Svendsen and his colleagues (1984), a primary goal of any chemical health education program must be to meet the current and everyday needs of the program's targeted population. The improvement on both the knowledge and confidence scores by the coaches suggests that the CHEC content and its presentation were meaningful to them.

While there was strong support in favor of the effectiveness of CHEC, consideration must also be given to the percentage of knowledge that was not gained by the coaches from pretest to posttest as reported in the results section. Subjects receiving the CHEC program still obtained only 74% correct responses. A closer examination of the CHEC content and the knowledge questionnaire that was designed and implemented for the study may render some explanation for the knowledge (and confidence) that was not gained.

While there were similar aspects between the current study and studies of the past in terms of general drug education content, dissimilarities were present in the duration of the programs, each of which warrants some discussion. Many of the other programs ranged from a minimum of 8 hours to a maximum of 240 hours, some

entailed 2 to 24 weeks of programming, while others may have encompassed 10-day workshops. The CHEC program entailed 3 one-hour sessions that extended over a 2-week period. Although Ringhofer (1989) postulated that school-based chemical health awareness programs required a minimum of 7 hours in length if they are to achieve program effectiveness, the 3 hr CHEC program was shown to improve coaches' chemical health knowledge and confidence. A CHEC program that is expanded in content and length may be more effective than the present one in helping coaches achieve greater chemical health knowledge. However, an extended CHEC program may not be feasible under the current PACE structure.

It is interesting to note, however, that in the aside analyses conducted between coaches who had prior experience to chemical health education and those who did not (see Appendix I), the CHEC program eliminated the pretest differences between these two groups. This means that coaches who had previous knowledge did not gain substantially more knowledge than the coaches who were being exposed to chemical health education for the first time.

In terms of the measurement instrument, some of the incorrect responses may have had more to do with the way the questions were constructed than with a lack of knowledge among the coaches receiving the program.

Although it was not a part of this investigation's design, Borg and Gall (1983) suggested that an item analysis be conducted on newly designed tests after all the data are collected. The purpose of an item analysis is to determine strong and weak items. Borg et al., (1983) further postulated that an item analysis concerns itself with the difficulty level of each item and its ability to discriminate between successful and less than successful levels of performance by students. Item validity and item reliability are additional aspects that can be analyzed as well (Borg et al., 1983).

In looking specifically at the individual items on the posttest Chemical Health Questionnaire, 75% of the coaches had incorrect responses to items 9 and 11. These items pertained to specific physiological effects that certain chemicals can induce, and components of effective communication for athletic coaches respectively. At this point in time, one cannot tell whether the incorrect responses were due to poorly worded questions, questions that were to difficult, poorly taught content, or lack of knowledge by coaches in these areas.

The second hypothesis stated that coaches who received the CHEC component would be more confident in their knowledge about critical chemical health information and chemical health intervention skills and their ability to use them, than coaches who were not

exposed to the CHEC component. The current study's findings support this hypothesis. It is also supported by research in the area of self-efficacy that has shown that as individuals master knowledge in a given area, they develop a growing sense of cognitive efficacy in that area (Bandura, 1986). It is also more likely that these individuals will act on their knowledge more than those who have self-doubts about what they know.

The third hypothesis stated that there would be a significant positive relationship between the confidence and knowledge scores of the coaches. Although the experimental group showed a higher correlation (r = .17) between knowledge and confidence difference scores than the control group (r = -.001), neither group showed much of a relationship. Therefore, this hypothesis was not supported. One might surmise that given the exhibited improvement on knowledge and confidence test scores for the coaches who were exposed to the CHEC treatment, and the lack of improvement by their unexposed counterparts, that their confidence and knowledge scores would be more significantly correlated. However, while it is intuitively appealing to suggest that one's knowledge correlates positively with one's confidence in that knowledge, recent research evidence has not supported this relationship (Cutler & Wolf, 1989).

One explanation for the insignificant correlations may be embodied in the fact that regardless of the experimental coaches' improved performance on the knowledge questionnaire, they still responded incorrectly to 26% of the knowledge items on their posttest. The coaches, while exhibiting a significant increase in confidence, indicated only a moderate level of confidence on their posttest efficacy scale as well. Figure 2 provides a pictorial representation of the treatment coaches' confidence from pretest to posttest. The coaches only began to approach the extremely confident range on the efficacy scale. Thus, coaches may require more exposure to the CHEC content before becoming extremely confident.

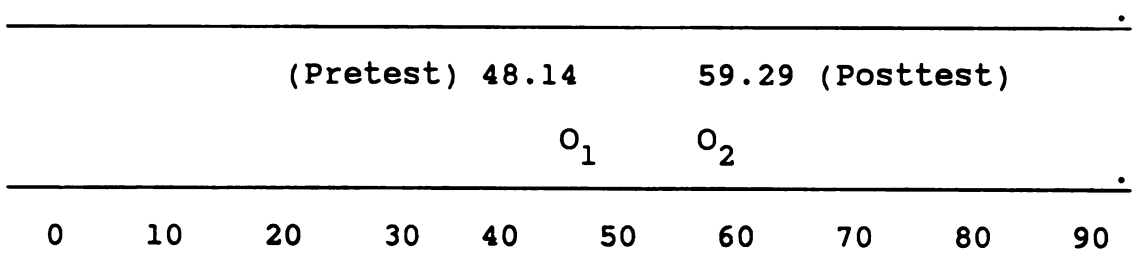

Figure 2. Confidence of Experimental Coaches

In the case of the control coaches, they indicated lower scores than the CHEC coaches (as would be expected) from pretest to posttest, responding incorrectly to 38% and 40%, respectively, of the knowledge items. However, when examining their confidence scores (Figure 3) they were in similar range to the experimental group. Although the CHEC program was found effective, caution must be taken with the coaches in the control groups, who were exposed to only an abbreviated version of CHEC and who indicated confidence in their CHEC knowledge. There exists a danger of coaches acting upon knowledge that is deficited by a false sense of confidence.

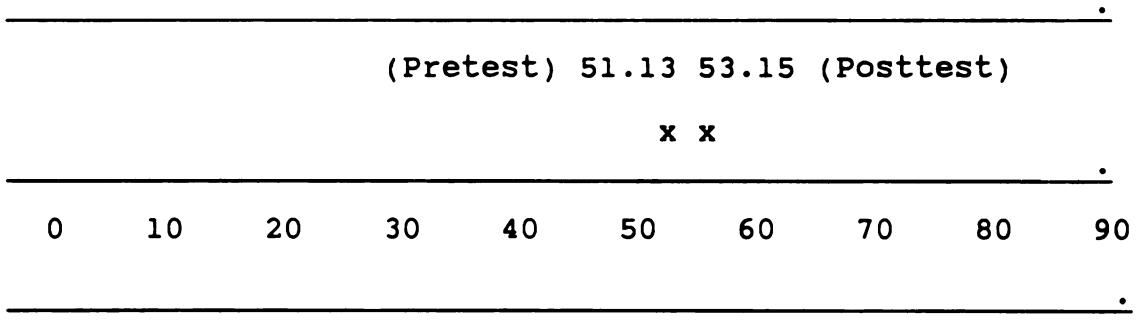

Figure 3. Confidence of Control Coaches

To summarize, this study found the CHEC program to be effective in increasing coaches' knowledge and confidence. However, attention must be paid to the fact that, CHEC's parent program, PACE utilizes a mastery model final examination upon which the coaches must achieve a score of 80% or greater if they are to pass the

course and earn coaches' certification. This 80% achievement level was not implemented for the CHEC program because coaches who were investigated in the study did not have previous exposure to chemical health information, but were expected to have some previous exposure to coaching. Therefore, to expect posttest performance of 80% or greater was unrealistic, given that this was the first time these coaches were exposed to matters regarding chemical health.

The 74% posttest knowledge and 59.29 posttest confidence scores (Figure 2) were acceptable evidence of merit that the coaches improved from pretest to posttest. However, the investigator recognizes that these are less than satisfactory attainments indicating ample room for improvement, and realizes that the present formative evaluation was effective for identifying weaknesses and strengths within the CHEC program.

The next step in the evaluative research process of chemical health education for high school athletic coaches must include measures that will contribute to coaches becoming more knowledgeable and confident in matters of chemical health. Future chemical health education programs, instruments for measurement, and subsequent evaluations need to be developed in a manner that will help to determine how to more effectively educate coaches. The improved knowledge and confidence

that CHEC has contributed to coaches' chemical health education is a worthy beginning. However, coaches deserve continued efforts, by evaluative researchers and educators, within chemical health education that will motivate them to implement effective measures with their athletes.

CHAPTER V

SUMMARY, CONCLUSIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

Summary

The purpose of this investigation was to formatively evaluate the Chemical Health Education and Coaching (CHEC) program for high school athletic coaches. CHEC was evaluated on its effectiveness in educating coaches regarding matters of chemical health specific to the athletic arena. The following three hypotheses were proposed and examined:

Hypothesis 1: Coaches who received the CHEC program would be more knowledgeable about chemical health (critical chemical information and chemical health intervention skills) than coaches who were not exposed to the CHEC program.

Hypothesis 2: Coaches who received the CHEC program would be more confident in their knowledge about chemical health (critical chemical information and chemical health intervention skills) and their ability to use them, than coaches who were not exposed to the CHEC program.

Hypothesis 3: There would be a significant positive relationship between the confidence and knowledge scores of the coaches from pre- to posttest.

Two hundred eighteen Mid-Michigan high school athletic coaches, who were predominantly majority males from both rural and urban settings, and who were mostly college educated, participated in the study. The coaches received a verbal explanation of the study and informed consent forms (Appendix J) for them to complete if they desired to participate in the study. Because the verbal explanation of the study, and the distribution of the consent forms occurred over the course of one week, the coaches also received, as part of the consent form, an additional written explanation of the study. The experimental groups were administered pretest instruments that were comprised of the Chemical Health Questionnaire and the Chemical Health Intervention Efficacy Scale. The coaches were exposed to three 1 hr CHEC sessions over a 2-week period before they were administered the posttest instruments. The control groups received the same explanation of the study and consent form procedures. Coaches in the control group were then asked to respond to the same pretest and posttest instruments that were administered to the experimental groups. The duration between the pretest and posttest was identical for the control group and the experimental group. The controls were exposed to an abbreviated version of the CHEC program following their posttest. This was provided, given the importance of the CHEC program's content, for all coaches.

The first two hypotheses were analyzed in a 2 x 2 (groups by pre/post) MANOVA with knowledge and confidence scores as the dependent measures. Results indicated significant multivariate and univariate effects for the Groups X Trials interaction. Post hoc analyses indicated that the experimental group significantly increased their knowledge of chemical health and confidence beliefs compared to the control groups, thus supporting the first two hypotheses.

The third hypothesis was analyzed using Pearson's product-moment correlation for each group at pretest and posttest. Because only one correlation was moderately significant at pretest, the third hypothesis was not supported.

Conclusions

Based upon the findings and within the limitations of this study, the following conclusions were reached:

1. The CHEC program was effective in improving coaches' knowledge regarding chemical health issues.

2. The CHEC program was effective in improving coaches' confidence about their knowledge regarding chemical health issues and their ability to use that knowledge.

3. There is no consistent relationship between coaches' chemical health knowledge and their confidence in that knowledge.

Suggestions for Future Research

A number of suggestions for future research are discussed in this section. Although the coaches who were exposed to the CHEC program improved their knowledge and confidence regarding chemical health matters in comparison to the control group, they were not able to absorb all of the information presented. This suggests that coaches may need a longer program or one that involves more interactive learning. However, as stated in the limitations, the CHEC program as it currently exists within the PACE structure will more than likely remain, at best, a 3 hr session. Therefore, future evaluative research that is conducted outside of the current structure of PACE, is needed to determine if these additions will increase the chemical health knowledge and confidence of coaches beyond that which the current CHEC program provided.

As proposed by Ringhofer (1989) in Chapter II, school-based chemical awareness programs need to be comprised of a minimum of 7 hours in length in order to be effective. Although the CHEC program is not necessarily school-based, it warrants having more time

for implementation. The duration of the current CHEC program was 3 hr for the experimental group and 1.5 hr for the control group. The investigator found from unanticipated and unsolicited comments expressed by numerous participants in the study that they requested significantly longer periods of time be spent on chemical health issues in coaching. The current format was effective, but coaches desired more time to learn about a topic that they all are faced with today and in which many have not had any previous experience. Therefore, the assumption that additional time for coaches exposed to the CHEC program would contribute to their learning more and becoming more confident in their knowledge is an assumption that is worthy for future research.

Another suggestion that warrants future research is whether or not coaches can transfer the knowledge and confidence gained from CHEC into behavior. One would hope that the coaches would use their knowledge; however, it cannot be assumed that because they have the knowledge and confidence that they will act on it. One suggestion might be to administer the CHEC program to a population of coaches prior to the beginning of their season and then follow up with an in-season field study. A field study that utilizes trained personnel to observe the coaches who were exposed to CHEC, to determine if, and how effectively, they implement the knowledge they have

attained from the program with their athletes. In conjunction with a field study, future research could employ the use of coaches' self-report instruments to compare to the findings of trained observers. These combined data could produce more effective feedback for the coaches regarding the implementation of their chemical health knowledge and intervention skills with their athletes.

Finally, some procedural aspects could be implemented and examined in an effort to provide reliable, valid, and credible evaluative research results. Test-retest reliability for the instruments used to collect data from the subjects could be conducted. Given that this study was a formative evaluation of a newly existing program, consideration must be directed toward the validity of the instruments. Follow-up research on the subjects who received the CHEC treatment could be conducted to examine the short-term or long-term effect of the program as well. Additionally, a replication of this study is recommended using a larger sample that was randomly selected and assigned.

APPENDICES

APPENDIX A

CHEMICAL HEALTH QUESTIONNAIRE:

REVISED INSTRUMENT

CHEMICAL HEALTH QUESTIONNAIRE

DIRECTIONS: Before you begin to answer the following questions, please enter the first letter of your last name and the last four digits of your social security number here ___-_____. Please read the following questions carefully and then indicate your answer to each question by **circling one of the response options (letters).**

1. When an athlete behaves uncharacteristically and the coach thinks chemical use problems may be the reason, which of the following should the coach implement first?
   a) excuse the athlete without explanation
   b) document the behavior, including who the athlete is, the time and date, and your thoughts and feelings about the circumstances
   c) wait until the upcoming competition is over to confront the athlete
   d) talk to the trainer and other staff members to see if they have noticed any unusual behavior by the athlete

2. Once alcohol is consumed it begins to effect the body in different ways depending on how much alcohol is consumed. Select the sequence in which alcohol effects the body.
   a) sensory perception, inhibitions, reasoning and judgment, muscular coordination, involuntary nervous system
   b) inhibitions, reasoning and judgment, sensory perception, muscular coordination, involuntary nervous system
   c) reasoning and judgment, sensory perception, muscular coordination, involuntary nervous system, inhibitions
   d) inhibitions, sensory perception, reasoning and judgment, muscular coordination, involuntary nervous system

3. Providing your athletes with meaningful information is critical to the success of your CHEC program. Which of the following chemicals significantly contributes to a major cause of death among 18 - 24 year olds?
   a) nicotine
   b) alcohol
   c) cocaine
   d) steroids

4. The amotivational syndrome includes: decreased motivation, increased introversion, problems with staying in the present, problems with task completion, and frustration. All are possible side effects of which one of the following chemicals?
   a) alcohol
   b) barbiturates
   c) marijuana
   d) steroids

5. When the coach discusses chemicals that kill pain and accelerate the body's recovery process, which of the following statements should be addressed?
   a) be sure the athlete consults a reliable source about the contents of the chemical he/she is going to ingest
   b) an athlete's self-medication for an injury can lead to severe health complications
   c) over-the-counter medications are not as dangerous as chemicals requiring a prescription
   d) any athlete who is going to self-medicate should check with the coach first

6. Providing your athletes with accurate information is critical to the success of your CHEC program. Which of the following substances that is produced in the brain, and that allows us to feel pleasure naturally, is synthetically imitated by cocaine,therefore causing a false sense of reality?
   a) testosterone
   b) adrenaline
   c) dopamine
   d) seratonine

7. Continued chemical involvement despite evidence of disruption in an athlete's personal, social, spiritual, athletic, emotional, psychological or economic life best defines which of the following?
   a) chemical withdrawal
   b) chemical use
   c) chemical dependency
   d) chemical treatment

8. When the coach discusses the most significant effect that alcohol can have upon physical activity (athletic performance), which of the following should he or she be sure to mention?
   a) hand-eye coordination
   b) balance
   c) the information processing system
   d) timing

9. Providing your athletes with accurate information is critical to the success of your Chemical Health Education and Coaching (CHEC) program. Which of the following chemicals causes "cutaneous vasoconstriction" (closing of blood vessels in the skin) therefore increasing the risk of frost-bite among athletes who participate in cold weather sports?
   a) marijuana
   b) alcohol
   c) methamphetamine
   d) codeine

10. There are many reasons that individuals use chemicals. Which one of the following is the main reason for a high school aged athlete to use/abuse performance enhancing chemicals?
    a) a desire to earn a college scholarship
    b) feeling pressure from public attention
    c) feeling invincible and invulnerable
    d) a constant improvement and performance expectation

11. It is important that the coach remembers to communicate effectively. Which of the following are the five key components of effective communication?
    a) experience, desire, goals, needs, values
    b) eye contact, voice tone, gestures, content, trust
    c) attitude influence, action, understanding, improved relationships, pleasure
    d) agreement, acceptance, trust, credibility, feedback

12. When discussing one of the most commonly reported negative effects of steroid abuse with male and female high school athletes, which of the following should the coach be sure to discuss?
    a) deepening of the voice (irreversible)
    b) breast shrinkage
    c) uncontrolled aggression
    d) facial hair (irreversible)

13. If the coach is going to experience a successful CHEC program, enabling behaviors must be eliminated. Which of the following best represents enabling behavior?
    a) the coach having a beer at home following practice or a game
    b) the coach not wanting to listen to one of his or her athlete's problems
    c) the coach accepting unacceptable behavior
    d) the coach not wanting to develop a close relationship with an athlete(s)

14. Which of the following is the main goal of chemical health and a CHEC-like program?
    a) understanding the impact that chemicals can have upon performance
    b) acknowledgement and acceptance of the emotional, spiritual, and social experiences of athletes
    c) use of prescription drugs that are prescribed for a specific use by a physician and that are monitored by that physician
    d) healthy and informed decisions about chemical use and non-use

15. Steroid abuse by athletes can produce several negative side effects. Which of the following best represents what coaches should be sure to discuss with their young athletes?
    a) possible cerebral vascular disorders
    b) premature fusion of the long bones of young developing athletes
    c) possible gastrointestinal disorders
    d) increased levels of aggression and other psychological disorders

16. Providing your athletes with accurate information is critical to the success of your CHEC program. Which of the following has been found in the body's adipose tissue for periods of up to four to six weeks?
    a) dianabol
    b) darvon
    c) ethyl alcohol
    d) delta-9-tetrahydrocannabinol (THC)

17. Confronting an athlete regarding chemical use problems is a challenge to coaches. Applying which of the following constructs will help the coach when confronting an athlete?
    a) pleasure, action, friendliness, understanding, attitude influence
    b) paraphrase, non-judgmentalness, memory, acceptance, listening ability
    c) get to the point (behavior specific), summarize and integrate each of the behaviors of concern, information and observation, cover any past enabling behavior, encourage a response
    d) coach's boundaries, communication skills, willingness, genuineness, responsibility to the team

18. Some chemicals remain in the body longer than others. Which of the following addresses the "prolonged effect" of chemical use on the body?
    a) ethyl alcohol will remain in the body for 48 hours
    b) methamphetamine delays the time to fatigue
    c) delta-9-tetrahydrocannabinol (THC) stores in the body's adipose tissue
    d) certain oil-based steroids can remain in the body for up to one year

DIRECTIONS: Read the following statements carefully and for the statements you believe to be true, place the letter T in the space provided. For the statements you believe to be false, place the letter F in the space provided.

1. ____ If an athlete is capable of " drinking others under the table", this could be an indication that alcohol dependency is present.

2. ____ "Discriminative", "empathetic", and "critical" are descriptors of active listening.

3. ____ Some injectable and many oral compounds of steroids cause abnormal results in tests of liver function.

4. ____ Cocaine inhibits natural nerve impulse conduction by blocking the reuptake of dopamine.

5. ____ "Purposeful sending" is a strategy for effective communication.

6. ____ Smokeless tobacco will affect an athlete's muscular strength.

7. ____ Laxatives and diuretics are used to eliminate other chemicals from the body.

8. ____ Steroids have been found to cause more permanent (irreversible) effects upon female athletes than they have upon male athletes.

9. ____ When conducting an informational confrontation, coaches should label the problem (i.e. steroid addiction) that they believe they have observed.

10. ____ An increased level of tolerance for alcohol is a characteristic of alcohol dependency.

11. ____ To listen empathetically, the coach needs to be thinking of his or her response while the athlete is finishing his/her comment.

12. ____ Chemical dependency is a treatable disease.

13. ____ Nicotine is only physiologically addictive.

14. ____ Alcohol's initial effect is one of euphoria. Therefore, it is a central nervous system stimulant.

15. ____ Contracting the AIDS virus is possible from using orally administered steroids.

16. ____ The individual who is closest to the chemical abuser is usually the last person to enable the abuser's continued abuse.

17. ____ Amphetamines are a central nervous system depressant.

18. ____ The prescription and monitoring of chemicals by a physician for an injury is an example of chemical use.

19. ____ Constructive feedback should be immediate and general; with the coach's personal judgment; and understood by the athletes.

20. ____ There are no possibilities of harmful side effects in the short-term use of steroids when taken under the supervision of a physician.

21. ____ Steroid abusers exhibit addiction symptoms that are similar to those of alcoholics and other drug addicts.

22. ____ Guarna, mawong and ginseng will not stimulate the central nervous system.

23. ____ Early maturation, minimal recognition, and role/gender conflict are examples of specific pressures that male athletes may experience.

24. ____ Developing a personal and team chemical health philosophy is not the responsibility of the coach.

25. ____ Narcotic analgesics will not lead to addiction.

26. ____ Marijuana decreases the time that it takes for an athlete to reach his or her VO2 Max (maximum oxygen uptake capacity).

27. ____ Cocaine and steroid abuse is the biggest drug problem in sport today.

28. ____ Any individual who drinks alcohol is using a drug.

BACKGROUND INFORMATION

Upon completion of the chemical health knowledge questionnaire, please take a moment to respond to the following items. This information will be used for analysis purposes only. The anonymity and confidentiality issues that were discussed earlier, apply to this information as well.

Age_____

Sex _____Male_____Female

What is the highest level of formal education you have obtained (check one)?

Completed grades 7, 8 or 9 _____
Completed grades 10 or 11 _____
High School graduate _____
One to three years of college _____
Associate's degree _____
Bachelor's degree _____
Master's degree _____
Ph.D. or Ed.D. _____
M.D., D.O., D.D.S, or D.V.M. _____
Law _____
Other (please specify) _____

Ethnic Racial Group?

White Caucasian _____
Black/Afro American _____
Chicano/Mexican American _____
Spanish American/Hispanic _____
American Indian _____
Asian/Pacific Islander _____
Other (please specify) _____

List sport(s) you are currently coaching _____

List any previous educational experiences in chemical health (e.g., workshops, courses, conferences) _____

How many years/months have you coached sports? _____

Please indicate in the space provided, comments about the CHEC program's written text, presentations, overheads, video, presenter, or questionnaires that you would like to make. Thank you for your willingness to be a participant in this study.

_____
_____
_____
_____
_____
_____
_____
_____
_____

APPENDIX B

CHEMICAL HEALTH INTERVENTION EFFICACY SCALE:

REVISED INSTRUMENT

CHEMICAL HEALTH INTERVENTION EFFICACY QUESTIONNAIRE

INSTRUCTIONS: Before you fill out this questionnaire, please enter the first letter of your last name and the last four digits of your social security number in the space provided ___-_____. For each of the following items, **circle the number** that best represents your confidence. When you complete this questionnaire, raise your hand so you can be given the second questionnaire.

How confident are you . . .	Not at all confident									Extremely confident
1. in your **knowledge of chemicals** used by athletes today.	0	1	2	3	4	5	6	7	8	9
2. regarding your **ability to identify uncharacteristic behaviors** exhibited by an athlete, that may indicate a chemical abuse problem.	0	1	2	3	4	5	6	7	8	9
3. regarding your **ability to clearly state** what you expect from your athletes in reference to their chemical health.	0	1	2	3	4	5	6	7	8	9
4. regarding your **ability to successfully intervene** with an athlete experiencing chemical-related problems.	0	1	2	3	4	5	6	7	8	9
5. regarding your **ability to educate your team** about specific physiological and psychological effects that certain chemicals can produce.	0	1	2	3	4	5	6	7	8	9
6. regarding your **ability to lead a discussion** with your athletes about pressures that are unique to athletics and that could lead an athlete to use/abuse a chemical(s).	0	1	2	3	4	5	6	7	8	9

(over)

How confident are you . . .	Not at all confident									Extremely confident
7. regarding your **ability to communicate clear messages** about team chemical health expectations.	0	1	2	3	4	5	6	7	8	9
8. regarding your **ability to confront unacceptable behavior** that is exhibited on your team.	0	1	2	3	4	5	6	7	8	9
9. regarding your **ability to seek assistance** in the development of a Chemical Health Education and Coaching (CHEC) program for your athletes.	0	1	2	3	4	5	6	7	8	9

APPENDIX C

CONTENT VALIDITY FORM: CRITICAL ASPECTS

Item #5

CONTENT VALIDITY FORM: CRITICAL ASPECTS

DIRECTIONS: Please read each of the rating criteria below and rate (R), in the space provided, how critical each of the content (CON) areas are for the education of high school athletic coaches in the area of chemical health. If you rate any content area at 3 or below, please indicate your reasons for the low rating in the comment (COM) space that is provided. Also, please include any suggestions for change that you may have, and your rationale for altering this content.

5 - This is **EXTREMELY CRITICAL** to the coaches becoming knowledgeable and confident about critical chemical information and chemical health intervention skills.

4 - This is **CRITICAL** to the coaches becoming knowledgeable and confident about critical chemical information and chemical health intervention skills.

3 - This is **MODERATELY CRITICAL** to becoming knowledgeable about critical chemical information and chemical health intervention skills.

2 - This is **SLIGHTLY CRITICAL** to the coaches becoming knowledgeable about critical chemical information and chemical health intervention skills.

1 - This is **NOT CRITICAL** to the coaches becoming knowledgeable about critical chemical information and chemical health intervention skills.

1) CON - Use and abuse of chemicals in athletics: an introduction to the problem.

R - ____

COM - _____

2) CON - Defining the various levels at which an athlete may become involved with chemicals.

R - ____

COM - _____

3) CON - Athletes and chemicals: why might they use chemicals?
R ____
COM _____

4) CON - The myths and realities of the effects that chemicals have upon performance, the body, and the mind.
R ____
COM _____

5) CON - Pressures within athletics that could act to influence chemical use by athletes.
R ____
COM _____

6) CON - Characteristics or behavioral signs (symptoms) that athletes might exhibit if they are involved with chemicals.
R ____
COM _____

7) CON - The coach's response to chemical issues.
R ____
COM _____

8) CON - The coach's role in establishing prevention of chemical problems.
R ____
COM _____

9) CON - The team's involvement in establishing a chemical-free environment.
R ____
COM _____

10) CON - Coaches' enabling behavior; a key factor in chemical use problems.
R ____
COM _____

11) CON - Effective communication: a key factor in eliminating enabling behavior and chemical use problems.
R ____
COM _____

12) CON - Confrontation technique; a key factor in eliminating enabling behavior and chemical use problems.

R ____

COM _____

If you have identified any content areas that you feel are not critical in educating coaches chemical use and health issues, and that should be removed from CHEC, please indicate and explain below. Likewise, if you feel that there are other critical content areas that are missing and that should be added to CHEC, please indicate and explain below.

APPENDIX D

CHEMICAL HEALTH QUESTIONNAIRE: PRELIMINARY DRAFT FOR RATER EVALUATION

INSTRUMENT # 1
CHEMICAL HEALTH QUESTIONNAIRE

DIRECTIONS: Before you begin the following questions, please enter the first letter of your last name and the last four digits of your social security number here ___-_____. Please read the following questions carefully and then indicate your response to the question by **circling** one of the letters. When you complete the questionnaire, raise your hand so that the monitor will know when you are ready for the second questionnaire.

1. Chemical health is a positive response to chemical use problems. Which of the following is a critical component of chemical health?
   a) understanding the impact that chemicals can have upon performance
   b) acknowledgement and acceptance of the emotional, spiritual, and social experiences of athletes
   c) use of prescription drugs that are prescribed for a specific use by a physician and that are monitored by the physician
   d) healthy and informed decisions about chemical use and non-use
   e) all of the above

   RR _____ COM _____

2. Narcotic analgesics that athletes may choose to use for pain reduction include which of the following?
   a) darvon
   b) aspirin
   c) motrin
   d) seconal
   e) a & d only
   f) b & c only

   RR _____ COM _____

3. Steroid abuse by athletes can produce several negative side effects. While coaches should not overlook or downplay any of them, which of the following is a main concern, but is also difficult for the young athlete to relate to?
   a) steroids can increase weight and strength gains and increase the chance of injury
   b) steroids cause premature fusion of the long bones of young developing athletes
   c) steroids increase the risk of cardiovascular damage as a result of an increased number of low density lipoproteins (LDL's), and a decrease in the number of high density lipoproteins (HDL's)
   d) testicle shrinkage (males) and clitoral enlargement (females)
   e) acne vulgaris

   RR _____ COM _____

4. Which of the following are the five key components of effective communication?
   a) experience, desire, goals, needs, values
   b) eye contact, voice tone, gestures, content, trust
   c) attitude influence, action, understanding, improved relationships, pleasure
   d) agreement, acceptance, trust, credibility, feedback

   RR _____ **COM** _____

5. The review of research studies by the American College of Sports Medicine dealing with the effect of alcohol on physical activity, discovered which of the following aspects of performance to be most adversely effected?
   a) the body's temperature regulating system
   b) hand-eye coordination
   c) balance
   d) the information processing system
   e) timing

   RR _____ **COM** _____

6. Which of the following is the foundation of enabling behavior?
   a) the coach having a beer at home following practice or a game
   b) the coach not wanting to listen to one of his or her athlete's problems
   c) accepting unacceptable behavior
   d) the coach not wanting to develop a close relationship with an athlete(s)

   RR _____ **COM** _____

7. Which of the following addresses the "prolonged effect" of chemical use?
   a) ethyl alcohol will remain in the body for approximately 48 hours
   b) methamphetamine delays the amount of time to fatigue
   c) tetrahydrocannabinol (THC) stores in the body's adipose tissue
   d) certain oil-based steroids can remain in the body for over one year
   e) all of the above

   RR _____ **COM** _____

8. When a coach thinks one of her/his athletes is behaving uncharacteristically and thinks chemical use problems may be the reason, which of the following steps should the coach implement?
   a) excuse the athlete from training, practice, or the competition
   b) wait until the coach is absolutely positive of what was causing the behavior
   c) document the behavior (thoughts, feelings, the athlete, time, date, etc.)
   d) wait until the upcoming competition is over to confront the athlete
   e) none of the above

   RR _____ **COM** _____

9. Which of the following are criteria for success in confrontations between a coach and athlete?
   a) pleasure, action, improved relationships, understanding, attitude influence
   b) paraphrasing, non-judgmental, memory, acceptance, listening
   c) get to the point (behavior specific), summarize and integrate each of the behaviors of concern based on information and observation, include any past enabling behavior, encourage a response
   d) coach's boundaries, communication skills, willingness, genuineness, responsibility to the team
   e) none of the above

   RR _____ **COM** _____

10. When discussing the negative effects of steroid abuse with male and female high school athletes, which of the following results is most likely to call into question their feelings of invincibility and invulnerability?
   a) alteration of neuron quantity and size
   b) increase and decrease of sex drive
   c) tumor development
   d) immune system disorders
   e) connective tissue damage
   f) cerebral vascular disorders
   g) turn men into women, and women into men
   h) all of the above

   RR _____ **COM** _____

11. The "amotivational syndrome" includes decreased motivation, increased introversion, problems with staying in the present, problems with task completion, and frustration. All are possible side effects of which one of the following chemicals?
   a) dextroamphetamine
   b) smokeless tobacco
   c) alcohol
   d) barbiturates
   e) marijuana
   f) AAS
   g) muscle relaxants
   h) LSD

   RR _____ **COM** _____

12. Once alcohol is consumed it begins to physiologically effect the body in different ways depending on how much alcohol is consumed. Select the sequence in which alcohol effects the body:
    a) impaired sensory perception, inhibitions, reasoning and judgment, muscular coordination, involuntary nervous system
    b) inhibitions, reasoning and judgment, sensory perceptions, muscular coordination, involuntary nervous system
    c) reasoning and judgment, sensory perception, muscular coordination, involuntary nervous system, inhibitions
    d) inhibitions, sensory perceptions, reasoning and judgment, muscular coordination, involuntary nervous system

    RR _____ **COM** _____

13. Which of the following chemicals causes cutaneous vasoconstriction (closing of blood vessels in the skin) and therefore increases the risk of frost-bite among athletes who participate in cold weather sports?
    a) cocaine
    b) marijuana
    c) alcohol
    d) amphetamine
    e) codeine
    f) a & d only
    g) b & c only

    RR _____ **COM** _____

14. Which of the following chemicals contributes significantly to the main cause of death among 18 - 24 year olds?
    a) nicotine
    b) alcohol
    c) cocaine
    d) steroids
    e) amphetamine
    f) c & d only

    RR _____ **COM** _____

15. Which of the following is the main reason that high school aged athletes use/abuse chemicals?
    a) a desire to earn a college scholarship
    b) feeling pressure from public attention as a result of their athletic performance
    c) feeling invincible and invulnerable
    d) a constant improvement and performance expectation

    RR _____ **COM** _____

16. Which chemical stores in the body's adipose tissue?
    a) dianabol
    b) darvon
    c) ethyl alcohol
    d) cocaine
    e) THC
    f) b & c only
    g) none of the above

    RR _____ **COM** _____

17. An initial state of euphoria, increased tolerance, invincibility and invulnerability, grandiosity, loss of reality, and continued use in spite of negative outcomes are examples of which of the following?
    a) steroid withdrawal
    b) chemical abuse
    c) alcohol misuse
    d) chemical dependency
    e) barbiturate withdrawal
    f) none of the above

    RR _____ **COM** _____

18. Which of the following neuro-chemical substances that are produced in the brain, and that allow us to feel pleasure naturally, are synthetically imitated by cocaine?
    a) endorphins
    b) adrenaline
    c) dopamine
    d) seratonine
    e) a & d only
    f) a & c only

    RR _____ **COM** _____

DIRECTIONS: Read the following statements carefully and for the statements you believe to be true, place the number 1 in the space provided. For the statements you believe to be false, place the number 2 in the space provided.

1. ____ Smokeless tobacco will affect an athlete's strength.

   RR _____ **COM** _____

2. ____ Alcohol's initial effect is one of euphoria. Therefore, it is a central nervous system stimulant.

   RR _____ **COM** _____

3. ____ When conducting an informational confrontation, the coaches should label the problem (i.e. steroid addiction) they believe they have observed.

   RR _____ **COM** _____

4. ____ Constructive feedback should be: immediate; general; with the coaches personal judgment; and understood by the athletes.

   RR _____ **COM** _____

5. ____ Steroids have a more permanent (irreversible) effect upon female athletes than they do upon male athletes.

   RR _____ **COM** _____

6. ____ Amphetamines are a central nervous system depressant.

   RR _____ **COM** _____

7. ____ Marijuana decreases the time that it takes for an athlete to reach his or her VO2 Max (maximum oxygen uptake capacity).

   RR _____ **COM** _____

8. ____ To listen empathetically, the coach needs to be thinking of his or her response while the athlete is finishing their comment.

   RR _____ **COM** _____

9. ____ Developing a chemical health team and personal philosophy is not the coach's responsibility.

RR _____ COM _____

10. ____ Steroid abusers exhibit addiction symptoms that are similar to those of alcoholics and other drug addicts.

RR _____ COM _____

11. ____ Narcotic analgesics will not lead to addiction.

RR _____ COM _____

12. ____ Contracting the AIDS virus is possible from using orally administered steroids.

RR _____ COM _____

13. ____ Laxatives and diuretics are used to mask other chemicals.

RR _____ COM _____

14. ____ The prescription and monitoring of a chemical by a physician for an injury is an example of chemical use.

RR _____ COM _____

15. ____ The individual who is closest to the chemical abuser is usually the last person to enable their continued abuse.

RR _____ COM _____

16. ____ "Discriminative", "emphatic", and "critical" are examples of active listening.

RR _____ COM _____

17. ____ There is no possibility of harmful side effects in the short-term use of steroids when taken under the supervision of a physician.

RR _____ COM _____

18. ____ Purposeful sending is a strategy for effective communication.

RR _____ COM _____

19. ____ The herb guarna, and the mawong and ginseng teas will help an athlete relax.

RR _____ COM _____

20. ____ Cocaine and steroid abuse is the biggest drug problem in sport today.

RR _____ COM _____

21. ____ Some injectable and many oral compounds of steroids cause abnormal liver function tests.

RR _____ COM _____

22. ____ Any individual who drinks alcohol is using a drug.

RR _____ COM _____

23. ____ Early maturation, minimal recognition, and role/gender conflict are examples of specific pressures that male athletes may experience.

RR _____ COM _____

24. ____ An increased level of tolerance for alcohol is a characteristic of alcohol dependency.

RR _____ COM _____

25. ____ Nicotine is only physiologically addictive.

RR _____ COM _____

26. ____ Cocaine blocks nerve impulse conduction.

RR _____ COM _____

27. ____ Hearing that one of your athletes is capable of "drinking others under the table" is a sign of alcohol dependency.

RR _____ COM _____

28. ____ Chemical dependency is a treatable disease.

RR _____ COM _____

APPENDIX E

QUESTIONNAIRE VALIDITY FORM:

ASPECTS OF RELEVANCY

QUESTIONNAIRE VALIDITY FORM:

ASPECTS OF RELEVANCY

DIRECTIONS: Please read each of the rating scale criteria listed below, and in the spaces provided on Instrument #1 (the Chemical Health Questionnaire) rate how relevant (Relevancy Rating-RR) each of the questionnaire items are in terms of educating high school athletic coaches in chemical health. Instrument #2 (the Chemical Health Intervention Efficacy Scale) requires a relevancy (Relevancy Rating RR) as well. If you rate any item at a 3 or below, please indicate your reasons for the low rating in the comment (COM) space that is provided. Also, please include any suggestions for change that you may have, and your rationale for altering this content.

RELEVANCY RATING:

5 - This is an **EXTREMELY RELEVANT** item for evaluating the coaches' knowledge and confidence regarding critical chemical information and chemical health intervention skills.

4 - This is a **RELEVANT** item for evaluating the coaches' knowledge and confidence regarding critical chemical information and chemical health intervention skills.

3 - This is a **MODERATELY RELEVANT** item for evaluating the coaches' knowledge and confidence regarding critical chemical information and chemical health intervention skills.

2 - This is a **SLIGHTLY RELEVANT** item for evaluating the coaches' knowledge and confidence regarding critical chemical information and chemical health intervention skills.

1 - This is **NOT A RELEVANT** item for evaluating the coaches' knowledge and confidence regarding critical chemical information and chemical health intervention skills.

APPENDIX F

CHEMICAL HEALTH INTERVENTION EFFICACY SCALE:

PRELIMINARY DRAFT FOR RATER EVALUATION

INSTRUMENT #2
CHEMICAL HEALTH INTERVENTION EFFICACY SCALE

INSTRUCTIONS: Before you fill out this questionnaire, please enter the first letter of your last name and the last four digits of your social security number here _____. For each of the following items, circle the number that best represents your level of confidence.

How confident are you...	Not at all confident									Extremely confident
1. ... in your knowledge about various chemicals that athletes are using today.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										
2. ... regarding your ability to identify uncharacteristic behaviors exhibited by an athlete that may indicate a chemical abuse problem.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										
3. ... in your ability to communicate clear messages to your athletes regarding their personal chemical health expectations.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										
4. ... in your ability to successfully intervene with an athlete about chemical abuse problems.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										
5. ... in your ability to educate your team about specific physiological and psychological effects that certain chemicals can produce.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										

How confident are you...	Not at all confident									Extremely confident
6. ... in your ability to lead a discussion with your athletes regarding pressures that are unique to athletics and that could lead an athlete to use/ abuse a chemical (s).	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										
7. ... in your ability to communicate clear messages regarding team chemical health expectations.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										
8. ... in your ability to confront enabling behavior that is exhibited on your team.	0	1	2	3	4	5	6	7	8	9
RR _____ **COM** _____										

APPENDIX G

NATIONAL ASSOCIATION FOR SPORT AND PHYSICAL EDUCATION: A POSITION PAPER

Recognizing the value of experience outside formal education and the practicum, it is highly recommended that the prospective coach should have participated in some competitive sport, preferably the sport to be coached.

CONCLUSION

It is the belief of this committee that in the hiring of interscholastic coaches, top priority be given to candidates with both teaching and coaching certification. Next priority is the candidate with this coaching certification only. The joint committee recognizes that non-certified coaches are being used in many situations. The committee encourages local school districts, state high school activity associations, and/or state boards of education to require non-certified coaches to enroll in instructional programs leading to the attainment of coaching certification.

NOTE

THE Joint Committee on Coaching Certification has completed a survey on the current status of requirements for interscholastic coaches. Data were also obtained on voluntary coaching certification programs and state minimum requirements for coaches during 1986-87.

THE survey revealed that ten states have no established state standards which govern the hiring of interscholastic coaches. The most common requirement in the other 40 states is a teaching certificate, which is required for *all* coaches in 25 states. Five states require coaching certification for some or all of their coaches (Arkansas, Iowa, Minnesota, New York and Wyoming). There are nine states with voluntary coaching certification programs.

EXCEPTIONS to state regulations are common. Liability concerns, however, prompted one state activities association to discontinue the authorization of exceptions to avoid being held liable.

THE lack of coaching job openings with corresponding teaching openings has been a major factor in allowing many local school districts the authority to determine what standards effect the hiring of coaches.

THE survey results indicate continuation of a trend. This trend of hiring non-teachers to coach and requiring limited or no professional preparation is cause for concern about the educational value and safe conduct of interscholastic athletic programs.

THE complete survey results may be obtained by sending a self-addressed, stamped envelope to: NASPE/NAGWS Survey, 1900 Association Drive, Reston, VA 22091.

NAGWS

For nearly a century, The National Association for Girls and Women in Sport (NAGWS) has been a significant force for the professional development and promotion of girls and women in sport. Founded in 1899, NAGWS has devoted itself to providing opportunities for girls and women in sport related disciplines and careers. The first intercollegiate championships for women were held in 1969 leading to the creation of the NAGWS structure, AIAW, in 1971. Rules for women's sports have been written and published since 1901.

Today, NAGWS serves the special interests of over 10,000 professionals involved in teaching, coaching, or officiating sports, and in athletic administration, athletic training, club sports and intramurals.

As a force for the future, NAGWS will continue in its leadership role as the premiere educational organization serving and promoting sport leadership and physical activity for all females.

NASPE

The National Association for Sport and Physical Education (NASPE) is the only national organization devoted to strengthening basic knowledge in sport and physical education, disseminating that knowledge among professionals and the general public, and putting knowledge into action in schools and communities across the nation.

NASPE serves the special interests of over 23,000 professionals including physical educators; coaches; athletic directors; athletic trainers; youth sport, fitness and intramural directors; physical education and sport administrators; students; researchers and sport scientists.

Founded in 1885, NASPE continues to enhance the role of physical education and sport in improving the quality of life for individuals through publications, award programs, clinics/conferences, position papers, guidelines, research, and public information programs.

AAHPERD

NAGWS and NASPE are associations of the American Alliance for Health, Physical Education, Recreation and Dance. For membership information, write AAHPERD Membership, 1900 Association Drive, Reston, VA 22091.

Coaching Certification

A Position Paper Prepared by the

Joint Committee on Coaching Certification

of the

National Association for Girls and Women in Sport

National Association for Sport and Physical Education

Athletics is afforded prominence in the educational process, and can have far-reaching effects physically, socially, emotionally and intellectually. The nature of the experience gained from participation in an athletic program is strongly influenced by the qualifications and competencies of the coach. Thus it is paramount that potential coaches be prepared through professional programs designed to develop coaching competencies. The following six components represent the essential elements for certifying coaches of athletics in education.

I. MEDICAL-LEGAL ASPECTS OF COACHING

BECAUSE WE BELIEVE the health, physical welfare and safety of the participant is a primary concern of the athletic program, the program shall provide for knowledge and competencies in first aid, care, prevention and recovery from athletic injuries.

II. HUMAN GROWTH AND DEVELOPMENTAL ASPECTS OF COACHING

BECAUSE WE BELIEVE applied knowledge of human growth and development can be related to health and safety, the program shall provide for knowledge and competencies in human growth and development with special emphasis on the practical application for training and conditioning.

III. PSYCHO-SOCIAL ASPECTS OF COACHING

BECAUSE WE BELIEVE it is essential that the coach provide positive leadership for appropriate player behavior in the athletic program, the program shall provide for knowledge and competencies in the behavioral aspects of athletic performance and the athlete's relationship with society.

IV. BIO-PHYSICAL ASPECTS OF COACHING

BECAUSE WE BELIEVE that application of the knowledge of anatomical, kinesiological and physiological principles provide a sound basis for maximizing performance and minimizing injury in athletic competition, the program shall provide knowledges and competencies in these scientific aspects of athletic performance.

V. THEORETICAL AND TECHNICAL ASPECTS OF COACHING

BECAUSE WE BELIEVE in a specific body of knowledge underlying the coaching process, the program shall provide for knowledges and competencies in the organization, theory and techniques of coaching.

VI. PRACTICUM IN ATHLETIC COACHING

BECAUSE WE BELIEVE professional laboratory experiences constitute an essential part of the education sequence for the preparation of athletic coaches, the program shall provide supervised practicum in athletic coaching.

Sports programs are safest, provide maximum opportunities for positive social-emotional development, and are most enjoyable where competent leadership is provided. The NAGWS/NASPE Joint Coaching Certification Committee strongly recommends that the certification of coaching procedures be upgraded throughout the United States.

COACHING CERTIFICATION COMPETENCIES

The following competencies are recommended to serve as guidelines to fulfill the six components of coaching certification:

I. MEDICAL-LEGAL ASPECTS OF COACHING

A. Condition athletes properly for each sport.
B. Utilize safe playing conditions and protective equipment.
C. Provide in-service education for student assistants.
D. Demonstrate skill in the prevention and care of injuries generally associated with athletics.
E. Identify and relate basic medical and safety information pertaining to athletic coaching.
F. Plan and coordinate procedures for emergency care.
G. Render appropriate emergency care.
H. Utilize a system of accident reporting.
I. Coordinate the roles of the coach and the trainer to the physician.
J. Provide for rehabilitation when appropriate.
K. Identify adequate athletic insurance coverage.
L. Understand the legal aspects of coaching liability.
M. Apply research findings appropriate to the above component.

II. HUMAN GROWTH AND DEVELOPMENTAL ASPECTS OF COACHING

A. Identify and relate to the sequential physical and motor development from adolescence through adulthood.
B. Provide experiences appropriate to the growth and development level of adolescents.
C. Analyze human performance in terms of developmental facts.
D. Identify problems of the adolescent and refer when necessary.
E. Identify and utilize methods and procedures for developing, training and conditioning athletes.
F. Analyze the concepts of vocation and avocation in terms of the relationship of interest and ability.
G. Apply research findings appropriate to the above component.

III. PSYCHO-SOCIAL ASPECTS OF COACHING

A. Motivate athletes toward immediate and long-range goals.
B. Relate and interpret the program to co-workers, athletes, parents, and the general public.
C. Identify and apply ethical conduct in athletics.
D. Integrate athletics with the total educational program.
E. Identify and interpret values which are developed from participation in sports.
F. Identify desirable leadership traits and structure experiences to develop them.
G. Identify with and participate in professional and related organizations.
H. Identify and utilize basic psychological and sociological principles related to coaching.
I. Identify factors and conditions affecting motor learning, particularly of the highly skilled.
J. Apply a humanistic approach to personalize a coaching philosophy.
K. Recognize and initiate procedures to resolve behavioral and emotional problems.
L. Maintain emotional stability under stress.
M. **Recognize relationship between personality and socialization variables.**
N. **Apply research findings appropriate to the above component.**

IV. BIO-PHYSICAL ASPECTS OF COACHING

A. Identify and utilize the mechanics of movements within body limitations.
B. Analyze performance based upon anatomical and mechanical principles.
C. Relate motor performance to individual body structure.
D. Relate human anatomy, physics, and movement to safety of the participant.
E. Relate motor performance to biomechanical analysis.
F. Identify functional systems and physiological factors for analyzing sports performance.
G. Identify the effects of environmental conditions and exercise upon the circulatory and respiratory systems.
H. Identify the effects of nutrition upon health and performance.
I. Identify the physiological response to training and conditioning.
J. Identify and interpret the use and effect of drugs upon the body.
K. **Apply research findings appropriate to the above component.**

V. THEORETICAL AND TECHNICAL ASPECTS OF COACHING

A. **Identify and utilize principles involved in the fundamental skills of teaching and coaching.**
B. **Identify and utilize the specific skills, techniques and rules of the sport coached.**
C. **Identify and apply specific game tactics and strategy.**
D. **Organize and implement materials for scouting, practice planning and competitive situations.**
E. **Identify and utilize appropriate audiovisual materials and equipment.**
F. **Evaluate and select personnel involved in the athletic program.**
G. **Demonstrate organizational and administrative efficiency in implementing sports programs.**
H. **Understand the role of the coach and athlete in relationship to the official.**
I. **Evaluate athletic performance and programs.**
J. **Understand and enforce the rules and regulations of appropriate governing bodies.**
K. **Identify and utilize essentials governing contest management.**
L. **Apply research findings appropriate to the above component.**

VI. PRACTICUM IN ATHLETIC COACHING

A. Demonstrate knowledge of skill development through practice planning.
B. Organize, conduct and evaluate practice sessions.
C. Assist in performance evaluation, game analysis and event management.
D. Experience appropriate planning for the age group and skill level involved.
E. Develop aspects of ones coaching philosophy.
F. Participate in school and community public relations activities.
G. Experience office and time management.
H. Review budgeting procedures and materials.
I. Assist with equipment maintenance and distribution.
J. Assist in psychological preparation.
K. Implement self-evaluation techniques.
L. Participate in performance appraisal with a cooperating coach.
M. Apply research findings appropriate to the above component.

APPENDIX H

THE CHEC PROGRAM: GOALS AND OBJECTIVES, ACTIVITIES, AND EVIDENCE OF MERIT

OVERVIEW OF THE CHEC PROGRAM

SESSION ONE

Critical chemical information

Goals/Objectives (Statement of Intent)

For high school athletic coaches to become knowledgeable and confident in that knowledge regarding critical chemical information that includes: defining chemical health; discussing athletic and personal pressures that may influence chemical involvement; identifying chemicals used and abused in sport (for e.g., stimulants, anabolic-androgenic steroids, narcotic and nonnarcotic pain reducers, diuretics, laxatives, alcohol, marijuana, and more); describing the realities about the effects that chemicals have upon the body, mind, and performance; and identifying signs that may indicate chemical use problems by athletes.

Activities (Means of Achieving Goals and Objectives)

Information collected from various research findings, other drug education programs, and personal experience as it relates specifically to the goal and each of the stated objectives will be presented to the coaches. The presentation of material will occur in a 60 minute lecture and discussion format which allows questions to be fielded by the presenter as the session progresses, or upon its completion during a question-answer period. Overhead transparencies will be used to assist in the dissemination of information.

Acceptable Evidence of Merit

It would be determined that the coaches have become knowledgeable regarding the content covered in session one, when they exhibit a significant improvement from pretest to posttest scores on the Chemical Health Questionnaire. It would also be determined that the coaches have become confident in their knowledge and their ability to use it with their athletes, when significant improvement from pretest to posttest scores

on the Chemical Health Intervention Efficacy Scale were exhibited.

SESSION TWO

Intervention skills

Goals/Objectives (Statement of Intent)

The main purpose of this session is for high school athletic coaches to become knowledgeable and confident in their knowledge regarding chemical health intervention skills. Information collected from findings in the literature and other programs concerned with drug education will be presented. The main objectives developed for this session include: defining negative enabling behavior; explaining negative enabling components, and providing coach-specific examples of negative enabling behavior; presenting examples of the difference between negative enabling behavior and healthy intervening behavior; eliminating coaches' negative enabling behavior through successful confrontation/ intervention techniques; and instructing coaches on how to prepare for a confrontation.

Activities (Means of Achieving Goal and Objectives)

Information regarding negative enabling behavior and confrontation/intervention of that negative behavior will be presented in a lecture/discussion format. Again, the coaches are encouraged to ask questions as the session progresses or once the session concluded. Overhead transparencies are used to assist in the presentation.

Acceptable Evidence of Merit

It would be determined that the coaches have become knowledgeable regarding the content covered in session two, when they exhibit a significant improvement from pretest to posttest scores on the Chemical Health Questionnaire. It would also be determined that the coaches have become confident in their knowledge and their ability to use it with their athletes, upon significant improvement from pretest to posttest scores on the chemical Health Intervention Efficacy Scale.

SESSION THREE

Use of knowledge and skills

Goals/Objectives (Statement of Intent)

For coaches to become knowledgeable and confident in their knowledge and their ability to use it with their athletes. The primary objective of this final session is to have the coaches observe how a confrontation/ intervention might be experienced. A video that the coaches will view contains many aspects of the content that is covered in the first two sessions and in the CHEC text as well.

Activities (Means of Achieving Goal and Objectives)

This session begins with a brief question and answer period to field any concerns the coaches might have over the previously presented materials. Following the question and answer period, the video is introduced and its purpose is explained to the coaches. The video is 18 minutes and 7 seconds in length. Following the video questions and comments by the coaches are fielded by the

presenter. Upon the completion of the initial thoughts and comments by the coaches, the presenter then guides the coaches through a vignette that is a continuation of the scenario depicted in the video, and that reemphasizes the role of coaches. After completion of the third session, the coaches are administered the posttest instruments for knowledge and confidence.

Acceptable Evidence of Merit

It would be determined that the coaches have become knowledgeable regarding the content that is covered in session three, when they exhibit a significant improvement from pretest to posttest scores on the Chemical Health Questionnaire. It would also be determined that the coaches have become confident in their knowledge and their ability to use it with their athletes, upon significant improvement from pretest to posttest scores on the Chemical Health Intervention Efficacy Scale.

APPENDIX I

T-TESTS COMPARING SUBJECTS WITH PREVIOUS CHEMICAL HEALTH EDUCATION WITH SUBJECTS WITHOUT PREVIOUS CHEMICAL HEALTH EDUCATION

Table A-1

T-Tests Comparing Subjects with Previous Chemical Health Education with Subjects Without Previous Chemical Health Education

Trial	p	Group	n	m	SD
Experimental					
Pretest knowledge	.036	1	28	30.7	4.2
		2	36	28.7	4.3
Pretest confidence	.029	1	27	55.1	13.0
		2	68	48.3	13.8
Posttest knowledge	.259	1	23	35.0	4.0
		2	53	33.8	4.5
Posttest confidence	.054	1	23	64.6	8.9
		2	52	59.5	10.9
Control					
Pretest knowledge	.036	1	31	29.9	3.4
		2	69	28.1	4.1
Pretest confidence	.026	1	31	59.4	10.8
		2	68	28.1	4.1
Posttest knowledge	.031	1	25	29.8	4.1
		2	55	27.5	4.3
Posttest confidence	.262	1	25	56.6	13.7
		2	55	52.8	14.1

Note: Group 1 = Coaches with previous chemical health education. Group 2 = Coaches without previous chemical health education.

APPENDIX J

COACH'S CONSENT FORMS

Informed Consent Form

Michigan State University
Department of Health and Physical Education

Investigator: James P. Corcoran

I, _____, hereby agree to participate as a
(print name)
volunteer in an evaluation of the Chemical Health Education and Coaching(CHEC) program as an authorized part of the research program in the Department of Physical Education at Michigan State University under the supervision of **Dr. Deborah Feltz.**

I will be asked to complete two sets of questionnaires, regarding my chemical health knowledge and confidence, at the onset of the second PACE session and once again before the CHEC program that I will receive in the fourth PACE session. My responses will remain anonymous.

The study and my part in the study have been defined and fully explained to me and I understand this explanation. I have been given the opportunity to ask whatever questions I may have had and all such questions and inquiries have been answered to my satisfaction. I understand that my participation in this study does not guarantee any beneficial results to me. I understand that any data or answers to questions will remain anonymous with regard to my identity. Within these restrictions, results of the study will be made available to me at my requests. I FURTHER UNDERSTAND THAT I AM FREE TO WITHDRAW MY CONSENT AND DISCONTINUE MY PARTICIPATION AT ANY TIME.

_____	_____	_____
Date	Date of Birth	Subject's Signature

I, the undersigned, have defined and fully explained the study to the above subject.

_____	_____
Date	Investigator's Signature

APPENDIX K

OPENING STATEMENT TO SUBJECTS

OPENING STATEMENT FOR EXPERIMENTAL GROUPS:

(read and discuss at PACE registration)

The Chemical Health Education and Coaching (CHEC) component of the PACE program in which you have enrolled is part of a research study in which CHEC will be evaluated for its effectiveness. Therefore, the Michigan High School Athletic Association, the Youth Sports Institute and its representative, Jim Corcoran, who will be here each of the next three weeks, have requested your participation in this evaluation.

More specifically, CHEC effectiveness will be evaluated in terms of how knowledgeable and confident you become pertaining to critical chemical information and chemical health intervention skills as determined from results of questionnaires that you will be requested to complete.

The group in which you have enrolled has been selected as one of two that will receive the CHEC program. Two other groups, also enrolled in PACE, were selected as control groups. Results from your questionnaires will be analyzed and compared to the groups that are not exposed to CHEC. We have

hypothesized that the groups that are exposed to the CHEC program will be significantly more knowledgeable and confident about critical chemical information and chemical health intervention skills than the groups that are not exposed to the CHEC program.

Your role in the study includes:

--responding to 2 questionnaires next week;

--participation in three 1 hour sessions of CHEC over the course of the next three weeks; and

--responding to 2 questionnaires upon the completion of the third and final CHEC session.

Your involvement in the study will be anonymous and confidential. Any data or answers to questions will remain anonymous with regard to your identity. You will be asked to use the first initial of your last name and the last four digits of your social security number for purposes of analyzing the data. In addition, program sponsors will not have access to your names.

Results of the study will be made available to you at your request. You will also be free to withdraw your consent and discontinue your participation at any time.

ARE THERE ANY QUESTIONS?

OPENING STATEMENT FOR CONTROL GROUPS:

(read and discuss at PACE registration)

The Chemical Health Education and Coaching (CHEC) component of the PACE program in which you have enrolled is part of a research study in which CHEC will be evaluated for its effectiveness. Therefore, the Michigan High School Athletic Association, the Youth Sports Institute and its representative, Jim Corcoran, who will be here next week and again, on the fourth week of PACE, have requested your participation in this evaluation.

More specifically, CHEC effectiveness will be evaluated in terms of how knowledgeable and confident you become pertaining to critical chemical information and chemical health intervention skills as determined from results of questionnaires that you will be requested to complete.

The group that you have enrolled in has been selected as one of two that will not receive the CHEC program, initially. Two other groups, also enrolled in PACE, were selected to receive the CHEC program. Results from your questionnaires will be analyzed and compared to the groups that are exposed to CHEC. We have

hypothesized that the groups that are exposed to the CHEC program will be significantly more knowledgeable and confident about critical chemical information and chemical health intervention skills than the groups that are not exposed to the CHEC program.

Your role in the study includes:

--responding to 2 questionnaires next week;

--responding to 2 questionnaires on the fourth week; and

--receiving a CHEC program following the administration and collection of the last questionnaire in the fourth week.

Your involvement in the study will be anonymous and confidential. Any data or answers to questions will remain anonymous with regard to your identity. You will be asked to use the first initial of your last name and the last four digits of your social security number for purposes of analyzing the data. In addition, program sponsors will not have access to your names.

Results of the study will be made available to you at your request. You will also be free to withdraw your consent and discontinue your participation at any time.

ARE THERE ANY QUESTIONS?

APPENDIX L

APPROVAL LETTER FROM THE HUMAN SUBJECTS COMMITTEE AT MICHIGAN STATE UNIVERSITY

MICHIGAN STATE UNIVERSITY

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS (UCRIHS)
206 BERKEY HALL
(517) 353-9738

EAST LANSING • MICHIGAN • 48824-1111

November 6, 1989

IRB# 89-484

James P. Corcoran
101 Student Services Bldg.

Dear Mr. Corcoran:

RE: "A FORMATIVE EVALUATION OF THE CHEMICAL HEALTH EDUCATION AND COACHING (CHEC) PROGRAM FOR HIGH SCHOOL COACHES IRB# 89-484"

The above project is exempt from full UCRIHS review. I have reviewed the proposed research protocol and find that the rights and welfare of human subjects appear to be protected. You have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to November 6, 1990.

Any changes in procedures involving human subjects must be reviewed by UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,

John K. Hudzik, Ph.D.
Chair, UCRIHS

JKH/sar

cc: D. Feltz

APPENDIX M

LETTERS REQUESTING EXPERT RATING OF THE (CHEC) PROGRAM

date

name
address
city, state zip

Dear name:

You expressed an interest and willingness to review and rate a program I have been developing in chemical health education for high school athletic coaches. Consequently, I am pursuing your offer to examine the enclosed Chemical Health Education and Coaching (CHEC) material, and to provide feedback regarding its content. Your review and rating will help to determine the program's relevancy and potential effectiveness in educating coaches about chemical health issues.

Please find enclosed for your review the following five items: 1) the 53 page CHEC chapter; 2) a copy of the chemical health intervention skills for athletic coaches (a supplement to the CHEC chapter); 3) a brief overview of what will be presented to the coaches in the workshops; 4) an outline of the chapter and supplement content that will serve as a summary guide to help with the rating; and 5) a rating instrument for your use in rating the content.

What I am requesting from you at this time is to read and rate the content within the CHEC chapter and its supplement. I request that you respond frankly using the rating instrument (and any comments you wish to make throughout the material) such that this program content will include information that is most critical for high school athletic coaches.

The CHEC chapter is partially derived from Hazelden-Cork educational material, and additional research and education literature that has been conducted and written in an effort to deal with various aspects of chemical issues within athletics today. The enclosed CHEC chapter is the current base-line information from which material is drawn and presented to the coaches who attend CHEC through its parent program PACE (Program for Athletic Coaches' Education). However, the enclosed supplement on chemical health intervention skills is a recent addition that will be available to the coaches as an integral part of the CHEC chapter upon revision. A brief description of the PACE program and its CHEC component follows.

The PACE program is sponsored by the Youth Sports Institute (YSI) at Michigan State University and is directed by Dr. Vern Seefeldt. PACE is a 15-hour course that provides interscholastic coaches with the latest information pertaining to their day-to-day coaching responsibilities. Coaches receive an 800 page notebook of supplemental reading to accompany information presented in 5 three-hour lecture/discussion sessions. Successful completion of a mastery model examination at the conclusion of the course provides certification and a diploma.

The CHEC component of the PACE program that will be evaluated consists of 3 one-hour sessions integrated into the total 15 hour PACE program due to the current design of the PACE program.

In addition to your review of the enclosed documents, I will mail to you the pretest and posttest instruments that will be used to evaluate the coaches' level of knowledge and confidence concerning CHEC. These will arrive while you have the CHEC materials in your possession, and a similar rating scale will be enclosed with the instruments as well.

One final request. It is my intention to implement and evaluate CHEC beginning January 8, 1990. Therefore, I would greatly appreciate it if you would review this information and return it to me so that I will have it in my possession no later than Tuesday, December 5, 1989. I will communicate with you regarding changes you may recommend. Given the time constraints placed upon this study, any editorial revision within with CHEC chapter will have to occur at a later date. However, recommendations regarding the content that will be presented within the CHEC sessions, and/or the instruments used in the study will receive immediate attention.

Thank you for your willingness to be involved. If you have any questions, please call me at one of the telephone numbers below. You will always be able to get a message to me through my work number.

Sincerely,

name
address
city, state zip
home and work phone numbers

date

name
address
city, state zip

Dear name:

Please find enclosed for your review: two test instruments (the Chemical Health Questionnaire and the Chemical Health Intervention Efficacy Scale); the Questionnaire Validity Form (a rating scale); and the answer key for the questionnaire. As I had expressed in the previous mailing, these two instruments will be used to evaluate a coach's level of knowledge and confidence concerning the CHEC content.

My request at this time is two-fold. First, is that you complete the two instruments (following your review of the CHEC content). Second, please complete the relevancy rating scale that is provided for reviewing the instruments. While you are responding to the items on the instruments, please feel free to record any comments you may have directly on the instruments.

The feedback obtained from your comments and the rating of these questionnaires will help me: 1) to provide a more relevant instrument for the coaches, and 2) to accurately assess their knowledge and confidence. I look forward to receiving your comments and ratings, and the materials that were sent to you previously, by Tuesday, December 5, 1989.

Thank you again, for your willingness to be involved! If there are any questions please contact me at one of the numbers listed below.

Sincerely,

name
address
city, state zip
home and work phone numbers

APPENDIX N

DATA CODING

CHEC DATA CODING SHEET

VARIABLE	CARD	COLUMN	VALUES
Subject	1	1-6	1-200 coaches
Group	1	7	1 = experiment group one 2 = control group one 3 = experiment group two 4 = control group two
Pretest Chemical Health Intervention Efficacy Scale:			
PRCHIE1 TO PRCHIE9	1	9-17	0-9 point scale 0 = not at all confident 9 = extremely confident
Pretest Chemical Health Questionnaire:			
PRCHQA1 TO PRCHQA18	1	19-36	multiple response: 1 = A 2 = B 3 = C 4 = D
PRCHQB1 TO PRCHQB28	1	37-64	true/false response: 1 = true 2 = false
Age	1	66-67	
Sex	1	68	1 = male 2 = female

Education	1	69-70	01 = completed grades 7, 8, or 9 02 = completed grades 10 or 11 03 = high school graduate 04 = 1-3 years college 05 = Associate Degree 06 = Bachelor's Degree 07 = Master's Degree 08 = Ph.D. or Ed.D. 09 = M.D., D.O., D.D.S.,or D.V.M. 10 = Law 11 = Other
Ethnic/Racial Group	1	71	1 = White Caucasian 2 = Black/ African American 3 = Spanish American/ Hispanic 4 = American Indian 5 = Asian/ Pacific Islander 6 = Chicano/ Mexican American 7 = Other
Sports Currently Coaching	1	72-73 74-75 76-77	01 = baseball 02 = softball 03 = basketball 04 = football 05 = golf 06 = gymnastics 07 = cross

			country 08 = swimming 09 = tennis 10 = ice hockey 11 = track and field 12 = wrestling 13 = volleyball 14 = lacrosse 15 = diving 16 = soccer 17 = cheerlead 18 = racquet-ball 19 = strength 20 = roller skating 21 = cycling
Previous chemical health education	1	78	1 = yes 2 = no
Years/months of coaching	1	79-80	

Posttest Chemical Health Intervention Efficacy Scale:

POCHIE1 to POCHIE9	2	9-17	0-9 point scale: 0 = not at all confident 9 = extremely confident

Posttest Chemical Health Questionnaire:

POCHQA1 to POCHQ18	2	19-36	Multiple Response: 1 = A 2 = B 3 = C 4 = D
POCHQB1 to POCHQB28	2	37-64	true/false response: 1 = true 2 = false

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B850622	768697876	2312334223344241341222221221221211212111112111	38106104	105
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	676778677	232112311433134433112111122111222221122112212121		
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	667555777	442311332323234433221112212121212122222212211l		
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M476622	569777777	224433323333442313312211112212211111212211112111	24206118	200
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S426022	111101191	12423332333444343222111212212222121212121111112111	25204108	201
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	556556665	23234333242324444311111212112122222122121222121		
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LIST OF REFERENCES

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Abrams, A. L., Garfield, E. F., & Swisher, J. D. (Eds.). (1973). Accountability in drug education: A model for evaluation. Washington, D.C.: The Drug Abuse Council, Inc.

Albrecht, R. A., Anderson, W. A., McKeag, D. B., Hough, D. O., & McGrew, C. A. (1989). Trends in collegiate athlete's self-reported use of tobacco products: 1984-1988. Unpublished manuscript.

Anderson, W. A. (1989, September). Drug use and abuse in athletics. Paper presented at the meeting of the American College of Sports Medicine (ACSM), Baltimore, MD.

Asbridge, D. J. (1984). A process of identity formation in relation to peers and per groups. (Report No. CG-017-621). Paper presented at the Annual Convention of the Rocky Mountain Psychological Association, Las Vegas, NV. (Eric Document Reproduction Service No. ED 246 379).

Bailey, M. B. (1970). Attitudes toward alcoholism before and after a training program for social caseworkers. Quarterly Journal of the Study of Alcohol, 31, 669-683.

Bandura, A. (Ed.). (1986). Social foundations of thought & action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Benjamin, D. (1988 October). Illusions lost and regained. Time, pp. 72-76.

Borg, W. R., & Gall, M. D. (1983). Educational research: An introduction (4th ed.). New York: Longman.

Bowling Green State University. (1986). Thinking about drinking. Bowling Green, OH: The Counseling and Career Development Center.

Bruhn, J., Phillips, B., & Gouin, H. (1975). The effects of drug education courses on attitudinal change in adult participants. The International Journal of the Addictions, 10, 65-96.

Bruvold, W. H. (1988). Issues in alcohol education and research. Contemporary Drug Problems (Spring, Special Reprint). Federal Legal Publications, Inc.

Buckalew, L. W., & Daly, J. (1986). Drug education and counseling programs: Content, strategy, and responsibility. Journal of Alcohol and Drug Education, 31, 29-35.

Chappel, J. N. (1987). Drug use and abuse in the athlete. In J. R. May & M. L. Asken (Eds.), Sport Psychology (pp. 187-211). PMA Publishing Corp.

Cutler, B. L., & Wolfe, R. N. (1989). Self-monitoring and the association between confidence and accuracy. Journal of Research in Personality, 23, 410-420.

Dill, R. A., & Rivers, P. C. (1988). Evaluation of an alcohol training program for judges: A pre, post, and six-month follow-up analysis of program effects. Journal of Alcohol and Drug Education, 33, 41-50.

Einstein, S., Lavenhar, M. A., Wolfson, E. A., Louria, D. B., Quinones, M. A., & McAteer, G. (1971). The training of teachers for drug education programs: Preliminary considerations. Journal of Drug Education, 1, 323-345.

Feltz, D. L., Thornton, D., Bram, A. D., & Albrecht, R. R. (1989, June). High school baseball players and smokeless tobacco use: The effects of a program designed to modify use and a profile of players' experience. Paper presented at NASPSPA meeting, Kent, OH.

Fink, A., & Kosecoff, J. (1988). An evaluation primer (7th ed.). Beverly Hills: Sage Publications, Inc.

Franklin, J. T. (1985). Alternative education as substance abuse prevention. Journal of Alcohol & Drug Education, 30, 12-23.

Friedman, S. M. (1973). A drug education program emphasizing affective approaches and its influence upon intermediate school student and teacher attitudes. Dissertation Abstracts International, 34, 2270.

Holland, B. V. (1986). Development and validation of an elementary motor performance test for students classified as non-handicapped, learning disabled or educable mentally impaired. (Doctoral dissertation, Michigan State University).

Johnson stripped of track records. (1989, September). The Detroit News, p. 2H.

Johnson, W. A., & Moore, K. (1988, October). The loser. Sports Illustrated, pp. 20-27.

Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1987). National trends in drug use and related factors among American high school students and young adults, 1975-1986 (DHHS Publication No. ADM 87-1535). Washington, D.C.: U.S. Government Printing Office.

Kinder, B. N., Paper, N. E., & Walfish, S. (1980). Drug and alcohol education programs: A review of outcome studies. The International Journal of the Addictions, 15, 1035-1054.

Malvin, J. H., Maskowitz, J. M., Schaps, E., & Schefer, G. A. (1985). Evaluation of two school-based alternative programs. Journal of Alcohol and Drug Education, 30, 98-101.

Milgram, G. G. (1987). Alcohol and drug education programs. Journal of Drug Education, 17, 43-57.

Moye, M. C. (1988) Needs assessment in a school drug education program. Unpublished master's thesis, University of North Carolina, Chapel Hill, NC.

National Institute on Drug Abuse. (1983). National survey on drug abuse, main findings, 1982. (DHHS, Publication No. ADM 83-1263). Rockville, MD.

National Institute on Alcohol Abuse and Alcoholism. (1985). Alcohol consumption and related problems. Washington, D.C.: U. S. Government Printing Office.

Orlandi, M. A., & Boyd, G. (1989). Smokeless tobacco use among adolescents: A theoretical overview. NCI Monographs, 8, 5-12.

O'Rourke, T. W., & Barr, S. L. (1974). Assessment of the effectiveness of the New York state drug curriculum guide with respect to drug attitudes. Journal of Drug Education, 4, 347-356.

Pickens, K. (1985). Drug education: The effects of giving information. The Journal of Alcohol and Drug Education, 30, 32-44.

Richardson, D W., Nader, P. R., Rochman, K. J., & Freidman, S. B. (1972). Attitudes of fifth grade students to illicit psychoactive drugs. Journal of School Health, 42, 389-391.

Ringhofer, K. (1989, September). Prevention and response: Dimensions in dealing with steroid use by high school athletes. Symposium conducted at the steroids and our students conference, Lansing, MI.

Rivers, P., Sarata, B., & Book, T. (1974). Effect of an alcoholism workshop on attitudes, job satisfaction and job performance of secretaries. Quarterly Journal of the Study of Alcohol, 35, 1382-1388.

Sherman, R. E., Lojkutz, S., & Rusch, L. (1984). An evaluation of the ADE program: A teacher training strategy in alcohol and drug education. Journal of Alcohol and Drug Education, 30, 66-76.

Svendsen, R., Griffin, T., & McIntyre, D. E. (Eds.). (1984). Chemical health school athletics and fine arts activities: A guide for school officials in responding to alcohol and other drug issues. Center City, MN: Hazelden Foundation.

Telander, R., & Noden, M. (1989, February). The death of an athlete. Sports Illustrated, pp. 68-78.

Telander, R., & Sullivan, R. (1989, February). You reap what you sow. Sports Illustrated, pp. 20-31.

The White House Conference for a Drug Free America. (1988). Final report. (No. 88-600553). Washington, D.C.: U.S. Government Printing Office.

Tricker, R., & Davis, L. G. (1987). Implementing school drug and alcohol curricula: A descriptive evaluation. Techniques: A Journal for Remedial Education and Counseling, 3, 281-293.

United States Olympic Committee. (1989, May). Division of sports medicine drug education and doping control program. A Guide to Banned Medications. (Available from: USOC Drug Control Program, U.S. Olympic Committee, 1750 East Boulder Street, Colorado, Springs, CO 80909).

Weisfeld, G. E., Bloch, S. A., & Ivers, J. W. (1983). A factor analytic study of peer-perceived dominance in adolescent boys. Journal of Adolescence, 18, 229-243.