

**BEYOND TESTING: COGNITIVE MORAL
REASONING AND ERGOGENIC AIDS IN SPORT**

Dissertation

Presented in Partial Fulfillment of the Requirements for the

Degree of Doctor of Philosophy

in

Education

in the

College of Graduate Studies

University of Idaho

By

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December 7, 2007

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ABSTRACT

The purpose of this quantitative, descriptive study is to develop a valid and reliable instrument based in normative ethical theory to measure moral reasoning in the context of doping in sport. Factor analysis procedure was used to provide evidence of statistical validity. We examined the factor structure of the Ergogenic Aids Moral Competence Inventory (EAMCI) using the appropriate 50 questionnaire items. The EAMCI evaluates the moral judgment of participants among competing social values and moral values in sport. In addition, the EAMCI examines the underlying cognitive moral decision making processes specific to the context of banned substance use in sport. To evaluate factor structure, an exploratory factor analysis (EFA) tested the five-factor model as hypothesized underlying the test structure. To evaluate the items, the questionnaire was administered to 337 subjects from one university in the Northwest.

The EFA findings revealed a five-factor structure, including (1) recreational drug use, (2) legal but unethical drug use, (3) illegal but ethical drug use, (4) autonomy in drug use (5) illegal and unethical drug use. These are typical moral decision making tasks for athletes and athlete support personnel on the subject of doping. The rotated factor structure demonstrated high loadings on factor 1 consisting of Decision 2 (.807), question 2b (-.890), and question 2c (.784).

Factor 2 loaded question 5b (-.813), Decision 5 (.744), and question 5c (-.701). Factor 3 loaded question 3b (-.807), question 3c (.800), and Decision 3 (-.701). Factor 4 loaded question 3a (.772), question 1a, (.671), and question 1c (.650). Finally, factor 5 loaded question 4a (.755), Decision 4 (reversed) (.795), and question 4c (.740).

Despite the low internal consistency reliability of measures was low .552 as demonstrated by the rationale equivalence reliability procedure. Earlier pilot studies indicate that simply using the original 5 point Likert Scale may yield improved internal reliability. Other forms of validity were discussed using Messick, (1995) and Trochim (1999) expanded concept of validity.

ACKNOWLEDGEMENTS

First and foremost I would like to thank my advisor, Sharon Stoll for invaluable guidance throughout my dissertation, financial support, constant encouragement and allowing me to pursue research on moral reasoning. I am very grateful to Jennifer Beller. without Jennifer's continued help throughout my graduate years and on this dissertation project would not be complete. Dr. Stoll has always been around to talk to about moral reasoning and her intuition and insights have been immensely helpful. I also thank Georgia Johnson for innumerable discussions and for serving on my dissertation committee and for an insightful ear while formulating my research questions. I am indebted to Dennis Dolny whose enthusiasm reminded me why I am excited about physical education and for his invaluable discussions and support. I also thank Paul Wang for agreeing to be an additional outside reader for my dissertation, especially at such a late date. Finally, I thank numerous colleagues at the Center for ETHICS* at the University of Idaho for various support, discussions and guidance: Conrad, Nathan, David, Shu-Tung, Emily, Pete, Nathan, Kim, Cheryl, Erin, Dan, Gym, Patti, and Brittany.

DEDICATION

This project is dedicated to Donna, Ayize, and Musa. My parents, uncle, and siblings have been very supportive about my decision to pursue a Ph.D. Without their undying support I would have never made it this far. My Uncle's knowledge of research, the academic world, and his quiet pride in my career choice were also invaluable. Finally, I thank my Donna whose undying belief that I could finish, endless moral support, and love have been a constant and a comfort throughout my years in Idaho.

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CHAPTER ONE:

The Moral Status of Doping in Sport

Introduction

The relationship between doping and sport has evolved over the course of history. The term doping as defined by the World Anti-Doping Agency (WADA) is the use of prohibited substances and/or methods in sport. The first objection to doping in sport recorded in history is found in a 1933 report by French National Olympic Committee member Paul Rousseau (Wadler & Hainline, 1989). According to Rousseau, during the Olympic games of 1932 suspicions were raised about the use of doping substances by some participants. Rousseau considered doping in sport an indication of dishonesty in sport. The co-existence between sport and doping is found in the following statement by Yesalis, Kopstein, & Bahrke (2001):

During the 19th century, performance-enhancing drug use among athletes was commonplace. Swimmers, distance runners, sprinters, and cyclists used drugs such as caffeine, alcohol, nitroglycerine, digitalis, cocaine, strychnine, ether, opium, and heroin in attempts to gain a competitive edge on their opponents.

(p. 43)

The first systematic experiment to control doping in sport was conducted in 1967 by the International Olympic Committee (IOC) in Mexico City (Yesalis, Kopstein, & Bahrke, 2001). This experiment was limited to amateur sports because the IOC did not represent the world of sports in its entirety. The IOC's domain at that time was exclusively limited to 22 amateur sports. Therefore, the IOC's philosophical ideal of drug free sport was not universally or uniformly shared in the world of sports, particularly in professional sports. Haugen (2004) explains that prior to the 1999 formation of the World Anti-Doping Agency

(WADA) professional sport functioned independently of amateur sports with respect to doping policy and held a more liberal view of doping in sports (Kidd, Elderman, & Brownwell, 2001, p. 182). Drug detection is one among many solutions for preventing doping in sports, however, researchers and scholars in the fields of sociology, psychology, history, and philosophy are skeptical about the moral and legal status of drug testing in sport (Miah & Rich, 2006). Empirical evidence suggests that drug detection is a public relations nightmare for sport. This phenomenon is illustrated by the fact that sporting disciplines with the most sophisticated doping controls are perceived to be the dirtiest by society in general. One of the main contentious issues about drug testing in sport is that athletes, coaches, and administrators are coerced to forfeit their civil rights to participate in competitive sport (Parry, 1999).

The doubts about the efficacy of drug detection as a doping control measure are manifest in the Bay Area Laboratory Co-Operative (BALCO) case. BALCO operated as a clandestine lab and was responsible for illegally distributing control substances such as: designer steroids, synthetic human growth hormone, “the clear cream”, erythropoietin, and insulin growth factor 1 (I-FG1) to elite athletes participating in a wide spectrum of sporting disciplines. The significance of the BALCO case is that it provides tangible evidence to illustrate the process of circumventing drug detection protocols. In a similar case study, the German Democratic Republic (GDR) began using epitestosterone as a doping method in 1984. Researchers Franke & Berendonk (1997) have noted that medicating athletes with epitestosterone is an effective method for manipulating the testosterone: epitestosterone ratio to evade detection of anabolic steroids through urine analysis. This researcher posits that as we uncover more evidence of doping methods, the efficacy of drug detection as a

mechanism for ensuring drug free sport becomes untenable. Researchers Catlin, Sekera, Ahrens, Starcevic, Chang, and Hatton (2004) and Yesalis (1993) also found that drug detection can be circumvented by altering the molecular structure of prohibited substances, while retaining the medical properties using laboratory techniques that can be performed by an undergraduate chemistry student.

Despite the limitations of drug detection technology, urine analysis remains a strong deterrent against prohibited substance use to a significant segment of the elite athlete population, especially those seeking to engage in doping conduct. It would be naïve to believe that with the downfall of BALCO, clandestine labs providing the same service no longer exist or that all medical practitioners will stop distributing prohibited substances to elite athletes (Mendoza, 2002). Beyond this consideration, we have to account for the development of genome and nano technology applications to performance enhancement in sport (Nicolelis, 2002b, 2003; see also Miah & Rich, 2006). The influence of such technologies in sport is that there is no level playing field. Sport science is advancing the boundaries of physical performance, hence, the lines of legality and fairness are increasingly blurred (Goldman & Klatz, 1992). For instance, it is an offense to use exogenous erythropoietin, while it is legal to live at altitude and train at sea level in an effort to enhance performance even though all the aforementioned methods result in significant improvements in performance (e. g., Nummela & Rusko, 2000). Decompression chambers are a hotly contested topic in doping ethics. Otherwise known as hypoxic tents, these devices reduce atmospheric oxygen during sleep to induce 'natural' production of erythropoietin (Ashenden, Gore, Dobson et al., 2000). Creatine monohydrate is a supplement that has been proven to performance benefit and yet it remains legal (Wadler & Hainline, 1989). The real dilemma

for the 'clean' athlete today is whether to train naturally, use supplements of proven benefit, or even take drugs that are not yet detectable.

Another factor to consider is synthetic human growth hormone (HGH). Researchers have known of the existence HGH since 1954, yet there is no technology to detect the presence of human growth hormone in urine samples (Catlin, Sekera, Ahrens, et al., 2004). Anti-doping education programs may benefit from an exploration of the relationship between moral judgment and doping in sport (Stoll, Gwebu, & Beller, 2006). The issue therefore is how to incorporate the philosophical ideal of a drug free sport practice into the normal routine of athletes, coaches, and administrators.

To understand the relationship of moral judgment and doping in sport, it must be situated in the context of the history of the position and meaning of doping in sport. Doping in sport can be classified under the following categories: 1) state sponsored or ideological sport doping, 2) individual isolated sport doping, and 3) systematic sport doping where national or international sport governing bodies ignore substance abuse in a particular sporting discipline¹.

The History of Ergogenic Aids in Sport

Significant Historical Incidents of Ergogenic Aids in Sport

In Ancient Greece 400 BC, sport was of great social importance. Athletes ingested sheep testicles, seeds, potions, mushrooms, and plant extracts to win (Thein, Thein, &

¹ The communist government of the GDR defined the Olympics as an arena in which they could demonstrate the success of their regime for an international public audience (Ungerleider, 2001, p.45). In the GDR, it was considered proper by the state authorities, sport officials, and trainers to give performance enhancing drugs to athletes (Durant, Ashworth, Newman, & Rickert, 1994).

Landry, 1995). According to researchers Wadler & Hainline (1989) and Yesalis (1993) corruption and doping were among the leading reasons the Ancient Olympics in Greece were dissolved. This conduct is not restricted to the Mediterranean or Ancient world. In the United States, the first significant case of ergogenic aids occurred in the 1904 St Louis Olympic Games. Thomas Hicks nearly died in the Olympic Marathon. Apparently, Hicks fueled his run to history with generous doses of brandy and strychnine (Propkop, 1970). The International Olympic Committee did not take any action, the International Amateur Athletic Federation (IAAF) in contrast issued a position statement condemning ergogenic aids in 1929 and the first ever ban on ergogenic aids did not occur until 1968 (Propkop, 1970). However, according to Donnellan (2000) the ban could not be enforced because the IAAF lacked organizational and logistic capabilities to control doping. The IAAF medical council did not know what drugs athletes were using and therefore, could not develop testing technology to detect banned substances (Todd, 1992).

Anabolic Steroids as Ergogenic Aids

Adolph Hitler's vision of the master race played a significant role in developing anabolic steroid research in 1936 by Dr. Mengele and appeared in sport sometime after the 1948 Olympic Games. In order to develop this vision, Hitler turned to one of his scientists Josef Mengele (Ungerleider, 2001). Dr. Mengele knew that human testosterone could be secreted from human hormones. By 1941, Hitler also knew that androgenic aids could: 1) increase lean body mass and 2) decrease the conscience of the SS troops, who were charged with removal of cadaves from the gas chambers. The SS troops were medicated with testosterone to overcome both psychological and physical trauma (Ungerleider, 2001). Jan Todd (1987), director of the Todd-McLean Physical Culture Collection at University of

Texas at Austin, remarked, “If any athletes truly knew the history of these drugs, no one would use them.”

In 1945, Russians were the first allied forces into the laboratory of Dr. Mengele. By 1952, the Russians were mysteriously more successful in all weightlifting and power events (Ungerleider, 2001). At the Helsinki Olympics in 1952, Soviet weightlifters performed astonishingly well and were rumored to have been taking male hormones. In addition amphetamines, which were used widely by soldiers in the Second World War, crossed over into sports in the early 1950s (Hoberman, 2005, p. 384)

Almost a decade later in 1967, Briton cyclist Tommy Simpson died as a result of amphetamines (Wilson & Derse, 2001). The event is significant, because the incident was televised, meaning that the mystic of ergogenic aids or recreational drugs was no longer a myth restricted to athletes on the fringes of society; it became a mainstream problem. It is also important to note the paternalistic connotations that guide the International Olympic Committee (IOC) in developing the inaugural list and code for banned substances for the 1968 Mexico Olympics. The IOC assumed that this was a problem limited to a few deviant individuals. However, as we continue to explore the history of ergogenic aids, we will discover cases where ergogenic aids were used as a result of state policy² and thus serving an ideological purpose (Todd, 1987; Ungerleider, 2001).

When the Berlin Wall fell in 1989, documents (Stazi files) recovered from sports training facilities indicate that East Germany used performance enhancing drugs to develop

² The use of doping in the GDR and USSR can be considered a matter of state policy. After the dissolution of both states, most coaches found employment in China, the Chinese became very successful at swimming, but many Chinese athletes tested positive for steroids (of the 58 positive tests in 1998, China accounted for 29 positive tests (Leonard, 2001, p. 226).

athletes. The East German government sponsored a doping program in order to use the Olympic Games to promote political ideology (Franke & Berendonk, 1997). The significance of the Stazi files discovery is that it is the first documented case where we find the relationship between doping and sport as defined as a matter of state policy (Todd, 1992). Furthermore, this evidence illustrates the diversity of cultural attitudes and value sentiments held about doping in sport, consequently leading to complications in developing universal legislation against performance-enhancing drugs across political boundaries (Todd, 1992).

The most significant historical event related to sport doping today is formation in 1999 of the World Anti-Doping Agency (WADA). WADA was formed specifically to implement a unified approach to address the problem of doping in professional, amateur, and international sport. This concludes the discussion of significant events in the history of doping and sport. Below find an overview of the philosophical and psychological mechanisms that influence doping in sport, the main goal is to explore the moral arguments for and against use of ergogenic aids.

Performance Enhancing Drugs in Physical Education

The substances used to enhance performance in sport have legitimate therapeutic medical applications and are generally used by the entire population for medical treatment (Rogol & Yesalis, 1992). A troubling new development is the reports of increased performance enhancing drugs use by non athletic segments of the population for cosmetic purposes (Brower, Blow, & Hill, 1994; also see Elliot, 2000; Miller, Brody, & Chung, 2000). Furthermore, researchers Bahrke, Yesalis, & Brower (1998) report increased ergogenic aid use among high school and college age student-athletes. Barnett & Bryan

(1974) and Kersey (1996) noted an upward trend in the number of female elite athletes participating in doping culture which traditionally was the domain of elite male athletes³.

Olympism

The ancient Greek ideal, Olympism, is a concept that requires athletes to succeed through their own unaided effort. Olympism (Horrock, 1977) is an ideal widely embraced by a majority of athletes, spectators, and sport governing bodies. The spirit of fair play used as a philosophical guide by sport governing bodies to make sport rules and policies throughout history can be traced back to this ancient Olympic ideal (McNamee & Parry, 1998). However, within this mix of athletes, coaches, and administrators exists deviants guided by the 'win at all cost' maxim. For this segment of the population, exploiting loopholes is part and parcel of the social practice of sport. In sport doping subcultures, the concept of preserving the integrity of sport or maintaining sport as a social practice is of secondary importance to conquest (Feezell, 2004).

Aside from the integrity of sport, another argument for banning performance enhancing substances in sport is that outside therapeutic purposes are potential side effects associated with their use. However, regardless of how noble and plausible basing a policy on paternalistic notions may appear, it remains a violation of the moral agent's human rights (Parry, 1999). Paternalism as a policy may not hold true for subjects who rationalize ergogenic aids and their side effects as a fair trade-off for success.

³ Researcher Gilligan posits that female subjects score lower on the DIT because the instrument is male centric. Kohlberg's theory of moral development was constructed by employing justice as the underlying philosophical framework. Gilligan developed an alternative framework based on the ethic of care or nurturing. Therefore, as we examine the relationship between moral judgement and doping in sport we must be cognizant of the fact that the female aspect of moral judgment maybe unknown (Gilligan, 1982).

Paternalism

Therefore, even if it is true that drugs are harmful to the athlete, it does not follow that we have the right to prevent the athlete from taking them. To try to do so would be an intrusion upon the autonomous moral agent's decision-making processes (Parry, 1999). If an athlete decided to take drugs under medical supervision and if the individual were well aware of possible dangers of such use, what argument would justify interfering with their decision? The inconsistency of the paternalistic argument is revealed in that some consider it unfortunate that intelligent people smoke or drink themselves to death, yet we consider it unbearably paternalistic to interfere. Why, then, should we think that we should interfere in athletes' decisions? Why should sports authorities have more authority over sports participants than governments have over their citizens?

Furthermore, most sports are inherently hazardous activities; therefore, it is a legitimate question why experts should have a higher moral ground to pronounce a certain type of harm is acceptable and while another is not. This perspective of a balanced exchange may be especially accurate, for there are athletes who view their bodies as tools and a means to an end (McIntosh, 1979). However, there is no consistency in its application within sport practice. The injury rate in certain sports is horrific; for example spinal injuries in gymnastics and concussions in football and rugby, but the resulting harm is dismissed as irrelevant by aficionados. Therefore, even if drugs are harmful, legitimate paternalism demands a need to be shown why certain kinds of harm should be of particular concern, while other types of harm are not acknowledged, or are even glorified (Malloy, Ross, & Zakus, 2003). In addition, the philosophy of paternalism may also suffer when the paternalistic sport governing bodies are not exemplars of moral conduct.

Consider the example of major league baseball, which did not have an anti-doping policy until as recently 2003. At a Congressional Grand Jury hearing, major league baseball officials testified that they were not aware of any use of performance enhancing drugs in the sport. A major point of interest is the fact that Major League Baseball has benefited commercially through increased attendance as a result of the spectacular performances by Mark McGwire, Sammy Sosa, and Barry Bonds who were fueled by Human Growth Hormone (hGH) and tetrahydrogestrinone (often referred to as THG or the "Clear") (Hoberman, 2005). It is possible that major league baseball officials were ignorant and if they were, they could be considered incompetent. If officials so readily violate their own moral values and principles for commercial gain, they are poorly placed to remedy the situation when athletes do the same, or when critics demand better justification for the rules that presently exist. Why should athletes take any notice of the moral exhortation of those who have profited from medicalization of sport, when they see the true values lived and expressed by those around them? They see athletes like Mark McGwire and Sammy Sosa obliterate the home run record because of a loose anti-doping policy lacking repercussions for performance enhancing drug use.

Relevance of the study to the field of sport.

How is this study relevant to the field of sports? Parry (1999) suggests the most difficult task in anti-doping education is convincing and persuading athletes, coaches and administrators that doping is undesirable. Many athletes and coaches continue to use doping substances and techniques, with some believing that a ban is unjustifiable (Miah & Rich, 2006). It is difficult to develop decisive and convincing reasons for athletes, coaches, and administrators to avoid doping. Much research has been already conducted to understand the

physiological, economic, social, and psychological impacts of doping (Hoberman, 2005, 1984). However, despite the fact that athletes, coaches, and administrators know that doping is wrong, most are not convinced about why doping is wrong?

The most important question to answer is “what is wrong with taking harmless and undetectable proven ergogenic aids?” This is the most important philosophical about performance enhancing drugs in contemporary society.

To answer the relevant question “why should we not dope?” the method used is called a thought experiment. A thought experiment is a device used by philosophers and scientists for exploring the implications of ideas and theories. Therefore, with regards to doping we have to imagine a substance which is (a) proven to have no harmful effects and which is (b) a proven performance-enhancer. Consider the question: "What, if anything, would be wrong with taking a harmless enhancer?" Second, let us imagine a substance which is (a) in principle undetectable in use and which is (b) a proven performance-enhancer: and it asks us to consider the question "What, if anything, would be wrong with taking an undetectable enhancer?"

The two ‘imaginary scenarios’ are ‘thought experiments’ used to avoid empirical assertion, and thereby allows for isolation of the philosophical considerations regarding ergogenic aids. We want to draw attention to the philosophical considerations, which are important and relevant to current doping moral climate. However, we are not imagining reality - these scenarios are confronting us right now, and we are living through their consequences.

Sport practices occur within a certain set of prescribed rules, therefore, if ergogenic aids are prohibited; taking them is simply rule breaking. Evade any rule for the sake of

gaining an advantage, especially when it is done knowingly and secretively, is the clearest possible case of cheating. True, there may well be outstanding arguments regarding the justice, relevance, or importance of the rule itself; but if the rule exists; we ought to obey it, or face sanction.

Cheating subverts the basis, which makes the activity possible; it destroys the logical and moral basis of the social practice of sport (Evans, 1998). This is the greatest harm perpetrated by doping cheats: not the harm to self or coercion of others, but the harm to self and others caused by behavior, which threatens the social practice of sport itself (Parry, 1999).

Ethics, values, and morality are ambiguous concepts to most individuals. Few people understand what these words mean, and fewer are capable of designing operable methods of developing and teaching the qualities. The term ethics, in the context of this discussion, refers to a way of life. The term refers to the choices we make, based on our moral reasoning and moral development. In the context of this study, the term value refers to understanding of right and wrong, or normative ethical theory (Kant, 1963, 1964). Normative or prescriptive ethics is concerned with how people ought to act instead of how they actually act. This study places an emphasis on normative ethics, specifically “deontological” moral philosophy.

Deontological Moral Philosophy

The term deontology is derived from the Greek word *deon* (duty) and *logos* (science). Essentially, it means the science of duty (Kant, 1963). Deontological ethical theory holds that some actions (or inactions) are morally obligated regardless of the consequences. Central to Kant’s moral philosophy is the categorical imperative: *act only according to that maxim by which you can at the same time will that it would become a universal law* (Kant, 1964, p. 11-

26). The latter part of the imperative demands universal applicability. Hence, deontological ethics connotes an absolute, which exerts authority on any circumstances. The moral rule or value is required and justified, as an end in itself. The strength of Kant's (1964) moral philosophy is that it can transcend any hypothetical imperatives. However, application of deontological theory is both subjective and objective⁴.

Teleological Moral Philosophy

Conversely, teleological ethical theory suggests that moral duty or moral obligation is based on a utilitarian view that an action's ethical right or wrong is based on the balance of good or bad consequences. It originates from the Greek terms *telos*, "end" and *logos*, "science". This theory of morality derives duty or moral obligation from what is good or desirable as an end to be achieved. Therefore, duty, right conduct, and moral obligations are subordinate to consequences (Frankena, 1973; Gibson, 1993). An inherent weakness of teleological ethics theory lies in the question of how to assign value to all hypothetical imperatives factored into a decision. The critical point here is that teleological theories occasionally lead to violation of moral rules, for instance, doing an immoral act, in lieu of future benefits. The utilitarianism of John Stuart Mill and Jeremy Bentham is a well-known example of teleological moral philosophy (Dewey, 1951, 1964).

⁴ Lessons from Auschwitz, we learned from the holocaust, that evil is banal and that 'good' and ordinary people are capable of committing it. All that is required is a little obedience and an ability to push uncomfortable thoughts away. A white lie to save a life in this context would be considered moral. The purpose here is to illustrate that the nature of morality is both subjective and objective (Lehman, 1988).

An Alternative View

Regardless of the fact that one may elect to use deontological or teleological moral philosophy, the quality of a moral action (or inaction) is based on the guiding rationale of the deciding will of the moral agent. Moral philosophers consider a moral action driven by a fear inferior to one driven by belief in a moral principle (McIntryre, 1984). For example, suppose we compare the quality of a moral decision made by a moral agent during a football game. Moral Agent A chooses not to blow out an opponents' knee, because the referee is in close proximity, whereas Moral Agent B acts similarly because one should prevent the harm such an action will cause. Note that both exhibited the correct moral conduct, however, the rationale guiding each Moral Agent's decision varies in term of moral quality (Asseng, 1993).

The modern foundation of the cognitive aspect of moral philosophy is credited to Jean Piaget. Piaget's (1932) cognitive development theory, explored how cognitive structures respond to both internal and external pressures. Kohlberg (1974) used the conceptual foundation of Piaget's work to develop a model for the growth of moral development. Kohlberg's (1979) cognitive moral development theory posits that morality develops through an invariant sequence of stages. The rationale behind the theory is that the development of a moral system to solve moral conflicts is dependent on maturity, education, and environment (Kohlberg, 1984). Cognitive moral development requires constant examination of the issues that cause moral conflict or moral discord. If the conflict is not resolved through reflection or critical thinking, the moral agent will develop or experience moral coarseness as a result of that unresolved internal dilemma (Kohlberg, 1971). Bandura (1969) posits that habit formation is an important element in the construct of moral development.

Need for the Study

This study uses sport and doping as a medium for research for two reasons. First, sport is a microcosm of society (Asseng, 1993). Consequently, by studying moral values and moral development in sport, we generally can make inferences about the general population and education. Second, the social practice of sport is an important aspect of our society. Like any other craft, sport has a value in itself for its own sake and is a component of life (Ross, 1995). Therefore, this study examines value development and moral reasoning among general university students in the United States of America through the subjects of sport and doping.

We need to understand what type of sport practices athletes, coaches, and administrators seek to develop. Do these values match what we consider the ethical basis of sport? Is our social practice of sports and the sports science and the training theory that supports it, rooted in firm principles that embody what we think sport should be? How do our attitudes towards performance enhancing drugs affect what sport will become? Are we on the right track? If not, what can athletes, administrators, and coaches do to stay on that track or teach towards that ideal?

In summary, sports governing bodies are caught between a rock and a hard place because physical tests and sanctions are a limited method of anti-doping control. For example, the inability to test for drugs such as human growth hormone, erythropoietin, and insulin is common knowledge (Hoberman, 1986). In addition, it is now feasible to apply genetic technology and procedures to human performance enhancement (Adam, 2001; Stock, 2002; Fukuyama, 2003; Vickers, 2003; Hughes, 2004). Another emerging problem for sport authorities to consider is the implications of nano-technology in sport competition (Nicolelis, 2002a, 2002b, 2003). Since we cannot develop physical tests to catch all the cheats perhaps

an alternative solution, coupled with testing, is education. This study is an opportunity to examine moral judgment in the context of banned substance and methods in sport. The data collection and analysis from the current study will provide an empirical description of the moral decision making about banned substance use in sport.

Setting the problem

What is the nature of “ought” in regards to harmless and undetectable performance enhancers in sport? The present study will describe how subjects respond to moral dilemmas situated in the context of banned substance use in sport. The construction of the instrument to measure moral reasoning is based on deontological ethical theory. The rationale for using deontological is to measure the term “values” from a definitive consensus or lens (also see Romance, Weiss, & Bockoven, 1986). The purpose of doing so is to guard against a flaw in the design of many other value instruments (Weiss, Bockoven, & Romance, 1986; Raths, Harmin, & Simon, 1978). Most designs fail to use a theoretical base to analyze values; this is a common design problem that results in possible validity and measurement problems (e.g., Haskin & Hartman, 1960).

In addition, data from this study will describe moral reasoning levels and moral development. The Ergogenic Aids Moral Competitions Inventory EAMCI is a self-administered paper and pencil instrument questionnaire containing five sport related dilemmas about performance-enhancing drugs. The purpose of the instrument is to measure moral judgment by describing how subjects respond to moral dilemma’s situated in the context of doping in sport (Jenkins, Fisher, & Applegate, 1990). Scores obtained from the various students are not for making inferences about a particular subject’s moral perspective

on performance enhancing drugs, but to understand the underlying cognitive processes that occur in moral decision making about banned substance use in sport.

Statement of Problem

The purpose of this quantitative descriptive study was:

Philosophic:

(1) To examine metaphysically the empirical and philosophic relationship between moral reasoning and doping in sport.

Descriptive:

(2) To develop a statistically valid and reliable instrument to quantitatively describe the empirical relationship between moral reasoning and doping in sport among college athletes, non athletes, gender, institutions, and individual versus team sport athletes. Therefore, the study will examine moral reasoning and doping through the disciplines of cognitive psychology, developmental psychology, and moral philosophy.

Research Hypothesis

- 1) There is a difference between the empirical and philosophical positions on the moral status of doping in sport as evidenced by a metaphysical examination.
- 2) There is a difference between the empirical and philosophical positions on the moral status of doping in sport as evidenced by empirical investigation.

Statistical Hypothesis

To establish construct and content validity and reliable instrument the following hypothesis to be addressed:

- 1) There are no significant differences in scores by gender (male versus females) in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?
- 2) There are no significant differences in scores by individual versus team sport in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?
- 3) There are no significant differences in scores by athletic versus non-athlete in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?
- 4) There are no significant differences in scores by institution in cognitive moral reasoning about performance enhancing drugs as evidenced by EAMCI?
- 5) There is no correlation between the EAMCI scores and the HBVCI score by gender, type of sport, athlete versus non-athlete, and by institution?

Sub-Problems

Research Sub-Problems

A review of literature will address the following questions:

- 1) What is the history, interaction, or connection between moral reasoning, cognitive moral development, performance enhancing drugs and sports?
- 2) What are the implications of creating discipline or domain specific moral reasoning and cognitive moral development assessment instrument?
- 3) What is the current state of moral reasoning and cognitive moral development in sport and physical education in regard to performance enhancing drugs and sport?
- 4) What moral direction should physical education and sport take in the future to maintain integrity and value of the social practice of sport?
- 5) What are the sources of educational information regarding performance-enhancing drugs and sport is available to subjects?

- 6) What is subject response to context /specific relevant moral reasoning assessment instruments?

Dependent and Independent Variables

Independent Variables

This study was delimited to a quantitative descriptive, philosophic study. Categorical independent variables are gender, institution; individual sport athletes, team sport athlete, athlete, and non-athlete were examined to help explain moral perspective on ergogenic aids. There is one dependent variable or quantitative variables: response to the inventory.

Dependent Variables

The subjects' responses are the dependent variable. There is one dependent variable or quantitative variables: Moral judgment.

Assumptions

- 1) Subjects are capable of reading and comprehending the scenarios presented in the EAMCI.
- 2) Subjects will respond responsibly to the scenarios presented in the EAMCI.
- 3) The notion that doping in sport should be banned is a current and popular belief among subjects.
- 4) The moral status of doping in sport is philosophically and empirically examined.

Delimitations

- 1) Because of the infinite variables in establishing true cause and effect in moral reasoning about doping in sport, this study was delimited to a quantitative descriptive study.

- 2) The study is delimited to examining college students' moral perspectives on doping in sport.
- 3) The study is delimited to sample of college students from two northwest universities.
- 4) The study is delimited to moral status of doping in sport.
- 5) The study was delimited to the metaphysical and ethics branches of philosophy.

Limitations

- 1) The questionnaire results are limited to the individual's ability to accurately and honestly respond to their thoughts and feeling about doping in sport, but will not establish the cause of the subjects' current state of moral reasoning.
- 2) Because of the small sample size of athletes, the results of this study will have limited generalizeability.

Operational Definitions

Operational definitions were derived from materials at the Center for ETHICS* at University of Idaho (Center for ETHICS*, n. d.).

Athlete: for the purpose of the present study the term athlete refers to individual participating in an NCCA sanctioned sport.

Athlete support personnel: coaches, administrators, trainers, medical personnel...Etc.

Athletics: the competitive experience of sport whereby coaching is essential with spectators being present, and with specific constitutive, proscriptive, and sportsmanship rules highly developed within an organized structure. The experience is often likened to that of work with decided aspects of dedication, intensity, and sacrifice.

Amoral: an ethical position meaning one is not able to make a judgment. Such actions are outside the realm of morality.

Anabolic steroid: is a synthetic testosterone. This controlled substance is designed to maintain positive nitrogen balance to facilitate protein absorption and synthesis.

Applied ethics: the practical application of ethical theory directed toward issues in life and certain professions, i.e., medical ethics, sport ethics, business ethics, law ethics and so forth.

Autonomy: is a philosophic term meaning self-governance, whereby one has the right, power, or condition of self-governance. The individual has self-determinism and freedom from external control or coercion.

Axiology: the branch of philosophy dedicated to the study of value.

Beneficence: the ethical position whereby one attempts and is actually obligated to do no harm, remove harm, prevent harm, and actually do “good”.

Character: implies a moral demeanor that refers to one's outward demeanor as judged by society. Positive moral character refers to one's ability to know the right and to have the courage to follow the right. Character refers to one's virtue, or how one lives by a set of moral values. A person of character is one who is known to be honest, just, fair, and decent to others.

Choice: is one of the four required stipulations (Value, Principle, Obligation, and Choice) to determine whether a moral issue is being presented. A moral dilemma does not exist if one does not have a choice. Coercion, manipulation, or other excusing conditions usually abrogates moral responsibility.

Cognitive dissonance: the cognitive process whereby an individual's values and beliefs are challenged. The challenging process is necessary in moral reasoning to wrestle with moral dilemmas.

Constitutive rules: the specific game rules that guide play in a sport. Constitutive rules may have unsportsmanlike conduct explicitly described and violations specifically written to punish such behavior.

Consequential ethics: theory based in utilitarian philosophy. Right and wrong are based on the greater amount of good brought about. The consequences of action play a major role in deciding the greater amount of good. Major philosophers: Mill and Bentham, who espoused utilitarian ethics.

Deontic ethics (non-consequential): ethical theory based on the ideal that we can perceive rightness apart from any consequences. This perspective believes that there is an inherent right, which must be followed regardless of any extraneous factors. Right and wrong are based on the ideal of what should be. Major philosophers: Kant, i.e., Kantian ethics (Kant, 1987).

Doping: the use of performance-enhancing drugs, such as anabolic steroids, in particular methods that are forbidden by international and national governing bodies.

Ethics: is the theoretical study of morality. Ethics is also the standard of morality that a profession should follow.

Ergogenic aids: are substances and technology used to garner an unfair advantage in the sport participation. Ergogenic aids usually refer to anabolic steroids, blood doping, human growth hormone, or other like materials.

Epistemology: one of the philosophic branches of philosophy, a study of knowledge, in particular addressing such questions as: Can we know? What do we know? How do we come to know?

Excusing conditions: Conditions were extenuating factors out of the moral agents' control that absolve an individual from moral obligation. That is, if the moral action places one in undue jeopardy, or if one cannot readily affect the outcome, or if one is ignorant of the conditions, one is excused from acting.

Extrinsic value: is the relative worth that an individual places on objects, things, or actions that have an objective worth. For example, members of an athletic community might place much value on an article like a letter jacket, which is a symbol awarded for work done.

External goods: refer to the notion that sport brings some sort of payback in an objective sense. External good: would be a letterman's jacket, a newspaper picture, fame, fortune, or any sort of objective measure.

Harm: refers to physical, mental, emotional, and financial effect of behaviors/actions or words will cause harm of any of the categories listed above, then that is a good indication that you must think in moral terms. If your action or inaction will or has the potential to cause harm, then that action or inaction must be morally justified.

Honesty: is defined as the condition or capacity of being trustworthy or truthful. Honesty, in this sense, is a basic character that society espouses - an ideal of moral development...to be honest in thought, word, or deed. Honesty, therefore, is the code of conduct, which takes into consideration lying, cheating, and stealing, and refers to the honest person as one who follows the rules and laws.

Gamesmanship: the perspective of pushing the rules to the limit, without getting caught, uses whatever dubious methods to achieve the end.

Immoral: a moral perspective in which the individual knows the good, right, and proper course of action but instead chooses to do wrong.

Integrity: is a moral virtue or distinguishable character trait in which an individual is free from corruption. That is, the individual has been shown to have certain positive, moral character traits that even when challenged and tempted to do wrong, will chose the good, right, and proper.

Intrinsic value: is a non-moral value in which relative worth of an event, object, or experience is placed on some internal, personal satisfaction. An intrinsic non-moral value in sport might be the internal, personal joy of playing, the joy of success, the joy of experience, and so forth.

Internal goods: the notion that sport brings subjective reward for being a part. That is, the personal satisfaction that comes from participating, from being a part of a team, or from just experiencing the activity. Truly subjective in the sense that the internal goods solely lie within the individual's perspective.

Justice: is defined as an equity or fairness for treating peers or competitors equally. Justice is the quality of being righteous or of dealing justly with others. It is based in the integrity of doing the right or fair act.

Metaphysics: The branch of philosophy that is concerned with the nature of things.

Metaphysics is a descriptive tool, which identifies the qualities and characteristics of physical and non physical things.

Moral: is a state in which one knows the good, proper, and right moral obligation. The moral is dependent on motives, intentions, and actions as they affect other human beings.

Morality: refers to motives, intentions, and actions of an individual as they are directed toward others and how these are judged by the greater society.

Moral development: growth process by which one learns to take others into consideration in making moral decisions. Moral Development is usually considered to occur through six different stages in three different levels, from a low reasoned perspective to a greater reasoned perspective.

Moral judgment: is the ability to form an opinion on moral issues.

Moral reasoning: the ability to systematically think through a moral problem taking into consideration one's own values and beliefs while weighing them against what others and society values and believes.

Moral value: the worth each individual places on specific non-moral values, such as winning, which affect and impinge others. Moral values are usually highly specific, such as honesty, justice, responsibility, and beneficence.

Non-moral value: the perspective taken toward an issue in which good and bad are determined based on non-moral issues. The question is based on intrinsic or extrinsic values.

For example, Jane has a good car.

Normative ethics: the theoretical study or position of morality in which a rightness and wrongness is analyzed and reviewed with a specific previously stated position.

Obligation: is one of the four stipulations to categorize the event a moral dilemma.

Obligation implies that one "should" and even must follow one's principles, based on one's moral values.

Objectivity: the philosophic position in which one is without bias or prejudice. The position is concerned with reality rather than perceptions or feelings.

Paternalism: is a practice of governing or monitoring adult individuals in a manner that suggests a father/child relationship. The practice is ethically violates an adult's status as an autonomous moral agent.

Principle: is a written affirmation of individual values. Always written in the negative, a principle states what one will not do, based on what morally values. If honesty is valued, the principle becomes, "Do not lie, cheat, or steal". Principles do have exceptions or qualifiers. For example if a principle violates another principle, qualifiers may exists. "Do not lie, cheat, or steal, unless doing so places another human being in personal jeopardy."

Proscriptive rules: game rules that expressly forbid specific actions.

Relativism: the popular position that states either that (1) there is no standard of right and wrong, (2) no one has the right to make moral judgment, (3) right and wrong is unknowable because of different societies and cultures, and (4) no one should judge others concerning right and wrong.

Respect: is holding someone or something in high regard.

Responsibility: is defined as accounting for one's actions in the past, present, and future. We are responsible for our acts, if, and only if, we did the act or caused it to occur. A responsible person is morally accountable and capable of rational conduct.

Reversibility: is the moral perspective of placing the onus of on one-self. It is asking the question, "What would it feel like if this was done to you?" Reversibility in common usage is "The golden rule."

Rules: are individual day-to-day moral guidelines which can be written or unwritten by the individual. Rules are usually or should be based on specific FIRST rules, or principles. Rules are divided into three different types: constitutive rules, proscriptive rules, and sportsmanship rules.

Proscriptive rules: are game rules that expressly forbid specific actions.

Sportsmanship rules: are rules of conduct that are to be followed while in the game and out of the game.

Spirit of a rule: usually refers to the intent of a sportsmanship rule or what was what was intended by the rule. No rule can take into consideration all possibilities; hence the spirit of a rule is to cover the possibilities.

Sports: games and activities directed toward the play experience in which organization and rules play a significant role.

Sportsmanship: the quality inherent in playing a game in which one is honor bound to follow the spirit and letter of the rules. Sportsmanship rules are rules of conduct, explicitly written or implicitly believed, that adhere to this principle.

Teleological ethics (Consequential): Matters of right and wrong are decided on the issue of the greater amount of good.

Universality: an ethical perspective in which decisions are decided based on whether the decision can be applied across all societies and cultures in every instance.

Utilitarianism: Mill's perspective on teleological ethics in which ethical questions are decided on the amount of good generated by the decision or the greatest amount of measurable good for the greatest number of people.

Value: is the individual relative worth placed on some intrinsic or extrinsic object, experience, or persons.

Validity: is a measurement of sound reasoning whereby consistent, impartial, and reflective logic is the standard.

Significance of the Study

How is this study relevant to the field of physical education? This study examines the relationship between moral reasoning and doping in sport. The nature of doping in sport is a unique phenomena compared to substance abuse in other segments of society such as recreational drug use or academic doping⁵ (Gazzaniga, 2005). The study is relevant because current doping controls in sport are limited as a result of: 1) the increased availability of new hard to detect doping methods, 2) the desire of athletes to improve their performances, 3) the commercial and political pressures on the athletes and 4) the lack of confidence in doping control today (Todd & Todd, 2001, p. 109). For instance, history records that in 2003 documents which were made public showed that the United States Olympic Committee (USOC) did not follow its own rules by letting 13 athletes compete after testing positive for banned substances between 1988 and 2000 (Todd & Todd, 2001; Korkia, 1999). There is a dearth of literature on anti-doping education research in sport (Stoll, Gwebu, & Beller, 2006). Therefore, the purpose of this study is to expand knowledge in this area. This study is unique because it is the first to approach the anti-doping education through the conceptual frameworks of normative ethical theory, cognitive science, and moral psychology.

⁵ Academic doping is augmenting cognitive performance in normal individuals by using drugs. Methylphenidate is a popular drug for this purpose among college students; this practice raises issues of fairness and personal integrity (Sparks & Duncan, 2004).

Furthermore, the current study is significant because the results will set a baseline quantitative description of deontological moral reasoning in sport doping situations. For educators, coaches, and administrators this is a much needed study. A valid and reliable assessment instrument would enhance a character intervention program.

Research conducted by (Hahm, 1989; Beller, 1999; see also Rudd, 1998) provide good examples of valid and reliable moral reasoning assessment tools for sport in general. However, these instruments lack ethical focus or are not specific to the domain of substance abuse in sport. Several studies by Lourenço & Machado (1996) and Rest, Narváez, Bebeau, & Thoma (1999) also found that moral reasoning alone is not sufficient to change behavior: moral focus and moral sensitivity also play a role. Therefore, this study seeks to analyze the effectiveness of a domain specific approach to moral development (Rest, 1990a-b).

Furthermore, development of a valid and reliable assessment instrument will facilitate effectiveness in measuring outcomes of the anti-doping intervention program currently being developed in applied ethics. Morality in sport is essential to preserve the integrity of “internal goods’ in sport (Gibson, 1993). Internal goods are the reason sports exist. Internal goods can only be achieved through participation in that specific discipline, and such disciplines have historically evolved standards of excellence internal to the specific practice. Therefore, participation in sport requires the virtue of accepting the judgment of a legitimate authority (McIntyre, 1984).

It follows that without effective moral formation, the human propensity for self-interest can destroy social practices. Sport and morality are closely interwoven. The means and methods that sport participants use to achieve excellence determine whether the athletes are considered immoral or moral (McIntyre, 1984). As a result of this association, decisions

regarding performance-enhancing drugs are considered moral choices. The bond between sport and ergogenic aids has been popularized because of media exposure. Athletes that perform well are often suspected of being immoral, because society suspects' athletes used ergogenic aids to improve athletic performance (Strelan & Boeckmann, 2003).

The inconsistencies relating to moral choices regarding performance-enhancing drugs shows that sport participants have not developed sound and consistent values within the societal context (Stoll & Beller, 1992a-b). The investigator will test the participants' ability to consistently use principled reasoning to resolve moral dilemmas related doping in sport. The data will provide only a partial for design and development of a moral assessment instrument based normative ethical theory for doping in sport.

Much research in the field of character education examines moral development and moral reasoning using varied ethical theories as a conceptual framework. The issues social issues that have been covered are: violence, academic integrity, autonomy, cheating, and religion as they relate to sport (Kohlberg, 1982, 1984; Kohlberg & Candee, 1984; Stoll, 1987, 1992, 1993-a-b; Lumpkin, Stoll, & Beller, 2003; Stoll & Beller, 1989, 1993-a-b-c-d, 1995, 1998). In this study, we attempted to quantitatively describe the relationship between moral judgment and performance enhancing drug use in sport using normative ethical theory as a conceptual framework.

CHAPTER TWO:

Review of Related Literature

Introduction

The purpose of the current descriptive/philosophic study is to develop an instrument based in normative ethics or deontological theory and Kohlberg's cognitive moral development theory to describe and measure subject response to moral dilemmas related to sport and ergogenic aids. The study describes the historical bases for justifying the need of morality in sport. To accomplish the purpose of this study, the literature review examined:

- 1) Piaget's Cognitive Development Theory,
- 2) Kohlberg's Cognitive Moral Development Theory and his six stage invariant sequence of moral development,
- 3) Research in Moral Reasoning and Judgment,
- 4) Anti-Doping Education,
- 5) Deontological and Teleological Ethical Theory,
- 6) The Ethical Bases of the Idea of Sport,
- 7) Recommendations: Considerations for an Anti-Doping Moral Development Intervention Model.

Drugs create a problem in sport because they are harmful to the athlete ethically, psychologically, and physiologically. There are many reasons why athletes take drugs; usually the motive is to get a competitive edge and thus simply put, cheating is the most compelling motive. The researchers at the Canadian Center for Ethics (1993) noted that anti-doping education intervention implemented for college age athletes in Canada led to a decline in doping behavior (also see Carlstedt, 2006a-b-c). However, there is vigorous debate

among educators and researchers regarding the efficacy of the various approaches to anti-doping education today. The purpose of this review of literature is to give an in depth understanding of strategies and research pertaining to the use of ergogenic aids in athlete populations.

Piaget's Theory of Cognitive Development

Piaget was one of the most influential researchers in developmental psychology in the 20th century. The major aspect of Piaget's (1932) theory examines the processes of coming to know and the stages we progress through in developing that ability. First, Piaget (1972) informs us that infants are born with schemes operating at birth that he called "reflexes." In other animals, these reflexes control behavior throughout life. However, in human beings as the infant uses these reflexes to adapt to the environment, these reflexes are quickly replaced with constructed schemes. Piaget's (1972) research also explores the age effect of the cognitive operations infant use to adapt to assimilate and to evolve so as to function in a complex social environment. Piaget's work along with the work of Dewey (1951), Brubacher (1939), and Carritt (1928) form the basis of the constructivist theory of learning and instruction. Piaget (1932) identified four stages in cognitive development:

Sensory motor stage (infancy):

In this period (which has 6 stages), intelligence is demonstrated through motor activity without the use of symbols. Knowledge of the world is limited (but developing) because it's based on physical interactions/experiences. Children acquire object permanence at about 7 months of age (memory). Physical development (mobility) allows the child to begin

developing new intellectual abilities. Some symbolic (language) abilities are developed at the end of this stage (Piaget, 1972).

Pre-operational stage (toddler and early childhood):

At this period, which has two sub stages, intelligence is demonstrated through the use of symbols, language use matures, and memory and imagination are developed, but thinking is done in a non-logical, non-reversible manner (Piaget, 1932). Egocentric thinking predominates

Concrete operational stage (elementary and early adolescence):

This stage (characterized by 7 types of conservation: number, length, liquid, mass, weight, area, volume), intelligence is demonstrated through logical and systematic manipulation of symbols related to concrete objects. Operational thinking develops (mental actions that are reversible). Egocentric thought diminishes.

Formal operational stage (adolescence and adulthood):

This stage is characterized by the logical use of symbols related to abstract concepts. Early in the period there is a return to egocentric thought. Only 35% of high school graduates in industrialized countries obtain formal operations; many people do not think formally during adulthood.

In summation, Piaget's (1932) cognitive-developmental theory, concentrates on the cognitive component, and is dependent on the child's attitude to rules, intentions, and punishment. Research evidence suggests younger children put consequences above intentions and have very little understanding of rules (Piaget, 1932). However, Dunn (1988, pp. 45-65, 109-126) recognized elements of morality in 2-year-olds, and some children that age believe

in expiatory punishment and immanent justice. Costanzo, Coie, Crumet, & Far-nill (1973) observed that children 10 years and upwards take account of intentions when consequences are positive. Costanzo et al. (1973) found that 10 years and above age group recognize the individual's intentions and believe in reciprocal punishment. Moral reasoning changes during childhood result in decreasing egocentrism. Schaffer (1985) cites the work of Piaget (1932) and reported that children may be capable of making some decision as a result of exposure to different views that create disequilibria (observation of inconsistencies) in a societal context.

Piaget's (1976) studies reveal that the links between general cognitive development, moral development, and the general development with age is supported. However, Colby, Kohlberg, Gibbs, & Liberman (1983) noted that changes do occur at the age of 10 and beyond, and found that younger children are more capable and older ones develop further than Piaget recognized. Also, there is no evidence on disequilibria and the theory ignores the behavioral and emotional aspects of morality (Kohlberg, 1981).

Kohlberg's Moral Development Theory

Like Piaget, Kohlberg (1971) believed in universal, sequential stages of cognitive development. Each stage depends upon knowledge gained from the previous stage, which is qualitatively different and more sophisticated than the earlier stage (Turiel, 1966). The relationship between Piaget and Kohlberg (1989) is that while the former posits cognitive morality in the domain of logic or mathematical structures and physical domains, the latter posits cognitive structures in the philosophical and conceptual domains. Kohlberg engages philosophy in his approach because he believed empathy and identification are separate elements for physical and mathematical sciences. This refers to an individuals' ability to

identify with another person's point of view, known as reversibility or in Biblical terms *the golden rule* (Kohlberg, 1971).

Langer (1969) tested subjects using Kohlberg and Piaget tasks and found that Piaget's stages were not adequate for Kohlberg's six-stage model. Like Piaget (1932), Kohlberg (1971) believed that this development was strictly progressive i.e., once a child had transitioned to a higher stage, he or she could not go back to the kind of reasoning used in an earlier stage, and that children always transitioned from their current stage to the next stage, i.e., they never skipped stages. Kohlberg (1964) also believed that these stages were universal, and conducted studies in a variety of cultures to demonstrate this. Here is a short description of each stage from Crain (1985):

First Level or Pre-Conventional (ages 2-8).

Stage (1) one is characterized by obedience and punishment orientation. At this stage of development an individual's explanation for following rules is largely based on the consequences of breaking the rules. During this stage, children see rules as unquestionable and immutable.

At Stage (2) two, also referred to as instrumental exchange orientation, the child's reasoning is based on what is in it for them. During this stage, moral rules are not immutable and unquestionable, but also subjective (Tomlinson-Keasey & Keasey, 1974). Different self-interests yield different rules. Punishment is still important, but in a different way. Turiel (1983) states that Stage One punishment is tied in the child's mind with wrongness; punishment proves that disobedience is wrong. At Stage Two, in contrast, punishment is simply a risk that one naturally wants to avoid.

Second Level, Conventional (Ages 9-11).

Stage (3) three is also known as interpersonal conformity orientation. This stage contains elements of the more mature stages to follow, such as the belief that morality involves a sense of community, and duty, but also contains elements of the previous stages. In particular, it involves conformity to family or community standards in order to gain approval (Turiel, 1966).

Stage (4) four is also called law-and-order orientation. During this period, reasoning process conveys considering what is best for the community. Turiel (1990) also states that laws are instruments for maintaining order.

Third Level: Post-conventional (Ages 12 and Up).

Stage (5) five is set apart by the notion of prior rights and social contract as a point of reference. According to Crain (1985) Stage five respondents hold true the concept that a good society is best conceived as a social contract where people liberally enter to contribute toward the benefit of all. They recognize that different social groups within a society will have different values, but they believe that all rational people would agree on two points. First, they would all want certain basic rights, such as liberty and life, to be protected. Second, they would want some democratic procedures for changing unfair law and for improving society (Turiel, 1990).

At stage (6) six moral reasoning is based on universal ethical principles. For the duration of stage six, ethical rules are based on an individualist and democratic perspective. Ethical rules are a product of individual reasoning, rather than handed down from an authority. Justice and fairness are the guiding principles (Kant, 1785).

Kohlberg focuses on the cognitive aspect of morality (Crain, 1985). There is cross-cultural support for the six stages-see Snarey, Reimer, & Kohlberg (1985). The mechanism for regulating morality balances external reward-based and social regulation to internal abstract ideas. According to Tomlinson-Keasey and Keasey (1974) abstract thought is not enough to produce stage 5 reasoning. Development and growth in moral reasoning is initiated by cognitive dissonance. Walker (1996) reported that subjects in a state of disequilibrium show the greatest changes in moral development. Development continues throughout the human lifespan (Walker, 2002).

Kohlberg's theory is more detailed than Piaget's theory: Kohlberg is right to put emphasis on the links between general cognitive development and moral development, and the general shift occurring with age is widely accepted (Kohlberg, 1962). However, according to Colby et al. (1983) only 10% showed stages 5 and 6, even at age 30 +. Naito and Miura (2001) demonstrated that East Asian adolescents reach later stages earlier than Western adolescents. However, the emotional aspect is delimited, as are any cultural differences. According to Santrock (2002) performance on dilemmas may not predict conduct such as cheating. Hahm (1989) noted that there are some cross-cultural differences in decision making, regardless of age similarities or differences.

The Defining Issues Test (DIT)

James Rest (1979a-b-c) developed the Defining Issues Test (DIT) using Kohlberg's cognitive development theory and Piaget's model of cognitive development. Piaget's and Kohlberg's studies of cognitive moral development were reliant on justice as a guiding moral virtue. Both researchers believe moral action and behavior are centered on the sense of

fairness. Consequently, Rest (1976) also embraced the “stage model” of moral development.

The underlying assumptions for the DIT are:

- 1) The morality of an individual’s reasoning can be classified at a single stage (or at the two adjacent stages).
- 2) Each stage is a reconstruction or transformation of the prior stage.
- 3) Therefore, each stage is described in terms of formal structures of reasoning, not in terms of the content of judgment and values such structure generate (Rest, 1979, p. xi).

Rest (1973a-b), noted that moral judgment is living and evolving which is developmental. One source of this evolution is the developmental age of the moral agent and the other source of variation is the social or cultural experience. Therefore, moral development is a function of the amount and complexity of experience. Second, moral development occurs cognitively, that is, moral development is a cognitive process (see Rest, 1979a-b-c). Rest’s (1974) measure of moral cognition and preference is based on conceptual comprehension of cognitive moral reasoning. However, while moral judgment development occurs in a cognitive domain, it is not dependent on cognitive ability. Measures of moral judgment correlate with measures of moral values which maybe based on deontological or teleological principles.

Based on Rest’s (1986) findings certain specific variables might affect moral reasoning and development that can also shed light on moral judgment regarding ergogenic aids in sport, such as age, gender, education, socio-economic status, religion, and culture, which will be further examined in the present study.

Age and Education

The relationship between age and morality is examined in Piaget's (1932) research; he compared cognitive development between older and younger subjects. Piaget noted that older subjects in general display a more advanced form of moral reasoning. However, having said that, a chronological estimator or predictor of moral development is not practical, because moral judgment based on age is confounded by intelligence quotient (I.Q.), socio-economic status, intellectual interests, and other extenuating factors (Rest, 1974). Rest (1986) reported that college students scored higher than high school students, a variation Rest interpreted to be a result of age, I.Q., socio-economic status, and intellectual interests. Rest (1987, 1988) hypothesized that:

- 1) Progression in age allows more time for cognitive development.
- 2) A higher I.Q., suggests a faster rate of learning and development.
- 3) Socio-economic status allows for more development opportunities and education.

The conditions are very conducive factors for greater cognitive development. Rest (1988) argued the factors focus on cognitive processing. However, I disagree with the inference that wealth provides richer stimulation. However, I concur that cognitive development theory may predict the direction of difference between samples, however, cognitive development cannot account for the difference in content.

The initial studies of DIT were conducted to identify age differences using "expert" and "less expert" subjects in moral judgment (Rest, Coder, Cooper, Masanz, & Anderson, 1974). Specifically, the study was controlled into five groups (Junior High, Senior High, College, Seminarians, and Doctoral students majoring in philosophy or political science. The doctoral student constituted the most expert group, while the ninth grade students were the

least expert group. Rest (1974) noted that the expert group focused on principled moral considerations (Stage 5 and 6) and less on lower moral judgment (stages 1 and 2) compared to the other 4 groups. An ANOVA was used to interpret the P score for stage 5 and 6. All groups had an F –Value of 34.5, which suggests, a statistically significant difference among groups. Within each group sample junior high, senior high, college students, seminarians, and doctoral students, the proportion of each sample group using higher level moral reasoning were at 2.5%, 7.5%, 45%, 40%, and 93% respectively. Other replication of this study using the DIT, concur with Rest regarding the age factor (Dortzbach, 1975).

Dortzbach (1975) studied the effect of age and education on moral judgment using the DIT, using a sample aged 25-74. The significance of Dortzbach findings was that moral judgment increased in adults with education, but not with age. So the moral judgment scores showed a stronger correlation with education compared to age. Coder (1975) found a slightly negative correlation of P score with age ($r = .10$), while a positive correlation significant correlation with education ($r = 0.25$, $P < 0.05$). All these researchers concur with Rest (1979) that formal education has a stronger effect than age on cognitive moral development. Evidence suggests that in the adult population, moral development advances are even slower after formal education.

Intellectual interest within education is a significant factor affecting cognitive moral development. Gilligan (1976) reports that humanities undergraduate students had more advanced moral reasoning than science majors. Recently, it has, however, been acknowledged that moral reasoning alone is insufficient to produce moral behavior change (Rest & Narváez, 1994; Rest, Narváez, Bebeau, & Thoma, 1999) developed a Four Component Model (FCM) of Morality. The purpose of the four component model is a

response to Kohlberg moral development research. The system is based on the Four Component Model (Rest, 1990a-b; & Rest & Narváez, 1994) that identifies four psychological processes that must take place to complete an ethical action: Ethical Sensitivity, Ethical Focus, Ethical Judgment, and Ethical Action. They apply the FCM to professional ethics by adding profession-specific measures labeled 'intermediate concepts', stressing the need for more interdisciplinary collaboration. Rest & Narváez (1994) FCM of Morality is more and more widely accepted, and significant work is being done in professional education to develop educational programming and assessment mechanisms aimed at the other three components of moral behavior ethical sensitivity, ethical focus, and ethical action (Narvaez & Bock, 2002)

Gender

Overall the research using the DIT is inconsistent in comparing gender differences. It cannot be assumed that all human beings develop moral senses in the same manner. Consistent with Noddings (1984) the female aspect is largely unknown because most traditionally the research only used male subjects and was conducted by male investigators⁶.

⁶It is important that consumers of this research project be cognizant of the context in which the present study is situated. Especially in a global, decentralized society such as ours which inevitably creates responses and perceptions that reject ideas of imposed unities of the meta-narrative and hegemony; today there is a breaking of traditions of universal morality and the overthrowing of artificially imposed forms or orders of examining morality (Rest & Narvaez, 1999). A majority of the research in the field of moral philosophy, moral psychology, and developmental psychology has been dominated by Anglo male scholars and subjects. And therefore, it may be consumed with a healthy dose of skepticism because this tradition of research in the field inherently fails to take into consideration other cultural and historical perspectives on morality, specifically concerning social morals and norms (see, Heidegger, 1998 pp. 250–251). For example, the argument for a renewed subjectivity, though borrowing heavily from Immanuel Kant, largely rejects his a priori/a posteriori distinctions. My conscious intention in this footnote is that future scholars and practitioners should also consider multiple paradigms instead of rejecting, repressing, and ignoring these views on the subject of doping and morality. What it is to be a researcher today is not the same as it was a

While it may be possible to elicit gender differences in hypothetical moral dilemmas, for the most part, moral judgment in men and women is extremely similar. Carol Gilligan (1982) and her colleagues used these differences as a starting point to propose completely different patterns of moral development for men and women. Gilligan posits that morality develops by encompassing much more than justice.

Gilligan and Attanucci (1988) demonstrated that concerns about both justice and care are represented in female thinking about real-life moral dilemmas. The study also found an association between moral orientation and gender with men and women using both orientations. Care-focused dilemmas are most likely to be presented by women and justice-focus dilemmas by men (Gilligan & Attanucci, 1988). Two significant ($p < .01$) gender effects were evident in the justice construct (again, women scored higher than men in all three), and no significant ($p < .05$) gender effects were present, with once again, the women scoring higher.

Rest (1976) reviewed 22 female subjects examining gender differences in DIT research; he noted a significant variation in P scores between males and females. Although female subjects scored higher, the statistical power of this finding was weak because of an ($r = 0.06$, $P < 0.05$), inferring that only 6 % of the total variation is accounted for by gender. In contrast Haan, Smith, & Brock (1968) reported that females' subjects consistently used stage

few years ago, were there was one right way, nor will it be the same a few years from now. That is old theories may not have special critical purchase on scholarship, while they continue to exist to some extent they may have less relevance like all theories or methods that are placed out of their historical and cultural context.

three reasoning, while males were at stage four. Beller & Stoll (1993b) in all of their studies with the DIT found women score significantly higher than males.

Anti-Doping Drug Education

Drug education in numerous countries, since the 1960s, consists of four main approaches (Andrew, 2003). Essentially, the purpose of the existing programs is to help athletes understand their legal obligations with respect to doping controls and their responsibilities within letter of the law for all illegal substances found in urine sampled (Gough, 1997; Scharf, 1978)⁷. In accordance with the Anti-Drug Abuse Act of 1986 and with the exception of tobacco and alcohol for adult users, all recreational drugs are illegal (Peters, 1980). Athletes who use drugs illegally compromise the rule of law by violating state and federal laws. This form of doping control is dependent on the participants fear of punitive measures associated with a positive drug test. Several moral philosophers and moral psychologists including (Kant, 1785; Piaget, 1932; Kohlberg, 1981; Mill, 1988; Dodge & Robertson, 2004) posit that behavior that is largely motivated by fear of punishment or sanctions tends to be a result of low order cognitive processes. To illustrate, the four approaches are discussed below:

Information-based methodology is an educational approach provides the students with information about drugs and their effects on the human body (e. g., Kreidler & Furlong, 1996; Elliot & Goldberg, 1996, 2000; Goldberg, Bent, Bosworth, Trevisan, & Elliot, 1991; Goldberg, Elliot, Clarke et al., 1996).

⁷ These authors do not specifically discuss drug education; this is a conceptual leap based on their perspectives concerning moral theory. We have applied their theories relative to the issue of doping in sport (Peters, 1980; Gough, 1997; Scharf, 1978; Andrew, 2003).

Life-skills and values-deficit-method is an approach provides the subjects with skills through a value development program to compensate for deficits in individuals' personal living skills (e. g., Botvin, Schinke, Epstein et al., 1995; Goldberg & Elliot, 1996; Goldberg, Elliot, & Clarke et al., 1997; Goldberg, Mackinnon, Elliot et al., 2003; Oswald, 2003).

Alternatives-based approaches –This educational program is aimed at providing athletes with alternative ideas to drug misuse and/or *altering the environment* by using peers as agents of change (e. g., O'Donnell, Hawkins, Catalano et al., 1995; Eisen, Zelman, Massett, & Murray, 2002; Caplan & Weisberg, 1992; Botvin, Baker, Dusenbury et al., 1995; Written by and for Youth Leaders, 1995; Botvin, Dusenbury, Baker, James-Ortiz & Botvin, 1992).

Peer education approaches –This education approach uses peer groups to influence and educate athletes about the problems of drug use (e. g., Elias, Gara, Ubriaco, Rothbaum, Clabby, & Schuyler, 1986; Botvin, Epstein, Baker, Diaz, & Ifill-Williams, 1997; Battistich, Schaps, Watson, Solomon, & Lewis, 2000; Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001; Flay & Allred, 2001; Benninga, Sparks, Solomon, Battistich, Delucchi, Sandoval, & Stanley, 2001).

The main guiding theory for these approaches is to provide differing levels of information via different sources about the harmful effects of drugs (Lewis, 1992; Botstein, 1997). Information on the side effects of recreational drugs are provided through literature, video, mass-media and, in schools, teacher and/or peer presentation. The hypothesis is that the information presented will deter athletes for choosing to use performance enhancing drugs (Sparks & Duncan, 2004).

However, most of the curricula are based on scare and punishment tactics; the educator uses the intimidating effects of educational materials that may include pictures or videos of victims of drug addiction to deter use (Humphrey, 1995, 1999). The idea is that these graphic images or anecdotes will persuade athletes to not take drugs. The methods used are varied with different modifications over time (Benninga, Sparks, Solomon et al., 2001). Below find a detailed explanation of each of the four approaches:

Information-Based Educational Programs

The purpose of this method is based on inducing fear by highlighting the ramifications of using performance enhancing and/or recreational drugs (MacKinnon, Goldberg, Cheong et al., 2003; Mackinnon, Goldberg, Clarke et al., 2001; Oswald, 2003). This is a scare tactic to induce the fear of getting caught and being punished, which is ineffective because we know young people think they are invincible and cannot or will not be caught (Dowd & Tierney, 1999).

Generally, this method is ineffective because the message of negative effects is not congruent with young people's subjective experiences - drug-use does not always lead to immediate and severe health problems (Grant, 1988). In addition it only addresses individuals with the lowest levels of cognitive moral reasoning.

The Life Skills Approaches

The life skills approach Ryan (1987) holds that people require decision-making, self-esteem, and particular values to avoid drug use. The program targets at-risk individuals who lack certain social skills, interpersonal relations, and possess low self-esteem (Nyberg, 1981-a-b; Postman, 1995). These 'deficits' in social competencies mean that individuals can have

difficulties in resisting pressures including peer pressure or other factors encouraging the use of drugs. Young people are seen as facing a confusing, often chaotic, world and drug-use is one way to alleviate stress and feelings of alienation (Starkey, Abdenour, & Finnane, 1994).

The method of delivery may include presentations, worksheets, role-playing, videos, and discussion. Life skills and values deficit approaches seem to be largely ineffective in preventing experimentation with drugs but in some cases this approach reduced the desire to use harder drugs (Kirschenbaum, 1977; O'Donnell, Hawkins, Catalano et al., 1995; Funk, 1995; Schulman & Mekler, 1994). However, the assumption that drug use among young people is due to a deficit of key social competencies is questionable (Starkey et al., 1994; Schorr, 1997). Theoretically and empirically the 'deficit' model is weak. For example, not all young people who lack social skills become drug users and some who seem socially competent do use drugs. Rather, critics Dezelsky, Toohey, & Shaw (1999) argue, other factors affecting the subject: an unstable home, lack of education or drug infested community can account for his or her behavior. People also take drugs because of their intoxicating and sensation-creating qualities and not necessarily because the individuals lack social skills (Kreidler & Furlong, 1996).

Alternative-based Programs

Alternative-based programs refer to, and include, a range of programs that share a common element: they emphasize the need to improve the social environment to reduce the attraction of drugs (O'Donnell, Hawkins, Catalano et al., 1995). They also stress that the participation of individuals or groups in community-based activities aimed at promoting health will help to reduce drug taking (Written by and for Youth Leaders, 1995; Botvin, Dusenbury, Baker et al., 1992). The assumptions underpinning this approach are that many

motives exist for taking drugs but if people have access to fulfilling and stimulating alternative activities they were less likely to use drugs (Parry, 1999).

Rather than traditional methods, the alternatives approach utilizes a wide range of strategies, initiatives and programs which share a common element: they emphasize the need to improve the social environment in order to reduce the attraction of drugs (Eisen et al., 2002; Caplan & Weisberg, 1992; Botvin, Baker, Dusenbury et al., 1995; Morgan, 2006).

The success of the alternatives-based approach appears proportional to the complexity of the response and activities used. The concept behind this process is to offer alternative or numerous other activities that keep young people active and away from drugs. This philosophy has been used often to support extracurricular activities in high school – the more a student is involved in wholesome activity the less they were tempted to use drugs. However, there are huge philosophic problems with the reasoning – it is possible to compete or be involved and still be a user.

Peer-led Approaches

To promote health-related behaviors and reduce drug-use, peer-led approaches aim to use the interaction between peers, and the associated socialization and influence of peers (Lewis, 1995). Peer leaders are often seen as having greater credibility than appointed or imposed leaders among groups (Botvin, 2000, 2004).

The peer pressure that exists among groups is directed towards a positive purpose such as anti-doping education instead drug abuse (Norman & Sprinthall, 1987; Elias, Gara, Ubriaco et al., 1986). The idea simply involves students in drug education programs or initiatives because it creates a consensus among peers against drug use (Botvin, Epstein, Baker et al., 1997; Battistich, Schaps, Watson et al., 2000). Using active learning athletes

involved in constructing the education plan, the educator enhances the program because athletes know the most effective language, pictures, stories and relevant issues to use in discussion (Goldberg, Bents, Bosworth, Trevisan, & Elliot, 1991).

The athlete also benefits because in the process of constructing the material they learn as they become more familiar with the material. In addition, student athletes develop ownership of the program, which increases commitment (Hawkins, Guo, Hill et al., 2001; Flay & Allred, 2001).

What Has Not Been Tried?

The four approaches currently used to deter drug usage are limited. More research should be directed toward interventions that are research-based to be used with for both coaches and athletes. Attitudes toward drug use and the issues that athletes encounter regarding doping in sport should be carefully considered to direct efforts towards the most compelling needs (Scharf, 1978). Past studies by Catlin et al. (2004) has shown that anti-doping messages are most effective when based on current research and targeted at appropriate audiences. Once developed, anti-doping messages need to be tested through further intervention research studies to ensure their effectiveness prior to implementation (Borak, 1998).

The record shows that existing methods of deterring drug use among athletes, sanctions and fines, are not as effective as formerly thought (Yesalis, 1993; Miah, 2004). Education may be the key but an educational model different from the genre currently available may yield better result. A promising example is that of the Canadian Centre for Ethics that reports that since implementing a concerted anti-doping education intervention program the

number of incidents of drug abuse among the Canadian athletes has dropped significantly (Petroczi, 2002).

The educational model examines and challenges the knowledge athletes and athletic support personnel have both qualitatively and quantitatively about drug use and sport (Pritchard, 1991, 1996; Darling-Hammond, 1997). In addition, investigator will attempt to identify the most effective methods of communicating the anti doping message to athletes and athlete support personnel. Understanding of both weaknesses and strengths in moral reasoning skills streamlines curriculum design process for entities seeking to educate sport participants efficiently about moral obligations facing both, athletes and governing body with regard to performance enhancing drugs (Barnett, 1993).

Most studies in ergogenic substances have been limited to studying the physiological and psychological effects of ergogenic aids and other drugs on athletes (Semchuk, 1998). Currently, trainers and coaches refer to research papers when educating athletes on drug abuse; a common trend is to do the least to meet USADA requirements. These requirements do not include an extensive education program, which could potentially change behaviors among student athletes or any other group of athletes for that matter (Semchuk, 1998). The most controversial of current studies are suggestions by Lalli (1996) and Lalli & Whitworth (1997) that all sports governing bodies move away from education and sanctions as means to deter drug abuse among athletes and conversely take the stance that “substance abuse” is a disease in it own right, basically excusing the bad decision making.

This approaches argues that road rage is now intermittent explosive disorder, a diagnosable disorder that should be labeled, discussed, and treated with drug therapy and counseling (Botvin, 2004). In turn if we agree with Lalli and Whitworth (1997), sport

governing bodies should shift and look for ways of treating the athlete doping disease and establish standards for diagnosing treatments for this condition of substance abuse – which, from our point of view, misses the point as to why athletes dope, why the practice of doping in sport has supporters, and why athletes and athletic support personnel are unable to take personal responsibility for their actions. Moreover, Lewis (1990) states [t]he risk is this” the more we label disease, the less we label as transgression. If you think of your problem as a “disease,” to be treated like a disease, that lets you off the obligation to change that behavior.

As stated earlier, athletes choose to dope because of the competitive benefits gained, not because of the psychological view of substance abuse as disease. If anything in competition, the disease is the coward’s way of addressing our athletes’ needs. Poor reasoning is not a disease and choice is not a disease.⁸ Research suggests that identity and life style can be generated in certain sport milieus characterized by discipline, hard training and dietary planning, and in some cases intake of doping substances (Catlin et al., 2004). The winner mentality among individual athletes and more systematically in teams, among sponsors, in specific sports, and even the nations supporting the athletic competition is also highlighted as a factor pertinent to deliberations on and about the use of doping substances (Perrone, 1985; Pritchard, 1991; Ravitch & Viteritti, 1997).

⁸ Also, limited analysis has been conducted to date on how doping substances are distributed in United States or for that matter in other countries. These seizures suggest that doping substances enter United States by way of postal traffic, especially via trade on the Internet and cross border traffic. Doping substances are then distributed by middlemen and among athletes in certain sports environs, similar in style to trade in narcotics. Minor and occasional large confiscation of doping substances found in the possession of narcotic users and dealers suggest that to a certain and as yet undetermined extent, organized crime is involved. The overall evaluation contends that there is no indication that legal medication administered through normal medical channels in United States is a supply route for doping substances. If such activity occurs, for instance if doctors should prescribe non-subsidy medicine for doping purposes, the research suggest that it is limited to a few individuals. (Catlin, Sekera, Ahrens, Starcevic, Chang, & Hatton, 2004).

According to Mosher, Robert, & Garrod (1994), doping is highlighted as a possible agent capable of breaking a pattern of poor performance or for speedy rehabilitation after treatment of injury, but also as a more arbitrary and perhaps suddenly presented opportunity. If doping is to be combated in elite sport it is not merely a question of taking educational initiatives at the athlete level. Efforts must also focus on those who “service” elite sport at the individual, team, association, and state levels (Damon, 1988; Nucci, 1989).⁹ Thus for educational intervention models to succeed everyone involved in the competitive process should be a part of the educational model –about coaches and administrators (Esther, 2004).

Considerations for Anti-Doping Moral Development Intervention Model

Limited research has been connected in applying moral reasoning coupled with a moral development protocol for educational intervention programs ascribed specifically to anti-doping prevention programs. However, in a growing body of literature, researchers Stoll (1987, 1992, 1993-a-b) and Lumpkin, Stoll, & Beller (2003) argue that moral reasoning/moral development curriculum can have a significant effect on cognitive development, which in itself can be very powerful if coupled with coaches, administrators, and staff who also ascribe and model a higher level of ethical practice (Kohlberg, 1982, 1984; Kohlberg & Candee, 1984; Stoll & Beller, 1989, 1993-a-b-c-d, 1995, 1998). It is true that cognition without role models who believe in ethical practice and cognition, without environments that support ethical practice, results in impotent action (Weiss, 1969; Weiss, Bockoven, & Rommance, 1986; Stoll, 1993b). It is also *true*, however, that *without the*

⁹ These authors do not specifically discuss drug education; this is a conceptual leap based on their perspectives concerning leadership the investigator has applied their theories to analyze the issue of doping in sport (Damon, 1988; Nucci, 1989).

cognitive moral tools to make ethical decisions, the athlete and athletic support personnel may lack the sophisticated tool required to address the ethical dilemmas, conflicts, and challenges involving choices related to performance enhancing drugs (Sterling, Archibald, McKay, & Berg, 1988).

Preliminary research suggests that cognition linked to the environment that USADA wishes to support and taught by coaches, administrators, and officials who believe in the value of ethical practice can be a powerful means to improve behavior/action among athletes and athletic support personnel (Beller & Stoll, 2000; Stoll & Beller, 1989, 1993-a-b-c-d, 1995, 1998).

Thus, it appears when considering the vast amount of literature on the four current approaches to anti-doping education, there is a "disconnect" between moral cognition and moral action. And, a new model could be highly effective in the solving that "disconnect" between moral action and moral cognition. The purpose of this study is to combine developmental psychology, cognitive psychology, and moral philosophy to understand doping in sport. Also an additional purpose is to provide research on cognitive modeling about human enhancement in general.

CHAPTER THREE:

Methodology

This chapter provides a detailed account of procedures that were followed in the development of the EAMCI. The research plan was to develop a context specific valid and reliable instrument to measure moral reasoning about performance enhancing drugs in sport. Participants have the option of responding to either a self-administered paper-based EAMCI or a web-based version of the EAMCI. In addition, subjects participating in the study were asked to complete the Hahm Beller Values Choice Inventory (HBVCI). The moral dilemmas and moral tasks are equivalent. This chapter contains the procedures protocol to address statistical validity: face validity, content validity, construct validity, and reliability. The sections concludes with an exploration of the assumptions made regarding the EAMCI and its development and any known limitations and delimitations associated with the applicability of the EAMCI. There were certain pre-selected variables of interest that were not investigated due to inadequate sample size. The final pilot study will also examine known group differences.

Problem Statement

To develop a statistically valid and reliable instrument quantitatively describe the empirical relationship between moral reasoning and doping in sport among college athletes, non athletes, gender, and individual versus team sport athletes.

Subjects

The first pilot study was conducted by means of a focus group and two experts in the field of sport ethics and sport philosophy. A total of 55 subjects; 37 males and 18 females, 49

non athletes and 6 collegiate athletes volunteered to participate in the second pilot study. The purpose of the second pilot study was to address face validity and content validity. The third pilot study consisted of 75 subjects; 43 male and 32 female subjects. The third pilot study served the purpose of addressing: face validity, content validity, reliability, criterion validity and to run a preliminary exploratory factor analysis. The researcher collected 354 responses using the EAMCI. However, 17 inventories had to be discarded because subjects did not complete the instrument. The sample for the fourth pilot study consists of 337 (95.92%) responses in various academic departments and athletic departments at University of Idaho (IRB approval for the study was issued). The sample will consist of both female subjects and male subjects ranging from the age of 18 years old to 25 years old.

The sample is classified as: 1) non-athlete or athletes, 2) team sport or individual sport, and 3) gender. The purpose of selecting college age subjects is to minimize age related problems. Researchers Bredemeier, Weiss, Shields, & Schewchuk (1986) reported that younger subjects were often either unaware or disinterested in moral reasoning. In addition, Kohlberg (1981) indicated that adolescence (ages 14-25 for male, and ages 12-21 for female) is a critical period for moral development. Younger subjects are not suitable for examining moral reasoning. Therefore, university age students were selected because of developmental age and ability to make distinctive moral decisions. Research in developmental psychology indicates, with considerable validity, that specific moral tendencies [that seek] expression at [this] particular time or developmental age (Dewey, 1964, p.5-6).

Therefore, college students ranging from the age of 18-30 are appropriate subject choices for a study in moral reasoning and moral development. Non-athletes are defined as students not participating in intercollegiate sport.

Instrumentation

Section I of the pilot instrument was developed to collect categorical data specifying gender, age, athlete, non-athletes, team sport athlete, individual sport athlete, and source of performance enhancing drugs education. The terminology of Section II is based in a 9th grade reading level as evidenced by the Flesch-Kincaide Grade Level (application found on Microsoft Word). For a copy of the EAMCI, please see, Appendix A.

Also, Section II of the Ergogenic Aids Moral Competence Inventory is designed to evaluate moral reasoning in sport doping related dilemmas. Participants are to read five short sport doping scenarios and evaluate each situation based on a three point scale of: “I recommend action/conduct”, “I am Neutral”, and/or “I do not recommend action or conduct”

These five contrived sport and doping context scenarios involve a compilation of moral values of honesty, justice, and responsibility. The moral values were selected in accordance with experts and literature concerning virtue and morality see (Kant, 1964; Gibson, 1969; Stoll & Beller, 1993-a-b-c-d, 1995, 1998; Lumpkin, Stoll, & Beller, 2003). The subject’s task is to solve a moral dilemma that conflicts with philosophical values guiding the Olympic Movement Medical Code based on three fundamental principles (World Anti Doping Agency, 2003) which are:

1. Protection of the health of athletes.
2. Respect for both medical and sport ethics.
3. Equality for all competing athletes.

The instrument’s design is to ferret out how participants define important ethical issues of sport doping as well as trying to establish how they make the decisions (e. g., Reimer, Paulette, & Harsh, 1983). As such, the five scenarios were carefully designed to create a

moral character index (EAMCI index), which combines both the decision process as well as the reasoning behind the decision. The scores thus can range from 1 to 3 on the decision, and 1-3 rank on the reasoning per question. The possible scores for all decision questions range from 5-15 and reasoning is based on rank.

The main five questions of Ergogenic Aids & Moral Competence Inventory are also based in deontic ethics theory. The only other moral reasoning assessment instruments specifically used in sport are the Hahm-Beller Values Choice Inventory (HBVCI) and Rudd-Stoll-Beller-Hahm Value Judgment Inventory (RSBH). The HBVCI, created by Hahm (1989), currently has a database in excess of 80,000 and is excellent in terms of validity and reliability. Cronbach Alpha at .85 to .88. The RSBH examines both social and moral character and has been used to assess approximately 10,000 subjects. Thus far at 10,000 subjects, the social character index has a Cronbach alpha of .72 and the moral character index has a Cronbach alpha of .88.

Also, each main question has three sub questions to help flesh out how each individual has answered the five main questions. The three moral reasoning sub-questions of each main question are used to understand how each individual agrees or disagrees with the scenario. Participants answer the three sub questions using a rank ranging between 1 and 3.

After answering the three subject questions, the participant is asked to rank order the three sub-questions as to the most important. The analysis methods for the instrument are: factor analysis, multivariate statistical analyses, univariate statistical analyses, and correlations done to examine group differences on both the social character index and the moral character index. The five sub questions are based on rank.

The moral values of honesty, justice, and responsibility were chosen in relationship to deontological ethics, which implies that there is an inherent rightness apart from all consequences. This means that one would elect to be just, honest, and responsible regardless of the consequences. In addition the moral values of justice, honesty, and responsibility are universal moral values that are an inherent element of ethical basis of sport (Parry, 1999). Consequently, if each question challenges the reader to evaluate justice, honesty, and justice, it can be argued the instrument is measuring moral character.

The pilot instrument was developed to address moral development issues relevant to sport participants at all levels of competitive athletics, specifically those participating high school, collegiate, and professional sports. The questionnaire is designed to gain information that describes moral reasoning with regard to performance enhancing drugs in competitive populations.

A series of four pilot studies were conducted to address content validity, reliability, construct validity, and face validity of the EAMCI. Subsequently, certain pre-selected group differences or variables that have been deemed by previous researchers as having a significant influence on cognitive reasoning in competitive populations were examined (Bredemeier and Shields, 1986; Stoll, 1987, 1992, 1993-a-b; Stoll & Beller, 1993-a-b-c-d, 1995, 1998; Lumpkin, Stoll, & Beller, 2003). The known group difference method was used to examine within and in group differences between athletes and non-athletes concerning moral and social character. In a recent study of moral reasoning, Beller & Stoll (2002) and described differences in moral reasoning scores by gender, team sport athletes, individual sport athletes, athletes, and non athletes. Also, Carol Gilligan (1982) and her colleagues noted differences or completely different patterns of moral development for men and women.

Gilligan posits that morality develops by encompassing much more than justice. Therefore, in respect to the present study we should expect different scores between male and female subjects because each may use separate moral systems (Noddings, 1984).

The scores obtain from the EAMCI should not be used to establish a cause and effect relationship between competitive populations and moral decision making because other extraneous variables may hinder the researchers ability to establish that relationship, i.e. pressure of competition erodes moral character or reduces level of moral reasoning. The purpose of the score is twofold. First, to develop a context-specific measure of moral reasoning regarding ergogenic aids. Second, the purpose is to set a baseline of participant response or skill level in solving moral dilemmas specific paradigm of sport doping. The status of the EAMCI inventory remains in pilot mode even though a sufficient number of participants ($n = 337$) have been procured.

Human Subjects Review

Permission was granted from the Human Subjects Review Board respectively at the University of Idaho. Subjects at the University of Idaho (see Appendix D) were tested in their respective classrooms. Subjects were administered the pilot instrument using a 10-15 minute segment of their normal class hours. The researcher gave brief instructions to the subjects prior to each administration.

To protect the subject's identity, identity remained anonymous, their identity was not disclosed. To protect the subjects from abuse and to protect the researcher from liability subjects signed informed consent/ waivers forms.

Data Collection Procedure

The sample for the pilot studies consists of subjects at one northwest academic institution. We selected these population subjects, because it is convenient sample for three pilot studies. From the subjects we collected demographic data; class, major, sex, age, gender, non-athlete, academic discipline, academic status, and athlete. Approval to administer the instrument was granted by the instructors in each course via written permission.

Statistical Procedures and Analysis

This is a two part study. Part A involves 3 pilot studies to develop EAMCI. The second part B of the study uses the EAMCI to examine known group differences and conduct an exploratory factor analysis. The following procedures and statistical methods were used examine instrument validity and reliability. The purpose of the present study is to develop a valid and reliable questionnaire to measure moral reasoning in response to moral dilemmas about doping in sports. Below find the relevant procedures to establishing the validity of the Ergogenic Aids Moral Competence Inventory (EAMCI) as a measure of deontic reasoning about doping in sport (Kane, 2002). There are three standards in the 1999 Standards for Educational and Psychological Testing developed conjointly by the American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME) relevant to instrument validity: 1) content, 2) construct, and 3) criterion (AERA, APA, & NCME, 2002).

A. Establishing the Instrument:

- a. Content and Face Validity.
- b. Statistical Validity using Exploratory Factor Analysis.

- c. Reliability using Rationale Equivalence Reliability procedure.

Table 1 A

The figure below summarizes the statistical procedures that were used to conduct the present study

Pilot Study # 1 Construct Test Items (Summer 2005)	Goal to Address Content and Face Validity Means Focus Group and Expert in the field. Results -Improved wording of questions
Pilot Study # 2 Sample of 55 subjects University of Idaho (Fall 2005)	Goal to address Content and Face Validity, Construct validity. Means Students taking racquetball class. Results -Changed some questions and reviewed directions.
Pilot Study # 3 Sample of 75 subjects University of Idaho (Spring 2006)	Goal to address Construct Stability, Reliability Means Exploratory Factor Analysis. Results -Despite small sample size, questions loaded into three components. Concluded that a bigger sample size is needed.

B. The following statistical procedures were used to examine group differences

- a. This part of the study used data from 4th pilot study.
- b. Test of known group differences using independent samples t test and ANOVA.

Table 1 B

This figure summarizes the statistical procedures conducted in the final analysis

Pilot Study # 4 Sample of 337 EAMCI subjects & 204 HBVCI subjects University of Idaho (Spring 2007)	Goal to address Construct Stability, Known Group difference, Reliability & Validity. Means Student in various department and athletic teams. Results -Will run independent sample T-test, ANOVA and Factor analysis
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Part A

Pilot Study 1

The purpose of the first pilot study was to construct test items, and to address content and face validity. The methods used were a focus group, experts in the field and two reading courses one in moral psychology and second in moral philosophy. The purpose of the reading courses was to establish a solid foundation in deontological ethics and Kohlberg's theory of moral development for the EAMCI. The inventory has been read and evaluated by several notable sport philosophers and ethicists address face and content validity of the EAMCI inventory, in their interpretations, does measure deontological reasoning. The sport ethicists have written and published extensively in the area of ethics and sport, and are members of the Academy of Physical Education and the International Association for the Philosophy of Sport. These experts are known for their teaching and publishing in the area of theoretical and applied ethics. Below are specific comments regarding content validity?

Below is an example of a deontic moral dilemma in sport. The following is a discussion of how deontic may reason through these this dilemma. A respondent is asked to mark each question, SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree. Immediately following is a typical deontic reasoned response for each case. For example, question 1 of the HBCVI (Beller & Stoll, 1992).

Question 1: *Male soccer players are allowed to play the ball with any part of their body except the hands or outstretched arms. A soccer player receives a chest high pass and taps the ball to the ground with his hand. The referee does not see this*

action and the play continues, because it is the referee's job to see these actions, the player is not obligated to report his foul. SA A N D SD

Based on deontological theory, a deontic would say that the soccer player is being dishonest in his act of omission and irresponsible by passing his responsibility to another. A true deontic, therefore, would tell the referee that he touched the ball with the hand and accept the consequences. As scored on the HBVCI, a deontic would mark this question SD (Strongly Disagree). The questions in the EAMCI match HBVCI in construct equivalence for deontic ethics.

The study of moral development, moral reasoning, and character education is very specific. However, there is significant debate within moral philosophy as to whether a teleological or a deontological normative ethic is most defensible (Breivik, 1987). Teleological ethics hold that acts are morally right or wrong to the degree that they maximize good outcomes, and that the means to such maximization are irrelevant.

Deontologists, on the other hand, Kant (1963, 1964, and 1987) believe that there are constraints against action independent of consequences-some acts are wrong in and of themselves. Such constraints often include injunctions not to break promises, not to lie, and in general not to harm innocent others (Frankena, 1973). Most measurement instruments do not define or declare a philosophic tradition. The present study will control for this factor by constructing moral dilemmas that test for reasoning through a deontological conceptual framework (e.g., Ross, 1995). Furthermore, moral psychologists contest the connection between moral reasoning and behavior; cognitive moral reasoning skills alone are not a sufficient condition to ensure ethical conduct. The scores compiled from this questionnaire will not reflect moral action, but rather decision making ability.

Pilot Study 2

To address construct stability the initial questionnaire had many more questions-the document attached to the final draft went through a factor analysis in scale construction, some questions were discarded, the remaining items had loadings at .6 (see Table 1 C), variance was checked on the Scree plot (see Figure 1 A), and the principle components analysis results (Table 1 D) showed that 96% of the variance was explained by the first 8 principle components and thus indicative of construct stability. The second pilot study served to also address face validity and reduce confusion in wording of questions 2 and 4. The second study tested 55 non athletes from a racquetball course at the University of Idaho. Subjects were tested with the newly constructed EAMCI and not HBVCI. An exploratory factor analysis show that question 4 did not relate to the other 4 questions. See tables and figures below.

Figure 1 A

Scree plot used to evaluate proportion of variance contributed by variables of the construct, indicative of construct stability.

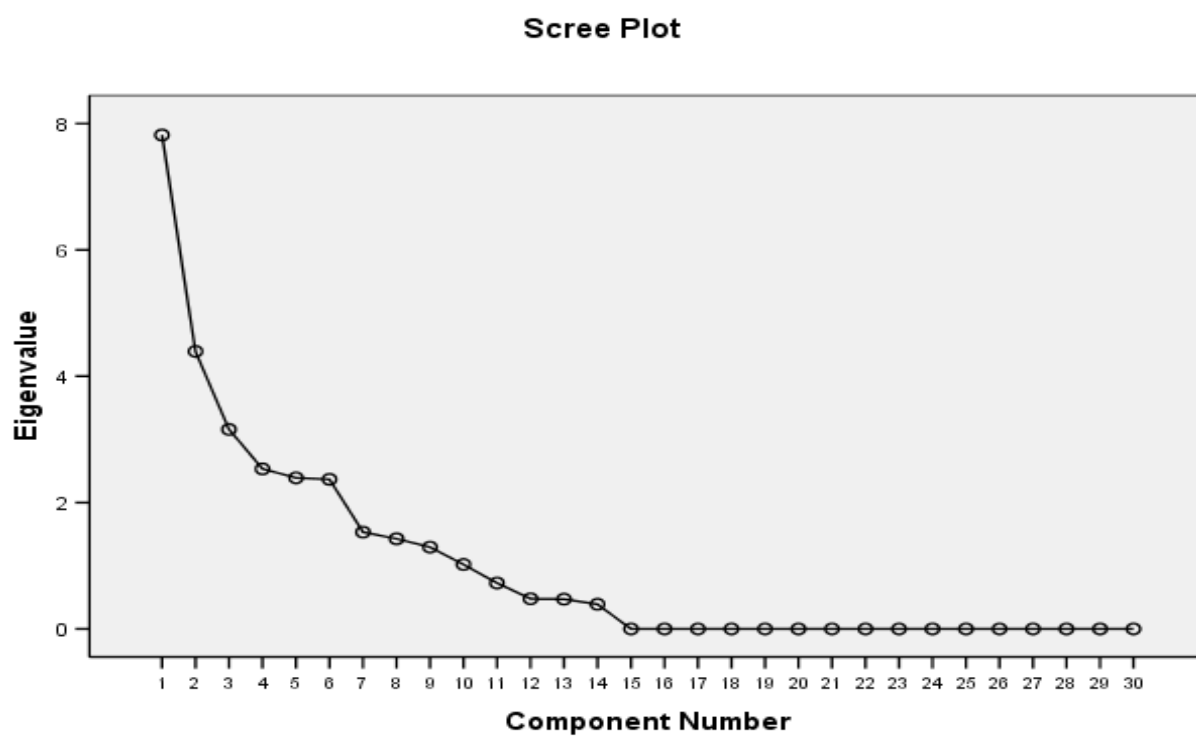


Table 1 D

Factor loadings used to evaluate construct stability.

Rotated Component Matrix ^a								
	Component							
	1	2	3	4	5	6	7	8
Cog28	.915							
Cog30	.748							
Cog6		.975						
Cog12		.849						
Cog17			-.880					
Cog23			.646					
Cog14				-.893				
Cog10				.607				
Cog1					.920			
Cog11						.945		
Cog24							.942	
Cog7								-.759

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

Pilot Study 3

A third pilot study was conducted to increase the pool of subjects for an exploratory factor analysis. The wording of some questions was changed and the sample consisting of 75 (pilot instruments were discarded because subjects did not complete questionnaire) subjects was added to the initial 55 subjects collected in pilot study 2. These additional subjects were from a racquetball class, a yoga class, and a health class. The resulting sample used in statistical procedures conducted in pilot study 3 consisted of 42 female subjects, 88 male subjects of which 6 college were athletes. Therefore, 94 % of the sample was retained. The factor analysis and rationale equivalence reliability revealed that question 4 and the sub

questions for question 4 had a negative correlation with the other 4 questions and sub questions. However, the sample collected had a Cronbach alpha of .674.

External Study

The study was conducted at Washington State University using the EAMCI which was developed at University of Idaho by a master's student with 192 subjects (Davenport, 2006). The sample consisted of 96 female subjects and 83 male subjects. There were a total of 26 non athletes and 153 athletes. Furthermore, there were a total of 39 individual sport athletes and 114 team sport athletes. The purpose of this pilot study was provide a sample consisting mainly of student athletes to compare with that collected at University of Idaho that consisted of mainly the non athlete student population. Rationale equivalence reliability procedure was run in this pilot study resulting in a Cronbach alpha of .61 which is ideal for a pilot study (Davenport, 2007). This study was valuable because it illustrated how simplifying the instrument by reducing the Likert Scale from 5 options for the main question to 3 options negatively affected rationale equivalence reliability. Furthermore, the scoring used in this pilot study is different from that used in the internal pilot studies 1-4 at University of Idaho. The main decision index was coded as a dichotomous variable (Davenport, 2007).

Part B

Pilot Study 4

A final pilot study was conducted to assess correlation between the HBVCI scores and EAMCI scores. The HBVCI seeks to measure moral character, the researcher hoped to find a correlation between the five main questions of the EAMCI and those of the HBVCI. A sample of 204 were collected using the HBVCI. A sample 337 responses were collected

using the EAMCI. A factor analysis was conducted comprised of 154 males and 183 females. In addition there were 55 team sport athletes, 18 individual sport athletes and 254 non athletes. In addition there were 55 team sport athletes and 18 individual sport athletes. The second factor analysis was conducted using the sample (204) of matched pairs of the EAMCI and HBVCI instruments. Thus, participants were 204 (94 males) and (110 females) matched for responses on both the EAMCI and HBVCI instruments. In the final pilot study, 17 instruments were not considered in final analysis resulting in a loss of 4.08 %. Questions 1 to 5 were the moral question (moral index), whereas the sub-questions were the reasoning question (reflection index).

Overall, the rotated factor pattern within the factor analysis revealed a mutual loading in the moral questions, as opposed to the sub-questions. Thus, there appears to be a demarcation between the moral questions and sub-questions. Rationale equivalence was also run and yielded a Cronbach Alpha of .552 for the decision questions and Cronbach alpha of .789 for the sub questions.

Sampling Procedure

There are five general groups of interest: college athlete, college non athletes, gender (male versus female), individual sport athletes, and team sport athletes. For each of the four pilot studies, convenient samples were used to obtain a sample of the five aforementioned groups. Procurement of subjects obtained through permission from each college instructor and collegiate team coaches. The collegiate athletes were obtained from University of Idaho. Approval to administer the HBVCI and EAMCI was granted by both written and verbal permission from instructors.

Reliability

Generally, there are five types of reliability. They are test-retest reliability, equivalent from of reliability, split half reliability, rationale equivalence reliability, and inter and intra judge reliability. For the purposes of the present study, rationale equivalence reliability is considered appropriate (Cronbach, 1951). Rationale equivalence reliability was run to establish internal consistency of the five main moral questions of the EAMCI with the moral index of the HBVCI.

Rationale Equivalence Reliability

Rationale equivalence reliability to establish internal consistency was computed for the last two pilot studies. For the second and third pilot study, rationale equivalence reliability was computed for the five main questions of the EAMCI. Please note that the moral question of the HBVCI have a previously established internal reliability. The final pilot produced a Cronbach alpha of .552 for the decision questions of the EAMCI.

Validity

Like reliability, there are numerous types of validity. These are: content validity, concurrent validity, construct validity, and criterion validity. For the purposes of the present study only content validity and construct validity are relevant. These two types of validity were established during and after all the pilot studies.

Construct Validity

Construct validity is the degree to which a test measures a hypothetical construct. Construct validity for the reasoning index was established through the "known group difference method", (e.g., Results on male athletes' moral reasoning have been fairly consistent the longer they participate in sport, it appears they become morally calloused (Stoll & Beller, 1998). The present study examined established group differences by; gender, team sport vs. individual sport, athletes, and non athletes indicated significant differences in mean scores using the HBVCI (Stoll & Beller, 1997).

The moral character index also uses a three- point Likert Scale from should take drug to should not take drug to achieve a final score. Multivariate statistical analyses, univariate statistical analyses, and correlations are statistical procedures that can be used to examine group differences in the moral competence index (MCI) The same correlation information among items can serve the purpose of either theory related (construct) validity or purely concurrent (criterion-related) validity (Schneider & Butcher, 1995; Netemeyer, Bearden, and Sharma, 2003).

Content Validity

The EAMCI purports to measure moral judgment about performance enhancing drugs among non athletes and athlete populations. The content validity of the moral questions and sub-questions of the EAMCI was established by experts in the field of moral reasoning, focus group, and a pilot study examining subjects' answers to each questions. Statistical frequency distributions were used to examine distribution of the answers for both, the moral question and sub-questions. Examining how answers are distributed per question allowed the researcher to conceptually determine if the question was validly measuring moral character and the underlying reasoning process. Item analysis or factor analysis and rationale equivalence were run to determine if the questions were representative of the construct of interest.

The inventory has been read and evaluated by several notable sport philosophers and ethicists who concurred the EAMCI, in their interpretations, does measure deontological reasoning. These experts distinguished scholars in the field of sport ethics and sport philosophy, and are members of the Academy of Physical Education and the International Association for the Philosophy of Sport.

The five main questions in the EAMCI match HBVCI in that the dilemma can be solved via deontological moral philosophy. The content validity and reliability of the HBVCI the other instrument used in this study have previously established validity. As mentioned in previous sections the HBVCI is a measure of moral reasoning, which involves universal values of honesty, justice, and responsibility in context of sport. Therefore, considering was mentioned in the review of literature about moral character, the HBVCI measures moral character. The process used to establish validity of the EAMCI is similar to that used to

establish validity for the HBVCI and the RSBH. Numerous experts in the field of sport philosophy and sport ethics examined the scenarios in the HBVCI and RSBH and concurred that the scenarios were measuring social and moral character.

Criterion Validity

Here we focus on concurrent validity as a sub-type of criterion validity. One pilot of the present study will test subjects using both the EAMCI and HBVCI. Across all studies using the HBVCI, data are consistent in that student athletes reason score lower compared to non-athletes (Hahm, 1989; Penny & Priest, 1990; Beller & Stoll, 1991, 1992; Beller, 1990). Furthermore, researchers Bredemeier (1984) and Bredemeier & Shields (1986) using the Hall Sport Questionnaire posits that athletes use separate moral systems in sport compared to societal contexts. The present study does not seek to predict behavior, the rationale being that cognition does not predict behavior. Therefore, the predictive component of criterion validity is not needed.

Additionally, simple descriptive statistics, such as frequencies, means, and standard deviations, were run in order to look for group “response patterns” between (and within) the of institution, gender, non- athlete compared to athlete, and academic status. A frequency histogram and relative frequency polygon will also be constructed in order to visually “see” any “response patterns” that exist between and within groups of athletes, type of sport they play, and their gender.

Research Design

The design of this study was both philosophical and quantitative descriptive. Overall this chapter was dedicated to the quantitative descriptive portion of the study. No treatment

applied in the present study. The purpose of the research was to conduct an empirical examination of moral decision making about prohibited substance use in sport through the pilot EAMCI instrument. The EAMCI was used to describe moral decision making about ethical dilemmas specific to the context of doping in sport. Scores on the EAMCI instrument were not used to make inferences concerning each individual subject's moral judgment.

Independent and Dependent Variables

Furthermore, the present study does not seek to establish a cause and effect relationship between moral judgment and doping in sport for example attempting to use the incentive to succeed in sport as a casual factor in doping violations. Research shows that numerous extraneous variables hinder the researcher's ability to establish such a relationship (Rest & Narvaez, 1991). The present study is delimited to a quantitative descriptive study. In this descriptive study, categorical independent variables are: gender, team sport athlete, individual sport athlete, college non athlete, college athlete, institution, and gender were examined to help explain cognitive modeling about doping in sport. There is one dependent variable: moral reasoning.

Statistical Analysis

An exploratory factor analysis (EFA) and rationale equivalence were initially computed to ascertain component loading and construct stability. Frequency results were computed for each question to explain the subject response to each individual question. Independent samples t test was used to determine any significant difference between the selected categorical variables on moral character and level of moral reasoning. Independent

samples t test was proposed to test known group differences. While an exploratory factor analysis procedure was used to address the integrity of component and factor loadings.

In addition a correlation statistical procedure was employed to examine the relationship between EAMCI scores and HBVCI scores:

- possible known group differences in moral reasoning scores by institution– independent samples t-test;
- possible known group differences in moral reasoning score by gender– independent samples t-test;
- possible known group differences moral reasoning scores by non athletes versus athlete– independent samples t-test;
- possible differences in moral reasoning score by type of team versus individual sport – independent samples t-test;
- moral reasoning differences in accordance with: (a) gender; (b) type of sport; (c) non athlete, and, (d) athletes – ANOVA;
- the strength and direction of the relationship between the independent and dependent variables hypothesized to be correlated (i.e., the extent to which type of institution, gender, non- athlete versus athlete, and individual versus team moral reasoning scores) – correlation ,regression, and partial correlation;
- Factor analysis was run to ascertain factor loadings and integrity of component loadings.

CHAPTER FOUR

Results

Study Purpose

The purpose of this study was to develop a statistically valid and reliable instrument to quantitatively describe the empirical relationship between moral reasoning and doping in sport among college athletes, non athletes, gender, individual sport athletes, and team sport athletes. The data collected in the external study will not be used in the present study. To examine this study purpose a series of statistical hypotheses were examined using data from matched pairs of the EAMCI and the HBVCI.

Participants

Three hundred and thirty-seven (337) participants from one northwest university volunteered to participate in the study. The sample had 154 male and 183 female subjects. Two hundred and four (204) matched pairs of EAMCI and HBVCI scores were included in to examine known group differences. Thus, the data used to analyze known group differences used the matched pairs 204 (104 males) and (118 females) for, both the EAMCI and HBVCI instruments.

Instrument Backgrounds

All participants completed both the EAMCI and the HBVCI. The Cronbach alpha for the HBVCI was .80, consistent with reported instrument internal consistencies. The Cronbach alpha for the EAMCI was .552. The number of responses collected for was below the minimum 250 recommended by for the matched pairs of the EAMCI and HBVCI,

however the number collected for the EAMCI was above that figure (Tabachnick & Fidell, 2007). Two exploratory factor analyses were run using the EAMCI 337 responses collected and the second using 204 subjects. For the sample of 337, the dimensionality of the five items from the EAMCI was analyzed using maximum likelihood factor analysis with varimax rotation, total explained variance with eigenvalues over 1, and the scree plot. The rotated solution yielded two interpretable factors. The first components contributed 62% of the variance (see Table 2. E). In the second factor analysis run was on the 204 EAMCI that were matched with the HBVCI. The rotated solution yielded two interpretable factors. The first component: loyalty versus truthfulness, accounted for 36.7% of the item variance, while the second component, success in competition versus truthfulness, accounted for 22.07% of the item variance (see Table 2 H).

Statistical Hypotheses

EAMCI Results

- 1) There are no significant differences in scores by gender (male versus females) in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?

A significant difference was found by gender $F(1, 202) = 32.88, p = .001$. On the EAMCI, females scored (12.58 ± 2.02) significantly higher compared to males (10.73 ± 2.57) see table 2A.

- 2) There are no significant differences in scores by individual versus team sport in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?

The goal of this hypothesis was to examine differences in how individual sport versus team sport athletes reason about doping issues in sport. Findings from this hypothesis are

inconclusive as many participants stated that they were either team or individual sport athletes, yet they either had zero to two year participation in their sport and/or were older than 24 years of age. Therefore, this hypothesis was not examined in the ANOVA model.

- 3) There are no significant differences in scores by athlete versus non-athlete in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?

The goal of this hypothesis was to examine moral reasoning relative to doping with intercollegiate athletes. Findings on this hypothesis are inconclusive as many participants stated that they were athletes, yet they either had zero to two year participation in their sport and/or were older than 24 years of age. Perhaps participants were unclear as to what was being asked with status as an athlete. Therefore, this hypothesis was not examined in this ANOVA model.

- 4) There are no significant differences in scores by institution in cognitive moral reasoning about performance enhancing drugs as evidenced by EAMCI?

Analysis of this data was not run because the data set from the external study could not be used in the current pilot study.

- 5) There is no correlation between the EAMCI scores and the HBVCI score by gender, type of sport, athlete versus non-athlete, and by institution?

A correlation was run between gender, EAMCI, and HBVCI scores. A significant relationship was found between gender and EAMCI scores $r(204) = .374$, $p = .001$ and between gender and the HBVCI scores $r(204) = .176$, $p = .012$. No significant relationship was found between the EAMCI and the HBVCI $r(204) = .072$, $p = .305$. Gender accounted for 14% of the variance in the EAMCI scores r^2 . Gender accounted for only 4% of the variability in HBVCI scores. Gender significantly predicted EAMCI scores $F(1, 202) =$

32.88, $p = .001$, $R = .374$, $R^2 = .14$, adjusted R^2 . Beta weight was = 1.848 with standardized beta weight .374 (see table 2 B).

HBVCI Results

- 1) There are no significant differences in scores by gender (male versus females) in cognitive moral reasoning about performance-enhancing drugs as evidenced by HBVCI?

There is a significant difference in scores by gender $F(1, 218) = 5.647$, $p = .05$. On the HBVI, females scored $M(30.92 \pm 7.33)$ significantly higher compared to males $M(28.52 \pm 6.36)$. For ANOVAs model (see table 2 A).

Exploratory Factor Analysis

Factor extraction

The purpose of this factor is to extract the factors for the EAMCI. The EAMCI factors are constructs underlying that help describe the EAMCI variable. The procedure used shows that the five components formulated in construction of the EAMCI consist of a combination of variables whose shared correlation explains 62% of the total variance. The first five factors contributed the largest proportion of variance and were used to decide which factors to remove from the final solution. This exercise began with 95 items in pilot study 2 and reduced to 20 items in the final pilot study. Not all factors extracted in the initial pilot studies were of interest to the researcher. The rationale for this procedure is to explain the phenomena of moral decision making about performance enhancing substances with substantially fewer variables compared to the original number (see pilot study 2 and Table 2 E). This helps explain why the final solution results in 16 variables. The factors retained were selected on a criterion based on face validity and construct validity. The mathematical

criterion for this process is to select factor with an Eigen value over 1.0. Therefore, the 76 variable rejected to arrive at the final solution had the lowest Eigen values and thus explaining less variance than the variables you see in the final solution (see Figure 2 A).

The EFA findings revealed a five-factor structure, including (1) recreational drug use, (2) legal but unethical drug use, (3) illegal but ethical drug use, (4) not interpretable (5) illegal and unethical drug use. These are typical moral decision making tasks for athletes and athlete support personnel on the subject of doping. The rotated factor structure demonstrated high loadings on factor 1 consisting of Decision 2 (.807), question 2b (-.890), and question 2c (.784).

Factor 2 loaded question 5b (-.813), Decision 5 (.744), and question 5c (-.701). Factor 3 loaded question 3b (-.807), question 3c (.800), and Decision 3 (-.701). Factor 4 loaded question 3a (.772), question 1a, (.671), and question 1c (.650). Finally, factor 5 loaded question 4a (.755), Decision 4 (reversed) (.795), and question 4c (.740) (see Table 2 G).

Factor Rotation

Once the factors were selected, the next step was to rotate them. This result in a simple structure that is much easier to interpret. The factor loadings of our five selected variables indicate a strong relationship between a particular factor and particular variable. The best research practice is to select loading $> .6$. Throughout this process variables that loaded on two or more factors were rejected. In the present study, the researcher used varimax rotations. These are considered orthogonal rotations because the axes that are rotated remain at right angles to each other.

A Scree plot was used to select factor rotated to the final solution. Only factor that were on the Steep portion of the graph were selected and rotated (Figure 2 E). The present

output seems to yield a fairly interpretable pattern of four types of ethical paradigms to focus on in moral decision making about performance enhancing drugs. Factor 4, the strange one would most likely be dropped in future studies because loaded the following variables question 3a (.772), question 1a, (.671), and question 1c (.650) and are not linked to any decision variable (see Table 2 H).

Table 2 A

The table below illustrates descriptive data for ANOVA for the Gender and Non Athletes Vs Athlete variables.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
HBCVITOT	Between Groups	312.831	1	312.831	6.479	.012
	Within Groups	9753.149	202	48.283		
	Total	10065.980	203			
eamcitot	Between Groups	173.057	1	173.057	32.882	.000
	Within Groups	1063.115	202	5.263		
	Total	1236.172	203			

Table 2 B

The diagram below is a measure of the correlation between EAMCI scores and HBVCI scores.

Correlations

		eamcitot	HBCVITOT	GENDER
eamcitot	Pearson Correlation	1	.072	.374**
	Sig. (2-tailed)		.305	.000
	N	204	204	204
HBCVITOT	Pearson Correlation	.072	1	.176*
	Sig. (2-tailed)	.305		.012
	N	204	204	204
GENDER	Pearson Correlation	.374**	.176*	1
	Sig. (2-tailed)	.000	.012	
	N	204	204	204

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note* Question # 4 has been reversed.

Table 2 C

Reliability Statistics

Cronbach's Alpha	N of Items
.552	5

Table 2 D

The table below is a measure to test if the distribution of values is adequate for conducting a factor analysis, a measure at .500 is considered to be adequate.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.550
Bartlett's Test of Sphericity	Approx. Chi-Square	1646.479
	df	120
	Sig.	.000

Table 2 E

The table below shows five factor of the EAMCI with eigen values larger that 1.0 and they account for more than 62% of the total variance.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.934	18.340	18.340	2.934	18.340	18.340	2.142	13.389	13.389
2	2.006	12.537	30.878	2.006	12.537	30.878	2.021	12.632	26.021
3	1.903	11.897	42.774	1.903	11.897	42.774	1.979	12.366	38.387
4	1.577	9.856	52.630	1.577	9.856	52.630	1.932	12.078	50.465
5	1.548	9.673	62.303	1.548	9.673	62.303	1.894	11.838	62.303
6	1.187	7.417	69.720						
7	.853	5.334	75.054						
8	.771	4.821	79.875						
9	.609	3.807	83.683						
10	.518	3.239	86.921						
11	.488	3.050	89.971						
12	.456	2.850	92.821						
13	.375	2.344	95.165						
14	.358	2.237	97.402						
15	.310	1.939	99.341						
16	.105	.659	100.000						

Extraction Method: Principal Component Analysis.

Figure 2 A

The diagram below plots the eigen values on a bicoordinate plane.

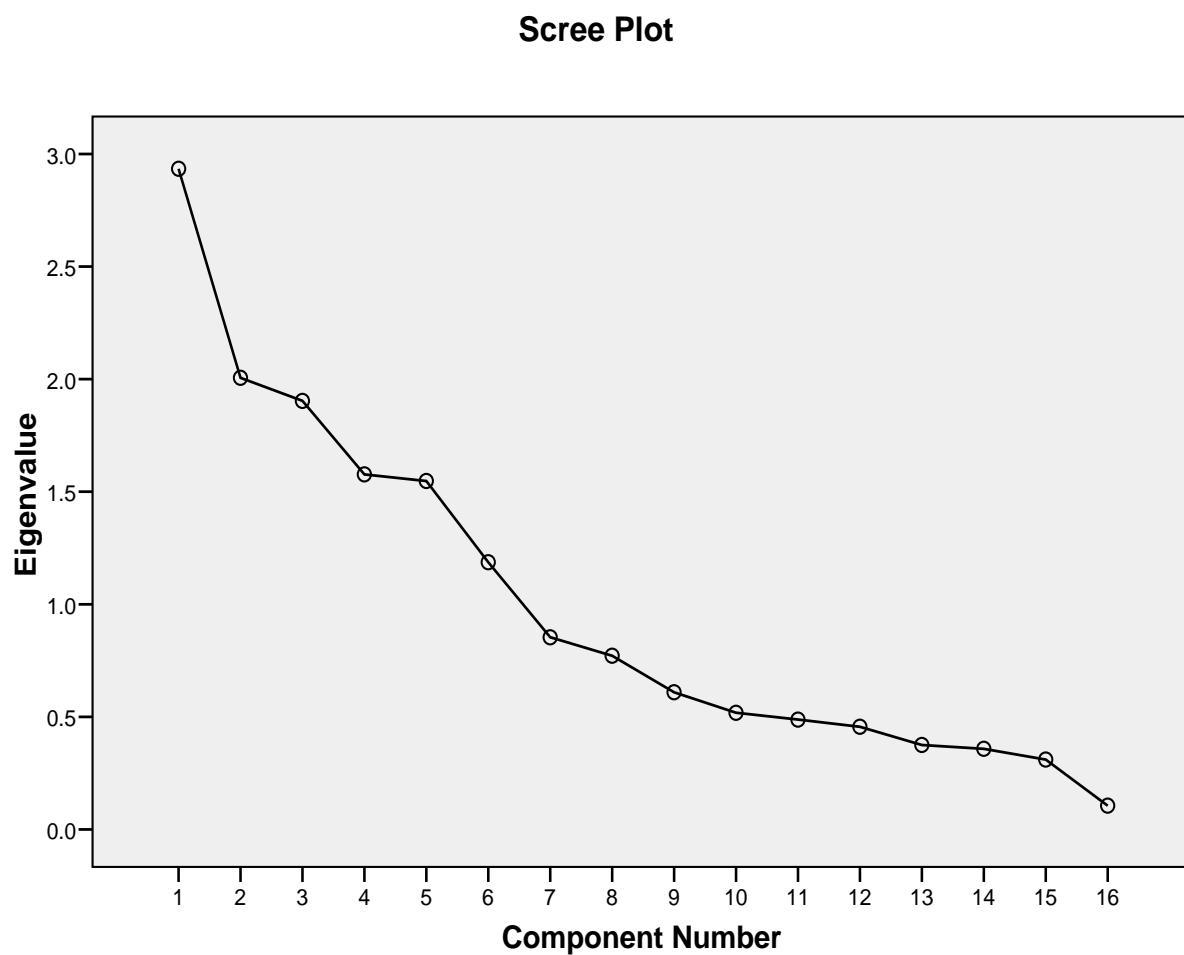


Table 2 F

The table below displays the unrotated component structure

Component Transformation Matrix

Component	1	2	3	4	5
1	.540	.514	.374	.384	-.397
2	.054	-.404	.719	.272	.492
3	.730	-.231	.004	-.639	.078
4	.007	.687	-.041	-.155	.709
5	.416	-.219	-.584	.588	.303

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table 2 G

The table below displays the rotated factor structure for the EAMCI.

Rotated Component Matrix ^a

	Component				
	1	2	3	4	5
q2b	-.890				
Decision 2	.807				
q2c	.784				
q5b		-.813			
Decision 5		.744			
q5c		.701			
Decision 1					
q3b			-.807		
q3c			.800		
Decision 3			.680		
q3a				.772	
q1a				.671	
q1c				-.650	
Decision 4					.795
q4a					-.755
q4c					.740

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 2 H

The table below shows output for factor analysis using matched pairs, EAMCI Total & HBVCI Total.

R o t a t e d C o m p o n e n t M		
	C o m p o n e n t	
	1 ^c	2 ^b
D e c i s i o n	-.805	
D e c i s i o n	.698	
D e c i s i o n	.611	
D e c i s i o n		.816
D e c i s i o n		.678

E x t r a c t i o n M e t h o d : P r i n c i p a

R o t a t i o n M e t h o d : V a r i m a x v

a . R o t a t i o n c o n v e r g e d i n 3

b . S u c c e s s i n C o m p e t i t i o n

c . L o y a l t y v e r s u s T r u t h f u l n

Figure 2 B

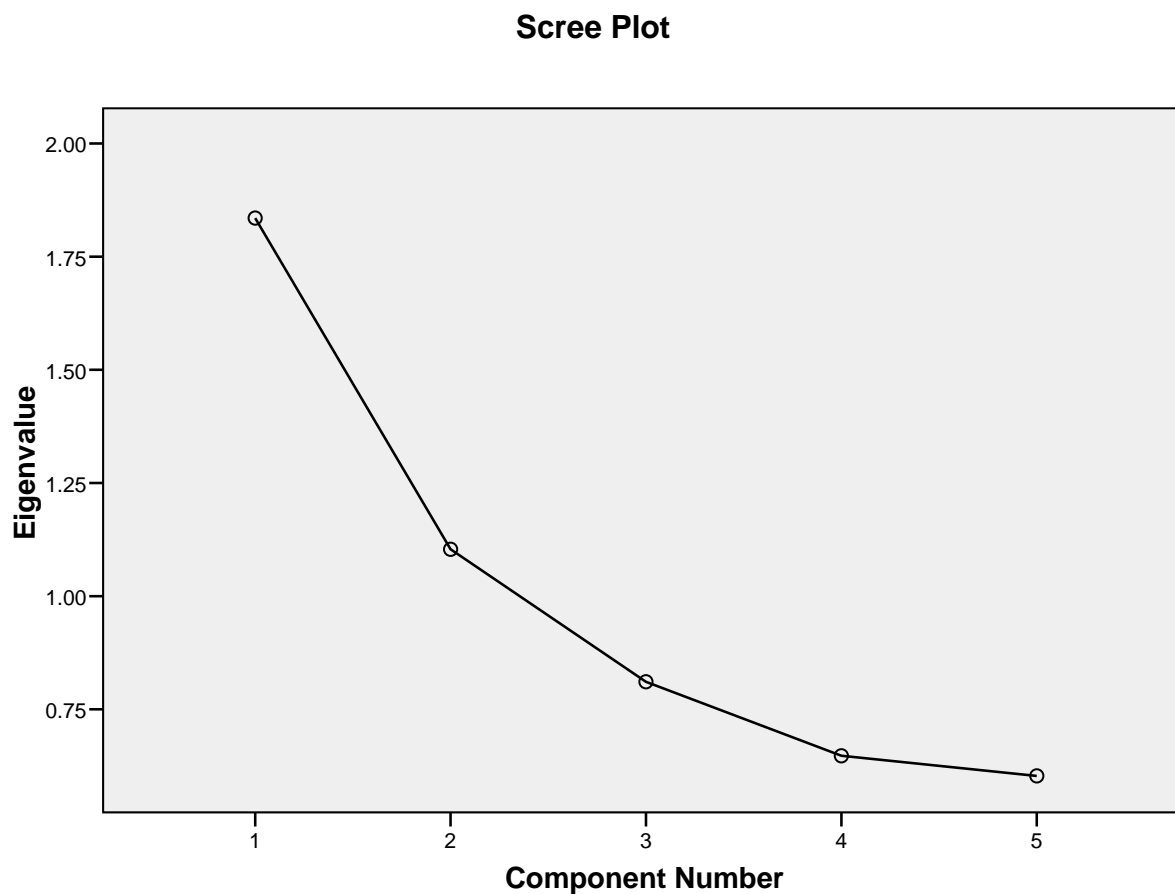


Table 2 I

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.835	36.704	36.704	1.835	36.704	36.704	1.523	30.459	30.459
2	1.104	22.072	58.776	1.104	22.072	58.776	1.416	28.317	58.776
3	.811	16.218	74.994						
4	.647	12.948	87.941						
5	.603	12.059	100.000						

Extraction Method: Principal Component Analysis.

Table 2 J

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.637
Bartlett's Test of Sphericity	Approx. Chi-Square	89.155
	df	10
	Sig.	.000

CHAPTER FIVE:

Discussion

The purpose of this chapter is to discuss the results to the statistical hypothesis in Chapter 4. The conclusion of the statistical hypothesis discussion will lead into a discussion of the research hypothesis mentioned in the previous chapter. Following, there will be a discussion of other pertinent information that was discovered from the statistical analysis. The discussion is focused on results from pilot study 4. The number of athletes participating in the study limits the ability to generalize the results to the overall athlete population. In addition, significant differences or no significant difference with the main effects of independent variables may be the result of disproportionate sizes in sample. Despite a small sample size, results were consistent with other studies that have examined moral reasoning differences by gender. As a result, the consistency between studies may legitimize the following discussion of results from the previous chapter.

Doping control has evolved over the twentieth century, with less significance being placed on education and more significance is placed on detection (Roberts & Olsen, 1989; Houlihan, 1999). The negative effects of the de-emphasis on education is revealed in disturbing research on the health risks that athletes are prepared to take to gain that extra second or inch or pound. The BMA (British Medical Association) reports that a survey of over 100 top American athletes in the late 1970s revealed that nearly 55 per cent of them reported they would be willing to take a drug which would kill them within a year if it could assure them of an Olympic gold medal. A follow up to this study in 1984 of 198 world-class athletes found that 52 per cent of them would take a wonder drug that would probably kill

them within five years, if it guaranteed success' (BMA, 2002, p.11). Research on the use of anabolic steroids conducted in the 1990s reached a similar conclusion, 44% of respondents said they would continue to use anabolic steroids even if it was demonstrated that they were a direct cause of life threatening diseases, such as cancer (BMA 2002).

Hypothesis One

- 1) There are no significant differences in scores by gender (male versus females) in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?

One of the major purposes of this study was to determine if gender has an effect in moral judgment about banned substances use in sport. The data collection instrument used to test this hypothesis was the Ergogenic Aids Moral Competence Inventory built upon normative ethics. The EAMCI, measures whether or not people use deontic moral reasoning to solve dilemma in sport doping context. Differences by gender were examined as a result of previous research in cognitive moral reasoning that suggests that there are gender differences in cognitive moral reasoning (Hahm, 1989; Beller & Stoll, 1992, 1995; Rudd & Stoll, 1997; Rudd, Stoll, & Beller, 1997). Do these differences extend to moral judgment in the realm of doping in sport?

The pedagogy in anti-doping intervention is primarily focused on the following: information based approach, life skills and value deficit approach, alternative based approach, and peer education approach. Although these are useful at helping sport practitioners and participants understand the legal, psychological, and physiological consequences of using performance enhancing drugs, these methods offer little in understanding of the complex moral cognitive processes used by participants to make moral decisions about ergogenic aids (Stoll, Gwebu, & Beller, 2006).

A review of the literature in the field of sport indicates that women's athletics is driven by different values compared to men's athletics (Noddings, 1984). In the late 19th century women were not allowed to participate in violent or physically demanding sports. There was fear that women would adopt the same aggressive violent behaviors exhibited by men in sport and conjecture that sport may negatively affect the female reproductive process (Swanson & Spears, 1995).

Therefore, female sport held a less competitive philosophy than male sport, moral development researchers such as Carol Gilligan posits that men and women use different moral systems for decision making (Gilligan, 1982). However, recent research shows that female athletes may be embracing the alleged win-at-all cost attitude exhibited by their male counterparts (Beller, Stoll, & Hansen, 2004). Nonetheless, because some researcher have noted difference by gender in moral judgment, an assessment with the EAMCI was conducted to provide evidence in support of the construct validity of scores obtained from the instrument.

As such, female student athlete scores on the EAMCI were compared to those of male student-athlete scores. In this study a significant difference was found between female and male scores on the EAMCI decision index. Similarly in this study, a significant difference was found by gender on the HBVCI scores. These findings are consistent with previous studies done with the HBVCI and RSBH (Hahm, 1989; Beller & Stoll, 1992, 1995; Rudd & Stoll, 1997; Rudd, Stoll, & Beller, 1999). Typically, female student-athletes score significantly higher than male student-athletes (e. g., Haan, 1983). EAMCI females scored higher ($M = 12.58$, $SD=2.02$) compared to males who scored ($M = 10.73$, $SD=2.57$).

Bredemeier and Shields (1995) demonstrated that female athletes score significantly higher in moral judgment using the Defining Issues Test (DIT). In addition, Krause and Priest (1994) and Penny and Priest (1990) found that females score higher than males on moral judgment in a replication study using the HBVCI.

Difference in scores by gender outside the sport context.

The DIT is the most popular instrument for measuring moral character outside the sport context. Bredemeier and Shields (1995) found that males in general score significantly less than females on the DIT. Other evaluative tools such as the HBVCI and RSBH have been used to examine moral reasoning difference by gender outside the sport context. Rudd, Stoll, and Beller (1999) found that female college student scored higher than male college students using the RSBH. Bredemeier and Shields (as cited Bredemeier & Shields, 1998) developed their own instrument to measure moral reasoning. High school female students scored significantly higher than high school male students. Conversely Rest (1986), developer of the DIT, did not find significant difference by gender. Using the EAMCI the researcher found female students scored higher ($M = 10.69$, $SD = 3.17$) compared to male student male who scored ($M = 9.38$, $SD = 3.60$).

Interestingly, gender significantly predicted EAMCI scores $F(1, 202) = 32.88$, $p = .001$, $R = .374$, $R^2 = .14$, adjusted R^2 . Beta weight was $= 1.848$ with standardized beta weight $.374$. Again results from this study are consistent with studies using the RSBH and the HBVCI whereby females use a higher level of principled reasoning compared to males. These results also match Gilligan's (1977) findings whereby she stated that females on justice defined instruments score lower compared to males.

Hypothesis Two

- 2) There are no significant differences in scores by individual versus team sport in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?

A review of literature in the field of cognitive moral reasoning indicates that differences by gender in moral judgment are not the entirety of factors affecting moral judgment in the sport (Power, Higgins, & Kohlberg, 1989). Other studies have examined differences in cognitive moral judgement by comparing team sport and individual sport athletes. As such in studies conducted using the HBVCI and RSBH, team and individual sport athletes were charged with the moral task of recognizing the concepts of justice, honesty, or responsibility using scenarios representative of competition in sport scored lower than non competitive populations. Researchers Rudd, Stoll, and Beller (1997) and Stoll & Beller (1993b) consistently found that team sport athletes score lower than individual sport athletes in cognitive moral reasoning.

Numerous researchers in the area of moral reasoning in sport contend that team sports have a unique culture that is separate from individual sports. Actions that would be considered immoral in individual sport are often times excused in team sport. That is, team sport is culturally set apart from the individual sport with its own system of right and wrong (Stoll & Beller, 1993a, 1998). As can be seen in Table 3 A (below) through 1968 to 2000, 44% of the athletes caught for using doping were individual sport athletes. However, this conclusion is not well founded because most professional sports and thus, team sport are not governed by the IOC at the highest levels.

Table 3 A

Official number of doping cases at Olympic Games, specified for weightlifting, track & field, and team sport athletes.

Year	Weightlifting	Track & Field	Team Sport	Total
1968	-	-	1	1
1972	2	-	5	7
1976	8	1	2	11
1980	-	-	-	-
1984	5	3	4	12
1988	5	1	4	10
1992	-	4	1	5
1996	?	?	?	(2)
2000	4	2	5	11
Total	24	11	22	57+(2)

Other studies have found a difference between individual sport athletes and team sport athletes in moral reasoning, team sport athletes and individual sport athletes go through a different character development process. The differences suggest that athletes cannot be generalized as having identical experiences (Ziegler, 1964). Bredemeier and Shields 1986 (as cited in Bredemeier & Shields, 1998) also found individual sport athletes to score higher than team sport athletes, yet not as high as the non athletes. In chapter 2 we saw that team sport has a history of attempting to build character, particularly social character among its participants (Ziegler, 1975; Rudd, 1997). With capitalism deeply entrenched in the

American psyche, sport in the continental United States is focused on developing traits that will allow participants to excel in the corporate world (Blasi, 1980; Strelan & Boeckmann, 2003). Therefore, while competition has always been at the forefront of society, the concepts of teamwork, self-sacrifice, and loyalty to the team or corporation may enable doping behavior (Sokolove, 2004; Goldman & Klatz, 1992; Sage, 1986, 1998; Yesalis, Kopstein, & Bahrke, 2001).

In the present study, it appeared there were many confusions about the nominal category of athlete status. Participants' data was cross-checked with year of birth and years of participation in sport. The goal of this question was to examine differences between individual, team, and non-athletes, however over 25 individuals reported birth dates as early as 1955 and or that they had zero to two years of participation in their listed sport. As such, for this study data could not be analyzed concerning athlete versus non-athlete status. However, in one previous pilot study with the EAMCI, a significant difference was found between team and individual sport athletes (Davenport, 2007). By better clarifying the nominal descriptive data categories in the future, a better understanding of possible differences between team and individual sport athletes may be possible.

Notably though, individual sports are perceived to be dirtier than team sport. Drug-testing statistics in Australia have indicated that athletes from individual sports are more likely to be caught using banned drugs (ASADA, 2001; Waddington, 2000). This suggests that the demands of team competition might be different for individual athletes. Therefore, an effective doping deterrent observed team sport might differ from individual sport.

Hypothesis Three

- 3) There are no significant differences in scores by athletic versus non-athlete in cognitive moral reasoning about performance-enhancing drugs as evidenced by EAMCI?

One of the major purposes of this study was to see if athletes possessed a greater understanding or sensitivity to moral issues related to substance abuse in sport. As we have seen, athletes operate in an environment where they are consistently aware of doping through random testing and education programs (Wallace, Cuneo, Bidlingmaier et al., 1999). Despite this abundance of stimulation to reflect on their moral stance on doping, competitive populations tend to be more focused on avoiding the legal consequences of doping.

As explained in their previous hypothesis, no examination of athlete versus non-athlete could be conducted. Again, this hypothesis should be further examined with a larger sample size as in many studies with the HBVCI, non-athletes use a significantly higher level of moral reasoning compared to athletes. That is, athletes are more likely to practise moral dualism in their decision making about prohibited substances in sport while not engaging in similar behaviour with regard to recreational drugs (Ziegler, 1980).

Bredemeier and Shields (1995) theorized that an athlete's sense of right and wrong may change outside the lines of competition. In a study using an instrument designed by Bredemeier and Shields (1995) measuring moral character in both sport context and "real life situations" to test a sample of college athletes and non-athletes. The results showed that non-athletes scored higher than athletes for both the sport context and real life situation.

Although significant differences have been found between non-athletes and athletes concerning moral character. Bredemeier & Shields (1998) have also noted that athletes scored higher on the real life dilemmas as opposed to the sport context dilemmas. Therefore, the

argument is that athletes moral reasoning about performance enhancing substances is adjusted inside the lines of competition.

Hypothesis Four

- 4) There are no significant differences in scores by institution in cognitive moral reasoning about performance enhancing drugs as evidenced by EAMCI?

One of the goals of this hypothesis was to examine possible differences between the non athlete student population to the student athlete population. The rationale for collecting data that was predominately non athletes at the first institution was to contrast that sample with that of the second institution was exclusively athletes. Unfortunately, the data from the second institution could not be used in the present study. As a result it was not possible to examine differences by institution. .

Hypothesis Five

- 5) There is no correlation between the EAMCI scores and the HBVCI scores.

The EAMCI was developed using deontological moral theory and cognitive moral development as theoretical frameworks. Deontological theory holds that there is an inherent right and wrong apart from the consequences in moral decisions (Frankena, 1973). To establish criterion validity participants in this study took both the EAMCI and the HBVCI. Both, the EAMCI and HBVCI (Hahm, Beller, & Stoll, 1989 a-b) were developed using deontological moral theory and cognitive moral development as theoretical frameworks

In this study, a significant relationship was not found between the HBVCI and the EAMCI. This finding is different compared to Davemport's (2007) where she found a significant correlation. However, in the present study a large portion of the participants were

most likely non-athletes and Davenport examined exclusively athletes. Thus a relationship may exist and may be more apparent with a larger more consistent study.

Interestingly, gender significantly correlated with the EAMCI scores ($r = .374$) and the HBVCI ($r = .176$) and significantly predicted scores on the EAMCI. Again results from this study are consistent with studies using the RSBV and the HBVCI whereby females use a higher level of principled reasoning compared to males. These results also contradict Gilligan's (1977) findings whereby she stated that females on justice defined instruments score lower compared to males.

Also, in this study respondents read scenarios involving doping in sport, and responded as to whether the individual should take the drug, not take the drug or can't decide. The respondent proceeds to rank three corresponding states in support of the decision. The scores of the EAMCI are analysed in two parts. The first analysis is the decision index constituting the main five questions which are totaled resulting scores ranging from 5-15. Choosing not to dope involves principled reasoning based on the deontological theoretical framework. On the other hand choosing not to dope or can't decide do not involve principled thinking. The higher the score, the more principled reasoning used in making decisions involving performance enhancing substances in sport (Floyd & Widaman, 1995; Comfrey & Lee, 1992).

Additionally, while the Cronbach alpha for the EAMCI is lower than expected levels, the final pilot study, the figure was at an acceptable .674 in pilot study 3. In reviewing the questions, internal consistency, and the factor analysis, the questions in with two components explain approximately 62% of the explained variability, which is a good start. A better internal consistency and a better understanding of respondents' moral reasoning relative to

doping may occur if the original decision choices are changed from a definitive choice option to a Likert scale of strongly agree to strongly disagree.

Research Hypotheses

The purpose of this quantitative descriptive study was to:

Philosophic:

(1) To metaphysically examine the empirical and philosophic relationship between moral reasoning and doping in sport.

Part of the answer to this research question can be found in chapter 2 and chapter 4, in which we thoroughly discuss the inconclusive arguments for and against a ban on doping. Empirical evidence suggests that drug detection has little influence on athlete decision making about banned substances because of undetectable drugs such as HGH and insulin-like growth factor (Dawson, 2001; Wallace et al., 1999). In addition, *gene therapy*, a process by which genes with performance enhancing properties are introduced to the organism is a feasible procedure for enhancing performance in sport (Bayertz & Schmidt, 2004; Miah & Rich, 2006). Based on this argument, the continued policy of banning prohibited substances in sport is limited. Achieving zero drug use among athletes is likely an unrealistic goal because of financial and logistical constraints, regardless of the method that may be taken, and it is naïve to expect as much (Hoberman, 1992, 1997). Yet, it is also the case that drug education programs that emphasize ethical and health issues associated with banned substance use in sport have a deterring effect (Kapernick, 2001).

The second portion of the answer is that we are all captivated by the mysticism of sport. The levity or significance of sport in our society is a foregone conclusion, however to understand the mysticism of sport and how it relates to doping one must apply MacCannell's

(1999) theory of staged authenticity. The reason why spectators continue to pay large sums of money to attend sporting events is because they are satisfied by the spectacle and do not care about the means used by the athletes to stage that performance. Fundamentally, there is nothing wrong with this experience of sport. On other hand there are those that seek an authentic performance and are not interested in the spectacle. The main concept to grasp is that they have a moral purpose for attending and wanting to experience the performance (MacCannell, 1999). The rationale guiding each spectator is reasonable regardless of the side we choose.

Descriptive:

(2) To develop a statistically valid and reliable instrument to quantitatively describe the empirical relationship between moral reasoning and doping in sport among college athletes, non athletes, gender, institution, and individual versus team sport athlete. Therefore, examine moral reasoning and doping through theoretical frameworks from the disciplines of cognitive psychology, developmental psychology, and moral philosophy. A factor analysis was conducted on the 5 EAMCI questions to see if the results would yield the categories of moral judgment about performance enhancing drug use that were originally created. The EFA findings revealed a two-factor structure, including (1) loyalty versus truthfulness and (2) success in competition.

The purpose of the factor extraction phase is to extract the factors. Factors are the underlying constructs that describe the EAMCI variables. The extraction method used was principal component analysis. As illustrated by the KMO .550 & the distribution of values is adequate (above 500) for conducting factor analyses (see Tables 2 J and T D) respectively.

Also the Bartlett's measure of multivariate normality of the EAMCI item response distributions shows that the data does not produce a identity matrix ($K > .05$).

Common practice in principal component analysis suggests that for the purposes of extraction a coefficient below .45 is too nebulous for interpretation (Nunally & Bernstein 1994). While results of the first principle components analysis done on the construct variables indicating 62% of variance is explained by the first 5 principle components. Communalities for all the EAMCI items were loading above .6 which is ideal (2 G).

Results of the second principle components analysis done on the construct variables indicating 58% of variance is explained by the first 2 principle components. Communalities for all the EAMCI items were loading above .6 which is ideal.

Rotated factor structure

The factors yield an interpretable pattern of two constructs of moral judgment about banned substances use in sport, some pairs of highly similar items grouped along the same factors. Each item of the instrument loaded in a simple structure and loaded to exactly one component.

Conclusions

The EAMCI's purpose is to measure reasoning about doping in sport. In the collective results to date, findings are promising. The two factor analyses indicate that the instrument has a stable construct The instrument appears to distinguish differences in reasoning concerning social and moral character as related to doping in competition. Results are similar by gender in 20 years of research concerning general moral reasoning in competition, in that gender significantly predicts scores on the EAMCI. Moreover, consistent with general moral

reasoning in sport, females score significantly higher in their moral reasoning concerning doping in sport.

Even though differences between athlete and non-athlete populations in the present study could not be discerned, future studies using a clearer demarcation of descriptive categories may find similar results to the HBVCI. Additionally, while no significant relationship existed between the EAMCI and the HBVCI, Davenport (2007) found a moderately significant relationship.

CHAPTER SIX:

Summary /Recommendations

The purpose of this study was to: (1) comprehensively examine the relationship between cognitive moral reasoning and doping in sport and (2) develop a valid and reliable instrument to measure cognitive moral reasoning in the context of doping in sport.

A deontological theoretical framework was applied to empirically examine moral decision making about banned substances in sport. Results were consistent with other character education studies (e.g., Bredemeier & Shields, 1998; Beller & Stoll, 1988; Rudd, Stoll, & Beller, 1997) in that athletes scored lower than non-athletes subjects in deontological moral reasoning on the EAMCI. More specifically, athletes endorse doing whatever it takes to win, even to the extent of advocating dishonest and unfair strategies. The contemporized perception that sanctions, detection, and current anti-doping education methods are factors in deterring banned substance use may be incorrect, particularly because sophisticated drug cheats are using methods that evade detection. There are inherent limitations in drug detection technology, for example HGH has been in existence since 1954, yet there is no method for detecting HGH in urine samples (Hoberman, 1986). Another factor to consider is the empirical evidence lending support to the claim that drug detection is damaging to sport, because there is no consensus among researchers about the validity and reliability of current tests (Greenhaff, 1996; IAAF, 2000; Singbartl, 1994). In addition, drug testing is a violation of 4th Amendment warrant requirement based on lack of reasonable cause and thus, violating civil rights of the participants (Hoberman, 1984).

The most significant ethical dilemma faced by athletes in the present environment is whether to train “*naturally*”, use supplements of proven benefit, or take undetectable banned substances (Tannsjo, Torbjorn, & Tamburrini, 2000). For instance, creatine monohydrate is a food supplement of proven performance benefit, and yet it remains legal (Greenhaff, 1996). Athletes whose success may be attributed to these substances devalue sporting achievement and the positive role that sport has been shown to play in character development (e.g., Shields & Bredemeier, 1995). Using the framework of social learning theory (Bandura, 1977), it can be argued that high-profile athletes whose drug use is made public are modeling inappropriate behavior (e.g., McCaffrey, 2000). Research has suggested that performance-enhancing drugs are being used increasingly among teenage populations (e.g., Bahrke, Yesalis, & Brower, 1998; Wright, Grogan, & Hunter, 2001).

There is indication that athletes’ moral beliefs influence their decision making process regarding performance enhancing drug use. Thus, an athletes’ decision making process may be swayed, depending on additional information (Kavussanu, Roberts, & Ntoumanis, 2002; Kavussanu & Roberts, 2001). Therefore, the researcher posits that the more certain the moral belief that performance-enhancing drugs are cheating, the less likely athletes are to use performance-enhancing drugs. The literature suggests that moral development and moral reasoning have the strongest impact in deterring the decision to use banned performance-enhancing drugs (Foglia, 1997; Nagin & Pogarsky, 2001; Paternoster, 1987). When athletes consider the different deterrents together, the literature indicates that moral reasoning and moral development will retain unique effects, whereas the effect of sanctions will disappear (Colby et al., 1983; Thoma, 1994).

The overall purpose of the EAMCI was to expand our understanding of cognitive moral reasoning in sport, particularly in the context of doping in competitive sport. Therefore, the present study is situated in context of existing deterrence mechanisms such as: detection, sanctions, life skills deficit methodology, peer-lead methodology, alternative-based methodology (Goldberg & Elliot, 1994, 1997; Goldberg, Elliot, Clarke et al., 1996-a-b, 1997, 2000), and information-based methodology dominating the environment as deterrence strategies. The EAMCI explores the combined effect of deontological moral reasoning in competitive populations. The discord between these efforts and the results of the EAMCI confirm this researcher's belief that the current system fosters lower order thinking i.e. pre-occupation with avoiding punishment (Piaget, 1972; Kohlberg, 1984). Therefore, if experts in anti-doping education want to educate athlete, coaches, and administrators about ergogenic aids, they may want to stimulate higher order thinking, i.e. have athletes, coaches, and administrators really reflect on their moral stance on doping in sport.

The EAMCI was developed in an attempt to fill a void in the area in the area of anti-doping education, to our knowledge there are no published data offering insight into the moral reasoning of athletes who use and escape detection, or the rationale behind the decisions of athletes who do not use performance-enhancing drugs (Newsholme, 1990). Naturally, some subjects engaged in socially desirable responses: a limitation inherent in most research of this nature, particularly studies such as this one in which individuals are asked to be honest about dishonest intentions (Cozby, 2001).

However, should the hypothesis that athletes respond in the same manner as other populations to legal drug sanctions be examined? As noted earlier in the chapter, some of the most potent ergogenic aids such as HGH and IGF-1 are undetectable (Greenhaff, 1996;

IAAF, 2000). For athletes who do their research and have access to sophisticated drugs and chemists, the threat of sanctions for undetectable drugs is non-existent. Therefore, if detection is unenforceable in such case, what effect does the absence of detection have on subjects' moral judgment response to ethical dilemmas related to doping?

Thus, if sport participants and society in general are to be more successful in deterring banned drug use in sport, we should reduce the emphasis currently placed on drug testing. The sports fraternity must treat sanctions as a supplemental deterrent by taking into consideration the impact of a self-regulating mechanism such as improving cognitive moral reasoning skills by implementing a moral development program.

Recommendations

Moral development according to Kretchmar (1984, 1985) should be a vital concern and objective in physical education. Almost every type of profession that must grapple with significant issues has been studied in the context of moral reasoning (Bebeau, 1994). Among them are doctors, nurses, dentists, accountants, and social workers, but not anti-doping education research (Bayertz & Schmidt, 2004; Stoll, Gwebu, & Beller, 2006). The results of the present study show that athletes score significantly less than non-athletes in resolving hypothetical moral dilemmas situated in the context of doping in sport. If this is true, current anti-doping education programs are underestimating or underestimating the influence of moral development on the decision making process about banned substances. As mentioned earlier drug testing has little influence on drug use decision making. To resolve this problem, athletes, coaches, and administrators should be taught to analyze and resolve moral problems related to doping in sport. The results of this study have important implications for developing future anti-doping education curriculum, particularly the challenge to make a

deliberate effort to equip athletes with the necessary moral skills to navigate the issue of doping in sport.

More specifically, the results and theoretical questions of the present study prompt the following considerations:

First, a replication of the present study using a balanced large sample for all variables is needed. The small sample size of all variables under consideration (gender, institution, non-athlete versus athlete, and team sport athlete versus individual sport athlete) available for the present study produces biased results which can not be generalized.

Second, a replication of the present study using more detailed information about samples is needed. A future design would include variables such as socio-economic status, year in college, and previous anti-doping education/deterrence experience because of potential influence on moral development and cognitive moral reasoning about banned substances.

Third, a replication of the present study is needed using a sample of athletes participating in professional sport or high school sport. Such a study would aid in examining the relationship between moral judgement about banned substances and length of participation in organized sport. Examining the aforementioned variables may aid in confirming the claim that the longer the length of time one participate in sport the more they build social character skills which tend to erode moral decision making skills.

Fourth, a replication of the present study is needed to examine the cognitive dissonance or reflection portion of the instrument. Such a study would define the relationship between decision index and the 9 sub-questions of the EAMCI in terms of moral development.

Fifth, to improve reliability the on the five decision questions I would recommend reverting back to the five point Likert scale that was used through pilots 1 to 3 yielding better internal consistence . Furthermore, eliminating items that did not load above .6 will improve construct stability of the questionnaire.

The availability of hard to detect drugs like I-GF1 and HGH eliminate the consideration of drug detection and sanctions in decision making about banned substance use in sport (Greenhaff, 1996). Therefore, more research is needed to gain a greater understanding of cognitive processes that are relevant in affecting decision making in an environment where drug testing and sanctions are not factors.

Thus far, research with the EAMCI suggests that there are significant group differences in moral decision making by gender, non-athletes versus athletes, and team sport athletes versus individual sport athletes. However, a larger sample size is needed to clearly define group differences, in particular since the current sample of athletes consisted of both club sport athletes and NCAA Division 1 sports athletes.

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APPENDIX A

ERGOGENIC AIDS MORAL COMPETENCE INVENTORY©

Please complete the following information:

1. Year of birth: _____
2. Gender: Male ☐
 Female ☐
3. Class: Freshman ☐
 Sophomore ☐
 Junior ☐
 Senior ☐
4. Sources of information on performance enhancing drugs.
 Coach ☐ Athletic Trainer ☐ Physician ☐ Parents ☐ Other ☐
 If your source is other please explain in space provided below.

 Non-athlete ☐ Athlete ☐ Team Sport Athlete ☐ Individual Sport Athlete ☐
 Athletic Training Student ☐
5. Years participating in intercollegiate sport or in ATEP program: _____

This questionnaire contains stories that have occurred in an athletic setting. Please read each scenario. Place an X in the blank next to the number with your choice of what should be done. Then go to the correspondingly numbered shaded box and rate each of the three justifications by filling in the circle under 1st, 2nd, or 3rd based on what helped you make your choice. There is no “right” or “wrong” answer.

EXAMPLE

Julian, a highly recruited sprinter from Zimbabwe attends every practice, works diligently, and is highly respected by his peers and coaches. He is a good student, sits in front of every class, and is an active participant. He is an NCAA finalist and must miss three days of class for the championships. As per university policy, he contacts all of his professors and receives permission to take his final exams at a different time and place.

What should Julian do?

- ① ☒ Julian should skip. (Go to box 1)
- ② ☐ I can't decide. (Go to box 2)
- ③ ☐ Julian should not. Skip (Go to box 3)

If you choose #1,
rank as your 1st, 2nd, and 3rd
choice only those statements

a. Julian should skip because.....	1 st O	2 nd O	3 rd O
b. Julian should skip because	1 st O	2 nd O	3 rd O
c. Julian should skip because	1 st O	2 nd O	3 rd O
d. Julian should....	1 st O	2 nd O	3 rd O
e. Julian should.....	1 st O	2 nd O	3 rd O
f. Julian should.....	1 st O	2 nd O	3 rd O
g. Julian should not skip.....	1 st O	2 nd O	3 rd O
h. Julian should not skip.....	1 st O	2 nd O	3 rd O
i. Julian should skip because	1 st O	2 nd O	3 rd O

To begin please turn to next page

1. Arnold is married with two small children. He is the sole provider for his family through a lucrative sports endorsement deal. However, this past year he suffered a severe knee injury and underwent reconstructive surgery. Arnold is in rehab and expected to be back on the field this season. Unfortunately rehab is slow, and it looks as if Arnold will miss the entire season. Arnold's sponsors have threatened they will withdraw financial support should he not perform this season. He learns about a prohibited substance that can speed up his recovery, for which there is no chance of it being discovered during a test.

What should Arnold do?

- ① ____ Arnold should take the drug. (Go to box 1)
- ② ____ I can't decide. (Go to box 2)
- ③ ____ Arnold should not take the drug. (Go to box 3)

j. Arnold must take the drugs to support his family, regardless of sport rules prohibiting performance enhancing drugs.	1 st O	2 nd O	3 rd O
k. The drug will be out of Arnold's system before competition starts, technically it's not cheating.	1 st O	2 nd O	3 rd O
l. Arnold will not be caught, so there is no chance of Arnold being suspended or banned from the sport.	1 st O	2 nd O	3 rd O

m. Both options are plausible in such a complicated situation. These are two balanced options; Arnold is not at fault whatever choice he makes.	1 st O	2 nd O	3 rd O
n. I do not care whether Arnold chooses dope or not. As long as it does not impact me, I do not care	1 st O	2 nd O	3 rd O
o. Arnold should do whatever he thinks will produce the most positive outcome.	1 st O	2 nd O	3 rd O

p. Testing positive would bring a lot of embarrassment and humiliation to Arnold's family.	1 st O	2 nd O	3 rd O
q. Arnold should not take the drugs because doping is against the rules. There are no exceptions to this rule.	1 st O	2 nd O	3 rd O
r. Arnolds must not take the drugs because; his opponents have a right to drug free competition and equal opportunity to succeed.	1 st O	2 nd O	3 rd O

2. George, while hanging out at the local gym, learns of a new supplement, Supplement X, which is supposed to improve performance significantly and is rumored to be a precursor for testosterone, which is not presently on World Anti Doping Agency's (WADA) list. George recently learned that his competition is taking Supplement X and beat George last season. Because Supplement X is not on WADA's list, in addition, George learned most of his competition is already using supplement X.

What should George Do?

- ① ____ George should take supplement X (Go to box 1)
- ② ____ I can't decide. (Go to box 2)
- ③ ____ George should not take supplement X. (Go to box 3)

a. Supplement X is not on the United States Anti-Doping Agencies list of banned substances; George is not violating any rules.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>
b. Society would forgive George for taking supplement X, competition is about getting an edge. It all about doing whatever it takes to get the "W".	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>
c. Other athletes are already taking supplement X, George is justified in taking supplement X to level the playing field.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>

d. I don't care what supplements athletes take. Its George's body, if he wants to do it, go for it.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>
e. If they are all doped, does it really matter?	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>
f. George should do whatever he feels right or comfortable.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>

g. George should not use supplement X if he wants to be consistent with his moral beliefs that stress honesty and justice.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>
h. George should first ask the athletic trainer or team physician before using supplement X.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>
i. If other athletes learn about George and supplement X, they will be forced to take it too, even though they do not want to.	1 st <input type="radio"/>	2 nd <input type="radio"/>	3 rd <input type="radio"/>

3. Coach Great is a javelin guru and is considered the best coach of the century. His athletes always win. Coach Great has been known to push the rules to the limit in preparing athletes. Rumors exist that he uses a secret supplement formula to help athletes enhance performance. Danny enlists in Coach Great's training camp and his parents pay a hefty fee. Each day the athletes are to take a prescribed cocktail of supplements. Danny feels pressured, because anyone who questions Coach Great's methods has to leave camp.

What should Danny do?

- ① ____ Take Coach Great's cocktail. (Go to box 1)
- ② ____ I can't decide. (Go to box 2)
- ③ ____ Leave Coach Great camp. (Go to box 3)

a. If Danny is caught, he will not be punished, Coach Great will take the blame for giving Danny an illegal supplement.	1 st O	2 nd O	3 rd O
b. Danny is in no position to question Coach Great's methods and tactics, he should just do what Coach Great says.	1 st O	2 nd O	3 rd O
c. Taking the supplements is just a natural progression in Danny's career. Danny is justified in advancing his athletic career.	1 st O	2 nd O	3 rd O

d. Danny should do whatever will make the most people happy or create the least conflict.	1 st O	2 nd O	3 rd O
e. All options are equally valid.	1 st O	2 nd O	3 rd O
f. This does not impact me. I do not care whether Danny dopes or not.	1 st O	2 nd O	3 rd O

g. Other coaches and athletes would not approve of Coach Great giving supplements to his athletes.	1 st O	2 nd O	3 rd O
h. If taking supplements is not consistent with Danny moral beliefs, then he should not take the supplements offered by Coach Great.	1 st O	2 nd O	3 rd O
i. Coach Great's secret supplements and performance boosters are the key ingredients of success in Coach Great's training program.	1 st O	2 nd O	3 rd O

4. Tony is the kind of athletic trainer whom every athlete is comfortable with discussing any problem. Tony and Andrew have worked together for several years. During that time, Tony has developed a respect for Andrew as a person and his work ethic. They also have a close working relationship. Tony feels extremely fortunate to be friends with an athlete like Andrew. Andrew has been in the sport for four years and has never failed a drug test. During an in-house random test Andrew tests positive for marijuana. The governing body requires that all positives be reported to the ethics committee. Andrew pleads with Tony not to report the test since marijuana does not enhance performance or cheat fellow athletes.

What should Tony do?

- ① ____ Tony should report test results. (Go to box 1)
- ② ____ I can't decide. (Go to box 2)
- ③ ____ Tony should not report test result. (Go to box 3)

a. If the positive test is discovered somehow, Tony would lose his job, and reprimanded by the Certified Athletic Trainers Board.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. If athletic trainers stop reporting in house tests, the sport will be full of druggies.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. If Andrew wants to participate in sport, he should comply with the rules of the sport.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d. Everybody has different views about what Tony should do; so it is just a matter of opinion. It's up to the Tony to decide.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. As long as it does not impact me I do not care.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. There is no clear cut solution to Andrew and Tony's situation. It is hopeless to try to arrive at a final answer to this situation.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

g. Reporting the positive test will ruin Andrew's career and reputation. Marijuana is not a performance enhancer anyway.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Maintaining Tony's relationship with Andrew is more important than sports rules.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other athletic trainers do not report in house tests, anyway nobody would ever know if Tony does not report the test.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Ian and William are teammates on a highly successful and competitive track team, whose high-powered and often negative coach expects unrealistic success. Ian is in a slump and his current times are not up to the coaches' competitive standards. Coach has informed Ian that either he will improve or he will be cut. William has overheard the conversation and decided to contact Dr. Smith who has a history of helping athletes get back their competitive edge. Dr. Smith gives William a prescription for Ian guaranteed to help improve Ian's performance.

What should Ian do?

- ① ____ Ian should take the prescription medication. (Go to box 1)
- ② ____ I can't decide. (Go to box 2)
- ③ ____ Ian should not take the prescription medication. (Go to box 3)

a. Ian is being a team player; his teammates would do the same if they were in a similar situation.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Ian has no alternative but to take his destiny and the law into his own hands.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. If Ian is caught he will not be punished because, Ian's case qualifies as therapeutic use, because a physician signed his prescription.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d. As long as it does not impact me I do not care.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. No one has the right to judge what is right or wrong for Ian and William.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. This is a complicated situation and making the right decision is not clear-cut or simple.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

g. Ian and William may be fined and kicked off the team.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. If Ian considers himself an honest and decent man he would not take the prescription medication to enhance his performance.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Ian's coach is putting sport above human dignity or consideration of fellow man.	1 st	2 nd	3 rd
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX B

Student Informed Consent From

Researcher: Amukela Gwebu (509)-596-2379

Researchers' statement

We are asking you to participate in a research study. The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study or not. Please read the form carefully. You may ask questions about the purpose of the research, what we would ask you to do, the possible risks and benefits, your rights as a participant, and anything else about the research or this form that is not clear. When we have answered all your questions, you can decide if you want to give permission to participate in the study or not. This process is called 'informed consent.' We will give you a copy of this form for your records.

PURPOSE AND BENEFITS

This project is a study about college student athletes' and athletic training students' perceptions about why doping occurs in sport and the ethical issues surrounding doping in sport.

PROCEDURES

All volunteers were asked to complete two different inventories. One will measure level of moral reasoning using scenarios related to general ethical issues that commonly occur and the other will measure moral reasoning using scenarios related specifically to issues surrounding doping. The data collections were a one-time process. Completion of the surveys should take no more than 15 minutes.

RISKS, STRESS, OR DISCOMFORT

The research in which you were participating does not involve more than the foreseeable risks involved in the day to day interactions in a sport and competitive venue.

OTHER INFORMATION

Data from your participation will remain confidential in a locked cabinet at the University of Idaho Center for ETHICS*. The PI and Co-PIs will have access to this information for research purposes and that data may be published without any identifiers to you.

There is no compensation associated with this study.

Printed name of researcher

Signature of researcher

Date

This study has been reviewed and approved by the University of Idaho Institutional Review Board for human subject participation. If you have questions about the study please contact the researcher listed below. If you have questions about your rights as a participant please contact the U of I IRB at 208-310-9877 or hac@uidaho.edu.

APPENDIX C

HAHM - BELLER VALUES CHOICE INVENTORY***In The Sport Milieu**

The following questionnaire describes incidents that have occurred in sport settings. Each question addresses moral values. Because there are no right or wrong answers, please circle the answer that best describes your feelings. SA = Strongly Agree; A = Agree, N = Neutral; D = Disagree; SD = Strongly Disagree

1. Two rival basketball teams in a well-known conference played a basketball game on team A's court. During the game, team B's star player was consistently heckled whenever she missed a basket, pass, or rebound. In the return game on team B's home court, the home crowd took revenge by heckling team A's players. Such action is fair because both crowds have equal opportunity to heckle players.	SA A N D SD
2. During the double play in baseball, players must tag second base before throwing to first. However, some players deliberately fake the tag, thus delivering a quicker throw to first base. Pretending to tag second base is justified because it is a good strategy. Besides, the umpire's job is to call an illegal play.	SA A N D SD
3. Swimmers are taught to stand completely still just before the gun shot that starts the race. Some coaches teach their swimmers to move their head and upper body slightly which possibly forces an opponent to false start. If swimmer B false starts he will probably stay in the blocks a fraction longer when the race starts. Consequently, swimmer A may have an advantage during the race. Because all competitors have equal opportunity for this strategy, this is an acceptable means for swimmers to increase their advantage.	SA A N D SD
4. Male Soccer players are allowed to play the ball with any part of their body except the hands or outstretched arms. A soccer player receives a chest high pass and taps the ball to the ground with his hand. The referee does not see this action and the play continues. Because it is the referee's job to see these actions, the player is not obligated to report the foul.	SA A N D SD

<p>5. Basketball player A skillfully dribbled the ball around her opponents to the basket. Just as she moved toward the basket, she was tripped by played B, causing the basket to be missed. If player A had not been tripped, two points probably would have been made. Player B is charged with a foul and player A must shoot two free throws. Player A missed the two shots from the free throw line. Player B is demonstrating good strategy by forcing player A to shoot two foul shots instead of an easy lay-up.</p>	SA A N D SD
<p>6. Certain basketball teams are coached to run plays that cause the opponents to foul. Players and coaches believe this is clever strategy because the opponents may foul out of the game, giving their team an advantage. Because the coach orders this type of play, the players should follow his directions.</p>	SA A N D SD
<p>7. Player A, who is the center on an ice hockey team, skated the puck down the ice around several opponents. He had a clear shot at the net as he passed player B. Player B, while pretending to go for the puck, decided to turn at the last second to trip Player A with his stick. Consequently, Player A missed the goal. Because Player A must now attempt a penalty shot instead of an easy goal, this is demonstrating good strategy.</p>	SA A N D SD
<p>8. During a volleyball game player A hit the ball over the net. The ball barely grazed off player B's fingers and landed out of bounds. However the referee did not see player B touch the ball. Because the referee is responsible for calling rule violations, player B is not obligated to report the violation.</p>	SA A N D SD
<p>9. Football players are not allowed to move beyond the line of scrimmage until the ball is snapped. Some coaches encourage their players to charge across the line of scrimmage a fraction of a second before the ball is snapped. The officials have difficulty seeing the early movement; therefore, the team has an advantage compared to their opponents. Because the strategy is beneficial and the officials must call the infraction, the team's actions are fair.</p>	SA A N D SD
<p>10. During an intramural basketball game, a student official awarded one free throw shot instead of two to team A. Team B knew the call was wrong, however chose to remain silent, knowing the call was to their advantage. Because the official's job is to make the proper calls, and it is not a formal game, team B's action was acceptable.</p>	SA A N D SD

<p>11. During a youth sport football game, an ineligible pass receiver catches a long touchdown pass and scores. The officials fail to determine that the player was ineligible. Because it is the referee's job to detect the ineligible receiver, the player or the coach does not have to declare an ineligible receiver</p>	<p>SA A N D SD</p>
<p>12. Ice hockey is often a violent game. Even though players are often hurt, hitting hard and smashing players into the boards is normal. Player A and B are opponents playing in a championship game. While trying to control the puck, player A smashed player B into the boards. Even though the puck is on the opposite side of the arena, player B, a few minutes later, retaliated by smashing player A into the boards. Because "hitting hard" and "smashing players into the boards" are an inherent part of the game, player B's action was acceptable.</p>	<p>SA A N D SD</p>

APPENDIX D



University of Idaho

University Research Office
Institutional Review Board
P.O. Box 443043
Moscow, Idaho 83844-3043

Phone: 208-310-9877
Fax: 208-885-7710

Federalwide Assurance: FWA00005639
Federal Assigned IRB #: 00000843
UI Assigned Number: 05-169

MEMORANDUM

TO: Amukela Gwebu
HPERD - 2429

FROM: Steve E. Meier, Chair
Human Assurances Committee

DATE: December 7, 2006

SUBJECT: First -Year Extension: "An analysis of moral reasoning and performance enhancing drugs in athletic populations. (Pilot Study; Testing and Developing An Instrument)."

On behalf of the Human Assurances committee at the University of Idaho, I am pleased to inform you that the first-year extension of your proposal is approved as offering no significant risk to human subjects and no changes in protocol have been made on this project. This extension of approval is valid for **one year** from the date of this memo. Should there be any significant changes in your proposal within the year, it will be necessary for you to resubmit it for review.

Thank you for submitting your extension request.

A handwritten signature in cursive script that reads "Steve E. Meier". To the right of the signature is a small, stylized monogram or initials.

Steve E. Meier

SEM/ed

APPENDIX E



Completion Certificate

This is to certify that

Amukela Gwebu

has completed the **Human Participants Protection Education for Research Teams** online course, sponsored by the National Institutes of Health (NIH), on 02/06/2006.

This course included the following:

- ♦ key historical events and current issues that impact guidelines and legislation on human participant protection in research.
- ♦ ethical principles and guidelines that should assist in resolving the ethical issues inherent in the conduct of research with human participants.
- ♦ the use of key ethical principles and federal regulations to protect human participants at various stages in the research process.
- ♦ a description of guidelines for the protection of special populations in research.
- ♦ a definition of informed consent and components necessary for a valid consent.
- ♦ a description of the role of the IRB in the research process.
- ♦ the roles, responsibilities, and interactions of federal agencies, institutions, and researchers in conducting research with human participants.