

THE ADRENALINE ADDICTION TREATMENT PROGRAM
FOR SPORT ATHLETES

by
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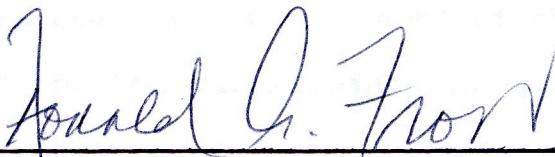
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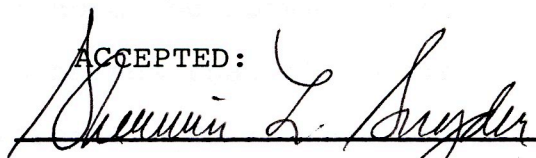
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ABSTRACT

Many studies show how sport athletes are becoming more violent during the off season, and after retiring from their sport. Cases of abuse (to family and friends) including physical, mental, and drug use, are being reported at an alarming rate. High school, college, professional, and weekend athletes are developing a reputation for being violent and a threat to society.

Sports have become an outlet for aggressive and abnormal behaviors through allowing athletes to express their anger and frustrations on their opponents. Pushing the body to the limit is the goal of the athlete and is the "high" for the participants in sports. The adrenaline that is produced by this "high" is very addictive and easily misunderstood by the fans and the media, much less, the athlete themselves.

Athletes can no longer ignore the potential of becoming addicted to the endorphines that the brain produces through vigorous exercise. Up to this point, treatment programs have not focused on this addiction.

This research project designed The Adrenaline Addiction Treatment Program for Sport Athletes. Athletes, through this program can receive treatment for their addiction to vigorous exercise.

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CHAPTER 1

THE PROBLEM

Introduction

The purpose of this research paper was to develop an endorphin addiction treatment program for athletes who become addicted to the endorphines that the brain produces through vigorous exercise.

The program uses a cognitive-behavioral approach to therapy and is named The Adrenaline Addiction Treatment Program for Sport Athletes.

Background of the Study

Starting in high school, athletes are rewarded for playing their chosen sport well by the coach's or trainer's pat on the back, by someone buying them a drink, or the sexual favors given from a fan (Confidential interviews with high school and amateur athletes, 1993). The desires to be noticed, to be the best, to be the fastest, and even to be the meanest have become the new goals for athletes and are associated with the "natural high" from physical exercise

(Confidential interviews with professional athletes, 1993).

Behavior and thinking, of the sport athlete, are governed by the mechanism of reward and non-reward. Also called reinforcement, this mechanism refers to the unique property of all addictive substances: that is, humans as well as animals will engage in behavior or actions to self-administer these substances once they have been exposed to them (Zohar, 1991).

In contrast, a non-addictive substance will not cause a person to automatically continue self-administration (Kratina, 1992). In short, humans once addicted to addictive substances will not stop wanting them, whereas they may lose interest in non-addictive substances. The reason for this is that addictive substances affect certain brain centers in ways that are pleasing or rewarding to the individual, so much so that the individual wants more of this effect. What is experienced as rewarding need not be always euphoria, an elevation of one's mood or a high; it can be simply a reduction of anxiety or improvement of a depressed mood (Worchel and Shebilske, 1989).

Sportswriters and sports announcers have labeled this experience as, "Knowing how to call up the demon within" (Yates, 1987). According to one athlete in a

confidential interview, "the more violent the hit, the more aggressive attitude shown; the way I play through pain and the desire to hurt your opponent is the true athlete of the '90s." Now that society has programmed this machine called "an athlete," no one knows how to turn it off during the off-season or after the athletes retire from their chosen sport. So this human is sent out into the world not knowing how to function without the "high" they have received from the sounds of the cheers and the attention from society. Several athletes interviewed said, "It is like someone turned off the lights, and I cannot seem to hear anymore. My God, what do I do now? It (the sport) was all I knew. Sometimes I think that I am going to lose my mind or do something to hurt someone. I feel out of control" (Confidential interviews with retired athletes, 1993).

A majority of the athletes interviewed for this research paper experienced these similar feelings during the off season or after they had retired from their sport. Athlete's violent behaviors in society have gone misunderstood for decades. Sports have become an outlet for aggressive and abnormal behaviors by allowing athletes to release their anger and frustration toward their opponents, while the fans and media sit back and applaud the athlete's actions (Confidential interviews

with athletes, 1993).

Pushing their body to the limit and beyond is another goal of the athlete (Confidential interviews with sports trainers, 1993).

Two terms, reinforcement and reward, are sometimes used interchangeably and constitute the core of this addictive process. Humans, once addicted to addictive substances, will continue wanting them and will keep finding ways to get them, (reinforcement). This is so because these substances give a pleasing feeling to the person, (reward); which can be an elation or a "high" (Myers, 1986).

When involved in sports, athletes can push themselves beyond what their bodies can handle. The attempt to be the best has resulted in lifelong injuries and even in death (Berkow, 1993). Athletes are programmed to play with injuries and ignore the pain they feel (Confidential interview with a professional football coach, 1993). While understanding the love for these activities, there is a need to express how violent one can become through its addictive lure.

This research shows that there is more to this "natural high" that athletes receive from vigorous activity than just feeling good about one's self. This "high" is highly addictive to sport athletes and

treatment during the off season and/or after retirement is a necessity for all who desire this high.

Athletes need a program to provide a complete therapeutic process to reduce the rage, violence, and addictive behavior that exist with endorphine addiction.

Endorphines are a group of highly addictive substances which play an important role in the regulation of many functions of the body. These substances have much in common with opiates, drugs that have been used against pain since antiquity. Therefore, they are called endogenous opioids, a name indicating that these substances produce opiate-like effects (opioids) and are generated within the body (endogenous) (Huebner, 1993).

At this time, there is no known treatment program designed specifically for athlete's addiction to endorphins.

The researcher has developed an addiction treatment program for athletes who go through withdrawal after retirement or when taking a break from their sport because of injury or the off seasons. This program is called The Adrenaline Addiction Treatment Program for Sport Athletes. This program will treat this desire for the "natural high" as an addiction and will address the violent behaviors that this addiction can create in athletes.

Purpose of the Study

The purpose of this study is to develop an addiction treatment program for sport athletes who have become addicted to the endorphines the brain produces through continuous and vigorous exercise.

Research Questions

The research question is what is the content of an addiction treatment program for sport athletes to help them adapt to life in society without his or her sport, and how to cope with their violent and aggressive behaviors in society.

Rationale for the Study

Throughout sports, athletes push themselves beyond what their bodies can handle. Their desire to be the best has provided lifelong injuries, and in many cases death (Berkow, 1993). Athletes are programmed to play with injuries and ignore the pain they feel (Confidential interview with a professional football coach, 1993).

Athletes need a program to provide a complete therapeutic process to reduce the rage, violence, and addictive behavior that exists with endorphin addiction.

With the initial discovery of the endogenous opioids, it was hoped that the metabolic and biological

basis of narcotic addiction would soon be fully understood. Based on clinical research findings, narcotic addiction is due to an excessive production of endogenous endorphins with a failure of receptors to respond to these endorphins. Also, increasing evidence that narcotic addiction, and possibly cocaine dependency, may be due at least in part to a dysregulation of the endogenous opioid system, "with abnormalities in either the gene expression; production, processing, or release of one or more of the endogenous opioids;" or abnormal activation of the opioid receptors, "coupled with abnormal negative and positive feedback control mechanisms and interactions between the endogenous opioids and other neuropeptide and neurotransmitter systems" (Lowinson, 1993, p. 142).

Endorphins are a group of highly addictive substances which play an important role in the regulation of many functions of the body. These substances have much in common with opiates, drugs that have been used against pain since antiquity. Therefore, they are called endogenous opioids, a name indicating that these substances produce opiate-like effects (opioids) and are generated within the body (endogenous) (Huebner, 1993).

Similarly, the name "endorphin" stands for "endomorphine" or internal morphine, a term usually used

in the plural to reflect the inclusion of many structurally related molecules in this family of compounds with opiate-like activity (Yates, 1991).

Behavior and thinking in athletes are governed by the mechanism of reward and nonreward. Also called reinforcement, this mechanism refers to the unique property of all addictive substances: that is, humans will engage in behavior or actions to self-administer these substances once they have been exposed to them (Huebner, 1993). In short, humans will not stop wanting addictive substances, whereas they may lose interest in non-addictive substances. Addictive substances affect certain brain centers in ways that are pleasing or rewarding to the individual. What is experienced as rewarding need not be always euphoria, an elevation of one's mood, or a "high"; it can be simply a reduction of anxiety or improvement of a depressed mood (Campbell, 1993).

Cognitive-behavioral therapy is based on principles which were developed to treat depression. It employs a semistructured, problem-oriented approach to change the patient's system of beliefs about the self and environment. The therapist directs the client's attention toward the present or the future and away from past events. This therapy has shown promise with recent

clients that have a chief complaint of endorphine addiction.

When cognitive-behavioral therapy is used to treat the athlete's disorder, the therapist first focuses on the behavioral control of working-out, then upon the modification of dysfunctional perceptions, and finally upon maintaining the improvements. "The clients are taught to control their negative thoughts, strengthen their social and assertiveness skills, improve their problem-solving abilities, and modify their abnormal attitudes toward excessive exercise" (Yates, 1987, p. 73).

Cognitive-behavioral therapy is task-oriented and scheduled; it teaches greater control. Unfortunately, "most activity disordered individuals are already acutely task-oriented, scheduled, and controlled." The danger is that the tasks of therapy will simply replace the original activities, leaving the process untouched. The body is not directly involved in the new spate of activities, which makes abuse of the body less likely, but by the same token the new set of activities is less attractive to the client (Wilkening, 1993, p. 231).

Adrenaline addiction has similar effects on the client's brain, behavior and personality as does morphine and heroin. Athletes need to be addressed as an unique

type of client because the society's feeling, for years, has been that exercise can only be a positive activity.

Significance of the Study

This study contains information on the "natural high" that an athlete receives while participating in their chosen sport. The importance of the addiction treatment program is to help athletes a) deal with their violent behaviors off their playing arena; b) become educated with an understand that adrenaline addiction is as destructive to their bodies as a chemical addiction; c) overcome the consuming desire for physical activity; and d) have a smooth transition between their sport and their lifestyle in society.

The Adrenaline Addiction Treatment Program for Sport Athletes also is significant to trainers and coaches who are frustrated with some of their athletes' unacceptable behaviors. Also, society in general can gain an understanding of why athletes continue to act violently in society after they retire or take a break from their sport or activity.

Operational Definition of Terms

Abnormal behavior - Behavior that is unusual, causes distress to others, and makes it difficult for a person to adjust to his or her environment (Comer, 1992).

Addiction - Physical dependence on a substance so that the body builds up a tolerance for a dose and needs the amount increased overtime. If the drug is not taken, people experience painful symptoms of withdrawal which may include headaches, cramps, nausea, uncontrollable trembling, and restlessness (Webster's II, 1988).

Adrenaline (sometimes called epinephrine) - One of the two hormonal substances secreted by the adrenal medulla; norepinephrine is the other. Adrenaline increases the heartbeat, the systolic blood pressure, and the blood glucose and blood lactate levels. It prepares the body for emergency activities such as fight and flight. It was the first hormone to be isolated as crystals (Carlson, 1992).

Aggression - Initiation of force, hostile action against another person, the practice of attacking or encroaching, especially in violation of territorial rights, invasion, hostile action or behavior (Comer, 1993).

Aggression cues - Stimuli that a person has learned to associate with aggression. When these cues are present in the environment, they tend to elicit aggression (Comer, 1993).

Aggression motive - Whether innate or learned, to attack objects or other organisms (Wilkening, 1993).

Antisocial personalities - People who perform violent and hurtful acts without the least bit of guilt or regret, and a lack of conscience for wrongdoing, even toward friends and family members. May be aggressive and ruthless or a clever con artist (Myers, 1986).

Coping Skills - Behavior that tends to be positive rather than escapist or defensive in action. The opportunity to make a coping response minimizes the stressful effects of an aversive stimulus (Myers, 1986).

Endorphins (Morphine within) - Natural opiatelide neurotransmitter linked to pain control and pleasure. Any of a group of hormones with tranquilizing and pain-killing capabilities that are secreted by the brain (Kosslyn and Koenig, 1993).

Endogenous opiate - A class of peptide secreted by the brain or pituitary gland that act as opiates. They include endorphines, dynorphins, and enkephalins (Comer, 1993).

Heroin - A highly addictive narcotic derived from morphine that is white, odorless, and a bitter crystalline compound (Webster's II, 1988).

Morphine - An organic compound derived from opium. The soluble salts of which are used in human and veterinary medicine as a sedative or light anesthetic (Rutan, 1992).

Neurotransmitter - Chemical messengers that traverse the synaptic gaps between neurons. When released by the sending neuron, neurotransmitters travel across the synapse and bind to receptor sites on the receiving neuron, thereby influencing whether it will fire (Wilkening, 1993).

Opiates - Opium and its derivatives, such as morphine and heroin, which depress neural activity, temporarily alleviating pain and anxiety (Comer, 1993).

Opioid - Opium, or any of the drugs derived from opium, including morphine, heroin, and codeine (Comer, 1993).

Opium - A highly addictive substance made from the sap of the opium poppy seed. It has been widely used for thousands of years to reduce physical and emotional pain (Comer, 1993).

Assumptions and Limitations of the Study:

An assumption of this research is that adrenaline addiction has the same effect on human behavior that heroin and morphine do (Yates, 1991), although this is unproven through research.

It is also assumed all individuals interviewed for this study are telling the truth about their own experience and feelings.

The researcher has experienced this addiction in his own life and wanted other athletes' opinions to validate the idea that exercise can be addictive.

Organization of the remainder of the Study:

The rest of this study includes; chapter two with a literature review showing how endorphins produced by continuous physical activity are addictive and similar in their chemical makeup to morphine and heroin. Chapter

three focuses on the methodology used to conduct this study. Chapter four presents a copy of the addiction treatment program designed for sport athletes who have become addicted to excessive exercise. Finally, chapter five consists of summary, conclusions, and recommendations for further study.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter includes a description of what endorphins are and how vigorous exercise can become addictive. Chapter two also examines how athletes' behavior can become destructive in society by the athlete's inability to adjust to life without their sport.

A description of cognitive-behavioral therapy is given, followed by a discussion of how cognitive-behavioral therapy may be effective in treating adrenaline addiction.

Endorphins

Endorphins are a group of highly addictive substances which play an important role in the regulation of many functions of the body. These substances have much in common with opiates, drugs that have been used against pain for years. Endorphins are called endogenous opioids, which produce opiate-like effects and are generated within the body (Huebner, 1993).

Endorphines share the peptide structure of chemical building blocks, and are cleaved out of long chains of

peptide molecules called precursor molecule pro-opiomelanocortin (POMC) is cleaved into the N-terminal fragment (N-POMC), adrenocorticotrophic hormone (ACTH), and beta-lipotropin, the C-terminal fragment. Beta-lipotropin in turn is divided into betamelanocytestimulating hormone (beta-MSH) and beta-endorphin, which latter is the basic molecule from which alph-endorphin and gamma-endorphin, as well as enkephalin, are cleaved (Yates, 1991).

The increased release of pain-killing endorphins contributes to "runner's high," that feeling of increased emotional well-being that sometimes comes to distance runners after prolonged periods of physical exercise (Myers, 1986).

The beta endorphins are naturally occurring, opiate-like substances secreted in the brain and in the body. The endorphins are involved in pain and temperature regulation, eating behavior, energy expenditure, and the regulation of hypothalamic-pituitary hormones. An increase in endorphines occurs when the body is severely stressed (Yates, 1987).

Addictive Process

Exercise can ease the stress of a hard day at work, the pain of lost love, and even improve how athletes view themselves in society. This is acceptable, if stressful

events and negative feelings are not creating a negative behavior nor physical discomfort for the athlete. But, that is not always the case. Exercise can function to distract feelings and ease depression while the issues that need to be confronted are pushed out of the way (Kratina, 1992).

When people first take opioids, the drugs fill endorphin receptor sites that are unoccupied, thus reducing tensions and pains and bringing on a pleasant high. As people continue to take these drugs over time, their bodies have less need for endorphins, and their endorphin production decreases. They then become chemically less equipped to cope with daily pains and stresses and need ever-larger doses of opioids to help them cope (Comer, 1993). This effect produces an addiction. The brain is telling the body that it is in need (Worchel and Shebilske, 1989).

Vigorous exercise causes an increase in endogenous opiates. Peripheral endorphin levels are markedly elevated in endurance runners after a marathon and athletes who show such an increase are also those who report feeling "high" (Campbell, 1993). Measurements of the level of endorphins in the bloodstream do not necessarily reflect the level of endorphins in the brain, but the fact that the blood level correlates with a mood change in these athletes suggest

that the brain endorphins are elevated, because only brain endorphins could affect mood (Linehan, 1993). This finding suggests that the endorphins could be responsible for the feelings of elation in athletes. Only a tiny amount of these substances is secreted in response to stress--but perhaps this is sufficient to lift the mood, to mute the pain, and to make the person resistant to change (Yates, 1991).

Some professionals believe that all people who exercise regularly are addicted to some degree. Compulsive exercisers become hooked on hormones called endorphins. These natural pain killers are released into the bloodstream during strenuous exercise (Kratina, 1992). Athletes respond to this need of their body to move by accelerating the intensity of their workouts. In contrast to the pace of previous exercising, athletes find themselves stretching the limits of exertion further and further (Zohar, 1991). Working out no longer is a matter of pleasure but becomes a compulsion (Confidential interviews with athletes, 1993). In other words, athletes convert the brain command to move faster into a rigorous self-imposed exercise aimed at physical exhaustion (Restak, 1984).

Pain is one of the worst miseries caused by illness or disease, although it is part of the body's protective

system (Rutan, 1992). Since ancient times it has been known that substances derived from poppy plants, called opiates, control pain very effectively. However, opiates have the disadvantage of being highly addictive, without which they would be the perfect answer to the problem of pain. Scientists have made every effort to modify basic opiate substances, hoping to retain their anesthetic properties while making them less addictive (Rutan, 1992).

The first identification of such pain-killing substances called "endorphins" elated the scientific community. However, it soon was recognized that endorphins are just as addictive as opiates, or more so, since they attach themselves to the same receptors that biochemically mediate dependence and tolerance to morphine (Huebner, 1993).

Therapeutic Process

When caught in the process of adrenaline addiction, the athlete must first acknowledge that a problem exists and move forward to learn how to redefine the purpose of exercise in their lives (Yates, 1991).

For an athlete, the mere thought of missing a workout causes anxiety. To actually stop working out causes withdrawal symptoms in athletes such as confusion, irritability, anxiety, depression and lack of energy as

well as decreased self-confidence. Significant decisions (from interviewing for a job to accepting a date) are based on how much exercise can be squeezed in. Family, friends and even careers can be ignored. These people need to exercise to be able to function from day to day (Yates, 1987).

A therapist can help identify how an athlete currently benefits psychologically from the excessive exercise in terms of self-esteem and stress management. The therapist can also help them explore other activities that might offer similar rewards (Kratina, 1992).

One of the principal tasks during therapy is to help the athlete understand the many distortions of their addicted mind, which becomes more evident as the addiction is being challenged (Strauss, 1991). These thoughts and behaviors in defense of the addiction are by no means easily identified as such. Because they essentially serve the purpose of denial, they do not easily reveal their addictive origin (Anderson, 1975). The addictive part of the mind constantly competes with, and usually wins over, the healthy mind and the patient must learn to identify this as it occurs (Kosslyn and Loenig, 1992).

Another important task of the therapist is to be aware that certain people develop a substance abuse personality that makes them particularly vulnerable to drugs (Comer,

1993). During the course of therapy for one addiction, the client can develop another (Carlson, 1988).

Cognitive-behavioral therapy is used in this addictive therapeutic process. Contemporary cognitive-behavioral therapists typically categorize behavior into one of three modes: motoric, cognitive-verbal, and physiological. Motor behaviors are what most people think of as behavior; they include overt and covert actions and movements of the skeletal muscular system. Cognitive-verbal behaviors include such activities as thinking, problem solving, perceiving, imaging, speaking, writing, and gestural communication, as well as observational behavior. Physiological behaviors include activities of the nervous system, glands, and smooth muscles. Although usually covert (heartbeat), physiological behaviors can also be overt (blushing and crying) (Linehan, 1993).

Enabling the client to experience the connection between mood states and addictive behavior requires time and experimentation with the various behaviors that comprise the cycle of reward and reinforcement (Zohar, 1991).

While the client experiments with his or her addictive behavior and observes himself/herself, he or she can also gain insight into its reinforcing and addictive nature of those behaviors (Huebner, 1993). This gives the client a

sense of cognitive control over their experience, and he or she no longer feels victimized by some unknown psychological or biological dysfunction. The interplay of this thought and feeling states resulting from the athlete's habitual manipulations of body or mind becomes understandable and predictable (Carlson, 1992).

The psychological evaluation in this treatment program consist of three tests; The Wechsler Adult Intelligence Scale (WAIS), the Peabody Individual Achievement Test (PIAT), and the Minnesota Multiphasic Personality Inventory (MMPI).

Wechsler Adult Intelligence Scale is the first of three tests given. The (WAIS) allows the examiner to observe how the client behaves on a wide array of tasks. The examiner can develop hypotheses about the client's spared and impaired abilities that can then be tested more thoroughly during the course of the assessment (Golden, 1990).

The Wechsler scale is one of the most frequently used measures in neuropsychological batteries. It is a core instrument, giving information about the overall level of intellectual functioning, demonstrating the presence or absence of significant intellectual disability, and providing clues to altered functions (Strauss, 1991).

There are a number of significant advantages in

choosing the WAIS as a measure of intellectual ability. First, it offers an IQ that is the standard against which all other IQ test are currently measured. Consequently, the use of nearly any other test is validated on the observation that it correlates with WAIS IQ. Second, unlike most other adult intelligence tests, the WAIS yields more than a Full Scale IQ. It also provides subtest scores that yield significant information about adult functioning that can be used to help answer numerous referral questions. Third, the test remains the most comprehensively normed adult intelligence test available. Finally, the WAIS is one of the most heavily researched instruments available to the psychologist (Golden, 1990).

The second test given is the Peabody Individual Achievement Test (PIAT). The PIAT is a wide range screening instrument in the areas of reading, spelling, mathematics, and general information (Golden, 1990).

The final test given is the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI is the most widely used and researched objective personality inventory (Greene, 1980).

Administering and scoring the MMPI usually are straightforward procedures that can be handled by a competent psychometrician.

In the following sessions, the therapist will: review

the findings of each test with the client; select a psychiatrist that is well trained in addictions; discuss the plan of action with the client, and support groups that are available for this type of an addiction. The plan of action will be unique for each individual client.

When people first take opioids, any drug derived from opium, morphine, heroin and codeine, the drug fills endorphine receptor sites that are unoccupied, thus reducing tensions and pains, bringing on a pleasant high. As people continue to take these drugs their bodies have less need for endorphins, and their endorphine production decreases. They then become chemically less equipped to cope with daily pains and stress and need larger doses of opioids to help them cope (Comer, 1993).

This addictive process is the same as the athlete's addiction to vigorous exercise. The brain is telling the body that it is in need of more exercise.

Since ancient times people have known that opiates, derived from poppy plants, control pain very effectively (Huebner, 1993). The first identification of such pain-killing substance called "endorphins" elated the scientific community. However, it soon was recognized that biochemically mediate dependence and tolerance to morphine (Huebner, 1993).

Compulsive exercisers become addicted to hormones

called endorphins in the same manner that humans can become addicted to morphine or heroin (Kratina, 1992). This addictive process is nothing new to the researcher who has experienced this "natural high" through participation in Kick Boxing. All of the athletes interviewed in this study reported feelings of dependency on his or her sport.

Athletes are being sent to jail for rape, drug sales and usage, gambling, attempted murder, assault, and all sorts of violent crimes. Athletes' every move, on and off their playing arena, is being reported from the hard hit they took on the field to the amount of money they laid down on a bet off the field. Their lives are under constant review by society. These every day pressures become a way of life for the person who desires the "natural high" from excessive exercise.

Summary

Exercise can become a compulsive behavior and harmful to an individual. Endorphines are generated within the body when an athlete participates in vigorous exercise. These endorphines can become addictive in the same way that morphine and heroin can. The researcher calls this addiction "Adrenaline Addiction."

This research was designed to develop an adrenaline addiction treatment program which is called The Adrenaline Addiction Treatment Program for Sport Athletes (AATPSA).

The program is specially designed for athletes who have become addicted to endorphines that the body produces through excessive exercise.

CHAPTER 3

METHODOLOGY AND FINDINGS

Introduction

This research paper developed an addiction treatment program for athletes who become addicted to endorphins which the brain produces through vigorous exercise.

The program uses a cognitive-behavioral approach to therapy and is named The Adrenaline Addiction Treatment Program for Sport Athletes.

Identification of Research Methodology Used

The methodology used in this research paper is the descriptive research method. The central focus of descriptive research is to examine facts about people, their opinions and attitudes (Merriam and Simpson, 1984).

Of the various methodologies, descriptive research is the most commonly used form of research. This method of research can be utilized in various forms of surveys, testing techniques, and observations.

The purpose of the descriptive method is to describe systematically the facts and characteristics of a given

population or area of interest. The variables of a descriptive study may be independent, dependent, extraneous or intervening. In descriptive research, the researcher does not manipulate variables or control the environment in which the study takes place (Merriam and Simpson, 1982).

The strength of the descriptive method is its ease of use. It produces data that is accurate and representative. It is not typically as demanding as in experimental studies. It allows the researcher to study relationships or events. Another advantage is the exploratory nature of the descriptive method (Merriam and Simpson, 1982).

One prominent disadvantage or limitation of this descriptive method is the lack of predictive power. The researcher discovers and describes "what is" but may be unable to generalize or predict "what will be" (Merriam and Simpson, 1984).

Description of the Methodology

The Adrenaline Addiction Treatment Program for Sport Athletes has many of the same treatment procedures like other addiction programs.

There are two distinct differences in this particular program. First, this program concentrates

only on athletes who have participated in sports where vigorous exercise is used. Second, this program always uses other tools for designing a treatment plan; initial interview, psychological evaluation (three separate test), and psychiatric evaluation. Third,

This program is unique in that its focus is considered a behavioral or cognitive issue for counseling and not treated as an addiction (Linehan, 1993).

Source of Data

The researcher conducted unstructured interviews, with all levels of athletes: High school (HS) football, baseball and basketball; college (COL) football; amateur (AM) athletes participating in kickboxing, boxing, weight lifting and aerobics; professional (PRO) football, boxing, kickboxing and rodeo.

These interviews (see Table 1) were made possible through athlete friends of the researcher who knew other athletes who would agree to an interview of this nature. The researcher called 32 athletes and explained the reason for needing an interview, then asked for available time and location to meet with the athlete.

Survey letters (see Table 2) were sent to 135 professional (PRO) and amateur (AM) athletes who could

Table 1
Unstructured Interviews

Sport	(HS)	(COL)	(AM)	(PRO)
Kick Boxing			01	09
Boxing		04	08	
Football				05
Aerobics			01	
Weight Lifting				
Basketball				
Baseball				
Rodeo				04
Totals...		04	10	18

(unstructured interviews--32 total athletes)

not commit to a time or location. All 135 survey letters were returned to the researcher. A copy of this letter is located in appendix A. This survey was structured to allow the athlete to respond freely in their own words.

Table 2
Survey Letters

Sport	(HS)	(Col)	(Am)	(Pro)
Kick Boxing			01	12
Boxing			05	14
Football	11	16		01
Aerobics			14	
Weight Lifting			14	
Basketball	09	03		
Baseball	16	01		
Rodeo				20
Totals...	36	20	34	47

(survey letters sent--137, respondents--137, 100% return of survey letters)

Both the unstructured interview and the survey letter were needed to gain knowledge of this widespread addiction. The researcher has experienced this addiction

in his own life and wanted other athletes' opinions to validate the idea that exercise can be addictive.

Instrumentation

Each athlete was given an unstructured interview. An audio tape was used to record each interview. The interviewer asked the participants questions to obtain the following information: What type of sport they were involved with; how many years they have been involved; their style of preparation for their sport; the amount of time they spent each week in practice and in competition; their desire for competition; their goals they have set for themselves in sports; what makes them feel the best about their sport; what does "be the best you can be" in their sport mean; what is the best feeling they have ever received from their sport(s); is playing with pain part of that sport; have they ever played their sport with an injury or with pain; what is life like during the off season; is life different during the off-season; have they ever heard of the term "natural high"; if yes, describe that feeling; and if they get along better with their families during the on-season or off-season.

Rationale

The questions were selected to ascertain the athlete's level of sport involvement and the extent of

addictive experiences. Adrenaline addiction is a dependence on the high an athlete receives from vigorous exercise and how it alters his or her moods.

Each question was designed to prompt personal input which was important to the study. The validity of the information from participants interviewed cannot be proven, yet the researcher assumes it to be true. The researcher feels that, if asked, the athletes would answer each question the same if repeated, thus meeting the criterion of reliability.

Data Collection

An unstructured interview was used because of the diversity of the athletes, and to prompt the desired outcome. The researcher used an audio recorder for the interviews. Each interview lasted approximately 35 minutes. A pilot test was done before proceeding with the interviews to allow the researcher to rehearse an effective approach.

The researcher transferred all the information from the tapes to note pads. The questions asked were: What sport was the athlete involved with; how many years involved; level of competition; goals to achieve; how many times goals have changed; what is meant by "to be all you can be" in their sport; does their behavior

differ when in or out of the arena; does their behavior change during the off season or between events; have they ever felt a "natural high" while playing their sport; have they ever played through pain or with an injury; how many hours per day or week they work out; and how they feel when they miss a workout.

All other responses, such as personal experiences and comments, were not needed for this study. The interviews were conducted to allow the participants freedom to give personal feelings and input.

The other method used by the researcher to gather information was a survey sent to the athletes. The researcher sent 137 survey letters and 137 letters were returned, which is a 100% response rate (see Table 2).

The questions asked in the survey letter were the same as the unstructured interview. The researcher asked the questions as they appear in the survey letter.

Responses to the survey and interview questions appear in Appendix B.

Findings

Responses to questions 4 and 5 showed that the goals of each athlete increased over time with a reported higher level of anxiety and depression that followed.

Questions 6 and 7 demonstrates the pressures that an

athlete puts themselves under for pushing their bodies to the limit and beyond. "To be all you can be" was a term that each athlete said was the motivating factor for them to strive to be better.

Questions 8 and 12 give examples of how an athlete's behavior changes while not participating in their sport. Each athlete said that their moods seem to get worse (impatience, anger, depressed thoughts, and temper) as their own expectations of performance level increased.

Question number 9 received the most personal response from the athletes. This question is, "have you ever felt a "natural high" while playing your sport?" All 167 athletes responded yes. Each athlete gave an example of a personal experience of their own.

Question number 10 showed how each athlete has played through some level of pain at during their career.

Question number 11 showed how the athlete's time spent in working out increased by their level of competition.

When questioned, athletes were supportive of an adrenaline addiction program that would address their needs.

CHAPTER 4

MANUAL

Introduction

The Adrenaline Addiction Treatment Program for Sport Athletes (AATPSA) is designed to be flexible, according to the needs of each individual client. Each client is treated uniquely according to his/her own set of contributing factors.

This addiction treatment program was designed to treat athletes who have become addicted to the adrenaline that is produced in their bodies from vigorous exercise.

The (AATPSA) is three fold. The first goal is to educate the client by explaining the functions of the brain, and how the addictive process works. The second goal is to show a correlation between violent behavior and vigorous exercise. The third goal is to reduce the vigorous activity in athletes.

Program Design

There are four steps the therapist must take to effectively treat this addiction:

1. The initial interview:
 - A. Explanation of confidentiality.
 - B. What are client's chief complaint(s).
 - C. Past medical history.
 - D. Growth and developmental history.
 - E. Family history.
 - F. Drug use history.
 - G. Educational history.
 - H. Relationship history.
2. Educate client on addictive and therapeutic processes.
3. Psychological Evaluation:
 - A. Intellectual examination
 - B. Achievement test
 - C. Personality inventory
4. Psychiatric Evaluation
5. The next steps are completed in the fifth sessions:
 - A. Discuss results of first four sessions.
 - B. Lay out the plan of action with the client.
 - C. Review possible support groups:
 1. Family therapy.
 2. Group therapy (with other athletes who are experiencing the same addiction.

Session One: The Initial Interview

Session one has eight important segments. Each segment makes-up the Initial Interview. An initial clinical intake form is filled-out by the therapist while interviewing the client. A copy of the Initial Clinical Intake Form is provided in Appendix B. This session should take no longer than one hour.

The therapist should be friendly and accepting of the client's issues, and at all times reassure the client of therapist/client confidentiality.

Session Two: Educate Client on Addictive and Therapeutic Processes

Addictive Process:

Endorphins are a group of highly addictive substances which play an important role in the regulation of many functions of the body. These substances have much in common with opiates, drugs that have been used against pain since antiquity.

Therefore, they are called endogenous opioids, a name indicating that these substances produce opiate-like effects (opioids) and are generated within the body (endogenous). Similarly, the name "endorphin" stands for "endomorphine" or internal morphine, a term usually used in the plural to reflect the inclusion of many structurally related molecules in this family of

compounds with opiate-like activity.

An athlete works-out for many reasons. To name a few, they may work-out for health reasons, social reasons, pride in their body, to prove their youthfulness, to compete with father, wife, brother, sister, neighbor, friends, to prove his masculinity, to better sex, to worship another athlete, to prove to herself and others that she is not a "wimp" (confidential interviews with athletes, 1993). But athletes also workout because it makes them feel better, and endorphins produce this effect.

An important rule of human psychology is that behavior has multiple determinants; that is, there are many reasons for athletes to engage in particular actions or behavior. Therefore, all of the reasons for exercise mentioned are valid, but none of them will cause a person to become addicted to it, except for the underlying endorphin mechanism.

In other words, the identification of reward mechanisms, endorphin reward or otherwise, underlying certain behavior patterns is not a sign of addiction. Reward mechanisms of the brain are essential for life and are part of nature's many ways of maintaining and preserving life. For example, some people abstain from food for a while after a big meal; For others, their body

may respond to indigestion with the vomiting reflex. Athletes engage in many sports and enjoy the exhaustion afterwards. Other athletes adapt to exhaustion, like the jogger gets used to running, increases the frequency and intensity of running, and then becomes dependent on it for his/her good feelings. The normal use of rewarding behavior, like exercise, remains healthy, unless the dependence on it becomes addictive.

The transition to addictive exercise is likely to occur under one condition--when the athlete is or becomes vulnerable because of mental distress or depression. In the presence of distress, anxiety, depression, or any other mental state that can benefit from brain reward, the pursuit of this reward becomes primary and all other reasons for exercise lose importance and become secondary. Singular pursuit of this anti-anxiety and anti-depression effect will lead to addictive dependence with all its consequences for the mind and body of the athlete.

Therapeutic Process:

Contemporary cognitive-behavioral therapists typically categorize behavior into one of three modes: motoric, cognitive-verbal, and physiological. Motor behaviors are what most people think of as behavior; they include overt and covert actions and movements of the

skeletal muscular system. Cognitive-verbal behavior includes such activities as thinking, problem solving, perceiving, imaging, speaking, writing, and gestural communication, as well as observational behavior. Physiological behaviors include activities of the nervous system, glands, and smooth muscles. Although usually covert (heartbeat), physiological behaviors can also be overt (blushing and crying).

Enabling the client to experience the connection between mood states and addictive behavior requires time and experimentation with the various behaviors that comprise the cycle of reward and reinforcement. For example, the client must learn to observe his/her changing states of mind before, during, and after engaging in self-reward activity. This is possible only if the patient focuses simultaneously on his/her vulnerability, aversive feelings, and moods that demand correction.

While the client experiments with his or her addictive behavior and observes himself/herself, he/she can gain insight into its reinforcing and addictive nature of the behavior. This gives the client a sense of cognitive control over his/her experience, and he/she no longer feels victimized by some unknown psychological or biological dysfunction. The interplay of thought and

feeling states resulting from the athlete's habitual manipulations of body or mind becomes understandable and predictable.

In drug abuse treatment programs, an addict's habit is measured by the amount of a substance taken within a given time. Analogous to that, this program defines a unit of addictive behavior as the number and/or intensity of actions taken in a given time.

In dependent relationships, the basic addictive unit is defined as how many times a person depends on the partner for daily needs that are not part of a natural give-and take of a partnership or marriage.

Session Three: Psychological Evaluation

The psychological evaluation should consist of three test; The Wechsler Adult Intelligence Scale (WAIS), the Peabody Individual Achievement Test (PIAT), and the Minnesota Multiphasic Personality Inventory (MMPI).

Wechsler Adult Intelligence Scale is the first of three tests given. The (WAIS) allows the examiner to observe how the client behaves on a wide array of tasks. The examiner can develop hypotheses about the client's impaired abilities that can then be tested more thoroughly during the course of the assessment.

The Wechsler test is one of the most frequently used measures in neuropsychological batteries. It is a core

instrument, giving information about the overall level of intellectual functioning, demonstrating the presence or absence of significant intellectual disability, and providing clues to altered functions.

There are a number of significant advantages in choosing the WAIS as a measure of intellectual ability. First, it offers an IQ that is the standard against which all other IQ tests are currently measured. Consequently, the use of nearly any other test is validated on the observation that it correlates with WAIS IQ. Second, unlike most other adult intelligence tests, the WAIS yields more than a Full Scale IQ. It also provides subtest scores that yield significant information about adult functioning that can be used to help answer numerous referral questions. Third, the test remains the most comprehensively normed adult intelligence test available. Finally, the WAIS is one of the most heavily researched instruments available to the psychologist.

An intelligence scale is very important for clients in the AATPSA. Many athletes see their education as secondary when participating in sports.

The second test given is the Peabody Individual Achievement Test (PIAT). The PIAT is a wide range screening instrument in the areas of reading, spelling, mathematics, and general information.

The researcher considers this test a necessity in evaluating athletes. Athlete's academics are usually considered secondary to their chosen sport. This test will give an accurate evaluation of their academic abilities.

The final test given is the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI is the most widely used and researched objective personality inventory. The MMPI provides an objective means of assessing abnormal behavior.

Administering and scoring the MMPI usually are straightforward procedures that can be handled by a competent psychometrician. The apparent ease of the MMPI administration sometimes leads clinicians to underestimate the importance of establishing appropriate conditions for taking the MMPI, clarifying the test instructions if necessary, and unobtrusively monitoring the client's progress. Once administered, the MMPI can be scored either by hand or by any of the several computer scoring services.

Psychological evaluations are an important part in helping the therapist determine the need(s) of each client. Testing gives a profile of the clients personality and any helps to determine if there is any disorder contributing to the clients behavior.

Fourth session: Psychiatric Evaluation

The therapist needs to be selective when using a psychiatrist. The psychiatrist needs to be; friendly, willing to listen to the therapist's input, knowledgeable of addictions, and willing to work with athletes' high as an addiction.

The therapist needs to be aware of possible psychiatric treatments (sessions needed, types of possible medication needed).

Antidepressants and antipsychotic medications with low anticholinergic and low sedative properties are preferred because of established abuse and addiction potential of medications with stronger anticholinergic and sedative effects. Most importantly, the use of sedative/hypnotic and tranquilizers, including benzodiazepines, is to be avoided because of their clearly documented addictive potential, particularly in the high-risk population of alcoholics and drug addicts.

It is very important for the therapist to be knowledgeable of the current drugs available to help in addictions.

The therapist needs to have open communication with all other therapists, psychologists, and the psychiatrists used in the treatment of each client.

Fifth session: Plan of Action

In the fifth Session, the therapist discusses with the client the results of all evaluations, develops a plan of action that is needed for the client, and identifies support groups. The plan of action will be unique for each individual client. The support groups can involve family therapy and/or group therapy with other clients with the same type of addiction.

Following sessions

After the first five sessions, the therapist needs to start with the client's athletic history. This history contains: when the athlete first started participating in his/her sport, what was the motivating factor(s) to keep him or her in that sport, what was his or her pressure(s) to perform (peer, family or society), what was (if any) benefit(s) received from participation, and how the athlete's desire to workout increased over time.

There are several things that the therapist will need to know about an athlete: how he or she views themselves in the public's eye, how the client uses his/her sport to increase self-image, how athletes feel that his or her sport is good for maintaining good health, and how the athlete was rewarded by his/her positive performances (financially and socially).

When dealing with a chemical addiction, where the

drug is taken orally, the therapist can point out what is causing the behavioral change. On the other hand, when dealing with endorphin addiction, the therapist will need to educate the client on how vigorous exercise can effect the brain and in turn effect his or her behavior.

The therapist needs to take caution in not treating this addiction like any other addiction. Athletes are not accustom to someone telling them that excessive exercise can become harmful to the mind and body. Throughout life, athletes have been told how exercise can help in maintaining good health and happiness.

The therapist will need to slowly decrease the client's excessive exercise addiction while introducing alternative methods of maintain good health (vitamins and dietary supplements, moderation in exercise, and proper diet).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

There is a curious, but poorly understood relationship between violent behavior and addiction to adrenaline that is produced through vigorous exercise. Excessive exercise that triggers the mind to release the endorphins can become a compulsive behavior and harmful to an individual.

This study was conducted to develop an adrenaline addiction treatment program for athletes who are experiencing violent behaviors which are not acceptable to themselves nor society.

The subjects, 167 athletes, were participants in amateur and professional sports. An unstructured interview and a survey was designed to gather information needed to complete the study.

Conclusions

Individuals who commit themselves to extremes of athletics share a number of features: The compulsive athlete is typically a depressed male who has learned to

treat his depression through running; emphasizes a level of exertion; compulsively measures workout time, records progress and tabulates improvement; ruminates about the next workout; bodily functions, proper athletic equipment, follows a stringent diet and is likely to abstain from certain foods aspires to a leaner body mass (Confidential interviews with athletes, 1994).

The Adrenaline Addiction Treatment Program for Sport Athletes has shed new light on aggressive behavior that is demonstrated by some athletes in society.

The research that was completed for this project has demonstrated that vigorous exercise does produce a chemical in the brain with the same makeup as morphin and heroin. The researcher believes that endorphins, produced by the brain from excessive exercise, are just as addictive as morphin and heroin.

The AATPSP can help athletes adjust to everyday life without his/her chosen sport. This program is being used presently with professional and amateur athletes, and showing great results.

Recommendations

This research can be used by any therapist who desires to counsel athletes' addiction to adrenaline. All therapists should be aware of how exercise can become

an addiction through the reward system by accelerating the intensity of athlete's workouts. The client needs to know that life does not begin and end with sports. The therapist can help coaches and trainers understand the importance of developing the athlete into a complete human and not just a robot programmed for destruction.

Professionals in the helping fields need to understand, when dealing with athletes, that this addiction does exist.

There needs to be more research on tying adrenaline addiction to other addiction counseling processes. Research is in the infant stages on how addictive endorphines can become. More understanding is needed on athletes' behavior on and off their playing arena and after retirement from their sport. Athletes are "super stars" in society's eyes, and few accept their behavior as abnormal until it is too late.

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APPENDIX A

SURVEY LETTER

SURVEY LETTER

This survey is being conducted to gather data on athletes who have experienced the "natural high" from vigorous exercise. The data collected will be used in a research project at Ottawa University by W. Michael Todd.

All responses will be kept confidential and at no time will the name of the athlete be used for any reason.

Please answer each question from your own personal experiences. If needed, use reverse side to complete your answers.

1. What sport or activity are you involved with?

2. How many years have you been involved with this sport or activity? _____
3. What level of competition are/have you at presently?
High School _____ College _____ Amateur _____
Professional _____
4. What are/were your goals you tried/trying to achieve?

5. What goals do you have left to accomplish in sports?

6. How many times, during the course of your career, have your goals changed? _____

7. What is meant by "being all you can be" in your sport? _____

8. Does your behavior (temper, frustration, anger, etc.) differ when playing your sport and not playing? _____

9. Have you ever felt a "natural high" while playing your sport? _____
Explain _____

10. Have you ever played through pain or with an injury? _____

11. How many hours per day or per week do you workout? _____

12. How do you feel when you miss a workout? _____

APPENDIX B

DATA FROM SURVEY AND INTERVIEWS

DATA FROM SURVEY AND INTERVIEWS

1. What sport or activity are you involved with?

Eight different sports were reported: kick boxing (2 amateur, 21 professional), boxing (4 college, 13 amateur, 14 professional), football (11 high school, 16 college, 6 professional), aerobics (15 amateur), weight lifting (14 amateur), basketball (9 high school, 3 college), baseball (16 high school, 1 college), rodeo (24 professional).

2. How many years have you been involved with this sport or activity?

The amount of years played varied from four years to nineteen years. The average amount of years played were eight years.

3. What level of competition are you presently?

Thirty-six are in high school; twenty-four are in college, forty-four are amateur, sixty-five are professional.

4. What are/were your goals you tried/trying to achieve?

The goals that athletes reported differed in number of repetitions and time frames to achieve goals, yet all athletes interviewed reported a desire to improve on their last workout.

5. What goals do you have left to accomplish in sports?

Every athlete that participated in this research project said that there is no limits to the desire to get better. One professional athlete said, "when there is nothing left to accomplish, I will be dead."

6. How many times, during the course of your career, have your goals changed?

All the athletes interviewed, except two, said that their goals change every time they have accomplished their last goal. The other two athletes said that they have set goals that they know they will never accomplish.

7. What is meant by "being all you can be" in your sport?

The athletes said that this statement is the motivating factor behind their desire to continue to strive for excellence.

8. Does your behavior differ when playing your sport and not playing?

This question received a variety of responses, yet all the athletes did report anxiety feelings just thinking of their next workout. The athletes told stories about how family member would have to set their needs aside for the athlete to workout. All the athletes made comments on how they would become "moody" after workouts.

9. Have you ever felt a "natural high" while playing your sport?

Every athlete interviewed said that they have felt a "natural high."

10. Have you ever played through pain or with an injury?

All the professional athletes said that this was a "stupid" question. They said that if you're going to play sports, you will just have to learn to play with pain. Other athletes said, if you say that you have not played with pain you're not telling the truth.

11. How many hours per day or per week do you workout?

The number of hours that an athlete works out increased by their level of completion: High school athletes averaged twelve to sixteen hours per week; College athletes averaged fifteen to twenty-five; amateur athletes averaged ten to twenty-five; professional athletes averaged twenty to forty-five.

12. How do you feel when you miss a workout?

Many of the responses made to this question can not be put into a research paper. The comments were of frustration, and in many cases athletes reported violent behavior. Seven athletes said they got into physical conflict with their spouses at home.

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