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**AN ETHICAL CRITIQUE OF GENETIC**  
**ENHANCEMENT IN SPORT**

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## **ABSTRACT**

Sport is a competition between athletes to compare and measure athletic performance. The victory in contests ought to be brought about by legitimate athletic performance only. Legitimate athletic performance must exclude performance factors which are largely outside of the athlete's control. Athletes are not responsible for the advantages gained through genetic enhancement so they deserve no merit or reward for victories brought about by such enhancements. The use of genetic technology is unfair and should be recognised as a form of cheating. To prohibit the use of genetic technology is a legitimate restriction of personal autonomy. This is because the widespread use of genetic technology poses risks to the athletes and harms to sport itself. Moreover if genetic technology was considered acceptable, athletes would be coerced into using it for themselves (somatic genetic modification) and/or parents might pursue germ-line genetic modification for their offspring. The later is a significant and troubling infringement of children's rights.

## **INTRODUCTION**

The training and performance of elite athletes presents numerous ethical challenges. Athletes are now, more than ever, consciously seeking ever more sophisticated ways to stretch the limits of their strength, speed and endurance.

“A game presents an opportunity to experience possibility. Games are contrived situations, the purpose of which is to heighten and bring into focus the interplay between possibility and actuality.”

(Fairchild, 1989, p177).

With such fierce competition in elite level sport, it is hardly surprising that top athletes are willing to pay a heavy price in order to achieve competitive success. Winning and being superior provides gains with regard to economical and social status in modern society, but these gains have caused some athletes to cheat and jeopardise good sport. Although time spent in training is praised; when athletes attempt to achieve excellence through the use of genetic technology, there is widespread condemnation. Whereas science primarily deals with questions of possibility, ethics explores questions of permissibility. Scientists pursue advancements according to the rate of technological developments, so they must be held accountable for the moral consequences of their actions. The continued successful development of the science and technology of genetics, combined with the motivational forces at work in elite sport, makes it ever more

likely that before long genetic technology will be used for the purpose of enhancing the different performance capacities of elite athletes.

Gene doping is the non-therapeutic use of genes, genetic elements and/or cells that have the capacity to enhance athletic performance. The preferred terminology is now genetic transfer technology as it is not always clear that these modifications will have a therapeutic intervention. It is the technique used where functioning genes are inserted into cells to correct a genetic imperfection or to introduce new function to the cells. Munthe (2000) analysed the various forms of gene technology that could be used to engineer sports champions. He discovered four main categories:

- Genomics, which uses genetic technology to improve methods of performance enhancement by creating more effective drugs and training techniques.
- Somatic cell modification alters the non-hereditary cells of the body, such as those specific to muscle tissue.
- Germ-line modification alters the hereditary cells of the body, very early in life.
- Genetic pre-selection uses information of an individual's genotype to conclude suitability for sport at either; embryonic stage or infantile stage.

In this dissertation I will argue that athletes do not deserve their victories when genetic technology has been used to enhance their performance. In chapter one I argue that the use of genetic technology in sport constitutes an illegitimate advantage. As such, the ban on genetic technology is legitimate because its use in sport is cheating. In chapter two, it will be argued that the reason the use of genetic technology is a form of cheating is because victories in sport ought to be distributed according to merit. In other words, winners should deserve, and be responsible for their performance. The use of genetic technology in sport undermines the possibility of deserved victories, and is therefore unfair. In chapter three I provide a critique of a liberal approach to autonomy. I make it clear that respect for autonomy does not require us to neither facilitate nor tolerate the widespread use of, and access to, genetic technology. Allowing some athletes to make autonomous decisions about genetic modification may exert a coercive pressure on other athletes to use genetic technology. Additionally, I argue that future generations may have their autonomy curtailed by their parent's decisions to manipulate the genetic blueprint of their children for the purpose of elite sport.

## CHAPTER ONE

### LEGITIMATE ATHLETIC PERFORMANCE

## **LEGITIMATE ATHLETIC PERFORMANCE**

### **Introduction**

This chapter explores the notion of sport and legitimate athletic performance. There are three key areas to my argument. Firstly it will be argued that sports are designed to measure athletic superiority. A winner deserves their victory when it is based on legitimate athletic performance alone, because this provides a more accurate measure of athletic superiority. Secondly I will argue that genetically enhanced athletes are not responsible for their improved performance, therefore they do not deserve to be rewarded for their achievements. Finally I will argue that the pursuit of excellence through genetic enhancement is incompatible with the best traditions and internal goods of sport. Intrinsically motivated athletes that respect the game deserve merit because they are not influenced by external rewards.

### **1. What is Sport?**

Sport is a meritocratic practice. In sport we employ skills and abilities and in an ideal world the winner is the athlete who demonstrates the superior athletic performance. Jones and Howe (2005, p139) describe athletic performance as “a delicate mix of natural, moral, technical, aesthetic, psychological, and physical capacities.” These mixes of components are employed in sporting competitions to achieve victory. It is argued that sports contests ought to be a test of athletic performance alone. The pleasure gained through sport comes from acquiring the goods that are internal to sport. These internal goods come through the

demonstration and mastery of skill. If this is the reason an athlete competes in sport, they will gain great personal satisfaction whether they are victorious or not. Sport is only worthwhile when it is about the mastery of skills being performed in a fair contest (Schneider and Butcher, 2000).

The essence of sport is to compare and measure athletes' abilities to achieve specified tests. Sport offers a physical challenge and there is an expectation that athletes have a rational understanding of how the challenge should be pursued. These are defined by the constitutive rules and the ethos of the sport.

Each sport consists of a set of formal rules that individualizes the purpose and challenge of the game. These rules are put in place to maximize equality in an attempt to make an even playing field. Sport creates opportunities for athletes to test their physical and psychological limits whilst staying within the boundaries of formal rules and social norms. Aspin (1975, p55) states that:

the central virtue of athletic competitions is that their whole framework rests upon our desire to see excellence achieved according to rules which attempt to ensure equality, fairness and impartiality for all.

As explained previously, athletic performance is made up of a mix of components. This mix of components also consists of different kinds of advantages, but not all advantages are acceptable, only fair advantages are acceptable. A fair advantage is when the athlete is responsible for the key performance difference.

Athletes are responsible for factors such as effort, skills, tactics and virtues. Therefore victory based on athletic superiority can be morally justified, because the athlete is responsible for components affecting their own performance such as talent, training and strategies. Nevertheless, with the ever expanding global commercialisation of sport, athletes are becoming more and more inclined to gain unfair advantages in order to reap the rewards of victory. In order to gain the rewards associated with winning, athletes must have competed fairly.

## **2. Responsibility and Merit**

The idea of athletes having responsibility for their performances is a core idea in almost all sporting value systems (Dixon, 2007 and Fraleigh, 1984). It is a tacit premise for most of sport's rule systems and is backed up by Olympism and the World Anti Doping Association (WADA).

According to Jones and Howe (2005), responsibility can take at least two forms, namely; causal responsibility and moral responsibility. In athletics competitors can derive significant athletic benefit from natural endowments such as long limbs. If two athletes have trained just as hard for a running event, it is likely that victory will go to the athlete with the longer limbs (long limbs may facilitate greater stride length). The taller athlete would still have brought about the victory through their own actions that is they are causally responsible for this victory, but the athlete cannot be said to be fully responsible for it. The genetic lottery

produced the limbs which significantly helped the athlete. Genetic technology, however, provides athletes with the potential to bring the genetic lottery under their control and arguably become fully responsible for their performances. I will argue that this is not a welcome development.

Merit in a sporting context refers to the degree in which athletes deserve to be rewarded for their performances. It is argued that it is wrong to artificially alter people's potential through genetic enhancement because it creates unfair advantages over other athletes, meaning that victories gained may be undeserved. Credit should be given to personal development, work and action, as an athlete is directly responsible for these factors. When an athlete uses genetic technology, enhanced performance would not be due to the qualities of the athlete qua person, such as determination or motivation; it would be due to an external factor which is how efficient the genetic modifications are. Moreover if the genetically enhanced athlete wins, it would not be a true victory as it would not have been down to skill and ability. Merit is closely linked to moral responsibility. Aristotle (1985) argues that for a person to be morally responsible for an action, the action must have originated with the agent. He looks at the close connection between moral responsibility and moral accountability. Blame or praise can only be attributed if the person responsible for the action has acted freely, knows what they are doing and acts out of relevant sorts of beliefs and intentions. This merit-based view of responsibility states that praise or blame is applicable when an athlete merits or deserves moral responses. However it is not

only the athletes that must take responsibilities for their actions, parents that genetically modify their children must also take responsibility for their decisions.

Germ-line genetic modifications allow parents to genetically enhance their embryos. These children are likely to grow up with enhanced physical capabilities making them excel in certain sports. However, genetically enhanced children would not be responsible for their performance; therefore parents must be held accountable for the negative consequences of the genetic enhancement of their child. These genetically enhanced children would have been designed for sport but they would be competing against athletes that have had no influence over their genetic makeup. Genetically enhanced athletes would create unfair advantages gained from external enhancement, by competing against athletes that wish to get merited on athletic performance alone. Athletes need to merit, deserve and cause their victory because if they have not they cannot be morally responsible for their achievements.

Fairchild (1989) argues that athletes should not take all the responsibility. Too much pressure is put on the athlete when it is society's exaggerated devotion to the cultivation of the body that has pushed athletes to test their physiological limits. Even when the physiological requirements of some sports encourage abnormal physical development, as found for example in body builders, these somatotypes are still accepted as ideals of physical development. Achieving this level of bodily excellence requires recognized and admitted extremes of focused attention, self sacrifice and financial hardship. Although genetic enhancement in

sport cannot be morally justified, it is not hard to understand why the possible advantages would be appealing to some athletes, either struggling to keep up with the pressures placed upon them, or striving to get one step ahead of the game.

### **3. Pursuing the External Goods through Genetic Enhancement**

I will now argue why the pursuit of excellence through genetic enhancement is incompatible with the best traditions and internal goods of sport. 'The best traditions of sport' is a term used to describe the relevant athletic performance that is grounded in the traditions and norms of the sport. Jones and Howe (2005) argue that sporting traditions can shape the nature of relevant athletic performance. The rules of any game or social practice rely heavily on social conventions and habit. There are certain behaviors in every sport that are not against the rules but that are frowned upon by society. This is because the behavior is incompatible with the fair play ethos in sport and goes against the traditions of the practice.

Jones (2003, p42) states that "internal goods include technical and moral excellence." Every practice has a level of technical and moral excellence set by the achievements of exemplary practitioners that have gone before. He goes on to say that internal goods are internal because they are peculiar to each practice and cannot be achieved in any other way apart from participating in the practice. Internal goods in football would include; stamina, skill, commitment and

determination. As mentioned earlier, the internal goods of sport are gained by discovering the goods that are internal to sport. These internal goods come through the demonstration and mastery of skill. Athletes need to take on the interests of their sport, so that the interests of the sport become the interests of the athlete. They should then be able to recognize and take seriously the principles and moral codes that define it. Therefore they would adhere to the high levels of fitness required and concentrate on the skills of the game, valuing legitimate athletic performance above all else. If this is the reason an athlete competes in sport, they will gain great personal satisfaction whether they are victorious or not. Sport is only worthwhile when it is about the mastery of skills being performed in a fair contest.

Whether or not an athlete discovers the internal good of sport depends on the motivation that drives them. Athletes can either be intrinsically motivated or extrinsically motivated. Intrinsically motivated athletes take part in sport for its own sake. They participate for the enjoyment of sport and without any thoughts or expectations of external rewards. Extrinsically motivated athletes are driven by the desire for external rewards such as money. They will use the most efficient means of achieving those ends which makes them more likely to resort to unfair advantages. Using sport as a means to an end is against the traditions and internal goods of sport because the point of sport is being overlooked.

Genetic enhancement in sport is a means to achieving an end; athletes enhance themselves in order to gain the external rewards. They do not enhance themselves to improve their mastery over the skills of the sport or for the enjoyment of it; therefore these athletes are going against the best traditions and internal goods of sport. Genetically enhanced athletes are participating to obtain the external goods and failing to understand the goods internal to the sport. Schneider and Butcher (2001) believe that fair play, respect for the game, intrinsic motivations and the internal goods of practice are all linked. It is argued that intrinsically motivated athletes are more likely to respect the game and not use genetic technology to enhance their performance. Schneider and Butcher (1994) believe that when an athlete participates in sport for the external rewards it often follows that these are the athletes that use any means possible to achieve them. If an athlete participates for intrinsic reasons it would not make sense for the athlete to use genetic technology; because the athlete would be satisfied with just mastering new skills in a competition. For these athletes, a win is only a victory when it comes as a reward for improved skill levels. Genetically enhanced athletes use sport as means to an end, managing to avoid the challenges of the sport rather than overcoming them. This cannot be a positive move if sport aims to test determination, skill and training.

However sporting institutions are partly to blame for externally motivated athletes. Every sport has an institution, for example football has the Football Association (FA) which has the job of structuring and looking after the practice. These

institutions are responsible for the creation of the formal rules and the ethos of their sport, which means they organize the internal goods.

This is not always the case though because institutions have market logic, with the sole aim of producing money. When internal goods are created, the attitude of the institution shines through and sport starts to become extrinsically motivated with an increase in external rewards. This has a knock on effect with athletes becoming more extrinsically motivated. Butcher and Schneider (2001, p37) state that “if the external rewards are seen as controlling or coercive, they will tend to diminish intrinsic motivation.” Sporting institutions are using external rewards to coerce people into competing in a way that they do not wish too.

Although the institutions of sport are to blame for extrinsic motivations, athletes must take responsibility for their actions. Accessing the internal goods is not dependent on participation; it is dependent on the way an athlete participates. Athletes should strive to participate in a way that does the traditional, technical and moral standards of the sport justice. Virtues play a big part in intrinsically motivating an athlete. MacIntyre (1985, p191) argues that “the absence of virtues bars practitioners from achieving standards of excellence in which the internal goods inhere.” Athletes need to use virtues such as courage, honesty and justice in order to refrain from the external goods and help access the internal goods of sport.

## **Conclusion**

It has been argued that the ultimate purpose of sporting competitions is to measure and compare the legitimate athletic performance of athletes. Victory based on athletic superiority can be morally justified, because the athlete is responsible for factors affecting their own performance such as talent, training and skill. In order for athletes to gain merit for their performance, they must have competed fairly. Genetically enhanced athletes create unfair advantages (gained from external enhancement), by competing against athletes that wish to be judged on athletic performance alone. Athletes should not be merited on factors that are out of their control because athletes need to merit, deserve and cause their victory. I then argued that the pursuit of excellence through genetic enhancement is incompatible with the best traditions and internal goods of sport. Athletes need to realize the goods internal to their sport and use virtues to refrain themselves from being driven by external rewards. Intrinsically motivated athletes are not likely to look for illegitimate ways of gaining an advantage over other athletes because the athlete would be satisfied with just mastering new skills in a competition. In conclusion, it has been argued that in an ideal sporting competition, victory should be solely dependent on athletic performance. This is because the paramount purpose of sports competitions are to measure and compare athletes based on their athletic abilities.

## CHAPTER TWO

### CHEATING

## **CHEATING**

### **Introduction**

In chapter one it was argued that a winner deserves their victory if, and only if it was brought about by legitimate athletic performance. Athletic performance is the most valid and reliable measure of athletic superiority. In this chapter it will be argued that using genetic enhancement compromises the validity and reliability of athletic performance. Victories caused by unfair advantages are neither deserved, nor a sign of athletic superiority.

I will argue that genetic enhancement is a form of cheating that compromises the validity of sports contests and must therefore be banned. There are three elements to this argument. First I provide a conceptual account of cheating. It is argued that a victory that depends on cheating is neither deserved, nor a sign of athletic superiority. Cheating is incompatible with good competition; therefore a victory that depends on cheating is not deserved. Secondly I will make the case why genetic enhancement is a form of cheating. In particular I focus on protection of the athletes and the sport as a whole. Finally I explore the concept of fair play in more detail by looking at external and internal advantages in sport. It is argued that advantages are fair only when athletes' can claim responsibility for the advantage gained.

## **1. Cheating**

The concept of cheating is not straight forward, as there are many aspects to take into account. These include; rule breaking, intention to cheat, intention to deceive and bad sportsmanship. McIntosh (1979, p185) states that cheating is an offence against the principles of justice as well as against a particular, rule or norm of behaviour.” Reddiford (1998) believes cheating involves three key features. Firstly cheats seek to make gains which are not properly theirs. Secondly, in seeking the desired gains, cheats frequently misrepresent their actions by concealing their real motives and intentions. This is the deceit element of cheating. Thirdly, the cheats are only successful if their deceitful actions do not get discovered. A victory gained through cheating seems neither deserved nor a sign of athletic superiority. In general the reasons why cheats do not deserve to win is that their victories are not down to athletic superiority, but rather their violation of rules, which their opponents actually obeyed.

Rules are put in place to structure the game, in an attempt to make competitions fair. Tamburrini (2000) describes two different types of rule breaking; intentional and unintentional. An example of intentional rule breaking is when Maradona scored his famous “handball” goal against England at the Mexico Football world cup in 1986. The whole world of sport accused him of cheating whilst he showed no repentance. An example of un-intentional rule breaking is when a football player commits a hand ball, but accidentally with no intention to deceive the authorities or obtain a game advantage.

Although the intention to cheat and the intention to deceive both involve misrepresentation there is a difference between the two. Having the intention to cheat involves an intended infraction of the rules and is condemned because the advantage is seen as unfair. The intention to deceive can be within the rules of the game, for example, a tennis player could disguise a drop-shot by pretending to do a passing-shot, thus confusing the opponent and gaining an advantage. There is still misrepresentation involved but it is within the confines of the game so is morally acceptable.

It can be argued that although both intentional and unintentional acts of rule breaking may affect the final score of a game, victory for a team that commits intentional rule breaking is more likely to draw condemnation. This is because they are deliberately disrespecting the rules of the game and intentionally trying to deceive the authorities to gain an advantage.

There are however authors like Leaman (2001) who are less critical of cheating, believing it is a tactic that makes games more interesting. Leaman (2001) describes cheating as the use of “wits” in addition to skill and strategy, making sport more interesting. In contrast McIntosh (1979) argues that Leaman’s (2001) views on cheating are problematic because they would create a Machiavellian conflict between athletes which can create conflicts in the sporting arena. This issue illustrates further the problem with the concept of cheating.

There is more to cheating than just intentional rule breaking. Sportsmanship is a collection of qualities comprising a moral code of specific behaviour. Keating (1995, p148) states that “the code of the sportsman, sportsmanship, is directed fundamentally to facilitating the co-operative effort and removing all possible barriers to its development.” There is both good and bad sportsmanship, but it is bad sportsmanship that can cause debate as to whether a team deserved their victory or not. It is argued that bad sportsmanship goes against the spirit of the game and affects the quality of a game negatively. In football diving and deterrent interventions are considered to be bad sportsmanship. Some athletes are distracted by behaviour such as coughing and intimidating comments as it can create a hostile atmosphere which goes against the ethos of sport.

It is argued that although bad sportsmanship is widely accepted in sport, when arguing that competitions should be based purely on athletic performance, it logically follows that players or teams that participate in bad sportsmanship do not deserve their victories. This is because bad sportsmanship tests psychological toughness not the athletic ability of athletes. Sporting contests should provide an objective and accurate determination of superior athletic performance. In order to accomplish this, the rules of the contest must be enforced on all competitors. However, this will not prevent bad sportsmanship because although it is frowned upon, it is not against the rules. We need to look beyond the rules of the sport to the spirit of the game.

The spirit of the game is a term used to describe respect for; team mates, opponents, officials and the traditional values of the game. Bad sportsmanship goes against the spirit of the game, therefore the spirit of the game must be observed in competition in order to make contests a valid and reliable test of athletic superiority. Victory will only have meaning if this is done.

Ultimately, a game is defined by its rules and these rules make each game different from other games, so by breaking these rules athletes are seen to be cheating. Tannsjo (2005, p62) believes that "To resort to them when they are prohibited, means cheating." Genetic technology is against the rules so it can therefore be said that when an athlete is breaking the rules they are going against the very purpose of the game. An ethical crime is committed if an athlete uses genetic technology to enhance their performance, as the individual is attempting to win the game without actually playing the competitive game.

It has been argued that genetic enhancement is against the rules and breaking those rules is classed as cheating. Cheating is incompatible with good competition; therefore a victory that depends on cheating is not deserved. This argument is circular implying that the only reason genetic enhancement is seen as wrong is that it is prohibited. However, I argue that even if genetic modification was allowed within sport, it would still be morally unacceptable. In order to argue this point, the reasons for the ban must be justified.

## **2. Justifying the Ban of Genetic Enhancement in Sport**

Gene doping is banned for a reason, to protect not only the athletes, but also sport as whole and its audience. Unal and Unal (2004) believed the prohibition of gene doping is justified in two ways. The first is the ethical aspect, arguing that athletes should participate in competitions which compare and reward the strength, ability and training of athletes under equal conditions. The second is the medical aspect, arguing that gene doping may cause severe adverse side effects and possibly even irreversible damage. Miah (2004) supports these justifications on banning gene doping because there are obvious risks that genetic transfer technologies might be used in a way that would contradict the spirit of sport. It is argued that this could result in competitions being about the testing of our own genetic technology rather than athletic performance. As discussed earlier, it is legitimate athletic performance that should be compared and rewarded in competitions, not artificially modified genes.

Miah (2004) claims that gene doping is potentially dangerous to the health of athletes. Miah (2001, p34) argues that “much is unknown about complex gene disorders and our ability to do anything to manipulate these with any degree of safety.” On the other hand, Tamburrini and Tannsjo (2005) states that although accidents have occurred when testing gene therapy, they have been special cases that could be avoided in other trials. Side effects are possible but most normal drugs have side effects ranging from headaches to sudden death so genetic technology should not be treated with such scepticism. In response, it is

argued that with most normal drugs, if side effects occur the administration of the drug can be terminated. The problem with gene therapy is that at present there is no way to stop treatment if negative side effects occur, which is a justification as to why gene doping is banned in sport. The health of athletes should be of primary concern. These are justified reasons why genetic enhancement in sport should be banned, therefore whether it is legalised or not, it should still be classed as morally wrong.

### **3. Fairness**

This section argues that it is not the gaining of the competitive advantages that is problematic, as this is an essential feature in sport; it is the way in which these advantages are gained. The advantages must be gained in a fair and acceptable way.

(Huizinga, 1950, p72) argues that fair play is important in sporting situations:

To our way of thinking, cheating as a means of winning a game robs the action of its play-character and spoils it altogether, because for us the essence of play is that the rules be kept-that it be fair play.

The existence of an authority in games enshrines cheating in the structure of the game; the authority makes sure that cheating does not interfere with the

principles of fairness in a game. It is argued that having respect for the game makes athletes more likely to play fairly. Butcher and Schneider (1998, p127) believe that:

respect for the game is a rich and powerful conception of fair play, capturing the intuitive understanding of the concept while providing a fully worked out philosophical foundation for those intuitions.

Rather than presenting ready made solutions to the issues of fair play, the idea of respect for the game provides a process that is grounded in sport, so we can work out how best to act. Leaman (2001) best describes fair play as the ethos of a game, capturing the common sense distinction between what is acceptable and unacceptable, permissible and impermissible in sport. Victory seems deserved if a team adheres to the ideas of fair play but anyone that has been cheating should not claim or deserve victory.

There are two different types of unequal advantages in sport; external and internal. External factors include such things as equipment, money, performance enhancing substances and the coach. Internal factors look more at natural reasons for unequal advantages in sport that are out of the individual's control such as genes (Loland, 2002).

External factors create unequal advantages because high tech equipment is not accessible to all athletes as money is often needed with most new equipment being very expensive. This may not always be applicable to elite sport as sponsors often cover the cost, but for non-elite athletes' money can cause problems. In athletics, some athletes have running spikes that can have a significant effect on speed and in cycling some athletes' have better bikes than others. It can be argued that athletes competing against each other are often of a very similar standard, so if a race is won by a fraction of a second by an athlete with better quality equipment, it is hard to say whether that athlete deserved the victory. This is because it could be down to the advanced technology that they are using. Ravizza (1985) puts a lot of responsibility on the coach, arguing that a coach can shape and motivate an athlete as a performer. With this in mind, it can be argued that with the variety of coaches in the sporting arena, both good and bad, some athletes are at more of an advantage than others before they have even competed.

Internal factors create unequal advantages because everybody has different genes, which determines a person's natural ability. Carr (1999) refers to this as the genetic lottery arguing that we cannot control what genes we get given, it is a matter of luck and chance. Once chance or luck enters, we are not able to causally influence what happens so although it may cause an unequal playing field it is not necessarily anyone's fault. Breivik (2000) believes that pre game,

the chance and unpredictability elements should be left alone as long as it does not involve using drugs and genetic engineering.

If the ban on gene doping was reviewed and it was legalised in sport, one of the main fairness issues would stem from unequal accessibility (Gardner, 1995). This argument cannot be fully developed without noticing that there are other areas of sport that Gardner's (1995) argument can be applied to. It is also advantageous to have access to good coaches, modern facilities, and dietician experts, but even though there is lack of accessibility, there seems to be no ethical concern present. The same occurs when amateurism was abandoned by the International Olympic committee and major enterprises began sponsoring athletes (Tamburrini, 2000). It has created a particularly uneven playing field in competitive conditions, as some athletes get sponsored considerably more than others. This is still viewed as acceptable advantage because it is seen as a natural and essential part of competitive sport.

When distinguishing between acceptable and unacceptable advantages, the advantage must be judged as fair or unfair, which can be complicated. For example, some countries gain advantages in certain sports, due to the climates that the athletes train in. Although this is seen as unfair, it is not banned in sport as people cannot help what climate they are born in, therefore it is an advantage that is accepted in sport. Loland (2002) believes that it is unreasonable to treat persons unequally in essential matters based on inequalities that they cannot

influence in any significant way. I argue that extrinsic assistance from a countries climate, from psychologists, dieticians or coaches may give athletes an advantage, but ultimately it is still an advantage that the athlete is responsible for. These external aids are helping to bring out the best in athletes, not doing it for them, which means the athlete can take responsibility for any gained advantage. In contrast, when an athlete has been genetically modified it is the technology that is more responsible for the gained advantages than the athlete, hence it is the technology being tested, not the ability of the athlete.

It has been argued, that the unfairness of an advantage derives from how the athlete gains the advantage. For example, altitude training involves a lot of hard work, whereas all four areas of gene technology involve the athlete putting in no effort at all.

## **Conclusion**

In conclusion, this chapter has argued that an athlete or team deserves to win when they perform better than their opponent, within the rules of the game and under conditions of equality. It was first argued that genetic enhancement is against the rules, breaking those rules is cheating, therefore a victory that depends on cheating is neither deserved, nor a sign of athletic superiority. The aspects of cheating looked at included; rule breaking, intention to cheat, intention to deceive and bad sportsmanship. I then argued that the banning of genetic enhancement in sport is justified, because it protects not only the athletes but

sport as a whole. Lastly it was argued that advantages are deemed fair, when athletes' can claim responsibility for the advantage gained. The unfairness of an advantage derives from how the athlete gains the advantage. This argument links back to the motto; 'faster, higher, stronger', confirming that athletic performance cannot and should not be gained without effort.

# CHAPTER THREE

## Autonomy

## AUTONOMY

### Introduction

In chapter one it was argued that the use of genetic technology in sport constitutes an illegitimate advantage which creates conditions of inequality. In chapter two it was argued that a winner can only claim responsibility for their victory when it is based on legitimate athletic performance alone, as this provides the most accurate measure of athletic superiority. In this chapter I will argue that athletes should not have the freedom of choice to genetically modify themselves or their children, for the sole purpose of enhancing performance.

There are four key areas to my argument. The first section will argue that all individuals have the right to make their own choices provided it does not affect others. This will lead onto the argument that people should only be allowed to make autonomous decisions when the decision results in a promotion of human interests. Secondly it is argued that paternalism should be used to restrict people's autonomy only when freedom of choice is likely to result in bad consequences. I will argue that the paternalistic act of banning genetic enhancement in sport is a justified restriction of liberty. The third section will apply a more relational version of autonomy to somatic genetic modification (genetic interventions used on humans' already existing). The coercion argument is used to argue that if athletes are allowed to genetically modify themselves, it will leave other athletes with a lesser range of autonomous options. The final section will apply the concept of paternalism to germ line genetic modification

(genetic interventions used on embryos yet to be born). I will argue that parents do not have the right to genetically enhance their embryos as it is infringing on the rights of their child to be, which is morally wrong.

## **1. Rights and Autonomy**

In theory, genetic interventions could be used on humans' already existing or on embryos yet to be born by improving physiological characteristics to enhance athletic performance. In this section I will focus on germ-line genetic modification, which involves the embryos' hereditary cells of the body being altered in an attempt to create a child with enhanced physical abilities. The concern is that children should be protected from their parents' decisions when they are having their life decided for them.

Genetic design refers to "the specific design of babies to have certain genetic traits or characteristics." (Schneider, 2005, p37). The idea of designing babies for sports performance has implications with regards to humans' rights. The rights of a parent or coach and the rights of the un-born baby must all be taken into account. Warnock (1998) describes a right as something you claim and properly prevent others from infringing. It is an area of freedom for a human which somebody else must allow to be exercised, as a matter of justice.

Munthe (2000) suggests that pre-selection of athletes using genetic technology, (where athletes are selected on the basis of their genetic predisposition for

athletic capabilities) is very similar to the process of coaches selecting athletes seen worthy of investment. Some parents and coaches would agree, supporting the idea of genetic pre-selection, believing that they have the right to genetically modify an un-born child. However, Munthe's (2000) argument is an example of an increasing tendency to believe that all things desirable can be claimed as a right, which can lead to the rights of the baby being over looked. Ravizza (1985) takes the deontology view, arguing that all individuals have the right to make their own choices as long as it does not effect others. I argue that if coaches and parents could design babies with no restrictions, sport as we know it would no longer exist. If a parent or coach alters the genes of a baby there are harmful implications pointed out by Miah (2004, p125)

Germ line cell manipulation has the potential to interfere with a perceived natural cause of evolution...and it will be detrimental to future humans and the entire ecosystem.

Sport is only worthwhile when it is a contest for the mastery of skill, trying to access the internal goods of sport through virtues such as courage and determination. Giving parents the right to genetically enhance their children compromises what is ethically valuable in sports.

The World Anti-Doping Agency (WADA) also disagrees with Munthe (2000) believing that the un-born baby also has human rights that should be taken into

consideration. If they are not, genetically modified children may struggle to win competitions without being put under immense scrutiny.

Harris (1999) explains that the fundamental issue underpinning genetic technology is to do with whether people have the right to control their reproductive organs, which highlights the importance of autonomy in ethical debates about genetic technology.

Matters involving the most intimate and personal choices a person may make in a lifetime, choices central to a person's dignity and autonomy, are central to the liberty protected by the Fourteenth Amendment.

(Harris, 1999, p92).

He puts a utilitarian requirement on autonomy believing that in order to infringe on individual autonomy, there has to be more at stake than dislike or disgust from the majority.

Tamburrini (2005, p83) states that "individuals are autonomous when they are able to entertain different courses of actions without impediments." So the autonomy of an individual is based on the number and degree of activities they are allowed to undertake. If an individual has a reduced range of actions, they are less autonomous than those with a wider range of actions. According to

Tamburrini (2005) the second notion of autonomy relates to the degree to which person's can decide on their life pathways, goals and plans. The level of freedom and control an individual has over their life decisions, directly effects how autonomous an individual is. Freedom of these life choices is to be justified on the extent to which the decision promotes human interests because it maximizes their opportunities for doing what is seen as worthwhile (Peters, 1970). Miah (2004) believes it is freedom and autonomy that distinguishes the dignity of the worth of the human being from all other animals. However it is increasingly apparent that when humans are given the freedom to be autonomous, they often choose options badly, putting them in a state of degradation.

## **2. The Restriction of Autonomy through Paternalism**

It will now be argued that paternalistic acts are acceptable when they are for the greater good. Paternalism can be split into two categories; soft paternalism and hard paternalism. Soft paternalism is the infringement of an individual's liberty when the individual is not competent by nature of who they are. Hard paternalism is the interference of an individual's liberty even when the individual appears to be acting in a competent manner (Ravizza, 1985).

I will argue from a utilitarian viewpoint that there are bad consequences associated with genetic technology in sport and I make a deontic judgment by arguing that genetic technology in sport is morally wrong. There are different ways that people can look at morality. Utilitarianism looks at morality objectively.

For Utilitarians' motives do not matter, it is the consequences that are of primary concern. They believe that moral rules should not be broken unless it is for the greater good (Loland, 2002). From previous experiences a person must judge how to minimize pain and maximize pleasure for as many people as possible. Another way of looking at morality is the deontic way. A deontic judgment is a term used to describe a duty, concerned primarily with the evaluation of actions. An example of a deontic judgment is 'cheating in sport is morally wrong.' Judging that the action of genetic enhancement is morally wrong suggests that it is against a rule or principle. Both utilitarian and deontic judgments are used in this argument.

Paternalism can be used when the consequences of an action are seen as bad consequences by the majority. In other words, if it is likely that genetic enhancement would cause more pain than pleasure, a paternalistic act is acceptable Dixon (2007). It has been argued in the previous two chapters that genetic technology in sport is likely to harm more people than benefit them, therefore restricting people's liberty is a justified paternalistic act.

Parents are often put in difficult situations when it comes to letting their children be autonomous and decide things for themselves. This is because the decisions that children make are most likely to be against their best interests. Sometimes acting paternalistic by insisting that they do what is in their manifest best interest is the most ethical decision (Peters, 1970). It is argued that in relation to genetic

enhancement, a paternalistic act is justified because it supports the overall interests of athletes, rather than thinking only in terms of the immediate advantage of an individual athlete. There are many reasons why paternalism can be seen as a sensible act. Firstly there are sufficient health threats associated with genetic modifications. Secondly, genetic enhancement encourages values that conflict with the moral values that society (parents, coaches or friends) try to instil in athletes from a young age. The very idea of genetic enhancement encourages individuals to value winning at all costs, whereas society tries to instil in children the moral values of effort and responsibility. These moral values benefit individuals, not just in sport, but life in general, as people that work hard and abide by the rules often gain deserved respect and merit. Therefore it is argued that paternalism is an acceptable measure for stopping genetic enhancement in sport. This act seems to be viewed with respect by the majority of the sporting community, as the decision is in the best interests of the sport, as well as the athletes.

### **3. Coercion Argument**

This section of the chapter applies the concept of autonomy, rights and paternalism to the practical example of somatic genetic modification. It is argued that enabling athletes to experiment with genetic technology is problematic as it could cause harm to other athletes who wish to remain clean. This argument is often called the 'coercion' argument as it is hard to dismiss easily, arguing that genetic technology causes harm to other clean athletes. Schneider and Butcher

(2000) apply the coercion argument to drugs in sport stating that an athlete's use of drugs causes harm to 'clean athletes'. These people need protection and banning drugs will protect these people, therefore drugs in sport should be banned. For this argument to work, the potential coercion of clean athletes needs to outweigh the infringement on the liberties of all athletes.

Genetic enhancement is likely to improve the performance of athletes so there is a coercive pressure on those athletes performing without enhancement to be modified. If athletes are allowed to modify themselves genetically, athletes at the peak of the sporting arena will no doubt begin to experiment with this technology. Sport is a competitive industry, so once improvement is seen in elite athletes, other athletes will soon feel the coercive pressure to go against their moral value (Schneider and Butcher, 2000). Other athletes are therefore left with a lesser range of autonomous options because of a few individuals exercising their freedom of choice. This is because athletes are obsessed with getting the competitive edge, whether it is through a new training programme or a technological aid they strive to be the best. Even though some athletes may not want to genetically enhance their performance, it is likely that once it is used, these same athletes will follow the trend in order to keep up, and maintain their own standing in their sport. This pressure placed upon them may not be intentional, but nevertheless it still results in infringement of an individual's autonomy.

Elite sport is subject to coercion in many areas such as; altitude training, coaching methods and nutritional advice. Once one athlete starts benefiting, other athletes soon feel pressured into seeking the same means in order to stay in the competitive game. However, there are no restrictions on altitude training, coaching methods and nutritional advice so the ban on genetic technology must be justified in order to differentiate between acceptable and unacceptable ways of gaining an advantage. The reason why the coercion of genetic enhancement is seen as unacceptable is because it is irrelevant to sport. As stated earlier, sports should be about the mastery of new skills in a fair competition. Enhancing performance through genetics is irrelevant to the testing of those skills (Schneider and Butcher, 2000). An athlete cannot take responsibility for the improved performance when they have not had to exert effort. Whereas, factors such as coaching methods may help improve performance but only if the athlete puts the effort in. The athlete would still be responsible for any improvement because without the hard work and determination of the athlete, no improvement would be seen.

With this in mind, it is argued that somatic genetic modification has predominantly negative consequences that warrant a restriction of liberty. As argued in section two, paternalism is justified when the consequences of the behavior are viewed by the majority as bad. It can be said that paternalism is an acceptable act in restricting athletes' liberties as it is in the best interests of athletes and sport in general.

I argue that traditional freedom of choice should be replaced by a more relational version of autonomy. Relational autonomy encourages options that are in the individual's best interests. It requires putting decisions into social context, because it is through social interaction that values are actually formed. Sherwin (2007, p78) explains relational autonomy as:

involving social conditions that make available meaningful options that support the overall interests of individuals rather than thinking only in terms of the immediate advantage of an isolated choice situation.

Instead of thinking how each individual athlete can benefit from genetic enhancement, the consequences for the majority of athletes must be considered. As argued previously, the majority of athletes are likely to feel pressured into using genetic technology, therefore in the social context it would be in the best interests for athletes not to genetically modify themselves. This more relational version of autonomy allows the majority of athletes to benefit rather than just the elite. If people do not adopt this concept of relational autonomy, humans will be free to choose to genetically modify themselves, which in turn will lead to other peoples' autonomy being jeopardized. Freedom of choice should be used as a guide instead of an absolute rule, there should be a balance between human values and individual autonomy to prevent any harm.

#### **4. Harm to future children's autonomy**

This section of the chapter applies the concept of autonomy, rights and paternalism to the practical example of germ-line genetic modification. It is argued that if parents were allowed to make autonomous decisions about genetically modifying their embryos, the intervention would in turn violate their future children's' autonomy. This is because once an embryo has been genetically modified to improve athletic performance; certain expectations are placed upon that child in the future to perform well in sport. The individual may therefore feel pressured to fulfil his or her designed purpose, which takes away a degree of autonomy from that person's life.

Tamburrini (2005) believes that although germ-line genetic technology lessens a child's autonomous options, a mere threat on personal autonomy is not enough to justify a ban on genetic modification in sport. In response, I will argue that if parents are freely allowed to genetically modify their children it is not just a mere threat on personal autonomy, it can change an individuals' life altogether. The child would be denied an autonomous life pathway, as the desired pathway would already have been decided on by the parents, before the child was born (Dixon, 2007). This could lead to the individual having no other life pathways to choose from freely apart from the one that they were pre-designed to fulfil. No alternatives are left open for the child because of a decision made years earlier. The parents were allowed to make a decision, but because of this choice, the child is deprived of autonomy throughout their life, which contradicts the very

idea of autonomy. Dixon (2007, p156) argues that “some parents are guilty of over zealously pushing their children into competitive youth sport for reasons unrelated to being true to the child’s own nature.”

Ectomorph physiques may be desirable for high jump but may be problematic for individuals interested in rugby. A person with a mesomorphic physique may be ideal for sports such as boxing, but this same advantage may be detrimental to performances in events such as sumo wrestling. Sport also involves an immense amount of psychological discipline. Some sports, such as golf, demand a propensity for individual concentration, whereas other sports like football require a willingness to cooperate and follow the strategic team plan. Sherwin (2007, p173) goes onto say that “given the wide diversity of sports and the complex demands of each, there is no clear single trait that would constitute an advantage for every sport.” Therefore, the parents can only decide on what genetic traits to enhance once they know what the child will be interested in.

However, this is impossible if they decide at the embryonic stage. Even if by chance the child is tempted by the idea of becoming a top athlete, it is unlikely that they will happen to choose the sport that they were designed to excel in without external pressure being placed upon them. The risks of genetic modification cannot be worth it if there is such a low chance that the child will actually compete in the sport in which they have been genetically engineered to excel. Sherwin (2007, p174) states that “the risk-benefit ratio seems certain to be

low for those who employ this technology.” Some suggest that a way to get around this problem would be to carry out genetic modifications later in a child’s life. In response, it would be inconceivable to change a child’s genetic make up once they have started forming personalities as it could have detrimental effects on the child’s psychological state.

By giving parents the right to genetically pre-select their offspring, their physically enhanced children will be less able to claim fair and deserved victories in the future. Miah (2001) would summarise by arguing that an athlete would not be directly responsible for a victory due to gene doping so it cannot be morally justified.

It can be said that the consequences of germ-line genetic modification are predominantly negative. As argued in section two, paternalism is justified when the consequences of the behavior are viewed by the majority as bad and more athletes are harmed than benefited. Therefore restricting parents’ liberties is a justified paternalistic act in relation to germ-line modification, as the decision is in the best interests of future athletes and sport in general.

Tamburrini (2007) states that; genetically pre-programming someone to be elite in a certain sport, constitutes an example of targeted pedagogy, and is furthermore a powerful denial of that individual’s autonomy. Sherwin (2007, p173) agrees adding that “the enthusiasm for genetic modification conveys popular, but

false reductionist assumptions of genetic determinism that suggest genes are, quite literally, destiny.” It is therefore argued that individuals should be allowed to decide on which pathway they want to take for themselves, instead of being forced down a sporting one. Traditional education seems a better way of shaping a child’s future into a more positive one by incorporating moral values into a child’s learning experience. This option allows children and parents alike to make autonomous but rational decisions which can widen a child’s horizon. In comparison, genetic modification makes the child’s horizon a lot narrower by limiting the individual’s life plans and goals.

## **Conclusion**

In conclusion, it has been that giving people the right to make autonomous decisions about genetic enhancement is likely to result in reduced autonomy for others. Therefore athletes should not have the freedom of choice to genetically modify themselves or their children for the sole purpose of performance. The first section argued that all individuals have the right to make their own decisions provided they do not affect others. People should only be allowed to make autonomous choices when the decision results in a promotion of human interest. Secondly it was argued that the paternalistic act of prohibiting genetic enhancement in sport is a justified restriction of liberty. This is because genetic enhancement is likely to have detrimental effects on athletes and on sport in general. The third section applied the coercion argument to somatic genetic modification, arguing that genetic enhancement causes harm to other clean

athletes. Traditional freedom of choice should be replaced with a more relational version of autonomy. If it is not; humans will be free to choose to genetically modify themselves which in turn will lead to other peoples' freedom of choice being jeopardized. Lastly I looked at germ-line genetic technology, arguing that parents do not have the right to genetically enhance their embryos as it is infringing on the rights of their child to be. The risks associated with germ-line genetic modification are not worth taking as there is a high chance that children will not even be interested in the particular sport that they were designed to excel in.

## **CONCLUSION**

In conclusion, chapter one explored the notion of sport and legitimate athletic performance. It was argued that sports are designed to measure athletic superiority. A winner deserves their victory when it is based on legitimate athletic performance alone, as this provides a more accurate measure of athletic superiority. There are certain expectations in sport; that athlete's should be aware of not only the formal rules, but the ethos of the game, therefore they should take responsibility for their actions. Athletes need to merit, deserve and cause their victory because if they have not they cannot be morally responsible for their achievements. I then argued that the pursuit of excellence through genetic enhancement is incompatible with the best traditions and internal goods of sport. Intrinsically motivated athletes that respect the game deserve merit because they are not influenced by external rewards.

In chapter two I argued that genetic enhancement is a form of cheating that compromises the validity of sports contests and must therefore be banned. I provided a conceptual account of cheating before arguing that a victory that depends on cheating is neither deserved, nor a sign of athletic superiority. I made the case why genetic enhancement is a form of cheating, focusing in particular on protection of the athletes and the sport as a whole. The concept of fair play was then looked at in more detail by evaluating external and internal advantages in sport. It was argued that advantages are fair only when athletes' can claim responsibility for the advantage gained

In chapter three it was argued that athletes should not have the freedom of choice to genetically modify themselves or their children, if the aim is to enhance athletic performance. This is because giving people the right to make autonomous decisions about genetic enhancement is likely to result in reduced autonomy for others. Genetic enhancement undermines the merit/fairness of the contest; therefore athletes ought to be prohibited from pursuing these means. Athletes do not deserve credit or reward for choosing to create this illegitimate advantage, which is not based solely on athletic performance. I argued that the prohibition of genetic enhancement in sport is a legitimate restriction of autonomy.

In conclusion, the line needs to be drawn at genetic enhancement in sport. If it is not, the balance of moral and technological development will become so out of sync that athletes will no longer be competing in sport. They will be taking part in a scientific experiment to see whose body has been genetically modified to benefit the athlete most efficiently. Athletes need to be educated on the negative implications that gene doping could have on themselves and on sport in order to deter them from experimenting.

## REFERENCES

Applebaum, B. "In the Name of Morality: Moral Responsibility, Whiteness and Social Justice Education." *Journal of Moral Education*. **34**, 2005, 277-290.

Aristotle, (1985). The Nicomachean Ethics. In B. Applebaum. In the Name of Morality: Moral Responsibility, Whiteness and Social Justice Education. *Journal of Moral Education*. **34**, 2005, 277-290.

Aspin, D. (1975). Ethical Aspects of Sport and Games and Physical Education. In W. J. Morgan, and K. V. Meier, (eds) *Philosophic Inquiry in Sport*. Champaign: Human Kinetics.

Breveic, G. (2000) "Against Chance: A Causal Theory of Winning in Sport." In Tannsjo and C. Tamburrini (eds) *Values in Sport*. London:Routledge.

Butcher, R., and Schneider, A. "Fair Play as Respect for the Game." *Journal of the Philosophy of Sport*. **25**, 1998, 1-22.

Carr, D. "Where's the Merit if the Best Man Wins?" *Journal of the Philosophy of Sport*. **26**, 1999, 1-9.

Dixon, N. J. "Trash Talking, Respect for Opponents and Good Competition." *Sport, Ethics and Philosophy*. **1**, 2007, 96-106.

Dixon, N. J. (2007) "Boxing, Paternalism, and Legal Moralism." In W. J. Morgan (ed) *Ethics in Sport*, Champaign, IL: Human Kinetics.

Fairchild, D. L. "Sport Abjection: Steroids and the Uglification of the Athlete." *Journal of the Philosophy of Sport*. **16**, 1989, 74-88.

Fraleigh, W. P. (1984) *Right Action in Sport: Ethics for contestants*. Illinois: Human Kinetics.

Harris, J. (1999) "Clones, Genes, and Human Rights." In A. Miah. *Genetically Modified Athletes*. London: Routledge.

Huizinga, J. (1950). *Homo Ludens: A Study of the Play Element in Culture*. Boston: Beacon Press.

Jones, C. "The Traditional Football Fan: An Ethical Critique of a Selective Construction." *Journal of the Philosophy of Sport*. **30**, 2003, 37-50.

Jones, C., and Howe, P.D. "The Conceptual Boundaries of Sport for the Disabled: Classification and Athletic Performance." *Journal of the Philosophy of Sport*. **32**, 2005, 133-146.

Keating, J. W. (1995) "Sportsmanship as a Moral Category." In W. J. Morgan, and K. V. Meier, (eds) *Philosophic Inquiry in Sport*. Champaign: Human Kinetics.

Leaman, O. (2001) "Cheating and Fair Play in Sport." In W. J. Morgan, K. V. Meier, and A. J. Schneider (eds) *Ethics in Sport*. Champaign, IL: Human Kinetics.

Loland, S. (2002) *Fair Play: A Moral Norm System*. London: Routledge.

MacIntyre, A. (1985) *After Virtue*. London: Duckworth.

McIntosh, P. C. (1979) *Fair Play: Ethics in Sport and Education*. London: Heinemann Educational Books

Miah, A. "Genetic Technologies and Sport: The New Ethical Issue." *Journal of the Philosophy of Sport*. **28**, 2001, 32-52.

Miah, A. (2004) *Genetically Modified Athletes*. London: Routledge.

Munthe, C. (2000). Selected Champions: Making winners in an Age of Genetic Technology. In T. Tannsjo, and C. M. Tamburrini, (eds). *Values in Sport: Elitism, Nationalism, Gender Equality, and the Scientific Manufacture of Winners*. London and New York: E & FN Spon.

Peters, R. S. (1970) *Ethics and Education*. London: George Allen & Unwin Limited.

Ravizza, K. "Paternalism and Sovereignty in Athletics: Limits and Justifications of the Coach's Exercise of Authority Over the Adult Athlete." *Journal of the Philosophy of Sport*, **11**, 1985, 71-82.

Reddiford, G. (1998). Cheating and Self-Deception in Sport. In M. J. McNamee, and S. J. Parry, (eds). *Ethics and Sport*. London and New York: E & FN Spon.

Schneider, A. J. (2005). Genetic Enhancement of Athletic Performance. In C. M. Tamburrini, and T. Tannsjo, (eds). *Genetic Technology and Sport*. London: Routledge.

Schneider, A. J., and Butcher, R. B. (2001). Fair Play as Respect for the Game. In W. J. Morgan, K. V. Meier, and A. J. Schneider (eds) *Ethics in Sport*. Champaign, IL: Human Kinetics.

Schneider, A. J., and Butcher, R. B. "Why Olympic Athletes Should Avoid the Use and Seek the Elimination of Performance-Enhancing Substances and Practice From the Olympic Games." *Journal of the Philosophy of Sport*. **20-21**, 1993-4, 64-81.

Schneider, A. J. and Butcher, R. B. (2000). A philosophical overview of the arguments on banning doping in sport. In T. Tannsjo, and C. M. Tamburrini, (eds). *Values in Sport: Elitism, Nationalism, Gender Equality, and the Scientific Manufacture of Winners*. London and New York: E & FN Spon.

Sherwin, S. "Genetic Enhancement, Sports and Relational Autonomy." *Sport, Ethics and Philosophy*. **1** (2), 2007, 171-180.

Tamburrini, C. M. (2000) *The Hand of God? Essays in the Philosophy of Sports*. Sweden: ACTA Universitatis Gothoburgensis.

Tamburrini, C. M. (2005) "Educational or genetic blueprints, what's the difference?." In C. Tamburrini, and T. Tannsjo. *Genetic Technology and Sport*. London: Routledge.

Tamburrini, C. and Tannsjo. T. (2005) *Genetic Technology and Sport*. London: Routledge.

Tamburrini, C. M. and Tannsjo, T. "Transcending Human Limitations." *Sports, Ethics and Philosophy*. **1** (2), 2007, 113-118.

Tannsjo, T. (2005) Genetic Engineering and Elitism in Sport. In C. Tamburrini, and T. Tannsjo. *Genetic Technology and Sport*. London: Routledge.

Unal, M. and Unal, D. O. "Gene Doping in Sports." *Sports Medicine*. **34**(6): 2004, 357-362.

Warnock, M. (1998). *An Intelligent Person's Guide to Ethics*. London: Duckworth  
Overlook.