

## Chapter 2

# Enhancing the Brain and the Ethics of Sport

**Jose-Luis Perez-Trivino**  
*Pompeu Fabra University, Spain*

### ABSTRACT

*Doping, or in more morally neutral terms, enhancement, has always been present in sport practice and not only at the present time, which is marked by professionalism and competitiveness. The latest development in doping seems linked to biotechnological advances, and one of the techniques that will apparently be particularly important in the near future is neuroscience, notably through pharmacological enhancers and transcranial stimulators. These devices promise to improve not only physiological aspects in sport performance, but also mental and emotional ones. On the other hand, they can seriously affect sport ethics insofar as they can be economically accessible to professional and amateur athletes. This chapter explores these issues.*

### INTRODUCTION

Technology has penetrated in most aspects of our lives (economy, education, society) (Luppigini, 2012; Luppigini, 2009) and sport is one these areas (Miah, 2011). In this context we need to think reflectively about the consequences of technology on the traditional practice and ethics of sport, given the fact that each technical innovation can imply an ethical dilemma. In this sense sport authorities should question themselves how to adapt these new advances to the conventional moral principles or if it is convenient to adapt our moral comprehension of sport. In this sense the increase of technology in sport is a challenging topic for technoethics.

Classical historic studies dealing with sports have identified two so-called golden eras, ancient Greece and Victorian England, where athletes practiced sport without spoiling its playful nature. At these times, sport took place as an end in itself (Young, 1984 p.7). It was clear for participants that what was important was taking part in the activity and having fun while at the same time testing of their physical abilities. The aim, therefore, was not to win, but to reach the highest level of development of these physical skills, physical excellence. Victory would be merely the result of excellence.

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However, recent historical studies cast doubt on the existence of these golden ages, demonstrating in fact, that wherever the sport has existed, its protagonists have always tried to make use of all possible means available to gain a competitive advantage over other contestants. The idea of a pure sport, practiced by itself as a means of achieving physical excellence is therefore nothing more than fiction.

This is especially true today, where professionalized sport prevails. In this kind of sport, the primary purpose is victory, not only for the economic benefits, but for cultural reasons: the social glorification of the winner and consequently the loser's oblivion. The excessive desire for victory that governs sport in our time has driven participants to extreme rationalization. Athletes follow specific diets and perfectly controlled workouts; they take all sorts of nutritional supplements and use sports equipment designed exclusively for them, all in order to achieve that slight advantage that puts their performance above the rest. Thus, our sports world is more than ever linked to interests and elements that go beyond the pure sport practiced by Greek and British amateur athletes.

It is therefore not surprising that given these peculiarities, many athletes choose to artificially improve their sport performance. The consumption of substances with the aim of improving performance is one of the strategic tools used to achieve that result. Doping has always been present in sport due to athletes' desire to gain a competitive advantage or simply facilitate their quest to be physically superior to the rest. The following four phases in the history of doping can be noted (López-Frías, 2014):

1. Natural doping
2. Single or first generation chemical doping
3. Systematic and second generation chemical doping
4. Biotechnological doping

The aim in this article is to provide a short overview of one of the pharmacological and transcranial enhancements in the brain that could have become notoriously relevant in the practice of sport: neuroscience, particularly transcranial stimulators and pharmacological cognitive enhancers. But before going into this area, it seems appropriate to offer a brief summary of how neuroscience enhancements are involved in a vision of sport performance in terms of a combination of physiological and brain elements (which include cognitive and emotional or mood components).

## **A SHORT CHRONICLE OF DOPING**

### **Natural Doping**

The quest for all possible means of improving physical performance is a constitutive element of competition in sport, and this psychological attitude was even present in ancient societies. This search for a "competitive advantage" was carried out mainly through training and diet, but also by consuming naturally-found products which increase an individual's physical performance by affecting an athlete's organs (Vesali, 2002, p. 42).

Cases of this type of doping have already been found in ancient Greece. At that time empirical knowledge was held regarding the use of anabolic and androgenic testicles through the study of the effects of neutering pets. For example, Greek athletes thought something related to physical performance must reside in the testes, and in a way, their view was not entirely misguided, considering what is known

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