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Mini Review

Doping Behaviors and Prevention in Amateur Sport: An Update and New Perspective

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- Doping
- Prevention
- Sport
- Fear-based campaigns

Abstract

Background: Doping is not limited to elite athletes. To reduce doping in sport, it seems important to influence young athletes in primary prevention.

Purpose: Based on previous research, the purpose of this paper is to give an overview on doping behaviors in amateur sport, actual prevention campaigns, and to propose a new perspective in doping prevention.

Methods: This mini-review is based on articles published in English and French between 1990 and 2014 retrieved from different databases (i.e., PubMed, Science Direct, Francis, Cairn. Info). In addition, some edited books and chapter books, and recent research reports were used to complete this mini-review.

Results: Doping is increasingly important among amateur athletes. To date, traditional doping prevention campaigns are often ineffective. In recent years, a new model of prevention campaigns based on fear, coming from the Anglo-Saxon and Scandinavian countries, has been used notably in France (e.g., prevention campaigns for road safety, tobacco, alcohol, cancer). Fear-based campaigns have scientific support and have shown a relatively small but still solid effect on attitudes, intentions and behaviors.

Conclusion: The fight against doping would benefit from trying fear-based anti-doping campaigns.

ABBREVIATIONS

EPPM: Extended Parallel Process Model

INTRODUCTION

Based on previous research, the purpose of this paper is to give an overview of doping behaviors in amateur sport, actual prevention campaigns, and to propose a new perspective in doping prevention. This mini-review is based on articles published in English and French between 1990 and 2014 retrieved from different databases (i.e., PubMed, Science Direct, Francis, Cairn. Info). The following words and combinations of words in English and French have been used on databases: #1 doping, #2 drugs, #3 anabolic steroids, #4 amateur sport, #5 recreational sport, #6 prevention, #7 campaigns, #8 fear, #9 threat, #10 EPPM, #11 self-affirmation, (#1 OR #2 OR #3) AND (#4 OR #5 OR #6 OR #7), (#6 OR #7) and (#8 OR #9 OR #10), (#6 OR #7 OR #8 OR #9 OR #10) AND (#11). In addition, some edited books and chapter books, and recent research reports were used to complete this mini-review. The more significant studies were subjected to narrative synthesis, summarizing the current state of knowledge in relation to doping behaviors and prevention in amateur sport.

Widespread doping behaviors among amateur athletes

Doping is not limited to elite athletes but is widespread in society and is increasingly important among amateur athletes [1-20]. It is difficult to assess the extent of doping in amateur sport, nevertheless it exists [17]. In his review on 44 studies, Laure (1997) estimated the prevalence of doping in children and adolescents participating in sport at 3 to 5 % and in adults participating in amateur sports at 5 to 15 % [7]. In France, 6.7 % of 8-18 year-olds approved doping in sport [21]. Young athletes associated positively sport with drug consumption, at least with energizing drugs [22]. In the study of Turblin et al. (1995), 9 % of students practicing sports outside physical education reported having consumed a substance that they considered as doping [4]. Lentillon-Kaestner and Carstairs (2010) showed that young cyclists (Under-23 category) were tempted by doping [16]. The meta-analysis of Sagoe, Molde and Andreassen (2014) on 187 studies showed a global lifetime prevalence rate of anabolic-androgenic steroid use of 3.3 %.

Doping varies according to various demographic parameters. It increases with age and can start before the age of 15 years [3,4,6,7,19,23-25]. Doping is more widespread among boys than girls [4,21,23-26]; however, the gender gap is decreasing from 10 years old [8]. Doping is more widespread among competitors, and it increases with the level of competition [2,4,6,21,25].

Inefficiency of current anti-doping campaigns

For several years, the fight against doping has mainly focused on the improvement of detection measures (drug tests), leaving aside measures of doping prevention [27-29]. To date, tested anti-doping campaigns are rare, and doping prevention programs lack solid scientific background [27,28,30,31]. Traditional doping prevention campaigns are often ineffective. They describe substances' side effects, try to persuade users of the ineffectiveness of performance enhancing substances or promote sports ethics [28,32]. The recent meta-analysis of Ntoumakis, Ng, Barkoukis and Backhouse (2014) showed that implemented anti-doping interventions lead to small changes in individuals' attitudes towards and intention to engage in doping and had no effect on actual doping behaviors [28]. It seems important to build innovative prevention campaigns that are based on solid scientific theory [9,27,30].

The fear-based campaigns

In recent years, a new model of prevention campaign based on fear and coming from the Anglo-Saxon and Scandinavian countries has been used notably in France (e.g., road safety, tobacco, alcohol, cancer prevention campaigns) [33]. Fear is conceptualized as a negative emotional reaction to a perceived threat. The purpose of the fear model is to show the consequences of an undesirable event (e.g., illness, accident) or to give more or less directly a glimpse of the following unhappiness aiming to bring an attitude change. The fear motivates actions to reduce negative emotion [34]. In contrast to current doping prevention campaigns, fear-based campaigns have scientific support [35-45]. Psychologists and researchers in marketing have tried to understand why a prevention campaign based on phobic emotion resulted sometimes in success (action) and sometimes in failure (defensive reactions). Various theories have been developed. The latest and most advanced theory about fear appeals from a theoretical and empirical point of view [33,40] is the Extended Parallel Process Model (EPPM) of Witte (1992, 1998) [36,46]. In this model, individuals first assess the threat contained in the message. Perceived threat is a cognitive construct with two dimensions: perceived severity of the threat and one's perceived susceptibility to the threat [47]. In accordance with other meta-analyses, the meta-analysis of Witte and Allen (2000) suggested that the higher the fear level, the higher is the persuasive impact of the message [40]. If the threat is perceived as irrelevant or insignificant, the person is no longer motivated to process the message and simply ignores the fear. In contrast, when a threat is described as significant and relevant, people are frightened. The more people believe themselves vulnerable to a serious threat, the more they are motivated to start the second evaluation of the recommendations' effectiveness. The fear motivates the change in attitudes, intentions and behaviors, especially fear accompanied with highly effective messages. Perceived effectiveness comprises two dimensions: perceived response effectiveness (beliefs of how effective a response is in averting a threat) and perceived self-effectiveness (beliefs about one's ability to carry out the recommended response) [47]. Effective messages generating a strong fear encourage behavior change (i.e., danger control), while less effective messages generating a strong fear lead to defensive reactions (i.e., fear control) [40,47,48]. According to Witte (1992), fear-based health campaigns are far more useful to promote prevention behaviors than to modify existing behaviors [46]. Witte and Allen (2000) concluded, from their meta-analysis on 98 studies on fear-based campaigns (e.g., sexuality, alcohol, road safety, tobacco), that fear would have a relatively small but constant effect on attitudes, intentions and behaviors [40]. They also offered a series of recommendations for the implementation of prevention measures [40]. In addition, psychology studies on persuasion showed that a simple message was more persuasive in video than in written or audio forms [49,50].

The theory of self-affirmation appears as a way to increase the effectiveness of prevention campaigns through a re-evaluation of the self-image, which reduces the defensive reactions and increases the acceptance of prevention recommendations [51]. The manipulation of self-affirmation may be achieved in different ways (e.g., values to rank in importance order, to write an essay on their most important value, to describe a very important thing in their lives) [52]. Research has shown that to secure the self through self-affirmation manipulation reduced defensive reactions to threatening health information [51] and positively influenced healthier behaviors [53,54]. Through the self-affirmation process, prevention campaigns do not threaten the self-image of the person, but only the behavior is threatened [51,52].

New perspectives in doping prevention

Adolescence is a high-risk period for the development of doping behaviors [55]. Even if performance enhancing drugs have adverse effects on health [12,29,56-58], young athletes are tempted by doping and are not afraid of health side effects [59,60]. Young athletes are priority target as their doping attitudes are in formation and primary prevention seems to be a good solution to avoid the appearance of doping behaviors.

To date, no previous study has evaluated the effects of fear-based anti-doping campaigns and the fight against doping would benefit from trying a fear-based doping prevention video for two main reasons. Firstly, although very significant progress has been made in detection measures in recent years in the fight against doping, prevention campaigns remain limited. Actual implemented doping prevention measures are ineffective and without scientific support. Secondly, doping prevention lacks standardized, effective and easy tools to use in both the sport and the academic domains. A doping prevention video could be used during sport events and competitions. Doping prevention is also a topic addressed in sport courses (i.e., additional sport option, sports study) in high schools and in universities. A fear-based anti-doping video would be directly useful for all stakeholders (e.g., teachers, coaches, sport and doping prevention organizations) who wish to address this issue with athletes and students. It will prevent the development of prevention campaigns that may have opposite effects than expected. To indicate the main effects of doping substances (which is common in prevention campaigns)

has counterproductive effects on athletes by even increasing their desire to test these substances. Doping is not an easy issue to address. The fear-based doping prevention video would encourage a debate among young people and should reduce the athletes' intentions to use doping.

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