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ORIGINAL ARTICLE

Changing doping-related attitudes in soccer players: How can we get stable and persistent changes?

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Abstract

The aim of this experiment was to analyse the consequences of changing attitudes related to doping through thoughtful versus non-thoughtful processes. Participants were young soccer players. They received a persuasive message either against or in favour of the legalisation of several doping behaviours in soccer (e.g., the use of anabolic androgenic steroid – AAS), and participants' level of elaboration (i.e., deliberative thinking) was manipulated in two different experimental (high vs. low) conditions. Attitudes towards the legalisation proposal were assessed immediately following the message and one week later. Results showed attitude change was a function of message direction and was relatively equivalent for both high and low elaboration participants immediately after reading the message. That is, those who received the message against legalisation showed significantly more unfavourable attitudes towards the proposal than did those who received the message in favour of legalisation regardless of the extent of elaboration. However, attitude change was found to be persistent only for high elaboration participants one week after message exposure. In the present paper, we discuss implications of changing attitudes related to doping depending on whether the change occurred through psychological processes that require either extensive or small amounts of deliberative thinking and elaboration.

Keywords: *Attitude, doping, persuasion, elaboration, persistence*

Introduction

Although doping is a complex phenomenon that is likely produced by many different individual, sport-specific, and social factors (Donovan, 2009; Johnson, 2011), doping-related attitudes may play a relevant role in understanding the likelihood of using illegitimate substances and the prediction of doping intentions (Lucidi, Grano, Leone, Lombardo, & Pesce, 2004; Petróczi, 2007). Thus, prior research has shown attitudes were very often significantly correlated to doping behavioural intentions, and sometimes, these intentions predicted subsequent use of doping substances (Lucidi et al., 2008; see Backhouse, Atkin, McKenna, & Robinson, 2007; Morente-Sánchez & Zabala, 2013 for reviews). For instance, Lucidi et al. (2008) found that adolescents' intentions to use doping substances increased with positive attitudes about doping, and subsequently, those intentions

contributed to a greater use of doping substances during the following three months.

However, other studies have found that the perceived behaviour of significant others, personal norms, beliefs about performance outcomes or situational temptation predicted doping behavioural intentions above and beyond doping-related attitudes (Lazuras, Barkoukis, Rodafinos, & Tzorbatzoudis, 2010; Lucidi et al., 2008; Wiefferink, Detmar, Coumans, Vogels, & Paulussen, 2008). In addition, even though social psychological research has shown that attitudes are an important predictor of social behaviour through different automatic and deliberate processes (Ajzen & Fishbein, 1980; Fazio, 1990; Petty & Krosnick, 1995), studies about doping-related attitudes are largely descriptive and typically fail to establish causal relationships between attitudes and doping behaviours (Backhouse et al., 2007).

The present study aims to show how we can effectively form and change doping-related attitudes in a consequential way (specifically, in relation to attitudinal persistence). In doing so, we propose a theoretical framework which can increase the understanding of the *processes* of attitude change leading to create attitudes that predict doping intentions and presumably doping behaviour.

Doping and attitude change

In doping research, many authors have highlighted the need to conduct more theoretically driven studies, as well as to develop and implement more effective preventive programmes that change athletes' attitudes towards doping and its health-related risks, because attitudes may be a factor promoting doping intentions and presumably doping behaviour (Backhouse et al., 2007; Bahrke, 2012; Morente-Sánchez & Zabala, 2013; Petróczi & Aidman, 2008). In line with that proposal, several interventions have successfully changed attitudes towards the use of anabolic androgenic steroid (AAS) in adolescent football players producing, in addition, significant effects on intentions to use AAS and actual AAS use, although this effect on actual behaviour was only marginally significant one year later (see Goldberg et al., 1996, 2000). In their ATLAS prevention programme, Goldberg et al. conducted an intervention including several widely known techniques of attitude change, such as drug refusal role-playing and the creation of health promotion messages. Moreover, other research has found that even a single exposure to a persuasive message can change beliefs, and can create or alter automatic associations regarding functional foods as alternatives to doping (James, Naughton, & Petrócki, 2010). However, to our knowledge, the *antecedents* and the supposed *psychological processes* leading to stable and persistent changes remain unexplored.

In fact, prior doping attitudes research has been conducted relatively independently from contemporary attitude change and persuasion research, using theoretical models such as the theory of planned behaviour (Ajzen, 1991), which is not very relevant to explain attitude change as it is primarily relevant to the relationships between attitudes, normative beliefs, perceived behavioural control and doping intentions (e.g., Lazuras et al., 2010; Lucidi et al., 2008). With respect to specific theories of persuasion, multi-process models, such as the Elaboration Likelihood Model (ELM, Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (HSM, Chaiken, Liberman, & Eagly, 1989), provide more comprehensive theoretical frameworks to understand, explain and predict the *antecedents* to attitude change, their respective *psychological processes*, and

their resulting *consequences* in terms of persistence, resistance, and prediction on behaviour, for example.

In social psychological research, attitudes refer to general evaluations people have regarding people, objects and issues (Eagly & Chaiken, 1993). There are many ways in which attitude change can occur. One very common path to attitude change is *persuasion*, which involves exposing individual to information relevant to some topic in an attempt to change the person's existing attitude, or to form a new attitude. In accord with multi-process models of persuasion such as the ELM and the HSM, attitude change can occur through different processes depending on the overall likelihood of deliberative thinking and elaboration people are willing and able to expend in processing persuasive communications. In the persuasion literature, *deliberative thinking* refers to conscious, deliberate and thoughtful consideration of relevant available information presented in a persuasive communication, and *elaboration* refers more specifically to the process by which people add something of their own to the information available or provided by a persuasive communication (Petty & Cacioppo, 1986). In the present paper, we use the terms elaboration and deliberative thinking interchangeably.

Most importantly for the present study, these theoretical models hold that the process by which an attitude is formed or changed is consequential for the strength of the attitude (Petty & Cacioppo, 1986). Concretely, attitude change through high elaboration processes is, for instance, more stable and persistent (i.e., attitudes change less over time) than attitude change through low elaboration processes (Cárdaba, Briñol, Horcajo, & Petty, 2013). Attitudinal persistence (or stability) refers to extent to which a newly changed attitude endures over time even if it is never attacked directly (Petty & Cacioppo, 1986). An example of a high elaboration process is the use of systematic information processing in which message-based cognitions mediate persuasion, such as, when the valence of thoughts (i.e., favourable cognitions) leads to persuasion as a consequence of processing the issue-relevant arguments exhaustively. In contrast, an example of a low elaboration process is the use of heuristic processing in which, for instance, simple decision rules mediate persuasion, such as "if the message is provided by an expert source, I like it or I agree." This *heuristic* process may produce attitude change or allow a person to decide what attitudinal position to adopt without engaging in any extensive issue-relevant thinking (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986).

The present experiment

The aim of the present experiment was to analyse the consequences of changing attitudes towards a

proposal of legalising several doping behaviours through thoughtful (i.e., high elaboration) versus non-thoughtful (i.e., low elaboration) processes. Specifically, this experiment analysed whether changing attitudes related to doping in a thoughtful way would make the new attitudes more persistent over time than producing the same attitude change in a less thoughtful way. In this study, we have preferred to focus on a legalisation proposal as the target attitude object, instead of doping per se, because social desirability is an important concern affecting the measurement of doping attitudes (Gucciardi, Jalleh, & Donovan, 2010) and doping prevalence (Lentillon-Kaestner & Ohl, 2011; Pitsch & Emrich, 2012). Even though this legalisation issue is controversial and is under discussion (Wiesing, 2011), by focusing on a legalisation proposal, social desirability would be a less relevant concern, permitting a better analysis of the antecedents and the supposed processes, leading to attitude change, as well as their consequences on attitudinal persistence.

Thus, in the present experiment, participants received a persuasive message composed of both compelling arguments and potential peripheral cues either *against* or *in favour* of the legalisation of several doping behaviours in soccer [i.e., the use of AAS, erythropoietin (EPO), and blood transfusions]. In addition, the extent to which participants were motivated to think about these messages was manipulated (*high* vs. *low* elaboration) prior to providing the persuasive proposal. Finally, attitudes towards the legalisation of those doping behaviours were measured immediately following the message (time 1: immediate) and one week later (time 2: delayed). Therefore, persistence was assessed objectively by exposing participants to a second attitudinal measurement one week after persuasive treatment.

It was hypothesised that attitudes towards legalisation of high and low elaboration participants would *both* change to the same extent following the persuasive message. That is, attitudes would be in function of message direction in the immediate measurement. Therefore, a main effect of message direction was expected in the first attitudinal measurement immediately following the message. Participants who received arguments against legalisation would show more unfavourable attitudes towards legalisation than participants had received arguments in favour of legalisation, regardless of the extent of elaboration.

However, these newly changed attitudes would differ in their subsequent persistence over time one week later. Thus, it was predicted that the newly changed doping-related attitudes of high elaboration participants would be more persistent over time one week after receiving the message than the newly changed attitudes of low elaboration participants. Therefore, an interaction between elaboration and direction of message was expected to emerge in this

second attitudinal measurement. *Only* high elaboration participants would show a significant difference between those who received the message against and those who received the message in favour of legalisation. In contrast, low elaboration participants would show decay of their initial attitude change in a direction dependent on message condition (against vs. in favour of legalisation).

Method

Participants and design

Sixty-eight young soccer players (11 women and 57 men, age: mean value 20.19, $s = 3.64$ years, see Table I) at three different teams from Madrid (Spain) participated in this experiment, completing all measures at both time points. All participants were selected, because they were competing in national or regional leagues. Participants were randomly assigned to the cells of a 2 (Elaboration: high vs. low) X 2 (Direction of Message: against vs. in favour of legalisation) between participants factorial design, and their attitudes were measured at two different times (immediate and delayed, within-subjects factor).

Procedure

The protocols were performed under approval obtained from an institutional ethics committee, and permission to conduct the study was provided by all soccer teams before the study began. Moreover, each participant signed an informed consent to voluntarily participate in this experiment.

Table I. Attitudes as a function of moment of measurement, elaboration and direction of message

	Elaboration			
	Low		High	
	Direction of message			
	In favour of	Against	In favour of	Against
Attitudes (Time 1)				
mean	4.09	2.91	4.38	3.02
s	2.16	1.10	1.80	1.59
Attitudes (Time 2)				
mean	3.25	3.26	4.75	3.02
s	1.95	1.33	1.91	1.79
Participants' age				
mean	20.47	20.18	19.50	20.71
s	4.56	3.41	3.51	3.29
Participants' gender				
Female	4	2	2	3
Male	12	15	16	14

Participants were led to believe that they were taking part in a study designed to examine a proposal for the legalisation of several doping behaviours in soccer (i.e., the use of AAS, EPO, and blood transfusions). In order to manipulate the extent of elaboration, a personal relevance manipulation was used (Petty & Cacioppo, 1979). Thus, participants had to read the legalisation proposal under high (vs. low) personal relevance conditions. Next, some participants were randomly assigned to receive a persuasive message containing arguments against legalisation, and the others received a message containing arguments in favour of legalisation. After reading the message, all participants reported their attitudes towards the legalisation proposal both immediately following receipt of the message (time 1) and one week later (time 2). Finally, after the second attitudinal measurement, participants were exhaustively debriefed and thanked.

Independent variables

Elaboration. As noted above, the extent of elaboration was manipulated by a traditional personal relevance manipulation (Petty & Cacioppo, 1979). Thus, participants in the high elaboration condition were told that the legalisation proposal referred to *FIFA* (Fédération Internationale de Football Association) and that legalisation could be implemented in *soccer* rules the *next year* (i.e., 2014). By contrast, the participants in the low elaboration condition were told that it referred to *WADA* (World Anti-Doping Agency) and that legalisation could be implemented in *cycling* and *athletics* rules in 2018.

In addition, to increase the effectiveness of the manipulation of elaboration, participants in the high elaboration condition were explicitly encouraged to think carefully about the provided information by telling those participants that they were in a selected sample of soccer players whose responses would directly affect the FIFA's evaluation about this issue. In contrast, participants in the low elaboration condition were told that they were in a sample of soccer players being asked to complete WADA's survey about legalisation and that their opinions could affect cycling and athletics (see Horcajo, Briñol, & Petty, 2014, for a similar manipulation of elaboration).

Direction of message. Participants were randomly assigned to read either the persuasive message against legalisation or the persuasive message in favour of legalisation. These messages emphasised the *risks* (message against) or the *benefits* (message in favour of) of legalisation. This manipulation was

designed to influence the favourability of participants' attitudes (Petty & Cacioppo, 1986). That is, arguments against legalisation were expected to produce significantly more unfavourable attitudinal responses towards the legalisation proposal than arguments in favour of legalisation. Moreover, both messages included several potential peripheral cues, such as credible sources (recognised organisations such as FIFA or WADA), blatant direction of proposal (marking the terms *risks* or *benefits* of legalisation by underlining them and making them bold) and an extensive number of arguments. Thus, both high (more reliance on argument quality) and low (more reliance on potential peripheral cues) elaboration participants' attitudes could change.

The message against legalisation argued that it is not appropriate to permit the use of substances such as EPO and AAS such as testosterone, as well as behaviours such as blood transfusions. Risks of this legalisation would affect soccer players' physical and psychological health unfavourably, and the likely misuse of those performance-enhancing substances and doping behaviours would contribute to a 'pharmacological culture' in which these drugs and behaviours become an important component of the game, compromising other values such as "fair play". This widely embraced culture could thus lead to early addictions within the sport. In contrast, the message in favour of legalisation argued that there are advantages to permitting the use of those same substances and behaviours as long as they are used under strict medical supervision. The supposed benefits of this legalisation would favourably affect soccer players' physical and psychological health. For example, these drugs could help players to cope with stress. In addition, based on research and development of pharmacological industry regarding these substances, they can also offer other important benefits to society (more jobs and economic growth).

Messages were specifically created to affect attitudes related to doping in a research context, but they did not include rigorous and accurate scientific information about the certain benefits or risks of those substances and behaviours. Moreover, we used a message in favour of legalisation in order to have more equivalent tasks across experimental conditions (i.e., in comparison to message against legalisation). Of course, real-world applications of this research would be the development and implementation of effective programmes changing doping attitudes, but in only one direction (i.e., against doping). Each participant received this clarifying information after his/her participation in this experiment.

Dependent variables

Doping-related attitudes following the message (immediate measurement). Soccer players' attitudes towards the legalisation were assessed using two 9-point items. A general attitudinal item assessed the extent to which participants were unfavourable or favourable towards the legalisation after receiving the persuasive message (i.e., 1 = *against* and 9 = *in favour of legalisation*). This item has been used in many prior studies on attitude change and persuasion (e.g., Horcajo et al., 2014; Horcajo, Petty, & Briñol, 2010). Moreover, because messages were mainly focused on the risks (i.e., message against) or the benefits (i.e., message in favour of) in relation to physical and psychological health, the second item assessed the participants' evaluations of the legalisation proposal in relation to coping with stress (i.e., the extent to which athletes would improve their coping with stress by using those substances and performing those behaviours after legalisation; 1 = *more stress after legalisation* and 9 = *less stress after legalisation*). Therefore, both items were attitudinal measuring participants' evaluations of the legalisation proposal and its consequences for athletes. In fact, ratings on these two different measures were significantly correlated ($r = .366, P = .002$), so they were averaged to create a composite index of attitudes. Responses to the attitude items were scored so that higher values represented more favourable attitudes about the legalisation.

Doping-related attitudes one week later (delayed measurement). In order to assess the extent to which newly changed attitudes endure over time, participants' attitudes were again assessed one week after exposure to the legalisation message. Attitudes towards the proposal were measured again with the same two items as during the immediate measurement. Once again, these measures were significantly correlated ($r = .402, P = .001$), so they were averaged to form the composite index of attitudes one week later.

Results

Doping-related attitudes (immediate and delayed measurements)

Firstly, dependent measures (i.e., doping-related attitudes) were submitted to a repeated measures analyses of variance (ANOVA) with elaboration (high vs. low) and direction of message (against vs. in favour of) as between-subjects factors, and moment of measurement (immediate vs. delayed) as a within-subjects factor. Consistent with the

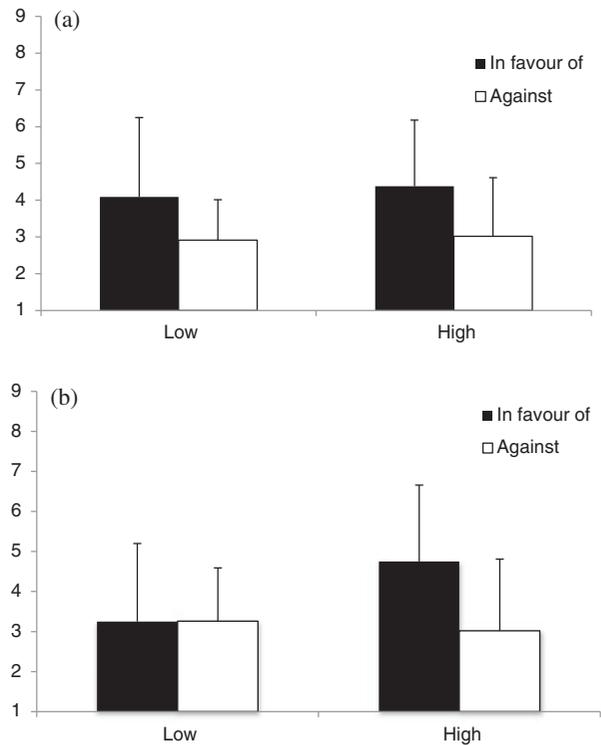


Figure 1. Doping-related attitudes as a function of (a) Time 1 (immediately following the message), (b) Time 2 (one week after message), elaboration (low vs. high) and direction of message (against vs. in favour of). Error bars represent standard deviations.

hypotheses, the repeated measures ANOVA revealed the expected interaction between elaboration, direction of message and measurement moment, $F_{1, 64} = 6.15, P = .01, \eta^2 = .08$. Moreover, when responses to each attitudinal item were independently submitted to repeated measures ANOVA, the statistical analyses showed a similar pattern of data.

Next, to examine the basis of this interaction, results were analysed at the two (immediate and delayed) times of measurement separately. Thus, doping-related attitudes (from either immediate or delayed measurements) were separately submitted to a 2 (elaboration: high vs. low) X 2 (direction of message: against vs. in favour of) ANOVA.

As predicted, in the immediate measurement following the message, only a main effect of direction of message emerged significantly, $F_{1, 64} = 9.41, P = .003, \eta^2 = .12$. That is, those who received the message against legalisation showed significantly more unfavourable attitudes towards the proposal (high elaboration: mean 3.02, $s = 1.59$, low elaboration: mean 2.91, $s = 1.10$) than did those who received the message in favour of legalisation (high elaboration: mean 4.38, $s = 1.80$, low elaboration: mean 4.09, $s = 2.16$, see Table I, and Figure 1, top panel) irrespective of the extent of elaboration.

However, in the delayed measurement one week after message exposure, as hypothesised, only the two-way interaction between elaboration and direction of message emerged significantly, $F_{1, 64} = 4.08$, $P = .04$, $\eta^2 = .05$. That is, for high elaboration participants, those who received the message against legalisation showed significantly more unfavourable attitudes towards the proposal (mean 3.02, $s = 1.79$) than did those who received the message in favour of legalisation (mean 4.75, $s = 1.91$), $F_{1, 64} = 8.26$, $P = .005$, $\eta^2 = .12$. However, as predicted, for low elaboration participants, it did not have a significant difference in attitudes towards the proposal one week after the message exposure between those who received the message against (mean 3.26, $s = 1.33$) and those who received the message in favour of (mean 3.25, $s = 1.95$) legalisation, $F_{1, 64} = .001$, $P = .98$, $\eta^2 < .01$ (see Table I, and Figure 1, bottom panel).

Discussion

The results of this experiment showed that doping-related attitudes can be changed after reading a persuasive message either against or in favour of legalisation of several doping behaviours (i.e., the use of AAS, EPO and blood transfusions). However, consistent with the ELM (Petty & Cacioppo, 1986), the extent of deliberative thinking and elaboration affected attitudes persistence one week later. That is, high elaboration participants' newly changed attitudes were more stable and persistent (i.e., stronger) than low elaboration participants' newly changed attitudes. Therefore, even though low elaboration participants were influenced by messages about legalisation initially, those messages no longer had an effect on attitudes one week after message exposure. This is consistent with the ELM in that these individuals were persuaded mostly by peripheral cues in the messages, so their newly changed attitudes by non-thoughtful processes decayed over time. In conclusion, attitudes that are changed as a result of carefully considering message content (e.g., argument quality) are more likely to persist over time than attitudes that are changed through processes based on peripheral cues (Petty, Haugtvedt, & Smith, 1995).

According to the ELM, the *favourability of thoughts* generated in response to a message can be a very plausible mediator of the effects found on the favourability of attitudes for high elaboration participants. For these participants, those who received the message against legalisation presumably generated more *unfavourable* thoughts towards the legalisation proposal in comparison to those who received the message in favour of legalisation. However, this potential mediator is not expected to mediate the

effects found for low elaboration participants (Petty & Wegener, 1998). Future research should explore the mediating role of thought favourability, as well as other different psychological processes (Petty & Briñol, 2012).

To our knowledge, the present experiment is the very first showing the consequences of doping-related attitude change through thoughtful versus non-thoughtful processes. Moreover, examining this question is important for both theoretical and practical purposes in the study of doping. Thus, any programme designed to prevent doping behaviour through changing relevant attitudes must consider the extent of recipients' deliberative thinking and the psychological processes leading to attitude change. That is, attitude change derived from high elaboration processes will be stronger than the same attitude change produced via low elaboration processes. Furthermore, the stronger an attitude is, the more certain people are in it, the more accessible the attitude is and the better it is able to predict subsequent information processing and behaviour (Petty & Krosnick, 1995). In addition, the present research proposes a relevant theoretical framework not only to examine doping-related attitude change, but also to analyse any attitude change affecting health, performance or behaviour in sport science research. Nevertheless, despite these contributions of the present study, some questions deserve further research.

Limitations of the present experiment and future research

Regarding the results of the present experiment, it is relevant to note that attitudes were slightly more stable for participants receiving the message against the legalisation than for participants receiving the message in favour of the legalisation, as indicated by the lower decay effect one week after message exposure for the low elaboration participants of the message against legalisation. This finding can have several different explanations. On the one hand, in accord with our theoretical framework, it could be hypothesised that the message against of the legalisation had somewhat increased elaboration in comparison with the message in favour of the legalisation, producing a little more stable attitudes for the message against legalisation participants. However, we did not have any convincing empirical evidence in relation to this possibility, and it is not expected to occur when elaboration is constrained to be low by a personal relevance manipulation (Petty & Cacioppo, 1986).

On the other hand, Bizer and Petty (2005) demonstrated the effects of *valence framing* on resistance of attitudes. Concretely, thinking of an attitude

in terms of opposition (i.e., against something) rather than in terms of support (i.e., in favour of something) may be sufficient to enhance the resistance of that attitude when it is later attacked by counter-attitudinal information. In relation to the present study, we cannot be sure of whether or not the direction of the message (against vs. in favour of) led to participants to particular kinds of valence framing (*opposing* vs. *supporting* legalisation). This possibility needs to be analysed under more specific experimental conditions (Bizer & Petty, 2005). However, it is possible that simply conceptualising one's evaluation as *opposing* legalisation (e.g., participants who received the message against the legalisation proposal) could make that evaluation more persistent than conceptualising the evaluation in terms of *supporting* legalisation (e.g., participants who received the message in favour of the legalisation proposal).

In addition, Bizer, Larsen, and Petty (2011) have showed that negatively framed attitudes demonstrated higher levels of attitude-consistent behavioural intentions than did attitudes that were framed positively, and the valence-framing effect on behavioural intentions was mediated by attitude certainty. This finding may be very relevant for doping prevention and intervention programmes, because simply encouraging people to think of themselves as *opposing doping*, rather than *supporting anti-doping*, can strengthen attitudes against doping, making them more persistent, resistant to change and more likely to impact behaviour (Bizer et al., 2011).

In conclusion, according to the ELM (Petty & Cacioppo, 1986), the present experiment has shown that attitudes that are changed as a result of thoughtful processes are more likely to persist over time than attitudes that are changed through non-thoughtful processes. However, as postulated by the ELM, thoughtful processes require both high ability and high motivation to think and elaborate on a persuasive proposal. Valence framing appears to be a relatively low-effort way in which attitudes can be strengthened without any increase in elaboration when people do not have high ability and high motivation to elaborate on doping-relevant information (Bizer & Petty, 2005; Bizer et al., 2011). Future research should analyse these valence-framing effects regarding doping attitude change.

Finally, future studies should analyse other important characteristic of strong attitudes, such as resistance (i.e., the ability of an attitude to hold up to an explicit attack, e.g., Cárdbaba, Briñol, Horcajo, & Petty, *in press*), or attitude-behaviour consistency (Petty & Krosnick, 1995). In fact, if a newly formed or changed attitude is based on high thinking and elaboration processes, it is likely to be more accessible, coming to mind automatically in the presence

of the attitude object, and thus being more available to guide behaviour (Petty et al., 1995). Moreover, attitudes based on high elaboration processes are also more likely to guide behaviour because, for instance, these attitudes are held with more certainty, and individuals are more willing to act consistently with attitudes in which they have certainty (Petty & Briñol, 2012). Future research should specify the conditions in which attitudes predict doping behaviours, and to explore causal mechanisms, as well as extend these findings to *different sports and populations*.

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