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Abstract:	<p>Background: The study's objective was to map ethical positions with regard to the way in which 219 participants (45 non-athletes, 91 amateur athletes, 28 professional athletes, 17 amateur coaches, 8 professional coaches, and 30 physiotherapists) used various informational cues (an athlete's indispensability for the team, the importance of the competition, the opinion given by sports medicine professionals, and the injured athlete's attitude) to judge the acceptability of a coach's decision to select (or not) an injured athlete just before a competition. Methods: The participants specified their judgment of acceptability in 16 scenarios created by combining these information cues under two conditions (selection and non-selection). The data were analyzed using cluster analyses, analyses of variance, and chi-squared tests. Results: We found four clusters. Not selecting an injured athlete was always judged to be acceptable. The four clusters differed in terms of the type of role in sport and the level of acceptability of selecting an injured athlete. Conclusions: A coach's decision with regard to an athlete's health may be judged differently, according to the rater's profile. Enabling athletes to compete while injured might violate ethical principles. Coaches and medical staff should also be aware of and understand their legal responsibilities.</p>

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ACCEPTABILITY TO SELECT OR NOT AN INJURED ATHLETE

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Mapping different ethical positions regarding a coach's decision to select or not an injured athlete.

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THE ACCEPTABILITY OF SELECTING (OR NOT) AN INJURED ATHLETE

1

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For Peer Review

THE ACCEPTABILITY OF SELECTING (OR NOT) AN INJURED ATHLETE

2

Abstract

Background: The study's objective was to map ethical positions with regard to the way in which 219 participants (45 non-athletes, 91 amateur athletes, 28 professional athletes, 17 amateur coaches, 8 professional coaches, and 30 physiotherapists) used various informational cues (an athlete's indispensability for the team, the importance of the competition, the opinion given by sports medicine professionals, and the injured athlete's attitude) to judge the acceptability of a coach's decision to select (or not) an injured athlete just before a competition. **Methods:** The participants specified their judgment of acceptability in 16 scenarios created by combining these information cues under two conditions (selection and non-selection). The data were analyzed using cluster analyses, analyses of variance, and chi-squared tests. **Results:** We found four clusters. Not selecting an injured athlete was always judged to be acceptable. The four clusters differed in terms of the type of role in sport and the level of acceptability of selecting an injured athlete. **Conclusions:** A coach's decision with regard to an athlete's health may be judged differently, according to the rater's profile. Enabling athletes to compete while injured might violate ethical principles. Coaches and medical staff should also be aware of and understand their legal responsibilities.

Keywords: injury; judgment; coach; selection; ethics in sport.

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1 Imagine that you are the coach of a sports team. The day before an important
2 competition, one of your athletes - considered to be essential for the team - injures his/her
3 ankle during a training session. After examining the athlete, your medical staff advises against
4 selecting the injured athlete for the following day's competition. However, the athlete tells
5 you that he feels able to participate. What is the "right" decision? Is it acceptable to select (or
6 not) the athlete? The present study aimed to explore this ethical issue in sport.

7 As shown above, sporting competitions are multifaceted situations in which many
8 factors come into play and are likely to contribute in a complex way to a final, ethically
9 compliant or non-compliant judgment.¹ Ethics in sport is, amongst other things, a question of
10 judgment; an act is not ethical or unethical *per se* but is judged to comply with (or not comply
11 with) ethics.²

12 Research on ethical aspects of the health of athletes has looked at the relationship
13 between various stakeholders: general management, coaches, healthcare professionals (e.g.
14 physiotherapists), teammates (in team sports), and the athletes themselves.³ These
15 stakeholders sometimes have conflicting interests, which influence a coach's decision to
16 select or deselect an injured athlete. In the context of an injury, the athlete's health (the prime
17 concern for the medical staff) and the team's success (the prime concern for the athlete's
18 coach and teammates) are often conflicting.⁴ Coaches may be confronted with this ethical
19 dilemma concerning the athlete's health.⁵

20 Swisher, Nyland, Klosser et al.⁶ reported that the pressure to return to play after an
21 injury is one of most common ethical issues in sport. The literature on decision-making in
22 health care refers to three type of approach: paternalistic, autonomous, and shared.⁵ Examples
23 of these approaches in the sporting domain are as follows. In a paternalistic approach, medical
24 professionals are considered to be in the best position to assess the risk of playing for an
25 injured athlete and should make the decision on the coach's behalf. In an autonomous

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3 1 approach, the athlete decides for him/herself; the medical staff's role is to explain the
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5 2 available options and then accept the athlete's decision. In a shared approach, the athlete and
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7 3 medical professionals share information and decide together.
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10 4 However, the literature on sports ethics has focused mainly on decision-making by
11
12 5 health professionals^{5,7} and not on decision-making by coaches. This is surprising, given that
13
14 6 the decision to select an injured athlete or not ultimately rests with the coach.⁸ It is important
15
16 7 to study ethical aspects of decisions taken by a coach's because he/she is viewed as a major
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18 8 influence on the development of the athlete's values.⁹ Testoni, Hornik, Klossner et al.⁵
19
20 9 emphasized the need for larger, quantitative studies of health ethics in sport, in order to better
21
22 10 understand the decision-making processes for the various stakeholders in sport.
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26 11 Health ethical issues in decision making involve the deliberation about ethical
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28 12 principles. In general, they are based on autonomy, justice, beneficence, and non-
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30 13 maleficence.¹⁰ Autonomy refers to the possibility of a person to take an informed or
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32 14 uncoerced decision. Justice guides us to fairness and respect for laws and one's rights. The
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34 15 principle of beneficence refers to "do good" and promotes the interest of the individual. The
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36 16 principle of non-maleficence guides us to "do no harm" when our actions can affect others.
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40 17 To select (or not) an injured athlete reflects the conflict between beneficence and non-
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42 18 maleficence principles.¹⁰ Athletes make sacrifices for the team and for achieving the sporting
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44 19 objective, such as playing when in pain.¹¹ Some sportspeople are strongly influenced by
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46 20 comments from their teammates, medical staff and coach. Moreover, athletes often are very
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48 21 keen to play, and believe strongly that they are best placed to know whether or not they can -
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50 22 even if this goes against medical advice.¹² Injury depends on the context. In professional
51
52 23 sport, the level of pressure to compete is very high. This competitive aspect might be what
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54 24 makes a coach's decision ethically questionable. A coach's ability to make difficult ethical
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56 25 decisions is often tested when he/she is faced with considerable pressure in the workplace.¹³
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3 1 Furthermore, the decision-making process is likely to differ from one individual to another
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5 2 one as a function of personal and contextual variables.¹⁴ For example, Bredemeier and
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7 3 Shields¹⁵ emphasized the effect of direct involvement in sport on moral judgment.

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10 4 From a cognitive perspective, moral judgment can be considered as a judgment on the
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12 5 acceptability or legitimacy (with reference to ethics) of a particular decision.¹⁶ However, the
13
14 6 role of information integration in moral judgment has not been extensively studied¹⁷ – even
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16 7 though the integration of multiple determinants is known to have an impact.¹⁸ To address
17
18 8 these issues, we sought to apply information integration theory in the field of ethics² to
19
20 9 highlight the mental process of judgment, i.e., the manner in which the participants (amateur
21
22 10 and professional athletes, amateur and professional coaches, physiotherapists, and non-
23
24 11 athletes) integrate different information cues and then judge whether a coach's decision to
25
26 12 select (or not) an injured athlete is acceptable. Anderson's framework² assumes that all ethical
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28 13 perceptions, thoughts and actions are goal-oriented and depend on the integration of different
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30 14 items of information. This framework adds value because it focuses on the processes through
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32 15 which information cues of various types may be integrated into a judgment.

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37 16 Anderson's framework has been implemented in many aspects of moral psychology:²
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39 17 (i) parents' acceptance of their child's vaccination against malaria (a study in Togo),¹⁹ (ii)
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41 18 Colombian citizens' views on everyday corruption,²⁰ and (iii) people's views on the
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43 19 acceptability of surrogate pregnancy.²¹ The framework has also been applied to bioethical
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45 20 issues.²² In the context of sports, Anderson's framework has been used to map moral positions
46
47 21 regarding violence on the field^{23,24} and to map ethical positions regarding how non-athletes,
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49 22 amateur athletes and professional athletes combined different informational cues when
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51 23 judging the acceptability of nutritional supplements in sport.²⁵ In these studies, the link
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53 24 between the participants' respective roles in sport and the ethical positions was not clear, and
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55 25 merits an in-depth assessment. We reasoned that just as information cues influenced the
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3 1 judgment of the acceptability of nutritional supplement use, they might influence the
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5 2 judgment of whether it is acceptable to select (or not) an injured athlete. We considered four
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7 3 information cues that are frequently cited in the literature on competitive sport or ethical
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9 4 issues in sport.^{26,27} They are related to the ethical principles and values of the various
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11 5 stakeholders in the sports community (teammates, medical staff, coaches, and the athlete
12
13 6 him/herself) within a particular context (an important competition).
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17 7 The first information cue was the athlete's degree of indispensability, as judged by
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19 8 his/her teammates. Team sport players are influenced by their teammates. Indeed, teammates
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21 9 contribute to the enjoyment of sport through the recognition of accomplishments,
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23 10 companionship, and esteem. For instance, it is known that approval from teammates
24
25 11 influences global self-worth, the appropriate expression of emotions, and motivation to
26
27 12 perform pro-social behaviours.²⁸ The establishment of friendships appears to be a prime
28
29 13 reason for participation in sports.²⁹ Competition between teammates for a key position in the
30
31 14 team can prompt athletes to feel that they must compete at all costs. Ogien²⁶ has written of
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33 15 "submission in superior loyalties"; the athletes justify their decisions in terms of the
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35 16 responsibility they have in carrying out a mission that is valued socially by the coach and the
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37 17 team. Indeed, some athletes appear to be highly influenced by comments made by their
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39 18 teammates.
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44 19 The second information cue was the competition's importance. One of the prime
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46 20 distinguishing factors within sport is competition. Sporting competition has generally been
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48 21 portrayed as being inherently stressful. To be competitive, individuals have to focus on doing
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50 22 their best relative to others in the same domain of achievement. Coaches are essential for the
51
52 23 athlete's performance - especially in high-level sport.³⁰ As part of the coach-athlete
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54 24 relationship, coaches are responsible for producing successful sporting performances.³¹
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56 25 Coaches may have to make decisions about the importance of injuries, particularly during
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3 1 major competitions. Bramley, Kroft, Polk et al.'s³² study of a sample of hockey coaches found
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5 2 that even in substantially lower-stake sports, coaches would be more likely to allow an athlete
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7 3 who had sustained a concussion to continue playing if the game was considered to be
8
9 4 important (e.g. a European cup match).

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12 5 The third information cue was the sports medicine professional's opinion. The latter's
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14 6 decisions can directly affect sportspeople's lives.³³ Injuries are part of sport, and sports
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16 7 medicine professionals are often the first people to deal with the athlete immediately after an
17
18 8 injury. Athletes should expect sports medicine professionals to (i) provide them with a correct
19
20 9 diagnosis and appropriate treatment, and (ii) take the right decision in order to make sporting
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22 10 competitions as safe as possible for the athlete's health. The athlete assumes that the team's
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24 11 medical staff is knowledgeable about the injury and that it is the staff's job to suggest the right
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26 12 treatment. However, ethical conflict of interest among medical staff in the care of concussed
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28 13 athletes is an increasingly studied topic.²⁷ Sports medicine professionals may be pressured by
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30 14 coaches and athletes to allow injured athletes to return to competition before they are fit from
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32 15 a medical standpoint.³⁴

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37 16 The fourth information cue was the injured athlete's attitude. Athletes invest a great
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39 17 deal of time in the achievement of optimal performance, and their self-worth is often linked to
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41 18 this performance. Hence, athletes often perceive an injury as an emotionally traumatic event³⁵
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43 19 and may adopt perseverant attitudes when managing injuries (e.g. the idea of "playing through
44
45 20 the pain" as part of the "fighting spirit").³⁶

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49 21 The objectives of the present study were to map individuals' ethical positions
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51 22 regarding whether or not the selection of an injured athlete for a competition would judge to
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53 23 be acceptable. We wanted to discover how people cognitively combine information cues to
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55 24 form an overall ethical judgment.² Our primary hypothesis was that study participants would
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57 25 integrate the four information cues in different ways; an analysis of the integration process
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1 would reveal inter-individual differences in ethical positions.²³⁻²⁵ The second hypothesis was
2 based on Fruchart and Rulence-Pâques's findings²⁵; the participants' ethical positions would
3 vary according to their role in sport. This role corresponds to the individual's type of
4 participation in sport, i.e. as a function of the team's level of competition for the athlete or
5 coach or the type of involvement for sports physiotherapists and non-athletes. We reasoned
6 that the type of participation might affect an individual's moral judgment because
7 professional athletes/coaches, amateur athletes/coaches, physiotherapists and non-athletes are
8 likely to have different goals, values, and principles.³⁷ We hypothesized that non-athletes
9 would consider that selecting an injured athlete is never acceptable, and that physiotherapists
10 (i.e. medical professionals whose duty is to protect the athlete's health) would also consider
11 that selecting an injured athlete is never acceptable. Given that professional athletes are highly
12 involved in sport, we further hypothesized that they might be more likely than amateur
13 athletes and non-athletes to consider that selecting an injured athlete is acceptable. Lastly, we
14 hypothesized that because coaches are motivated by winning the match or competition, they
15 would sometimes consider that selecting an injured athlete is acceptable.

Method

Participants

18 We included 219 male adult participants, including 28 professional handball players
19 ($M_{\text{age}} = 24.64$; $SD = 8.04$), 91 amateur league handball players ($M_{\text{age}} = 23.83$; $SD = 9.00$), 45
20 non-athletes ($M_{\text{age}} = 33.82$; $SD = 8.85$), 17 amateur handball coaches ($M_{\text{age}} = 26.23$; $SD =$
21 8.85), 8 handball professional coaches, ($M_{\text{age}} = 39.38$; $SD = 9.70$), and 30 male
22 physiotherapists working with sports teams ($M_{\text{age}} = 25.02$; $SD = 8.57$). The 28 professional
23 handball players came from five national-level teams. They trained 10 times a week, and were
24 contacted by one of the investigators (himself a professional athlete). The 91 amateur
25 sportspersons were all male handball players from seven teams at different competitive levels.

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1 They trained at least twice a week. The 45 male non-athletes played handball from time to
2 time as a leisure activity, and so were nevertheless able to reply to the study questionnaire.
3 Lastly, we enrolled 8 male professional handball coaches (coaching at a national level) and 17
4 male amateur handball coaches (coaching at district and league levels). We contacted
5 potentially eligible participants at universities and sports centers, explained the study, and
6 invited them to participate. If a participant agreed, we arranged where and when to administer
7 the questionnaire. Similarly, the study's objectives and procedures were explained to 30
8 physiotherapists who agreed to participate and then filled out the study questionnaire. All the
9 study participants were unpaid volunteers living in France.

Material

11 In accordance with Anderson's methodology³⁸, the material consisted of two sets of 16
12 cards. Each card contained a scenario, a question, and a rating scale. In the first set, the coach
13 decided to select an injured athlete, and in the second set, the coach decided not to select an
14 injured athlete. The stories were composed according to a four within-subject factor design:
15 (a) the injured athlete's indispensability (indispensable or not), (b) the importance of the
16 competition (important or not), (c) the medicine professionals' opinion (selection or non-
17 selection), and (d) the athlete's opinion (willing to compete or not). There were 16 possible
18 combinations ($2 \times 2 \times 2 \times 2$) of these factors, i.e. 16 stories. The scenarios were built in order
19 to achieve ecological validity, i.e. each corresponded to a real sporting situation. A typical
20 scenario was as follows: "*Mougloute is a professional cross-country skier. He competes in*
21 *relay races with his teammates. Mougloute's teammates do not consider him to be*
22 *indispensable for the team. The day before an important race, Mougloute hurts his ankle*
23 *during a training session. After examining the ankle, the team's medical staff consider that*
24 *Mougloute will be able to compete the next day. Mougloute tells his coach that he does not*
25 *feel ready to compete. The coach selects Mougloute for the race". The question was "To what*

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3 1 *extent do you think that the coach's decision is acceptable?*". Beneath each scenario was an
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5 2 11-point response scale ranging from "*not at all acceptable*" on the left and "*completely*
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7 3 *acceptable*" on the right.

9
10 4 *Procedure*

11
12 5 The study procedure complied with French and European ethical standards,
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14 6 institutional rules, and the 1964 Declaration of Helsinki and its later amendments. The study
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16 7 was approved by the University of Perpignan's institutional review board (Perpignan, France)
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18 8 and the clubs' officials and managers. The participants were given information about the
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20 9 study's objectives and procedure, and gave their written consent. Participants were instructed
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22 10 to read the scenarios (presented one at a time in random order) and to mark their responses on
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24 11 the response scale immediately after reading the scenario. The participants filled out the study
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26 12 questionnaire alone. This part of the study comprised a familiarization phase and an
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28 13 experimental phase. In the familiarization phase, the experimenter explained what was
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30 14 expected of each participant. In particular, the experimenter told the participant that he was
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32 15 going to read a certain number of stories in which a coach decides whether to select an injured
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34 16 athlete or not, and that he would then indicate the extent to which the coach's decision was
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36 17 justified. The participant was instructed to identify with the athlete in each scenario and to
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38 18 express an opinion about the acceptability of the coach's decision. In the familiarization
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40 19 phase, each participant was presented with 4 of the 16 scenarios, so as to familiarize himself
41
42 20 with the task, the procedure, and the test materials.³⁸ The four scenarios were chosen so that
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44 21 the participants were exposed to the full range of stimuli. Participants were given an
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46 22 opportunity to review their ratings and to modify them if they wished. Subsequently,
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48 23 participants provided their finalized ratings. During the following experimental phase, all 16
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50 24 scenarios were administered. Participants provided the ratings at their own pace but – in
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52 25 contrast to the familiarization phase - were not allowed to review or modify their responses.
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1 All evaluations (including those of the non-athletes who played for leisure) took place in
2 sports clubs. The participants worked individually in a quiet room, and took about 30 minutes
3 to complete the questionnaire. In each category of participant, half of the participants were
4 presented first with scenarios in which the coach decides to select the injured athlete and then
5 scenarios in which the coach decides not to select the injured athlete. The other half of the
6 participants were presented with the same sets of scenarios but in the opposite order.

7 *Data analysis*

8 For each rating, the point checked by the participant on the response scale was
9 converted into a numerical value from 0 to 10, where 0 was the left anchor. These numerical
10 values were then fed into graphical and statistical analyses, using the same approach as in
11 other studies of ethical positions in sport.²⁴⁻²⁵ Given that we expected to see marked inter-
12 participant differences in the responses, we performed a cluster analysis on the whole set of
13 raw data. To improve stability in the cluster solution; we performed a hierarchical cluster
14 analysis and then a non-hierarchical cluster analysis (K-means) in a two-step process.³⁹ After
15 the clusters had been defined, a separate repeated-measure analysis of variance (ANOVA)
16 was conducted on the data from each cluster, with the information cues as the independent
17 variables, and the judgment of acceptability as the dependent variable. Chi-squared tests were
18 used to determine whether a cluster was associated with a particular participant role.

19 **Results**

20 The hierarchical cluster analysis produced a four-cluster solution ($K = 4$). In order to
21 compare each cluster with the others, we performed an ANOVA with all four clusters
22 simultaneously and then applied a post-hoc test. The four clusters differed significantly from
23 each other with regard to all the factors: teammates, $F(3,215) = 7.63$, $p < .001$, $\eta^2_p = .10$; the
24 importance of the competition, $F(3,215) = 13.41$, $p < .001$, $\eta^2_p = .16$; the medical staff's
25 opinion, $F(3,215) = 23.85$, $p < .001$, $\eta^2_p = .25$; the athlete's opinion, $F(3,215) = 11.06$, $p =$

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3 1 .013, $\eta^2_p = .05$; and the coach's decision, $F(3,215) = 160.28$, $p < .001$, $\eta^2_p = .69$. These
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5 2 findings confirmed the tenability of the four-cluster solution.

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7 3 Tukey's test revealed a significant difference between cluster 3 ($M = 5.12$; $SD = 0.11$)
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9 4 and cluster 1 ($M = 5.61$; $SD = 0.05$), cluster 2 ($M = 5.63$; $SD = 0.07$), and cluster 4 ($M = 5.83$;
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11 5 $SD = 0.20$). There were no significant differences between clusters 1, 2 and 4. The overall
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13 6 estimated mean based on 16 scenarios for each cluster is shown in **the top section** in Table 1.

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17 7 Table 1 shows the means for each factor for each cluster too. The ethical acceptability
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19 8 of deciding *not* to select an injured athlete was similar in all four clusters (cluster 1: $M = 8.05$;
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21 9 $SD = 0.07$; cluster 2: $M = 6.55$; $SD = 0.10$; cluster 3: $M = 5.83$; $SD = 0.14$; cluster 4: $M = 5.92$;
22
23 10 $SD = 0.25$). In contrast, the four clusters differed with regard to the degree of acceptability of
24
25 11 selecting an injured athlete. Tukey's test revealed a significant difference between cluster 1
26
27 12 ($M = 3.16$; $SD = 0.09$) and the three other clusters (cluster 2 ($M = 4.71$; $SD = 0.10$), cluster 3
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29 13 ($M = 4.39$; $SD = 0.11$), and cluster 4 ($M = 5.74$; $SD = 0.20$)), and a significant difference
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31 14 between cluster 4 and the three other clusters. The difference between cluster 2 and cluster 3
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33 15 was not significant.

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37 16 Figure 1 shows the four clusters for when the coach decided to select an injury athlete.
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39 17 The mean ratings are given on the y-axis, and two levels of the medical staff's opinion are
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41 18 given on the x-axis. Each line corresponds to a level of the athlete's opinion, and each panel
42
43 19 corresponds to a level of the teammates' opinion.

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47 20 The first cluster ($N = 90$) could be described as "Selection is almost never acceptable"
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49 21 (top panels in Figure 1), since the mean response was always close to the lower hand of the
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51 22 scale ($M = 3.16$, $SD = 0.09$). The members of this cluster based their judgment principally on
52
53 23 the medical staff's opinion and the athlete's opinion. Each line clearly rises from left to right,
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55 24 showing that the medical staff's opinion influenced the participants' judgments. The lines are
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57 25 separate, showing that the athlete's opinion also influenced the participants' judgments. An
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3 1 ANOVA of the data from cluster 1 highlighted the large effect sizes of the medical staff's
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5 2 opinion and the athlete's opinion (Table 2).

6
7 3 The second cluster ($N = 60$) was termed "Selection is sometimes acceptable,
8
9 4 depending on the medical staff's opinion" (upper middle panels in Figure 1). Overall, the
10 5 judgments were close to the middle of the response scale ($M = 4.71$; $SD = 0.10$). The
11 6 participants in this cluster based their judgment of acceptability principally on the medical
12 7 staff's opinion. The lines rise from left to right, indicating a strong effect of the medical
13 8 staff's opinion; the more favorable the medical staff's opinion, the more the selection of the
14 9 injured athlete is judged to be acceptable. The lines are the same in the left and right graphs,
15 10 indicating that the teammates' opinion had no effect. An ANOVA of the data from cluster 2
16 11 emphasized the large effect size of the medical staff's opinion (Table 2).

17 12 The third cluster ($N = 49$) was termed "Selection is sometimes acceptable, depending
18 13 on the athlete's and medical staff's opinions" (lower middle panels in Figure 1). Overall, the
19 14 judgment was close to the middle of the response scale ($M = 4.39$; $SD = 0.11$), and the
20 15 members of this cluster considered principally the athlete's opinion and the medical staff's
21 16 opinion when judging the acceptability of selecting an injured athlete. The fact that the lines
22 17 are far apart indicates a strong effect of the athlete's opinion; the more he/she wants to
23 18 compete, the more the selection is judged to be acceptable. Each line rises from left to right,
24 19 showing that the medical staff's opinion influenced the judgments of acceptability. The lines
25 20 are the same in the left and right graphs, indicating that the teammates' opinion had no effect.
26 21 Hence, when the athlete was willing to play and the medical staff agreed, the participants
27 22 considered that it was acceptable to select him. An ANOVA of the data from cluster 3 showed
28 23 the large effect sizes of the athlete's opinion and the medical staff's opinion (Table 2).

29 24 The fourth cluster ($N = 20$) was termed "Selection is often acceptable, depending on
30 25 the athlete's opinion" (bottom panels in Figure 1). Overall, the mean response ($M = 5.74$; SD

1 = 0.19) was above the middle of the 0-10 scale. The two lines are almost the same in the left
2 and right graphs, indicating that the teammates' opinion had no effect. Furthermore, the lines
3 do not rise from left to right, indicating that the medical staff's opinion had no effect. The
4 lines are separate, indicating an effect of the athlete's opinion. The individuals in this cluster
5 considered that the coach's decision is often acceptable if the athlete agrees. An ANOVA of
6 the data from cluster 4 showed a significant effect of the athlete's opinion (Table 2).

7 Table 3 shows each cluster's composition with regard to the participants' status. The
8 result of the 6 (Type of participant) \times 4 (Cluster) Pearson's chi-squared test was significant, χ^2
9 (15) = 39.89, $p < .001$.

10 Marascuilo's post-hoc multiple comparisons procedure was used to test the
11 significance of differences between pairs of groups within the cluster and to determine where
12 there were significant differences in the clusters' respective compositions (see Table 4). In
13 comparison Cluster 1 vs Cluster 4, 54% of the professional athletes and 35% of amateur
14 coaches were in cluster 1, and 32% of professional athletes and 0% of amateur coach were in
15 cluster 4. In comparison Cluster 2 vs Cluster 4, Cluster 2 contained 41% of the amateur
16 coaches, 32% of the amateur athletes, and 11% of the professional athletes; Cluster 4
17 contained 0% of the amateur coaches, 3% of the amateur athletes, and 32% of the professional
18 athletes. In comparison Cluster 3 vs Cluster 4, Cluster 3 contained 34% of the non-athletes,
19 24% of the amateur athletes, 24% of the amateur coaches, 20% of the physiotherapists, and
20 3% of the professional athletes; Cluster 4 contained 11% of the non-athletes, 3% of amateur
21 athletes, 0% of the amateur coaches, 7% of the physiotherapists, and 32% of professional
22 athletes.

23 Discussion

24 The objective of the present study was to map ethical positions according to whether
25 or not the selection of an injured athlete just before a competition was judged to be

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3 1 acceptable.

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5 2 Our first hypothesis was that the participants would differ in how they integrated
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7 3 several factors (the indispensability of an injured athlete, the importance of the competition,
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9 4 the medicine staff's opinion, and the athlete's opinion) when judging the acceptability of a
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11 5 decision to select (or not) an injured athlete. We expected an analysis of the integration
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13 6 process to highlight different individual ethical positions.²³⁻²⁵ This hypothesis was confirmed,
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15 7 since our overall analysis of the raw data on selecting (or not) an injured athlete identified two
16
17 8 different moral positions (the first corresponding to cluster 3, and the second corresponding to
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19 9 clusters 1, 2 and 4). The members of cluster 3 were more likely than members of clusters 1, 2
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21 10 and 4 to consider that the coach's decision to select an injured athlete was acceptable. Our
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23 11 second hypothesis was the ethical position would depend on the participant's role in sport.
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25 12 This hypothesis was confirmed because the four clusters differed in their composition. Our
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27 13 findings confirm that moral positions differ with regard to violence and doping in sport.²³⁻²⁵
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29 14 Many factors are involved, and they are likely to contribute in a complex way to the final
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31 15 ethical judgment. Our results indicate that moral judgment depends on the person's level of
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33 16 involvement in sport.¹⁵ Views on various ethical issues can be characterized by the manner in
34
35 17 which individuals with different roles in sport integrate various items of information when
36
37 18 judging the acceptability of an act.

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39 19 This first analysis showed that the participants in the four clusters differed very little in
40
41 20 their ethical view of when a coach decides not to select an injured athlete; all the participants
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43 21 judged that this decision is always acceptable, underlining the "wisdom" of the coach's
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45 22 decision. All the participants endorsed a secure ethical position by considering that the
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47 23 athlete's health is primordial and that not selecting an injured athlete is always acceptable.
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49 24 This reflects efforts to promote a patient/athlete-centered approach in all aspects of sports
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51 25 medicine and athletic training. The non-selection of an injured athletes is unanimously
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3 1 approved in the sports area. This is a classical approach to morality, referred to as
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5 2 deontology.⁴⁰ People comply with principles, codes, and policies committed as a single group.
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8 3 However, the members of the four clusters differed in their judgment of the acceptability of
9
10 4 selecting an injured athlete; three different ethical positions were identified in this respect,
11
12 5 corresponding to (i) cluster 1, (ii) clusters 2 and 3, and (iii) cluster 4.
13

14 6 **Ethical position 1 (cluster 1)**

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17 7 In the first ethical position, the selection of an injured athlete was judged to be almost
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19 8 never acceptable. Selecting an injured athlete was only acceptable when the medical staff's
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21 9 opinion was favorable and the athlete wanted to play. The participants in cluster 1 considered
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23 10 that the medical staff's opinion was essential; the members of this cluster placed great trust in
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25 11 the medical staff.⁷ However, the participants also considered the athlete's opinion, which
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27 12 highlights their appreciation of the complexity of the coach's decision and the athlete's efforts
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29 13 to stay in the team. This finding confirms that the coaches must take account of an injured
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31 14 athlete's needs.^{41,42} The members of cluster 1 judged that the coach's decision may be
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33 15 acceptable when these two conditions (a favorable opinion from the medical staff, and the
34
35 16 athlete's willingness) are met. In all other conditions, selecting an injured athlete was not
36
37 17 acceptable. The ethical position adopted by the members of cluster 1 is in line with a shared
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39 18 decision-making approach,⁵ where the athlete and medical staff are at the heart of ethical
40
41 19 decision-making; they share information and decide together. The athlete may give the
42
43 20 medical staff information about his/her concerns, sporting objectives, feelings, and
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45 21 discomfort. In exchange, the medical staff may explain the risk and benefits of continued
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47 22 participation, and the available treatment options.⁴³
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53 23 The professional athletes (54% of whom were in cluster 1) adopted this ethical
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55 24 position, and considered that the selection of an injured athlete is almost never acceptable. In
56
57 25 various professional domains, professionals used a variety of tools to perform their work: for
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3 1 example, a psychology researcher uses a computer, a radiologist uses an X-ray machine, etc.
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5 2 Professional athletes may consider that their body is their work tool – a tool that they must
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7 3 take care of. Consequently, they often considered that it is not acceptable to play when
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9 4 injured. Suffering an injury and being treated may be stressful – especially so for elite
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11 5 athletes, who have more to lose. By developing an ethical position in line with a shared
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13 6 decision-making approach, the professional athlete can seek to work with the medical staff
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15 7 and make a mutually valid decision.⁴⁴ In high-level sport, the legal responsibility for deciding
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17 8 to allow an injured athlete to play almost always lies with a sports medicine specialist. The
18
19 9 latter will advise the coach on the rate at which an injured athlete can be progressively
20
21 10 exposed to increasing levels of physical activity.⁴⁵
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11 Ethical position 2 (clusters 2 and 3)

12 In the second ethical position, selecting an injured athlete was sometimes acceptable.
13 Clusters 2 and 3 made up this position but differed somewhat. In cluster 2, selecting an
14 injured athlete was sometimes acceptable but depended on the medical staff's opinion; the
15 more favorable this opinion, the more the selection was judged to be acceptable. These
16 participants considered that healthcare professionals were essential. Healthcare professionals
17 work with athletes to promote optimal health for participation in sport. The medical staff have
18 a key role in serving the athlete because the latter's health may be compromised for the good
19 of the team and/or the pursuit of glory and fame through winning.⁴⁶ The members of cluster 2
20 developed an ethical position in line with a paternalistic decision-making approach,⁵
21 considering the medical staff is the main stakeholder considered when judging the
22 acceptability of selecting an injured athlete. A favorable medical opinion is essential for
23 ethical decision-making. The medical staff is best placed to assess the risks associated with
24 selecting an injured player, and so should make the decision.⁴³

25 Cluster 2 contained 41% of the amateur coaches and 32% of the amateur athletes;

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3 1 these individuals developed the ethical position 2 and thus primarily considered the medical
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5 2 staff's opinion - a factor centered on the athlete's health. Amateur athletes appear to be more
6
7 3 sensitive to the athlete's health, and are not to be totally immersed in the performance issue⁴⁷
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10 4 Alternatively, one can hypothesize that amateur athletes are less knowledgeable about sports
11
12 5 injuries and their consequences than professional athletes are.⁴⁸ This might explain why
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14 6 amateur athletes consider that the medical staff's opinion is most important. Even though
15
16 7 amateur coaches receive a substantial amount of formal education on human physiology, their
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18 8 judgments show that they considered the sports physician to be unambiguously responsible
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20 9 for the coach's decision.⁴⁹
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24 10 In cluster 3, selecting an injured athlete was sometimes acceptable but depended on
25
26 11 the opinions of the athlete and the medical staff; the more strongly an athlete wanted to
27
28 12 compete, the more the selection was judged to be acceptable. Likewise, the more the medical
29
30 13 staff's opinion was favorable, the more the selection was judged to be acceptable. The
31
32 14 members of cluster 3 adopted an ethical position close to a shared decision-making approach.⁵
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34 15 The athlete's and the medical staff's opinions were essential for ethical decision-making.
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36 16 Hence, the medical staff and the athlete should discuss the most appropriate decision for a
37
38 17 given situation.⁴⁴
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42 18 The participants in cluster 3 (containing 33% of the non-athletes, 24% of the amateur
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44 19 athletes, 24% of the amateur coaches and 20% of the physiotherapists) considered that the
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46 20 selection of an injured athlete depended on the athlete's and the medical staff's opinions –
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48 21 emphasizing the importance of collaboration between these two stakeholders on ethical
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50 22 issues. Sports medicine staff should communicate and respond to whatever an athlete's injury
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52 23 concerns, and can tell the athlete about the importance of managing an injury. The athlete
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54 24 might maintain a positive attitude toward the treatment program, as he/she is willing to learn
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56 25 and to do whatever is needed to recover as fully as possible.⁵⁰ The ethical decision-making
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3 1 process would thus be improved.
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5 2 According to this second ethical position (in clusters 2 and 3), the selection was
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7 3 judged to be more acceptable when the team needed the athlete. Team sports involve social
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9 4 support from other athletes. When injuries occur, athletes are afraid of being separated from
10
11 5 the team group. For example, Gould, Udry and Bridges⁵¹ found that athletes prevented from
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13 6 participating in their activity are more stressed because they lose contact with their team,
14
15 7 coach, and friends. Injured athletes report feeling isolated and lonely,⁴⁷ and are dissatisfied
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17 8 with the social support they received when injured. Udry, Gould and Bridges⁵² stated that
18
19 9 teammates have a greater effect than coaches or medical professionals on an injured athlete's
20
21 10 emotional state. Athletes who come back quickly after injury are more respected and more
22
23 11 admired than those who do not.³
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28 12 As mentioned above, this second ethical position encompasses clusters 2 and 3. This
29
30 13 might be considered to be surprising from an ethical standpoint. The members of clusters 2
31
32 14 and the members of cluster 3 did not have the same approach to ethical decision-making, and
33
34 15 respectively adopted positions in line with paternalistic decision-making and shared decision-
35
36 16 making. Research on medical ethics has highlighted a move towards shared decision-
37
38 17 making at the expense of paternalistic decision-making.⁵³ The second ethical position described
39
40 18 here shows that the shift from a shared decision-making model to a paternalistic model is not
41
42 19 so clear; the two models can be grouped together within the same ethical approach – showing
43
44 20 that a transition from the paternalistic model to the shared decision-making is now underway.
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49 **Ethical position 3 (cluster 4)**

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51 22 In the third ethical position, the coach's decision to select an injured athlete was
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53 23 generally acceptable if the athlete agreed. Injuries are commonplace for athletes engaging in
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55 24 competitive sport. Each competition must be won, and so the athletes follow their coach, who
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57 25 has a leadership role. The third ethical position was adopted by the participants in cluster 4.
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3 1 They estimated that the athlete alone must decide whether or not he/she can perform when
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5 2 injured; in ethical terms, this is aligned with an autonomous decision-making approach.⁵ The
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7 3 decision-making is unilateral, and the athlete makes an independent choice.⁴⁴
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10 4 Cluster 4 (containing 32% of the professional athletes) often agreed with the coach's
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12 5 decision and often considered that selecting an injured athlete is acceptable as long as he/she
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14 6 agrees. Participating in competitions is the athletes' job, although an ethical dilemma arises
15
16 7 whenever an individual athlete's best medical interests conflicts with the performance
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18 8 expectations of authority figures (e.g., coaches).⁴⁵ Although there are various types of
19
20 9 personal relationship in sport (athlete-athlete, athlete-team manager, athlete-team physician,
21
22 10 etc.), the coach-athlete relationship is unique and is crucial for athlete development.⁵⁴ In the
23
24 11 context of injury, in keeping with the principle of autonomy¹¹, the healthcare professional
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26 12 limits him/herself to explain diagnostic and treatment options and must approve the athlete's
27
28 13 decision.⁵⁵ The question is to what extent an athlete agrees to compete or to try to compete
29
30 14 after sustaining an acute or overuse injury. Athletes may adopt a flippant attitude towards pain
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32 15 and/or may hide their pain from significant others, such as teammates and coaches.¹²
33
34 16 "Playing" is important in maintaining an athlete's identity and sense of professional pride and
35
36 17 in avoiding the "injured role", which is negatively perceived within the sports environment.⁵⁶
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38 18 Pain and frequent medical treatment are perceived to be normal in professional sport.¹²
39
40 19 Athletes should be fully aware of the short- and long-term risks of playing when injured. That
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42 20 **raises** the dichotomy between the beneficence and non-maleficence and the conflicts between
43
44 21 these two principles can lead athletes to risk situations.¹⁰ They should be aware that injuries
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46 22 may shorten their athletic career or may affect them after the end of their athletic career.⁵⁷
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23 *Practical Applications*

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56 24 A person's role in sport might explain the observed differences in ethical positions.
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58 25 Non-athletes or amateur participants may not have the same ethical position as high-level
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1 athletes because competitive performance is not important for the former group.¹³ It is known
2 that individuals with different roles (amateur athletes, professional athletes, coaches,
3 physiologists, etc.) may have different objectives and principles.³⁷ Amateur athletes want to
4 have fun playing a sport rather than playing to win a championship all season. They are less
5 intensely engaged with the sport; their objectives are characterized by short-term goals,
6 enjoyment, and health-related outcomes. Côté and Gilbert¹³ suggested that performance
7 coaching entails a more intensive commitment to a preparation program for competition. To
8 this end, the coaching program is highly specific.

9 It is undeniable that a coach's decision concerning an athlete's health can be judged in
10 different ways. It is a complex decision. The injured athletes' participation in competition and
11 the circumstances in which coaches make these decisions require a more nuanced
12 appreciation.⁵⁸ What coaches consider may be affected by their experience. The decision-
13 making process employed by coaches can be due to novice-expert differences **and differences**
14 **in amateur-professional context.**⁵⁹ **Professional coaches may have easy access to sport-**
15 **specific medical advice, while amateur coaches may not.** Consequently, the most relevant
16 sources of information **may be lacking** and the priority may be to minimize lost training
17 time.⁶⁰ **Compared to novice coaches, expert coaches** may have stored decision-making
18 procedures from personal experience.⁶¹ In addition to learning from experience, what coaches
19 consider is also affected by their education qualifications in injury care and management.
20 Least experienced coaches may consider less informational parameters than experienced
21 coaches whose decision-making may be regulated via a range of additional considerations.⁵⁸

22 Nevertheless, coaches have a major role in athletes' ethical development.⁹ As noted by
23 Robbins and Rosenfeld⁴¹, sports coaches are often needed to provide basic support to injured
24 athletes in variety of situations and circumstances. Coaches are responsible for preventing or
25 minimize injuries to their athletes. The relationship is more than determinant of the athlete's

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3 1 motivation, skills, and energy.⁶² Mohamadinejad and Mirsafian⁶³ classified a coach's duties
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5 2 into seven major categories, which cover different types and various levels of recreational and
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7 3 competitive sporting activities. If coaches want athletes to participate safely, they should be
8
9 4 aware of their responsibilities because an accident that injures an athlete may trigger civil
10
11 5 action against the coach.⁶⁴ Enabling athletes to compete when injured may violate ethical
12
13 6 principles. Coaches must also be aware of and understand their legal responsibilities. It is also
14
15 7 essential for coaches to have the skills and knowledge needed to meet their obligations.
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17 8 However, as long as athletes are informed of the risks and potential consequences of
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19 9 competing when injured and wish to compete without being pressured to do so, no ethical
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21 10 issues are raised.
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26 11 We suggest that the coaches could be confronted with this type of ethical decision in
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28 12 their education and training. Our questionnaire or other sports simulations could be used to
29
30 13 stimulate debate between coaches and prompt them to think about ethical dilemmas. We
31
32 14 recommend having clear rules for each roles (athletes, medical staff, and teammates) when an
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34 15 athlete is injured because it is difficult to both protect the athlete's health and to seek to win
35
36 16 the competition.
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40 17 Before making a decision, the coach should communicate with medical staff and the
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42 18 injured athletes. It would be useful to establish a consensus between people who are directly
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44 19 involved in the case. This approach helps to compare potentially conflicting positions and to
45
46 20 brainstorm possible alternatives. At this level, we suggest that all the involved individuals
47
48 21 should think about the potential consequences (on the athlete's health, on the teammates'
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50 22 trust, on the team's performance, etc.) of selecting or not selecting an injured athlete.
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52 23 Therefore, effective respectful collaboration between stakeholders is required when faced
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54 24 with an ethical dilemma.⁷
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58 25 *Limitations and perspectives*
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1 The present study had some weaknesses, which should be considered in future
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1 The present study had some weaknesses, which should be considered in future
2 research on sports ethics and health. Firstly, we did not take account of certain social factors
3 (families, agents, managers, fans, the media, etc.) that could be incorporated the acceptability
4 of a coach's decision.³ Other informational cues could have been considered, such as the
5 uncertainty of the results, the impact on the sponsors, and so on. In our scientific approach,
6 however, only a small number of factors might impact the judgment. Including too many
7 factors in a questionnaire might lead to cognitive overload for the participants.³⁸

8 Secondly, we did not take account of the nature and severity of the injury.⁸ The
9 acceptability of the coach's decision might differ as a function of these factors. Concussion or
10 a slight ankle sprain will be associated with different risks for the athlete's health if he/she
11 continues to compete.³⁴

12 A third (methodological) limitation relates to the fact that the ANOVA in each cluster
13 had the same threshold for statistical significance, even though the sample size in each cluster
14 differed. In fact, a different threshold should have been used in each cluster. However, we
15 applied the statistical approach typically used in studies of Anderson's framework.¹⁹⁻²²

16 Fourthly, our study scenarios focused on a rapid return to play; the athlete injured
17 him/herself on the day before the competition. However, the pain may last for longer. The
18 acceptability of a coach's decision may depend on the time since the injury and the time since
19 treatment was initiated (days, weeks, or months).⁶⁵

20 Fifthly, further ethical issues concerning the athlete's health could have been studied.
21 For instance, we consider that confidentiality may be an important ethical issue.⁶⁶ Athletes
22 rely on the medical staff's professionalism, and information about their health ought to remain
23 confidential. However, sports medicine professionals may be agents or employees of a club,
24 and may handle the information cues differently. Is violation of a professional duty of
25 confidentiality acceptable?

Conclusion

The objective of the present study was to map individuals' ethical positions according to the acceptability of selecting or not an injured athlete. On one hand, the non-selection of an injured athlete was unanimously approved. On the other hand, the selection of an injured athlete led to three different ethical positions which differed in terms of the type of role in sport. This study emphasizes that coaches play an important role in athletes' life for their improvement. They need to be aware of the risks and consequences of their decision. For that, they must take care of the athlete's health which needs collaboration with medical staff. This study suggests to improve coach-medical staff-athlete communication.

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1 Table 1

2 *Means and SDs for each factor in the four clusters*

Factor	Cluster 1		Cluster 2		Cluster 3		Cluster 4	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
	5.12	0.11	5.61	0.05	5.63	0.07	5.83	0.20
TEAMMATE								
Not indispensable	5.75	0.67	5.55	0.84	5.10	0.11	5.84	0.20
Indispensable	5.45	0.54	5.70	0.78	5.11	0.11	5.81	0.20
IMPORTANCE OF COMPETITION								
Low	5.59	0.66	5.56	0.86	5.23	0.10	6.22	0.21
High	5.62	0.53	5.69	0.69	4.99	0.12	5.43	0.24
MEDICAL STAFF								
Not in favor of selection	5.21	0.05	5.51	0.07	5.04	0.11	6.19	0.22
In favor of selection	5.99	0.08	5.75	0.09	5.18	0.11	5.47	0.24
ATHLETE								
Wants to compete	5.46	0.05	5.52	0.08	4.82	0.11	5.49	0.21
Does not want to compete	5.75	0.07	5.74	0.07	5.39	0.12	6.17	0.20
COACH								
In favor of selection	3.16	0.09	4.71	0.10	4.39	0.11	5.74	0.19
Not in favor of selection	8.05	0.07	6.55	0.10	5.83	0.14	5.92	0.25

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1 Table 3

2 *Results of the Pearson's Chi-square test between the roles of participants and the four*
 3 *clusters.*

Participants	Clusters				Total
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	
Non-athletes	14 (31%)	11 (24%)	15(34%)	5 (11%)	45
Amateur athletes	37 (41%)	29 (32%)	22 (24%)	3 (3%)	91
Amateur coaches	6 (35%)	7 (41%)	4 (24%)	0 (0%)	17
Professional athletes	15 (54%)	3 (11%)	1 (3%)	9 (32%)	28
Professional coaches	2 (25%)	4 (50%)	1 (12.5%)	1 (12.5%)	8
Physiotherapists	16 (53%)	6 (20%)	6 (20%)	2 (7%)	30
Total	90 (41%)	60 (27 %)	49 (23%)	20 (9%)	219

4
 5 *Legend: The 6 (Type of participants) x 4 (Clusters) Pearson's chi-square test was significant,*
 6 $\chi^2 (15) = 39.89, p < .001$. Table 3 shows the cluster composition, in terms of the participants'
 7 role.

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1 Table 4

2 Marascuilo's post hoc multiple proportion comparisons for the participants, between the four
3 clusters.

4	5	6	7	8
	Comparison	χ^2	p	
7	Cluster 1 vs Cluster 2	8.98	.11	
8	Cluster 1 vs Cluster 3	10.17	.07	
9	Cluster 1 vs Cluster 4	12.34	.03*	
10	Professional athletes vs amateur coaches	14.40	.01*	
11	Cluster 2 vs Cluster 3	4.12	.53	
12	Cluster 2 vs Cluster 4	22.90	<.001*	
13	Professional athletes vs amateur athletes	23.56	<.001*	
14	Professional athletes vs amateur coaches	36.00	<.001*	
15	Cluster 3 vs Cluster 4	23.86	<.001*	
16	Professional athletes vs amateur athletes	46.00	<.001*	
17	Professional athletes vs non-athletes	22.99	<.001*	
18	Professional athletes vs amateur coaches	90.00	<.001*	
19	Professional athletes vs physiotherapists	13.05	.02*	

21 *Legend:* We applied Marascuilo's *post hoc* procedure for multiple comparisons. This tested
22 the significance ($p < .05$) of pairwise differences within the cluster of groups. When the
23 comparison between two clusters was significant, the significant pairwise differences are
24 shown in Table 4.

25 * indicates significant differences in the clusters.

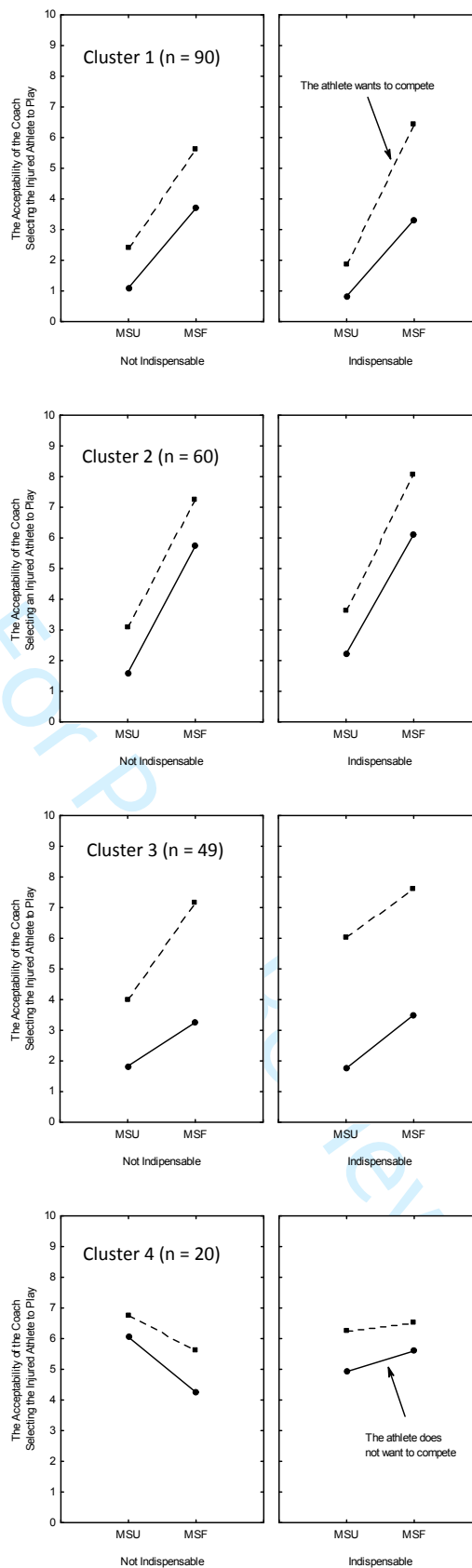


Figure 1. The combined effects of the teammates' opinion, the medical staff's opinion, the athlete's opinion and the coach's opinions on the acceptability of selecting an injured athlete, by cluster.

Note. The Figure shows the four clusters related to judgements of acceptability of selecting an injury athlete. The mean acceptability ratings are given on the y-axis. The two levels of the medical staff's advice are given on the x-axis. MSU means "medical staff is unfavorable", and MSF means "medical staff is favorable". Each line corresponds to one level of the athlete's opinion: the dotted line corresponds to agreement to compete, and the solid lines corresponds to refusal to compete. Each panel corresponds to one level of the teammates' opinion: in the left panels, the athlete is not indispensable for the team; in the right panels, the athlete is indispensable for the team.