

# Return to play following injury: whose decision should it be?

Ian Shrier,<sup>1</sup> Parissa Safai,<sup>2</sup> Lyn Charland<sup>3</sup>

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/bjsports-2013-092492>).

<sup>1</sup>Centre for Clinical Epidemiology, Lady Davis Institute for Medical Research, Jewish General Hospital, McGill University, Montreal, Quebec, Canada

<sup>2</sup>School of Kinesiology and Health Science, York University, Toronto, Ontario, Canada

<sup>3</sup>Montreal, Quebec, Canada

## Correspondence to

Dr Ian Shrier, Centre for Clinical Epidemiology, Lady Davis Institute for Medical Research, Jewish General Hospital, 3755 Cote Ste-Catherine Road Montreal, Quebec, Canada H2T 2Y6; [ian.shrier@mcgill.ca](mailto:ian.shrier@mcgill.ca)

Accepted 13 August 2013  
Published Online First  
5 September 2013

## ABSTRACT

**Background** Return-to-play (RTP) decision-making is required for every injured athlete. However, these decisions often lead to conflict between sport medicine professionals, athletes, coaches and sport associations. This study explores differences in professionals' opinion about which criteria should be used for RTP decisions, and who is best able to evaluate them.

**Methods** We surveyed Canadian sport medicine physicians, physiotherapists, athletic therapists, chiropractors, massage therapists, athletes, coaches and representatives from three sport associations. The 10 min online survey asked respondents to rate criteria as mandatory to irrelevant on a five-point Likert scale, and to indicate which profession was best able to evaluate the criteria.

**Results** In general, medical doctors, physiotherapists and athletic therapists were considered best able to assess factors related to risk of injury and complications from injury. Each clinician group (except sport massage therapists) generally believed their own profession has the best capacity to evaluate the criteria. Athletes, coaches and sport associations were considered to have the best capacity to assess factors related to competition (desire, psychological and financial impact and loss of competitive standing). There remained considerable heterogeneity both between and within stakeholder groups.

**Conclusions** We found that differences in approach to RTP decisions were generally greater within versus between-stakeholder groups. If shared decision-making is to become the norm in clinical sport medicine, we need to begin a discussion on which discrepancies are due to lack of training (resolved through education) or scientific knowledge (resolved through research) or simply reflect the divergence of personal/societal values.

## INTRODUCTION

Return-to-play (RTP) decisions in sport medicine are often made within a team environment that may include one or several clinicians (eg, physicians, physiotherapists, athletic therapists, chiropractors, massage therapists) and the athlete<sup>1</sup>; in elite sports, the team might also include the coach and sport scientist. In addition, sport organisations may include risk assessment processes when determining whether particular sport rules should be changed to reduce risk,<sup>2</sup> and can be involved in particular RTP discussions at high-profile events. The objective of the team approach is to determine a reasonable course of action, with particular attention to the risks and benefits that flow from any decision. Although unanimity is possible, differences of opinion will likely occur for a variety of reasons. For example, physicians, physiotherapists

and athletic therapists assign varying importance to different symptoms and physical findings in children,<sup>3</sup> and different restrictions gives the same clinical context.<sup>4</sup> In addition, there may be substantial variation among individuals within the same clinical profession.<sup>3–5</sup>

The heterogeneity of opinions among clinicians represents only the first step towards understanding RTP decisions. Negotiation for return to play in the real-world context occurs *between* the sport medicine clinician *and* the athlete, and also involves the (implicit or explicit) presence and influence of others (eg, the coach).<sup>1–6</sup> Together, these 'stakeholders' weigh the benefits and risks of returning an athlete to play, which include not only injury risk (determined by tissue health and sport specific factors such as contact/no contact), but also the ability to perform, importance of competition, financial considerations and legal liability.<sup>7–8</sup> Which of these components are considered most important is likely dependent on the context and personal values. Regardless of the reasons for differences in RTP decisions, conflicts between athletes and others can lead to loss of trust, litigation and overall detriment to the health of the athlete.<sup>9–10</sup>

As part of a larger project designed to create a dialogue between all stakeholders in the RTP decision process, we surveyed members from 10 stakeholder groups in Canada to determine general views on the importance of different criteria when making an RTP decision, and which occupations have the best capacity to evaluate these criteria. This included five clinician groups, and organisations representing athletes, coaches and sport associations.

## METHODS

The project was approved by the Human Participants Review Sub-Committee of York University. Based on our clinical experience and a review of the literature, we developed a brief survey to explore what we considered major issues regarding who is, and should be responsible for RTP decision-making in sports. Modifications were made based on feedback from the stakeholder groups. Finally, we distributed an online pilot version of the survey to select representatives from each stakeholder group for feedback on the format, and modifications were again implemented to ensure that the survey required approximately 10 min to complete, but still provided enough depth to be informative. The final survey is provided in Web appendix 1.

We approached adult members (≥18 years of age) of 10 different sport stakeholder groups to respond to the brief online survey (surveymonkey.com) in either English or French. These included

**To cite:** Shrier I, Safai P, Charland L. *Br J Sports Med* 2014;**48**:394–401.

the Canadian Academy of Sport and Exercise Medicine (sport medicine physicians of all specialties 'MD', who passed the Diploma of Sport and Exercise Medicine, <http://www.casm-acms.org>), Sport Physiotherapy Canada (sport physiotherapists 'PT' including students, <http://www.sportphysio.ca>), Canadian Athletic Therapy Association (athletic therapists 'AT', <http://www.athletictherapy.org>), Royal College of Chiropractic Sport Sciences Canada (sport chiropractors, <http://www.rccssc.ca>), Canadian Sport Massage Therapists Association (sport massage therapists 'MT', <http://www.csmta.ca>), AthletesCAN (national team athletes, <http://www.athletescan.com>), Coaching Association of Canada (coaches, <http://www.coach.ca>), Canadian Soccer Association (single sport association, <http://www.canadasoccer.com>), Canada Games (developmental multisport organisation, <http://www.canadagames.ca>) and the Canadian Olympic Committee (elite multisport organisation, [olympic.ca](http://olympic.ca)).

Organisations either provided email addresses of members, or themselves distributed a prewritten email that provided a brief outline of the project along with a link to the website. The survey was open between 26 November and 25 December 2012, and we emailed reminders after 7, 10 and 14 days. Participation was voluntary and responses were stored non-identifiably.

### Analyses

We asked respondents to rank the capacity of particular types of individuals to evaluate RTP criteria. To minimise confusion, we use the term 'stakeholder' to refer to the group that respondents identified with, and 'occupation' to refer to the expertise of individuals who would be making the RTP decisions (even though 'sport association' is not an occupation).

We could only estimate response rates for clinicians, and could not calculate response rates at all for non-clinicians. For clinician stakeholders, all members were sent the survey. However, sport organisations often include clinicians as members, and some potential respondents received the email request from multiple sources (respondents were asked to indicate the group that they self-identified with the most). For non-clinician stakeholders, each stakeholder decided which members would be appropriate to receive the email; in some cases, members were encouraged to forward the survey to others and, in other cases the survey was restricted to those with policy influence. Therefore, we did not have accurate denominators for participation rates for sport associations, coaches and athletes. We, therefore, report the participation rate for clinician stakeholders only (which would be underestimated if some clinician respondents self-identified with a non-clinician group) and report the number of responses for athletes, coaches and sport associations (combined Canadian Soccer Association, Canada Games, Canadian Olympic Committee).

The purpose of this survey is to describe the heterogeneity of opinion. Surveys of this kind have low response rates, and comparative analyses across different stakeholder groups beyond simple descriptions could be misleading. We, therefore, limit our interpretations to the qualitative differences without statistical comparisons, and highlight only major differences.

For each question, there were missing data. For questions related to how important the specific criteria for RTP decision making were, 858/911 (94.2%) respondents answered all questions and were included in these analyses. For questions related to ranking which occupation has the best skills to assess each of the RTP criteria, missing and inappropriate answers were more frequent, occurring in 28–31% of respondents depending on the question and the stakeholder group. Because the missing data occurred in different respondents for different questions,

including only those respondents who answered every question appropriately would have been too limiting for a study examining qualitative differences in approaches to RTP decisions. Therefore, we report the proportion of responses among those who answered each specific question appropriately, and indicate the absolute number of included responses for each.

### RESULTS

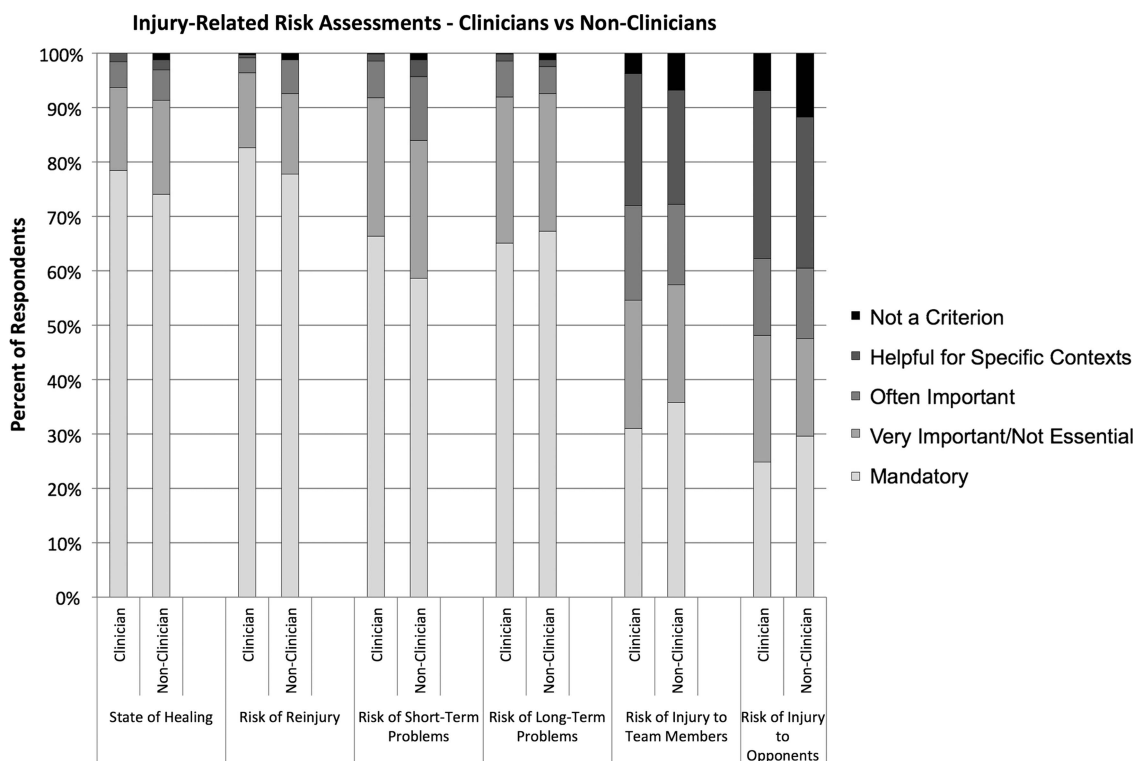
Of the 975 surveys completed online, 64 were excluded because the responses were provided during pilot testing, were duplicate entries or only contained demographic information ( $n=911$  for possible analysis). Table 1 provides demographic information on these 911 participants.

Figure 1 illustrates qualitatively similar responses for clinician and non-clinician stakeholder members with respect to the importance of each injury-related criterion in the survey. As expected, factors related to the injury risk of the athlete are generally considered mandatory or very important. Factors related to the injury risk to team members or opponents were less important, with 4–12% of respondents believing these factors should not be a criteria.

**Table 1** Demographic information of respondents.

Category	N (% of respondents)*
<b>Region</b>	
Atlantic Canada	62
Central Canada	457
Western Canada	362
Northern Canada	3
Non-resident of Canada	27
<b>Age</b>	
≤30	274
31–50	473
≥51	164
<b>Years experience</b>	
≤5	239
6–10	248
11–20	249
≥21	175
<b>Stakeholder groups</b>	
<b>Non-clinicians</b>	
AthletesCAN (Athletes)	88
Coaching Association of Canada (Coaches)	41
Canadian Soccer Association	13
Canada Games Association	21
Canadian Olympic Committee	12
<b>Clinicians</b>	
Canadian Academy of Sport and Exercise Medicine Sport medicine physicians (n=484)	181 (37.4)
Sport Physiotherapy Canada Sport physiotherapists (n=1320)	155 (11.7)
Students (1350)	5 (0.4)
Canadian Athletic Therapy Association Athletic therapists (n=1206)	304 (25.2)
Royal College of Chiropractic Sport Sciences Canada Sport chiropractors (n=221)	53 (24.0)
Canadian Sport Massage Therapists Association Sport massage therapists (n=150)	38 (25.3)

For the clinician stakeholder groups, the percent of respondents is based on the number of members sent the survey (provided in 'Category' column). This was not possible for the non-clinician stakeholder groups (see text for details).



**Figure 1** The relative importance (from Mandatory to Not a Criterion) of potential injury risk-related criteria for return-to-play decisions is shown. Each bar represents the per cent of clinician respondents (sport medicine physicians, sport physiotherapists, athletic therapists, sport chiropractors, sport massage therapists) or non-clinician respondents (athletes, coaches, Canadian Olympic Committee, Canada Games, Canadian Soccer Association) that considered the particular criterion as Mandatory to Not a Criterion as indicated in the legend on the right.

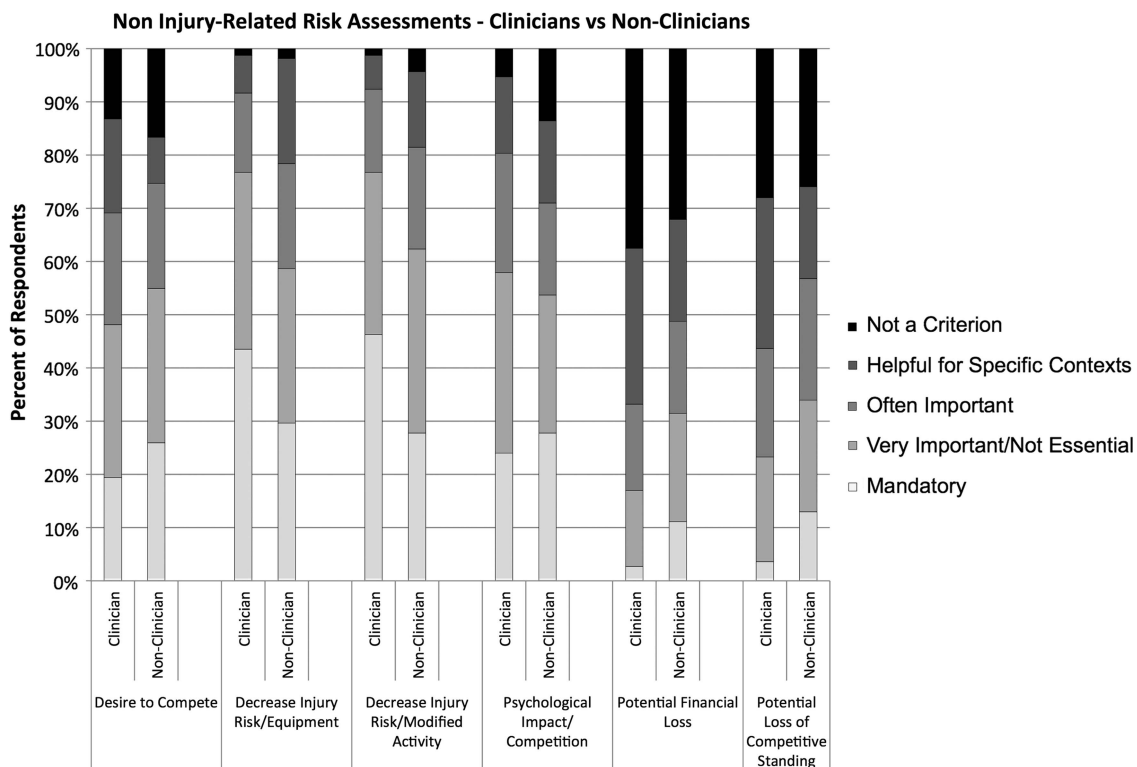
Figure 2 illustrates responses of clinician and non-clinician stakeholder members with respect to each non-injury-related criterion. The most marked differences between clinician and non-clinician groups for considering a criterion as mandatory were for ‘Decreased Injury Risk with Modified Activity’ (19% difference) and ‘Decreased Injury Risk with Equipment’ (14% difference); Smaller differences of 4–10% occurred for the other criteria. When assessing what respondents considered as ‘not a criterion’, only potential financial loss and potential loss of competitive standing were deemed irrelevant by more than 25% of respondents. Even for these criteria, 43–74% considered them appropriate in some contexts, depending on the criterion and the stakeholder group.

Respondents also ranked the relative skills of different occupations to assess different criteria. In brief, for injury-related factors (table 2), the clinician stakeholder members generally felt that their own profession had the best skills to assess the criteria, although coaches received many votes for assessing risk to team members or opponents. Sport associations generally considered sport medicine physicians as most capable, regardless of the criterion. For non-injury-related risk factors (table 3), athletes were considered most capable to assess desire to compete, potential financial loss and potential loss of competitive standing, although coaches received considerable support for the latter. Athletic therapists and physiotherapists were generally considered most capable for assessing the change in risk when equipment was used or activity modified. The psychological effect of not competing was considered best assessed by the coach in general.

Full details on which occupations were considered to have the best capacity for assessing each criterion, stratified by the

stakeholder group that respondents identified with, are available from radial plots available in the Web appendix 2. Below, we provide a brief overview of the patterns observed within the radial plots.

- ▶ MDs were ranked highest for assessing state of healing within all stakeholder groups, except for Sport Physiotherapy Canada.
- ▶ For each occupation, the greatest percentage of responses indicating ‘most capable’ almost always came from members of that stakeholder group.
- ▶ The pattern observed for state of healing was similar to that observed for risk of reinjury, risk of long-term problems and risk of short-term problems, except that fewer respondents ranked MDs as most capable for the latter three factors. For non-MD clinicians who changed their ranking, they now suggested that members of their own occupation were most capable.
- ▶ For assessing risk of injury to team members and opponents, a significant number of respondents in each stakeholder group selected coaches as being most capable.
- ▶ With respect to assessing risk reduction through modified activity and protection, athletic therapists (ATs) were often rated most capable.
- ▶ The athlete was considered to have the best skills to assess desire to compete and potential financial loss by every stakeholder group. For potential loss of competitive standing, roughly equal numbers of respondents considered the athlete and coach to have the best skills.
- ▶ Most stakeholders considered the coach and athlete as most capable to assess the psychological impact of competing or not competing.



**Figure 2** The relative importance (from Mandatory to Not a Criterion) of potential non-injury risk-related criteria for return-to-play decisions is shown. Each bar represents the per cent of clinician respondents (sport medicine physicians, sport physiotherapists, athletic therapists, sport chiropractors, sport massage therapists) or non-clinician respondents (athletes, coaches, Canadian Olympic Committee, Canada Games, Canadian Soccer Association) that considered the particular criterion as Mandatory to Not a Criterion as indicated in the legend on the right.

**Table 2** Percentage of respondents ranking different stakeholders as most capable to assess injury-related return-to-play criteria

	Healing state (n=656)	Reinjury (n=660)	Short-term problems (n=644)	Long-term problems (n=643)	Injury to team members (n=634)	Injury to opponents (n=632)
Occupation considered having best capacity (percentage of stakeholder group (%))						
CASEM	MD (83)	MD (78)	MD (83)	MD (90)	AT (38)	AT/MD (36)
SPC	PT (50)	PT (76)	PT (63)	PT (56)	PT (42)	PT (36)
CATA	MD (59)	AT (74)	AT (58)	MD (64)	AT (70)	AT (66)
RCCSSC	MD (57)	Chiro (56)	Chiro (44)	Chiro (50)	Coach (30)	Coach (31)
CSMTA	MD (52)	AT (39)	AT (40)	PT/MD (38)	AT (31)	AT (32)
AthletesCAN	MD (44)	PT (48)	PT (43)	MD (53)	Coach (44)	Coach (46)
COC	MD (65)	MD (42)	MD (43)	MD (75)	Coach (64)	Coach (56)
Sport Associations	MD (73)	MD (69)	MD (81)	MD (90)	MD (31)	MD (30)
Percentage ranking own occupation as having best capacity (%)						
CASEM	83	78	83	90	32	36
SPC	50	76	63	56	42	36
CATA	37	74	58	32	70	66
RCCSSC	32	56	44	50	27	17
CSMTA	4	0	4	4	0	0
AthletesCAN	12	6	6	4	4	4
COC	0	13	5	0	64	56
Sport Associations	0	0	0	0	7	13

Sport Associations: Includes the Canadian Soccer Association (single sport association), Canada Games (developmental multisport organisation), and the Canadian Olympic Committee (elite multisport organisation).

AthletesCAN: Athletes Canada (national team athletes, 'Athlete'); CAC: Coaching Association of Canada (coaches, 'Coach'); CASEM: Canadian Academy of Sport and Exercise Medicine (sport medicine physicians, 'MD'); CATA: Canadian Athletic Therapy Association (athletic therapists 'AT'); CSMTA: Canadian Sport Massage Therapists Association (sport massage therapists, 'MT'); RCCSSC: Royal College of Chiropractic Sport Sciences Canada (sport chiropractors, 'Chiro'); SPC: Sport Physiotherapy Canada (sport physiotherapists, 'PT').

**Table 3** Percentage of respondents ranking different stakeholders as most capable to assess non-injury-related return-to-play criteria

	Desire to compete (n=629)	↓Injury risk: equipment (n=649)	↓Injury risk: modified activity (n=648)	Psych impact: competition (n=639)	Potential financial loss (n=629)	Potential competitive loss (n=643)
Occupation considered having best capacity (percentage of stakeholder group (%))						
CASEM	Athlete (62)	AT (46)	MD (43)	MD (42)	Athlete (79)	Athlete (39)
SPC	Athlete (64)	PT (61)	PT (83)	Coach (31)	Athlete (65)	Coach (42)
CATA	Athlete (62)	AT (92)	AT (89)	AT (39)	Athlete (53)	Coach (38)
RCCSSC	Athlete (50)	AT (55)	Chiro (51)	Coach (39)	Athlete (73)	Coach (44)
CSMTA	Athlete (39)	AT (64)	AT (37)	MD (38)	Athlete (59)	Athlete (48)
AthletesCAN	Athlete (73)	PT (33)	PT (44)	Athlete (48)	Athlete (60)	Athlete (37)
COC	Athlete (47)	AT (29)	Coach (36)	Coach (62)	Athlete (38)	Coach (41)
Sport Associations	Athlete (45)	MD (52)	MD (45)	Coach (39)	Athlete (47)	Coach (41)
Percentage ranking own occupation as having best capacity (%)						
CASEM	7	35	43	42	3	2
SPC	8	61	83	12	0	1
CATA	24	92	89	39	6	7
RCCSSC	10	26	51	11	5	5
CSMTA	4	4	7	0	0	0
AthletesCAN	73	6	7	48	60	37
COC	26	14	36	62	24	41
Sport Associations	0	0	0	0	28	28

Sport Associations: Includes the Canadian Soccer Association (single sport association), Canada Games (developmental multisport organisation), and the Canadian Olympic Committee (elite multi-sport organisation).

AthletesCAN: Athletes Canada (national team athletes, 'Athlete'); CAC: Coaching Association of Canada (coaches, 'Coach'); CASEM: Canadian Academy of Sport and Exercise Medicine (sport medicine physicians, 'MD'); CATA: Canadian Athletic Therapy Association (athletic therapists 'AT'); CSMTA: Canadian Sport Massage Therapists Association (sport massage therapists, 'MT'); RCCSSC: Royal College of Chiropractic Sport Sciences Canada (sport chiropractors, 'Chiro'); SPC: Sport Physiotherapy Canada (sport physiotherapists, 'PT').

The previous analysis illustrated which occupation was ranked first for the skill to evaluate each criterion. However, one might consider that occupations ranked second or third in capacity should also be included in the process. In figure 3, the different bars show the per cent of each stakeholder group that ranked the different occupations (listed on the x axis) as 1, 2 or 3. For example, close to 100% of CASEM members ranked MDs 1, 2 or 3 to assess risk of reinjury, whereas only 82% of SPC members and 60% of CSMTA members ranked MDs as 1, 2 or 3. Similarly, less than 15% of clinicians (CASEM, SPC, CATA, RCCSSC and CSMTA members) ranked athletes in the top 3 for risk of reinjury, but more than 30% of athletes ranked themselves in the top 3. This graph clearly shows the importance participants feel their own occupation should have in the decision-making process.

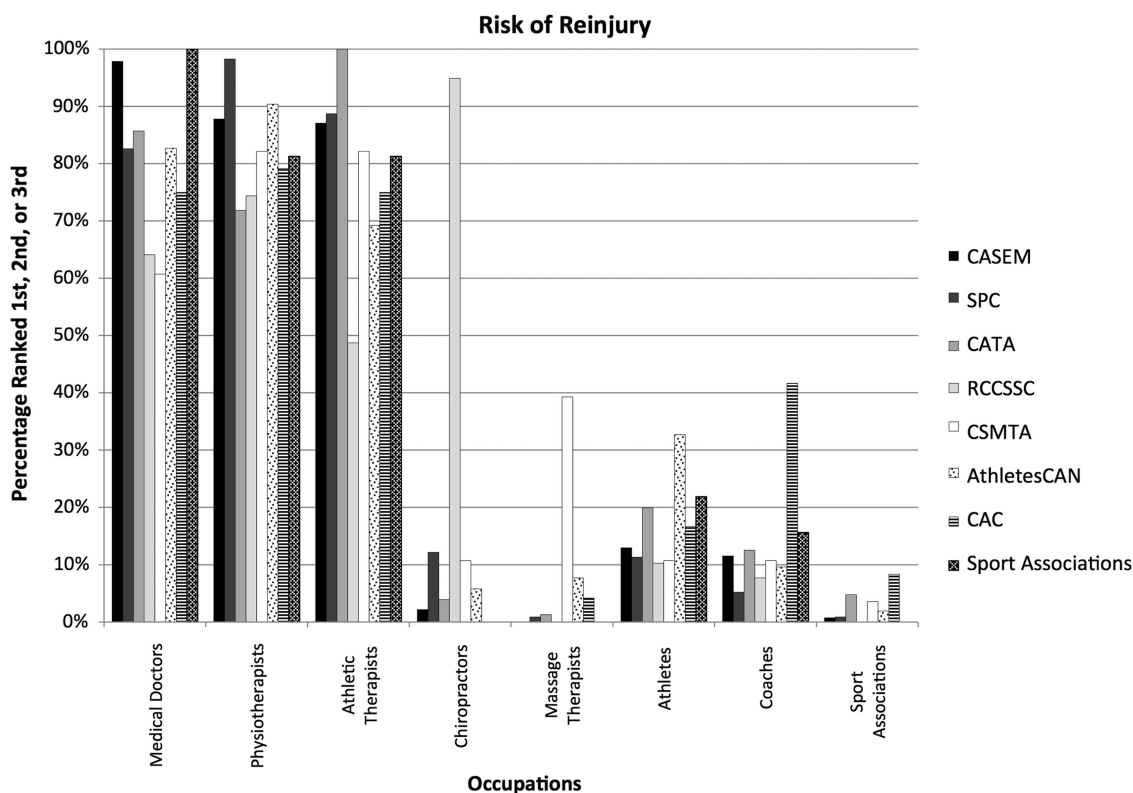
Figure 4 provides a general overview and summarises the overall rankings across all stakeholder groups for all criteria. In this analysis, we first calculated the per cent responses in each stakeholder group, and averaged over the groups. Otherwise, the results would reflect the opinions of those stakeholder groups with the largest number of respondents. Although more sophisticated analyses (eg, random effects analysis) are possible, they might imply a level of precision that is inappropriate for this study. Overall, MDs, PTs and ATs were considered the most capable of assessing state of healing, risk of reinjury and risk of short-term or long-term problems. The ability to decrease risk with protection (ie, equipment modification) or modified activity is deemed best assessed by ATs, with PTs and MDs still being ranked fairly high. For risk of injury to team members or opponents, ATs and coaches are deemed most capable. The desire to compete and impact of not competing are deemed best assessed by athletes and coaches, whereas potential financial loss and loss of competitive standing are deemed best assessed by athletes, coaches and sport associations.

## DISCUSSION

Across all occupations, there appears to be general agreement that medical doctors, physiotherapists and athletic therapists are best able to assess factors related to risk of injury and complications from injury. Each clinician group (except sport massage therapists) generally believed that their own profession has the best capacity to evaluate the criteria. Alternatively, athletes, coaches and the sport associations are considered to have the best capacity to assess factors related to competition (desire, psychological, financial and loss of competitive standing). There remained considerable heterogeneity both between and within stakeholder groups.

RTP decisions form the foundation of sport medicine—every time an athlete is injured, there must be a decision on when the athlete can return to play. In certain contexts, this power is delegated to particular individuals,<sup>11</sup> which is usually the medical doctor, athletic therapist, physiotherapist or chiropractor. However, the criteria used by these professionals are not usually explicitly stated. When presented with the potential factors affecting RTP decisions listed by Creighton *et al*<sup>7</sup> there were only relatively minor differences between clinicians and non-clinicians. However, within each stakeholder group, there was considerable heterogeneity. For example, 25–30% of respondents felt that risk of injury to opponents was mandatory to consider, but 7–12% felt that it should not be a criterion. These intrastakeholder differences suggest that even if everyone agrees on the risks associated with different criteria, conflicts over RTP decisions could continue because different individuals have different values and therefore give different weightage to each criterion.<sup>6</sup> A full and open discussion of the advantages and disadvantages as to what should and should not be considered in determining RTP seems long overdue.

Our results also suggest considerable heterogeneity of opinion on which occupation is best able to assess particular



**Figure 3** The per cent of each stakeholder group who ranked each occupation (x axis) as first, second or third most capable to assess risk of reinjury is illustrated. For example, close to 100% of sport medicine physicians (CASEM stakeholder) felt that medical doctors were either first, second or third most capable of all occupations, whereas only 80–86% of sport physiotherapists (SPC) or athletic therapists (CATA) and 61–64% of sport chiropractors (RCCSSC) or sport massage therapists (CSMTA) ranked medical doctors so high. Alternatively, athletes were ranked first, second or third most capable of all occupations to assess risk of reinjury by 20% of athletic therapists, 33% of athletes (AthletesCAN), 17% of coaches (CAC) and 22% of sport association members.

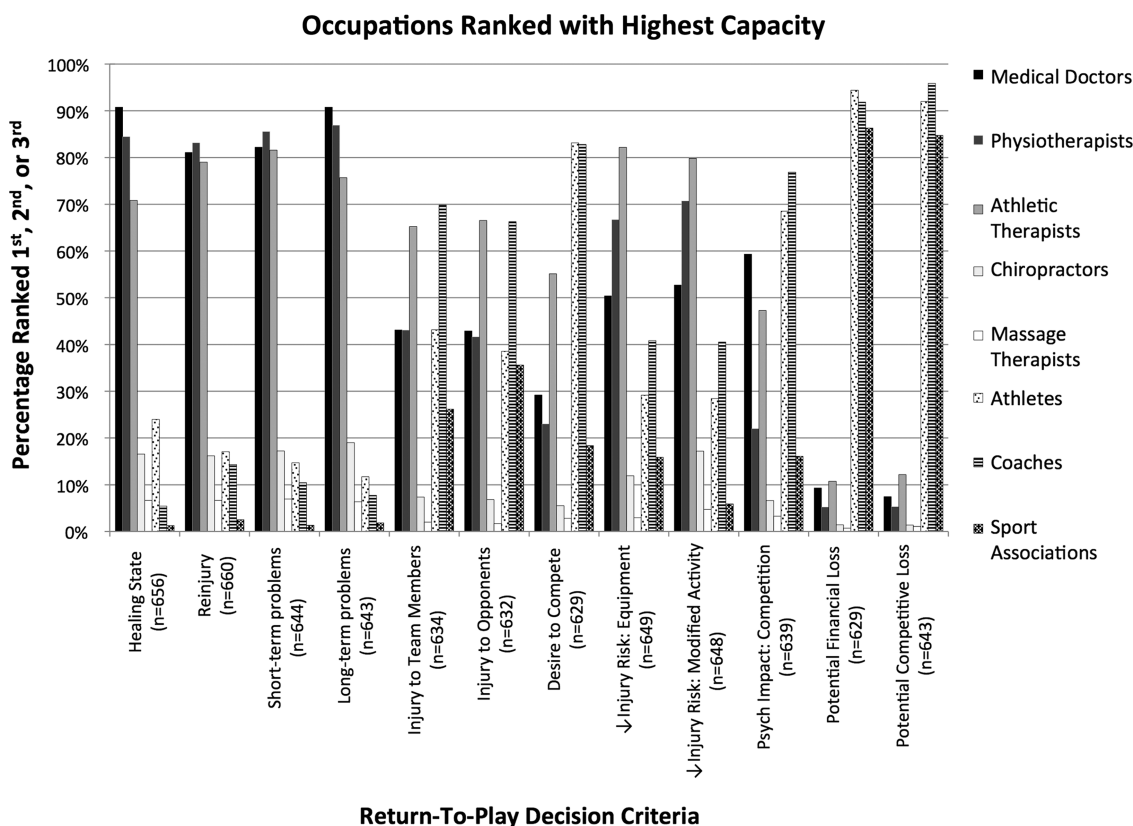
criteria. For most questions, each stakeholder group (except massage therapists) rated its own occupation as more capable than any other stakeholder group had rated it. This suggests that at least part of the reason for the discrepancy is related to familiarity with professional training and culture—one would not trust individuals or professions without first understanding their level of training. One approach to bridging this divide is to bring together representatives from all stakeholders to share views and understand each other's perspectives on these issues. Documenting areas of agreement and controversy could lead to more insights such as which controversies could be resolved through education (eg, lack of understanding of formal training), research (eg, which skills are best assessed by which stakeholder members) or simply represent value judgements that reflect greater trends in society (eg, comparative value of financial loss vs. risk of long-term consequences of injury).

Shared decision-making is generally recommended in the medical literature,<sup>12</sup> but its use in sport generally, and in sport medicine specifically, has not been documented. In some jurisdictions, legal liability may force the decision on the physician, thereby creating challenges for the shared decision-making principle. The underlying reasons for legal liability precedents are presumably related to protection of the patient.<sup>13</sup> However, courts have sometimes overruled a physician who has recommended no RTP, and overruled a physician who has recommended RTP.<sup>13</sup> These examples illustrate that in the end, the legal system considers itself as being most capable to judge the

best interests of the patient, which is consistent with our finding that each stakeholder group generally gave itself the highest ranking of any group. However, our results hold promise that shared decision-making could become the norm because the differences as to which criteria are most important for RTP decisions were much less *among* stakeholder groups compared to *within* stakeholder groups. For example, only a minority of both clinicians and non-clinicians considered non-injury factors as always irrelevant, and most respondents (regardless of which stakeholder they identified with) believed that athletes, coaches and sport associations have the best capacity to assess several of these factors. This suggests that a more global approach to shared decision-making, where different stakeholders come together to discuss particular challenges and differences in experience, could lead to reasonable acceptable standards and guidelines that would eventually form the basis for a new legal framework.

#### Limitations of study

We surveyed all clinician groups involved in clinical RTP decisions, and five non-clinician stakeholder groups. Because of the survey distribution methods used by the non-clinician groups, we were unable to determine response rates for them. For the clinician groups, our estimated response rates (excluding physiotherapy students) generally varied from 24% to 37%, although the response rate from physiotherapy members was only 12%. Recent surveys into current practice have had response rates ranging from 25% to 40% for several conditions (transfusion,



**Figure 4** The mean per cent of members across stakeholder groups who ranked each occupation (see legend) as first, second or third most capable to assess each particular criterion for return-to-play. For example, the mean of the stakeholder groups suggesting medical doctors were first, second or third most capable to assess state of healing was 91%, and the mean of the stakeholder groups suggesting athletes were first, second or third most capable was 24%. For each criterion, we indicate number of respondents who answered the question correctly and were included in the analysis.

pain management, health practice); response rates of 50–75% are obtainable for more life-threatening outcomes or those conducted by the US Federal Drug Administration.<sup>14–17</sup>

The overall results as indicated in figure 4 gave equal weightage to each group although some groups had much fewer respondents. We feel this is appropriate because in the context of a particular patient RTP decision, only one person represents each stakeholder group and therefore each stakeholder group is equally represented, as in our analysis.

This survey was intended only to obtain general principles for RTP, and to serve as a springboard for group discussions where all stakeholders would meet face to face. Such discussions are expected to uncover important nuances and contexts that would affect RTP decisions and decision-making processes.

## CONCLUSION

We found that differences in approach to RTP decisions were generally greater within stakeholder groups compared to between-stakeholder groups. Overall, members of each clinician group (with few exceptions) generally regarded their own profession as being more capable than other clinician groups to assess particular RTP criteria. Athletes, coaches and sport associations are generally considered to have the most capacity to evaluate advantages and disadvantages of non-injury factors that still affect the overall well-being of the athlete. If shared decision-making is to become the norm in clinical sport medicine, we will need to begin a discussion on which discrepancies can be addressed by education and research, and which simply reflect the divergence of societal values among different individuals.

## What are the new findings?

- ▶ Concerning which criteria should be considered when making return-to-play decisions, there is greater heterogeneity between stakeholder groups compared to within stakeholder groups.
- ▶ Each professional group has more confidence in its capacity to evaluate return-to-play criteria compared to the opinion of other professional groups.
- ▶ A majority of both clinicians and non-clinicians considered each of the non-injury risk factors listed as helpful for return-to-play decisions, at least in specific contexts.

## How might it impact on clinical practice in the near future?

- ▶ The greater within-group differences compared to between-group differences may be used to illustrate that members of the different groups as a whole, are actually quite similar, at least in some areas.
- ▶ The general recognition that factors unrelated to injury risk are relevant to return-to-play decisions, at least in some contexts, may lead to wider societal discussions beyond traditional stakeholders.
- ▶ Recognition that non-clinicians provide important information for some criteria in return-to-play decisions may lead to improved shared decision-making in sport.

**Contributors** IS contributed to the conception and design of the study, the analysis and interpretation of the data, and writing of the manuscript. PS contributed to the conception and design of the study, the interpretation of the data and writing of the manuscript. LC contributed to the analysis and interpretation of the data, and writing of the manuscript.

**Competing interests** None.

**Ethics approval** Human Participants Review Sub-Committee of York University.

**Provenance and peer review** Not commissioned; externally peer reviewed.

## REFERENCES

- Safai P. Healing the body in the "culture of risk": examining the negotiation of treatment between sport medicine clinicians and injured athletes in Canadian Intercollegiate Sport. *Soc Sport J* 2003;20:127–46.
- Fuller CW, Junge A, Dvorak J. Risk management: FIFA's approach for protecting the health of football players. *Br J Sports Med* 2012;46:11–17.
- Boudier-Rivière M, Mazer B, Ehrmann-Feldman D, et al. Practice management of musculoskeletal injuries in active children. *Br J Sports Med* 2011;45:1137–43.
- Mazer B, Shrier I, Ehrmann-Feldman D, et al. Clinical management of musculoskeletal injuries in active children and youth. *Clin J Sport Med* 2010;20:249–55.
- Shultz R, Bido J, Shrier I, et al. Team clinician variability in return-to-play decisions. *Clin J Sport Med* 2013 In press.
- Shrier I, Charland L, Mohtadi NGH, et al. The sociology of return-to-play decision making: a clinical perspective. *Clin J Sport Med* 2010;20:333–5.
- Creighton DW, Shrier I, Shultz R, et al. Return-to-play in sport: a decision-based RTP model. *Clin J Sport Med* 2010;20:379–85.
- Herring SA, Kibler WB, Putukian M. The team physician and the return-to-play decision: a consensus statement-2012 update. *Med Sci Sports Exerc* 2012;44:2446–8.
- Theberge N. It's not about health, it's about performance. In: Hargreaves J, Vertinsky P. eds. *Physical culture, power and the body*. London: Routledge, 2007:176–94.
- Safai P. Healing the body in the 'culture of risk': examining the negotiation of treatment between sports medicine clinicians and injured athletes in Canadian intercollegiate sport. In: Young K. ed. *Sporting bodies, damaged selves: sociological studies of sports-related injury*. Oxford: Elsevier Ltd, 2004:269–86.
- Stovitz SD, Satin DJ. Professionalism and the ethics of the sideline physician. *Curr Sports Med Rep* 2006;5:120–4.
- Barry MJ, Edgman-Levitan S. Shared decision making—pinnacle of patient-centered care. *N Engl J Med* 2012;366:780–1.
- Mitten MJ. Emerging legal issues in sports medicine: a synthesis, summary and analysis. *St John's L Rev* 2002;76:5–86.
- Scales DC, Riva-Cambrin J, Le TL, et al. Prophylaxis against venous thromboembolism in neurointensive care patients: survey of Canadian practice. *J Crit Care* 2009;24:176–84.
- Kempe A, Hurley L, Stokley S, et al. Pneumococcal vaccination in general internal medicine practice: current practice and future possibilities. *J Gen Intern Med* 2008;23:2010–13.
- Harris KM, Pastorius CA, Duval S, et al. Practice variation among cardiovascular physicians in management of patients with mitral regurgitation. *Am J Cardiol* 2009;103:255–61.
- Chen DT, Wynia MK, Moloney RM, et al. US physician knowledge of the FDA-approved indications and evidence base for commonly prescribed drugs: results of a national survey. *Pharmacoepidemiol Drug Saf* 2009;18:1094–100.