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## STRESSORS WITHIN TEAM GAMES

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**How stressors are dynamically appraised within a team during a game: An exploratory study in basketball**

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## STRESSORS WITHIN TEAM GAMES

**Abstract**

Little is known about how team sport athletes individually and collectively experience sources of stress during competitive sport encounters. This study aimed to examine the nature of the stressors team sport athletes appraised during games at individual and team levels, as well as their degree of synchronization during an unfolding game. Through individual self-confrontation interviews, the activities of nine basketball players of the same team were examined in detail. The results revealed that twelve categories of stressors were reported, and categorized into two larger units reflecting stressors perceived as affecting (i) “the team functioning as a whole” and (ii) “a player’s own functioning”. Thus, the nature and degree of similarity of the game-specific stressors experienced by basketball players within a single team were identified during a game. In addition, the findings showed six different patterns of synchronizations of team members’ stressors, as well as their changes over the course of the game. They provided support for the synchronized appraisal and experience of stressors within a team during a game. By adopting an interpersonal perspective and examining the temporal interplay in team members’ activities, this study shed light on stress within teams.

**Keywords:** stress, intrapersonal and interpersonal perspectives, team sports, team dynamics, team functioning

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### 1. Introduction

Given the highly complex social environment surrounding competitive sport, stress appears to be an inherent aspect of athletic performance (Fletcher, Hanton, Mellalieu, & Neil, 2012). Stress is a process that occurs as the result of a transaction, or reciprocal effects, between athletes and their environment (Hoar, Crocker, Holt, & Tamminen, 2010; Lazarus, 2000).

Sources of stress within these transactions are called stressors and refer to demands that individuals appraise as taxing or exceeding his or her resources (Hoar, Kowalski, Gaudreau, & Crocker, 2006). There are numerous potential stressors in sport (e.g., Hoar et al., 2010) that are often social in nature (Tamminen & Gaudreau, 2014). However, there is considerably less research focusing on how stressors in team sports are individually and collectively appraised and experienced during competitive sport encounters. Hence, the goal of this study was to: (a) examine the nature of the stressors encountered by basketball team members during a game, (b) explore the extent to which these stressors were similarly appraised and experienced, and (c) explore the extent to which these stressors were simultaneously appraised and experienced during an unfolding game.

Over the past couple of decades, sport psychology researchers have focused on identifying and categorizing the different events or situations athletes appraise as stressors (e.g., Arnold & Fletcher 2012; Fletcher et al., 2012; Noblet & Gifford, 2002; Scanlan, Stein, & Ravizza, 1991). Recently, the meta-interpretation of Arnold and Fletcher (2012) synthesized the findings of 34 qualitative studies and provided a comprehensive taxonomy of 640 distinct organizational stressors encountered by a large, wide-ranging cohort of athletes. They found four main categories: leadership and personnel issues, cultural and team issues, logistical and environmental issues, and performance and personal issues. Some of these studies focused specifically on team

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sports and identified specific stressors appraised by team sport athletes (e.g., Anshel & Wells, 2000; Holt & Dunn, 2004; Holt & Hogg, 2002; Madden, Summers, & Brown, 1990; Nicholls & Polman, 2007; Nicholls, Holt, Polman, & Bloomfield, 2006; Nicholls, Backhouse, Polman, & McKenna, 2009; Nicholls, Jones, Polman, & Borkoles, 2009; Noblet & Gifford, 2002; Reeves, Nicholls, & McKenna, 2009). For example, Nicholls and Polman (2007) found that the most salient stressors of under 18-year old international adolescent rugby union players were physical errors, receiving coach/parental criticism, making a mental error, injury, and observing an opponent play well. With a sample of basketball players, Anshel and Wells (2000) identified 25 sources of stress classified into five categories: interpersonal conflicts, refereeing decisions, personal performance problems, opposition influences, and team behaviour. However, at present, little is known about team sport athletes' communal appraisal and experience of these stressors in specific sport situations (e.g., games). A key limitation of these studies is that stressors in team sports have largely been explored from an individualistic or intrapersonal perspective focusing on how each individual in a team appraises and experiences internal or/and external events as stressors (Tamminen & Gaudreau, 2014). Furthermore, previous studies did not explore to what extent the stressors individually appraised were also appraised and experienced by teammates at the same or different times during specific sport situations. To our knowledge, the sport psychology literature has failed to examine how team sport athletes individually and collectively appraise and experience sources of stress during competitive sport encounters.

Although researchers have largely tended to focus on individual athletes' perceptions of stressors (i.e., intrapersonal perspective), athletes' stressors are often social in nature and stem from social interactions such as arguments or disagreements between teammates, being criticized or yelled at by parents or coaches, getting a bad call by an official, and interpersonal performance

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or relationship conflicts (Arnold & Fletcher 2012; Tamminen & Gaudreau, 2014). The results of Campo and colleagues' (2012) systematic review highlighted the importance of social influences on team sport athletes' emotional experiences, as the influence of others (e.g., negative relationships, criticism, teammates' behaviours) was identified as an antecedent of athletes' negative emotions in over 58% of the studies they reviewed, whereas athletes' own errors (e.g., physical or mental errors) were reported as antecedents of negative emotions in 52.9% of the studies reviewed. Team members may potentially influence the emotions or behaviours of teammates through the conscious or unconscious induction of emotions, as reflected in the phenomenon of emotional contagion (Hatfield, Cacioppo, & Rapson, 1994). Consequently, there is a clear need to also explore how athletes' stressor appraisals influence and are influenced by other team members during their common unfolding team activity and to what extent sources of stress are shared by teammates during sport encounters (i.e., interpersonal perspective). As such, an interpersonal perspective also considers how athletes appraise stressors as a group, reflecting athletes' perceptions of how "we as a team are appraising events and situations" (Tamminen & Gaudreau, 2014). Furthermore, stress occurs as a process that changes over time (Lazarus, 1999; Nicholls et al., 2006, 2009). To achieve a more complete understanding of team sport athletes' stressors, it seems necessary to consider the different stressors team sport athletes experience at both individual and/or team levels and their temporal aspects.

Given the complex and dynamic nature of the relationship between athletes and their environment (Lazarus, 2000), a focus on team sport athletes' perceptions of stressors also calls for scrutinizing temporal aspects of the transaction. Although the way an individual athlete experiences the team setting may be very distinct from the way it is experienced by his or her teammates (Bourbousson, Poizat, Saury, & Sève, 2011), evidence of moment-to-moment

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contagion phenomena during a game have been provided in team sports (Bourbousson, Poizat, Saury, & Sève, 2012; Bourbousson, R'Kiouak, & Eccles, 2015). In their study of the way in which basketball players simultaneously understand the unfolding game, Bourbousson et al. (2012) showed that temporal descriptions of individual courses of action and how these courses of action interplay were heuristics for disentangling the way different interpretations of a given event might lead to shared understanding later in the game. Moreover, the authors pointed out that verbal communication was not needed to observe such contagion phenomena (Bourbousson et al., 2011). Consequently, there is a clear need to consider that sources of stress occurring during sport encounters are not similar and synchronized as a matter of principle, but that temporal interplay between team members' activities might occur and lead to stressors being shared by teammates to a greater or lesser extent. By adopting such a temporal view of the extent to which stressors are simultaneously experienced within a team, the present study should also contribute to the emerging science of team microdynamics (Bourbousson et al., 2015; Humphrey & Aime, 2014; Li & Roe, 2012).

The present study aimed to address the lack of knowledge about how stressors in team sports are individually and collectively appraised and experienced during competitive sport encounters. Consequently, the nature of the stressors team sport athletes appraised during games was explored at individual and team levels, as well as their degree of synchronization during an unfolding game.

## **2. Method**

### *2.1. Participants*

Nine French male basketball players (mean  $\pm$  SD; age  $17.11 \pm 0.60$  years; experience playing competitive basketball  $8.22 \pm 0.97$  years) volunteered to participate in this study. At the

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time of the study (November 2007), they were members of the same team, ranked number one in the first division of the French Cadets Championship (i.e., the 16 best teams in the under-18 category). Pseudonyms were used for the athletes to ensure confidentiality. Chris, Jules and Bertrand were guards, Guy and Bastien were small forwards, Vic and Vince were power forwards, and Noé and Niels were centres. The participants' parents all signed statements of consent and were informed of the athletes' right to withdraw at any time. The present study obtained approval from the local University of Nantes (France) review board regarding standard research practice and the guidelines outlined for research involving humans.

### *2.2. Data collection*

The team members' activity was studied during an entire competitive match. The team won the match in question easily (final score: 74-58), as well as the previous encounter two months earlier (by a 25-point margin). Two types of data were collected: (a) continuous audio-video recordings of the players' activities during the entire match and (b) verbalizations during post-match interviews.

During the match, recordings were made with the audio-video camera positioned behind and to the side of the court. A wide-angle lens filmed all players and their opponents continuously. The angle was constantly adapted to follow the players' movements on-court and to include the four other players waiting on the sideline as much as possible.

The verbalization data were gathered from individual self-confrontation interviews with each of the players as soon as possible after the matches (between 24 and 48 hours post-match) (see Bourbousson et al., 2011, 2012, 2015 for scientific accounts obtained using this interview procedure). During the interviews, each player viewed the audio-videotape of the match together with the researcher. The player was asked to describe and comment on his activity during the



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match (what he was doing, feeling, thinking and perceiving during the match). Prompts from the interviewer were designed to obtain complementary information about the actions that were meaningful to the player (e.g., “Here, you’re saying that you’re waiting for Chris to call the play...?”). Probing questions were used to explore participants’ feelings in detail. Nevertheless, questions did not address the potential stressors directly, in order not to influence the players’ expression of their feelings. Each of the players commented on the entire match. The interviews lasted an average of 75 minutes and were all recorded in their entirety using a camera and tape recorder.

### 2.3. *Data processing*

The audio-videotapes were viewed in order to draw up an inventory of the nine players’ moves. The verbal exchanges between player and researcher during the interview were recorded and fully transcribed. The data were then processed in four steps (see Theureau, 2003 for details of the experiential data analysis): (a) generating a log of the match, (b) reconstructing the way individual players experienced the dynamics of the game, (c) synchronizing the way individual players experienced the dynamics of the game, and (d) identifying what stressed the players, and characterizing the extent to which these stressors were similarly and simultaneously experienced by team members over the course of the match.

#### a. *Generating match logs*

This step consisted of generating a summary table or log containing the data collected for the match. The data were presented by mapping two levels of data to each other. The first level pertained to the data recorded during the match (i.e., descriptions of a player’s observable moves and overt communications). The second level pertained to the data recorded during the post-match interview (i.e., verbatim transcription of the prompted verbalizations).

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### b. Reconstructing the way individual players experienced the dynamics of the game

We first identified discrete meaningful units of activity that constituted the chain of events meaningful to each participant (Theureau, 2003). Each unit had personal meaning and was assumed to be the expression of the way in which the activity was experienced by the given participant at a given instant. The way these units link together over time accounts for the dynamics of a given player's experience of the game. During the period of the game under study, 249 discrete units of activity were identified for Chris's courses of action, 429 units for Jules's, 259 for Bertrand's, 224 for Guy's, 185 for Bastien's, 197 for Vic's, 243 for Vince's, 269 for Noé's, and 321 for Niels's.

### c. Synchronizing the way individual players experienced the dynamics of the game

In this step, we synchronized the nine ways individual players experienced the dynamics of the game by presenting them side-by-side in the same table in chronological order. To facilitate synchronization of the individual meaningful units, the objective description of the unfolding match was used to provide the ball holder's name, the timing of the players' actions, and the players' positions on the court. The synchronization of the ways in which individual players experienced their activity respectively at a given moment of the game is illustrated in Table 1.

### d. Identification of sources of stress and the extent to which they are simultaneously experienced within the team

This analysis comprised three steps: (a) identification of the individual stressors, (b) thematic analysis of these stressors, and (c) characterization of the extent to which these stressors were simultaneously experienced within the team over the course of the game.

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1           The first step in this analysis identified the individual sources of stress (i.e., an event  
2 [demand, problem, difficulty] appraised and experienced as unpleasant, upsetting or perturbing  
3 an athlete's current activity within the team during the game, Anshel & Wells, 2000; Hoar et al.,  
4 2006). The stressors were identified as they appeared in the units of activity forming the way  
5 individual players experienced the dynamics of the game. At this stage in the processing,  
6 stressors were labelled according to the experience that the given participant cited. We identified  
7 790 stressors experienced within the team over the course of the game.

8           The second step was to perform a thematic analysis (Braun & Clark, 2006) of the contents  
9 of the stressors identified at the first step. This processing consisted in searching for patterns (i.e.,  
10 commonly recurring themes) in the qualitative data set. Using a thematic analysis, the contents of  
11 the stressors were grouped into larger units on the basis of two criteria: (a) the meaning of the  
12 statements, and (b) the use of category definitions that were discriminating enough to avoid  
13 overlapping. The categories were defined step-by-step and re-checked each time a new category  
14 was created. For the 790 experienced stressors, this resulted in 12 categories, which then fitted  
15 into two overarching themes. An analysis of the occurrences of these themes was then performed,  
16 enabling the most prominent themes, and indicating which players experienced which particular  
17 stressors. Subsequently, this analysis enabled identification of the types of stressors most  
18 commonly shared by the players.

19           In the final step, we characterized the extent to which these sources of stress were  
20 simultaneously experienced over the course of the game. For this, each type of stressor was  
21 positioned accurately on the timeline of the activity of each individual player. A comprehensive  
22 inspection of the synchrony of these occurrences resulted in the characterization of typical forms

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of collective arrangement of the stressors at a given instant (i.e., the way in which stressors occur at team level at a given moment).

### 3. Results

#### *3.1. Identification of the types of stressors and their similarity across team members*

From the description of the activity at the level that was meaningful for the players, analysis of the elements that stressed the players during this basketball match identified 790 events. Thematic analysis of the contents of these experienced stressful events revealed 12 categories of stressors (see Table 2). This analysis further revealed that the 12 categories of stressors fit within two overarching themes, namely: (a) stressors perceived as affecting the team functioning as a whole ( $n = 522$ , 66%), and (b) stressors perceived as only affecting a player's own functioning ( $n = 268$ , 34%). The breakdown of the stressors across the various categories for each team member is presented in Table 2. The following sections detail the players' subjective experiences under the two main overarching themes.

#### a. Stressors perceived as affecting the team functioning as a whole

This theme comprised the following types of stressful events: a team member considering that the unfolding game events were potentially detrimental to the team performance during the game (e.g., the level of performance of each of the constitutive team members, the level of play of the opposing team, the current score, as well as external factors that could perturb the team functioning, such as refereeing quality). To illustrate this theme, the following excerpts from the self-confrontation interviews relate to a team member's experience during the game: "Bertrand [my teammate] asked us to develop the same tactical move as before...I was afraid that the opponents would be able to predict our moves and our positioning. He [Bertrand] has to stop calling this tactical play" (Jules, 13'30'', coded A-1: Stressed by the *Level of performance of a*

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1 *team member*), and “I was lost during this defence sequence. I didn’t understand what they were  
2 doing: my direct opponent hadn’t balanced the space, he stayed at the 3-point line and the ball  
3 had been thrown to the other side of the court. I was trapped and don’t understand how... such a  
4 setting mustn’t happen again” (Chris, 2’05’, coded A-4: Stressed by the *Tactical difficulty level*  
5 *presented by the opposition*).

### 6 b. Stressors perceived as only affecting a player’s own functioning

7 This theme comprised the following type of stressful events: a given team member considered  
8 that the unfolding game events were potentially detrimental to his individual performance during  
9 the game. These events were of a physical or psychological nature. Physical events included pain  
10 or fatigue, while social demands or mental error were psychological. External events like  
11 criticism from the coach, or the opposite team changing its collective organization, were also  
12 stressors able to affect the individual functioning of the team member in question. To illustrate  
13 this theme, the following excerpts from the self-confrontation interviews relate to a team  
14 member’s experience during the game: “I was wrong to put pressure on my direct opponent, and  
15 so I made a mistake in my technique, which led to the referee signalling a foul. I needed to find a  
16 solution” (Guy, 18’40, coded B-1: Stressed by *Personal performance problems*), and “I lost the  
17 thread of our team organization. I felt like I was like dreaming at that point. I couldn’t remember  
18 all the instructions I had to follow. I’ll have to be more focused. Here I asked the assistant coach  
19 to remind me of the team instructions that were given during the time-out” (Niels, 13’12, coded  
20 B-2: Stressed by *Mental errors*).

### 21 3.2. Time synchronization of the types of stressors within the team

22 Temporal analysis of the previous descriptions of the stressors experienced within the  
23 game revealed several forms of synchronization of stressors at a given instant within the team,

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known as characteristic collective arrangements of stressors. Six characteristic arrangements were observed, namely: (a) a player made an error and this error was sufficiently serious to be simultaneously a common source of stress for him and his teammates; (b) a player made an error sufficiently serious to be a common source of stress for his teammates, without his being concerned himself; (c) an external event was a common source of stress (e.g., referee, opposing coach); (d) several players were simultaneously concerned by personal performance problems; (e) several players were simultaneously concerned by the level of team performance as a source of stress; (f) several players were simultaneously concerned by the level of opposing team performance as a source of stress. Figure 1 illustrates these characteristic forms of arrangement of the sources of stress within the team. These forms changed across time, fluctuating frequently so that no specific temporal pattern was visible in the way the arrangements were linked together from one moment to the next. Figure 2 illustrates the changes in the forms of collective arrangements of stressors across time during a portion of the game.

### 4. Discussion

Using individual experience data collection, the purpose of this study was threefold: (a) to examine the nature of the stressors encountered by team members, (b) to explore the extent to which these stressors were similarly experienced, and (c) to explore the extent to which these stressors were simultaneously experienced during an unfolding game. The findings provided some support for Tamminen and Gaudreau's (2014) research perspectives on stress within teams.

Firstly, results highlighted that basketball players experienced a multitude of stressors during a game. Twelve categories were reported and categorized into two larger units reflecting stressors perceived as affecting: (a) "the team functioning as a whole" (e.g., level of performance of a team member, level of performance of opponents, external factors) and (b) "a player's own

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functioning” (e.g., personal performance problems, mental errors, coach’s criticism). Similar stressors in competitive sport have been reported in previous studies (e.g., teammates’ behaviours and interactions, the coach’s personality and attitude, performance feedback, refereeing decisions, errors relating to one’s own performance) (Anshel & Wells, 2000; for review see Arnold & Fletcher, 2012; Madden et al. 1990). For example, in Anshel and Wells’s (2000) study, the most intense sources of stress reported by basketball players related to refereeing decisions and personal performance problems. As a whole, previous studies have explored stressors in team sports from an individualistic perspective and have failed to take into account the interpersonal nature of sources of stress perceived as affecting team functioning. The originality of our results stems from the identification of stressors appraised as affecting both individual and team functioning. In addition, the present study has added to the literature by providing an original focus on game-specific stressors appraised during a real game by members of one team (e.g., events during the game, tactical difficulty of opposition, ratio of power) and specifically highlighted stressors related to team functioning during a game (e.g., collective demotivation, score management, level of performance of opponents). To our knowledge, previous studies have generally explored stressors in team sports over long periods, such as during preparation for competition (e.g., Holt & Hogg, 2002), or a season (e.g., Holt & Dunn, 2004; Nicholls et al., 2006). To date, few studies have focused on stressors experienced during an unfolding game (with the exception of Anshel & Wells, 2000) and particularly within a single team. The methodological approach used in this study (i.e., video recall method) allowed exploration of game-specific stressors appraised and experienced by members within one team in as close to “real time” as possible. Video recall would seem to be a viable method to improve retrospective recall validity (Bourbousson et al., 2012; Evans, Hoar, Gebotys, & Marchesin, 2014; Gilbert,

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Trudel, & Haughian, 1999). Nevertheless, a more comprehensive understanding of stressors appraised as affecting both individual and team functioning is needed. Future research examining interpersonal aspects of stress could also consider stressors experienced outside of games that impinge on team functioning and performance during the game (e.g., organizational stressors, conflict).

Furthermore, this study explored the extent to which the stressors appraised by one player were also similarly appraised by teammates at the same or a different time during the game. The results showed that teammates similarly reported one-third of stressors perceived as affecting a player's own functioning (i.e., 34%) and two-thirds of stressors perceived as affecting the team functioning as a whole (i.e., 66%). The most commonly shared category of stressors concerning the athlete's own functioning consisted of "personal performance problems", and for team functioning consisted of "teammates' performance problems". However, results for two athletes did not follow this pattern. They reported one-half of the sources of stress related to their own functioning (e.g., 44.5%) and one-half related to team functioning (e.g., 55.5%). The ratio between these two categories of stressors appeared different to that of other team members. This may reflect the fact that these two athletes seemed more preoccupied and perceived more sources of stress related to their own functioning than other teammates did (e.g., personal performance problems, mental errors, social evaluation, etc.). These players may also be viewed as a potential source of stress for their teammates (e.g., "teammates' performance problems") (see Figure 1). They may have influenced the emotions or behaviours of their teammates through the conscious or unconscious induction of emotions (Hatfield et al., 1994; Moll, Jordet, & Pepping, 2010). Further, in the future it could be interesting to examine whether other variables may explain the stress profile of these players, such as play experience, role and responsibility in the team or



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1 personality (Driskell, Goodwin, Salas, & O'Shea, 2006). In general, future research could also  
2 investigate potential variables such as team cohesion, team efficacy, coping styles, and  
3 leadership, in order to provide a deeper understanding of stress experience within teams at both  
4 individual- and collective-levels.

5         In addition to the individualistic or intrapersonal perspective, these results extended  
6 previous studies conducted in team sports (e.g., Anshel & Wells, 2000; Holt & Dunn, 2004; Holt  
7 & Hogg, 2002; Madden et al., 1990; Nicholls & Polman, 2007; Nicholls et al., 2006, 2009,  
8 Noblet & Gifford, 2002; Reeves et al., 2009) and provided information regarding the degree of  
9 similarity of sources of stress appraised within a single team during a game. They showed that  
10 team sport athletes seem to share and experience similar and common game-specific stressors.  
11 The results provided empirical support to research calls to investigate how stressors are appraised  
12 as a team and how athletes' shared appraisals may be congruent or incongruent from their  
13 teammates' appraisals (Crocker, Tamminen, & Gaudreau, 2015). To our knowledge, the present  
14 study is the first to adopt an interpersonal perspective to examine the appraisal and experience of  
15 stressors at collective level within a single team during a game (Tamminen & Gaudreau, 2014).  
16 Communal stressors have been defined as: "when one or more individuals perceives a stressor as  
17 "our" problem (a social appraisal)" vs. "my" or "your" problem (an individualistic appraisal)"  
18 (Lyons et al., 1998, p. 583). The present study provides empirical support for such a statement.  
19 Moreover, our results highlight how such communal stressors are arranged together within the  
20 team to generate team-level configurations of stress.

21         In addition to identification of the nature and degree of similarity of the game-specific  
22 stressors experienced by basketball players, it seems interesting to identify the period of time  
23 during the game when teammates are affected by the same types of stressors. Based on a

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transactional perspective (Lazarus, 1999), stress is viewed as an ongoing dynamic process that involves the individual transacting with his or her environment, appraising the situation. Consequently, exploring stressors appraised by athletes during a game needs to take into account temporal interplay in team members' activities. As such, the temporal view adopted in this study has also allowed tracking of the way in which stressors were simultaneously experienced within the team by a majority of team members during the game. The results showed different patterns of synchronization within the team during the game (see Figure 2). The most frequent synchronizations of team members' stressors were: (a) a player made an error and this error was sufficiently serious to be simultaneously a common source of stress for him and his teammates; (b) a player made an error sufficiently serious to be a common source of stress for his teammates without his being concerned himself; (c) an external event was a common source of stress (e.g., referee, opposing coach); (d) several players were simultaneously concerned by personal performance problems; (e) several players were simultaneously concerned by the level of team performance as a source of stress; (f) several players were simultaneously concerned by the level of opposing team performance as a source of stress. These findings highlighted that a stressor appraised at individual level by one player may also be appraised at the same time during the game by other team members (team level). These results provided additional evidence of moment-to-moment stress contagion phenomena and the temporal shared appraisal and experience of stressors within the team (Bourbousson et al., 2012, 2015; Hatfield et al., 1994). As Vallerand and Blanchard (2000) point out, athletes' stressors may have potential consequences for interpersonal appraisal and behaviours within the team. By examining the temporal interplay in team members' activities, this is the first study to provide support for the synchronized appraisal and experience of stressors within a team during a game. Overall, these findings invite

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future research to consider that phenomena of cognitive or/and emotional entrainment underlie the way in which individual activities are experienced when participants are co-located members of a team and share a common goal (Bourbousson et al., 2012, 2015).

Despite the strengths of this study, some limitations warrant mention. Firstly, the small sample prevents direct generalization to other team sports, although we suspect the results reported here may generalize to other similar groups and teams and present a point of departure for exploring interpersonal stress and coping processes in team sports. Future research could try to replicate these findings with a more comprehensive sample of basketball players at different levels of expertise and/or other sport teams. Secondly, the findings should be interpreted with caution because the match analysed was won (74-58 points). The results need to be supplemented with other game scenarios (e.g., games that are lost or drawn) at different levels of competition to gain a better understanding of the dynamics of the interpersonal processes of stress and coping. Game scenarios and levels of competition are thought to place specific demands and constraints on athletes and teams that could influence appraisal and coping processes at individual and team levels. Future research needs to explore the characteristics of situational demands that lead to communal stressors and coping strategies within teams. Finally, this study adopted a conceptualization of stressors experienced within a team at two levels (individual and team), and did not take into account the characteristics of the stressor, such as controllability, predictability and chronicity. It would be valuable to consider the distinctive characteristics of the stressor and how individual athletes vs. teams appraise and ultimately cope with stressors.

### **5. Perspectives**

Given that team sports are played in highly competitive and demanding environments, under conditions of extreme uncertainty, this study provided a unique insight into stress within

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1 the team sport setting. From both theoretical and applied perspectives, these findings highlighted  
2 the importance for researchers and practitioners to improve understanding of the overall stress  
3 experience of athletes within a team in order to develop action at both individual and team levels.  
4 Sport psychologists may wish to prepare team sport athletes for the variety of demands that they  
5 may face in the game environment. In addition, they may need to focus on teaching athletes  
6 individual and communal effective coping strategies in order to avoid the risk of stress contagion  
7 or choking under pressure (Gómez, Lorenzo, Jiménez, Navarro, & Sampaio, 2015). Social skills  
8 appear to be an important asset and resource to assist adaptation in the face of stress (Clarke,  
9 2006). Future research needs to focus on a more holistic approach, taking into account team  
10 members' sources of stress and coping responses at both individual- and collective-levels, in  
11 order to improve understanding of how athletes interact within the social context of a team and to  
12 develop action to improve individual and communal coping and emotional regulation (Tamminen  
13 & Gaudreau, 2014).

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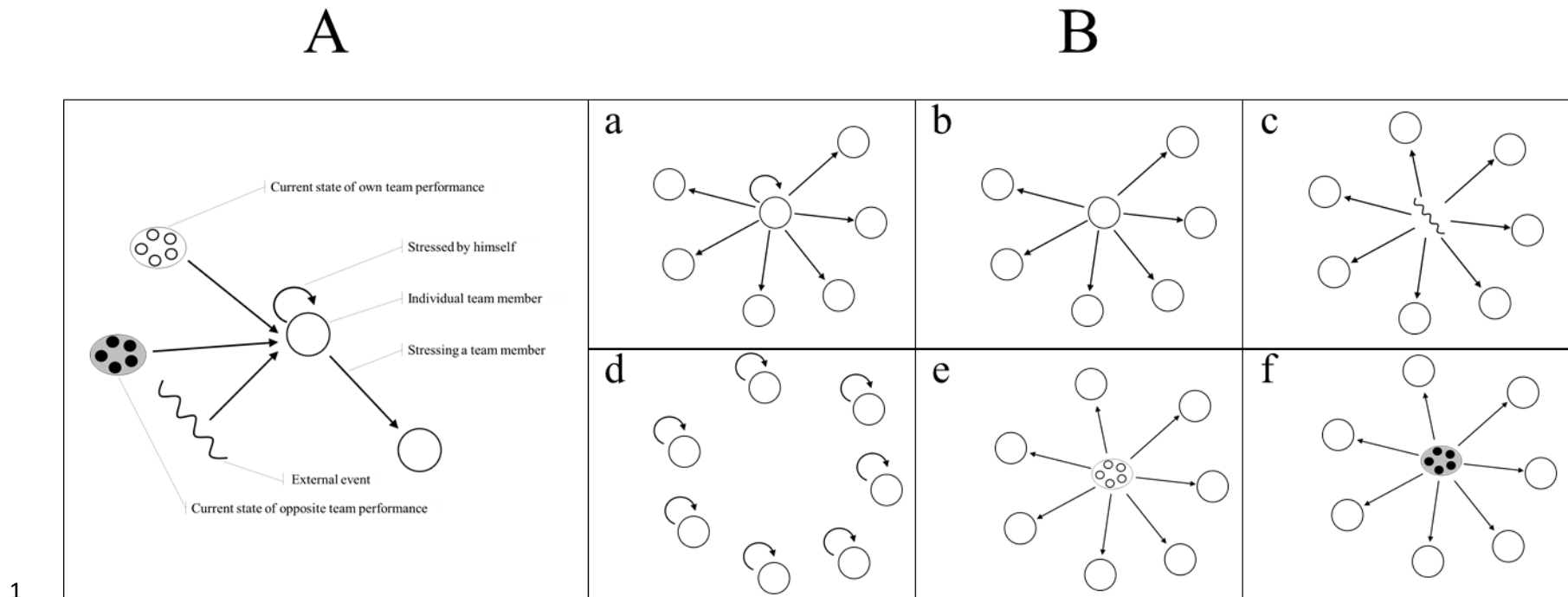
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## STRESSORS WITHIN TEAM GAMES



2 *Figure 1.* Characteristic forms of arrangement of the sources of stress within a team. A- Nomenclature of all possible types of  
 3 arrangements of stressors within a team. B- Characteristic forms of arrangement of stressors at a given instant within a team: (a) one  
 4 player makes an error and this error is important enough to be simultaneously a common source of stress for him and his teammates;  
 5 (b) one player makes an error important enough to be a common source of stress for his teammates without being concerned himself;  
 6 (c) an external event appears as a common source of stress for the team members simultaneously (e.g., referee, coach of opposite team,  
 7 slippery floor, etc.); (d) several players are simultaneously experiencing personal sources of stress (e.g., individual performance  
 8 problems); (e) several players are simultaneously experiencing the current level of team performance as a source of stress; (f) several  
 9 players are simultaneously experiencing the current level of opposite team performance as a source of stress.

## STRESSORS WITHIN TEAM GAMES

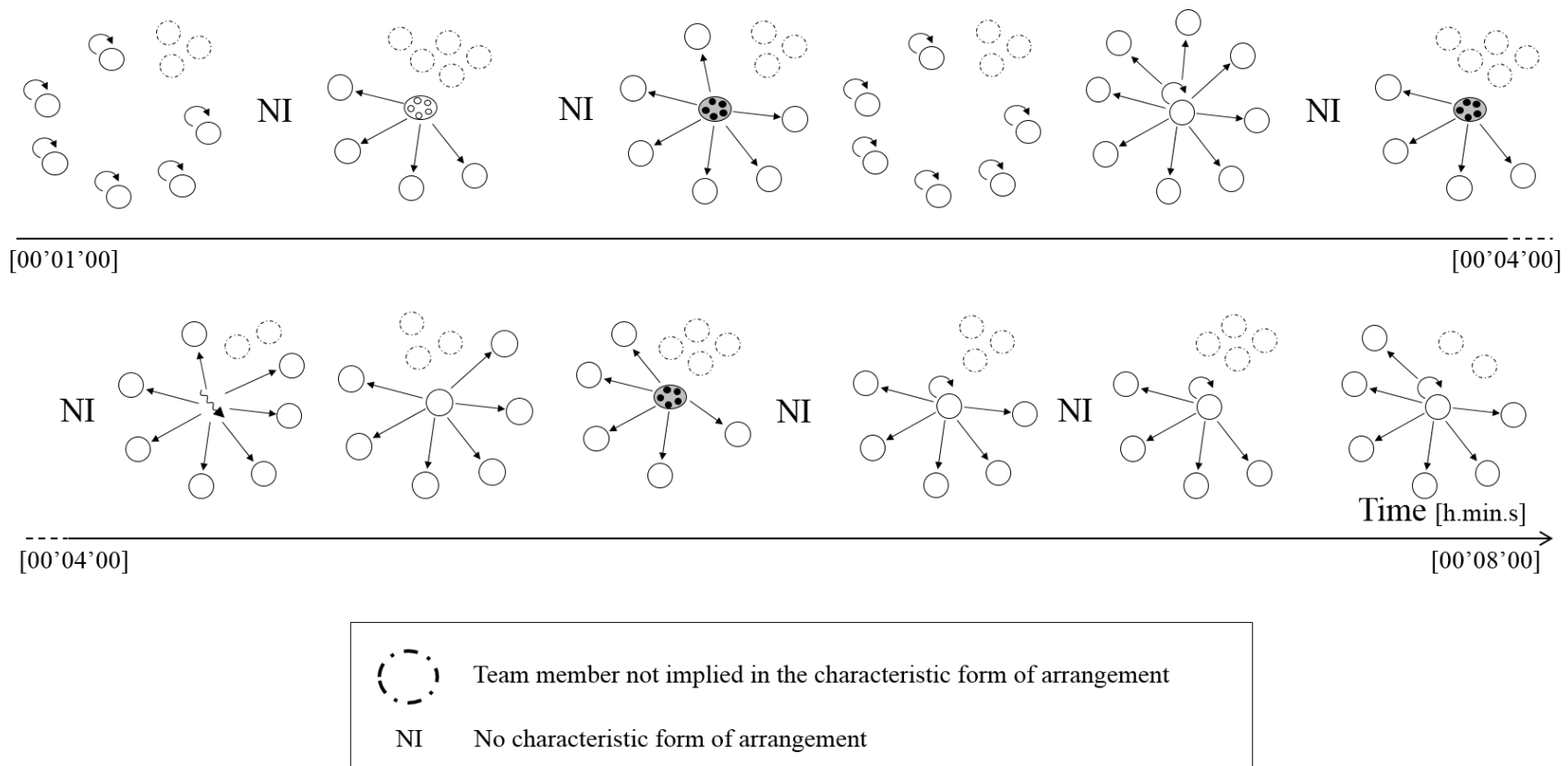


Figure 2. Changes in the forms of collective arrangements of stressors across time during a portion of the game

## STRESSORS WITHIN TEAM GAMES

1 Table 1

## 2 Illustration of the Synchronization of the Nine Players' Meaningful Units at a Given Moment of the Game

[illegible]

## STRESSORS WITHIN TEAM GAMES

1 Table 2

2 *Frequency and intraclass percentage of stressors perceived by team members during a game*

Stressors	Chris		Bertrand		Bastien		Jules		Guy		Noé		Vic		Niels		Vince		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>A- Stressors perceived as affecting the team functioning as whole</b>	<b>45</b>	<b>69</b>	<b>52</b>	<b>62</b>	<b>47</b>	<b>70</b>	<b>109</b>	<b>76</b>	<b>42</b>	<b>66</b>	<b>74</b>	<b>67</b>	<b>30</b>	<b>54</b>	<b>76</b>	<b>65</b>	<b>50</b>	<b>57</b>	<b>522</b>	<b>66</b>
<i>A-1. Level of performance of a team member</i>	17	38	26	50	28	60	68	62	23	55	39	53	12	40	28	38	24	48	265	51
<i>A-2. External factors perturbing team functioning (referee, opposing coach)</i>	7	16	5	10	1	2	14	13	1	2	13	18	6	20	12	16	8	16	67	13
<i>A-3. Engagement and performance level of the team (score management, collective demotivation)</i>	6	13	11	21	2	4	10	9	3	7	9	12	4	13	7	10	5	10	57	11
<i>A-4. Tactical difficulty level presented by the opposition</i>	8	18	4	8	5	11	8	7	5	12	4	5	1	3	6	8	5	10	46	9
<i>A-5. Level of performance of opponents (individual players, luck)</i>	6	13	5	10	9	19	4	4	7	17	3	4	2	7	6	8	3	6	45	9
<i>A-6. Ratio of power</i>	1	2	1	2	2	4	5	5	3	7	6	8	5	17	14	19	5	10	42	8
<b>B- Stressors perceived as affecting a player's own functioning</b>	<b>20</b>	<b>31</b>	<b>32</b>	<b>38</b>	<b>20</b>	<b>30</b>	<b>35</b>	<b>24</b>	<b>22</b>	<b>34</b>	<b>37</b>	<b>33</b>	<b>26</b>	<b>46</b>	<b>39</b>	<b>35</b>	<b>37</b>	<b>43</b>	<b>268</b>	<b>34</b>
<i>B-1. Personal performance problems</i>	6	30	15	47	8	40	10	29	7	32	15	41	17	65	21	54	14	38	113	42
<i>B-2. Mental errors (concentration, negative emotions)</i>	4	20	3	9	4	20	9	26	4	18	5	14	3	12	5	13	9	24	46	17
<i>B-3. Social demands (from teammates, perception of coach's satisfaction, proving your worth)</i>	1	5	8	25	1	5	4	11	4	18	8	22	2	8	6	15	8	22	42	16
<i>B-4. Personal unfavourable game events (opposition, collective organization, score, slippery floor)</i>	4	20	4	13	6	30	4	11	4	18	5	14	1	4	2	5	3	8	33	12
<i>B-5. Physical demands (pain, fatigue)</i>	5	25	2	6	1	5	8	23	3	14	2	5	2	8	2	5	1	3	26	10
<i>B-6. Coach criticism</i>	0	0	0	0	0	0	0	0	0	0	2	5	1	4	3	8	2	5	8	3