Effects of a team building intervention on social cohesion in adolescent elite football players

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Abstract

This study describes a team building intervention and the effects on team cohesion in adolescent elite football players. The team building group (3 teams, $n = 55$) attended 12 weekly 60-minute team building sessions, while the control group (3 teams, $n = 57$) did not. The intervention used the work of Carron and Spink (1993) and Carron, Widmeyer and Brawley (1985) to plan and conduct a practically sound and effective intervention. A Danish version of the Group Environment Questionnaire was used to measure social and task cohesion at baseline and at the end of the intervention, and qualitative interviews with the participants were conducted. Results show that the sub-variable *group integration–social* increased significantly from baseline to end of intervention in the intervention group compared to the control group. The qualitative analysis indicated that the intervention had an effect on the intervention group. Results are discussed regarding practical implications and research.

This study reports the effects of a team building intervention on social cohesion in 3 teams of adolescent football players. The purpose of the study was to 1) conduct an effective team building intervention that would help teams of adolescent elite football players gain better cohesion, and 2) to document the effects of the intervention on cohesion through questionnaires and qualitative interviews.

Team cohesion is perceived to be a key small-group variable (Dion, 2000; Paskevich, Estabrooks, Brawley, & Carron, 2001), as well as a major concept in team building research (Bruner, Eys, Beauchamp, & Côté, 2013) and has, as a consequence, received much research attention. Team cohesion can be defined as "a dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron, Brawley, & Widmeyer, 1998, p. 213). Research suggests that team cohesion affects both team functioning (Carron, Bray, & Eys, 2002; Carron, Colman, Wheeler, & Stevens, 2002; Grieve, Whelan, & Meyers, 2000; Mullen & Cooper, 1994; Zakrajsek, Abildso, Hurst, & Watson II, 2011) as well as perception and behavior of individuals associated with the team (Brawley, Carron, & Widmeyer, 1987; Bruner, Eys, Wilson, and Côté, 2014; Carron & Hausenblas, 1998; Eys & Carron, 2001; Gammage, Carron, & Estabrooks, 2011; Heuzé, Raimbault, & Fontayne, 2006; Marcos, Miguel, Oliva, & Calvo, 2010; Murray, 2006; Prapavessis & Carron, 1996; Spink, Nickel, Wilson, & Odnokon, 2005; Widmeyer & Williams, 1991). It seems important for any team to have high team cohesion so that it can function well and remain united to fulfill the purpose of the group. This will help the team function appropriatly both on and off the field, both in practice and in competition.

In order to create a sensible and effective team building intervention, inspiration was drawn from several sources. Researchers recommend that a systematic and scientific

approach to the team building intervention should be used (Bloom and Loughead, 2012; Brawley and Paskevich, 1997). With regards to the practical implications of the intervention, this is a very important recommendation, as it highlights the need for knowledge informing the decisions concerning the team building intervention. In fact, regardless of whether an intervention is undertaken with a research purpose or a practical purpose, it should always be founded on knowledge, theory, and research, because this is how we as researchers or practitioners give ourselves the best information available to conduct the best team-building intervention available. In this study, it was decided to use knowledge to inform both the practical implementation as well as the theoretical foundation of the team building intervention.

The practical implementation was inspired by the work of Carron and Spink (1993), who use a four-stage team building process consisting of an introductory stage, a conceptual stage, a practical stage, and an intervention stage, to frame the implementation of a team building intervention. This recommendation has been followed in several team building studies (Bruner & Spink, 2010; Carron, Spink, & Prapavessis, 1997; Kleinert et al., 2012; Newin, Bloom, & Loughead, 2008; Prapavessis, Carron, & Spink, 1996).

In addition to Carron and Spink's (1993) work, Carron et al.'s (1985) conceptual model with four team cohesion constructs, were used to form the systematic theoretical approach to the team building intervention. The conceptual model of team cohesion operates with two levels of cohesion: group and individual (Carron, Widmeyer, & Brawley, 1985). On the group level, team cohesion can be defined as team member closeness, similarity, and bonding together as a group (Carron et al., 2002). In the conceptual model of team cohesion, this is labeled as *group integration*. On the individual level, team cohesion pertains to what extent the individual team member wants to be accepted as a member of the group (Carron et al., 2002). In the

conceptual model of team cohesion, this is labeled as *individual attraction to group*. Furthermore, the conceptual model of team cohesion distinguishes between the instrumental objectives of the team and the social aspects of team cohesion, named *task* and *social*, respectively (Carron et al., 2002). Thus, the conceptual model holds four team cohesion constructs that are both conceptually and operationally distinct from each other: *group integration–task*, *group integration–social*, *individual attraction to group–task* and *individual attraction to group–social* (Carron & Hausenblas, 1998).

Several practical recommendations have been made for conducting team-building interventions (Brawley & Paskevich, 1997). These were also taken into consideration, and are described below.

One suggestion is to consider the sample chosen for the team building intervention. In this study, adolescent participants were recruited, and we tailored the intervention to fit the age group (see description of team building intervention). Brawley and Paskevich (1997) also suggested that it could be problematic to use the coach or leader as agent of change in the team building intervention. The coach/leader may not have the sufficient skills or knowledge to lead such an intervention. Therefore, it was decided to use a sport psychology consultant to facilitate the team building intervention.

Turning to the second aim of the study, documentation of the effects of the team building intervention, a few things should be taken into consideration. First, a study should produce new knowledge to the field. Most research on team cohesion has been conducted with participants of collegiate age or older. In their meta-analysis of team building interventions in sport, Martin, Carron, and Burke (2009) included 17 team building interventions. Of these, only one included participants of a younger age,

namely high school age (Senécal, Loughead, & Bloom, 2008). Furthermore, many published studies not included in Martin et al.'s (2009) meta-analysis have no participants of high school age or younger (Collins & Durand-Bush, 2010; Pain & Harwood, 2009; Voight & Callaghan, 2001), with few exceptions (Barker, Evans, Coffee, Slater, & McCarthy, 2014; McLaren, Eys, & Murray, 2015). Consequently, there is little knowledge on how a team building intervention will affect athletes of high school age or younger. This is a challenge, because adolescent athletes might perceive cohesion differently than adult atheltes (Eys, Loughead, Bray, & Carron, 2009a), and because adoloscent athletes have a shorter time to increase cohesion, as they each year change the age bracket, and hence many of their teammates. This study included a sample of younger athletes to investigate effects of the intervention, thereby adding to the existing bulk of knowledge.

Brawley and Paskevich (1997) further recommended to use both pre and post testing with a control group, and this has been recommended by Bloom and Loughead (2012) as well. Therefore, this study used a quasi-experimental design, with pre and post testing as well as a control group, but without random assignment. Furthermore, the intervention effects were investigated with a qualitative study with interviews of the participants.

To sum up, the aim of the study was to 1) conduct a team building intervention with adolescent elite football players, and 2) investigate the effects of the team building intervention on team cohesion through questionnaires and qualitative interviews. Our primary hypothesis was that the team building intervention would increase both social dimensions of team cohesion. This focus on social cohesion was due to the nature of the intervention, which was mainly focused on social cohesion (see intervention description below).

Method

Participants

A sample of 112 players was recruited from six youth teams (two under 15 [years of age], two under 17 and two under 19 teams) from three local football clubs. Participants' age ranged from 14 to 19 at the time of the intervention start. All participants were informed orally of the aim of the research project, that data would be treated confidentially, that participation was voluntary, and that they could drop out of the study at any time without consequences. It was not required to obtain institutional ethical approval for the study, as this is only required for invasive studies in Denmark.

One team from each age group was assigned to the team building group ($n = 55$, age $M = 16.37$, $SD = 1.51$), and one team from each age group was assigned to the control group ($n = 57$, age $M = 16.25$, $SD = 1.61$). The control groups were asked by their club managers to participate, and were offered a two-hour team building workshop for their participation. This workshop would take place after end of the intervention. Due to logistic concerns, the teams from the three clubs were assigned to the intervention and control group as can be seen in table 1, securing that both intervention and control group had one team of each age group.

Table 1. Overview of how the teams were assigned to intervention and control group

Club Age group	A	B	C
Under 15		Intervention	Control
Under 17	Intervention	Control	
Under 19	Intervention	Control	

If the clubs are not evenly represented in the team building and the control group, the study could be vulnerable to confounding variables. However, we attempted to overcome this challenge by finding similar teams. The clubs worked independently of each other, but were similar in terms of league placing (highest league in the particular age group), training facilities (all teams had access to grass and artificial turf fields, locker rooms, meeting rooms and strength training), and coaches (one head coach for each team, no assistant for the under 15 teams and one assistant for the under 17 and under 19 teams), and all teams had access to an athletic trainer and a physiotherapist. All teams played at the highest level in Denmark, and all players had more than 10 hours of training per week, excluding games. Furthermore, we performed a qualitative evaluation of the intervention, which also served as a manipulation check.

The Team Building Intervention

The participants assigned to the team building group participated in 60-minute sessions once per week for 12 weeks. All intervention sessions were carried out by the first author, a sport psychology consultant. The sessions took place before or after their training sessions in a meeting room at the participants' training facilities. The form of the sessions was short presentations given by the first author (on average, 25% of session time), group discussions (15%), and team building exercises performed individually (20%) or in groups of varying size (40%). In designing the team building intervention systematically, inspiration was drawn from Carron and Spink's (1993) work, in which they view a team building program as a four-stage process consisting of an introductory stage, a conceptual stage, a practical stage, and an intervention stage.

The purpose of the introductory stage was to convince participants of the benefits of the team building intervention. This was done during the first session of the team building intervention, in which advantages of high team cohesion were discussed. In the conceptual stage, elements of team cohesion are identified. For the team building intervention in the present study, Carron et al.'s (1985) conceptual model of team cohesion were chosen as the theoretical standpoint.

In the practical stage of Carron and Spink's (1993) four-stage process, practical strategies for targeting specific elements of the conceptual model of team cohesion were chosen. Carron and Spink's (1993) conceptual framework and research on team building interventions (Bull, Albinson, & Shambrook, 1996; Dunn & Holt, 2004; Eys, Burke, Carron, & Dennis, 2006; Munroe, Terry, & Carron, 2002; Yukelson, 1997) revealed a number of factors to target in the intervention. These factors can be put into the three broad categories of Carron and Spink's conceptual model, namely *group environment, group structure* and *group processes.* The factor distinctiveness (unique identifiers, traditions and history) can be attributed to group environment. The factors individual positions (clear roles on the team) and group norms (values and behavior, showing how individual contributions can help team success) were categorized as group structure. The factors individual sacrifices (encouraging everybody to make sacrifices for the team and praise it) and interaction and communication (opportunities for athlete input and interaction, create an environment that fosters mutual respect and trust) were included under group processes.
The selected sample was taken from elite clubs with teams playing in the highest league, with a highly planned and coordinated season and training schedule, heavy monetary investments and players with the potential to evolve into professional athletes. Therefore, we considered the following in planning and organizing the team building intervention.

First, the sport managers and coaches of the clubs decided the instrumental aspects of the teams' cohesion. Before the intervention began, clear goals had already been set in terms of results, development as a team and for individual players, and the number of players chosen for selected teams (e.g. playing with a higher age group or playing for conference or national teams). The coaches of the clubs had also constructed plans to achieve these instrumental goals, and set some individual goals and roles for the players. Therefore, the research team decided to exclude elements of an intervention on task cohesion, that would possibly interfere with team and individual goals set by the coaches and clubs.

Second, it was decided, in mutual agreement between the research team and managers/coaches at the clubs that the intervention should start in the pre-season, after the teams had been together for 20 to 25 days. That particular point in time was appropriate for three reasons: (a) it would give the coaches and the team time to get into the training routine and feel comfortable with the training setting after pre-season start, (b) no more players would be cut or added to the teams after this point, (c) this would be the time where training focus was planned to change from individual fitness to sporting cooperation, and (d) the team would start playing training games. At this point, the teams had not participated in team bonding activities that could increase team cohesion, apart from one to three team meetings, in which tactics were discussed. All parties deemed this point in time optimal, but this posed challenges when planning the team building intervention. From spending time together, the players on each team would already have had the chance to form cohesion. Furthermore, some participants played together in the previous season, potentially adding to this cohesion. That left the research team with the task of building team cohesion, when the teams were already cohesive to some extent.

Third, as some managers and coaches prioritized their work with primarily the instrumental side of the team, they did not have the time to engage in the work of planning the team building process. Consequently, we planned the team building intervention without manager and coach input and cooperation. This being said, the managers and coaches of the teams were generally willing to set up time slots and logistics for the interventions. For the same reason, not all the managers and coaches attended the team building sessions regularly, and it was decided by the research team not to include them as an important part of the sessions.

The above organizational framing of the study revealed three main factors that could be approached: distinctiveness under group environment in Carron and Spink's (1993) conceptual model, group norms in the form of values, behavior and individual contributions under group structure, and interaction and communication between the players under group processes. After weighing the possibilities for effective activities, four main intervention areas were chosen: *Communication*, *inter-player evaluations* and *empathy* would target the broad category group processes, and *establishing norms and values* would target the broad category group structure. The last broad category, group environment, in which distinctiveness is a component, was not targeted during this intervention, because we felt that distinctiveness was already a major part of the teams' cohesion. They were playing for the same team in the same club, and had the same training clothes and gear.

In the intervention phase of Carron and Spink's (1993) four-stage process, the intervention areas were distributed over the intervention period as displayed by table 2.

Table 2

Content of the sessions in the intervention

Weeks 1 to 3: communication.	The objective of these sessions was to have the players get used to the form of the sessions, and to learn tools that would help them communicate more freely and effectively. Exercises were designed to facilitate open and respectful communication on a personal level, so the participants could get to know each other as persons, not only as football players.
Weeks 4 to 6: inter-player evaluations.	The objective of these sessions was to establish a tradition where the players evaluated each other, on football skills and performance as well as personality. Exercises were designed to give the participants the tools to help each other develop as persons and as football players. These exercises could affect both the social and the task cohesion of the teams, but we deemed that the exercises would not interfere with any of the instrumental goals set by the sport managers and coaches of the teams.
Weeks 7 to 10: establishing norms and values.	In these sessions, the goal was for the players to establish values and norms for the team, as well as deciding on behaviors to enforce the values and norms. Exercises were designed to help the participants decide, how the team environment should be on and off the pitch. The team values and norms, as well as the behaviors enforcing these, where set in the social context on and off the pitch. Some values, norms and behaviors (5 of 35 in total) agreed upon did transfer into the on-pitch context, but did not interfere with any of the instrumental goals set by the sport managers and coaches.
Weeks 11 to 12: empathy.	The focus of the final sessions was to establish higher empathy between the players by introducing them to different personality styles and how to communicate with these.

Quantitative Measurements and Statistical Analysis

Based on the conceptual framework of team cohesion, Carron et al. constructed a questionnaire, The Group Environment Questionnaire (GEQ; Carron et al., 1985), to

measure team cohesion, as comprised of the four dimensions. Although the questionnaire has received some criticism for lack of validity and reliability (Bray & Whaley, 2001; Schutz, Joo Eom, Smoll, & Smith, 1994; Westre & Weiss, 1991), it has generally received extensive empirical support (Carron et al., 1998; Dion, 2000). A Danish version of the GEQ, based on a version in English, was used to measure team cohesion (Elbe, 2008). The Danish version of the GEQ has produced reliability scores ranging from .71 to .87 on the four team cohesion constructs (Elbe, 2008). The questionnaire contains 18 items, four for group integration–task and individual attraction to group–task, respectively, and five for group integration–social and individual attraction to group–social, respectively. The questionnaire uses a Likert-scale answering format ranging from 1 (*completely disagree*) to 9 (*completely agree*). Of 18 items, 12 of these are negatively worded. The values for each subscale are found by calculating the mean of the items tied to each subscale, after reversing negative items. Data was gathered by distributing the questionnaire to both intervention and control groups after the participating teams' training sessions in the same week. This procedure was followed before the start of the intervention (baseline), and when the intervention ended (end of intervention). All data was gathered before the season ended, to avoid confounding effects of this. Statistical analysis was conducted with Predictive Analytics Software 18 (PASW 18). Scale reliabilities were tested with Cronbach's alpha and subsequently using an analysis of item-total correlation with Pearson's product-moment correlation coefficient (Streiner & Norman, 2008).

An independent samples t-test was used to compare baseline levels of team cohesion. Effects of the team building intervention were analyzed by comparing the mean scores of the team building and control groups at the end of intervention, adjusting for baseline score using a multiple linear regression model. Participants who had not

filled out questionnaires at a given measuring point were excluded from the analyses that included that particular measuring point.

Qualitative interviews and analysis

In order to evaluate the content of the team building intervention, a second researcher performed qualitative interviews. These interviews also served as a manipulation check. Six interviewees from the team building group were chosen, three from the under 17 team and three from the under 19 team. The interviewees where chosen with the aim of representing the sample as best as possible, in terms of position on the team and how long the player had been with the team. Therefore, the interviewees chosen were the captain of each team, one player who had been with the team for at least one season, and one player who was new to the team. Two semi-structured interviews were conducted for each interviewee, one after four weeks of the intervention, and one at the end of the intervention. For analysis of the interviews, a phenomenological approach was used, in which participants' lived experiences of a phenomenon are investigated in order to capture the essence of the phenomenon (Creswell, 2007; Smith, Flowers, & Larkin, 2009). The interviews were performed with a semi-structured interview-guide (Kvale & Brinkmann, 2007), in which the topics *life as a football player*, *expectations towards the team building intervention*, *experiences with the team building intervention*, and *the team and friendships* were included in the first interview, and the topics *life as a football player*, *good and bad experiences during the season*, *the team and it's cohesion*, *experiences with the team building intervention*, *the team and friendships*, and *new initiatives after the team building intervention* were included in the second interview (in chronological order). Drawing on Creswell (2007) and Kvale and Brinkmann (2007), transcripts were analyzed in three phases. First, interviews were read to identify the themes connected to the intervention. These were *communication*, *responsibility*, *new friendships*, *values* and *development of new practices* (in chronological order). Second, all

significant interview statements connected to a specific major theme were clustered together and used to describe participants' lived experiences of that theme. Third, significant interview statements of the participants' lived experiences were used to write a composite description of each major theme. These are presented in the results section. In addition, the theme *the teams' sense of cohesion and expectations towards the team building intervention* was also identified, but is excluded from the results, as it did not offer information to clarify whether the intervention had been effective.

Results

Reliability of the data

All four subscales of the GEQ demonstrated unacceptable Cronbach's alpha values at both baseline (group integration–task = .34, group integration–social = .51, individual attraction to group–task = .41, and individual attraction to group–social = .38) and at end of the intervention (group integration–task = .46, group integration–social = .64, individual attraction to group–task = .59, and individual attraction to group–social = .36). None of these could be improved to acceptable levels by dropping an item in the scale. However, the values of the subscale group integration–social were approaching acceptable levels (Baseline: .51, end of intervention: .64). To test quality of the data, an item-total correlation test (Streiner & Norman, 2008) with an acceptable level of .20 (Kline, 1986) was performed on all items in the subscale group integration–social. As can be seen from table 3, all items revealed satisfactory values. Therefore, it was decided to proceed with analysis of group integration–social, but not with individual attraction to group-social, group integration-task, and individual attraction to group-task, as these had unacceptable Cronbach's alpha values.

Table 3. Item-total correlation for the subscale group integration–social

	Baseline	End of intervention
Item 11:	.27**	.39**
Item 13:	.21*	.37**
Item 15:	.25**	.44**
Item 17:	.33**	.56**

The Effect of the Intervention on Group Integration-Social (2)

The levels of group integration–social scores at baseline were 5.89 ($SD = 1.26$) for the team building group and 5.86 ($SD = 1.40$) for the control group, and the independent samples t-test revealed that the groups did not differ significantly at baseline. The levels of group integration–social scores at the end of the intervention were 6.10 ($SD = 1.44$) for the team building group and 5.81 ($SD = 1.20$) for the control group.

Regression analysis revealed that after 12 weeks of team building, the team building group's score for group integration–social was .46 (95% CI: 0.02 to 0.89, $p = .045$) higher than that of the control group, when adjusting for baseline scores. The effect size was .20, indicating that the effect was small to medium, explaining 4% of the total variance (Field, 2009). These results confirm the hypothesis that the team building intervention would increase group integration–social over 12 weeks.

Qualitative Interviews

Overall, the results from the interviews suggested that the participants had responded to the team building intervention and transferred the team building to their behaviors in football. As the results also serve as a manipulation check, we believe that the intervention was effective. The themes that emerged in the analysis are described below, with all quotations translated from Danish.

Communication

The phenomenological analysis suggested that the interviewees had learned to be more effective in their communication and the players on the teams as a whole spoke up more and delegated responsibilities to each other. Furthermore, it seemed that the team as a whole had a bigger emphasis on constructive feedback compared. While this was only transferred to the football field to some extent, the interviewees stated that they felt that the personal bonds between the players on the teams had been strengthened, and that they were able to talk more freely to each other and help each other with improving as football players.

Responsibility

The interviewees stated that they thought more about responsibility and that there was more respect and acceptance of the role distribution between the players. Furthermore, they felt that some players were more willing to take responsibility and fight for their team: "Be in the front line, wanting the ball, if we get behind, show myself so the others won't hold back and hide, and then yes, be in the front line, go hard into the tackles, show that we must pull ourselves up and get back in the game".

New friendships

The analysis suggested that new friendships were formed on the teams during the intervention: "I've gone home to somebody's house, who I didn't see myself going home to six months ago, eh after practice, and play some Playstation or something like that, so it has helped me in any case". This had special significance for the new players in the team, who felt welcome and had the courage to open up to the other players in the team: "You learn something with them, where you sit and talk instead of just practicing, there you don't talk together a lot, aside playing football".

Values

The interviewees stated that they enjoyed the process of creating values for the teams, and felt that it had strengthened their sense of cohesion, together with their awareness of the importance of cohesion: "It was actually the best for the team, I think, that we ourselves, we feel, we get it out there in any case, what we think the team needs". The discussion on values created new norms for the teams, in which the players took more responsibility on the pitch and worked harder for their teammates: "If things go bad, one can't hang his head down and stand and nag, get on with it and run back to defense. So the others on the team can see that you really want this, that you're not just here for yourself or for fun". Towards the end of the season, it seemed that not all players on the teams adhered to the values due to the fact that they knew they would not be chosen for the professional team when the season ended.

Development of new practices

The analysis showed that a culture, in which the players took more responsibility and had more influence, developed on the intervention teams. New practices, in which the players partook to a greater extent, were developed for match planning and evaluation: "Against (removed for confidentiality purposes), our coach didn't have any team talk, he asked what we thought we should focus on for the day's game. And then we sat there as a team and had to work out, what we should go out and do on the field, we agreed to have a good attitude and to get our game going… not let the referee or the opponents affect us, we should help each other and inspire each other". The interviewees state that they developed new possibilities for action and learning by talking to and evaluating with the other players on their teams. It seems that a higher level of knowledge sharing and consciousness with regards to responsibilities and action possibilities was developed during the intervention: "I felt the team was more conscious that we had to go out there and deliver, because sometime when the coach talk, then you might sit in your own little world and don't hear what you

should do. Here, you yourself have been a part of thinking. Then it sticks more consciously in your brain". Furthermore, the new practices that arose during the intervention were used after the intervention ended, suggesting that the intervention had a lasting impact on the intervention teams.

Discussion

The aim of this study was to conduct a team building intervention with adolescent elite football players and to document the effects of this intervention.

Practical implications and reflections

Beginning with the intervention and the practical implications, we employed the work of Carron and Spink (1993) as well as the work of Carron et al. (1985) as knowledge foundation for the intervention, as recommended by several authors (e.g. Bloom & Loughead, 2012; Brawley & Paskevich, 1997). This seemed to work very well. In light of the positive results and findings from other studies using the four-stage process (Bruner & Spink, 2010; Carron et al., 1997; Newin et al., 2008; Prapavessis et al., 1996) the four-stage process seems to be a useful tool for designing team building interventions.

It seems a team building intervention can enhance cohesion in a sample of elite adolescent football players, although cohesion is viewed differently by young athletes (Eys et al., 2009). This is important, because youth players may need team building more than adult players, because they change teams more due to the age bracket shift. However, conducting an effective team building intervention may be difficult for several reasons. First, cooperation with coaches and staff is important. Many coaches and staff may feel that the sport psychology practitioner is moving in on an area that was his/her responsibility. Another common coach reaction to a team building intervention is to not partake to the full extent, which was the case in this study. Also,

many coaches want to decide on the instrumental goals of the team themselves (especially in elite teams), which was also the case in this study, leaving the sport psychology practitioner with less possibility to conduct an effective intervention. Therefore, it is very important that coaches and the rest of the staff are involved in planning the team building intervention (including a discussion of the team's isntrumental goals) before clear player and team goals had been set, and that they participate to such an extent that the team building intervention can be the most effective. This will not only secure sufficient participation by the coaches and staff, but also make sure that they do not feel that the sport psychology practitioner is moving in on their areas of responsibility.

Second, the intervention should be planned in order to maximize the effects of the intervention. For example, it should be considered, if the intervention is held on or outside the field. In this case, the team building itnervention involved sessions with communication and talking, making a room in the club the best choice. However, it should always be considered if the intervention can be conducted as close to the actual sporting context as possible, since the transfer of development will be greater. Similarly, a team building intervention with a football team should begin at the same time the team gathers to start training. This will give a sport psychology consultant the possibility to intervene on task cohesion and help the team develop cohesion-appropriate behaviors.

If performance is a desired outcome for the team (and it usually is), task cohesion can be a very important tool, as it is connected to performance (ref.), and should be a primary target in many team building interventions. In the present study, the team building intervention could not affect all task dimensions of cohesion, as goals had been set for both team and individual players on the teams. Since social cohesion has

a weaker connection to performance, impact of social cohesion on team performance was probably in part mediated by task cohesion.

Study results and reflections

Our results support our primary hypothesis that a team building intervention can be used as an effective intervention to increase social cohesion in young elite football players, who spend a great deal of time together. The effect of the intervention was somewhat small (a .46 increase from a baseline mean level of 5.87 and an effect size of .20). This can be attributed to a number of reasons. First, the participants had already spent time together, allowing the teams to develop cohesion before the intervention. Second, the participants spent at least 10 hours per week together, making the 12 hours of team building intervention over the course of three months seem to be of lower impact in comparison. Third, the teams were quite large (an average of 18.67 players on each of the teams), making it harder to increase team cohesion. Widmeyer, Brawley, and Carron (1990), as well as Carron and Spink (1995) found that a negative relationship between team cohesion and team size, suggesting that team cohesion suffers in big groups, as would be the case in this study. Considering these reasons, we believe that the intervention was effective despite the small effect.

In line with Brawley and Paskevich's (1997) suggestions, we employed a quasi-experimental design in the current study, with pre and post testing of both team building and control group. A number of newer research studies have not included pre and post testing (e.g. Collins & Durand-Bush, 2010) or a control group (e.g. Newin et al., 2008; Pain & Harwood, 2009). We consider it a strength of the current study that we included this, although we did not randomize the two groups.

Limitations of the Study

A main limitation of this study is that the the GEQ did not show satisfactory reliability in three of four subscales. This limits the number of conclusions that can be drawn from this study. Although the GEQ has been widely used and the reliability often confirmed (Carron et al., 1998), some studies report this problem. Westre and Weiss (1991) reported values of reliability that were too low in all four subscales of the GEQ, in a sample of high school athletes. In their study of the relationship between team cohesion, performance, and expended effort in high school athletes, Bray and Whaley (2001) also found the GEQ to provide unacceptable levels of reliability. Bruner and Spink (2010) also found low scale reliabilities for the GEQ with their sample aged 13 to 17. Furthermore, Schultz, Joo Eom, Smoll, and Smith (1994) investigated the factorial structure of the GEQ with 740 high school varsity athletes and concluded that the data did not support the hypothesized structure of the GEQ. They also found Cronbach's alpha values to be below the acceptable level of .70. Taken together with the results of the present study, it raises questions concerning the appropriateness of using the GEQ with high school athletes and other younger samples.

Perceptions of team cohesion in youth sport participants have been investigated by Eys et al. (2009a). They suggested that perceptions of team cohesion in youth athletes are different from those in adults and initiated the design of the Youth Sport Environment Questionnaire, a questionnaire to measure team cohesion in youth sport groups (Eys, Loughead, Bray, and Carron, 2009b). This questionnaire has been used in recent studies (e.g. Bruner, Eys, Wilson, & Côté, 2014). As the new Youth Sport Environment Questionnaire (Eys et al., 2009b) was not available at the time of research design, intervention, and data gathering in the present study, it was decided to use the GEQ, as it was deemed the best option for a valid measurement of team cohesion.

Conclusion

This study described a team building intervention conducted with three teams of adolescent elite football players. The intervention was theoretically underpinned by Carron and Spink's four-stage process (1993) and the conceptual model of team cohesion (Carron et al., 1985), which gave the study a strong connection between theory and practice. The effects are mainly seen in social cohesion, which was assessed with a mixed-methods approach. Quantitative results were obtained with a questionnaire at baseline and at endline, while qualitative findings were obtained using individual interviews.

On the basis of the findings in this study, we suggest that the mixed-methods approach, as well as a strong theoretical underpinning should be used in future research on team building. This approach can be used with other target groups, of different sports, cultural orientations, age, training conditions (amount of training hours, club environment, etc.), and level of performance (eltie vs. leisure-oriented). As team cohesion seems to be a very important team factor, we also suggest that team building is considered when planning the season as well as weekly schedules. We believe it will give the coach and the athletes better condition to perform and be happy in their sport. While team building can seem irrelevant to the uneducated eye at first sight, it can give many teams better social and task conditions, and a clear advantage in the long run.

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Supplemental material 1: The team building intervention protocol

Week no (Phase)	Content	Exercises
1 (communica-tion)	Presentation round. Introduction to the intervention. Introduction to communication.	Exercise, in which the players had to do trust falls, both in pairs and in groups, and from different heights.
2 (communica-tion)	Summary of last time. Effective communication. How to communicate effectively and be understood.	Acrobatics competition, in which the participants had to from human pyramids with a set number of hands and feet touching the ground.
3 (communica-tion)	Summary of last time. Introduction to feedback – timing and how to give constructive criticism.	Exercise in two groups: Each group had to come up with a human pyramid that the other group had to copy. One person from each group was to the only one to see the the other group's pyramid, and had to tell the persons from their own group how to copy the pyramid.
4 (inter-player evaluations)	Summary of last time. Discussion of how the participants could give each other constructive feedback.	Exercise, in which the participants should evaluate on each other as football players. They should tell them three positive things, and three things that should be improved. Exercise in pairs, where one participant had a simple drawing, and had to explain to the partner how it should be drawn, without showing the drawing.
5 (inter-player evaluations)	Summary of last time. Discussion of how the participants could give each other constructive feedback.	Exercise, in which the participants should evaluate on each other as football players. They should tell them three positive things, and three things that should be improved. Exercise, in which two teams had to translate runes into a word over three different areas, and the participants had to communicate between the areas to find out how the runes corresponded to letters of the word.

6 (inter-player evaluations)	Summary of last time. Discussion of how the participants could give each other constructive feedback, and on how the players could help each other become better players and persons.	Exercise, in which the participants should evaluate on each other as football players. They should tell them three positive things, and three things that should be improved. Exercise, in which the participants individually had to perform a specific person by miming (randomly assigned to them), and the other participants had to guess the right person.
7 (Team values)	Summary of last time. Introduction to team values as guidelines for behavior on the team.	Exercise, in which the players individually had to write down the five core values of the team, and then play a game, in which the participants could challenge each other's values in groups of four. Exercise, in which the participants in groups of four had to build a building from a small selection of materials such as cardboard and straws. The buildings were evaluated on four criteria to find a winner.
8 (Team values)	Summary of last time. Continuation of team values as guidelines for behavior on the team.	Continuation of last week's exercise, in which the players individually had to write down the five core values of the team, and then play a game, in which the participants could challenge each other's values in groups of four. After the first round, each group ended up with three core values, and one representative from each group had to play a second round, in which they could challenge the other groups' values. Exercise, in which the participants in two groups had to solve a logical puzzle with numbers, and place the numbers in the right sequence in a grid on the floor.
9 (Team values)	Summary of last time. Continuation of team values as guidelines for behavior on the team.	Continuation of last week's exercise, in which each group ended up with three core values, and one representative from each group had to play a second round, in which they could challenge the other groups' values. Exercise, in which the participants were given a picture each, and without showing their picture to anyone, had to find the right order of all the pictures.

10 (Team values)	Summary of last time. Continuation of team values as guidelines for behavior on the team.	Exercise: Now that the three core values of the team had been established, the participants were asked to find at least three positive actions that strengthened the values. This was done in groups of four. The product was three values and nine to 12 positive actions that were printed on posters that were hung up in the teams' dressing rooms. Exercise, in which the participants had to copy a lego figure over three areas, and had to communicate to each other how the figure was built.
11 (Personality and empathy)	Summary of last time. Introduction to empathy and personality differences.	Participants were asked to fill out a short personality test to find out their personality's build up from four personality types. This was used as a base for discussion of personality types and how to talk to each of the types. Exercise, in which the participants had to assign each other to positions on the field based on their personality types.
12 (Personality and empathy)	Summary of last time. Continuation of discussion on personality types, and how to handle different personalities. Discussion on how the teams could increase cohesion in the future.	Quiz, in which the participants went through the important points of the whole intervention. Exercise in groups of three, where the participants discussed what had been the most important points of the intervention.