

*Chapter 8*

## TEAM COHESION: FROM THEORY TO RESEARCH TO TEAM BUILDING

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### ABSTRACT

Historically, cohesion has been identified as *the most* important small-group variable (Golembiewski, 1962; Lott and Lott, 1965). Not surprisingly, a considerable amount of research has examined the construct of cohesion over the last five decades. Therefore, the purpose of this chapter is to provide an overview of the research examining cohesion. The chapter begins by reviewing the various definitions that have been used to measure cohesion and suggests based on group theory that cohesion is best defined by the definition proposed by Carron, Brawley, and Widmeyer (1998). Using the Carron et al. definition as a basis, the characteristics of cohesion are presented along with the conceptualization and operationalization of cohesion as reflected by the Group Environment Questionnaire (GEQ; Carron, Widmeyer, and Brawley, 1985). Following this, a conceptual framework highlighting the antecedents and the consequences of cohesion—namely the cohesion-performance relationship—are examined. Finally, research is reviewed and suggestions are made for researchers and practitioners interested in building cohesive teams.

**Keywords:** cohesion, team building, group environment questionnaire, cohesion-performance relationship

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## INTRODUCTION

A long-standing tenet in psychology is that human behavior is a product of two factors: personal (i.e., dispositions that originate within the individual) and situational (i.e., characteristics present in the individual's environment) factors. That is, while human behavior can be described solely as an individual construct, the importance of groups in regard to behavior cannot be underestimated (McGrath, 1984). According to McGrath, groups are the "instruments for influencing, shaping, [and] changing individuals who are their members" (p. 5). In fact, Baumeister and Leary (1995) have argued that individuals have a need to belong to groups and that groups satisfy a fundamental human motive.

One perspective of group functioning has posited cohesion as being central to group success (Carron, 1982). Cohesion, historically, has been identified as *the most* important small-group variable (Golembiewski, 1962; Lott and Lott, 1965). Given its importance, it is not surprising that several definitions of cohesion have been advanced over the last five decades.

## DEFINING COHESION

Festinger, Schachter, and Back (1950) proposed one of the earliest definitions of cohesion. These researchers defined cohesion as "the total field of forces that act on members to remain in the group" (p. 164). Furthermore, the authors suggested that two sources contribute to cohesion: (a) the attractiveness of the group, and (b) the ability of the group to assist individual members achieve their goals. However, later that same year, Festinger (1950) proposed another definition, which created some uncertainty as to the meaning of this construct by suggesting that cohesion was "the resultant of all the forces acting on members to remain in the group" (p. 274). According to Mudrack (1989) the distinction between the two definitions is subtle yet important. In the Festinger et al. (1950) definition the "total field of forces" implied that researchers needed to identify and subsequently measure all "forces" that influence a member to either remain or to leave a group. On the other hand, the Festinger (1950) "resultant of all the forces" definition insinuated that only those "forces" relevant to the group required attention on the part of the researcher. Gross and Martin (1952) criticized the Festinger et al. (1950) definition and subsequently forwarded cohesion as "the resistance of a group to disruptive forces" (p. 553). Gross and Martin argued that their definition was superior to the Festinger et al. (1950) definition since it addressed the construct from the perspective of what keeps groups together. Gross and Martin contended that in a crisis situation, a group would stay united depending on the bonds among its members.

Although there were various definitions of cohesion (e.g., Festinger, 1950; Festinger et al., 1950; Gross and Martin, 1952), difficulties in the operationalization of the construct existed. As Cota, Evans, Dion, Kilik, and Longman (1995) indicated that it was difficult to operationalize Festinger et al.'s "field of forces". In addition, Brawley, Carron, and Widmeyer (1988) discussed one of the difficulties of operationalizing the Gross and Martin definition. They noted that important ethical issues prevented researchers from exposing groups to disruptive events or external threats. Given the troubles in operationalizing the construct, cohesion was subsequently measured as the attraction of the group to its members

(Libo, 1953). However, it is important to note that cohesion is more than just members' attraction to the group. As a result, it was noted that unidimensional models of cohesion are problematic since they have limited generalizability to other types of groups (Cota et al., 1995). Furthermore, narrow conceptualizations of cohesion hindered the integration of empirical findings. Therefore, a conceptualization and definition that reflected the multidimensional nature of cohesion was required. In fact, several theoreticians in group dynamics (e.g., Cota et al., 1995; Mudrack, 1989) suggested that cohesion was best defined as "a dynamic process that 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, and Widmeyer, 1998, p. 213). It is important to note that the Carron et al. definition evolved from a similar and earlier definition advanced by Carron in 1982. In the revised definition, however, the authors included an affective component.

### THE CHARACTERISTICS OF COHESION

The advantage of Carron et al.'s (1998) definition was that it highlighted four important characteristics in understanding the nature of cohesion. The first characteristic was that cohesion be viewed as a *multidimensional* construct. That is to say, there are numerous factors that caused a group to stick together and remain united. In addition, what caused one particular group to stick together may not be present in another similar type of group. Therefore, the multidimensional nature of cohesion did not imply that all dimensions will be equally present across groups (Carron and Brawley, 2000). For example, a football team may be high in social unity (e.g., team members like each other) however may not be united about how to achieve its task objectives (e.g., some team members may be more concerned about achieving individual goals instead of team goals). On the other hand, another football team may be very cohesive on task objectives yet lack social unity.

A second characteristic of the Carron et al. (1998) definition reflected the *dynamic* nature of cohesion. Cohesion can change over time so that factors contributing to cohesion at one stage of the group's development may not be salient at another stage of the group's life. For instance, when a team initially comes together, task unity may play a fundamental role (e.g., having similar team goals), however as the group develops over time, social unity may be of primary importance (e.g., socializing with team members during the off-season).

A third characteristic reflected the *instrumental* nature of cohesion. That is, all groups come together for a purpose. Intuitively, many groups, including sport teams, form for task-oriented reasons. Moreover, even groups that appear to form for "social" reasons (e.g., social club) have an instrumental foundation for their formation. That is, individuals come together because the group fulfills the need to belong on a social level.

A fourth characteristic was the *affective* dimension of cohesion. Carron and Brawley (2000) noted that bonding whether it is for task or social reasons is satisfying to members. Baumeister and Leary (1995) pointed out that bonding is related to positive affect (e.g., enjoyment), whereas, a feeling of exclusion may lead to negative feelings (e.g., depression, anxiety, loneliness).

## THE CONCEPTUALIZATION AND OPERATIONALIZATION OF COHESION

Mudrack (1989) pointed out that defining cohesion appears to be a straightforward task since the construct seems to be intuitively easy to describe and understand. However, as Carron and Brawley (2000) noted the challenge is taking the definition and translating it into an operational measure. In fact, Mudrack argued that confusion, inconsistency, and sloppiness, historically dominated the measurement of cohesion. Furthermore, Carron, Widmeyer, and Brawley (1985) pointed out three measurement issues that characterized earlier studies of cohesion, which may have lead to the previously discussed problems. First, these early studies treated cohesion as a unidimensional construct, thus most early researchers treated only one factor of cohesion—namely attraction to other group members. As noted by its multidimensional nature, cohesion is more than interpersonal attraction (Escovar and Sim, 1974). Second and somewhat related to the first point, studies not measuring interpersonal attraction directly, measured aspects related to interpersonal attraction by examining factors such as group members' desire to stay in their current group (e.g., Schachter, Ellertson, McBride, and Gregory, 1951), group members' affinity to their group (e.g., Converse and Campbell, 1968), and the importance group members placed on group membership (e.g., Arnold and Straub, 1973). Consequently, by measuring cohesion in a variety of ways, the findings could not be compared (Carron et al., 1985). Third, the psychometric properties of these earlier measures were suspect. The use of various and inappropriate measures of cohesion made it nearly impossible to determine the reliability and/or validity of these measures (Carron et al., 1985).

In order to overcome some of the shortcomings in regard to the measurement of cohesion, Carron et al. (1985) advocated the development of a new conceptual framework. They reasoned that instead of using patchwork methods to repair existing measures, such as the Sport Cohesiveness Questionnaire (Martens, Landers, and Loy, 1972) and Multidimensional Sport Cohesion Inventory (Yukelson, Weinberg, and Jackson, 1984), or develop new measures with similar problems, it was essential to go to the root of the measurement problem—the lack of a clear conceptualization.

Given that cohesion is a group property, it was necessary to develop a conceptual model that was grounded in group dynamics theory. Carron et al.'s (1985) conceptual model was based on three fundamental assumptions from group dynamics theory. The first assumption was based on research from social cognition theory suggesting that cohesion can be evaluated through perceptions of individual group members (Carron et al., 1998). Given that groups have observable properties, such as roles and status of group members, individuals within groups experience various social situations, and develop certain beliefs about the group, which they then integrate into perceptions concerning the group.

The second assumption based on the group dynamics literature recommended the need to distinguish between the group and the individual. As a result, the Carron et al. (1985) framework assumed that each group member held cognitions concerning the cohesiveness of the group which were related to the group as a totality and the degree to which the group satisfied personal needs and objectives. Carron et al. have labeled these two types of cognitions as: (a) *group integration* "which reflects the individual's perceptions about the closeness, similarity, and bonding within the group as a whole, as well as the degree of

unification of the group field" (Carron et al., 1998, p. 217) and (b) *individual attractions to the group* "which reflects the individual's perceptions about personal motivations acting to retain him or her in the group, as well as his or her personal feelings about the group" (Carron et al., 1998, p. 217).

The third assumption based on the group dynamics literature distinguished between task- and social-oriented concerns of the group and its members (cf. Cota et al., 1995). Therefore, the Carron et al. (1985) framework incorporated a task and social distinction in its conceptualization of cohesion. The *task orientation* represented the general orientation or motivation towards achieving the group's goals (Carron et al., 1998). On the other hand, the *social orientation* represented the general orientation or motivation towards maintaining and developing social relationships within the group (Carron et al., 1985).

The combination of the individual-group and task-social components resulted in a four dimension conceptual model (see Figure 1). As Figure 1 shows, the four dimensions of cohesion as represented by the conceptual model are: *Individual attractions to the group-task* (ATG-T), *Individual attractions to the group-social* (ATG-S), *Group integration-task* (GI-T), and *Group integration-social* (GI-S). Carron et al. (1998) provided a constitutive definition for each of these four dimensions. Individual attractions to the group-task (ATG-T) is viewed as the attractiveness of the group's task, productivity, and goals for the individual personally. Individual attractions to the group-social (ATG-S), on the other hand, is defined as the attractiveness of the group as a social unit and social interaction and friendship opportunities available for the individual personally. Group integration-task (GI-T) is the individual's perceptions of task unity within the group as a whole. Finally, group integration-social (GI-S) is the individual's perceptions of the social unity within the group as a whole.

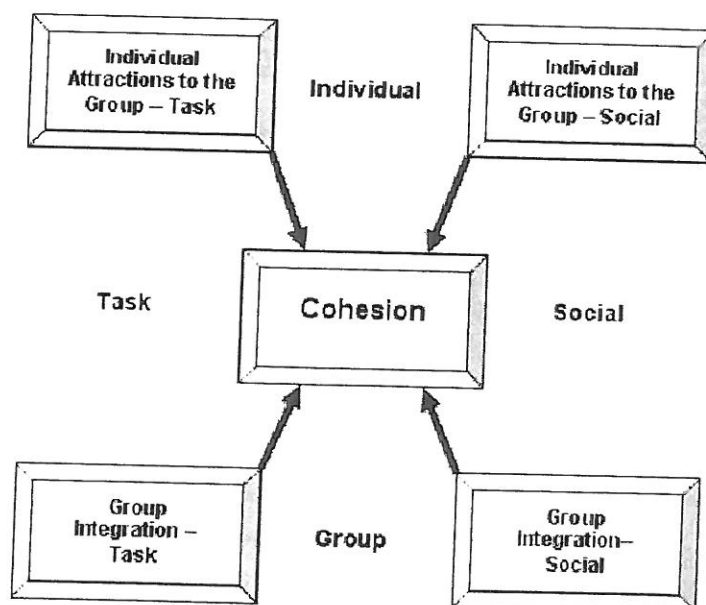


Figure 1. A conceptual framework for the study of cohesion in sport. From A.V. Carron, W.N. Widmeyer, and L.R. Brawley, "Development of an Instrument to Assess Cohesion in Sport Teams: the Group Environment Questionnaire," in the *Journal of Sport Psychology*, 7 (1): page 248, figure 1. © 1985 by Human Kinetics. Reprinted with permission from Human Kinetics (Champaign, IL).

With a theoretically driven conceptual framework established, the next step in overcoming the shortcomings of previous measures was the development of a measure that incorporated the four dimensions of cohesion as represented in the Carron et al. (1985) conceptual model. The result was the development, from 1982 to 1984, of the *Group Environment Questionnaire* (GEQ; Carron et al., 1985). The GEQ is an 18-item inventory that assesses four dimensions of cohesion and items are measured on a 9-point Likert scale anchored at the extremes by 1 (strongly disagree) and 9 (strongly agree). Out of the 18 items, 12 items need to be reversed coded; thus higher scores represent stronger perceptions of cohesiveness. The ATG-T scale contains 4 items and an example item is: "This team does not give me enough opportunities to improve my personal performance". The ATG-S scale contains 5 items and an example item is: "For me, this team is one of the most important social groups to which I belong". The GI-T scale contains 5 items and an example item is: "Our team is united in trying to reach its goals for performance". Finally, the GI-S scale contains 4 items and an example item is: "Members of our team would rather go out on their own than get together as a team".

Since the development of the GEQ (Carron et al., 1985), several studies have been undertaken to examine its psychometric properties. More specifically, research has shown that the GEQ is internally consistent (e.g., Carron et al., 1985) and demonstrates content (e.g., Carron et al., 1985), concurrent (e.g., Brawley, Carron, and Widmeyer, 1987), predictive (e.g., Carron, Widmeyer, and Brawley, 1988; Eys and Carron, 2001; Westre and Weiss, 1991; Widmeyer, Brawley, and Carron, 1990; Williams and Widmeyer, 1991), and factorial validity (e.g., Carron et al., 1985; Li and Harmer, 1996). It is worth noting that the cornerstone of any instrument is its validity (Carron et al., 1998). To date, research has shown that the GEQ is reliable and valid; however, it is important for researchers to keep in mind that validation is an on-going process and not an endpoint (Carron et al., 1998). This point is highlighted by the fact that the GEQ's factor structure has yet to be confirmed utilizing an appropriate heterogeneous sample of athletes.

One concern regarding the GEQ has been the low internal consistency values for certain GEQ subscales. This has led researchers to omit the offending subscale(s) from analyses (e.g., Bloom and Stevens, 2002). In addition, this issue has been investigated from both design and conceptual perspectives. From a design perspective, Eys, Carron, Bray, and Brawley (2003) examined the influence of negatively worded items. More specifically, Eys et al. compared the original version of the GEQ containing negatively worded items with a version of the GEQ consisting of all positively worded items. Three of the four subscales using the original GEQ had significantly lower Cronbach's alpha levels or internal consistency, as compared to the same subscales comprised of solely positively worded items. From a conceptual perspective, Carron, Brawley, and Widmeyer (2002) argued that sports teams vary in their degree of group development at any one time. Given this and cohesion's dynamic and multidimensional nature, it should be no surprise that team members have sometimes answered items assessing the same manifestation of cohesion inconsistently, leading to poor internal consistency. Moreover, negatively worded items were purposely included in the GEQ in order to counter response bias due to social desirability. Nonetheless, the GEQ represents the best measure of cohesion for sport.

The conceptually driven development of the GEQ has offered several advantages some of which were noted earlier in this chapter. For instance, cohesion has been measured as a multidimensional construct—that is, more than a single factor binds group members together.

As well, the GEQ considers the task and social dimensions of cohesion from both an individual and group perspective. Finally, the antecedents and consequences of cohesion are not incorporated into the GEQ (Carron et al., 1985). Therefore, researchers are better able to examine the factors that contribute to cohesion and the consequences of cohesion.

### CONCEPTUAL FRAMEWORK FOR THE STUDY OF COHESION

Carron (1982) advanced a conceptual framework for the examination of cohesiveness in sport teams. The Carron framework is a linear model consisting of inputs, throughputs, and outputs (see Figure 2). According to Carron, the inputs are the antecedents of cohesion, the throughputs are the different manifestations of cohesion, and the outputs are viewed as the consequences of cohesion (e.g., performance). The antecedents contributing to cohesion are classified into four categories: environmental, personal, leadership, and group. The *environmental factors* represent the organizational system of the group and are viewed as the most general category contributing to cohesion. The next component influencing the cohesiveness of a group is *personal factors*. Carron noted it is difficult to outline an all-inclusive list of personal factors but these may include, although not limited to the following: task motivation (i.e., completion of group's task), affiliation motivation (i.e., establishing and maintaining happy, harmonious relationships), and self-motivation (i.e., achievement of direct, personal satisfactions from the group). The third component of factors influencing cohesion can be categorized as the *leadership factor*. According to Schriesheim (1980) there are two leadership factors that have influenced group cohesiveness: leader behavior and leadership style. The fourth component of factors influencing group cohesiveness is the *group factor* which includes aspects such as group task, group success, group orientation, group productivity norm, group ability, and group stability. In summary, the four factors (i.e., environmental, personal, leadership, and group) highlighted above will influence the throughput of cohesion.

As for the consequences or outputs of cohesion are concerned, the conceptual framework classified them into individual and group outcomes. In addition, both of these outcomes can be further classified in terms of actual and relative perceptions of performance (Carron, 1982).

### Antecedents and Consequences of Cohesion

Since the development of the conceptual model of cohesion and the GEQ, research examining the antecedents and consequences of cohesion has been extensive. As a result, the following section will summarize a portion of the subsequent literature. That is, the following section will summarize some of the recent research that has examined the antecedents of cohesion within the following categories: environmental, personal, leadership, and group factors and the consequences of cohesion—that is, the cohesion-performance relationship.

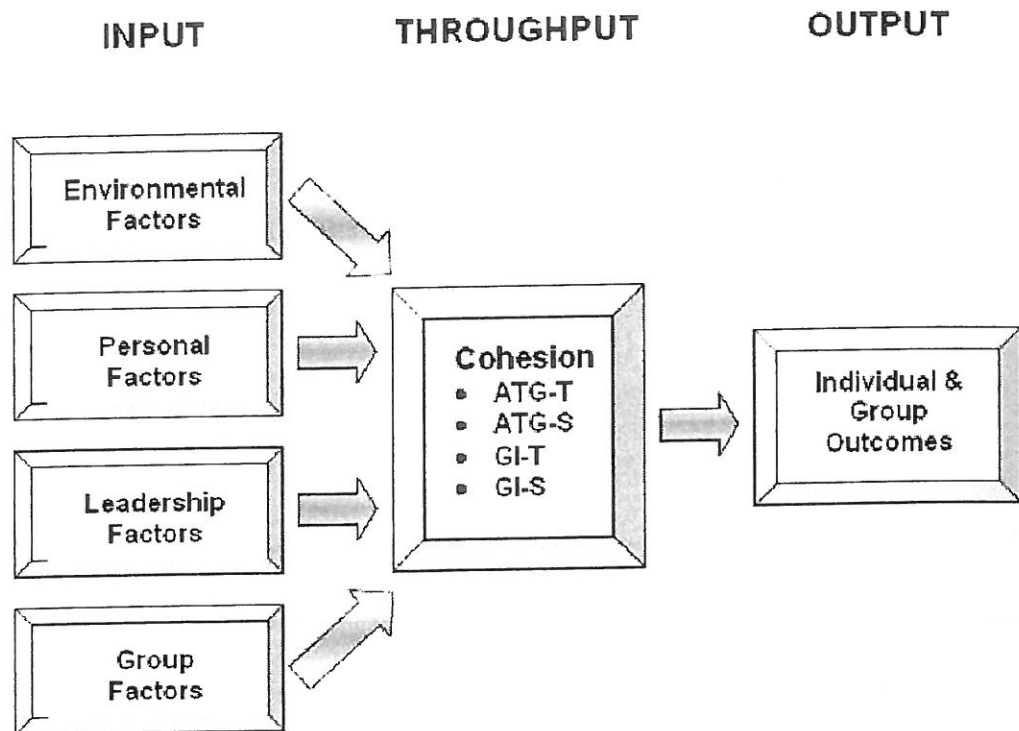


Figure 2. A conceptual model of cohesion. From A.V. Carron, "Cohesiveness in Sports Groups: Interpretations and Considerations," in the *Journal of Sport Psychology*, 4 (2): page 131, figure 1. © 1982 by Human Kinetics. Reprinted with permission from Human Kinetics (Champaign, IL).

## Environmental

### *Group Resistance to Disruption*

In examining the group resistance to disruption-cohesion relationship, Brawley et al. (1988) conducted two studies. In the first study, only elite male and female teams ( $n = 7$ ) were sampled from a variety of sports (e.g., field hockey, ice hockey, soccer, basketball, wrestling, and volleyball). The athletes ( $n = 89$ ) from these teams were asked to identify events that they thought would be disruptive to their team and were subsequently asked to rate the degree to which these events would be disruptive. In addition, the athletes also completed the GEQ to assess team cohesion. The results showed athletes who perceived high team cohesion (GI-T, GI-S, ATG-T) viewed their team as more resistant to disruptive events than athletes on teams with perceived low cohesiveness. In addition, the majority of disruptive events pertained to incidents involving specific individuals on the team (e.g., individual group members leaving the team). The authors argued that what was now required were disruptive events that affected the team as a whole. Using a similar protocol, Brawley et al. (Study 2) asked elite sport team athletes ( $n = 102$ ) and intramural sport team athletes ( $n = 107$ ) to identify events their entire team believed to be disruptive and to rate the degree of disruptiveness (e.g., the whole team not getting along). Similar to the results in the first study,

both elite and intramural athletes on high cohesive teams (GI-T, GI-S, ATG-T) viewed their team as more resistant to disruptive team wide events than athletes on low cohesive teams. Taken together, these results suggested that regardless of level of competition (elite, recreational), a positive relationship was shown between group resistance to disruption and cohesion.

### ***Group Size***

Carron (1990) suggested that as groups increase in size, cohesion between group members is reduced. The author noted that the opportunity to develop strong relationships between members is more difficult in larger groups. For example, in a dyadic relationship where there are only two group members, there is only one potential relationship. On the other hand, when a group contains five members, there is a potential for 10 relationships. Therefore, it could be argued that sustaining 10 strong relationships would be more difficult than maintaining one strong relationship.

To date, research examining group size in sport has been sparse. Nonetheless, Widmeyer et al. (1990) conducted two studies examining the effects of group size on cohesion. In their first study, individuals were assigned to a team consisting of three, six, or nine member teams participating in a 3-on-3 basketball league and cohesion was measured pre-and post-season. The results indicated that the only pre-season cohesion variable able to differentiate among the three team sizes was ATG-T. Specifically, ATG-T was highest for those individuals playing on teams comprised of three members and least for teams with nine group members. On the other hand, the results showed that three post-season cohesion subscales (i.e., ATG-T, ATG-S, GI-S) were able to differentiate among the three team sizes. In particular, social cohesion was greatest in teams consisting of six members; whereas ATG-T was greater on teams of three members. In the second study, Widmeyer and colleagues examined the varying sizes of the action unit (i.e., the number of players participating during a volleyball match). Each participant competed in matches of 3 versus 3, 6 versus 6, and 12 versus 12. The findings from this second study showed that as group size increased perceptions of enjoyment decreased and cohesion decreased as group size increased. As a caveat, the type of cohesion that was affected by group size could not be discriminated since a two-item scale that assesses cohesion globally was used in the second study. Due to the rules of sports that limit the number of players/athletes competing at any one time, the applied implications of the apparent effect of group size may appear negligible. That said, it is still important for coaches to remember that carrying too many players on their roster may impact negatively on individuals' perceptions of cohesion.

## **Personal**

### ***Sacrifice Behavior***

Sacrifice has been defined as the behavior whereby an individual voluntarily initiates an action or gives up a privilege for the sake of another individual or individuals without regard to reciprocity (Prapavessis and Carron, 1997b). Research by Prapavessis and Carron (1997b) examined the relationship between cohesion and sacrifice behavior. The researchers operationalized sacrifice behavior as a multidimensional construct consisting of four

dimensions. First, *inside sacrifice* represented task-related sacrifices made by oneself and one's teammates in competitive and/or training situations. Second, *outside sacrifice* was related to sacrifices made by oneself and one's teammates at work or at home. Third, *teammates social sacrifice* represented sacrifices made by teammates in relation to their social life. Fourth, *personal social sacrifice* represented sacrifices made in one's social life. Overall, the results showed a positive relationship between cohesion and sacrifice behavior. More specifically, GI-T was related to inside sacrifice ( $r = .43$ ), outside sacrifice ( $r = .25$ ), and teammates' social sacrifice ( $r = .46$ ). In addition, GI-S was associated with inside sacrifice ( $r = .34$ ), and teammates' social sacrifice ( $r = .37$ ).

In an ethnographic study of university level soccer, Holt and Sparkes (2001) examined factors that contributed to cohesion. Similar to Prapavessis and Carron (1997b), the authors found a relationship between cohesion and sacrifice behavior. According to their field notes, individual sacrifices made during game play improved group integration aspects related to the task. For instance, in explaining one of the important games during the season, the researchers noted that all the players "ran and sacrificed". When a team member could no longer compete after 60 minutes, this individual signaled to exit the game. The player had played to the point of exhaustion and had sacrificed his personal game for the benefit of the team. Another personal factor that emerged in the study was selfishness. Players who exhibited this type of behavior were viewed as a disruptive force that negatively affected the overall cohesiveness of the team. However, when the players were perceived as being less selfish and making sacrifices for the good of the team, the team climate changed from being a less cohesive to a more cohesive unit. Taken together, the sacrifice-cohesion research findings suggest that coaches and practitioners should remind team members of the sacrifices made for their teams in order to strengthen the team's task and social unity.

### *Anxiety*

Prapavessis and Carron (1996) noted that enhancing the dynamics of the group might improve the psychological state of an individual. Prapavessis and Carron explored the relationship between cohesion and competitive state anxiety. The researchers assessed 110 high level athletes from a variety of sports (e.g., ice hockey, soccer, rugby, basketball). Athletes completed the GEQ at a midweek practice and then assessed the intensity of cognitive anxiety, somatic anxiety, and self-confidence fifteen minutes prior to competition. The results indicated that athletes who expressed higher task cohesion, manifested as ATG-T, had lower levels of precompetition cognitive anxiety.

Although the results from Prapavessis and Carron (1996) highlighted the relationship between cohesion and anxiety, state anxiety research has suggested that preexisting measures of precompetition anxiety tap only the *intensity* of symptoms and not the *direction* or *interpretation* the individual attaches to those symptoms (see Mellalieu, Hanton, and Fletcher, this volume, for a review). Consequently, Eys, Hardy, Carron, and Beauchamp (2003) extended the work of Prapavessis and Carron by investigating the relationship between cohesion and the interpretation that athletes attach to the intensity of precompetitive cognitive and somatic symptoms associated with anxiety. Participants included 392 athletes from the sports of soccer, rugby, and field hockey. Using the same protocol as Prapavessis and Carron, athletes completed the GEQ after a practice session and completed the anxiety inventory just prior to competition. The results demonstrated that athletes who perceived their cognitive anxiety symptoms as facilitative had higher perceptions of ATG-T and GI-T than athletes

who perceived their cognitive anxiety symptoms as debilitating. In addition, athletes who perceived their somatic anxiety symptoms as facilitative had higher perceptions of GI-T. Although both cohesion-anxiety studies do not permit conclusions to be made regarding causation, the findings do hint at the possibility of group level team building interventions enhancing personal level variables (e.g., state anxiety); an additional benefit to such intervention strategies.

### **Work Output**

Prapavessis and Carron (1997a) investigated the relationship between cohesion and individual work output—operationalized as a percentage of  $VO_2$  max using the participant's heart rate and lactic acid levels. The participants consisted of 252 elite level athletes from a wide range of interactive team sports (e.g., rugby, soccer, netball, water polo). The findings showed that task cohesion, as manifested by ATG-T, was positively related to individual work output. That is, work output was higher in participants who viewed their team as more task cohesive. Along the same line, Bray and Whaley (2001) examined the cohesion-work output relationship in 90 high school varsity basketball players. Work output was measured using an adapted version of the Expended Effort Scale from the Intrinsic Motivation Inventory (Ryan, 1982). The results revealed that work output was positively related to all four dimensions of cohesion (ATG-T,  $r = .21$ ; ATG-S,  $r = .26$ ; GI-T,  $r = .31$ ; GI-S,  $r = .10$ ). Taken together, these studies provide support for the notion that cohesion is positively related with individual work output.

### **Self-handicapping**

The term self-handicapping represents the strategies individuals use to protect their self-esteem by adopting excuses for future events that may impede success (Carron, Prapavessis, and Grove, 1994). It is believed that sport is an ideal social context for individuals to employ self-handicapping strategies since it is a situation that is high in evaluative potential, success is uncertain, and the threat to self-esteem is present if failure occurs (Carron et al., 1994). Cohesive groups as suggested by Carron et al. could provide individuals with psychological protection by diffusing potential threats to self-esteem. Results from 221 male athletes revealed that athletes with the disposition to self-handicap, as reflected in excuse making (tendency for individuals to advance impediments that could negatively impact on performance) were more likely to perceive their team as lower in task cohesiveness as manifested by ATG-T and GI-T. In other words, a negative relationship was found between self-handicapping (excuse making) and task cohesion.

Given the previous study utilized a male only sample, Hausenblas and Carron (1996) examined both male ( $n = 101$ ) and female athletes ( $n = 144$ ) from a variety of sports: basketball, synchronized swimming, rowing, track and field, soccer, and volleyball. The results were similar to those found by Carron et al. (1994) whereby athletes with a higher predisposition of self-handicapping, manifested as excuse making, and who perceive their team to be highly task cohesive, as reflected by ATG-T, are more likely to set in place barriers to affect future performances. Therefore taken together, the results from these two studies showed that task cohesion was related to self-handicapping, as manifested by excuse making, in both male and female athletes across a wide variety of sports.

### **Mood**

Cohesion has been found to be associated with an individual's mood (Terry, Carron, Pink, Lane, Jones, and Hall, 2000). Mood was measured using the Profile of Mood States-C (Terry, Keohane, and Lane, 1996), which assesses six dimensions of mood: anger, confusion, depression, fatigue, tension, and vigor. In general, the results indicated that when athletes perceive themselves to be a part of a cohesive group, they tend to experience enhanced mood. More specifically, athletes who perceived their team to be high on ATG-T were more likely to feel less tension and anger. As well, athletes perceiving their team high on GI-T were more likely to feel less depression. Insofar as social cohesion is concerned, athletes high in ATG-S were more likely to feel high in vigor and low in depression.

### **Leadership**

Westre and Weiss (1991) were one of the first to examine the relationship between cohesion (using the GEQ) and leadership. Using male high school American football players, the researchers found that players who perceived their coaches to engage in higher levels of training and instruction, democratic behavior, social support, and positive feedback perceived higher levels of task cohesion. The testing of the relationship between social cohesion and leadership measures was not, however, possible due to inadequate internal consistency scores ( $\alpha < .70$ ) on the social cohesion scales.

Replicating the Westre and Weiss (1991) study, Pease and Kozub (1994) examined female high school basketball players. Similar to Westre and Weiss, the results revealed that coaching behaviors were positively related to task cohesion. Specifically, the cohesion measure of GI-T was positively related to the coaching behaviors of training and instruction, and democratic behavior. As well, ATG-T was positively associated with the coaching behavior of training and instruction. In other words, athletes who perceived their coach to exhibit high levels of these coaching behaviors also perceived their team to be more task cohesive. Although, Westre and Weiss were unable to examine the relationship between social cohesion and leadership, Pease and Kozub found none of the coaching behaviors were related to the social manifestations of cohesion.

Gardner, Shields, Bredemeier, and Bostrom (1996) also examined the leader behavior-cohesion relationship in the sports of baseball and softball. The results revealed that the coaching behaviors of training and instruction, democratic behavior, social support, and positive feedback were positively related to task cohesion (a summation of ATG-T and GI-T scales). On the other hand, the coaching behavior of autocratic behavior was negatively related to task cohesion. Unlike Pease and Kozub (1994), however, the coaching behaviors of training and instruction, and social support were positively related to social cohesion (a summation of ATG-S and GI-S scales). Taken together the results revealed that a positive relationship between leadership and cohesion.

## Group Factors

### *Norms*

Gammage, Carron, and Estabrooks (2001) were among the first researchers to examine the influence of team norms on cohesion in sport. Group norms reflect what the team considers to be acceptable individual behavior (Carron and Hausenblas, 1998). The participants were 324 undergraduate university students who responded to scenarios associated with athletes training in the off-season. In the scenarios, information pertaining to both group cohesion and the norm for productivity was systematically manipulated to produce extreme conditions. In general, the results indicated that the norm for off-season productivity was a moderator in the cohesion-performance relationship. Specifically, it was found that when cohesion was high and there was a high team productivity norm led to a higher probability of off-season training.

Although the Gammage et al. study was important in establishing a norm-cohesion relationship, there were some limitations. First, there were some questions in regard to ecological validity. As Gammage et al. pointed out "the role of group norms ... should be examined using real teams involved in real competitive situations" (p. 15). Second, only one type of norm was examined: the norm for productivity in the off-season. In fact, Munroe, Estabrooks, Dennis, and Carron (1999) found, using a qualitative methodology, that norms existed within sport teams in four specific contexts: practice, competition, off-season, and team social situations.

Given the importance of studying norms using real sport teams and that several different norms exist in sport, Patterson, Carron, and Loughhead (2005) examined the influence of team norms on the cohesion. The sample consisted of 298 athletes (112 males, 186 females) from 24 university and club level interactive and coactive sport teams. Four normative contexts were examined: norms for competitions, practice, the off-season, and social situations. The results showed that athletes gave greatest effort when on teams possessing stronger norms for social interactions and higher team social cohesion (i.e., GI-S).

### *Roles*

Roles are one family of correlates of cohesion that has received increasing research attention. Roles are defined as a pattern of behavior that is expected of a person in a social situation (Carron and Hausenblas, 1998). One particular role dimension that has attracted the interest of investigators has been role ambiguity, which refers to a lack of clear, consistent information regarding the actions required in a particular position (cf. Eys and Carron, 2001). It could be expected that when role ambiguity is low, the perception of cohesion is high since all team members are not in conflict as to their function on a team. Overall, the results from a small sample ( $n = 79$ ) of varsity basketball players demonstrated that task cohesion (ATG-T, GI-T) is related to role ambiguity (e.g., Eys and Carron, 2001). That is when role ambiguity is low; task cohesion is greater on sport teams. See Eys, Beauchamp, and Bray (this volume) for a more detailed review of roles and its relationship to team cohesion. Taken together, the group factor components of norms and roles are two factors that have recently been examined in relation to cohesion. Based on the empirical evidence to date, it appears that these two factors influence athletes' perception of cohesion. Therefore coaches and athletes should be

aware of the importance in establishing standards of expectations (i.e., norms) and having clearly defined roles in attempts of fostering higher levels of cohesion.

### The Relationship Between Cohesion and Performance

Researchers, practitioners, coaches, and players implicitly place great emphasis on the importance of the cohesion-performance association (e.g., Bloom, Stevens, and Wickwire, 2003), with the general belief that more cohesion is better for performance (Hardy, Eys, and Carron, 2005). Regardless of the empirical presence of a relationship between these variables, coaches prefer to work with close, cohesive teams as opposed to non-cohesive teams (Miller, 1997). Researchers from both mainstream and sport psychology have extensively investigated the presence and direction of the relation between cohesion and performance. Furthermore, research attention has also focused on whether team cohesion is the *cause* or the *result* of performance. Mullen and Copper (1994) noted "either direction is plausible. On the one hand, group cohesiveness could energize and direct group members towards successful task completion. ... On the other hand, excellence in performance should make group members feel much better about the group" (p. 215).

Although heavily criticized for their inability concerning inferences about causation (see Rogosa, 1980), the use of cross-lagged panel study designs has been frequent in cohesion research examining the direction of the cohesion-performance relationship (e.g., Carron and Ball, 1978; Martens and Peterson, 1971; Peterson and Martens, 1972; Slater and Sewell, 1994). Typically, such designs involve the measurement of cohesion and performance on (at least) two occasions (e.g., early season and late season). As a result, data examined within the same time panel (e.g., correlation between early season cohesion and early season performance) is pertinent to the presence of an association between these two variables. Moreover, information regarding the associations between early season cohesion and late season performance (i.e., cohesion as the *cause* of performance) as well as between early season performance and late season cohesion (i.e., cohesion as the *result* of performance) is generated. Simply put, a substantially stronger correlation implies the causal direction of the cohesion-performance relationship.

When individual cohesion-performance studies are inspected, a rather confusing picture emerges. The lack of conceptual and methodological clarity has been noted for this ambiguity in early cohesion research (e.g., Carron and Ball, 1978). As noted earlier, Mudrack (1989) summarized that early cohesion research was "dominated by confusion, inconsistency, and almost inexcusable sloppiness with regard to defining the construct" (p. 45). A mainstream psychology study by Bakeman and Helmreich (1975) on aquanauts offers a specific example. Bakeman and Helmreich were the first to apply the cross-lagged panel design to the examination of the cohesion-performance relationship. A moderate to strong ( $r = .65$ ) positive correlation between the two variables was found. Although a strong positive performance-to-cohesion relationship ( $r = .72$ ) was reported, the cohesion-to-performance association was found to be non-significant. However, it should be noted that two issues may have contributed to this finding; (a) the sample employed was small ( $n = 10$ ), and (b) the acknowledged lack of statistical independence. Moreover, as Carron and Ball (1978) noted, the utilization of behavior-related measures of cohesion as well as the nature of the aquanauts' task limits the generalizability of the results to the sport environment.

The overall picture from the sport-specific literature is equally perplexing. Sport research has found negative (e.g., Lenk, 1969; McGrath, 1962), positive (e.g., Carron and Ball, 1978; Martens and Peterson, 1971), and no relationships (e.g., Melnick and Chemers, 1974) between cohesion and performance. To fully comprehend the relationship between cohesion and performance, it must be emphasized that early attempts to study this relationship did not distinguish between task and social cohesion. As task cohesion is directly oriented to performance a stronger positive relationship between task cohesion and performance would be expected than between social cohesion and performance. Williams and Widmeyer's (1991) golf study found some support for this prediction as task cohesion was a better predictor of performance than social cohesion. Despite the appeal of the above expectation, Slater and Sewell (1994) found limited support for a relationship between task cohesion and performance in varsity field hockey teams. However, Slater and Sewell found some support stressing the importance of social cohesion in relation to enhanced performance.

One possible explanation for the conflicting results offered by Carron and Chelladurai (1981) is that sport type (interactive and coactive team sports) might moderate the cohesion-performance relationship. Baron and Kenny (1986) defined a moderator as a variable "that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable" (p. 1174). Within the group dynamics literature, groups involved in tasks requiring interdependence between group members and complex interactions in order to succeed are termed *interactive groups* (e.g., soccer and rugby teams). Conversely, tasks where group success is typically determined by the summation of individual group members' efforts requiring little interdependence are termed *coactive* (e.g., teams competing in athletics and swimming). Carron and Chelladurai proposed that cohesion is of critical importance for interactive team sports since it assists in the coordination of group resources. Furthermore, it was suggested that a *lack* of cohesion within coactive teams would foster increased competition between team members, thus leading to performance improvements. Although these hypotheses may have intuitive appeal, ambiguity concerning research findings remained.

With regard to the causal direction of the cohesion-performance relationship, a range of results has been reported. As noted earlier, arguments for either direction can be made. In fact, Cartwright (1968) proposed a circular or reciprocal relation between cohesion and performance. From the sport literature, Carron and Ball (1978) generated supportive evidence that increased ice hockey performance resulted in strengthened individual perceptions of cohesion. Landers, Wilkinson, Hatfield, and Barber (1982) as well as Williams and Hacker (1982) have made a similar claim. However, reinterpretation of these latter two results would actually suggest a circular relation (Slater and Sewell, 1994). As Slater and Sewell (1994) warned, "reviewers should guard against claiming that a performance-to-cohesion causal relationship is now largely established—it is not" (p. 429). In support of their argument, Slater and Sewell's field hockey data provided evidence of a circular association (i.e., no difference between the relevant cross-lagged correlations) with a slight dominance from cohesion to performance. In other words, the cohesion-to-performance correlation was of a stronger positive magnitude than the performance-to-cohesion correlation.

In order to gain a better understanding of the cohesion-performance relationship, a more systematic and objective technique has been advocated to summarize research findings. The meta-analysis technique is an excellent method for summarizing large bodies of contradictory results, as it employs effect sizes (a standardized score) to allow comparison across studies.

Consequently, Mullen and Copper (1994) reviewed experimental and correlational findings from a diverse sample of studies taken from the business, military, occupational, and sport domains to examine the cohesion-performance relationship. A small positive significant effect size was found for the cohesion-to-performance relationship. On the other hand, a significant and larger positive effect size was reported for the performance-to-cohesion relationship. Thus, while more cohesion may cause enhanced performance, performance has a larger impact on a team's resultant cohesion. Interestingly, no support was found for Carron and Chelladurai's (1981) proposed sport type moderation of the cohesion-performance relationship. Of particular relevance was the finding that commitment to the task or task cohesion as opposed to social cohesion led to increased performance. Moreover, the cohesion-to-performance relationship was strongest with sport teams compared to any other type of group (e.g., military, business, organizational).

It should be noted that Mullen and Copper (1994) did not include all the sport-related studies including unpublished studies (e.g., Ph.D. and Master's theses) available to them in their review. Furthermore, as their meta-analysis was not specific to the domain of sport, it is possible that their conclusions may not generalize to this setting. As a result, Carron, Colman, Wheeler, and Stevens (2002) conducted a thorough meta-analytic review of 55 sport-specific studies including both published and unpublished results. Carron et al.'s sport-specific effect size for the cohesion-to-performance relationship was larger than Mullen and Copper's overall effect size. Medium positive effect sizes were found for both the cohesion-to-performance ( $ES = .57$ ), and performance-to-cohesion relationships ( $ES = .69$ ). Although the effect size for the latter was larger than the former, a significant difference between the two directions was not found. Similar to Mullen and Copper's study, Carron and colleagues did not find support for a sport type moderation of the cohesion-performance relationship. Of practical importance and contrary to Mullen and Copper, Carron et al. found medium positive effect sizes for both task *and* social cohesion. If one were to base attempts to increase team performance via increased team cohesion, solely on Mullen and Copper's findings, methods for enhancing perceptions of social cohesion would be overlooked. Carron et al.'s sport-specific findings suggested that regardless of the type of cohesion, increased perceptions of team cohesion can lead to improved performance. However, detailed information about the underpinning mechanisms of the cohesion-to-performance relationship (e.g., communication, collective efficacy) are as yet, not well understood. As such, future research focusing on why and how this relationship functions seems warranted. Once an understanding of the mediators of the cohesion-to-performance relationship has been obtained, this information can be utilized to enhance performance since it is believed that interventions function through mediating variables (Baranowski, Anderson, and Carmack, 1998).

## DEVELOPING COHESIVE TEAMS

Drawing from Lewin's (1935) perspective of group dynamics, Widmeyer and DuCharme (1997) described team building as the process of attempting to enhance a team's locomotion as well as its maintenance. Locomotion is related to productivity or performance whereas maintenance is reflective of a team's ability to stay together or be cohesive. Brawley and Paskevich (1997) offered a more precise definition of the team building process. They noted

multiple purposes to team building; (a) to increase a team effectiveness, (b) to improve working conditions, (c) to satisfy the needs of its members, and (d) to enhance cohesion. There is obvious overlap between these two definitions; both place an emphasis on enhanced performance and increased perceptions of team cohesion. Given the previous discussion of the cohesion-to-performance relationship, this section focuses on methods to enhance cohesion.

Taken together, the sport-related team building literature is in its infancy (Hardy and Crace, 1997). Moreover, given the importance placed on optimally functioning sport teams by coaches and practitioners (e.g., Munroe, Terry, and Carron, 2002), there is a dearth of empirical research examining the effectiveness of team building interventions. Nevertheless, a meta-analysis of 126 studies from the business and industry setting suggested that team building interventions were the most effective technique to enhance satisfaction and work-related attitudes (e.g., positive attitudes towards others and the organization) (Neuman, Edwards, and Raju, 1989). One reason for the lack of research on team building in sport may be related to the large amount of time and effort inherently involved in field-based longitudinal study designs.

Within the team building literature, two general approaches relating to the implementation of strategies have been forwarded. The first approach involves the consultant working with the team's coaches, whereby the coaches are responsible for implementing the team-building strategies suggested to them by the sport psychologist. In essence, the consultant works via the coach. As a result, this has been termed the *indirect* approach to team building (Carron, Spink, and Prapavessis, 1997). The second approach involves the consultant working closely with the team and its players in a "hands on" fashion. Team members, coaches, and consultant form a partnership, working together to build a more cohesive team. This has been labeled the *direct* approach to team building where the consultant is a direct participant in the team building process (Carron et al., 1997). In addition to the consultant working directly with the team members, another difference between the two approaches is that the direct method actively includes team members in the team building process, thus empowering the athletes, which in turn fosters a sense of ownership in the team building program. Carron and Spink (1993) developed a protocol and conceptual framework for an indirect approach to team building for the exercise domain, which has since been adapted for the sport environment (see Carron et al., 1997; Prapavessis, Carron, and Spink, 1996). Their indirect approach to team building consists of four stages. The sport psychologist typically covers the first three stages in a workshop with the coaches. First, the *introductory stage* presents the rationale for the team building program, and the benefits of high team cohesion are outlined. Second, the *conceptual stage* presents the coaches with a conceptual framework from which they gain greater understanding of the team building process (Figure 3). As shown in the figure, aspects of a team's environment and structure are hypothesized to impact on group processes, which in turn enhance team members' perceptions of team cohesion. Third, the *practical stage* allows coaches to brainstorm with the consultant to identify strategies that impact on the factors included in the conceptual framework. Fourth, the *intervention stage* is when the coaches with their respective teams implement the team building strategies previously developed. Advantages to utilizing an indirect approach to team building include reduced time commitment for the consultant as well as the application of the program when there is a geographical barrier between consultant and coach.

The empirical-based evidence for the indirect approach to team building has been found to be positive in the exercise setting (e.g., Carron and Spink, 1993; Estabrooks and Carron, 1999). However, research within the sport setting has been mixed. Prapavessis et al. (1996) investigated the effectiveness of Carron and Spink's indirect approach to team building with soccer teams. Participants in the treatment condition (i.e., team building condition) did not significantly differ than those in the attention (placebo) control and control conditions. Nonetheless, post-hoc analyses found that respective components of the team building program uniquely predicted between 4% and 26% of the pooled sample's post-intervention cohesion variance (after controlling for pre-intervention cohesion and performance satisfaction). Moreover, Prapavessis et al.'s post-manipulation check allowed insight into the lack of hypothesized differences across the treatment groups. Specifically, the investigators examined whether there were any differences in regard to the components of the team building program. The results showed that participants in the team building condition perceived greater leadership ability of their coach following the intervention compared to the attention control group. It was suggested that because of the nature of sport teams, all coaches probably addressed at least to some extent the team building components highlighted in the Carron and Spink framework. The lack of a matched assignment to the respective conditions, based on each team's level of group development may be an additional explanation for the lack of differences found between the three treatment conditions (Brawley and Paskevich, 1997).

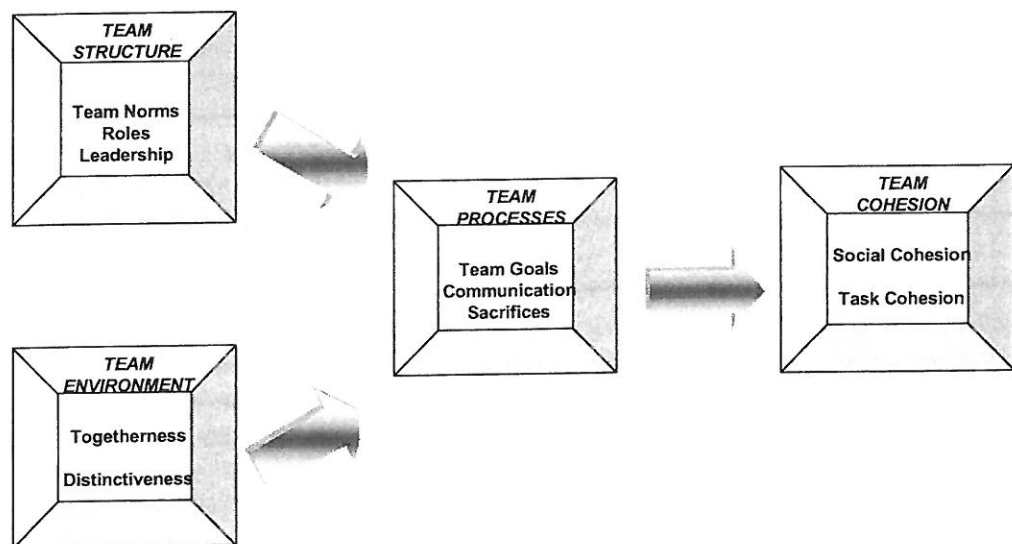


Figure 3. A conceptual framework for team building. From A.V. Carron and K.S. Spink, "Team Building in an Exercise Setting," in the *Sports Psychologist*, 7 (1): page 11, figure 1. © 1993 by Human Kinetics. Reprinted with permission from Human Kinetics (Champaign, IL).

With regard to the direct approach to team building, Yukelson (1997) reported his experiences working with Penn State University sport teams. Yukelson's direct approach to team building consists of four stages. First, the *assessment stage* allows the consultant to gain an understanding of the existing team dynamics. Observation and discussion with team

members, coaches, and support staff helps to achieve this end. Second, the *education stage* presents an overview of the nature of groups. This could include discussion of Tuckman's (1965) model of group development (i.e., forming, storming, norming, and performing). Third, the *brainstorming stage* involves the identification of areas for improvement. And fourth, the *implementation stage* consists of applying tailored team building strategies that were generated in the previous stage. Advantages of the direct approach to team building include the active attempt to empower team members throughout the process, the ability to purposely shape the team building program to the needs of the team as well as allowing the consultant to lead team sessions.

Although empirical research using direct approaches to team building within the sport literature is scant, applied sport psychology researchers have adopted and reported the use of this approach. For example, Voight and Callaghan (2001) employed Yukelson's direct approach to team building with two Division I NCAA female soccer teams. Although cohesion was not measured (via the GEQ), team members reported that the team building program was effective in increasing individual and team performance, in addition to enhancing each team's sense of togetherness. Bloom and Stevens (2002) employed an expanded version of Yukelson's approach, adapted from the organizational literature (Beckhard, 1972; Beer, 1980), with an equestrian team. The season long program included six team building sessions focusing on the development of peer leadership, norms, communication, dealing with team selection, and competition preparation. Although pre- to post-program perceptions of team cohesion (measured via the GEQ) were strengthened, a significant increase in team cohesiveness was not found. The study's relatively small sample size ( $n = 45$ ) may have contributed to the lack of statistical significance. Supplemental information from focus groups, however, revealed "an improvement in team harmony and closeness over the course of the season. In particular, the athletes felt more support from teammates at competitions and that the cliques were disappearing" (Bloom and Stevens, 2002, p. 6).

In the remainder of this section, a combined approach is forwarded. Specifically, although there is no "hard and fast" formula to improving team cohesion (Yukelson, 1997), practitioners are encouraged to incorporate elements of both Carron and Spink's (1993) indirect framework and Yukelson's direct approach to team building. As noted by Prapavessis et al. (1996), the absence of an assessment stage in the indirect team building method is a limitation. Yukelson (1997) stressed its importance, suggesting that assessing the situation is "the most important part of any good team building intervention" (p.86). Thus, it is recommended that the consultant assess the team's dynamics in general paying particular attention to the components contained in Carron and Spink's conceptual framework. Consequently, this combined approach has the advantage of applying sound theory, in the case of Carron and Spink's framework, with the thorough assessment of actual team dynamics, along with the active involvement of team members throughout the team building program as suggested by Yukelson. Assessing the team's dynamics prior to implementing a team building program allows the consultant to pinpoint areas for improvement specific to the team's needs. As a result, more efficient use of team building strategies is achieved. Once specific strategies are developed, the involvement of team leaders (i.e., athlete leaders) in implementing the team building program is critical to the success of program. That is to say, if the leaders of the team "buy into" the program, other teammates may realize the importance of team building and, in turn, are more likely to commit to the program (Carron et al., 1997).

Stevens and Bloom (2003) adopted a similar combined approach in their examination of the effect of a team building program in softball. Although only one team containing 16 players underwent the tailored multimodal team building sessions, when their perceptions of cohesion (measured using the GEQ) were compared against a single control team ( $n = 17$  players) significant GI-T and GI-S increases were detected. Interestingly, focus group discussions revealed that although overall coach-athlete communication had improved (one area targeted for improvement), the communication tended to break down in tight game situations or games against difficult opponents.

Theory and research support Carron and Spink's (1993) conceptualization of the importance of roles (e.g., Eys and Carron, 2001), norms (e.g., Kim, 1992), peer leadership (e.g., Neubert, 1999), group goals (e.g., Widmeyer and DuCharme, 1997), and sacrifice (e.g., Prapavessis and Carron, 1997b) in relation to increased cohesion. Although specific strategies relevant to the exercise domain have been implemented (e.g., Carron and Spink, 1993), the transfer of such strategies from the minimal group setting (e.g., exercise classes) to the more dynamic sport team domain is limited. For example, Carron and Spink (1993) targeted exercise groups' *environment* (e.g., distinctiveness) by creating names, T-shirts, and slogans for each of the team building exercise groups. It is probable that such strategies are redundant in the sport environment, as they may already exist. As a result, sport-specific strategies pertinent to optimizing teams' dynamics are now presented. Emphasis should be placed on the integral involvement of individual team members in each strategy in order to promote ownership and intrinsic motivation regarding the respective intervention.

One strategy that facilitates the empowerment of team members is "team performance profiling". This technique can also aid the consultant's understanding of team members' perceptions of their team as well as what the athletes feel is important for team success. Although we propose that this technique be employed as part of an assessment phase for a team building program, others (e.g., Munroe, Terry, and Carron, 2002) have suggested that conducting team performance profiling also improves the cohesiveness of a team through the interaction and communication necessary to complete the profiling process. The team is divided into smaller (4-5 players) heterogeneous (e.g., veteran, rookie, attacker, defender) groups. Each subgroup then identifies and records the 10-12 most important aspects in their sport for success. All aspects of team play should be considered (i.e., mental, physical, technical and tactical). Assigned leaders for each of the subgroups then present their group's critical aspects to the team as a whole. Team consensus on the critical aspects for success is then obtained. Each member of each subgroup then rates how the best or most successful team at their standard of competition would score from 1 to 10 on the identified aspects (1 = could not be any worse, 10 = could not be any better). Ratings to one decimal place have been found to be useful in this process (Doyle and Parfitt, 1997) and scores close to 10 should be expected. Assigned subgroup leaders average and report to the team the ratings for the respective critical aspects. A team rating is ultimately recorded. The ideal ratings are then followed by an assessment of the actual team's current state for each of the identified aspects using the same response scale. Again individual responses are averaged to represent the subgroup and a team rating is established. Once these two team ratings have been obtained, a discrepancy score between ideal and current scores can be calculated for each aspect. Large discrepancy scores are indicative of areas for improvement as identified by the team itself. Such areas can be targeted for team building interventions. In particular, the team

performance profiling procedure can be incorporated into the initial stages of a team goal setting program.

Once a thorough assessment of a team's dynamics has been completed (facilitated by the use of the performance profiling technique) tailored interventions can be implemented. With regard to the possible targeting of the *team's structure* (specifically team norms and individuals' roles within the team), two strategies are forwarded. One method to help develop appropriate team norms is to implement team discussions and obtain consensus about the behaviors of the ideal player. Team members are asked to generate a profile of how an ideal player would react to particular situations (e.g., practice, competition) (Miller, 1997). The team is divided into small heterogeneous groups. Each group is presented with the same list of hypothetical but *realistic* situations for which they generate ideas on how the "perfect player" would react. After a 20-30 minute period, spokespersons from each group present the ideas to the whole team. The team then discusses and more importantly forms a consensus as to what is acceptable and unacceptable behavior for the situations. Upon consensus, it is agreed that this is the standard by which teammates should judge one another. Miller reported the successful use of a similar discussion session with female Olympic field hockey teams. Norm-related research supports the link between task cohesion and team norms (Prapavessis and Carron, 1997b). Furthermore, from a group dynamics perspective, the presence of good team norms was identified as one of the three most important aspects of successful sport teams (Carron, 2003).

Although one-on-one meetings between the coach and individual players or small groups of players can help eliminate problems revolving around team members' roles, this can be a time consuming approach and denies the entire team understanding and acceptance how everyone's roles fit together. An alternative method that can be used under certain circumstances is the "hot seat" (Eys, Colman, Loughhead, and Carron, 2004). In this procedure, individual team members present to the team (i.e., players and coaching staff) what they perceive to be their own responsibilities on the team. Following this, the coaching staff and teammates can amend, dispute, or expand the responsibilities listed by each individual. The head coach has responsibility for the final decision on matters. Use of the hot seat procedure should be avoided if the team is not comprised of mature athletes offering a supportive environment. The hot seat approach to enhancing athletes' roles has the advantage that team members' responsibilities are explicitly stated to everyone involved within the team. As a result, role clarity and acceptance for all team members should be enhanced.

With regard to the potential need to impact *team processes* (e.g., communication, team goals, and sacrifices), channels of communication can be opened via the previously discussed team performance profiling procedure. Sullivan and Feltz (2003) recently found all four aspects of team cohesion to be related to communication within sports teams. Team performance profiling also lends itself to the establishment of appropriate team goals (via the identified areas of improvement), essential for the effective functioning and cohesiveness of any sport team (see Widmeyer and DuCharme, 1997 for a detailed discussion of how team goals impact on team performance and team cohesion). According to Carron and Colman's (2000) research-based team goal setting protocol, such programs should consist of 3 stages: (a) provision of rationale for and establishment of 5-6 team performance goals; (b) game-by-game monitoring; and (c) an evaluation of the goals set. The monitoring stage should last at least 4 to 6 games (depending on the length of the season). Modifications can be made following the evaluation process whereby goals are fine-tuned and the 3-stage cycle is

repeated. As with all the team building strategies presented, the involvement and support of the coaching staff is essential to the success of any goal setting program (Locke, Shaw, Saari, and Latham, 1981; Hanson and Lubin, 1988).

Specifically, in Stage 1, the team (in open forum) chooses short-term and long-term outcome-based goals that are *realistic* (e.g., 3 wins out of the next 5 games, or to finish in the top 3 in league standings at the end of the season). The setting of performance goals then follows in answer to the question; "What do you have to do especially well as a team on a game-to-game basis to maximize your chances of reaching your short-term and long-term goals?" Each team member is provided a list of specific and measurable performance indices (e.g., 50-50 tackles won, number of corner kicks awarded, number of fouls against) from which to choose 5 to 6 behaviors. The assistance of coaching staff in compiling the list may be warranted. Team members are then assigned to small heterogeneous groups in order to discuss and agree upon the most relevant indices for their team. Finally, the team as a whole forms a consensus on the goals that they are going to achieve as a team. Once the required behaviors have been agreed upon, the process is repeated with regard to generating a specific standard for each of the indices (e.g., 75% of 50-50 tackles won, 6 corners per half).

The coaching staff plays a particularly critical role in Stage 2. Without their monitoring and provision of feedback to the team, the intervention will not be effective. Similarly, coaches play an integral role in the evaluation process (i.e., Stage 3) towards progress made in achieving team goals. At this juncture in the team goal setting program, it is possible that any non-essential team goal be disregarded and replaced. This should be viewed as a positive step, as the team has now recognized the importance of selecting the most pertinent team goals (Carron and Colman, 2000), which is evidence of the team "buying into" the goal setting program, and essential for any successful intervention.

As adherence to any long-term intervention may be a potential problem, team members' intrinsic motivation to the team building program should be enhanced whenever possible. To this end, once the consultant has selected team building strategies appropriate for the needs of the team, he/she should include coaching staff and team members into the decision making process regarding which strategies to utilize. The consultant will need to explain the pros and cons of each applicable strategy. It must be noted that although the aforementioned team building strategies have either intuitive or theoretical appeal, limited research has empirically addressed the effectiveness of such interventions. Consequently, future research should examine the effects of the previously described interventions.

## Caveat

Before summarizing the contents of this chapter a word of caution is warranted. In line with most coaches, practitioners, and group dynamics researchers, the present chapter has forwarded a "cohesion is good" perspective. However, Buys (1978) suggested, half jokingly, "humans would do better without groups" (p.123). Based on Prapavessis and Carron's (1996) study of cohesion and state anxiety, Paskevich, Estabrooks, Brawley, and Carron (2001) queried whether athletes in highly cohesive teams feel pressure not to letdown fellow teammates. In other words, are there any negative consequences of being a part of a highly cohesive group? Hardy et al. (2005) generated some preliminary qualitative findings focusing on this issue. Although more athletes perceived the potential for disadvantages of high task

cohesion (approximately 55% of athletes surveyed), potential disadvantages of high social cohesion were also reported (approximately 30%). Furthermore, both individual and group level negative consequences to high task and social cohesion were generated. As a result, there is preliminary evidence to suggest the potential for disadvantages for some athletes on teams that are highly cohesive.

### **FUTURE DIRECTIONS IN COHESION RESEARCH**

Although team cohesion has been the focus of sport-related research for decades, many avenues for future research remain. Presented below are three areas of future research attention we believe to be of importance.

#### **Unit of Analysis: Individual Versus Group Level**

Given that cohesion is a group property, an important consideration when conducting cohesion research is determining an appropriate unit of analysis. Historically, three approaches have been used in group dynamics research (Carron et al., 1998; Cota et al., 1995). The first approach has been to use the individual group member as the unit of analysis. For example, an investigation of how individual attractions to a group are related to the individual's adherence to that group's activities would be at this conceptual level. The second approach has been to aggregate the data, that is, simply using group averages (e.g., Carron and Ball, 1978). The third approach has been to use the intact team as the unit of analysis. The total amount of communication within a single team would be such an example. If the research question focuses on the group level, an underlying assumption is that team members' responses exhibit a group level effect. That is, there is a certain degree of shared beliefs. The combined use of intraclass correlations and the index of agreement has been employed to demonstrate such similarity in perceptions. Carron et al. (2003) recently proposed index of agreement values of .5, .6, and .7 as representative of weak, moderate, and strong agreement for variables conceptualized at the group level (e.g., GI-T, GI-S). Whereas, .4, .5, and .6 represent weak, moderate, and strong agreement for variables conceptualized at the individual level (e.g., ATG-T, ATG-S). James, Demaree, and Wolf (1984) have proposed that index of agreement values greater than .5 are adequate for research purposes. Once it has been established that members of teams respond with some similarity, intraclass correlation analyses can ascertain if members of teams respond more similarly within their teams than between teams. Following the demonstration of shared beliefs, the researcher can be confident in their decision to pool individual team members' data.

Carron et al. (1998) suggested that determining which of the aforementioned approaches is most appropriate is dependent on three factors. The first factor to consider is the nature of the research question. If the researcher is interested in examining the influence of cohesion on individual perceptions or behavior, such as personal satisfaction, then the individual level can be used as the unit of analysis. If, however, team performance was the variable under investigation, then the group level would be the appropriate unit of analysis. The second factor is the theory being tested (Carron et al., 1998; Cota et al., 1995). As Carron et al. noted

a theory such as social comparison theory is based on the assumption that individuals will compare themselves to others; therefore, the aggregate value can be used as the unit of analysis. The third factor is empirical in nature (Carron et al., 1998). In some circumstances, researchers may be interested in examining either the group level or the individual level or both levels. As a result, the use of multilevel analyses would be most appropriate. The advantage of this approach is that it allows researchers the opportunity to examine the influence of individuals on groups and the influence of groups on individuals. In other words, multilevel analysis is an approach that (a) allows for the simultaneous examination of the effects of group-level and individual-level predictors, (b) accounts for the nonindependence, and (c) both between-group and within-group variation can be examined (Diez-Roux, 2000). Fully understanding team cohesion's associations at both group and individual levels presents a challenge. Nevertheless, the adoption of software programs such as HLM (Bryk, Raudenbush, and Congdon, 1994) and VARCL (Longford, 1990) by sport psychologists might allow for the systematic examination of this issue.

### **Underpinning Mechanisms**

Although evidence of numerous correlates of cohesion has been presented, little understanding of the relationships' underlying mechanisms currently exists. Thus, our knowledge is somewhat limited. As a result, the examination of potential mediating variables—variables that explain relationships—is warranted. For example, it could be expected that collective efficacy or commitment to team goals would mediate the cohesion—performance relationship. In addition, cohesion is viewed as a mediating variable in Carron's (1982) framework. However, no research to our knowledge has been undertaken to examine cohesion as a mediator in sport. Although recent research by Loughhead and colleagues (Loughhead and Carron, 2004; Loughhead, Colman, and Carron, 2001; Loughhead, Patterson, and Carron, 2006) in the exercise domain has shown that cohesion is a mediator between leadership and exercise-related outcomes (e.g., adherence, perceived exertion, mood, satisfaction). Similar mechanisms involving cohesion may be found in sport. From an applied standpoint, understanding the role of cohesion within more complex relationships would allow practitioners to develop more effective (team building) interventions.

### **Complementary Methodologies**

Group dynamics research in sport has focused primarily on cohesion. As a result, substantial cohesion data has been collected, analyzed, and subsequently reported. Sport cohesion research has almost exclusively been grounded in the quantitative nomothetic scientific philosophy; one notable exception is Holt and Sparkes' (2001) ethnographic soccer study. Due to the heavy reliance on a single scientific philosophy, the sport cohesion literature may be somewhat narrow and underdeveloped. It is likely that research stemming from a qualitative perspective would reveal novel insights that supplements and expands the current literature. It should be noted that the authors do not believe that one type of research (quantitative vs. qualitative) is more effective than another as each has its own strengths and limitations. Perhaps the use of combined research methodologies gives the researcher the

luxury of the "best of both worlds". Recent team building research has employed qualitative methods—focus group discussions—to better understand the team building process from the coach (Bloom et al., 2003) and athlete perspectives (Stevens and Bloom, 2003). It is suggested that because of the large time and labor demands of conducting team building research, applied researchers should—when suitable—employ complementary methods to better understand various cohesion relationships. For example, Stevens and Bloom found that their team goal setting program was perceived by members of the team building group to be the most effective aspect of the team building process. This finding is divergent to the findings of a meta-analysis conducted on business and industry research that proposed that role based team building interventions were the most effective form of team building strategy (Salas, Rozell, Mullen, and Driskell, 1999). In addition, due to the pre-packaged nature of many team building interventions, it is unclear which aspects of the package (e.g., team goal setting, developing role clarity, etc.) are critical to enhanced perceptions of team cohesion; future research should address this issue.

## SUMMARY

The purpose of this chapter was to present an overview of the area of cohesion in sport. In order to achieve this purpose, we highlighted some of the shortcomings of earlier definitions of cohesion and forwarded the Carron et al. (1998) definition that best describes cohesion. Based on the Carron et al. definition, we outlined the multidimensional nature of cohesion, highlighted its characteristics, and advanced a conceptual model of cohesion that was used for the development of the Group Environment Questionnaire (GEQ). Following this, we reviewed some of the current literature relating to the factors associated with cohesion (e.g., environmental, personal, leadership, and group) including a discussion on the cohesion-performance relationship. As well, we reviewed the literature pertaining to the development of cohesion using team building. Finally, three areas for future research consideration were advanced. It is our hope that the present chapter will assist scholars in formulating their own exciting research questions. In addition, to those interested in developing team cohesion, we hope that the literature and ideas forwarded will be helpful in designing the most effective team building environment.

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