Leading together towards a stronger ‘us’: an experimental test of the effectiveness of the 5R
shared leadership program (5R^S) in basketball teams

Journal of Science and Medicine in Sports, Manuscript in press

Niels Mertens^a, Filip Boen^a, Niklas K. Steffens^b, Stewart T.
Cotterill^c, S. Alexander Haslam^b, Katrien Fransen^a

<https://doi.org/10.1016/j.jsams.2020.01.010>

Corresponding author:

Niels Mertens

Department of Movement Sciences

KU Leuven

Address: Tervuursevest 101, box 1500, 3001 Leuven (Belgium)

Telephone: +32 16 328874

Fax: +32 16 329196

E-mail: Niels.Mertens@kuleuven.be

Authors list:

^a Department of Movement Sciences, KU Leuven,

Tervuursevest 101, box 1500, 3001 Leuven, Belgium

^b School of Psychology, The University of Queensland,

St Lucia QLD 4072, Australia

^c School of Psychology, Sport and Physical Activity, AECC University College, United Kingdom,

Parkwood Rd, Bournemouth BH5 2DF, UK

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM**Abstract**

Objectives. Leadership has been suggested to be a key factor in gaining a competitive advantage as a team, with shared leadership being a better predictor of team functioning than vertical leadership. Although the benefits of shared leadership are well-documented, evidence about how to implement a shared leadership structure remains sparse. This leaves coaches with three key challenges: (1) identifying the best leaders; (2) defining what roles those leaders should fulfill; and (3) developing their leadership skills. Solutions to these challenges have been proposed in the 5R Shared Leadership Program (5R^S) — a leadership development program that seeks to implement an effective structure of shared leadership within sports teams.

Design. To test the effectiveness of 5R^S program, we conducted an experimental-comparison group intervention in which eight national-level basketball teams ($N = 96$) completed a questionnaire at two points in time (i.e., pre- and posttest). The teams in the intervention condition completed the 5R^S program, in which we identified the leadership structure in their teams (through Shared Leadership Mapping), appointed the best leaders in their leadership role, and then developed their identity leadership skills.

Results. The results revealed that the 5R^S program was successful in strengthening athlete leaders' identity leadership skills, and as a result also team members' identification with their team. Furthermore, in contrast to athletes in the comparison condition, athletes in the 5R^S condition were able to maintain their levels of intrinsic motivation and commitment to team goals, while also reporting improved well-being.

Conclusions. The present study provides encouraging evidence that, by implementing a structure of shared leadership and by promoting athlete leaders' identity leadership skills, the 5R^S program is able to improve the team's functioning and the well-being of its members.

Keywords: Shared leadership, Athlete leadership, Leadership development, Team functioning

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

55

56

Practical Implications

- 57 • The 5R^S program strengthens the capacity of leaders to cultivate a shared team identity (i.e., to
58 engage in identity leadership).
- 59 • Promoting identity leadership helped athletes to remain motivated and to sustain their
60 commitment to team goals, while athletes in the comparison group showed a decrease in
61 motivation and goal commitment over the course of the season.
- 62 • Developing athletes' ability to engage in identity leadership has a beneficial impact on the
63 team's functioning and on their teammates' well-being.

64

Introduction

65 *“The leaders who work most effectively, it seems to me, never say I. And that's not because they*
66 *have trained themselves not to say “I”. They don't think “I”. They think “we”, they think team.”*¹

67 In recent years, sports leadership research has established the importance of leadership
68 sources other than the coach, thereby emphasizing the role of high-quality leaders within the team (i.e.,
69 athlete leaders) and how these leaders can contribute to their team's success². The importance of these
70 leaders within the team has inspired a shift in sports leadership research away from the traditional
71 models of hierarchical leadership (with the coach as hierarchical leader) towards horizontal (or flatter)
72 forms of shared leadership (in which the coach shares the lead with athlete leaders). This shift can also
73 be seen in organizational research, which has established that shared leadership constitutes a better
74 predictor of team functioning than vertical leadership³⁻⁵.

75 Despite its benefits, implementing an effective structure of shared leadership in practice is not
76 straightforward. Moreover, there is only sparse research that assists practitioners in this transition.
77 Accordingly, coaches will typically encounter multiple uncertainties in their transition towards a more
78 horizontal leadership structure in their team. These uncertainties can take many forms. First, coaches
79 might be concerned about losing control of their team or they might be doubtful about how to get
80 started. Even when coaches are convinced about the benefits of shared leadership, some doubts might
81 remain. For example, coaches might have hesitations about which players to assign as leaders, or they
82 might be unsure about which on-field and off-field roles these players can fulfill. Further, coaches

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

might want to help these athlete leaders to improve their leadership skills, but not know how they should do this. The 5R Shared Leadership Program — shortened as 5R^S — is designed to address these concerns and help coaches to implement a structure of shared leadership by ^{6, 7}: (1) identifying the best leaders in the team; (2) defining what roles those leaders should fulfill; and (3) developing the leadership skills of the appointed athlete leaders. In what follows, we will elaborate on the nature of the 5R^S program and the way in which it tackles each of these hurdles, before outlining the experimental test of its effectiveness.

To tackle the first challenge of identifying the best leaders, the present program uses *Shared Leadership Mapping* to create leadership networks through social network analysis ⁶⁻⁸. Compared to previous individualistic approaches (i.e., looking only at the team captain as formal leader) or dyadic approaches (i.e., looking at the bidirectional relationship between leader and follower), social network analysis places the entire group at the center of the analysis. Team members who appear most central in the leadership network (thus being perceived as the best leaders in a certain leadership role) are then appointed as leader in that specific leadership role.

A second challenge relates to the nature of the role and according responsibilities that are assigned to the athlete leaders. In this regard, Fransen, Vanbeselaere, De Cuyper, et al. ⁹ identified four distinct leadership roles that athlete leaders can occupy (i.e., task, motivational, social, and external leader). Although players and coaches often expect the team captain to excel in each of these four roles, previous work has showed that, in practice, team captains can only rarely meet these high expectations. ^{9, 10} This should not be a problem though, as in fact, researchers have previously demonstrated that teams in which different players occupy these leadership roles (i.e., teams with shared leadership) report greater identification with the team, increased motivation, higher team confidence, and tend to perform better ⁹.

After implementing a structure of shared leadership by identifying leaders in the four leadership roles, a next step is to further develop the leadership skills of the appointed leaders. In this regard, the Social Identity Approach to Leadership ¹¹ has shown that leaders are only effective to the extent that they are able to create a shared social identity in their team. Slater, and Barker ¹² were the first to apply this principle in sport (in a study of an elite disability soccer team). More specifically,

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

they demonstrated that teaching leaders how to create and strengthen a sense of shared identity in the team had a positive impact on the identity leadership displayed by staff, on the team's social identification, and on the number of practice hours that were completed away from training camps.

Building upon previous research, the 5R^S program (1) encourages a structure of shared leadership (through *Shared Leadership Mapping*⁶⁻⁸) and (2) further develops participants' leadership potential by teaching athlete leaders how to represent and advance a shared social identity (based on the *5R leadership program* developed in an organizational setting¹³). More specifically, the leaders, together with their team, are guided throughout five phases in which they learn hands-on how to foster a shared identity, thereby improving their identity leadership skills (for more information on the specific content of each phase, see Fransen, Haslam, Steffens, et al.^{6,7}).

Although there is an extended theoretical framework underpinning the 5R^S program, thus far only qualitative data from case studies have shed light on the effectiveness of the program. Accordingly, the main aim of the current study is to investigate the effectiveness of the 5R^S program in an experimental intervention study, which comprises both an experimental and a comparison condition (each involving four teams). In the experimental condition, a structure of shared leadership was implemented by means of *Shared Leadership Mapping*⁸, after which the identity leadership skills of the appointed leaders were further developed. Furthermore, because of our interest in the 5R^S program's effectiveness, the current study investigated basketball teams during their regular competition. Across the variables of interest (dependent measures) and over the course of the intervention, we expected that participants in the 5R^S condition would show a more positive development than those in the comparison condition (indicative of an interaction effect). Following Fransen, Haslam, Steffens, et al.^{6,7}, we expected that the identity leadership skills of athlete leaders in the 5R^S condition would improve significantly over the course of the program, and more so than the identity leadership skills of athlete leaders in the comparison group (H1). Based on the development of leaders' identity leadership skills in the 5R^S program, we expected players in the experimental condition to show a greater increase in team identification than players in the comparison group (H2). Furthermore, in line with the underpinning theorizing^{6,11}, we expected that teams which completed 5R^S program would function more effectively¹⁴⁻¹⁶ than teams in the comparison group. More

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

specifically, we expect athletes in the 5R^S condition to show greater increases in their intrinsic motivation (H3a), in their commitment to their team's goals (H3b), in their confidence in the team's abilities (H3c), as well as in their performance (H4), compared to athletes in the comparison condition. Furthermore, Haslam, Jetten, Cruwys, et al.¹⁷ emphasize that social identity is central to good health, as a strong sense of shared social identity is a source of a number of key psychological resources. One example of such a psychological resource is social support, as shared social identity is a basis not only for people to give and receive more social support, but also for people to construe received support more positively. In line with these theoretical claims, we expect that participation in the 5R^S program will improve athletes' well-being^{18, 19}. More specifically, compared to athletes in the comparison group, athletes in teams that participate in 5R^S are expected to report lower levels of burnout (H5a), and to feel healthier (H5b).

Methods

An a-priori power analysis (Gpower 3²⁰), based on the results of a previous study with a similar experimental design²¹, indicated that 84 participants would be sufficient to detect a significant (condition X time) interaction effect with a power of .96 and an alpha of .05. After contacting the head coaches of 16 Belgian competitive basketball teams, eight head coaches agreed to participate. The main reason for non-participation was the requisite time investment. The eight participating teams belonged to eight different clubs, ruling out contamination effects. All participating teams played at the national competitive level (i.e., third highest league in Belgium). The athletes ($N = 96$) were on average 25.90 years old ($SD = 5.84$) and had played for 7.92 years ($SD = 5.99$) for their current team. Five athletes dropped out during the study (e.g., because of a long-term injury). Team sizes ranged from 10 to 15 athletes ($M = 12$, $SD = 1.55$).

When contacting the coaches, we informed them that the study included an intervention and provided them with the required timing for the sessions. If the coach agreed to participate for the complete data collection and intervention, that team was assigned to the intervention group (i.e., four teams). If not, we asked the coach whether he was willing to have the team only complete the data collection, resulting in a comparison group also consisting of four teams. We gathered data by administering questionnaires at two points in time. The first round of data collection (T1) took place in

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

December, three to four months after the start of the competitive season. Immediately after the first phase of data collection, the intervention group participated in the 5R Shared Leadership Program (5R^S) while the comparison group received no intervention. Data were collected from both groups a second time (T2) five months later, at the end of the competitive season. All participants participated voluntarily in the study and were assured that their data would be treated confidentially. The research was approved by the ethical committee of the first author's university (G- 2017 11 996).

With respect to the intervention, we divided the first four phases of the 5R^S Program into two sessions. The first session consisted of the research confederate guiding the team through the first two phases of 5R^S (i.e., Ready and Reflecting), while the second session consisted of the Representing and the Realizing phase (for more information on the content of the phases, see ^{6, 7}). As the final 'Reporting' phase is an evaluation phase that was meant to be completed two months after the previous phases, we combined this phase with the second phase of data collection. The first two sessions were completed during a practice session of the team. Depending on the availability of the teams and their training schedule, we tried to deliver these two interventions within the maximal time frame of two weeks. A research confederate with a strong theoretical background in the underpinning literature that informs the 5R^S program led each session. The 5R^S program adopts a bottom-up approach by encouraging the appointed athlete leaders to coordinate small-group brainstorm discussions during each session, thereby ensuring that all team members take part in the program. After these two workshops with the team, the research confederate followed up by contacting the coach by phone every two to three weeks. This follow-up was an informal conversation, aiming to check on the progress of the team and to remind the coach of the previously presented guidelines. During this process, no coaches dropped out.

With respect to the measures included in this study, participants rated their agreement with the listed statements on scales ranging from 1 (*completely disagree*) to 7 (*completely agree*) for all the constructs described below (with exception of the health and performance measures). The internal consistencies of each of the scales are reported in Table 1 on the diagonal.

With respect to identity leadership, the 15-item Identity Leadership Inventory ²² was used to assess the extent to which leaders were perceived to represent, create, advance, and embed a sense of

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

shared social identity in their teams (e.g., “The leaders within my team embody what the team stands for”). As we were interested in the overarching concept of identity leadership, we used a composite score rather than the four subscales.

Team identification was assessed using a 12-item measure developed by Bruner, Boardley, and Côté²³, who adapted the 12 identification items of three-factor model of social identity from Cameron²⁴ to be used in sporting contexts. A sample item is “I have a lot in common with other members of this team.” Similar to identity leadership, we were interested in the overarching concept of team identification and thus used the composite score.

Intrinsic motivation was assessed using the relevant subscale of the Behavioral Regulation in Sport Questionnaire²⁵. We chose to include only this subscale because intrinsic motivation represents the hallmark of volitional functioning^{26, 27} and to ensure that the questionnaire would not become too long for athletes to remain focused. This subscale consisted of two items: “I play basketball because it is fun” and “I play basketball because I like it”.

The five-item scale suggested by Klein, Wesson, Hollenbeck, et al.²⁸ assessed participants’ commitment to the team’s goals (e.g., “I am strongly committed to pursuing our team’s goals”).

Team confidence was assessed by the Collective Efficacy Questionnaire for Sports (CEQS²⁹), including the five items that loaded most highly on each subscale: ability, effort, unity, persistence, and preparation (e.g., “My team has the ability to demonstrate a strong work ethic”).

As a measure of performance, athletes indicated their team’s performance during the previous month on an 11-point Likert scale ranging from 0 (*very poor*) to 10 (*very good*) at both T1 and T2.

Burnout was assessed by the 15-item Athlete Burnout Scale³⁰, an example item being “I feel physically exhausted from my sport participation.”

Following the suggestion of Khan, Hopkins, Tewari, et al.³¹, we assessed participants’ health using three items from the internationally-used core module of the Centers for Disease Control and Prevention Health Related Quality of Life Measure. After reading the stem “Since the start of the season, how would you describe your...”, participants rated their “physical health”, “state of mind”, and “energy levels” on scales from 1 (*very bad*) to 7 (*very good*).

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM**Results**

The means, standard deviations, correlations, and Cronbach alphas of all variables are presented in Table 1. As our data adopts a 2 (experimental group vs. comparison group) X 2 (T1 vs. T2) design, our main focus of analysis is the investigation of these 2 X 2 interaction effects. To account for the clustered nature of our data (i.e., players belonging to teams) we conducted multilevel regression modelling. We included time as Level 1-predictor, condition as Level 2-predictor, and a random intercept as Level 3-predictor to control for biased results that can occur due to nesting of the data. The results are presented in Table 2. The analysis revealed a significant interaction effect for perceptions of leaders' identity leadership. In line with H1, Figure 1 shows that participation in the 5R^S program increased leaders' ability to create a shared sense of 'us' within their team, an effect that was not observed in the comparison group. Furthermore, in contrast with the comparison group, the 5R^S program strengthened players' identification with their team, confirming H2.

Support was found for H3a and H3b, as we found that participants in the 5R^S program were able to maintain their levels of intrinsic motivation (H3a) and commitment to team goals (H3b) (i.e., a maintenance effect), while participants in the comparison group experienced a decrease in motivation and commitment over the course of the season. In contrast to our expectations, we observed no significant interaction effect with respect to athletes' team confidence (H3c) and their subjective perceptions of the team's performance (H4). With respect to burnout (H5), the data provided partial support; while a trend could be observed in line with our hypothesis ^a, in that players in the comparison group seemed to experience an increase in burnout in the season, while players' burnout in the intervention group remained constant, the interaction effect was not significant (H5a). However, the results indicated that participants who took part in the 5R^S program felt healthier than participants who did not (H5b). This finding also held when investigating the three items individually (physical health: $\beta = .71, p < 0.01$; state of mind: $\beta = .58, p < 0.05$; energy levels: $\beta = .48, p < 0.05$).

^a Upon further investigation, T-tests revealed that the comparison group underwent a significant increase in burnout throughout the season ($t(35) = -2.07, p < 0.05$) whereas the intervention group experienced no significant changes.

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM**Discussion**

The present study is the first to provide an experimental test of the effectiveness of the 5R Shared Leadership Program. In line with the main hypotheses, the study found that 5R^S successfully improved the ability of athlete leaders to create and advance a shared sense of ‘us’, which was reflected by an increase in the perceived identity leadership skills and a strengthened team identification in the intervention group, in contrast to the comparison group. Furthermore, participation in the program inspired team members to stay motivated and remain committed to common team goals, while participants in the comparison group experienced a decline in their motivation and commitment over the course of the season. Furthermore, the 5R^S program was successful in enhancing players’ feelings of well-being, compared to the comparison group. These findings are in line with previous research outlining the benefits of high-quality athlete leadership, both for team functioning and well-being^{2, 32, 33}.

However, some results of the present research were not in line with our expectations. In contrast to previous research^{14, 16, 34}, our findings did not provide any evidence for an enhanced team confidence and team performance. A potential explanation for these unexpected results is the difference in the design of the study. More specifically, the relationship between high-quality athlete leadership and both team confidence and performance has primarily been demonstrated using experiments of shorter duration (completed within an hour) and using experimental teams (instead of actual teams). The design of the current study differed in two ways; first, the duration between the two measurement points was about six months (instead of an hour), and second, we worked with existing teams (instead of a more controlled experimental design with newly-composed teams). Furthermore, the dynamic nature of team confidence³⁵ might have caused variations in players’ confidence in their team’s abilities that are unrelated to our 5R^S program (e.g., winning or losing a game, an injury of a star player, the strength of the opponent teams, etc.). Similarly, these factors could also have influenced athletes’ subjective perceptions of the team’s performance. Future research should therefore use more frequent measures which are more controllable (e.g., effort) to provide further insight into whether (and when) the 5R^S program impacts these outcomes.

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

273 Additionally, based on previous social cure research^{18, 36}, we expected that team members
274 who identify strongly with their team would also experience improved health and well-being. The
275 present research provided support for this hypothesis with respect to athletes' perceived health, but not
276 with respect to their levels of burnout (although a trend could be observed, such that burnout
277 significantly increased in the comparison group but not in the intervention group).

278 An alternative explanation for these non-significant findings in team confidence, subjective
279 performance, and burnout can be found in the lack of a follow-up upon completion of the program. In
280 the present study, the research confederate only worked with the team for two workshops (in the first
281 two weeks), and was afterwards only in contact with the coach by phone. This limited amount of
282 contact with the team might have negatively influenced the effectiveness of the program. A closer
283 follow-up with the appointed leaders and the players might have improved the intervention's
284 effectiveness.

285 Additionally, we should note that the timing of the implementation of our 5R^S program may
286 not have been ideal. Because the teams completed the program during the second half of the
287 competitive season, teams might have felt restricted in what they could achieve before the end of the
288 season. More specifically, athletes might have already known that they (or other team members)
289 would leave the team next season. This might have negatively influenced their motivation to
290 participate in an intervention program that aimed to create and strengthen the team's identity as well as
291 to implement goals to improve the team's functioning. Future studies that implement the 5R^S program
292 in the first half of the season could provide more insight in whether the adopted timing impacts its
293 effectiveness.

294 Reflecting on the strengths of the present research, a primary strength is its experimental
295 design (intervention vs comparison condition). By including a comparison group, we were able to
296 clearly identify the unique impact of the 5R^S program in this study. Furthermore, by working with
297 actual basketball teams during the competitive season, we could test the intervention effectiveness in a
298 real-world setting. A second strength is that instead of working with the team captain only, we use
299 social network analysis to identify the best leaders in the team on four different leadership roles (i.e.,
300 task, motivational, social, and external leader). Third, 5R^S involves all team members in its different

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

workshops, so that leaders and followers work actively together towards a shared team identity. While in other programs leaders are often developed independent of the context and the team that they are expected to lead, this approach takes into consideration the collective environment in which leadership plays out ³⁷.

Besides these strengths, also some limitations should be noted. An important limitation of our study is the self-selection procedure for including coaches in the intervention group (i.e., the fact that this was dependent on their willingness to participate). However, one could also argue that because the participating coaches were more open to the idea of shared leadership and team identification, they might already have been attuned to these aspects, thereby limiting room for improvement. This assumption is indeed reflected by the fact that at T1 the teams in the intervention condition reported significantly higher levels of identity leadership ($t = 2.69, p < 0.01$) than teams in the comparison condition, as well as stronger team identification ($t = 3.67, p < 0.001$). Furthermore, the teams in the intervention condition showed higher baseline values than teams in the comparison condition with respect to team confidence ($t = 2.83, p < 0.01$) and subjective performance ($t = 3.61, p < 0.01$). These higher baseline values in the intervention condition possibly contributed to the fact that we did not observe significant changes in these measures as further improvement within these teams might have been more challenging^b. Nevertheless, it is worth noting that in contrast to the coaches, the players (who were the key interest of this study and who completed the questionnaires), did not self-select into 5R^S, thereby limiting the impact of coaches' self-selection bias on the results.

A second limitation of the study is that, due to the large time investment the 5R^S program required, we tracked eight teams (of which only four teams participated in 5R^S). Future researchers could validate the reliability and generalizability of our findings by examining the intervention in a larger number of teams and in different settings (other sports, youth level, different contexts such as walking or fitness groups).

^b We conducted a sensitivity analysis to investigate whether baseline differences might have influenced our results. For this purpose, we performed a repeated measures analysis including the respective T1 variable as a covariate. These analyses confirmed all our previous findings: significant (time x group) interaction effects for athlete leaders' identity leadership, athletes' team identification, intrinsic motivation, goal commitment, and well-being. Moreover, in line with our previous findings, no significant interaction effect was found for team confidence, burnout, and performance.

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

Based on the present study and previous research findings that demonstrate the benefits of high-quality athlete leadership^{2, 19, 32}, coaches might be well advised to introduce shared leadership structures into their teams. This will not only benefit the team's functioning and the wellbeing of its members, but also the leadership status of the coach. In fact, Fransen, Mertens, Cotterill, et al.³⁸ recently demonstrated that coaches who empower players in their team to lead are perceived as better coaches than those who choose to lead alone in a hierarchical top-down fashion.

Furthermore, by encouraging their athlete leaders to engage in identity leadership, coaches can promote the creation and strengthening of a shared team identity. This will in turn help athletes to remain intrinsically motivated and committed to the team's goals until the end of the competitive season. Also, in light of the increasing concern about athletes' well-being, the present study provides some preliminary insights into how fostering identity leadership within a group, and creating a stronger social identity, can nurture athletes' health.

These findings point to the importance of further research designed to test and optimize the 5R^S program. More specifically, future researchers should consider the best timing to implement the 5R^S program, organize more and better follow-up sessions afterwards, and try to replicate these findings in different settings.

Conclusion

The present study provides evidence of the effectiveness of the 5R Shared Leadership program. Results revealed that the 5R^S program has the ability to strengthen the capacity of leaders to create a shared sense of social identity (a sense of 'us-ness') within their team. Additionally, the program helped team members to remain motivated and committed to the team goals and improved their health and well-being. In conclusion, the present study provides encouraging evidence that it is possible to improve team functioning through a program that promotes identity leadership and thereby helps leaders to follow Peter Drucker's advice and "think *we*", not just "I".

References

1. Drucker PF. *Managing the non-profit organization: Practices and principles*, Oxford, Butterworth-Heinemann; 1992.
2. Cotterill ST, Fransen K. Athlete leadership in sport teams: Current understanding and future directions. *Int Rev Sport Exerc Psychol*. 2016; 9(1):116-133.
3. Nicolaides VC, LaPort KA, Chen TR, et al. The shared leadership of teams: A meta-analysis of proximal, distal, and moderating relationships. *Leadersh Q*. 2014; 25(5):923-942.
4. D’Innocenzo L, Mathieu JE, Kukenberger MR. A meta-analysis of different forms of shared leadership–team performance relations. *J. Manag*. 2016; 42(7):1964-1991.
5. Wang D, Waldman DA, Zhang Z. A meta-analysis of shared leadership and team effectiveness. *J. Appl. Psychol*. 2014; 99(2):181-198.
6. Fransen K, Haslam SA, Steffens NK, Mallett C, Peters K, Boen F. All for us and us for all: Introducing the 5R Shared Leadership Program. *Manuscript submitted for publication*. 2019.
7. Fransen K, Mertens N, Haslam SA, et al. All for us and us for all: Introducing the 5R Shared Leadership Program. *Conference: International Conference on Social Identity in Sport*. Stirling, Scotland: Conference handbook ICSIS 2019; 2019:20.
8. Fransen K, Van Puyenbroeck S, Loughhead TM, et al. Who takes the lead? Social network analysis as pioneering tool to investigate shared leadership within sports teams. *Soc. Networks*. 2015; 43:28-38.
9. Fransen K, Vanbeselaere N, De Cuyper B, Vande Broek G, Boen F. The myth of the team captain as principal leader: extending the athlete leadership classification within sport teams. *J. Sports Sci*. 2014; 32(14):1389-1397.

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

- 373 10. Fransen K, Cotterill ST, Vande Broek G, Boen F. Unpicking the Emperor's New
 374 Clothes: Perceived Attributes of the Captain in Sports Teams. *Frontiers in*
 375 *Psychology*. 2019; 10(2212).
- 376 11. Haslam SA, Reicher SD, Platow MJ. *The new psychology of leadership: Identity,*
 377 *influence and power*, New York, Psychology Press; 2011.
- 378 12. Slater MJ, Barker JB. Doing Social Identity Leadership: Exploring the Efficacy of an
 379 Identity Leadership Intervention on Perceived Leadership and Mobilization in Elite
 380 Disability Soccer. *J Appl Sport Psychol*. 2019; 31(1):65-86.
- 381 13. Haslam SA, Steffens NK, Peters K, Boyce RA, Mallett CJ, Fransen K. A Social
 382 Identity Approach to Leadership Development: The 5R Program. *J. Pers. Psychol*.
 383 2017; 1(1):1-12.
- 384 14. Fransen K, Haslam SA, Steffens NK, Vanbeselaere N, De Cuyper B, Boen F.
 385 Believing in us: Exploring leaders' capacity to enhance team confidence and
 386 performance by building a sense of shared social identity. *J Exp Psych Appl*. 2015;
 387 21(1):89-100.
- 388 15. Fransen K, Haslam SA, Mallett CJ, Steffens NK, Peters K, Boen F. Is perceived
 389 athlete leadership quality related to team effectiveness? A comparison of three
 390 professional sports teams. *J. Sci. Med. Sport*. 2017; 20(8):800-806.
- 391 16. Fransen K, Steffens NK, Haslam SA, Vanbeselaere N, Vande Broek G, Boen F. We
 392 will be champions: Leaders' confidence in 'us' inspires team members' team
 393 confidence and performance. *Scand. J. Med. Sci. Sports*. 2016; 26(12):1455-1469.
- 394 17. Haslam C, Jetten J, Cruwys T, Dingle G, Haslam SA. *The new psychology of health:*
 395 *Unlocking the social cure*, Routledge; 2018.
- 396 18. Haslam SA, Steffens NK, Peters K, Yang J. Natural but estranged bedfellows: Social
 397 identity and the missing link between health and leadership, in *Social scaffolding:*

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

- 398 *Applying the lessons of contemporary social science to health, public mental health*
 399 *and healthcare*. Williams R, Bailey S, Kamaldeep B, et al., eds. London, Royal
 400 College of Psychiatrists, 2016.
- 401 19. Fransen K, Haslam SA, Steffens NK, Mallett CJ, Peters K, Boen F. Making ‘us’
 402 better: High-quality athlete leadership relates to health and burnout in professional
 403 Australian football teams. *Eur J Sport Sci*. 2019; in press:1-28.
- 404 20. Faul F, Erdfelder E, Lang A-G, Buchner A. G* Power 3: A flexible statistical power
 405 analysis program for the social, behavioral, and biomedical sciences. *Behav. Res.*
 406 *Methods*. 2007; 39(2):175-191.
- 407 21. Fransen K, Boen F, Vansteenkiste M, Mertens N, Vande Broek G. The power of
 408 competence support: The impact of coaches and athlete leaders on intrinsic motivation
 409 and performance. *Scand. J. Med. Sci. Sports*. 2018; 28(2):725-745.
- 410 22. Steffens NK, Haslam SA, Reicher SD, et al. Leadership as social identity
 411 management: Introducing the Identity Leadership Inventory (ILI) to assess and
 412 validate a four-dimensional model. *Leadersh Q*. 2014; 25:1001-1024.
- 413 23. Bruner MW, Boardley ID, Côté J. Social identity and prosocial and antisocial behavior
 414 in youth sport. *Psychol Sport Exerc*. 2014; 15(1):56-64.
- 415 24. Cameron JE. A Three-Factor Model of Social Identity. *Self and Identity*. 2004;
 416 3(3):239-262.
- 417 25. Lonsdale C, Hodge K, Rose EA. The behavioral regulation in sport questionnaire
 418 (BRSQ): instrument development and initial validity evidence. *J Sport Exerc Psychol*.
 419 2008; 30(3):323-355.
- 420 26. Ryan RM, Deci EL. *Self-determination theory: Basic psychological needs in*
 421 *motivation, development, and wellness*, Guilford Publications; 2017.

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

- 422 27. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic
423 motivation, social development, and well-being. *Am. Psychol.* 2000; 55(1):68-78.
- 424 28. Klein HJ, Wesson MJ, Hollenbeck JR, Wright PM, DeShon RP. The assessment of
425 goal commitment: A measurement model meta-analysis. *Organ. Behav. Hum. Decis.*
426 *Process.* 2001; 85(1):32-55.
- 427 29. Short SE, Sullivan P, Feltz D. Development and preliminary validation of the
428 collective efficacy questionnaire for sports. *Meas Phys Educ Exerc Sci.* 2005;
429 9(3):181-202.
- 430 30. Raedeke TD, Smith AL. Development and preliminary validation of an athlete burnout
431 measure. *J Sport Exerc Psychol.* 2001; 23(4):281-306.
- 432 31. Khan SS, Hopkins N, Tewari S, Srinivasan N, Reicher SD, Ozakinci G. Efficacy and
433 well-being in rural north India: The role of social identification with a large-scale
434 community identity. *Eur J Soc Psychol.* 2014; 44(7):787-798.
- 435 32. Fletcher D, Arnold R. A Qualitative Study of Performance Leadership and
436 Management in Elite Sport. *J Appl Sport Psychol.* 2011; 23(2):223-242.
- 437 33. Fransen K, Haslam SA, Mallett CJ, Steffens NK, Peters K, Boen F. Is perceived
438 athlete leadership quality related to team effectiveness? A comparison of three
439 professional sports teams. *J. Sci. Med. Sport.* 2017; 20(8):800-806.
- 440 34. Mertens N, Boen F, Vande Broek G, Vansteenkiste M, Fransen K. An experiment on
441 the impact of coaches' and athlete leaders' competence support on athletes' motivation
442 and performance. *Scand. J. Med. Sci. Sports.* 2018; 28(12):2734-2750.
- 443 35. Fransen K, Decroos S, Vanbeselaere N, et al. Is team confidence the key to success?
444 The reciprocal relation between collective efficacy, team outcome confidence, and
445 perceptions of team performance during soccer games. *J. Sports Sci.* 2015; 33(3):219-
446 231.

AN EXPERIMENTAL TEST OF THE 5R^S PROGRAM

- 447 36. Steffens NK, Haslam SA, Schuh SC, Jetten J, van Dick R. A meta-analytic review of
448 social identification and health in organizational contexts. *Personality and Social*
449 *Psychology Review*. 2017; 21(4):303-335.
- 450 37. Day DV, Fleenor JW, Atwater LE, Sturm RE, McKee RA. Advances in leader and
451 leadership development: A review of 25 years of research and theory. *Leadersh Q*.
452 2014; 25(1):63-82.
- 453 38. Fransen K, Mertens N, Cotterill ST, Vande Broek G, Boen F. From Autocracy to
454 Empowerment: Teams with Shared Leadership Perceive their Coaches to be Better
455 Leaders. *J Appl Sport Psychol*. 2019:1-23.
456

457

Tables458 *Table 1*

459 Means, standard deviations, and correlations between all the included variables. Cronbach's alphas are presented in italics on the diagonal.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. T1 Identity leadership	5.44	.71	(.92)															
2. T2 Identity leadership	5.54	.82	.48***	(.96)														
3. T1 Team identification	5.46	.81	.56***	.45***	(.87)													
4. T2 Team identification	5.52	1.02	.47***	.72***	.69***	(.94)												
5. T1 Intrinsic motivation	6.52	.72	.24*	.11	.17	.09	(.78)											
6. T2 Intrinsic motivation	6.35	.87	.26*	.46***	.37**	.37**	.30**	(.73)										
7. T1 Goal commitment	5.84	.89	.34**	.04	.14	.01	.17	-.09	(.79)									
8. T2 Goal commitment	5.48	.94	.29*	.39***	.13	.27*	.17	.42***	.46***	(.75)								
9. T1 Team confidence	5.27	.84	.48***	.49***	.46***	.46***	.23*	.20	.09	.18	(.84)							
10. T2 Team confidence	5.17	.89	.44***	.69***	.39**	.56***	.02	.18	.08	.25*	.60***	(.85)						
11. T1 Burnout	2.77	.94	-.29**	-.30**	-.24*	-.24*	-.54***	-.32**	-.33**	-.39**	-.28**	-.19	(.90)					
12. T2 Burnout	2.90	1.10	-.28*	-.32**	-.21	-.26*	-.26*	-.50***	-.28*	-.52***	-.17	-.21	.63***	(.93)				
13. T1 Self assessed health	5.18	1.02	.05	.02	-.02	-.03	.40***	.07	.22*	.11	.18	-.01	-.51***	-.40***	(.71)			
14. T2 Self assessed health	5.31	.97	.36**	.37**	.23*	.40***	.28*	.44***	.28*	.20	.21	.28**	-.35**	-.50***	.51***	(.79)		
15. T1 Performance	6.74	1.56	.26*	.22	.34**	.28*	.20	.24*	-.10	.16	.45***	.22	-.12	-.22	-.09	-.07	°	
16. T2 Performance	7.09	1.88	.14	.13	-.12	.01	.19	.24	.07	.35**	.22	-.12	-.23	-.12	-.02	.04	.22	°

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

° as 'Performance' was a single-item question, no Cronbach's alpha could be calculated

460

461 *Table 2*

462 The results of the multilevel regression modeling, including time as a level 1-predictor, condition as a level
 463 2-predictor, and a level 3 random intercept. The table displays interaction effects between the two
 464 conditions.

465

	Intervention condition		Comparison condition		Interaction effect (β)	Standard error (SE)
	<i>M</i> (<i>SD</i>) (T1)	<i>M</i> (<i>SD</i>) (T2)	<i>M</i> (<i>SD</i>) (T1)	<i>M</i> (<i>SD</i>) (T2)		
Identity leadership of athlete leaders	5.64 (.64)	5.96 (.62)	5.25 (.73)	5.11 (.79)	.50**	.17
Team identification	5.75 (.77)	6.21 (.61)	5.17 (.74)	4.83 (.88)	.76***	.15
Intrinsic motivation	6.64 (.58)	6.71 (.49)	6.40 (.83)	5.98 (1.00)	.59**	.19
Goal commitment	5.80 (.80)	5.74 (.85)	5.88 (.97)	5.22 (.96)	.65**	.20
Team confidence	5.51 (.65)	5.42 (.86)	5.03 (.95)	4.93 (.87)	.02	.18
Burnout	2.60 (.91)	2.62 (1.11)	2.93 (.95)	3.18 (1.02)	.31	.20
Self-assessed health	5.12 (1.20)	5.49 (.95)	5.25 (.81)	5.12 (.97)	.62**	.30
Team performance	7.32 (.83)	7.78 (1.34)	6.17 (1.89)	6.43 (2.09)	.00	.39

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

466

467