

A Note on Athletes' Use of Self-Talk

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Recent studies focussing on self-talk (e.g., Hardy, Gammage, & Hall, 2001; Hardy, Hall, & Hardy, 2002; Theodorakis, Weinberg, Natsis, Douma, & Kazakas, 2000; Van Raalte, Brewer, Rivera, & Petitpas, 1994; Van Raalte, Cornelius, Brewer, & Hatten, 2000) have increased our understanding of this much promoted mental skill. As a result, self-talk can be thought of as a multidimensional phenomenon focusing on athletes' self-verbalizations, which can serve both instructional and motivational functions (Hardy et al., 2004).

Recent research suggests that there are at least four aspects to the content of self-talk (i.e., *what* is said); it's valence, overtiness, person, and structure (Hardy et al., 2001). Although Hardy et al. (2004, Studies 1 & 2) reported that the majority of athletes' self-talk is positive (e.g., "you can do this"), said covertly (or internally), and is abbreviated (e.g., "head" instead of "remember to keep your head down") in structure, sex and sport type differences for the content of self-talk have been found (Hardy et al., 2004, Study 1). Specifically, male athletes were found to use more negative, overt (external) and less covert (internal) self-talk compared to female athletes. Moreover, team sport athletes were found to differ from individual sport athletes in almost identical manner. Post hoc analyses revealed that the significant effect of sex was confounded with the effect of sport type.

An additional aspect of self-talk that has recently received attention from researchers (e.g., Gammage, Hardy, & Hall, 2001; Hardy et al., 2001; Theodorakis et al., 2000) is the functions that self-talk can serve (i.e., the reasons *why* athletes use self-talk). It has been found that self-talk seems to serve two main functions for athletes (and exercisers), a cognitive (instructional) function and a motivational function. Both main functions can be further sub-divided into more focussed functions. Specifically, the cognitive function can be split into cognitive specific and

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cognitive general functions, which relate to assisting the athlete, learn and execute individual skills and strategies, respectively. Similarly, the motivational function can be further divided into three separate functions. The motivational arousal function is used by athletes to help "psych" up, relax, and control their arousal levels. The motivational mastery function is concerned with mental toughness, focus, confidence, and mental preparation—all required if the athlete is to successfully master their circumstances. The motivational drive function is slightly more global in nature than the previous two motivational functions. It is concerned with assisting athletes to keep on track in order to achieve their personal goals. Thus, this function is related to maintaining and increasing drive and effort levels. Individual sport athletes have been found to make greater use of the functions of self-talk as compared to their team sport counterparts (Hardy et al., 2004).

With regards to *when* and *where* self-talk is used, Hardy et al. (2001) found that athletes employ self-talk before, during, and after both practice and competition, at sporting venues as well as away from them. Hardy et al. (2004) extended their previous findings when they found that athletes employ self-talk to a greater extent in competition settings than in practice settings. Furthermore, the reported use of self-talk was greatest *during* competition as compared to *prior* to or *post* performances.

Although the above research provides an accrument of data pertinent to the *when*, *where*, *what*, and *why* of athletes' use of self-talk, data focusing on *how* athletes use self-talk is absent and, it is argued here, much needed. For example, it is unknown how athletes use self-talk across the season. Furthermore, self-talk may be a preparatory athletic strategy employed more prior to than during skill execution and in combination with mental and physical practice more than on its own. Self-talk may also be used in a preconceived and consistent manner. Thus, the aim of the present study was to generate data on how athletes use self-talk. Two more specific purposes were proposed. The first purpose was to ascertain if athletes' use of self-talk was stable throughout their season. The second purpose was to assess whether athletes of different sex, sport type, and skill level differed in how they utilized self-talk. Hardy et al.'s (2004) recent findings suggest that these three independent variables may be related to the content and functions of self-talk, however, it is not known if they relate to how athletes use self-talk. The generation of such information may allow researchers to gain a greater descriptive understanding of athletes' use of self-talk as well as to begin to allow practitioners to construct more effective self-talk interventions.

METHOD

Participants

Participants for the present study were a sample of 291 athletes with a mean age of 21.82 years ($SD = 4.07$); 52% were male and 48% were female. Athletes competed in a variety of individual (e.g., speed skating) and team (e.g., hockey) sports, as well as objectively (e.g., volleyball) and subjectively (e.g., figure skating) scored sports. Athletes also represented a range of skill levels from recreational (36%), club (10%), provincial (7%), varsity (39%), national (5%), through to international (2%) standards.

Measures

Athletes completed 14 items taken from the 59-item Self-Talk Use Questionnaire (STUQ; Hardy et al., 2004); a self-report questionnaire assessing the frequency of athletes' use of sport related self-talk. The STUQ asks for demographic information such as, age, sex, sport played, and level of competition. Participants then respond to items, which are based on Hardy

et al.'s (2001) qualitative self-talk findings and Hall, Rodgers, and Barr's (1990) Imagery Use Questionnaire. The first four questions relevant to the present study pertain to changes in the use of self-talk throughout the year. A yes/no qualifier is asked first: "Do you think that your use of self-talk varies throughout the year?" The remaining three questions ask athletes how often they use self-talk in their off-season, early competitive season, and late competitive season, respectively. Athletes respond using a 9-point scale (1 = *never*, 9 = *all the time*). The same scale is employed for 7 of the remaining 10 items, which assess how athletes use self-talk. Specifically, the 7 items to which athletes respond using the 9-point scale, ask athletes about their use of self-talk away from practicing or competing in their sports, use of pre-planned sayings as well as their use of self-talk prior to and during the execution of skills. Three items also assess athletes' use of self-talk in isolation as well as in combination with mental and physical practice. The three remaining items that assess athletes' consistency of the use of self-talk in competition and practice settings and their belief in the use of self-talk are responded to using a 5-point scale (1 = *not at all consistent/strongly disbelieve*, 5 = *completely consistent/strongly believe*).

Since the STUQ was developed to obtain preliminary research, formal psychometric evaluations of the inventory have not been performed.¹ However, the process of developing the inventory included independent reviews by an experienced sport psychology consultant and national level soccer coach, respectively. Minor rewording alterations were made according to their comments (e.g., the coach recommended rephrasing "combine self-talk with mental imagery" to "... with visualization").

Procedures

All athletes read a letter of information, and consent was implied by the completion of the questionnaire. They were all over the aged 18 years and thus parental consent was unnecessary. Completion of the questionnaire was carried out in a variety of settings (e.g., prior to or after practice) and at various times during the competitive season (e.g., early regular competitive season, late regular competitive season, playoffs).²

RESULTS

Examination of the Effect of Season

To address the first purpose of the study athletes first answered a question assessing if they thought their use of self-talk changes across their sport's year; 75% of the athletes indicated that their use of self-talk did indeed change during the course of the year. Their subsequent responses regarding their use of self-talk in the off-season, early competitive season and late competitive season were then utilized in a single Time of Season $\times$ Sex $\times$ Skill Level $\times$ Sport Type (3 $\times$ 2 $\times$ 2 $\times$ 2) mixed model ANOVA. The ANOVA's dependent variable was athletes' retrospective self-reported general use of self-talk. The repeated measure independent variable

¹As the STUQ does not contain discrete subscales common methods of providing information about its psychometric properties (e.g., factor analyses) do not apply. However, pilot data from 70 recreational volleyball players suggests that the instrument does possess acceptable test-retest reliability. Intraclass correlation coefficients (ICC) obtained from the sample ranged from .63 to .89. Only two items had ICCs below .70.

²It should be noted that completion settings, before versus after practice/competition and off-season versus early versus late in competitive season, did not significantly effect athletes responses to the STUQ items, Pillai's $F(70, 885) = 1.11$, $p > .05$, and Pillai's $F(56, 704) = 1.30$, $p > .05$, respectively.

was time of season, with three levels: off-, early competitive, and late competitive seasons. The respective between-group independent variables were Sex, Skill Level, and Sport Type. Due to large discrepancies in the sample size for athletes' sports and skill levels, both variables were conceptualized with two levels. Sport Type was comprised of team and individual levels. Skill Level was comprised of those competing at the varsity level and above, the skilled athlete category, and those competing up to the provincial (senior club) level, the less skilled athlete category.

A highly significant main effect for time of season was found, Greenhouse-Geisser $F(1.68, 361.44) = 296.271$, $p < .001$, $\eta^2 = .58$. Bonferroni post-hoc tests conducted on the means for the usage of self-talk at the off-season ($M = 3.90$, $SD = 1.99$), early competitive season ($M = 6.13$, $SD = 1.72$), and late competitive season ($M = 7.22$, $SD = 1.52$) time periods, indicated that athletes' use of self-talk increased significantly from the off-season to the early competitive season ($p < .001$) and in turn, from the early competitive season to the late competitive season ($p < .001$). Significant main effects for the effect of sex, $F(1, 215) = 1.36$, $p > .05$, skill level, $F(1, 215) = .09$, $p > .05$, and sport type, $F(1, 215) = 1.62$, $p > .05$, were not obtained. In addition, none of the tests of interactions reached significance.

Examination of Sex, Sport Type, and Skill Level on How Athletes use Self-Talk

A 3 factor $2 \times 2 \times 2$ (Sex $\times$ Skill Level $\times$ Sport Type) between group MANOVA was conducted. The dependent variables were the ten remaining self-talk items. The analysis revealed significant multivariate effects for sport type, Pillai's $F(10, 278) = 3.43$, $p < .001$, $\eta^2 = .11$, and skill level, Pillai's $F(10, 278) = 2.02$, $p < .05$, $\eta^2 = .07$. The multivariate effect for sex, however was non-significant, Pillai's $F(10, 278) = 1.66$, $p > .05$, as were each of the tests of interactions. Means and standard deviations for each of the items can be seen in Table 1.

Post-hoc ANOVAs performed to further understand the significant effect of sport type found that individual sport athletes generally tended to use self-talk more frequently than their team sport counterparts. Specifically, significant differences emerged between the two groups regarding athletes use of self-talk before attempting skills, $F(1, 287) = 13.40$, $p < .001$, $\eta^2 = .05$, when away from practice or competition settings, $F(1, 287) = 8.31$, $p < .01$, $\eta^2 = .03$, the use of self-talk in combination with physical practice, $F(1, 287) = 7.72$, $p < .01$, $\eta^2 = .03$, the athletes' belief that self-talk impacted their performance, $F(1, 287) = 8.59$, $p < .01$, $\eta^2 = .03$, use of self-talk during the execution of skills, $F(1, 287) = 6.24$, $p < .05$, $\eta^2 = .02$, and the use of planned self-statements, $F(1, 287) = 4.84$, $p < .05$, $\eta^2 = .02$.

Follow up ANOVAs performed to more clearly understand the significant effect of skill level also revealed significant univariate differences between skilled and less skilled athletes' use of self-talk. Specifically, skilled athletes were found to make more consistent use of self-talk in competition settings, $F(1, 287) = 11.77$, $p = .0014$, $\eta^2 = .04$, use more planned self-talk, $F(1, 287) = 7.00$, $p < .01$, $\eta^2 = .02$, and have a greater belief that self-talk impacted their performance, $F(1, 287) = 4.10$, $p < .05$, $\eta^2 = .01$, compared to less skilled athletes.

Although the analysis conducted did not reveal significant differences for all of the self-talk items, from a purely descriptive standpoint it is worth noting some trends related to how athletes employ self-talk. For instance, inspection of Table 1 suggests that athletes utilize sport self-talk quite rarely when away from practice/competition settings. Athletes also seem to use self-talk more prior to rather than during the execution of skills. Moreover, it appears that athletes use self-talk in combination with mental imagery and physical practice (e.g., in slow motion or real time) to a similar extent and more frequently than the utilization of self-talk on its own. Finally, athletes also seem to employ self-talk in a somewhat planned and consistent fashion, as well as believe that self-talk impacts their athletic performance.

Table 1
Descriptive Statistics Regarding How Athletes Use Self-Talk

STUQ items	Overall sample	Skilled athletes	Less skilled athletes	Individual sport athletes	Team sport athletes
How often do you use self-talk in relation to your sport away from practice and competition settings? ^a	3.85 (1.95)	4.04 (2.04)	3.68 (1.86)	4.24 (1.93)	3.55 (1.92)
How often do you say things to yourself . . . before attempting skills? ^a	6.17 (1.84)	6.22 (1.70)	6.12 (1.97)	6.67 (1.69)	5.80 (1.87)
During the execution of skills? ^a	5.55 (2.28)	5.51 (2.39)	5.59 (2.19)	6.02 (2.32)	5.21 (2.20)
When using self-talk to help learn/ fine tune a skill, how often do you combine self-talk with visualization?	6.00 (2.15)	6.13 (2.05)	5.89 (2.23)	5.93 (2.23)	6.05 (2.09)
When physically practicing a skill (e.g., in slow motion or in real time), how often do you combine physical practice with use of self-talk? ^a	6.02 (1.99)	6.10 (2.04)	5.94 (1.95)	6.46 (2.05)	5.70 (1.89)
When using self-talk to help learn/ fine tune a skill, how often do you utilize self-talk on its own?	5.10 (1.98)	5.23 (2.03)	4.99 (1.94)	5.26 (1.98)	4.98 (1.98)
Please rate how often you make use of "planned" sayings. That is, self-statements that you made up prior to practice sessions or competitive games and will be said whilst practicing/competing in your sport. ^{a,b}	4.54 (2.15)	4.90 (2.06)	4.24 (2.18)	4.88 (2.25)	4.30 (2.05)
Please rate how consistent your self-talk is during practice sessions. That is, do you say the same things to yourself at similar times or after similar happenings (e.g., same things following an error or success) during practice sessions.*	3.29 (0.78)	3.36 (0.78)	3.24 (0.79)	3.32 (0.71)	3.27 (0.84)
Please rate how consistent your self-talk is during competitive games/tournaments. That is, do you say the same things to yourself at similar times or after similar happenings (e.g. same things following an error or success) during competition.* ^b	3.59 (0.77)	3.75 (0.77)	3.45 (0.74)	3.69 (0.73)	3.52 (0.79)
To what extent do you believe that what you say to yourself has an impact on your performance? ^{**a,b}	4.00 (0.75)	3.92 (0.78)	4.09 (0.71)	4.13 (0.70)	3.90 (0.78)

Note: ^aIndicates a significant difference in the use of self-talk between skilled and less skilled athletes, $p < .05$, ^bindicates a significant difference in the use of self-talk between individual and team sport athletes, $p < .05$. Standard deviation values are in parentheses. All variables are scored on a 9-point scale, except those marked with * indicate variables scored on a 5-point scale.

DISCUSSION

The general purpose of the present study was to generate descriptive quantitative data focussing on how athletes use self-talk. The first more specific purpose was to assess if athletes' use of self-talk varied throughout their sporting calendar. It was found that the majority of athletes (75%) reported this was the case. Self-talk was employed with increasing frequency as the year progressed from the off-season through the early competitive season to the late competitive season. The second more specific purpose was to examine the extent to which athletes of different sex, sport type, and skill level differed in how they utilized self-talk. Significant effects for sport type and skill level were found. In general, individual sport and skilled athletes used self-talk more frequently than team sport and less skilled athletes, respectively.

With regard to the first purpose of the present study, a similar temporal pattern has been established for the use of imagery during the year as we obtained for the use of self-talk. For example, Hall et al. (1990) found that 68% of athletes asked, reported changes in their general use of imagery during their sporting calendar. Furthermore, Munroe, Hall, Simms, and Weinberg (1998) found overall increases in the use of the functions of imagery from early to late in the competitive season. Such similarities may be due to the frequent combined usage of self-talk with imagery. Taken together, the effect of season findings suggest that as the season approaches the most critical stage (i.e., "do or die" regular season games and perhaps play-offs) athletes devote greater mental resources to their sport when they perceive the sporting situation to be important to them. However, it must be noted that neither athletes' perceptions of event importance nor their attentional processing capacity were measured in the current study. As such, our explanation of the effect of time of season is presently speculation, but would be useful for future research to examine to further increase our understanding of self-talk.

The presence of a significant effect for time of season, when combined with Hardy et al.'s (2004) recent findings related to the different usage of self-talk across settings (practice vs. competition), hints at a fundamental implication regarding the nature of self-talk. That is, it would appear that the phenomenon of self-talk has a dynamic aspect. As a result, it is suggested that future research should examine the dynamic nature of self-talk more closely in order to gain a greater understanding of how athletes use self-talk. As such, it would be interesting to investigate whether the uses of the functions of self-talk vary across the competitive season.

With regard to the second purpose of the study, individual- and team-sport athletes were found to differ significantly on how they utilized self-talk. In general, individual-sport athletes were found to employ self-talk more frequently than team-sport athletes. Although an explanation that accounts for all the differences of how athletes from different sports use self-talk cannot be offered at the present time, the fact that skills performed by individual-sport athletes are less interactive than those performed by team-sport athletes is one possible explanation that may account for the majority of the differences found in this study. As such, an environment with less interactions with both other individuals and skills (e.g., ten-pin bowling) may allow a greater number and a more deliberate form of self-talk as compared to a more interactive environment (e.g., rugby). Thus, it may explain why individual-sport athletes use self-talk more frequently prior to and during the execution of skills, as well as use self-talk that is more planned than team-sport athletes. Alternatively, it may simply be the case that if one cannot talk to teammates (due to their absence), then one may be more likely to talk to oneself. Clearly such speculative explanations require further investigation with regard to their plausibility.

Additionally, skilled athletes reported using self-talk in a significantly more planned and consistent manner, as well as had a greater belief in use of their self-talk, as compared to their less skilled counterparts. This finding implies that skilled athletes employ self-talk that is more preconceived (as opposed to reactionary to events) than less skilled athletes. Skilled athletes may have learned (naturally) through trial and error that their self-talk serves them better when

it is planned than when reactionary in nature. Alternatively, skilled athletes' greater exposure to the suggestions of more and better coaches and applied consultants on the use of self-talk may have impacted on how they employ this mental skill. Regardless, the applied implication of this finding is that sport psychology practitioners would do well to foster such self-talk by their athletes. In addition, this finding offers some preliminary data suggesting that athletes' use of self-talk may be viewed as a skill as opposed to a trait-like disposition. As such it may be possible to alter self-talk through practice, just as physical skills can be learned and improved. It is clear that the issue of the effectiveness of self-talk requires future research emphasis if sport psychology is to positively influence athletic performance through the use of such interventions as cognitive restructuring (e.g., Hanton & Jones, 1999).

Although the present study generated some interesting data on how athletes use self-talk, it does have some limitations. For example, due to the lack of psychometric information known about the STUQ, it is recommended that the present study's findings be interpreted with caution. Replication of the study's findings would increase the reader's confidence that such findings are reliable and generalizable. It must also be noted that classifying sports into individual and team categories is not the only available method—other categories include contact versus non-contact, and objectively versus subjectively scored sports. This is relevant to the present study as most team sports could be classed as contact and objectively scored whereas most individual sports are non-contact and subjectively scored. Future research should employ stratified sampling in order to fully understand the effect of sport type on the use of self-talk. Another limitation is inherent in the self-report protocol of measuring self-talk. Future studies should consider alternative methods that do not rely on retrospective recollection.

In conclusion, the findings from the present study supplement those from Hardy et al.'s (2001) qualitative study of athlete self-talk. It was found that the use of self-talk by the majority of athletes varied during the sporting year. Retrospective self-reports indicated that athletes increased their usage of self-talk from the off-season through to the late competitive season. Skill-level and sport-type differences were also found for the way athletes use self-talk. Possible explanations for the study's findings were forwarded, as well as ideas for future research in order to further improve our understanding of how athletes use self-talk.

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