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THE EFFECT OF INSTRUCTIONAL AND MOTIVATIONAL SELF-TALK ON WARM-UP DECREMENT IN VOLLEYBALL SERVING SKILL

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Abstract:

Aim: self-talk (self-expression, automatic thought, inner speech) is one of the cognitive methods which improve performance. The aim of the present study was to investigate instructional and motivational self-talk on warm-up decrement in volleyball serving skill.

Methodology: The statistical population of the study consisted of all volleyball players in Qom province that had the record of participation in national championships. For this purpose, 36 subjects were randomly selected and volunteered to participate in this study.

Findings: These results showed that different types of self-talk (instructional and motivational) improved performance and decreased warm-up decrement

Keywords: instructional and motivational self-talk, warm-up decrement, volleyball serving

Introduction

Self-talk is defined as an inner speech which happens either loudly or silently. Through self-talk, the individuals can interpret their thoughts and emotions, instruct or improve themselves (10). In addition, self-talk influences the behaviors and strategies involved in mental processes based on the individuals' self-talk (13). Self-talk is one of the cognitive strategies widely used in sport psychology in order to improve performance and learn motor skills and its positive effects in improving performance have been proved. For example, self-talk improved performance in 100 m running (Malt, 1997),

swimming (Rushal, 1989), rowing (Rushal, 1982) and tennis (Landal, 1997) (16, 17). Although the advantages of positive self-talk have been reported in many studies, there are contradictory results about the effects of instructional and motivational self-talk on performance.

Theodorakis (2000) investigated the role of instructional versus motivational self-talk in four laboratory motor tasks including fine movements (soccer accuracy test and badminton service test) and gross movements (3 min. a sit up test and a knee extension task on an isokinetic dynamometer). The results showed that instructional self-talk was more effective than motivational self-talk in those motor movements which needed coordination, accuracy and fineness while both of them increased performance in strength skills and motivational self-talk improved performance increasingly in endurance skills (3).

Theodorakis (2001) in another research that investigated the effects of instructional and motivational self-talk on basketball shooting task. He announced that instructional self-talk had more a beneficial effect on fine movements. The reason may be to lock on the target in order to facilitate the movement pattern (17).

Hatzigeorgiadis et al. (2004) compared the effects of instructional and motivational self-talk on shooting accuracy and throwing in different distances in water polo. They found out that both instructional and motivational groups outperformed in those tasks requiring accuracy and strength. But the effect of instructional self-talk on task accuracy was more than that of motivational self-talk and the effect of motivational self-talk on strength throwing was more than that of instructional self-talk (7).

Perkos, Theodorakis and Chroni (2002) in a study of 62 novice basketball players reported that instructional self-talk was an appropriate method to improve the performance of those skills with less complexity (13).

Tsiggilis et al. (2003) investigated the effect of instructional self-talk on self-efficacy and motor performance in handball throwing of 46 physical education students and did not observe any significant difference between the instructional self-talk and control groups (19).

Tahmasebi and Shahbazi (2011) investigated the basketball passing and shooting skills in those students with age range 12.1+9.20 yr and concluded that instructional self-talk was useful in those skills requiring more precision and timing and motivational self-talk was beneficial in speed skills (16).

Tahmasebi and Ghaheri (2011) found out in another study that motivational self-talk improved choice reaction while no change was observed in simple reaction (17). Linner et al. (2010) showed that motivational self-talk improved the performance of golf players (9).

Kolovelonis et al. (2011) reported that motivational self-talk significantly improved the performance in a modified push-ups test versus instructional self-talk. Instructional self-talk significantly improved the performance of chest pass versus motivational self-talk. Also, both groups significantly outperformed the control group in both push-up and chest pass (8).

Hatzigeorgiadis et al. (2008) found out that motivational self-talk increased self-efficacy and performance of young tennis players. Hatzigeorgiadis et al. (2009) concluded in another study that motivational self-talk reduced anxiety and increased self-confidence during the performance (7).

Chroni et al. (2007) showed that the effect of motivational self-talk on dribbling and shooting was more than instructional self-talk, but there was no difference between the two types of self-talk (3).

Dana et al. (2011) found out in a research entitled "*The effect of instruction and motivational self-talk on performance and retention of discrete and continuous motor tasks*" found out that instructional self-talk had a significant effect on the improvement of discrete motor task and motivational self-talk improved the performance and task retention (4). The findings of Fenderski et al. (2011) showed that both types of instructional and motivational self-talk significantly improved the learning of basketball shooting and motivational self-talk was significantly more effective than instructional self-talk.

On the other hand, time interval in performance is used in many sports, for example, in the change of volleyball, basketball, tennis… courts, players' sitting on the benches after the initial warm-up until the game starts as well as longer rest intervals between the two halves. It is often imagined that athletes or workers perform the tasks more efficiently after time intervals. However, due to a phenomenon named warm-up decrement (WUD), the athlete may not be able to prepare efficiently for an instant competition after the rest.

A warm-up decrement is a decrement in body performance following a time interval before the next trial (Schmidt, 1982). If an individual performs, a body task after a definite time interval as usual, his performance will improve; but normally task performance will be weakened after even a short rest compared with the performance before the rest. Warm-up decrement is short which fades quickly and the performance increases after some trials or seconds (Schmidt, 1982).

The possible hypotheses for warm-up decrement are as follows:

1. Short-term forgetting (1);
2. The extinction of conditioned inhibition: extinction hypothesis (5);
3. Loss over rest: activation hypothesis (12);

4. Loss of set (somatic and cognitive adjustments closely related to the task and/or apparatus in question): set hypothesis (1);
5. The loss over rest of a non-habit internal state (such as a generalized readiness to respond): activity-set hypothesis (12, 15).

Based on these hypotheses, apparently the response after the rest is not at the same level as the one before the rest. Among many hypotheses proposed for warm-up decrement, the activity-set hypothesis is experimentally more valid. This hypothesis proposes that the reason for warm-up decrement is loss over rest of an improper readiness to respond and it happens when the related supporting systems have not properly adjusted before the task performance. It seems that the performer should adjust some internal mechanisms to achieve the goal. The pattern of these adjustments is different for different classes of responses and is unique to a given class.

The proposed mechanisms for activity-set hypothesis include the activation system, the trade-off of speed and accuracy, the attention to important sources of feedback and the establishment of expectancies for up-coming events. Rest needs the readjustment of these systems and if it received no attention, warm-up decrement is predicted. Therefore, the amount of post-rest decrement in performance depends on the performer's ability to adjust the fundamental systems of a class similar to the pre-rest instant period. However, Murray (11), Anshel (2), Wrisberg and Anshel (20), Eysenck and Harris (5,6) and other researchers carried out interferences to reduce warm-up decrement and some reached positive findings.

On the other hand, Wrisberg and Anshel showed that arousal and attention eliminated warm-up decrement in baseball groundstroke. Generally, with regard to the researches, it can be asserted that positive imagination, arousal increase, attention focus, neuromuscular coordination… are the most important interventions which reduce warm-up decrement in different sports skills (20, 2). On the other hand, one of the theories which can justify the beneficial effects of self-talk on warm-up decrement is Action-Language-Imagination Theory. This theory shows the close relationship of oral system and imagination to process motor information. The bridge between language and action which is used by motor imagination provides the opportunity to describe and create actions. Also, it provides a chance to respond to oral instructions.

Papa and Nova (2004) noted that motivational self-talk directs the athletes to focus, self-confidence and eventually positive mental imagination. Therefore, the present study aimed to investigate the effects of different types of self-talk on warm-up decrement in volleyball serving skill.

Methodology

This study was semi-experimental and two experimental groups as well as one control groups were examined.

Statistical population and sample

The statistical population consisted of all volleyball players in Qom province who had a record of participation in Iran championships. 36 subjects were randomly selected and volunteered to participate in this study. The acceptance criteria in this study were to have a record of participation in Iran championships, continuous attendance in training sessions for at least six months before the study and so on.

Methods

The study consisted of focused training sessions of volleyball serving skill for all subjects to perform that skill equally. After the end of the training sessions, pretest was used to categorize the groups and to determine the differences among them. The level of subjects' arousal was determined by their heart rate and their strength was measured by modified pull-up so that the groups could be the same with regard to the effectiveness of strength factor. After the training sessions and categorization of the groups, the subjects were divided into three groups of motivational self-talk, instructional self-talk, control, and were prepared to participate in the study. Motivational self-talk group loudly repeated a motivational sentence like "*my performance can be the best in this situation and I can get the highest score*" while the instructional self-talk group repeated the sentence "*I take a proper guard and pay attention to that specific location and hit the ball with my palm*". The control group studied a piece of paper about refereeing in soccer games so that their attention could be totally distracted from serving. To assess the subjects' performance, volleyball serving test (AAHPERD) was used. In this test, the subjects performed 10 serves and scored with regard to the location where the ball hit the court. The maximum score the subjects could get was 40. The scores of subjects' performance and the sequence of scores in volleyball courts (AAHPERD test-2).

Statistical procedures

To analyze the data, descriptive statistics (mean and SD) as well as inferential statistics (Kolmogorov-Smirnov test) to examine the data normality were used. The mean difference of the groups was assessed by one-way ANOVA in acquisition, retention and transfer phases. To examine the difference among the groups, Tukey post hoc test was

used at (P<0.05). SPSS ver. 19 software was used to analyze the data as well. The graphs were drawn by EXCEL 2010.

Findings

Subjects' demographic characteristics

Table 1 shows the mean and SD of physical features of the subjects in the groups. One-way ANOVA showed no significant difference in the following variables (P>0.05).

Table 1: Mean and SD of physical features of the subjects in the groups

Groups	No.	Weight (kg)	Height (cm)	Age (year)	Pull-up (modified)
Instructional self-talk	12	70/8±5/84	172/13±5/20	15/52±./99	12/06±2/57
Motivational self-talk	12	71/6±4/90	173/86±3/41	15/53±1/12	13/33±2/38
Control	12	72/1±5/11	172/73±4/26	15/06±1/09	13/06±2/01

Mean difference in pretest

Gone-way ANOVA was used to assess the difference among the groups in the pretest. The results showed no significant difference among the groups in the volleyball serving test (P=0.844).

Mean difference in posttest

As the below table shows, the results of one-way ANOVA showed a significant difference among the groups in the posttest.

Table 2: One-way ANOVA to assess the posttest in instructional, motivational and control groups

	SS	DF	MS	F	P
Among groups	464.533	2	232.267	22.051	0.000*

*P<0.05

The results of Tukey post hoc test showed a significant difference between motivational and instructional groups. These results also showed a significant difference between these two self-talk groups and control group (P<0.05).

Groups	Instructional self-talk	Motivational self-talk	Control
Instructional self-talk	****	0.032	0.008
Motivational self-talk	0.032	****	0.000
Control	0.008	0.000	****

Discussion and Conclusion

The aim of the present study was to investigate the effects of instructional and motivational self-talk on warm-up decrement in volleyball serving skill. 45 students from Qom province who were novice volleyball players participated in this study. They used instructional and motivational self-talk in their training sessions and they were tested in the last session considering the necessary timing to create warm-up decrement reported in previous researches.

These results showed that different types of self-talk (instructional and motivational) improved performance and decreased warm-up decrement. In line with this result, Ryan et al. (2007) in a research on the effects of three types of self-talk on endurance performance found out that different types of self-talk improved the performance of all groups (14).

Hatzigeorgiadis et al. (2009) investigated the effects of self-talk on self-confidence, anxiety and performance in young tennis players. They reported that self-talk could improve self-confidence and decrease cognitive anxiety. They noted that an increased in self-confidence could be considered as a constant consequence of self-talk which justified the positive effects of self-talk on performance (7). However, Parvizy et al. did not recommend self-talk and attention manipulation to improve performance and learning of free throw in novice basketball players.

On the other hand, Hatzigeorgiadis et al. (2009) asserted that different types of self-talk may have different effects on performance considering the type of self-talk. The results of this study showed that motivational self-talk improved performance and decreased warm-up decrement in volleyball serving skill. These results are in line with the results reported by researchers such as Theodorakis (2000) & Ryan (2007) who showed that motivational self-talk improved performance. Tahmasebi and Ghaheri (2011) in their research found out that motivational self-talk improved choice reaction while there was no change in simple reaction (16). Linner et al. (2011) showed that motivational self-talk improved the performance of golf players.

Kolovelonis et al. (2011) reported that motivational self-talk significantly improved the performance in modified pull-up versus instructional self-talk (8). Hatzigeorgiadis et al. (2008) found out that motivational self-talk improved self-efficacy

and performance of young tennis players. Hatzigeorgiadis et al. (2009) in another study concluded that motivational self-talk decreased anxiety and increased self-confidence during performance. Chroni et al. (2007) showed that the effect of motivational self-talk on the performance of dribbling and shooting was higher than instructional self-talk.

Fenderski et al. (2011) showed that both types of instructional and motivational self-talk significantly improved the learning of basketball shooting and motivational self-talk was significantly more effective than instructional self-talk. However, these results are contrary to the results reported by Theodorakis (2001) and Perkos, Theodorakis, Chroni (2002). This contradiction could be attributed to the type of activity and the duration of self-talk. It can be noted that volleyball serves require not only coordination, accuracy and fineness but also a definite amount of strength which is necessary to direct the ball to a specific location while Theodorakis (2000) believed that instructional self-talk is more suitable for those tasks which need coordination, accuracy, fineness, strength, and gross tasks need motivational self-talk. It should be mentioned that these researchers did not study those tasks which require accuracy and fineness as well as strength.

Hatzigeorgiadis et al. (2004) found out that both instructional and motivational self-talk improved those tasks requiring accuracy and strength but instructional self-talk had more effect on fine and accurate tasks and motivational self-talk had more effect on strength. However, the results of the present study showed that motivational self-talk was more effective in those tasks requiring strength as well as accuracy and fineness. One of the theories which can justify the beneficial effects of self-talk is Action-Language-Imagination theory. This theory shows the close relationship of oral system and imagination to process motor information. The bridge between language and action which is used by motor imagination provides the opportunity to describe and create actions. Also, it provides a chance to respond to oral instructions. Papa (2004) noted that motivational self-talk directs the athletes to focus, self-confidence and eventually positive mental imagination. In addition, some researchers believe in the beneficial effects of imagination on a decrease in warm-up decrement.

Eysenck, Hardy, Anshel and Wrisberg observed a decrease in warm-up decrement in circular motions on pommel horse as well as hitting a baseball ball due to proper motor imagination (2, 5). Also, Mohammadzadeh et al. (2008) introduced imagination as a proper and beneficial interference in decreasing warm-up decrement which could decrease warm-up decrement in volleyball serving skill. However, Anshel, Wrisberg, and Anshel did not observe any decrease in warm-up decrement following imagination in handspring on pommel horse as well as tennis forehands and backhands (2, 20). This contradiction can be attributed to athletes' ability to do proper imagination

or even the type of activity. Some researchers investigated other possible interferences in decreasing warm-up decrement such as running, performing those tasks similar to the criterion task and eye-hand coordination tasks. But coaches can use self-talk especially motivational self-talk to reduce warm-up decrement and to improve the quality of serves during the competitions or replacement for serving and/or serving after the rest when the quality of serves is lower than those serves performed during the games.

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