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EFFECT IMAGERY TRAINING ON APPLIED TACTICAL DECISION-MAKING OF OFFENSIVE SKILLS AMONGST IRAQIS' YOUNG BOXING PLAYERS

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Abstract
Current study aim to examine effect imagery training program on taken tactical decision-making of applying offensive skills which among Iraqis' players. Sample of study involved (32) players non probability . Leven's test was run to measure homogeneity among players, then divide randomly between experimental group (EG) and controlled groups (CG) based on their weigh in KG, levenes' test results as no significant for all offensive skills. After eight weeks of applying intervention program, t-test was run to reveal the differences within group and between group. Within group there are a significant differences between per-posttest in tactical-decision making of offensive skills of EG. in contrast , no significant differences between per-posttest in CG. Further there are a significant differences between EG and CG in post-test. Study conclude applying imagery training enhance applied offensive skills based on tactical decision-making. Then study recommended imagery training as essential component of training ,since this training improve general decision-making when perform offensive skill .

Keywords: Imagery Training, Applied Tactical, Decision-Making, Offensive Skills. Boxing Players.

introduction

boxing sport need fast and speed tactical decisions and performance to throw punch on target part of competitor body and head (Hristovski, Davids, K., Araújo, & Button.2006). boxing is consider hard sport need vigilance throughout all boxing bouts, high level of cognitive abilities and read available information in sport performance environment to decide tactical decisions (Edward, K., Kevin,2012). Unpredictable tactical strategies of competitor make take right decisions are more challenge in open sport context (Davis,2018). In open sport context there is an urgent need to improve athletes abilities to analysis visuals information , since type of performance need make incessant tactical decision to face competitor, the study of (Romeas, Guldner, & Faubert, 2016) confirmed this result, and it was mentioned enhance athletes ability to make proper decision one of fundamental psychological skill athletes need. Some studies compare mechanism of tactical decision-making in sport performance, studies found out young athletes with high level of decision-making have high level of athletic performance (Lopes et al., 2016; Fortes et al, 2020). Boost athletes' cognitive abilities indispensible matter, decision-making one of cognitive abilities that need to improve athletes' perception, vigilance, expectation an short-term memory (Araújo et al., 2015). Many empirical studies used imagery training to create mental picture for athletes performance stored in one's memory, these studies strongly endorse effect imagery training on many psychological aspects of athletic

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performance (Guillot et al., 2015; Brick, MacIntyre,& Campbell, 2015). Bigliassi, Vieira, & Altimari (2014) explained that imagery training generate vivid mind sketch to athletic skills in athletes' mind based on past experiences, the sketch is conjuring in real performance, then help athlete to achieve his performance. Furthermore mind images trigger sympathetic nervous system as in real-athletic performance such heart rate , for this reason heart rate is consider indicator for imagery training (Pinto, Ramos, Lemos, Vargas, & Imbiriba, 2017). In consistency with results of (Brick et al,2015) confirmed that there are two type of imagery training, namely , cognitive- specific and cognitive- general , they are used to improve athletes' performance and overcome difficulties which face athletes in competition. Besides there is imagery training has a constructive positive impact on competitional anxiety (Fortes, Lira, Lima, Almeida, & Ferreira, 2016), accuracy (Guillot et al., 2015) and muscular tension (Di Rienzo et al., 2015). However , there is limit knowledge about how imagery training going to effect on tactical decision making in boxing competition, further Iraq has scarce studies in this regard. The result of this study may present helpful results about imagery training and tactical performance, may athletes and coaches employ study result to refine boxing players tactical decision-performance. Based empirical result current study hypothesize that imagery training enhance boxing player's tactical decision-making.

Methodology

Current study used experimental research design ,this design need to high level of objectivity and controlled, in order to reveal causal relationship between variable of study. two group were used, experimental group (EG) and controlled group (EG), these groups subject to same condition except intervention program used with experimental group (EG). This design help researcher to find out precisely reasons of difference between two groups (Ross & Morrison, 2013; Zubair,2023).

Sample of study

Thirty-two boxing players were sample of study, personal and union approval had been taken in consistent with Helsinki Declaration for research on human, in order to conduct this study . Non-probability sample technique was employed to select sample. the criteria of chosen sample was , All players training 7 hours each week, each player have to be participated in at least two tournaments which held under Iraqi boxing union, lastly the age of sample have to be ranged between (16-17) years old. The weight of players was 52,56,60 Kg. According to weights, sample was distributed equally and randomly in both groups, To ensure each weigh in (control group(CG) has their equal in (experimental group) EG. These procedures have been conducting to ensure equality between two groups and find precise result (Ross & Morrison, 2013).

Experimental protocol

CG and EG have follow exactly same microcycle of training physically and technically, training zone and duration of training . load of training was measured players effort depend on players' perception in each session(RPE-session for all eight weeks , and each week has five training sessions. Each session volume was calculated in minutes (85. 5 ± 40) on daily-base.

Thirty minute after routine microcycle training CG watch video about boxing equipment , life of legend boxing players and sport advertisement. While EG watch offensive technical and tactical real performance of legend players, communications among players in both group had not allowed while they was watching video. Imagery training session had been holding three times a week, 48 hours between session, each sessions lasting

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twenty minutes for EG groups, throughout eight weeks. During imagery training players have to be wear tournament outfit near ring of boxing in quiet environment.. The imagery training was conducted according to protocol of (Guillot et al,2015), this protocol suggested request from each player in experimental group (EG) conducting imagery training as a first person (internal perception) , the have to imagine himself is doing same offensive technical and tactical from same position, in real speed , generate same emotional feeling (anxiety) in tournament. Have to decide as (first person) during imagination apply same decision in same time and speed of legendary boxing, who watch on videos. Heart rate was used as indicator during imagery training for both groups while players watch video to monitor activation of sympathetic nervous systemic, since imagery training activate sympathetic system. Sparring- bouts was conducted pre and post intervention program, these bouts were record by two camera from different angles, two experts in boxing training analyses players tactical decision- performance based on offensive skills (punch trajectory, tactical decision to throw combination of punch, and boxing players movement on ring) for each players in CG and EG. Experts evaluate each skill as appropriate tactical decision and get one point (1) or inappropriate tactical-decision then grade them (zero).Decisions –making assess based on (Memmert and Harvey ,2008) formula shown below.

Decision-making = total appropriate decision /appropriate decision + inappropriate decision.

The statistical output showed ($p > .05$), this prove there are not significant differences between CG and EG regard variable of study. Heart rate indicate to physiological fitness equality between groups this measure was taking before and after maximums effort , general training age show also there are no significant differences in training and experiences may deform the result among groups. Homogeneity among experimental groups are empower a researcher to identified pros and cons of experimental intervention in pro-test accurately (Santoso,2024).

For analysis performance study use two camera put in two angle to cover all rings area. two training boxing experts analysis, whom work in Iraqi union boxing, analysis decision-making after coding required offensive skills. Speed of video was 1-s increment in order to allow to expert watch carefully and judge precisely. Offensive skills (punch trajectory, movement on ring, combination of punches, punch trajectory, and hit target of opponent body), Expert will judge appropriate for each right skill performance and in inappropriate for each wrong skill performance. Analysis bouts' video lasting eight days, two session a day and 30 minutes rest in between two sessions. Later apply (Memmert and Harvey ,2008) formula to assess general performance for players in both groups.

Statistical analysis

Data were analyzed using IBM SPSS Statistics (version 27.0) to analysis collective data . Interclass correlation run between two boxing training experts were (ICC < .87) for all variable of study. According to ICC the result agreement between two experts ,whom analysis the videos autonomously, (16 bouts) for (32) players from same weight ,each fight was held between players from same weight, the results verified no significant differences are found in per- test. This met the standard which required to conduct experimental study. The training age was record according to number of years and months by players themselves. Heart rate bpm was measure in rest and after maximum exercise, this test check physiological characters of sample . Leven's test was run to examine Homoscedasticity among players. Finally players' weight had checked in kg, then players

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divide according to their Wight randomly in (CG) and (EG). table (1) show these result of levene's test homoscedasticity.

Table (1) Levene's test for Homoscedasticity

Variables	Statistical - F	df	sig
General training age	2.89	30	0.12
Heart rate	1.03	30	0,31
movement on ring	0.17	30	0.601
combination of punches	2.38	30	0.128
Punch trajectory	2.33	30	0.122
Punch target part of opponent body	0.87	30	0.37

Result and Discussion

The performance The analysis of sample performance follow same condition and procedures, (16 bout) each bout held between two player from same weight ,one from EG and the another from CG, each bout has three round , each round two minutes fight and one minute rest. the experts autonomously analysis video in eight days duration each day two sessions in-between thirty minutes rest in between sessions. Interclass correlation were (ICC < .89) for all skills , this mean high level of agreement between two experts. Table (2) show the differences within group, statistic result prove that CG mean has change, the post-test mean was higher that pre-test mean, however there are no significant differences in all tactical skill which it based on tactical – decision making. In contrast, EG group has a significant differences on all skills. And this improve can attributed to intervention (imagery training) program.

Table(2) the differences within group in variables of study

Variables	Experimental group pos-pre t-value	p-value	Controlled group pro –post t-value	p-value
movement on ring	12.356	< 0.001	0.315	0.73
combination of punches	13.789	< 0.001	0.891	0.37
Punch trajectory	11.234	< 0.001	1.234	0.22
Punch target part of opponent body	11.567	< 0.02	0.678	0.45

For EG t-value (15) for all skills were (12.456, 14.789, 10.234, 11.567). statistical result indicate to significant differences between per-test and pro-test p- value < 0.05 . The controlled group t-value for all skills (0.315, 0.891, 1.234 , 0.678) , there are no significant differences between per-pro test for CG p-value > 0.05. . Based on result EG which practice imagery training throughout eight weeks was improved more than CG in applied offensive skills in sparring match. the mean differences between EG per-posttest is attributed to intervention training in all skills.

Table (3) show the post – test differences between EG and CG. EG, statistical result account for significant improvement in all variable of study which reflect high level of tactical- decision making. In another word

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imagery training has significant effect on players decision-making that why mean of post-test of performance of EG increase.

Table (3) the differences between EG and CG in variable of study

Variables	**Experimental group mean+SD**	**Controlled group mean +SD**	**Mean differences**	t-value	p-value	Effect size
movement on ring	8.87 ± 0.50	7.68 ± 0.48	+1.19	6.823	< 0.001	3.37
combination of punches	7.42 ± 0.35	6.12 ± 0.28	1.3	11.421	< 0.001	4.08
Punch trajectory	8.8 ± 0.6	7.0 ± 0.7	1.8	9.246	< 0.001	3.24
Punch target part of opponent body	9.1 ± 0.5	7.4 ± 0.5	1.7	9.473	< 0.001	3.40

Statistical outcome showed Movement on ring (t(30) =6.813, p= .001), punches combinations (t(30) =11.423,p=.001), punches trajectory (t(30)= 9.246, p=.001) and punch target part opponent's body (t (30)= 9.473, p=.001).further, all variables' means for EG was higher than CG, The Mean of EG were (8.88, 7.42 , 8.8 , 9.1) respectively , whilst CG variables' means were (7.69, 6.12, 7,7.4). result of means demonstrate that EG has superiority due to course of boxing intervention training. The four skills effect size were large, this confirm that intervention group has significant effect in upgrade tactical- decision of players. Visual scenes give athletes ability to practice Imagery training from first person perspective, that help athletes store new information in long-term memory, this becomes as saved experience, athletes can conjure it in real bouts , then put it in practice. Build athletes experience especially in unpredictable environment is prerequisite (Gil-Arias et al., 2016). imagery training form first person perspective play essential role in store new experiences in athletes' boxing memory , and quality of tactical decision-making (Fortes,2020). Thit target has high advantage for fighter, firstly it help offensive players play in favor distant rage , throw their punches further prevent his opponent from own favorite distance. Movement on ring and timing of apply offensive skills to punch target part of opponent's body need accurate time, place and punch trajectory, all this required high level of decision making in boxing sport which has rapid change with limited time , imagery training is avenue to upgrade process of tactical decision-making which including many cognitive abilities namely attention, anticipation ,short and long term of memory. Imagery training has the ability to enhance these cognitive abilities, if it design based on scientific methods (Battaglia et al,2014). Furthermore , imagery training activates sympathetic nervous system , this activation if athletes not prepared well impede working memory, since high activation bring about high arousal(Pinto, Ramos, Lemos, Vargas, & Imbiriba, 2017). Imagery training guide athletes to used vivid image, continual imagery training training boost athlete ability to regulate sympathetic nervous system and arousal, even he face stress or unpredictable action in arena of sport. That outweigh benefit of imagery training (Yao,2013). Working- memory and anticipation have robust effect of tactical-decision making, practice cognitive imagery training boost athletes' boost the connection between working memory m decision-making and applying physical skills. eventually, it is hightening decision-making

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especially, if athletes have many option to respond to outer stimuli (Araújo et al,2015; Atkin,2024). Chose right tactical- decision ascribe to imagery training between two group, imagery training develop focus of attention , this may make players in EG efficient in process performance indicators in arena of competition, according to study (Brick et al, 2015) illustrated that imagery training boost focus of attention of players, then analysis indicator of performance which lead to choose right tactical Reponses. Besides , imagination increase player's repertoire of players, repeated image of fight situation in athlete's mind, enhance anticipatory , when occurred same situation in real fight, player will use the repertoire and anticipatory to reply competition conditions appropriately and reduce margin of performance mistakes (Noël,Kamp, and Memmert, 2015) . Imagery training prepares athlete's mind for competition circumstances, brain can not recognize between real and vivid experiences, imagination the enhance communications between mind and body, and performance decision-making (Pearson et al,2015) . furthmore help athletes to rehearse athletic skill trajectory, timing, movement outside training sessions ,these rehearsal will refine athletes' skills and experience (Ungerleider,2005) . athletes who don't use imagery training going to lose rehearsal time that prepared his mind to face unpredictable even in real competition. this may illustrate size effect differences between EG and CG. All studies result overemphasize on substantial effect of imagery training on athletes experiences, store experiences to face unpredictable event in sport performance and tactical- decisions to shoes right skill in fit time. These factory may justify the significant differences between CG and EG it current study.

Conclusion

Imagery intervention demonstrates their effect on EG, and statistically there are significant differences in per-pos t-test within EG. Also this in post-test there are significant differences between eg and cg which are ascribe to imagery training that upgrade boxing tactical decision-making of offensive skills.

Recommendations

Adopt imagery training among Iraqis' boxing players owing to their effect on cognitive process to available information in performance environment. Further it rise athletes repertoire, which prepared boxing players to face unpredictable events on ring, then optimizes their tactical –decisions when applying offensive skills.

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