



EFFECT OF DIFFERENT TYPE OF TRAININGS ON MOTOR FITNESS AND SOCCER PERFORMANCE: A MINI REVIEW

Konark Roy¹, Dr. Dulal Debnath^{2*}

Abstract

SAQ, Plyometric Training and Strength Training show substantial relation with sports performances. Previous research have proven the influence of SAQ, Plyometric Training and Resistance Training and combination of these training on motor skills and soccer performances . This mini review attempts to quickly explore how these distinct sort of training influences motor skills and soccer performances.

Keywords:- SAQ, Plyometric Training, Strength Training and Soccer

¹PhD Scholar, ICFAI University, Tripura, Email id- Konark.roy@iutripura.edu.in

^{2*}ICFAI University, Tripura, Email id- dulaldebnath@iutripura.edu.in

***Corresponding Author:** Konark Roy

* ICFAI University, Tripura, Email id- Konark.roy@iutripura.edu.in

DOI: 10.48047/ecb/2023.12.si5a.0369

INTRODUCTION

The SAQ (speed, agility and quickness) training method should be a useful component of fitness training in soccer. Baechle (1994) defined speed as “the rapidity of movement”. Agility is the rapid whole body movement with change of velocity or direction in response to a stimulus.¹ Moreno (1995) defined quickness as “the ability to read and react to a situation; it is a multidirectional skill that combines explosiveness, reactivity, and acceleration”. Soccer requires players to perform numerous actions that require strength, power, speed, agility, balance, stability, flexibility and endurance.² A typical SAQ session involves explosive movements with the goal of progression from fundamental movement patterns to highly positional specific movements. In order to enhance abilities of speed and explosiveness we use speed, agility, and quickness training (SAQ) SAQ aims to coach the necessary techniques to provide the basic skill to complete the movements.

In one such study, Rösch et al. concluded that elite players, but not amateurs, were able to adapt their body positions as a result of SAQ training such that they could perform soccer movements with better balance, strength and control without any loss of speed.³ Reilly et al. suggested that games players require a high level of physical fitness to cope with the demands of the game. Therefore it is essential that coaches condition their athletes in an effective manner to improve their sport specific attributes and prepare them for competition.⁴

According to Ronnestad et al., there are no significant performance-enhancing effects of combining strength and plyometric training in professional soccer players who play 6-8 soccer sessions per week compared to strength training alone. However, intense strength training increases strength and power in professional

soccer players. Shane McDermott studied the effects of plyometric, SAQ, and regular training on young soccer players' speed, agility, leaping, and shooting skills. If the goal is to enhance sprinting performance, two substituted sessions are acceptable.

With reference to past research, we expected that diverse forms of training, such as strength training, plyometrics, and SAQ, would be more successful at enhancing soccer players' performance and motor fitness than a control condition. As a result, our study question was: how do various forms of training treatments (and their moderators) affect soccer players' sprint, jump, power, explosive strength and their playing ability as compared to a control group?

Method

Electronic searches were undertaken by the lead investigator. The databases PubMed and Google Scholar were explored. Articles published between August 30th, 2008 and August 30th, 2020 were evaluated. Expert opinion and a thorough literature research were used to choose keywords.

The following keywords were combined in the search databases using Boolean logic: "complicated training" or "strength training" or "combination of strength training and plyometrics" and "soccer" or "football." [(((complex training) OR contrast training) OR (combination of strength training and plyometrics)) AND soccer] OR football was an example of a PubMed search strategy. The reference lists of relevant papers were investigated in order to find additional articles for inclusion in the review-analysis.

Inclusion Criteria and Exclusion Criteria

To determine study eligibility, a PICOS (participants, intervention, comparators, outcomes, and study design) procedure was implemented. Table 1 lists the various inclusion and exclusion criteria used in our review-analysis.

¹Baechle TR. Strength Training and Conditioning. Human Kinetics: Champaign, IL, 1994.

²Moreno, Erich. High School Corner: Developing Quickness, Part II. Strength & Conditioning Journal. 1995; 17(1):38-39

³Rösch D, Hodgson R, Peterson TL, Graf-Baumann T, Junge A, Chomiak J et al. Assessment and evaluation of football performance. The American Journal of Sports Medicine. 2000; 28(Suppl. 5):S29-S39.

⁴Reilly T. Energetics of high-intensity exercise (soccer) with particular reference to fatigue. Journal of sports sciences. 1997; 15(3):257-263.

Category	Inclusion Criteria	Exclusion Criteria
Participants	Apparently healthy soccer players, with no restrictions on their playing level, sex, or age	Soccer players with health problems (e.g., injuries, recent surgery)
Intervention	A complex training programme, defined as a combination of heavy load strength exercise followed by a low load plyometric/power exercise, set by set.	Exercise interventions not involving complex training or exercise interventions involving contrast training, where strength training exercises were conducted first and plyometric/power exercises at the end of the session (or during a different session)
Comparators	Active control group	Absence of active control group
Outcomes	At least one measure of physical fitness (Explosive strength, Power, Speed, Jumping and Shooting) before and after the training intervention	Lack of baseline and/or follow-up data
Study Design	Controlled trials	Non-controlled trials

Table No. 1 Selection criteria used in the review-analysis

Results

A total of 200 articles were found during the first search, with an additional 10 articles found from other sources. After deleting duplicates, there were 47 meta-analyses and systematic reviews remaining. Following a review of the titles and

abstracts for relevance, 153 articles were eliminated, leaving 31 complete texts. The review-analysis included 07 researches after further screening of papers based on our inclusion and exclusion criteria are presented in Table no. 2

Author	Subject and Age Groups	Independent Variable	Duration of Intervention	Dependent Variable	Research Design	Test statistics	Sig. diff.(Y/N)
Ronnestad, et. al. (2008)	T=21 E=14 C=07	16-24 years St. Trg. & Plyo.+ St. Trg.	7 Week	Power	Two Group Pre & Post Test	ANCOVA	Y
Shane McDermott (2016)	T=32 E=23 C=10	14-16 years Plyo., SAQ and Trd Trg.	4 Week	Sprint, Agility, Jumping, & Shooting Performance	Three Group Pre & Post Test	ANCOVA	Y
N Suresh and PK Kavithashri (2021)	T=40 E=20 C=20	14-18 years SAQ trg. And Resist. Trg.	12 Week	explosive power & Soccer skill	Two Group Pre & Post Test	ANCOVA	Y
Senthil kumar (2014)	T=60 E=40 C=20	18-24 years SAQ trg. Plyo. Trg. & Resist. Trg.	12 Week	M St., M End, Sp, Sp End, Leg Exp Pow, Agility And Card Resp. End.	Three Group Pre & Post Test	ANCOVA	Y
M.Karthick, et al. (2016)	T=30 E=15 C=15	8-18 years SAQ trg.	12 week	kicking ability	Two sample comparison	ANOVA	Y
Luis Branquinho et al. (2020)	T=15 E=15	14-18 years Plyo. Trg. And Resist. Trg.	8 Week	Motor Abilities, Kicking Speeds	One group Pre & Post Test	Paired t-test	Y
HazmiZul, Theres a Ahinget. al. (2016)	T=22 E=11 C=11	18-25 years Plyo. Trg. And Resist. Trg.	8 Week	Speed	Two Group Pre & Post Test	ANOVA	Yes

Table No. 2 Represents Total Number of subject (T), Experimental Group (E), Control Group (C), Strength Training (St. Trg), Plyometric Training (Plyo. Trg.), Resistance Training (Resist. Trg.), Muscular strength (M St), Muscular Endurance (M End), Speed (Sp), Speed Endurance (Sp End), Power (Pow.), Cardiorespiratory Endurance (Card Resp. End.), Leg Explosive strength (Leg Exp)

Discussion on Findings

The benefits of combined strength and plyometric training vs strength training alone on power-related metrics in professional soccer players were compared in a study by Ronnestad, et al.

(2008).⁵ The study revealed that combining strength and plyometric training has no substantial performance-enhancing impact on professional soccer players who exercise 6-8 times per week. However, intense strength

⁵ Ibid 3

training increases strength and power in elite soccer players. Shane McDermott (2016) investigated the effects of plyometric, SAQ, and regular training on speed, agility, leaping, and shooting performance in young soccer players. The study found that the plyometric and SAQ groups improved performance more than the regular soccer training group. If the objective is to enhance sprinting performance, two substituted sessions are acceptable.⁶ N Suresh and PK Kavithashri (2021) conducted study to investigate the impact of SAQ combined with resistance training on tribal football players' physical and skill performance. Based on the results and the study's limitations, SAQ plus resistance training increased the agility of tribal football players. Twelve weeks of SAQ plus resistance training increased tribal football players' dribbling abilities. It was also established that SAQ combined with resistance training would improve the physical and skill performance of tribal football players.⁷

HazmiZul, Theresa Ahinget al. (2016) investigated the impact of plyometric vs resistance training on soccer players' speed performance. While both plyometric and resistance training improved speed performance, none was superior to the other. Thus, soccer players may use one of the two methods of training to increase their speed. Rajesh (2012) performed study to investigate the impact of plyometric activities on football players' speed development. The experimental group showed a significant improvement in Pre and Post Test outcomes as compared to the control group as a consequence of the Plyometric exercise. It has been determined that Plyometric Exercises will improve the speed of football players in India. Luis Branquinho et al. (2020) studied the effects of an eight-week plyometric and resistance training study on diverse motor skills, kicking speeds, and individual approaches in competitive junior soccer players. The study's findings suggest that a mix of soccer drills and particular power training combined with no extra training time during the season improves certain general and

soccer-specific performance.⁸ M.Karthick et al. (2016) performed a study to investigate the effects of SAQ training on selected physical fitness metrics and kicking skill of male football players at the high school level. According to the findings of this study, speed, agility, and kicking ability improved significantly as a result of the effects of SAQ training with the limitations of (diet, climate, life style) status and previous training. The findings of this study are consistent with the findings of investigations conducted by various experts in the field of sports sciences.⁹

Conclusion

Based on the results of multiple prior research, it can be determined that SAQ training, plyometric training, and resistance training are all worthy of further investigation. The results on the association between SAQ training, plyometric training, and resistance training and soccer performance will be beneficial because they will give a better knowledge of how vital it is to establish structural adaptations for performance improvement.

References

1. Baechle TR. Strength Training and Conditioning. Human Kinetics: Champaign, IL, 1994.
2. Luis Branquinho et. al. The Effect of an In-Season 8-Week Plyometric Training Programme Montenegrin Journal of Sports Science & Medicine 2020.
3. M Karthick, Dr. T Radhakrishnan and Dr. S Kishore Kumar (2013) Effects of saq training on selected physical fitness parameters and kicking ability of high school level football players
4. Moreno, Erich. High School Corner: Developing Quickness, Part II. Strength & Conditioning Journal. 1995; 17(1):38-39
5. N Suresh, PK Kavithashri (2021) Effects of SAQ with resistance training on physical and skill performance of Tribal football players
6. Reilly T. Energetics of high-intensity exercise (soccer) with particular reference to fatigue.

⁶ Shane McDermott (2016) Effects of plyometric, SAQ and traditional training on sprint, agility, jumping passing and shooting performance in young soccer players

⁷ N Suresh, PK Kavithashri (2021) Effects of SAQ with resistance training on physical and skill performance of Tribal football players

⁸ Luis Branquinho et. al. The Effect of an In-Season 8-Week Plyometric Training Programme Montenegrin Journal of Sports Science & Medicine 2020.

⁹ M Karthick, Dr. T Radhakrishnan and Dr. S Kishore Kumar (2013) Effects of saq training on selected physical fitness parameters and kicking ability of high school level football players

Journal of sports sciences. 1997; 15(3):257-263.

7. Rösch D, Hodgson R, Peterson TL, Graf-Baumann T, Junge A, Chomiak J et al. Assessment and evaluation of football performance. *The American Journal of Sports Medicine*. 2000; 28(Suppl. 5):S29-S39.
8. Shane McDermott (2016) Effects of plyometric, SAQ and traditional training on sprint, agility, jumping passing and shooting performance in young soccer players