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## TECHNICAL SENSE AND ITS IMPACTS ON ACCURACY OF RESPONSE AND ECONOMY OF EFFORT IN PROFESSIONAL ALGERIAN SOCCER PLAYERS

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The aim of technical training is to strengthen and develop sports skills. The basic information is acquired from senses (visual, audio, locomotives and positional). *The purpose of the study* was to test professional soccer players' dribbling, passing, receiving, and shooting in complex, applied into two forms (with and without competitive activity) to determine the impact of the two situations on player's technical sense.

*Material and methods.* We studied the results of 140 elite male soccer players aged  $20 \pm 4$ , with body mass  $77.9 \pm 5.9$  kg and body height of  $1.71 \pm 1.55$ . The study took place in the OPAPS «PE Institute» laboratory in the University of Mostaganem during 2016–2017 academic year.

*Results and discussion.* According to our data a significantly more total time was required for soccer players in the situation two compared with traditional situation one in all parameters studies. These results were confirmed by the Paired T-test and correlation Paired Samples Test set and showed an inverted strongly significant correlation between these two situations. It was difficult for players to perform technical actions under pressures integrated into situation two. Comparing the total time and the time for performing each skill due to pressure situations we suppose that a coach needs a valid method to analyse the adequacy of training.

The obtained results showed difficulty to perform technical actions under pressures integrated into situation two. We concluded that a coach needed a valid method to analyse if their technique components are on the right pathway compared to their purely physical variables. Our protocol test confirmed that a player's acts to solve his problems require well-developed neuromuscular function which in turn demands form players to read the environment variables for better concordances as a strategy to improve his dynamic decision making including continual decisions concomitant with task-related trade-offs, found on its operational cognitive functions communication

based on its visual processing, timing, reaction time perception, and anticipation.

*Conclusion.* The study results gave accurate indicators for better playing strategy and comprehension which are necessary for the player during the match. We consider that further studies should deal with methods for judging players mental abilities associated with their actions.

**Keywords:** skills, technical sense, tests, strategies, achievement.

**Introduction.** According to Anderson et al (2016) in a soccer game, four basic skills must be mastered by player. They include: dribbling the ball, passing the ball, receiving the ball and shooting the ball and should be operated at the higher levels of the game [1]. The most significant error is a quick decision for a penetrating dribble pass or shooting during a soccer match [2]. The ability of a soccer players related to running sprints, dribbling, pivoting, cutting, jumping, landing, heading and kicking a ball which emphasizes their ability to read the game and make the decision [3]. Whereas these decisions depend predominantly on whether other attackers or defenders are moving inside the player's zone games aimed at gaining possession of the ball and moving forward by understanding all the connections existing [4].

The subject of recent studies was concentrated on the fact that valid evaluation approach must provide a comprehensive training or test approach, which tests or builds players' physical abilities as well as the soccer-specific skills required for dribbling, tackling, passing, heading, shooting, and goalkeeping. It was confirmed by drills as an indispensable tool for coaching to interpret soccer player's performance based on match analyse as a valid measuring tool commended in recent years [5].

This method was also supported by the combination of multiple variables situations such as physical levels [6], competition [7], the adversary's [4], post-game [8], playing style [9], marking and demarcation

of player/team [10], the origin of the players [11] and the time with and without the ball [8]. Physical condition, the quantity, and the intensity of the efforts are demanded during the competition.

However, all recent studies confirmed that performance analysis was principally focused on physical demands, yet less attention was paid to technical and tactical factors, because indicators of success in soccer were compared to purely physical variables. Thus, the question of technical and tactical actions remained unresolved [12].

Studies of professional soccer training report positive relation between technical and tactical skills with physical demands in competitions and classification of teams in the championship [3]. According to Bradley et al., (2015) sustenance by the additional tactical variables does not support the same results [13].

In this study we checked playing performance and technical sense under pressure with the help of real measurement that assumed and interpreted the results of soccer players. Cardoso, et al. (2018) [6] compared success in soccer to purely physical variables. We also estimated the relationship between physical demand and technical-tactical action aspects of game demands with and without technical-tactical problems. Our conclusions are supported by comprehensive test approach, that examined player's physical abilities allied to the soccer-specific skills such as dribbling, passing and shooting. The coaches and physical trainers should take into account the data regarding the physical variables allied with technical and tactical actions during training, testing or the competition. The means of other performances, included as indicators practical approach, that exam player's physical abilities concomitant to the soccer-specific skills, according to laia and Bangsbo, (2009) [14].

**The purpose of this study** was to test professional soccer players' dribbling, passing, receiving, and shooting in complex, applied into two forms (with and without competitive activity) to determine the impact of the two situations on player's technical sense. We projected their employment as a crucial tool to understand a player decision-making during the game of football.

This research also aims to understand player acting to solve the play's problems.

**Participants.** Laboratory OPAPS «PE Institute» in the University of Mostaganem approved this study for the academic year 2016-2017. The protocol was accepted by the Institute of PE, conducted in accordance with the Declaration of Helsinki. The research samples comprised 140 elite male soccer players aged  $20 \pm 4$ , with body mass  $77.9 \pm 5.9\text{kg}$  and body height of  $1.71 \pm 1.55$  who voluntarily accepted to participate in this experiment. Their results are recorded in **Table 1**.

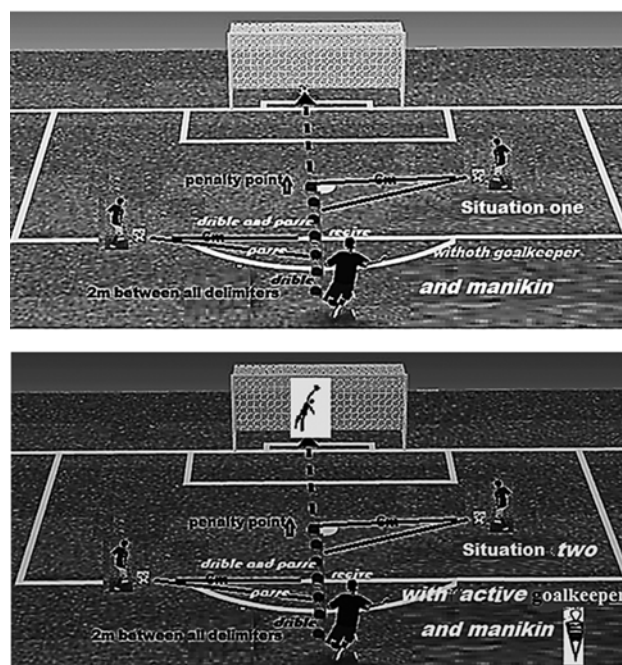
**Table 1** – Present variable studies according to our protocol

variables		Mean $\pm$ SD	T	$p \leq 0.05$
Situation one	Total time	4.75 $\pm$ 1.02(s)	9.95	0.00
Situation two		6.04 $\pm$ 2.66(s)		
Situation one	dribbling	1.79 $\pm$ 0.55(s)	3.23	0.00
Situation two		2.33 $\pm$ 0.32(s)		
Situation one	passing	1.58 $\pm$ 0.24(s)	3.54	0.00
Situation two		2.22 $\pm$ 0.44(s)		
Situation one	receiving	1.08 $\pm$ 0.12(s)	2.88	0.00
Situation two		1.44 $\pm$ 0.09(s)		
Situation one	scoring	140 $\pm$ 0.00 (point)	54.62	0.00
Situation two		78 $\pm$ 0.00 (point)		

**Measures**

**Test protocol**

Our protocols are based on a modified traditional dribbling test composed of the following situations. Situation one: we asked players to dribble two plates, pass the ball to the player at his left and receive it before plate number 4, dribble plate number 5 and pass the ball to a player in his right, receive the ball at penalty points and score it. Situation two: we replaced plates with manikin and we integrated active goalkeeper (see **Figure 1**). All participants are entitled to three trials in each proposed situation.



**Figure 1.** The protocol used in this study

**Design and Procedures**

To be able to review the tests we filmed the progress of the experiment as a method already used in previous studies [3] and reported as reliable and valid

systems to reviewers the actions [13]. In this study we examined the total time and time of each skill performance in recording, checked the obtained data and analyzed the reports.

#### Data Analysis

In statistical processing, we used the paired T-test and correlation paired Samples Test to confirm or reject the causal relationship between two situations. The computer program for processing data was IBM SPSS v.22 statistical program with a significance level fixed at  $p < 0.05$ .

**Results.** Data analysis showed significantly more total time in the situation two compared with traditional situation one in all parameters studies (see **Table 1**). The obtained results were confirmed by the Paired T-test and correlation Paired Samples Test set in **Table 2** and showed an inverted strongly significant correlation between these two situations.

**Table 2** – Present correlation values between variable studies according to our protocol

Physical variable	Success variable	R	$p \leq 0.05$
Situation one & two	Total time	-0.94	0.00
Dribble	Total time	-0.86	0.00
Passes	Total time	-0.82	0.00
receive	Total time	-0.85	0.00
scoring	Total score	-0.92	0.00

The obtained results showed a difficulty for players to perform technical actions under pressures integrated into situation two. Based on the total time and time for each skill as additional time reaction owed due to pressure situations we can judge that a coach needs a valid method to analyse if their technique components are on the right pathway compared to their purely physical variables. Some authors consider it an unresolved question the case of technical and tactical actions [13].

The obtained results are supported by the inverse strong correlation between our two situations, set in **Table 2**. Having analyzed video matches we understood that there was a positive relation between the team's actions linked to the individual and collective ball position times allied to physical demands in a competition and classification of teams in their championship [1]. It was supported by the attachment of decision-making skills such as game sense and awareness, anticipation, and general game understanding [3] reported as technical-tactical elements of particular play situation variables that do not support the same results, according to Bradley et al [13]. The case of this study is supported by the differences in records between proposed two situations. In the situation two we can see the ability of players to synchro-

nise their movements' strategies under pressure, small group and team tactics which enables meta-cognitive awareness through dynamic environment [2]. We recommend the trainers to focus their attention on the ability of players to consistently make the correct decision after perceiving all the external factors which is fundamental to the game, and is directly connected with efficiency of game activity, the specific player position related to the end of the ball possession relative to shot efficacy percentages [15].

**Discussion.** From the point of view, that pure measurement in soccer is possible only through playing performance, the physical requirements were estimated during the competitions inside the experts' soccer championship divisions by several researchers [16]. The latter were assessed by various measurements or methods of checking the covered distance and/or their speed ranges [8]. The most needed technical and tactical factors for particular players were also examined [17]. In the study we also investigated the relation between the physical and tactical demands with and without technical problems. Our results confirmed that a valid method to analyze the performance should consider the technical and tactical factors, indicators of the ability of players to consistently make the correct decision after perceiving all the external factors which are more important to the game compared to purely physical variables.

Some authors report that the case of technical and tactical actions in pressure situations remains an unsolved question. The experiments were based on the efficacy of analysing small-sided games that permit the trainer to examine the player's physical abilities concomitant to the soccer-specific skills required for mastering dribbling, passing and shooting [13]. M. Zerf and W. Beboucha indicated small group and team tactics to be the techniques basic tactics and strategies under pressure [18]. Our results support the results obtained in study Bartosz, et al (2018) that soccer match analysis requests future studies able to analyse the validity of technology alongside from other gold standard measures such as time gates and laser and radar guns, during specific soccer circuits [3]. The case of this study can only measure certain abilities with and without a ball such as endurance, strength, speed, etc. The video match analysis which concentrated on physical demands during the competition [6] showed that soccer players covered during the competition the distance above all, at high intensity [16]. It was denied by Bradley, et al (2015) through the analyses of other aspects of the game such as players' strategy [2]. Our study showed the inverse relationship between reactions of players in pressure situations to be more important than technique in isolation, set in **Table 2**. The results were confirmed through the

circumstances of the game not only the player's condition physical demands, which depend on many other variables [11]. The holistic approaches take into their consideration the interaction between the different variables which intervene simultaneously [12]. It was approved by scientists through analyses of specific soccer circuit and supported by our protocol as a helpful means to evaluate soccer players' success [19]. The obtained data showed that means of physical data should be used in conjunction with technical and tactical information [20], in order to have a better comprehension of match demands [13] by a soccer player acting to solve his gaming problems [12]. The professional trainers can use our results as a means to understand the erroneous cheers of most soccer players who frequently use strategy such as a well-timed, well-placed shot [17].

We suggest considering the validity of game sense and awareness, anticipation, and general game understanding as future studies [7]. This study supports the evidence that technical skills (ball velocity, ball accuracy and placement) [21] and tactical skills

(decision-making, anticipation, tactical knowledge and visual search strategies) [3] that require the integrations of measurement involving the tactical decision [22] (individual allied to success of collective tactics) to perform or combine a particular technical execution [9].

**Conclusions.** Our protocol test confirmed that a player's acts to solve his problems require well-developed neuromuscular function which in turn demands from players to read the environment variables for better concordances as a strategy to improve his dynamic decision making including continual decisions concomitant with task-related trade-offs, found on its operational cognitive functions communication based on its visual processing, timing, reaction time perception, and anticipation. Our protocol also gives accurate indicators for a better comprehension of player erroneous playing strategy frequently demanded during the match. We consider that further studies should deal with technical sense, which needs advanced studies and methods to judge their impact on the player's mental abilities associated with their actions.

## References

1. Anderson L, Hasselstrøm H, Grønfeldt V, Hansen S, Karsten F. The relationship between physical fitness and clustered risk from adolescence to young adulthood: eight years follow-up in the Danish youth and Sport Study. *Int J Behav Nutr Phys Act.* 2004; 1(1): 6. PMID: 15169561. PMCID: PMC416568. DOI: 10.1186/1479-5868-1-6
2. Zerf M. Agility Stimulators and Their Effects on Traditional Testing Protocols Case Selected Male Soccer Players. *Spor Bilimleri Araştırmaları Dergisi.* 2018; 3(1): 64-72. DOI: 10.25307/jssr.384731
3. Bartosz D, Paweł R, Liu H, Karol W, Andrzej S. Time-motion characteristics of match-play in elite Polish youth soccer players of various playing positions. *Baltic Journal of Health and Physical Activity.* 2018; 10(3): 115-23. doi: 10.29359/BJHPA.10.3.13
4. Datson N, Hulton A, Andersson H, Lewis T, Weston M, Drust B. and Gregson. Applied physiology of female soccer: an update. *Sports Medicine.* 2014; 44(8): 1225-40. PMID: 24803162. DOI: 10.1007/s40279-014-0199-1
5. McMillan K, Helgerud J, Macdonald R, Hoff J. Physiological adaptations to soccer specific endurance training in professional youth soccer players. *British Journal of Sports Medicine.* 2005; 39(5): 273-7. PMID: 15849290. PMCID: PMC1725215. DOI: 10.1136/bjism.2004.012526
6. Cardoso de Araújo M, Baumgart C, Jansen CT, Freiwald J, Hoppe MW. Sex Differences in Physical Capacities of German Bundesliga Soccer Players. *J Strength Cond Res.* 2018 Jun 20. PMID: 29927885. DOI: 10.1519/JSC.0000000000002662
7. Chamari K, Hachana Y, Ahmed YB, Galy O, Sghaier F, Chatard JC, et al. Field and laboratory testing in young elite soccer players. *British Journal of Sports Medicine.* 2004; 38: 191-6. PMID: 15039258. PMCID: PMC1724764
8. De Giorgio A, Sellami M, Kuvacic G, Lawrence G, Padulo J, Mingardi M, et al. Enhancing motor learning of young soccer players through preventing an internal focus of attention: The effect of shoes colour. *PLoS One.* 2018; 13(8): e0200689. PMID: 30110332. PMCID: PMC6093605. DOI: 10.1371/journal.pone.0200689
9. Bekris E, Mylonis L, Gioldasis A, Gissisoannis I, Kombodieta N. Aerobic and Anaerobic Capacity of Professional Soccer Players in Annual Macrocycle. *Journal of Physical Education and Sport (JPES).* 2016; 16(2): 527-33. DOI: 10.7752/jpes.2016.02083
10. Zerf M. Aerobic Fitness as a Superior Predictor Factor to Estimate the Optional Body Weight among the Soccer Players. *J Hum Bio&Health Edu.* 2018; 2(1): 010.
11. Cometti G, Maffiuletti NA, Pousson M, Chatard JC, Maffulli N. Isokinetic Strength and Anaerobic Power of Elite, Subelite and Amateur Soccer Players. *Int J Sports Med.* 2001; 22(1): 45-51. PMID: 11258641. DOI: 10.1055/s-2001-11331
12. Strudwick A. *Soccer Science.* Champaign IL: Human Kinetics; 2016. 664 p.
13. Bradley PS, Carling C, Gomez Diaz A, Hood P, Barnes C, Ade J, et al. Match performance and physical capacity of players in the top three competitive standards of English professional soccer. *Human Movement Science.* 2015; 32(4): 808-21. PMID: 23978417. DOI: 10.1016/j.humov.2013.06.002



14. Iain FM, Rampinini E, Bangsbo J. High-intensity training in football. *Int J Sports Physiol Perform.* 2009; 4(3): 291-306. PMID: 19953818
15. Greg Gatz. Complete conditioning for soccer. Champaign, IL: Human Kinetics; 2009. 208 p.
16. Silva J Coelho-e, Simões F, Santos JV dos, Vaz V, Figueiredo AJ, Peña RME, Malina RM. Assessment of biological maturation in adolescent athletes: application of different methods with soccer and hockey players. Portuguese: Imprensa da Universidade de Coimbra; 2016. 50 p. DOI: 10.14195/978-989-26-1169-3\_2
17. Detlev Bruggemann. Soccer alive the game is the best teacher. Game-related soccer training Maidenhead [u.a.]: Meyer & Meyer Sport; 2008. 192 p.
18. Zerf M, Beboucha W. Multi visual intelligence vs direct instruction which approach method heightens tactical performance in youth soccer players. *Sport Sciences.* 2018; 13(4): 36-46. DOI: 10.12739/NWSA.2018.13.4.2B0115
19. Zouhal H, Lemoal E, Wong del P, Benounis O, Castagna C, Duluc C, et al. Physiological Responses of General vs. Specific Aerobic Endurance Exercises in Soccer. *Asian J Sports Med.* 2013; 4(3): 213–20. PMID: 24427481. PMCID: PMC3880666
20. Tønnessen E, Hem E, Leirstein S, Haugen T, Seiler S. Maximal Aerobic Power characteristics of Male Professional Soccer Players 1989-2012. *International journal of sports physiology and performance.* 2013; 8(3): 323-9.
21. Andrzejewski M, Chmura J, Pluta B, Konarski JM. Sprinting Activities and Distance Covered by Top Level Europa League Soccer Players. *International Journal of Sports Science and Coaching.* 2015; 11(1): 39-50. DOI: 10.1260/1747-9541.10.1.39
22. Silva JR, Nassis GP, Rebelo A. Strength training in soccer with a specific focus on highly trained players. *Sports Medicine.* 2015; 1(1): 17. PMID: 26284158. PMCID: PMC5005570. DOI: 10.1186/s40798-015-0006-z
23. Requena B, García I, Suárez-Arrones L, Sáez de Villarreal E, Naranjo Orellana J, Santalla A. Off-Season Effects on Functional Performance, Body Composition, and Blood Parameters in Top-Level Professional Soccer Players. *J Strength Cond Res.* 2017; 31(4): 939-46. PMID: 27438062. DOI: 10.1519/JSC.0000000000001568

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#### ТЕХНІЧНА ПІДГОТОВКА ТА ЇЇ ВПЛИВ НА ТОЧНІСТЬ РЕАГУВАННЯ Й ЕКОНОМІЮ ЗУСИЛЬ У ПРОФЕСІЙНИХ АЛЖИРСЬКИХ ФУТБОЛІСТІВ

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**Резюме.** Метою технічної підготовки є зміцнення та розвиток спортивних навичок. Основна інформація надходить через органи чуття (візуальні, звукові, тактильні і позиційні). Мета цього дослідження полягала в тому, щоб перевірити, як професійні футболісти здійснюють дриблінг, пас, прийом і забивання голу в двох формах (в змагальній діяльності і без неї), щоб визначити вплив цих двох ситуацій на технічну підготовку гравця. Були вивчені результати 140 елітних футболістів чоловічої статі у віці  $20 \pm 4$  роки, з масою тіла  $77,9 \pm 5,9$  кг і зростом  $1,71 \pm 1,55$ . Дослідження проходило в лабораторії ОПАПС «Інституту ФК» в університеті Мостаганем протягом 2016–2017 навчального року. За нашими даними, футболістам в ситуації 2 знадобилося значно більше загального часу по всіх параметрах на відміну від традиційної ситуації 1. Ці результати були підтверджені набором парних Т-тестів і кореляційних тестів парних зразків, і показали зворотну кореляцію між цими двома ситуаціями. Гравцям було важко виконувати технічні дії в умовах стресу, який був присутній в другій ситуації. Порівнюючи загальний час і час виконання кожного навичу в стресовій ситуації, ми припускаємо, що тренеру потрібен правильний метод для аналізу адекватності тренувань в обох ситуаціях. Отримані результати показали складність виконання технічних дій в ситуації стресу. Наш тестовий протокол підтвердив, що дії гравця для прийняття рішення вимагають добре розвинутої нервово-м'язової функції, яка, в свою чергу, вимагає від гравців враховувати зміну ситуації для кращого вибору стратегії і для більш якісного прийняття рішень, включення оперативно-когнітивних зв'язків на основі візуальної обробки ситуації, часу сприйняття, реакції і очікування. Результати дослідження дали точні показники для кращої стратегії гри, що важливо для гравця під час матчу. Ми вважаємо, що подальші дослідження повинні стосуватися методів оцінки розумових здібностей гравців, пов'язаних з швидкістю їх реакції і прийняттям рішень.

**Ключові слова:** навички, технічна підготовка, тести, стратегії, досягнення.

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#### ТЕХНИЧЕСКАЯ ПОДГОТОВКА И ЕЕ ВЛИЯНИЕ НА ТОЧНОСТЬ ОТВЕТА И ЭКОНОМИЮ УСИЛИЙ У ПРОФЕССИОНАЛЬНЫХ АЛЖИРСКИХ ФУТБОЛИСТОВ

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**Резюме.** Целью технической подготовки является укрепление и развитие спортивных навыков. Основная информация поступает через органы чувств (визуальные, звуковые, тактильные и позиционные).

Цель данной работы посвящена исследованию, как профессиональные футболисты осуществляют дриблинг, пас, прием и забивание гола в двух формах (в соревновательной деятельности и без нее), с целью определить влияние этих двух ситуаций на техническую подготовку игрока. Были изучены результаты 140 элитных футболистов мужского пола в возрасте  $20 \pm 4$  года, с массой тела  $77,9 \pm 5,9$  кг и ростом  $1,71 \pm 1,55$ . Исследование проходило в лаборатории ОПАПС «Института ФК» университета Мостаганем в течение 2016–2017 учебного года. По нашим данным, футболистам в ситуации 2 потребовалось значительно больше общего времени по всем параметрам, в отличие от традиционной ситуации 1. Эти результаты были подтверждены набором парных Т-тестов и корреляционных тестов парных образцов, и показали обратную корреляцию между этими двумя ситуациями. Игрокам было трудно выполнять технические действия в условиях стресса, который присутствовал во второй ситуации. Сравнивая общее время и время выполнения каждого навыка в стрессовой ситуации, мы предполагаем, что тренеру нужен правильный метод для анализа адекватности тренировок в обеих ситуациях.

Полученные результаты показали сложность выполнения технических действий в ситуации стресса. Наш тестовый протокол подтвердил, что действия игрока для принятия решения требуют хорошо развитой нервно-мышечной функции, которая, в свою очередь, требует от игроков учитывать перемену ситуации для лучшего выбора стратегии и для более качественного принятия решений, включения оперативно-когнитивных связей на основе визуальной обработки ситуации, времени восприятия, реакции и ожидания. Результаты исследования дали точные показатели для лучшей стратегии игры, что важно для игрока во время матча. Мы считаем, что дальнейшие исследования должны касаться методов оценки умственных способностей игроков, связанных с быстротой их реакции и принятием решений.

**Ключевые слова:** навыки, техническая подготовка, тесты, стратегии, достижения.

*The authors of this study confirm that the research and publication of the results were not associated with any conflicts regarding commercial or financial relations, relations with organizations and/or individuals who may have been related to the study, and interrelations of coauthors of the article.*

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