

RELATIONSHIP BETWEEN ENJOYMENT, TEAM COHESION, AND PERCEIVED EXERTION IN AMATEUR FUTSAL PLAYERS IN KELANTAN

Muhammad Aminudin Mohd Sabri & Nurul Azuar Hamzah*

Exercise and Sports Science Programme, School of Health Sciences, Universiti Sains Malaysia, Kota Bharu, Kelantan, Malaysia

*Corresponding Author: nazuar@usm.my

Received: 28 September 2025; **Revised:** 17 October 2025; **Accepted:** 03 December 2025; **Published:** 24 December 2025

To cite this article (APA): Sabri, M. A. M., & Hamzah, N. A. (2025). Relationship between enjoyment, team cohesion, and perceived exertion in amateur futsal players in Kelantan. *Jurnal Sains Sukan & Pendidikan Jasmani*, 14(2), 93-102. <https://doi.org/10.37134/jsspj.vol14.2.6.2025>

To link to this article: <https://doi.org/10.37134/jsspj.vol14.2.6.2025>

ABSTRACT

Futsal is a popular team sport played both recreationally and professionally. Team cohesion and enjoyment are essential elements in team sports, as they not only foster unity and mutual trust among players but also enhance motivation, communication, and overall performance. This cross-sectional study aimed to examine the relationship between three variables: enjoyment, team cohesion, and perceived exertion. Data were collected from 52 recreational futsal players aged 18 to 30 years using the Group Environment Questionnaire (GEQ), the Physical Activity Enjoyment Scale (PACES), and Borg's RPE Scale. Results showed a negative, low correlation between enjoyment and social team cohesion ($r = -0.12$, $p = 0.381$), and a negative, high correlation between enjoyment and task team cohesion ($r = -0.61$, $p < 0.001$). There was a positive, moderate correlation between enjoyment and perceived exertion ($r = 0.40$, $p = 0.003$). In addition, there was a negative, low correlation between social team cohesion and perceived exertion ($r = -0.09$, $p = 0.527$), and a negative, moderate correlation between task team cohesion and perceived exertion ($r = -0.45$, $p < 0.001$). The findings suggest that enjoyment and perceived exertion tend to be lower when players perceive higher task-related team cohesion. Interestingly, enjoyment during gameplay may enhance physical effort and performance. In conclusion, the group environment can be considered an important factor for amateur sports players, as it can influence their psychological experience while participating in the sport.

Keywords: Team Sports, Sports Psychology, Perceived Exertion, Correlation

INTRODUCTION

Futsal is a football type of sport that is played indoors on a hard-court surface, in which the size of court is smaller than the football. Football and Futsal have some similarities, for example the players' position that includes one goalkeeper and outfield players. Futsal players typically have excellent techniques when controlling ball and passing skills in tiny areas, that require players to have good agility, coordination, and speed. Research has shown that elite futsal players exhibited advanced technical proficiency under pressure, which not only facilitated effective ball possession but also supported rapid tactical adaptations during transitions between attack and defense (Travassos et al., 2011; Rico-González, et al., 2021).

Sports enjoyment is understood as a positive psychological state experienced by individuals engaged in sports, encompassing a spectrum of emotions such as fun, pleasure, liking, and love toward sports participation (Scanlan et al., 1993). Research consistently highlights enjoyment as one of the primary reason athletes choose to engage in sports, while a lack of enjoyment stands as a major driver for dropout or discontinuation. In youth sports, enjoyment has been shown to significantly predict sustained participation and reduced dropout rates even when accounting for factors such as coaching quality and peer relationships (Gardner, Magee, & Vella, 2017). In small-sided soccer games, elevated perceived enjoyment was correlated with improved technical-tactical performance, such as more successful passes, tackles, and overall tactical efficiency, especially when the game format and duration were tailored to the participants (Farhani, Amara, & Aissa, 2024). Furthermore, interventions aimed at increasing intrinsic enjoyment were shown to boost both psychosocial outcomes and athletic performance during practice and competition (Barnicle & Burton, 2016). Together, these findings suggested that fostering enjoyment not only enhanced effort and engagement but also promoted more effective tactical thinking and skillful execution during games.

Team cohesion refers to a dynamic process that reflects a tendency for a group to stick together and remain united to achieve goals and objectives (Carron, Brawley, & Widmeyer, 1998). The way members in a team build, nurture, and uphold their social relationships is referred to as social cohesiveness, whereby, the way members in a team execute the collective efforts to achieve task goals is referred to task cohesiveness (Carron et al., 1985). These two distinct types of cohesion influence team member relationship and their intention to remain in the team. Moreover, the aspect of cohesion takes into consideration the group cohesion (i.e., bonding between team players) and the individual cohesion (i.e., attraction of an individual to other team players). Accordingly, the conceptual model of team cohesion by Carron, Widmeyer, and Brawley (1985) posited that the dynamics among players in a team is determined by four dimensions; group integration social (GI-S), group integration task (GI-T), individual attraction social (IA-S), and individual attraction task (IA-T).

The relationship between team players is important to support the individual performance as well as team performance. Each futsal player must work collaboratively and demonstrate cohesiveness with teammates, while keeping the game's objectives in mind when making decisions (Naser, Ali, & Macadam, 2017). Having strong interpersonal relationship within a team is important for enhancing levels of collective efficacy (i.e., the shared belief in the team's capability and potential to achieve its goals), which in turn influences athletes'

confidence, enjoyment and their ability to coordinate actions during competition (Myers, Feltz, & Short, 2004; Leo et al., 2015). If the amateur players are the concern, they may prioritise social cohesion due to shared social experiences as compared to elite teams that often exhibit stronger task cohesion due to higher stakes and professional expectations. Amateur athletes often face inconsistent training environments, such as irregular schedules and non-standardised training conditions (Chainok et al., 2025), less formal team cohesion development (Kwon, 2024) and varying levels of enjoyment even within the same group of players (Yang et al., 2025). These disparities may lead to differences in how psychological and social factors influence their perception of physical effort during competition.

By focusing on the amateur context, this research potentially provides practical insights for team players and community sports organizers to create environments that enhance both performance and sustained engagement in futsal. The findings can inform strategies that balance technical development with positive social and emotional experiences, particularly within local community settings.

METHOD

Participants

A total of 52 amateur male futsal players in Kelantan state, aged 20 to 30 years, were recruited in this study. A purposive sampling method was used to identify potential teams, which were subsequently approached after a team representative expressed interest in participating. All participants were active members of amateur futsal teams; however, they did not compete in any formal competitive tournaments or leagues, and were not engaged in a structured training programme supervised by a professional coach. Within each participating team, a simple random sampling method was then employed to ensure that every player had an equal and independent opportunity of being selected for the study.

Instrument

Demographic information collected from participants including age, race, years of playing experience, and team name. The study utilized two questionnaires, the Physical Activity Enjoyment Scale (PACES; Kendzierski & DeCarlo, 1991) and the Group Environment Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985), as well as one scale, the 6–20 Borg Rating of Perceived Exertion (RPE). All data were collected online and administered using Google Forms.

Physical Activity Enjoyment Scale (PACES; Kendzierski & DeCarlo, 1991). PACES is an 18-item questionnaire that assesses enjoyment for physical activity by asking participants to rate “how you feel at the moment about the physical activity you have been doing” using a 7-point bipolar Likert scale, from 1 (I enjoy it) to 7 (I hate it). The Cronbach's alpha value for PACES has been reported as .96 (Motl et al., 2001). A higher PACES score reflects a higher level of enjoyment

Group Environment Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985). The GEQ conceptualizes team cohesion in two primary dimensions: group integration and individual attraction to the group. Each dimension contains both task and social components, resulting in four subscales: Group Integration–Task (GI-T), Group Integration–Social (GI-S), Individual Attraction to Group–Task (IA-T), and Individual Attraction to Group–Social (IA-S). The GEQ consists of 18 items rated on a 9-point Likert scale, with higher scores indicating greater perceived cohesion. Carron et al. (1998) reported an acceptable internal consistency for the four subscales, with Cronbach's alpha coefficients of .75 for IA-T, .64 for IA-S, .70 for GI-T, and .76 for GI-S.

6-20 Borg's RPE scale. The 6–20 Borg Rating of Perceived Exertion (RPE) scale was used to assess participants' subjective perception of effort during gameplay. This scale measures how hard individuals feel their body is working based on physical sensations such as increased heart rate, breathing rate, and muscle fatigue (Borg, 1998). It provides a reasonably accurate estimate of actual heart rate during physical activity, where a score multiplied by 10 approximates beats per minute. Participants rated their perceived exertion on a scale from 6 ("no exertion at all") to 20 ("maximal exertion").

Procedure

This study employed a cross-sectional design and utilized questionnaires as the primary data collection method. Ethical approval was obtained from the Jawatankuasa Etika Penyelidikan Manusia (USM/JEPeM/22010053), Universiti Sains Malaysia. Participants were recruited based on the study's predefined inclusion and exclusion criteria. All participants provided informed consent prior to participation. Meetings with each futsal team were scheduled on the day of their regular weekly games. Upon arrival, the researcher observed the match from outside the court until its completion. After a brief recovery period, players were invited to sit on a bench and were provided with a link to the questionnaires and scales hosted on Google Forms. Using their own smartphones, participants accessed the link and completed the questionnaires and scales retrospectively. The process took approximately 15 minutes, after which participants submitted their responses via the "Submit" button in Google Forms. The researcher then thanked the participants for their time and contribution to the study.

Data Analysis

Data for all variables were reported as mean and standard deviation. For the statistical analysis, IBM Statistical Package for Social Science (SPSS) Version 24.0 was used. The Kolmogorov-Smirnov test indicated all data collected in this study were normally distributed ($p > .05$). Associations between enjoyment, team cohesion, and perceived exertion were assessed using Pearson's correlation analysis. Statistical significance was set at $p < 0.05$.

RESULTS

Demographic Data

Table 1 presents the demographic data of the participants, including age, race, playing experience, and futsal team name. The majority of participants were between 21 and 23 years, were Malay, and had three to four years of futsal playing experience. All participants reported playing futsal at least once a week for recreational purposes.

Table 1. Demographic data of participants (N = 52)

| Variables | | Frequency (n) | Percentages (%) |
|-----------------------------|-----------------|---------------|-----------------|
| Age (years) | 18 -20 | 10 | 19.2 |
| | 21-23 | 24 | 46.1 |
| | 24-26 | 8 | 15.4 |
| | 27-30 | 10 | 19.2 |
| Race | Malay | 45 | 86.5 |
| | Chinese | 7 | 13.5 |
| Years of playing experience | < 1 | 3 | 5.8 |
| | 1-2 | 5 | 9.6 |
| | 3-4 | 27 | 51.9 |
| | >5 | 17 | 32.7 |
| Futsal team (FT) | TRW Shop FT | 5 | 9.6 |
| | Blue Rangers FT | 5 | 9.6 |
| | KB Fighters FT | 5 | 9.6 |
| | Morak FT | 5 | 9.6 |
| | Squadron TSS FT | 11 | 21.2 |
| | Hawk FT | 7 | 13.5 |
| | ESS FT 1 | 6 | 11.5 |
| | ESS FT 2 | 7 | 13.5 |

Correlations Between Enjoyment, Social Team Cohesion, Task Team Cohesion, and Perceived Exertion in Participants

Table 2 presents the correlations between enjoyment, social team cohesion, task team cohesion, and perceived exertion among participants. The results show a negative, low correlation between enjoyment and social team cohesion ($r = -0.12$, $p = 0.381$) and a negative, high correlation between enjoyment and task team cohesion ($r = -0.61$, $p < 0.001$). There was a positive, moderate correlation between enjoyment and perceived exertion ($r = 0.40$, $p = 0.003$). There was a negative, low correlation between social team cohesion and perceived exertion (r

RELATIONSHIP BETWEEN ENJOYMENT, TEAM COHESION, AND PERCEIVED EXERTION
IN AMATEUR FUTSAL PLAYERS IN KELANTAN

= -0.09, $p = 0.527$) and a negative, moderate correlation between task team cohesion and perceived exertion ($r = -0.45$, $p < 0.001$).

Table 2. Pearson correlation analysis between enjoyment, social team cohesion, task team cohesion, and perceived exertion

| Pearson correlation | Mean | SD | Enjoyment | Team cohesion (Social) | Team cohesion (Task) | Perceived exertion |
|---------------------------------|------|------|-----------|------------------------|----------------------|--------------------|
| Enjoyment | 52.9 | 17.2 | 1 | .12 | -.61* | .40* |
| Team cohesion (Social) | 20.1 | 3.8 | | 1 | -.07 | -.09 |
| Team cohesion (Task) | 24.9 | 4.4 | | | 1 | -.46* |
| Perceived exertion (RPE) | 14.7 | 3.8 | | | | 1 |

*Significance at $p < .05$

DISCUSSION

Results of this study revealed a negative relationship between enjoyment and social team cohesion, as well as between enjoyment and task team cohesion. A strong and significant relationship was found between enjoyment and task team cohesion. This suggests that high task team cohesion may significantly reduce enjoyment among futsal athletes. Enjoyment has been shown to be a strong determinant of participation in and adherence to leisure physical activity (Kimiecik & Harris, 1996). In recreational team sports, the opportunity to experience enjoyment plays an important role in motivating players to engage in the activity, and this enjoyment can be influenced by many factors. Specifically, enjoyment in leisure physical activity depends on elements such as social interactions and the physical environment (Stahl et al., 2001). Since the participants in this study played futsal as a recreational activity, they may have perceived it primarily as a leisure pursuit rather than a performance-driven task. Vierimaa, Bruner, and Cote (2018), noted socializing with teammates is often more important than focusing on performance when sport is played recreationally. Conversely, group dynamics between elite and recreational athletes are likely to differ due to variations in group norms, rules, and roles across different skill levels. In fact, Vierimaa et al. (2018) reported the

recreational sports teams in their study were more likely to value social aspects more highly than task-related goals.

Although the participants in the present study might focus on performing well when playing the game, they may not define the playing task to be an important predictor for the enjoyment. Widmeyer, Brawley and Carron (1990) acknowledged that at the recreational sport level, positive individual experiences (e.g., enjoyment, lower anxiety) are as important as the group performance. Craike, Hibbins, and Cuskelly (2010) reported that enjoyment is conceptualised as a social interaction predicted preference for leisure-time physical activity. Thus, people who enjoy participating in leisure time physical activity because of the social interactions tends to enjoy the activity more than those who play to meet the performance goals. In addition, it has been discovered that pleasure and cohesiveness are crucial elements for maintaining a regular physical and sporting activity schedule (Hagberg et al., 2009). This finding aligns with previous research showing that group-based physical activity can boost enjoyment, largely because of the chance to socialise, build friendships, and share experiences with others during the activity (Eime et al., 2013; Davis, MacCarron, & Cohen, 2021). Therefore, the knowledge gained from the present finding highlighted the need for understanding perception of team/group cohesion associated with enjoyment, which can provide information for further studies related to physical activity promotion.

The relationship between team cohesion and perceived exertion observed in this study was somewhat unexpected. It was initially hypothesised that higher task cohesion would lead to greater individual effort to achieve game objectives, thereby increasing perceived exertion. Contrary to this expectation, the results indicated that higher task cohesion was associated with lower perceived exertion. One possible explanation is that the recreational context of the futsal matches may have reduced the physical demands placed on players, even when performance intensity was high and relationships were task-oriented. This aligns with Bath et al. (2012), who found that running at maximal intensity felt easier when performed alongside others rather than alone. Another possible explanation is the presence of the Ringelmann effect where (i.e., individual effort decreases when working in a group) which contrasts with previous findings that some athletes are unlikely to engage in social loafing (e.g., Høigaard, Tofteråland, & Ommundsen, 2006; Czyż, et al., 2016).

The findings of the present study are consistent with Carnes and Mahoney (2016), who reported that higher task cohesion was associated with lower perceived effort among participants exercising in the presence of group members. Previous research indicates that cohesion generally enhances performance, adherence, and effort, with task cohesion exerting a more consistent positive effect than social cohesion (Graupensperger, 2019). In the case of social cohesion, the relationship was also negative but with a very low correlation, suggesting minimal influence on perceived exertion in a group setting. This may be because participants valued their interpersonal relationships primarily for social purposes, without regard to the level of effort during play. Additionally, as the futsal players met only occasionally, typically during matches, these interactions were likely more socially oriented than performance-driven. This interpretation warrants further exploration, preferably through a qualitative approach.

RELATIONSHIP BETWEEN ENJOYMENT, TEAM COHESION, AND PERCEIVED EXERTION IN AMATEUR FUTSAL PLAYERS IN KELANTAN

Although some earlier assumptions were not supported by the data collected from the participants, it is understood that the dynamic of a team that was defined by the team and social cohesion has uniquely influenced enjoyment and perceived exertion, which were also parts of recreational players' performance

CONCLUSION

This study highlights the nuanced relationship between enjoyment, team cohesion, and perceived exertion in recreational futsal. Findings indicate that high task cohesion may reduce enjoyment and is unexpectedly associated with lower perceived exertion, reflecting the social and leisure-oriented nature of recreational play. These results emphasise the need to balance social and task-oriented team dynamics to foster both enjoyment and sustained participation. Further qualitative research is recommended to deepen understanding of how cohesion influences psychological and physical experiences in leisure sport contexts.

It is suggested that future research should investigate the dynamics of psychological measures using qualitative or mixed-method approaches, comparing recreational and elite athletes, to better understand how variations in team cohesion shape enjoyment and perceived exertion over time and across competitive contexts.

ACKNOWLEDGEMENT

We would like to thank the players from all futsal teams for participating in the study.

REFERENCES

Barnicle, S. P., & Burton, D. (2016). Enhancing collegiate women's soccer psychosocial and performance outcomes by promoting intrinsic sources of sport enjoyment. *Journal of Sports Science & Medicine*, 15(4), 678–687

Bath, D., Turner, L. A., Bosch, A. N., Tucker, R., Lambert, E. V., Thompson, K. G., & Gibson, A. St. C. (2012). The effect of a second runner on pacing strategy and RPE during a running time trial. *International Journal of Sports Physiology and Performance*, 7(1), 26–32. <https://doi.org/10.1123/ijsspp.7.1.26>

Borg, G. (1998). Borg's perceived exertion and pain scales. Human Kinetics.

Carnes, A. J., & Mahoney, S. E. (2016). Cohesion is associated with perceived exertion and enjoyment during group exercise in recreational runners. *Medicine & Science in Sports & Exercise*, 48, 123. <https://doi.org/10.1249/01.mss.0000485366.26822.41>

Carron, A. V., Brawley, L. R., & Widmeyer, W. N. (1998). Measurement of cohesion in sport and exercise. In J. L. Duda (Ed.), *Advances in Sport and Exercise Psychology Measurement* (pp. 213–226). Morgantown, WV: Fitness Information Technology

Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: the group environment questionnaire. *Journal of Sport Psychology*, 7(3), 244–266. <https://doi.org/10.1123/jsp.7.3.244>

Chainok, P., et al. (2025). How do the physical and physiological demands of training differ between recreational and semi-professional football players? *Frontiers in Sports and Active Living*, 7, Article 1553694. <https://doi.org/10.3389/fspor.2025.1553694>

Craike, M. J., Hibbins, R., & Cuskelly, G. (2010). The influence of various aspects of enjoyment on participation in leisure time physical activity. *World Leisure Journal*, 52(1), 20–33. <https://doi.org/10.1080/04419057.2010.9674619>

Czyż, S. H., Szmajke, A., Kruger, A., & Kübler, M. (2016). Participation in team sports can eliminate the effect of social loafing. *Perceptual and Motor Skills*, 123(3), 754–768. <https://doi.org/10.1177/0031512516664938>

Davis, A. J., MacCarron, P., & Cohen, E. (2021). Social reward and support effects on exercise experiences and performance: Evidence from parkrun. *PloS one*, 16(9), e0256546. <https://doi.org/10.1371/journal.pone.0256546>

Eime, R.M., Young, J.A., Harvey, J.T. et al. A systematic review of the psychological and social benefits of participation in sport for adults: informing development of a conceptual model of health through sport. *International Journal of Behavior, Nutrition and Physical Activity* 10, 135 (2013). <https://doi.org/10.1186/1479-5868-10-135>

Farhani, Z., Amara, S., Aissa, M.B. et al. The variability of physical enjoyment, physiological responses, and technical-tactical performance according to the bout duration of small-sided games: a comparative study between female and male soccer players. *BMC Sports Science and Medical Rehabilitation*. 16, 77 (2024). <https://doi.org/10.1186/s13102-023-00794-1>

Gardner, L. A., Magee, C. A., & Vella, S. A. (2017). Enjoyment and Behavioral Intention Predict Organized Youth Sport Participation and Dropout. *Journal of Physical Activity & Health*, 14(11), 861–865. <https://doi.org/10.1123/jpah.2016-0572>

Graupensperger, S., Gottschall, J. S., Benson, A. J., Eys, M., Hastings, B., & Evans, M. B. (2019). Perceptions of groupness during fitness classes positively predict recalled perceptions of exertion, enjoyment, and affective valence: An intensive longitudinal investigation. *Sport, Exercise, and Performance Psychology*, 8(3), 290–304. <https://doi.org/10.1037/spy0000157>

Hagberg, L. A., Lindahl, B., Nyberg, L., & Hellénius, M.-L. (2009). Importance of enjoyment when promoting physical exercise. *Scandinavian Journal of Medicine & Science in Sports*, 19(5), 740–747. <https://doi.org/10.1111/j.1600-0838.2008.00844.x>

Høigaard, R., Säfvenbom, R., & Tønnessen, F. E. (2006). The Relationship Between Group Cohesion, Group Norms, and Perceived Social Loafing in Soccer Teams. *Small Group Research*, 37(3), 217–232. <https://doi.org/10.1177/1046496406287311>

Kendzierski, D., & DeCarlo, K. J. (1991). Physical activity enjoyment scale: two validation studies. *Journal of Sport and Exercise Psychology*, 13(1), 50–64. <https://doi.org/10.1123/jsep.13.1.50>

Kimiecik, J. C., & Harris, A. T. (1996). What is enjoyment? a conceptual/definitional analysis with implications for sport and exercise psychology. *Journal of Sport and Exercise Psychology*, 18(3), 247–263. <https://doi.org/10.1123/jsep.18.3.247>

Kwon, S. H. (2024). Analyzing the impact of team-building interventions on team cohesion in sports teams: A meta-analysis study. *Frontiers in Psychology*, 15(15). <https://doi.org/10.3389/fpsyg.2024.1353944>

Leo, F. M., González-Ponce, I., Sánchez-Miguel, P. A., Ivarsson, A., & García-Calvo, T. (2015). The relationship among cohesion, transactive memory systems, and collective efficacy in professional soccer teams: A multilevel structural equation analysis. *Group Dynamics: Theory, Research, and Practice*, 19(1), 36–45. <https://doi.org/10.1037/gdn0000027>

RELATIONSHIP BETWEEN ENJOYMENT, TEAM COHESION, AND PERCEIVED EXERTION
IN AMATEUR FUTSAL PLAYERS IN KELANTAN

Motl, R. W., Dishman, R. K., Saunders, R., Dowda, M., Felton, G., & Pate, R. R. (2001). Measuring enjoyment of physical activity in adolescent girls. *Medicine & Science in Sports & Exercise*, 33(5), S50. <https://doi.org/10.1097/00005768-200105001-00280>

Myers, N. D., Feltz, D. L., & Short, S. E. (2004). Collective efficacy and team performance: A longitudinal study of collegiate football teams. *Group Dynamics: Theory, Research and Practice*, 8(2), 126–138

Naser, N., Ali, A., & Macadam, P. (2017). Physical and physiological demands of futsal. *Journal of Exercise Science & Fitness*, 15(2), 76–80. <https://doi.org/10.1016/j.jesf.2017.09.001>

Rico-González, M., Pino-Ortega, J., Clemente, F. M., Rojas-Valverde, D., & Arcos, A. L. (2021). A systematic review of collective tactical behaviour in futsal using positional data. *Biology of Sport*, 38(1), 23–36. <https://doi.org/10.5114/biolsport.2020.96321>

Scanlan, T. K., Carpenter, P. J., Simons, J. P., Schmidt, G. W., & Keeler, B. (1993). An introduction to the Sport Commitment Model. *Journal of Sport and Exercise Psychology*, 15(1), 1-15. <https://doi.org/10.1123/jsep.15.1.1>

Ståhl, T., Rütten, A., Nutbeam, D., Bauman, A., Kannas, L., Abel, T., Lüschen, G., Rodriquez, D. J., Vinck, J., & van der Zee, J. (2001). The importance of the social environment for physically active lifestyle--results from an international study. *Social Science & Medicine*, 52(1), 1–10. [https://doi.org/10.1016/s0277-9536\(00\)00116-7](https://doi.org/10.1016/s0277-9536(00)00116-7)

Travassos, B., Araújo, D., Duarte, R., & McGarry, T. (2011). Spatiotemporal coordination behaviors in futsal (indoor football) are guided by informational game constraints. *Human Movement Science*, 30(6), 1239–1251. <https://doi.org/10.1016/j.humov.2011.04.003>

Vierimaa, M., Bruner, M. W., & Côté, J. (2018). Positive youth development and observed athlete behavior in recreational sport. *PloS one*, 13(1), e0191936. <https://doi.org/10.1371/journal.pone.0191936>

Widmeyer, W. N., Brawley, L. R., & Carron, A. V. (1990). The effects of group size in sport. *Journal of Sport and Exercise Psychology*, 12(2), 177-190. <https://doi.org/10.1123/jsep.12.2.177>

Yang, H. J., Yang, J. H., Choi, C., & Bum, C. H. (2025). A Study of differences in enjoyment, exercise commitment, and intention to continue participation among age groups of adult amateur golfers. *Behavioral Sciences*, 15(3), 398. <https://doi.org/10.3390/bs15030398>