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Original Scientific Article

Ascertaining the Impact of Skill-Based, Intensive Training on the Cardiovascular and Muscular Performance of Male Hockey Players

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

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Abstract

Objectives. The study aimed to investigate the impact of skill-based maximal-intensity interval training on cardiovascular and muscular performance variables in male hockey players.

Materials and methods. For this study, a group of 24 male hockey players were carefully selected. The participants were divided into two groups: SBT (n = 12) and CG (n = 12). A 12-week programme was carried out, comprising skill-specific, high-intensity interval training sessions that took place three times per week. Data was gathered prior to and following the study. The variables selected for evaluating consisted of a 20-meter, 30-meter, and 50-meter sprint, along with agility, speed endurance, and cardiovascular endurance. Pre and post data were subjected to statistical analyses.

Results. The findings of statistical analyses indicate a significant positive impact due to performing the 12-week skill-based intensive training. The SBT group consistently demonstrated superior performance compared to the CG group. This was evident through their significantly faster completion times in distances of 20 m, 30 m, and 50 m, as well as their agility tasks. Additionally, the SBT group achieved higher scores in endurance measures. The effect sizes observed in the study were quite significant, indicating substantial differences between the groups. Furthermore, it is noteworthy that the CG group did not exhibit any marked changes from the pre-test to the post-test in any measure.

Conclusions. After a period of 12 weeks, it has been observed that skill-based maximal-intensity interval training leads to significant improvements in both anaerobic and aerobic performance. This training is essential for athletes as they prepare for the end of the season. According to the study, it is recommended that hockey and other coaches focus their efforts on skill-based maximal-intensity interval training. While this study did not specifically assess technical abilities, it found that this training technique significantly enhanced physical performance. This research and training could prove advantageous for athletes and coaches who prioritise honing their skills.

Keywords: skill-based training, HIIT, hockey, physical performance, training method.

Introduction

Hockey is a team sport that involves a combination of intense activities like sprinting, dribbling, hitting, and passing, along with periods of lower intensity like jogging and walking for recovery (Harry & Booysen, 2018). Team sports that involve intense, intermittent activity demand athletes to possess a strong foundation of physical performance attributes, including agility, speed, and both aerobic and anaerobic power (Gamble, 2013). Various training methods have been employed to enhance the overall physical performance in the sport of hockey. In addition, the compatibility of these training models with the technical and tactical skills of sport can greatly enhance the effectiveness of the training (Timmerman, Savelsbergh, & Farrow, 2019). Coaches and researchers have shown a growing preference for skill-based and high-intensity training methods, which are known for their effectiveness and efficiency (Fernandez-Fernandez, Sanz, Sarabia, & Moya, 2017). The development of technical skills, tactical awareness, and physical conditioning is all impacted simultaneously (Gabbett, 2008).

The effectiveness and systematic nature of skill-based exercises make them an ideal training method (Karahan, 2020). This approach caters to both young or non-specialized players, allowing them to develop technical skills, as well

as specialized players who can refine and maximize their skills in competitive settings. High-intensity, intermittent training has been shown to have remarkable effects on skeletal muscle and metabolic capacity and adaptation (Kohn, Essén-Gustavsson, & Myburgh, 2011; Perry, et al., 2008). When skill-based training is conducted at a high or maximum intensity, it offers players ample opportunities to enhance their technical, tactical skills, and physical performance simultaneously (Fernandez-Fernandez et al., 2017). Coaches often employ skill-based variations to guide players towards specific physical and technical objectives. Lately, there has been a widespread adoption of skill-based training programmes to enhance technical and physical performance, especially in team sports (Hammami, Gabbett, Slimani, & Bouhlel, 2018). Nevertheless, research has yet to definitively prove the effectiveness of these training programmes compared to traditional methods (Karahan, 2020).

Several recent studies have been dedicated to examining skill-based training methods carried out at high or maximum intensity (Karahan, 2012; Sü, 2015). The study revealed that rigorous training focused on developing specific skills had a notable influence on the speed, agility, and aerobic and anaerobic power of female futsal players (Karahan, 2012). These effects were comparable to those observed in players of volleyball and handball (Sü, 2015). A different study conducted by (Gabbett, 2008). analysed the differences observed prior to and following the training period. Based on the findings, it is evident that skill-based training significantly improved the speed and agility of young volleyball players. The analysis of jumping, change of direction, and aerobic capacity before and after the intervention clearly demonstrates a steady improvement in young football players (Sanchez-Sanchez et al., 2019).

The success of a player is heavily influenced by their level of performance and the amount of effort they put into engaging with the ball. However, there is still uncertainty surrounding the scientific understanding of how these variations affect the physical performance of a player or team (Timmerman et al., 2019). Prior research in the field has primarily concentrated on analysing the physical capabilities of male hockey players and the effects of training regimens on both aerobic and anaerobic factors (Sharma & Kailashiya, 2018). This study proposed that by incorporating high-intensity training into training programmes using ball-specific drills and small-sided games, enhancements could be observed in both aerobic and anaerobic performance, along with technical proficiency. The purpose of this study was to examine how skill-based maximal intensity interval training affects the aerobic and anaerobic performance of male hockey players. The study's findings have the potential to provide valuable guidance to coaches and players as they strive to improve their training programmes.

Materials and Methods

Participation

A group of twenty-four skilled university hockey players, all belonging to the same team, participated in this study during their participation in the university games. Participants were divided into two groups: the skill-based group (SBT) and the control group (CG). We estimated the sample size using G*Power software (version 3.1). Based on the given data, a sample size of 12 was determined. The partial effect size was found to be 0.02, with a power of 0.08 and a P value of 0.05 for two group measurements. Additionally, a correlation of 0.05 was observed. Table 1 presents the demographic characteristics of the groups.

Subjects with any acute or chronic disease, pain indicators, or those under medical treatment were excluded from the study based on the eligibility criteria. In addition, participants who sustained injuries during the experiment were also excluded. All participants successfully completed a minimum of 80% of the total sessions and consistently fulfilled all of the test procedures before and after the study. (4) The subject did not participate in any official matches during the study period. Before obtaining written informed consent, all players, parents, and coaches received comprehensive information about the research procedure, including any potential risks, benefits, and requirements. Flow Table 2 presents a concise summary of the criteria for participation.

Procedure

This study aimed to examine how SBT affects the physical performance characteristics of young hockey players. A study was conducted utilising two groups, SBTG or CG, over a period of 12 weeks. The study followed a parallel randomized, controlled longitudinal design. Both groups completed a total of 36 units, with each week consisting of 3 training units. Three orientation sessions were conducted a week prior to the initial evaluation to acquaint the participants with the tests and exercises utilized in this study. In addition, the researchers offered clear instructions and visual examples during the intervention to ensure that the correct technique was consistently followed. The assessments conducted before and after the training duration consisted of a thorough set of evaluations. These evaluations included tests such as the 20 m, 30 m, and 50 m sprint tests, the T-run test, the 45 Second sprint, and the Cooper 12 m walk/run test. To ensure consistency, the same assessors performed all of the test measurements.

The physical performance test was carried out both before and after the 12-week training programme, following the principles of measurement. The tests were conducted

Table 1. Demographic characteristics of groups

	Age (year) means ± SD	Experience (year) means ± SD	Height (cm) means ± SD	Weight (kg) means ± SD
SBT(n = 12)	20.167 ± 1.029	7.916 ± 1.240	164.834 ± 5.670	59.483 ± 2.667
CG (n = 12)	20.416 ± .996	8.167 ± 1.193	166.083 ± 5.712	56.483 ± 2.006

SBT = skill-based training, CG = control group

in the morning from 6.30 to 8.00 am in a controlled environment, namely an indoor pitch at SRM University in Chennai. Before and after the test applications, the players engaged in a 10-minute warm-up and cool-down routine. To ensure fairness, we used an online resource[1] to randomly assign subjects. The training sessions were closely supervised by certified hockey coaches and a conditioning specialist to ensure that SBT was executed with utmost effort. Additionally, a thorough warm-up and cool-down exercise were included. The coaches and researchers provided clear instructions and encouragement to all players during tests, aiming to maximize their efficiency in handling workloads.

20 m sprint test: A photocell device was used to measure the sprinting speed of the players. The device was positioned at both the start and finish lines, which were 20 metres apart. The players performed the 20-meter sprint with great determination, starting from a stationary position. The test was performed on three separate occasions, with a 90-second rest period between each repetition. We recorded the running time that produced the most optimal result. The measurement test-retest reliability for the 20-m sprint test resulted in an intra-class correlation coefficient of 0.88 (Haghighi, Hosseini, Askari, Shahrabadi, & Ramirez-Campillo, 2024; Wheeler Botero et al., 2023).

30 m sprint test: A speed measurement was taken using a 30 m sprint test. Cones were strategically positioned 30 metres apart, forming a path between the starting and finishing lines for the test. Participants race with all of their strength from the starting line to the finishing line. The stopwatch began timing when the participant initiated the run and stopped when the participant completed the run. Every participant was given three chances to showcase their skills, with their quickest time being recorded as their performance (Coelho et al., 2007).

50 m sprint test: A speed measurement was taken through a 50 m sprint test. Cones were strategically positioned 50 metres apart, forming a path between the starting and finishing lines for the test. Participants race with great speed from the starting line to the finishing line. The stopwatch began timing when the participant initiated the run and stopped when the participant completed the run. Every participant was given three chances to showcase their skills, with the quickest time being noted as their performance (Wheeler Botero et al., 2023).

The 45-second run test: The 45-second run test is a method used to evaluate an individual's capacity for speed endurance. The participant gracefully moved back and forth along a 20-meter track, completing the task within a 45-second time frame. Starting from one end, the participant swiftly accelerates to the opposite end, lightly touches the line with one hand, swiftly turns and sprints back, repeating this shuttle run pattern as many times as possible until the time runs out. Precise timing using a stopwatch or timer is essential. The score is determined by the number of shuttles completed within the allotted time, indicating a measure of speed endurance fitness (Wood, 2020)

Change of direction ability test: The T-run test was used to evaluate the players' ability to change direction (CoD). The test (Figure 1) requires the measurement of the player's speed during different directional changes, such as forward sprinting, left and right shuffling, and returning to the start line. The test was performed on two occasions, separated by a 2-minute active recovery interval. An electronic timing system positioned at the starting line recorded the performance that produced the most favourable outcomes. The test-retest reliability of measurement for the T-run test was determined to be 0.95, indicating a strong level of consistency (Sassi et al., 2009).

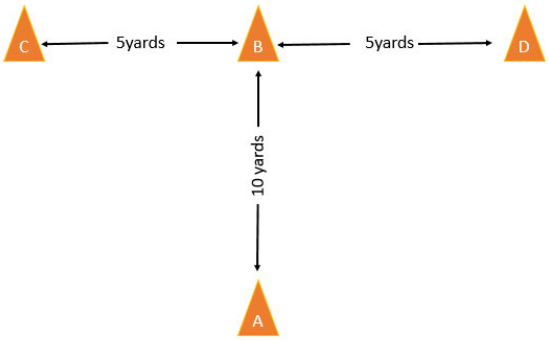

Fig. 1. Shows the T- run test

The Cooper 12-minute: The Cooper 12-minute walk or run test is a widely recognized and commonly employed evaluation of cardiovascular endurance fitness. Participants are given clear instructions to maximize their distance covered in a 12-minute time frame. They have the option to choose between walking or running, and the course is carefully measured and flat. Prior to commencing, it is crucial for participants to engage in a thorough warm-up routine in order to minimize the risk of sustaining any injuries. From the moment the test commences, they gracefully maintain a consistent rhythm, with the goal of exploring as much territory as they can. The distance covered is measured and recorded at the end of the 12 minutes (Kumar & Zemková, 2022).

Training programmers

The programme focuses on enhancing the physical and skill performance of hockey players through skill-based HIIT training. The timing of these sessions was consistent, starting at 6.30 am and ending at 8.00 am. SBTG was carefully guided by a coach and researcher, ensuring that they underwent a thorough warm-up consisting of 10 minutes of general and specific exercises, including stretching. Following a series of low-intensity dribbling, passing, and hitting exercises, a 10-minute cool-down routine is carried out.

Throughout the intervention period, players were guided to give their utmost effort during their activity. The researcher and coach provided instructions to ensure high motivation. The SBT sessions were held three times a week, specifically on Mondays, Wednesdays, and Fridays. The researcher supervised these sessions. The distribution of the training programme for the SBT group across the days of the week can be seen in Table 2. The players engage in a variety of skill exercise training and small-sided games, all involving the ball. Table 3 presents the 12-week training intervention. The evaluation of training intensity was measured using the CR-10 Borg's scale (Shariat et al., 2018) in training interventions. This scale quantifies the rating of perceived exertion (RPE). Prior to the interventions, the players were introduced to the scale. Each player was asked to rate their perceived level of effort exerted during

[1] https://random-allocation-software.software.informer.com/2.0

Table 2. Time table for implementing the training program

Groups	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
SBTG		+		+		+	
CG							

SBTG = Skill-based training group, CG = Control group

Table 3. Show the 12-week Training Schedule

Weeks	No.of repetition	Duration of repeat	Recovery time B/W repetition	Recovery time b/w exercise section	Total duration
1-3 weeks	4	25 s	30 s	4 min	35-40 minutes
4-6 weeks	5	25 s			
7-9 weeks	6	20 s			
10-12 weeks	7	20 s			

the intervention. The players were questioned about their thoughts on the intervention's intensity and were asked to provide an evaluation. The responses were diligently documented on a sheet once the inquiry had been addressed.

The SBT group executed a customary 10-minute general systemic warm-up, complemented by dynamic range of motion exercises, and concluded with a 10-minute cool down consisting of jogging and stretching, both prior to and after all training sessions. The primary training sessions consisted of various skill-based exercises such as dribbling and sprinting (Station 1, Fig. 2), Passing (Station 2, Fig. 3), Hitting and shooting the goal (Station 3, Fig. 4), and 10-minute small-sided games (on pitches measuring 30 × 20 with 6 players on each team) played with maximum effort.

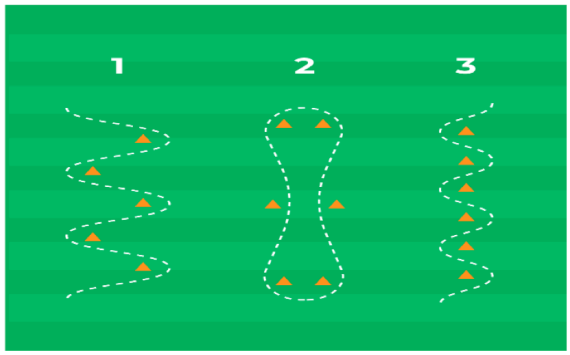

Fig. 2. Dribble and sprint.
Note: station 1: To perform zig-zag, W dribbling, straight dribbling, dribbling in Pairs, figure 8 dribbling.1v1dribbling (All the exercises to perform maximum speed and perfection)

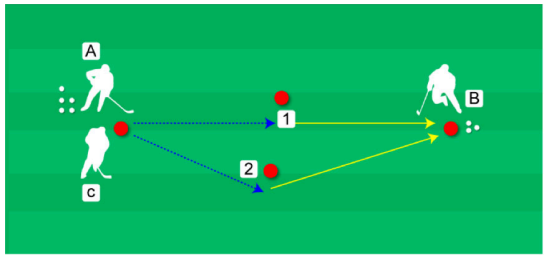

Fig. 3. Passing
Note: station 2: To perform pass and move, shuttle passing, dynamic passing, 3v1keepaway, overlapping, passing really. (All the exercises to perform maximum speed and perfection)

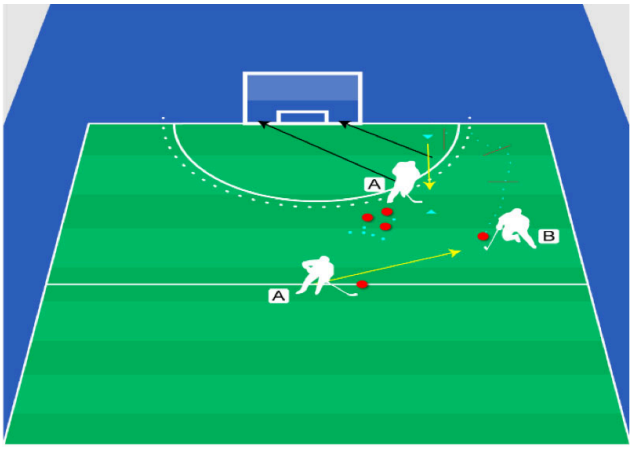

Fig. 4. Hitting
Note: station 3: To perform Moving Target Practice, pass and hit, hitting on the move, shooting and hitting combo, passing and hitting in motion. (All the exercises to perform maximum speed and perfection)

Statistical analyses

The analysis of data normality began with the Shapiro-Wilk test. After completing the initial step, we utilized the analysis of covariance (ANCOVA) to investigate the effectiveness of the training programmes. We included baseline measurements as covariates to conduct a more detailed analysis. Afterwards, we used Cohen's d to measure the effect size by converting the partial eta-squared values obtained from the ANCOVA result. Additional analysis included evaluating performance changes within the same group before and after the intervention, using a paired sample t-test. The effect sizes obtained from these tests were categorized based on Cohen's criteria, which provide a clear understanding of the impact of the training. The categories include small, medium, and large, with corresponding values. The reliability of these measures over time was confirmed through the intra-class correlation (ICC), particularly using a 3, 1 model, which ensured the consistency of our findings. The mean values and standard deviation were carefully compiled to provide a thorough overview for initial assessment. Throughout the study, a high level of significance was maintained at $p < 0.05$ to ensure scientific accuracy.

Results

Presented in Table 4 are the baseline results and the observed changes following a 12-week period of high-intensity skill training for aerobic and anaerobic performance in hockey for the SBT and CG.

In order to determine any significant changes between the pre-test and post-test scores of the variables being studied, a paired t-test is conducted. Prior to this, the normality assumptions are checked using the Shapiro-Wilk test, which confirms that the data follows a normal distribution. Tests are conducted individually for each group. Remarkable progress was evident in all areas within the SBT group, as observed from the initial assessment to the final evaluation. Participants demonstrated significant improvements in various physical variables, including reductions in time for distances of 20 m, 30 m, and 50 m, as well as improvements in agility, speed endurance, and cardiovascular endurance. The improvements observed in the measures were found to be statistically significant, with p-values less than 0.05. This suggests that the training programme had a significant impact on the observed changes. The effect sizes displayed a range of magnitudes, indicating that although all measures showed improvement, the extent of improvement varied across tasks. The most significant effects were observed in speed endurance and cardiovascular endurance. A comparison between the SBT and CG groups was conducted using ANCOVA, with the covariates controlled. Notably, significant main effects of the group were observed across all variables. The SBT group consistently demonstrated superior performance compared to the CG group. This was evident through their significantly faster times in distances of 20 m, 30 m, and 50 m, as well as their agility tasks. Additionally, the SBT group achieved higher scores in endurance measures. The effect sizes observed in this study were quite significant, with values ranging from 0.205 to 0.657. These findings highlight the substantial differences that exist between the groups being compared. It is important to note that the CG group did not exhibit any significant changes from the pre-test to the post-test in any measure. This confirms that the improvements observed in the SBT group were not due to simple test-retest effects, but rather to the specific effects of the training programme. The findings highlight the effectiveness of the SBT intervention in improving physical performance when compared to a control condition.

Discussion

This study aimed to evaluate the effects of a sprint-based training programme (SBT) on the physical performance of male hockey players, in comparison to a control group (CG). The results show significant improvements in the SBT group across all measures, including significant reductions in sprint times at 20 m, 30 m, and 50 m, enhanced agility and speed endurance, and increased cardiovascular endurance from pretest to posttest.

The objective of the present study was to evaluate the effects of a rigorous, skill-focused interval training programme on the cardiovascular and muscular performance of male hockey players. This study investigates the effects of skill-based training and intensive interval training on the physical performance characteristics of hockey players in the pre-season period. The researchers conducted a range of tests to measure different parameters, such as sprint tests at distances of 20 m, 30 m, and 50 m, the T-run test, the 45 Second sprint, and the Cooper 12 m walk/run test. According to the study findings, a twelve-week skill-based intensive interval training programme showed a notable improvement in all tested physical performance characteristics ($p < 0.05$). The results unequivocally show the efficacy of the SBT intervention in improving the performance of hockey players.

There was a significant improvement in the time taken for various physical variables, such as the 20 m, 30 m, and 50 m sprints, agility, and speed endurance, from the initial assessment to the final assessment. In addition, there was a significant improvement in cardiovascular endurance. There was a wide range of effect sizes, ranging from small to large. The most notable impacts were seen in speed endurance and cardiovascular endurance. Surprisingly, the control group (CG) did not exhibit any significant

Table 4. Displays the responses of SBT and CG in relation to the physical performance characteristics of male hockey players

Variable	SBT(n = 12) means ± SD		Effect Size	Magnitude	CG (n = 12) means ± SD		F	η^2
	Pre-test	Post-test			Pre-test	Post-test		
20 m	3.362 ± 0.121	3.263 ± 0.177*	0.621	Medium	3.388 ± 0.125	3.384 ± 0.118	8.685*	.293
30 m	4.798 ± 0.314	4.558 ± 0.286*	0.779	Medium	4.783 ± 0.313	4.844 ± 0.426	11.125*	.346
50 m	7.148 ± 0.117	7.087 ± 0.093*	0.571	Medium	7.126 ± 0.099	7.224 ± 0.204	5.401*	.205
Agility	10.841 ± 0.392	10.747 ± 0.338*	0.259	Small	10.826 ± 0.398	10.871 ± 0.448	11.335*	.351
Sped. Endurance	4.875 ± 0.311	4.533 ± 0.331*	1.054	Large	4.900 ± 0.461	4.842 ± 0.523	22.293*	.515
Cardiovascular endurance	2285.000 ± 340.20	2572.500 ± 336.401*	0.848	Large	2297.500 ± 325.761	2286.250 ± 322.117	40.147*	.657

*Significant at 0. 05 level of significance

changes across any measures from the pre-test to the post-test. A study conducted by (Karahan, 2012) revealed that skill-based maximal intensity interval training had notable impacts on the aerobic and anaerobic performance variables of female futsal players. Significant improvements were observed in the average anaerobic power, fatigue index, and VO_2max of the TG, with increases of 10.7 %, 22.1 %, and 9.6 % ($p < 0.05$), respectively. On the other hand, the control group did not show any notable changes.

The performance of anaerobic activities is primarily influenced by the composition of muscle fibres and the capacity of glycolytic enzymes in skeletal muscles. These factors are primarily influenced by an individual's genetic composition. However, it is crucial to consider the possibility of training as well (Roberts, Billeter, & Howald, 1982). Enhancing anaerobic performance is impacted by a range of factors, such as the intensity and duration of training, as well as the trainability of individual players. Previous studies have shown that integrating high- or maximal-intensity training methods can improve anaerobic performance variables in team sport players (Sirotic & Coutts, 2007). These studies suggest that enhancing anaerobic performance can give players an edge in consistently and effectively executing their technical skills and motor abilities during competitions.

Previous studies have consistently demonstrated that participating in high- or maximal-intensity interval training can result in notable enhancements in the aerobic performance of team sport athletes, even over a relatively brief period. A study conducted by (Tabata et al., 1996). found that participating in high-intensity training for six weeks resulted in a significant 7 % increase in VO_2max. In a separate study, (Dupont, Akakpo, & Berthoin, 2004) discovered that incorporating high-intensity interval training into the regular training season resulted in a significant 18 % improvement in maximal aerobic speed. A study conducted by (Sporis, Ruzic, & Leko, 2008), (Sirotic & Coutts, 2007) and (Tabata et al., 1997) has demonstrated that participating in high-intensity exercise can greatly improve aerobic capacity and anaerobic power. The results are consistent with the upward trends observed in the current study.

According to a study conducted by (Karahan, 2020), the results indicate that skill-based training may be more effective in improving the preseason physical performance of young male soccer players when compared to small-sided games. This study offers valuable insights for coaches and researchers concerning a twelve-week intervention period. The study focuses on the beneficial effects of skill-based, intensive interval training on the cardiovascular and muscular performance of male hockey players.

Conclusions

Our research indicates that following a 12-week period of skill-based maximal-intensity interval training, significant improvements were observed in both anaerobic and aerobic performance. This training schedule is of utmost importance for athletes, especially during the critical phase of preparation before the start of the competitive season. It is evident that coaches of hockey and other sports should prioritise skill-based maximal-intensity interval training as their primary training approach. According to the study's findings, it can be concluded that this training approach is very effective in improving physical performance, even though it does not directly evaluate technical skills. The current research and training methodology has significant potential for athletes and coaches who value skill-focused training as a way to improve physical performance.

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Conflict of Interest

The author states that there are no conflicts of interest regarding the publication of this manuscript.

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З'ясування впливу навичко-орієнтованих інтенсивних тренувань на продуктивність серцево-судинної та м'язової систем чоловіків-хокеїстів

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Авторський вклад: A – дизайн дослідження; B – збір даних; C – статаналіз; D – підготовка рукопису; E – збір коштів

Реферат. Стаття: 8 с., 4 табл., 4 рис., 26 джерел.

Мета дослідження. Мета дослідження полягала у вивченні впливу навичко-орієнтованих інтервальних тренувань максимальної інтенсивності на показники продуктивності серцево-судинної та м'язової систем у хокеїстів-чоловіків.

Матеріали та методи. В рамках дослідження проведено ретельний відбір групи з 24 хокеїстів-чоловіків. Учасники були розділені на дві групи: НОТ — навичко-орієнтоване тренування (n = 12) та КГ — контрольна група (n = 12). Програма тривала 12 тижнів, проводилась тричі на тиждень і включала високоінтенсивні інтервальні тренування (ВІІТ), спрямовані на розвиток конкретних навичок. Збір даних здійснювався перед початком і після завершення дослідження. З метою оцінки було обрано наступні показники: спринтерський біг на 20, 30 і 50 метрів, а також спритність, швидкісна витривалість і витривалість серцево-судинної системи. Отримані дані на перед- та післятестовому етапах дослідження підлягали застосуванню статистичних аналітичних методів.

Результати. Результати проведення статистичних аналітичних методів вказують на значний позитивний вплив, досягнутий завдяки виконанню 12-тижневого навичко-орієнтованого інтенсивного тренування. Група НОТ незмінно демонструвала кращу результативність порівняно з КГ. Про це свідчить значно швидший час подолання дистанцій 20 м, 30 м і 50 м, а також виконання завдань на спритність. Крім того, група НОТ досягла вищих результатів за показниками витривалості. Розміри ефекту, що спостерігалися в дослідженні, виявились досить суттєвими, що вказує на наявність істотних відмінностей між групами. Також варто зазначити, що в КГ не було зафіксовано виражених змін у жодному з показників на період від перед- до післятестового етапів дослідження.

Висновки. Після закінчення 12-тижневого періоду спостерігалося, що навичко-орієнтовані інтервальні тренування максимальної інтенсивності, призводять до значного покращення анаеробної та аеробної продуктивності. Такі тренування є важливою складовою підготовки спортсменів до завершення сезону. Згідно з дослідженням, тренерам з хокею та інших видів спорту рекомендується зосередити свої зусилля на проведенні навичко-орієнтованих інтервальних тренувань максимальної інтенсивності. Попри відсутність спеціальної оцінки технічних здібностей, дослідження встановило, що зазначена методика тренувань сприяє суттєвому підвищенню фізичної працездатності. Представлене дослідження і тренування можуть стати корисним інструментом для спортсменів і тренерів, які надають пріоритет відточуванню своїх навичок.

Ключові слова: навичко-орієнтоване тренування, ВІІТ, хокей, фізична працездатність, метод тренування.

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