

IJEMD



INDONESIAN JOURNAL OF EDUCATION METHODS DEVELOPMENT

UNIVERSITAS MUHAMMADIYAH SIDOARJO

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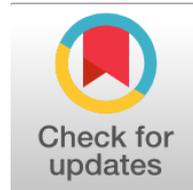
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The Effect of a Training Program on Improving Motor Response and some Basic Skills of Junior Table Tennis Players: Pengaruh program pelatihan terhadap peningkatan respons motorik dan beberapa keterampilan dasar pemain tenis meja pemula

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Abstract

General Background: Scientific training programs play a fundamental role in developing motor and technical abilities in youth sports. **Specific Background:** In table tennis, rapid motor response and precise execution of forehand and backhand strokes are essential for competitive performance, yet junior players often demonstrate weaknesses due to limited specialized training and insufficient use of modern response-speed devices. **Knowledge Gap:** There is limited structured application of neuromuscular-based training curricula incorporating electronic response-speed devices within junior table tennis development programs. **Aims:** This study examined a proposed eight-week training program designed to develop motor response speed and selected basic skills among six junior table tennis players in Najaf Governorate. **Results:** Pre- and post-test comparisons revealed statistically significant improvements in motor response speed measured using the BATAK MICRO device, alongside significant gains in forehand and backhand technical performance scores. The experimental group outperformed the control group across all measured variables. **Novelty:** The program integrated device-based response training with progressive, match-simulated technical drills tailored to junior developmental characteristics. **Implications:** The findings support incorporating structured neuromuscular exercises and stimulus-based drills into youth training curricula to improve response time, coordination, and technical precision in table tennis development programs.

Keywords: Motor Response Speed, Junior Table Tennis, Training Program, Neuromuscular Coordination, Technical Performance

Key Findings Highlights:

Significant gains in reaction metrics were recorded after eight weeks of structured practice.

Forehand execution accuracy showed marked statistical progression.

Backhand stroke consistency improved through progressive stimulus-based drills.

Published date: 2026-02-20

The effect of a training program on improving motor response and some basic skills of junior table tennis players

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Abstract:

This study aims to examine the effect of a proposed training program on improving motor response speed and developing selected basic skills among junior table tennis players in Najaf Governorate. The researcher employed the experimental method due to its suitability for the nature of the problem, using a purposive sample of six junior players selected through comprehensive enumeration. The training program included specialized exercises to enhance motor response speed using the (BATAK MICRO) device, as well as progressive technical exercises designed to develop the forehand and backhand strokes. The program was administered over eight weeks, with three training sessions per week. The results revealed statistically significant differences between the pre- and post-tests in favor of the post-test for motor response speed, indicating improved reaction time and enhanced neuromuscular coordination among the players. Additionally, notable improvements were observed in the technical performance of both the forehand and backhand strokes, attributed to the use of targeted technical drills and match-like training situations. The study concludes that the training program was effective in developing the motor and technical abilities of junior table tennis players. The researcher recommends adopting similar training programs in sports clubs and youth centers, and emphasizes the importance of incorporating modern devices designed to improve response speed within training curricula.

Keywords: Motor Response - Table Tennis - Training Program.

Introduction

Yuli all staff in The field The athlete majority Their interest On the subject Training The athlete And itself forms a point Launch in numbers The athlete and calendar Performance And its development To subscribe in competitions Sports in Events The different ones , and that effectiveness Programs training And he founded Preparing it And its construction By the roads Scientific that Contributes in to lift level Performance In and events Sports The different ones are from Most important Aspects that He should Taking it into consideration Attention In it . Table tennis from Games Individual that she has Its basic principles Multiple , and depends Mastering it on following Planning The healthy and use Methods Training Modern on according to style Scientific The building on Foundations Correct, With the aim Get on better Results Reaction speed plays a crucial role in table tennis , as it requires rapid movement and high, precise focus on the opponent. This necessitates that table tennis players possess high speed to maintain their physical and technical performance. This can only be achieved through continuous training to develop reaction speed and a high level of responsiveness, enabling them to perform rapid movements.[1] Developing reaction speed is also very important for table tennis players. One of the weaknesses often found in table tennis players is insufficient training, ineffective training, or overly repetitive exercises . In turn He is counted One Ways The guarantor To raise level The game and advancement In it .

Research problem

Table tennis is a sport that demands high levels of physical fitness and skill. Therefore, it was essential to find new teaching methods that would enhance the game's fundamental skills. The use of sound training methodologies has become a necessity and a cornerstone of sports training, contributing significantly to improving players' performance levels. researcher And from during His experience As a player and table tennis coach , I believe there is a weakness among junior table tennis players, that their training sessions are insufficient, and that psychological factors are not adequately addressed. Other related factors include a lack of friendly and competitive matches in the league and local and international tournaments. Therefore, the researcher believes that... Curricula training For young players, training programs, especially these, have become an urgent necessity. Effectiveness Need to Consideration some The motor, technical, tactical, and mental skills of young players . And the lack of Use Devices Help in to improve Level Physical And the skill and development of the player's reaction speed , the matter that to push researcher to Start With this the Study For training and special exercises and their effect on players in developing their motor, physical and skill abilities, as well as the response speed device that improves the development of response speed in junior table tennis players.

Research Objectives

1. Developing specific exercises using the training curriculum to improve response speed and some basic table tennis skills for juniors
2. Identifying the effect of special exercises using the training curriculum in developing response speed and some basic skills for junior table tennis players.

Research hypotheses

There is a positive effect of exercises using the training method to improve response speed and some basic skills for junior table tennis players.

Research areas

- **Human Field:** Junior Table Tennis Players in Najaf.
- **Timeframe:** From 26/10/2022 to 1/5/2023.
- **Spatial scope:** Najaf Youth Center Forum in Najaf Al-Ashraf and Al-Ghadir Junior Forum.

Research Methodology

that nature The problem studied she that Determine nature Curriculum user , So use researcher Curriculum Experimental Which The closest And most Honestly To solve Many from Problems Scientific and basic idea that He does On it Search Experimental in simplest Image and related By law variable One So He was there Two positions They are similar completely from all Aspects then Add component specific to One The two positions Don The other Van any changing or difference He appears after that between The two positions Attributed to presence this The element The added elementand he what It fits and nature problem Search so that Experimentation It is from more means efficiency To access to knowledge trusted In it .[2]

Research Community

It was completed to set community Search Sabah Al-Karawi Youth Center, Najaf Governorate, for football The table and adult Their number is (6) Junior players, and Using the comprehensive enumeration method in selecting the sample , and the amount Their number is (6) Players.

Homogeneity Sample :

In order to avoid influences that may affect the research results due to the individual differences among the players and to reach a single and equal level for the sample, some skills that represent the specifications of the sample were identified in order to ensure its homogeneity in those skills that are influential in the experiment and which must be controlled. Therefore, statistical treatment was carried out using the skewness coefficient, and Tables (2) show this, noting that the skewness coefficient in those variables was confined between (1±), and therefore the sample is considered normally distributed, since " the more the values of the skewness coefficient are confined between (1±). The sample was homogeneous .[2]

Table (1): table It shows the variables, the arithmetic mean, standard deviation, median, and skewness coefficient for the research sample.

Significance	The mediator	deviation normative	coefficient twist	Middle Calculation	lonliness Measurement	Measurements No. and tests
not moral	174	11.45	-0.13	173.5	cm	height 1
not moral	67	4.35	-0.95	65.62	kg	the weight 2
not moral	26	10.49	-0.85	26.42	year	the age 3
not moral	75	10.45	-0.83	74.6	cm	length arm 4
not moral	6	10,22	-0.98	6.5	year	the age5 training

Equipment and tools used in the research

- device thrower For balls electrical Chinese Origin Number (1) Type (Y&T-989)
- machine filming Sony type , speed (300) images By the second Number (2)
- Calculator laptop (PACKARD BELL) type (Chinese) Origin Number (1)
- hour timing Sports tray Origin number (1)
- balance medical .
- The hall Interior ball The table .
- pregnant tripartite For the camera Number (3)
- speculators ball table Specifications legal Number (10) Type (tibhar).
- balls ball table number (200) Type (stiga).
- table number (4) Type (stiga).
- PRINCO type CDs , number (2)
- tape metallic For measurement Length (3) m .
- device speed Response Japanese Origin .
- A whistle .
- a team the job The assistant .
- Arabic and foreign references
- Personal interviews.

Research Procedures

1. Measurements and Tests Used in the Study

It was completed identification on value variables Search By conducting Tests and measurements Under the study, That's

Using some Devices and tools These are :

- Measurement of Motor Response Speed

It was completed measurement variable speed The response, and that Using device speed Response Japanese Made Type (BATAK MICRO0) , which measures speed The response: This device contains a number of lights that operate on a random system and within specific timeframes. After setting the time, the tester turns off the lights as quickly as possible. The device includes a control panel with the number of touches and the time in minutes or seconds. We time the device according to the established system , after we have set the desired time for conducting the tests, which was one minute. Then, the tester is given one attempt, and the attempt is counted in the test in terms of number and time, and the data of all players in the pre-tests is recorded. Then, the same test is repeated in the post-test, and then the difference between the pre-test and post-test is calculated. The image below illustrates the test method.

Table(2): It shows value coefficient Steadfastness For tests Used By searching .

No.	Tests	coefficient Steadfastness
1	a test speed Response	0.9
2	a test The strike Imamiyyah	0.82
3	a test The strike Background	0.88

*value coefficient Link Tabular (0.70) when degree Freedom (2) and level Significance of (0,5)

1. Objectivity of the Tests

It means Objectivity " liberation " from Bias and fanaticism And not Input Factors Personality In the Issued from researcher from rulings [3]and Find researcher objectivity For tests on Despite from Being clear Easy Understanding from before Individuals Sample on road an offer Tests on group from Experts and specialists so It was completed to choose Tests that I got on higher rate That's To choose it from more from expert Please on being This is amazing Tests Regulated And it depends perhaps units measurement no maybe manipulation In it .

The Main Experiment

It was completed procedure Test Tribal For a sample Search in day Wednesday Dated 24/10/2022 Okay the hour Third In the afternoon , as It was completed adjust all Variables from where the time and tools Devices As well as a team the job assistant To be Applying it When (testing) The postural (i.e. after to implement Curriculum Training It was completed procedure Tests on hall Sabah Al-Karawi Forum in Najaf The most honorable Being suitable To conduct The tests , since He did researcher With the help of a team the job assistant By applying Tests According to sequence situation Preceding , as It was completed a test speed Response Kinetic and registration results Test in form Registration for, and after that It was completed a test skill The strike Imamiyyah Background and photography performance To correct it and its analysis Later .

after Finish from application Tests Tribalism He did researcher By applying Curriculum training Using Exercises Special and start implementing the curriculum on the day Wednesday Dated 26/10/2022, with the following: three units Training Weekly for (8) weeks, And it was done last lonliness Training day Monday, May 1, 2023.

1. Pre-tests
2. Implementation of the Training Program
3. Post-tests

after Finish from to implement The program training It was completed procedure Test The post For a sample The research took into consideration circumstances Time And spatial and means For testing Tribal With the help of a team the job The assistant , was a test speed Response Kinetics , and after that It was completed a test The strike Imamiyyah Background And it was filming Test For the purpose calendar Skills 0

Statistical Tools

The researcher used the socio-statistical toolkit to calculate the following statistical measures:

(Middle) Arithmetic deviation Standard - Median - Coefficient Torsion - Correlation Simple Pearson - T-test for samples (interrelated) .

Presentation, Analysis, and Discussion of the Results

This section includes the presentation, analysis, and discussion of the results of the tests used in the research, namely (the response speed test, the front kick, and the back kick) for the sample in both the pre-test and post-test. The researcher used the (t) test to determine the significance of the differences between the pre-test and post -test for the members of the research sample according to the model. The researcher had sufficient data on the results of the field experiment that he carried out on the experimental group, as the results indicated the existence of significant differences between the pre-test and post-tests and the achievement of tangible progress among the members of the sample as a result of their application of the specific exercises. Therefore, these results were presented in explanatory tables as follows:

The researcher presented the results of the pre- and post-tests for the sample as shown in Table (3), and the results related to response speed were analyzed and discussed .

Table (3) :The variable shows the response speed of the research sample and the model.

Significance	Value of T	Pre-test	Post-test	unit of Variables measurement
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