



Journal of Global Pharma Technology

Available Online at: www.jgpt.co.in

RESEARCH ARTICLE

The Effect of Special Exercises in the Development of Some Sense of Mobility and its Contribution to the Skillful Performance of Futsal Players

Ali Falah Mohamed Hassan, Khalil Hamid Mohammed Ali, Hussein Hassoun Abbas Sahira Aliawi Hussein

University of Kerbala / Faculty of Physical Education and Sport Science/Iraq.

Abstract

The game of football is one of the most popular games in the world and this game enjoys great care and attention everywhere, because it is one of the most popular games in the countries of the world and the characteristics and variables of search of perceptions of sense - motor and the proportion of its contribution to the performance of the skills of football halls. The aim of the letter is to: Prepare exercises in the development of some sense of mobility for football players of the halls. The study hypotheses were: There were significant differences in the results of the Pre and Post measurements and for the two groups of research (control, experimental) and for the sake of distance measurements. There were significant differences in the results of the dimension measurements and the two groups of research (control, experimental) and for the benefit of the experimental group. The problem of research in some of the club exercises was observed. There is a lack of attention to the dimensions that directly affect the performance of the skills, including the cognitive requirements, despite their importance. So the researchers wanted to go into the study of this problem a pilot study was the development of special exercises to develop awareness (sense - motor) and then the extent of his contribution to the development of the skillful performance of the players of football halls. The research community consists of players of the fans club for the sports season (2017-2018) and one of the clubs was chosen by lottery (18 players). The most important sensory movements that contribute to the skillful performance of the Futsal Hall were identified through a questionnaire distributed to specialists and obtained special perceptions (Time and place and ball) the highest ratios and then the tests were chosen for the research and modified one of them to suit the subject and after the homogeneity and the experiment was carried out for two times and then conducted Pretests on the members of the research sample and then was given special exercises for the experimental group and adopted the group الفنا The course was conducted on the trainer's curriculum and lasted for two months and varied methods of giving exercises to fit the best performance and taking into account the training bases and after the tests were carried out in the same conditions as in the Pretests, the fourth section included the presentation of the results and analyzed and discussed by the researchers put them in the tables and which are illustrative means of what came Results of the study in order to identify the validity and conformity of the objectives of the study and its mandate to analyze the reality of the differences between the Pre and Post tests of the two groups as well as the contribution ratios of perceptions sense of movement and skill performance of the post-test MJ Experimental anguish In order to achieve the objectives of the study researcher used the bag statistical (SPSS). Thus to reached several conclusions and recommendations of the most important of which there is a positive influence in the development of dynamic perceptions _football players lounges and two sets of research (experimental, control), but to varying degrees. The experimental group, which adopted the exercise exercises, showed a clear superiority over the control group in all the post-tests. Based on these results, the researchers recommended the following: The recommended exercises should be used to develop the level of awareness of the players of the football player's .And the need for the attention of coaches' players, including the category of applicants to develop the level of perceptions sense - kinetic to meet the requirements of the skills, planning ... Football.

Keywords: Special exercises, Mobility, Contribution, Skillful performance and futsal.

Introduction

The most important feature of the football game of the hall now is to rely on mental

abilities as much as it depends on physical abilities and as most of the skills of the game

consecutive and sequential and require a high level of accuracy in performance, which requires the player to feel and think and recognize and agree between the nervous and muscular system more thoroughly and accurately if we know that These capabilities have a great role in the individual's understanding of and acquisition information and of these capabilities (sense of consciousness - motor), which is responsible for motor actions and interpretation and correct and implementation sense, identifying the components of performance and the environment surrounding it and intended to move[1].

Sometimes we note that the player may have high technical for the performance of different movements, but cannot play during the game at the right time and place as it is sometimes difficult to estimate the good in terms of distance, height, time, direction ... and other variables that govern that the player is not In the hall football, cognitive perception plays an important role in the proper choice of response. This requires the player to be constantly in touch with the information coming from the surrounding environment so that he can interpret it properly. Dimensions that directly affect the performance of skills, including cognitive requirements, despite the importance of the researchers wanted to go into the study of this problem a pilot study development of special exercises for the purpose of developing awareness (sense motor) and then the extent of its contribution to the development of the skilled performance of football players of the halls [2].

Given the nature of the game that requires players to do many different movements and fast during training and match and most of these movements of a quick and sudden nature to perform all the various events in the stadium and in different directions with the ability to change direction quickly and sudden stand, whether using the ball or without, Basically, the main objective of the football coaches of the gyms is how to elect the exercise and how to provide it is one of the important factors for the players according to what they have the capabilities and which is the key and evidence of what this player wants to practice accurate performance during training or even during the to compete, which can help him to

develop his performance to remain at the highest level of skill distinct, which is the result of the development of perception (sense - motor) and built on previous experiences, which is one of the important factors to implement the movement or skill or a degree of proficiency that these principles should be known by on the training process for its importance when training for movements or skills because it represents the correct basis for the trainee, the importance of the study in terms of being trying through the exercises elected in accordance with educational and scientific principles as well as the difficulty and ease and progress in the transition between exercises, And the ability to develop skills to improve the skills of the players in a better way than the conventional methods, as well as the special exercises that the researchers have developed to help the player perform the training better[3].

Research Objectives

- Preparation of special exercises in the development of some sense of mobility players of the club sports fans of football for the seasons of the sports season 2017 2018
- To recognize the impact of special exercises in the development of some sense of mobility for football players of the halls.
- Recognition of the effectively and the two groups (control, experimentation) in the development of some sense of mobility for football players of the halls
- Recognition of the proportion of the contribution of sensory perceptions in the performance of the skills of futsal players.

Research Hypotheses

- There are significant differences in the results of the Pre and Post measurements and the two groups of research (control, experimental) and for the benefit of Post measurements.
- There are significant differences in the results of the Pre and Post measurements and the two groups of research (control, experimental) and for the benefit of the experimental group.
- Sensory-motor perceptions have a significant contribution to the athletic performance of the football offense.

Research Methodology and Field Operations

Research Methodology

The researchers used the experimental

approach by using the design of the two control and experimental groups that are more suitable for the research objectives and hypotheses.

Table 1: Shows the experimental design adopted in the search

s	Group name	Pretest	Independent variable	Posttest
1	Control group	1. Hit the ball to two rectangular overlapping 3 × 2 m and 1 × 2 m painted on the wall at 9 m(the average)	Exercises prepared by the coach	1. Hit the ball to two rectangular overlapping 3×2 m and 1×2 m painted on the wall at 9 m (the average)
2	Experimental	Measurement of the ability to recognize the actual time of the performance of the runner of the first person of the second and the player blindfolded sense perception - dynamic sense of the ball between the characters	Exercises prepared by the researcher	2. Measurement of the ability to recognize the actual time of the performance of the runner of the first person of the second and the player blindfolded 3. sense perception - dynamic sense of the ball between the characters

Community and Sample Search

The research community consists of members of the fans club for the sports season (2017-2018) as shown in Table (3). The researchers selected one of the clubs by drawing lots (18 players), which represented 25% of the research community. The researcher divided

the sample into two groups (experimental and control) and 9 players for each group. Including the distance from the place of training and the difficulty of commitment to the place and time of training and the repeated absence from training, the lack of permission of trainers for their lack of physical fitness.

Table 2: Shows the distribution of the community members and the sample of the research

s	Club Name	Research community	The research sample	Sample of the pilot study
1	Algatheria	18	4	2
2	Algamaheer	18	8	2
3	Alhuria	18	5	1
4	Alhussinia	18	1	3
	Total	72	18	8

Sample Homogeneity

In order for the sample to be homogeneous, which has a direct effect on the accuracy and

accuracy of the results, the researcher extracted the torsion coefficient in some variables (age, height, weight, age, and training)

Table 3: The homogeneity of the research sample is shown in some of the variables under study

\mathbf{s}	Variables	Measuring unit	Mean	Median	STD.EV.	Skewness
1	Age	Year	22.76	23.00	1.96	0.06
2	Weight	Kg	60.23	59.00	4.76	0.15
3	Length	cm	167.6	167.0	3.44	0.20
4	The training age	Year	4.076	4.00	1.03	0.35

Table (3) shows that the values of the splicing factor are less than (+ - 3), which indicates the satisfaction of individuals and the sample of the research in these variables.

Research Tools, Devices, Tools and Means Used

In order to achieve the field research procedures, the researcher used many different research tools to ensure obtaining accurate and accurate data for the implementation of the research requirements, including:

Means of Research (Means of Collecting Information)

- Arab and foreign references and sources.
- Data registration form (recording the results of the tests used in the study).

- Data release form (for unloading data from the registration form).
- Statistical means.
- Tests and measurements.
- International Information Network (Internet).

Machines and Tools Used

- Private football court.
- Balls of legal courts number (10) type MIKASA.
- Plastic figures (20).
- A whistle number (2).
- Electronic stopwatch (1/100) second, type RS German-made number 2.
- Metal measuring tapes length (25) m.

• Computer type ASUS.

- Weight measuring device.
- Sony type camera.

Field Research Procedures

Determination of sports perceptions of football for the gymnasiums and screening of tests:

Define the Sense of Football for the Gyms

In order to define the perceptions of the gymnasts of the gymnasiums, researchers surveyed scientific references, research and studies in the field of tests, football, measurement and where questionnaire was distributed to a group of experts [4]. The researcher used the percentage law to identify the most important the percentage of agreement as shown in the table below (Table 4).

Table 4: the consensus of experts and specialists on the identification of psychometric tests that have been agreed

upon by experts and specialists

\mathbf{s}	Perceptions of movement	Number of experts and specialists	The number of agreed opinions of experts and specialists	Percentage
1	Sense of place	13	13	100%
2	The sense of time	13	13	100%
3	The sensation of the ball	13	12	92.30%

Selected Tests for club-sense Aerobics:

After analyzing the content of references, studies and scientific research on the football of the halls, the necessary tests were adopted to measure the sense of mobility of futsal players and the design of a questionnaire presented to a group of experts and specialists [5].

Table 5: The percentages of the experts' agreement show the most important tests of sports perceptions of football

Percentage	Percentage Number of Agreed Environments		The tests are designed	Sensory perceptions
100%	Experts 13	13	The ball was hit into two intertwined rectangles 3 x 2 m and 1 x 2 m painted on the wall at 9 m	Sense of place
92.30%	12	13	(the average)	The sense of time
92.30%	12	13	Measuring the ability to perceive the actual time of the running performance of the first person of the second and the player blindfolded	The sensation of the ball

The Scientific Foundations of the Tests Sincerity Test

Researchers used (truthfulness of content, truthfulness of discrimination).

First: Virtual Validity

Content is one of the most common types of Validity in the field of physical education and sports sciences. The specific tests have gained a measure of the sense of kinetics of this kind of Validity during its presentation to a group of experienced and specialized in physical education and sports sciences within the competence of testing and measurement.

Second: Validity and Excellence

Using this kind of Validity to determine the efficiency of the tests designed to distinguish between the high and low-level group, the researcher arranged the raw scores obtained by the 20 sample individuals in descending order, 33% (33%) of the lowest scores and represented (20) players for both the upper and lower groups. Thus, the test t (test) was

used for independent samples between the upper and lower groups and by comparing them with the value of (t) + N - 2 = 32 + 32 - 2 = 62 and the amount (2.2) and the level of significance (0.05), as it appears that this test is distinguished because its calculated value is greater than its tabular value.

For the purpose of extracting the objectivity of the test for the measurement of sensory-

motor perceptions, the researchers relied on

the judgment of the researcher. If the

researcher evaluates the values of the

Pearson correlation between the values of the

first sentence and the second sentence, the

correlation value (0.862) and the relationship

of the first sentence with the researcher

reached 0.873 The relationship of the second

judgment with the researcher, which reached

the value of the correlation (0.868) and

coefficients, requires the researcher that all

the values of the correlation

Table 6: Indicates the calculated value of the coefficient of discrimination

Tests	Sample	Group	Mean	STD.EV.	Standard error	(t) calculate	Level of significance	Statistical significance
Sense of	8	High	3.600	0.699	0.221	7.504	0.000	a.
place	8	Minimum	1.500	0.527	0.166	7.584	0.000	Sig.
Sense of	8	High	5.584	0.210	0.066	8.799	0.000	Ci.a
time	8	Minimum	6.514	0.259	0.082	0.199	0.000	Sig.
The feeling	8	High	5.596	0.229	0.072	0.004	0.000	a:
of the ball	8	Minimum	6.273	0.215	0.068	6.804	0.000	Sig.

Stability Test

In order to determine the stability of the results of the tests, the researcher carried out the tests on the pilot sample of 8 players on Thursday, 22/3/2018, thus returning the test after seven days .Any date 29/3/2018 with all the variables and conditions for the first test. The researcher examined the data of the two tests by finding the simple correlation coefficient Pearson. The results showed that there is a high correlation relationship (880), which confirms the stability of the test [6].

Objectivity Testing

Tabl	,		pero	ceptions have a	a high objectiv	rity [7].
S	Tests	Correlation number	Moral significance	Correlation number	Relation	Statistical significance
1	The ball was hit into two intertwined rectangles 3 x 2 m and 1 x 2 m painted on the wall at 9 m	0.862	Sig.	0.862 0.873 0.868	Ruling first with a second judgment	Sig.
2	Measuring the ability to perceive the actual time of the running performance of the first person of the second and the player blindfolded	0.873	Sig.	0.902 0.925 0.899	Ruling first with the researcher	Sig.
3	Sensory sense - dynamic ball-feeling among	0.868	Sig.	0.848 0.859 0.868	A second rule with the	Sig.

through

Validity of Tests

That one of the objectives and purposes of the exploratory experiment is to analyze the vocabulary of the tests in order to select the appropriate and the good ones, and this process requires taking into account two main aspects: (1)

• The level of difficulty and ease of testing for those who will apply the test them within the members of the research sample. • The ability (strength) of the test to identify the ability of the test in the differentiation between the levels of the extreme sample.

Level of Ease and Difficulty of Testing

In order to determine the level of ease of testing and its difficulty and how to distribute their results, the researcher sought to extract the values of the torsion coefficient for the tests applied to the sample of the sample (20) players and the adoption of the results of the second application and to identify the distribution of the sample in each test subjected to him and the detection of the distribution moderation through the value (2). This indicates the suitability of the tests for the level of the sample. The results showed that all the values of the torsion coefficient were zero and did not exceed (± 1). Table (8) shows this.

Table 8: The descriptive statistics indicators show the variables of sensory perceptions to determine the level of ease and difficulty of tests

			×	70		Descriptiv	cale	Ñ	Dia N	
Variables	S	Tests	Measuring unit	Sample	Mean	Median	STD.EV.	Standard error	Skewness	Nature of Sample Distribution
Sensory-kinetic perceptions	1	Sensory- kinetic perception test	Degree	8	2.533	2.500	1.041	0.190	0.298	equinoctial
	2	Sensory- motor perception test in time	A second	8	6.034	6.020	0.432	0.078	0.154	equinoctial
Senso	3	Sensory- motor sense test	A second	8	5.951	6.000	0.334	0.061	-0.186	equinoctial

Characterization of Tests

Tests used in Research

The First Test: the Correction on the two Overlapping Rectangles and the Player Blindfolded

Purpose of the test: measurement of sense of kinetic (linked to the place).

Performance Specification: The player stands behind a line 9 m away from the wall of the two rectangular rectangles (3 mx 2 m) (2 m \times 1 m). He places the ball in front of him. He sees the rectangles for a maximum of 5 seconds and appreciates the distance well. , And when the start signal is heard, the correction starts from the stability so that it tries to hit the shaded area outside the inner rectangle [8].

Second test: Sensory perception test dynamic in time

Purpose of the test: measuring the ability to recognize the actual time of performance.

Tools used: Stopwatch _ Plastic figures _ Football halls _ Phosphory tape_ eye ring.

The test specification is placed on the starting line, which is 15 m away from the finish line and displaying the test area 4 m. The player is behind the starting line, and then the laboratory is required to retrieve the performance time mentally so as to match the actual performance time, then put the ring of eyes and roll the ball to the prescribed distance.

The third test: sense perception - dynamic ball-sense between the characters.

Test Specification: The player rolls between 5 meters after hearing the start signal and asks the player to hold the ball for as long as possible and the player closes the eyes and rolls the ball after hearing the starting signal from the beginning and end of the character.[9]

Pre Tests

The experimental tests were conducted for the research sample and for all the research variables. The two groups gave information about the test prior to implementation for the purpose of defining the players. The tests were explained for the sense of kinetics and how they were applied. The Pretest took place on Tuesday, 31/4/2018. The two groups of research: One of the important things that should be followed by the researcher is to return the differences to the empirical factor and on this basis must be the two sets of research (control. experimental) equivalent in the search variables research under study, "Each researcher must form at least equal groups With regard to variables that are related to research "[] under study," each researcher should create at least equal groups in relation to variables related to research.

Basic Experience

Basic Experience Procedures

After reviewing the sources and scientific references, the researchers prepared a training program using aids to develop the dynamic perceptions of the football players of the gymnasium. The experimental group included the performance of the training program with 3 training units per week for two months. The experimental group carried out 24 units the training module included three sections (the introductory section, the main section, the final section). The training intensity was used in performance (85% / 100%) and as soon as possible. The training program included 24exercises.

researcher took care of the regularity of players in training and HAMMAL TRAINING The control group was under the supervision of the coach. [10] and his own curriculum. The program includes the following training program:

- The date of starting the exercise on Wednesday, 2/5/2018.
- Exercises were applied in the special numbers stage.
- The duration of the experiment was set at (8) weeks distributed over (24) training units at the rate of three units per week.
- Use the researcher intensity of between (85-100%).
- The researcher used the method of high frequency and repetitive training.
- The date of the end of the experiment on Monday, 25/6/2018.

Posttests of the Research Sample

The tests were carried out during the days of Wednesday and Thursday, 4-5 / 7/2018, and at 5 pm on the Olympic Hall in the province of Karbala, has been observed the conditions of implementation of these tests and instructions under the same conditions and possibilities available and used in Pre tests

View, Analyze, and Discuss Results

Table 9: Shows the arithmetic, standard deviations, class differences, the calculated value of t and the level of significance between the Pre and Post tests of the control group

	Measuring unit	Pı	re	P	ost	1	Т		Type of
Variables		Mean	STD.EV.	Mean	STD.EV.	Differences of media	The value of(t) calculated	Level of significance	significance
Sense of place	Degree	3.000	0.816	5.571	0.534	2.571	12.010	0.000	Sig.
Sense of time	A second	5.215	0.933	4.712	0.952	0.503	4.646	0.004	Sig.
The feeling of the ball	A second	5.721	1.166	5.304	0.763	0.417	1.944	0.100	Non sig.

Table (9) shows the average differences and the value of t calculated between the pre and posttests of the control group in the results of the tests of the variable sense of kinetics of the place and through the statistical treatment of the data using the t. test test indicating the significance of the differences between the pre- In the sense-motor variable, place the control group and for the post-test [11].

Presentation of Test Results (t. test) between the Pre and Post Tests of the

Sensory Variables of the Experimental Group and Analyze Them

Table 10: Shows the arithmetic, standard deviations, class differences, the calculated value (t) and the level of significance between the Pre and Post tests of the experimental group

		P	Pre		Post			70	70
Variables	Measuring unit	Mean	STD.EV.	Mean	STD.EV.	Differences of media	The value of(t) calculated	Level of significance	Type of significance
Sense of place	Degree	2.857	0.899	6.714	1.112	3.857	14.789	0000	Sig.
Sense of time	A second	5.427	0.827	3.571	0.534	1.856	7.760	0000	Sig.
The feeling of the ball	A second	5.600	0.316	7.285	0.755	1.685	4.213	0.006	Non sig.

Table (10) shows that the mean differences and the value of (t) calculated between the pre and post tests of the experimental group in the results of the tests of the variable sense of kinetics of the place and through the treatment of the statistical data using the t.test test showed the significance of the differences between the pre- In the sensemotor variable, place the experimental group and for the post-test.

Discuss the Results of the t. test between the Pre and Post Tests and the Two Groups of Research (Control, Experimental):

The researchers point out that this is a natural result of the direct focus on mental processes, as training is implicit mental training. This indicates that training scientists and any movement is a mental exercise, and that the training processes may not deal with these concepts accurately, but rather The focus on the mechanism of

physical implementation more than on the mental processes, adding that the sample of the research are the players advanced and the result of their assessment of the time is good but not high level and because the perception of sense - time is a complex process and as a result you need to experience and extensive knowledge in this area, The superiority of which appeared in the results of tests of Pre and dimensionality in the same group in the sense of perception which amounted to moral significance came as the researchers see the level of adaptation and Internalization between the player and the dimensions of the pitch and goal.[12]

View, Analyze and Discuss the Results of the Post Tests between the Two Groups (Control, Experimental)

Display the results of the t. test for the Post tests and for the two groups (control, experimental) and analysis.

Table 11

	I	Pre		Po	Post			S.	si.
Variables	Measuring unit	Mean	STD.EV.	Mean	STD.EV.	Differences of media	The value of(t) calculated	Level of significance	Type of ignificance
Sense of place	Degree	0.534	6.714	1.112	0.202	0.420	2.449	0.031	Sig.
Sense of time	A second	0.952	3.571	0.534	0.359	0.202	2.765	0.017	Sig.
The feeling of the ball	A second	0.763	7.285	0.755	0.288	0.285	4.878	0.000	Non sig.

Discuss the Results of the T. test test for the Post Tests and for the Two Research Groups (Control, Experimental)

Based on the results presented in Table (11) between the differences in the computational and standard deviations of the sensorimotor variables in the Post tests and the control and experimental groups .The comparison between the Post tests of the control and

experimental groups shows that there are significant differences for the experimental group in the kinetic variables (Sense-sense of the place, perception of the sense-sense of time, cognitive perception - kinetic ball) was referring to the great moral development and for the benefit of the experimental group [13]. It is clear to us that the exercises that were developed for this purpose and implemented

with the experimental group accompanied by the aids are exercises aimed directly to develop the capabilities of perception of sense of movement in addition to the time and the ball and therefore the results of the search were identical with the hypotheses in most of the details of the research does not mean that the control group did not There is a development, but this development did not reach the moral as compared to the experimental as it is clear that these differences through came the prior understanding and understanding of all places and then dealing with them through the general exercises that were applied to the control group, especially that the players are category an offering [14].

As for the variable of time, we find this to the exercises and the facilitative assistance, in which the researcher focused on developing the player's awareness of time through the performance of complex exercises or the integration of two skills (rolling and scoring on a goal divided into squares during the period of fat and also repeat the performance and give the player information during the end of the performance.

The attempt, and the moral perception in the perception of sense - time, because the factor of time is the rate of development in parts of the second [15]. And for the importance of sensations of mobility for football players, including futsal and for many considerations, including the preparation of the players, the small area of the stadium, the pitch, which requires the trainer-based exercise to select carefully to contribute to the development of perceptions of the sense of mobility and its positive effects in the knowledge "The inability to accurately determine the place is one of the main reasons for the lack of scoring goals and the precise passing of the

References

- 1. Mohammed Jassim Al-Yasiri (1995) Building and Standardizing the Fitness Test Battery for the Selection of Youths (10-12 years), PhD Thesis, College of Physical Education, University of Baghdad, 105.
- 2. Wadih Yassin, Hassan Mohamed (1999) Statistical Applications and Computer Applications in Physical Education

ball and the difficulty of maneuver to acquire it with the inability to calculate the movement of players [16].

As for the sense of movement of the ball and despite the development of both groups, but the figures indicate the superiority of the experimental group and explain that is the quality of the exercises and the means that have been developed, which made the players and the level of feeling of the ball and eye and rolling of the foot stability on the ball installed at the top of the base It requires a special kind of cognition, known as the sense of the ball, it helps the player to agree his with the ball movements characteristics and is related to the accuracy of the ball's recognition and weight and shape and the strength of handling or correction and speed and height, The player is allowed, when handling or aiming, to locate them as well as their height, and to be able to control and stop the ball "[17].

Conclusions

- The means of assisting in raising the level of sensory awareness, as well as increasing the practice and training of the players.
- The proposed exercises have contributed to raising the level of sense of mobility and raising the ability to think and stimulate motivation towards exercise.
- The proposed exercises were suitable for the age of the research sample, which was shown by the differences in the statistical results of the research.
- The diversity of practice in exercise plays a large and effective role in the development of sense-motor perceptions and the enhancement of the performance of offensive skills.
 - Research, Mosul, Dar Al Kut Books and Publishing, 166.
- 3. Van Dalin (Translation) Mohamed Nabil et al (1985) Curricula of Scientific Research in Training and Psychology, I4, Cairo, The Anglo-Egyptian Library of Printing and Publishing, 47.
- 4. Blake AJ, Morgan K, Bendall MJ, et al (1988) Falls by elderly people at home:

- prevalence and associated factors. Age Ageing, 17: 365-372.
- 5. Sattin RW (1992) Falls among older persons: a public health perspective. Annu Rnl Public Health, 13:489-508.
- 6. Campbell AJ, Borrie MJ, Spears GF (1989) Risk factors for falls in a community-based prospective study of people 70 years and older. J hnlol., 44: M112-M117.
- 7. Whipple RH, Wolfson LI, Amerman PM (1987) The relationship of knee and ankle weakness to falls in nursing home residents: an isokinetic study. J. Am Geriatr Sor., 35: 13-20.
- 8. Guralnik JM, Ferrucci L, Simonsick E, et al (1995) Lower-extremity function in persons over the age of 70 years as a predictor of subsequent disability. N. Engl. J. Med., 332: 556-561.
- 9. Crilly RG, Willems DA, Trenhold KJ, et al (1989) Effect of exercise on postural sway in the elderly. Gerontology, 35: 137-143.
- 10. Binder EF, Schechtman KB, Ehsani AA, Steger-May K, Brown M, Sinacore DR, et al (2002) Effects of exercise training on frailty in community-dwelling older adults: Results of a randomized, controlled trial. J Am Geriatr Soc., 50(12):1921-8. doi: 10.1046/j.1532-5415.2002.50601.
- 11. Inokuchi S, Matsusaka N, Hayashi T, Shindo H (2007) Feasibility and effectiveness of a nurse-led community exercise programme for prevention of falls among frail elderly people: A multi-centre controlled trial. J. Rehabil. Med., 39(6):479-85.
- 12. Ram FS, Robinson SM, Black PN (2000) Effects of physical training in asthma: A systematic review. Br J Sports Med., 34(3):162-7. doi: 10.1136/bjsm.34.3.162.

- 13. Peri K, Kerse N, Robinson E, Parsons M, Parsons J, Latham N (2008) Does functionally based activity make a difference to health status and mobility? A randomised controlled trial in residential care facilities (The Promoting Independent Living Study; PILS) Age Ageing, 37(1):57-63. doi: 10.1093/ageing/afm135.
- 14. Fairhall N, Sherrington C, Lord SR, Kurrle SE, Langron C, Lockwood K, et al (2014) Effect of a multi factorial, interdisciplinary intervention on risk factors for falls and fall rate in frail older people: a randomised controlled trial. Age Ageing, 43(5):616-22. doi: 10.1093/ ageing/aft204.
- 15. Villareal DT, Smith GI, Sinacore DR, Shah K, Mittendorfer B (2011) Regular multi component exercise increases physical fitness and muscle protein anabolism in frail, obese, older adults. Obesity (Silver Spring) 19(2):312-8. doi: 10.1038/ oby. 2010.110.
- 16. Campbell WW, Crim MC, Young VR, Evans WJ (1994) Increased energy requirements and changes in body composition with resistance training in older adults. Am J. Clin Nutr., 60(2):167-75.
- 17. Henry KD, Rosemond C, Eckert LB (1999) Effect of number of home exercises on compliance and performance in adults over 65 years of age. Phys Ther., 79(3):270-7.