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The Effect Of Preventive Physical Exercises Supported By Collagen Supplements And Vitamin D In Improving Some Of The Physical And Skill Abilities Of Handball Players

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Abstract

The purpose of this paper is to preparing preventive exercises supported by collagen supplements and vitamin D for handball players, and identify the effect of preventive physical exercises supported by collagen supplements and vitamin D on some physical and skill abilities of handball players. The researchers used the experimental method and designed two groups, one experimental and the other control, with both pre- and post-tests, to suit the nature of the research. The research community was selected from handball players (specialized school players), numbering (14), and they were divided into two groups, each group numbering (7) players. One of the most important results reached by the researcher is that: The exercises prepared by the researchers have a clear positive effect on the physical and skill abilities under study, prepared physical exercises have a clear positive effect on the physical abilities under study ,and preventive physical exercises have a clear effect on the physical and skill abilities under study. One of the most important recommendations recommended by the researchers is that: Adopting preventive physical exercises prepared by training researchers, and adopting preventive physical exercises to reduce injuries that players may be exposed to preventive physical exercises- collagen supplements- vitamin D in improving

Introduction:

The use of human and applied sciences in the sports field, primarily physiology, anatomy, sports medicine, biomechanics, and sports psychology, has led to the advancement of games and activities.

These sciences have a major and important role in revealing many matters related to the daily life of individuals, as well as the privacy of the athlete in studies of sports injuries, how to deal with them, and methods of treating and preventing them.

As a result of the ra[1]pid and clear development in the field of training and its methods and the increase in the intensity of training loads to achieve achievements, regardless of the interest in athletes and what they may be exposed to as a result of this increase, as well as what is caused by the infrastructure of training halls, which may make athletes vulnerable to sports injuries.

Injury prevention is the first line of defense for dealing with injuries, and the main goal of sports medicine is to reduce the possibility of various muscular injuries occurring through a group of procedures and modern methods to reduce the injury rate and

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raise the physical level and fitness of players in addition to showing muscular force. Muscular force and its exercises are the cornerstone of any training, preventive, and physical program

The importance of the research lies in an attempt by researchers to find appropriate solutions to raise the level of training for players by using the interaction between sports sciences (sports medicine and sports training) to limit the injuries that may happen to players as a result of lack of attention to the prepared training programs, as well as increasing training loads and clearly staying away from prevention. The athlete's body and muscles suffer from injuries.

Research problem:

Recently, as players may be exposed to injuries that may prevent their optimal performance in training or at events, and this may be due to many reasons, researchers have tried to identify or limit those reasons and find appropriate solutions by conducting this research, as the research problem was represented by answering the following questions:

- The first question: What is the role of preventive physical exercises in reducing injuries and improving the physical and skill abilities of handball players?
- The second question: Does preventive physical exercise supported by collagen and vitamin D supplements have a clear role in improving the physical and skill abilities of handball players?

Research objective:

- Preparing preventive exercises supported by collagen supplements and vitamin D for handball players.
- Identify the effect of preventive physical exercises supported by collagen supplements and vitamin D on some physical and skill abilities of handball players.

Research hypotheses:

- There are no statistically significant differences between the pre- and post-tests in some physical and skill abilities of handball players.
- There are no statistically significant differences between the post-tests in some skill abilities of handball players

Research fields:

- Human field: A sample of players from the Specialized Handball School (14) players.
- field: (10/6/2023) to (2/8/2023)
- Spatial field: The internal hall of the handball specialist school.

Research methodology and field procedures:

Research Methodology:

The researchers used the experimental method and designed two groups, one experimental and the other control, with both pre- and post-tests, to suit the nature of the research.

Community and sample research:

The research community was selected from handball players (specialized school players), numbering (14), and they were divided into two groups, each group numbering (7) players.
The first group (experimental group) consists of (7) players.
The second group (control group) consists of (7) players.
The researchers conducted homogeneity in the following variables (Length, weight, age)

Table (1) shows the homogeneity of the research sample in variables (Length, weight, age)

Variables	Mean	Median	Std. Deviations	Skewness
Length	175.29	3.646	0.0078	0.378
Age	16.231	16.41	0.078	0.378
weight	62.71	7.01	00067	0.602
Training age	4.29	1.434	1.108	0.322

The values of the skewness coefficient are limited to (±1), which indicates that the sample is moderately distributed

Tools, devices, and means of collecting data:

- A device to measure weight and height.
- Arab and foreign sources and references.
- Legal handballs (20).
- Handball goals.
- Handball court.
- Hp laptop (1).
- Rubber ropes of different sizes.

Skill and physical tests used in the research:-

- First: Testing defensive movements forward and backward (Al-Jubouri and Almousawi . 2020)
- Second: Testing various defensive moves (Almousawi. 2022)
- Third: Testing defensive moves to cover the lightning attack (Mohamed and Abdel Qader, 2008, 40)
- Fourth: Explosive force test (arms). (M. A. J. S. Q. S. A. and Dr. Najah Mahdi Shalash . 2021)
- Fifth: Explosive force test (both legs). (Hasan, and Shbeeb , 2021)
- Sixth: Testing force characterized by speed (two arms) (Mubarak, Badawi,and Abdul-Hussein. 2023)
- Seventh: Test of force distinguished by speed (two legs) (Musa, D. S. ,2020))

Exploratory experience:

The exploratory experiment was conducted on a sample of (3) players from outside the research sample on 5/6/2023. The purposes of the exploratory experiment were defined as following:

- Identify the time required to conduct tests.
- Identifying the efficiency of the assistant work team.
- Extent of players' ability to perform tests.
- suitability of the exercises prepared for the research sample

Pre-tests:

The pre-tests were conducted on June 10-11, 2023 on the research sample. On June 10, 2023, tests were conducted for physical abilities, and on June 11, 2023, tests were conducted for defensive skills, with an emphasis on taking into account the temporal and spatial conditions for the pre-tests and specifying them for the post-tests.

Exercises used in the curriculum:-

After reviewing Arab and foreign sources and references and taking the opinions of experts and specialists in sports training and the physiology of sports training and handball, physical and preventive exercises were prepared, with the goals of developing some

physical and skill abilities and an attempt to reduce injuries among handball players, as (18) training units were prepared and in reality (3) Units per week and the time of the training-preventive unit (90) minutes (40-45) minutes Preventive exercises to reduce injuries, including exercises to warm up the muscles, stretch them, and prepare them for the main section in The training units began from 14/6/2023 until 7/31/2023, and a week was compensated aid is included in the period , the following matters were taken into account during the training units: (Rashid & Neamah, 2021)

- Adopting the principle of gradation from easy to difficult.
- Taking into account the diversity of exercises used within the training unit to prevent boredom and when conducting research
- The prepared exercises were implemented by the assistant work team and under the supervision of the researchers

Regarding accompanying supplements. Preventive physical exercises and their use times have been determined. The doses are determined by the specialist doctor and according to the players' needs, as for the collagen supplement, its dosage is determined by the specialist doctor. Once a day before bed, on an empty stomach, at a concentration of 100 milligrams, but regarding Vitamin D. If the dose is determined, one tablet Category 5000 milligrams per week.

Post-tests:

The post-tests were conducted on August 1-2, 2023. The physical tests were conducted on August 1, 2023, and the skill tests were conducted on August 2, 2023, taking into account the same control and spatial conditions as the pre-tests to take the appropriate position to block the ball. Oral collagen works on it accumulates in cartilage tissue and is well treated. These results indicate mechanisms that may help patients affected by joint disorders without resorting to the installation of artificial joints. Collagen dietary supplementation is considered a safe method if it is given at a rate of about 10:12 grams per day for a period of about (4) weeks, which is Availability of improvement in some measures of pain management and improvement of joint function in some men and women with osteoarthritis.

Results and discussion:

Presentation, analysis and discussion of the results of the cardiac and physical tests for the experimental and control group:

Presentation and analysis of the results of the pre- and post-tests of the experimental group for the physical abilities under research:

Table (2) shows the arithmetic means, standard deviations, and T-value for the pre- and post-tests for the experimental group of physical abilities under study.

Physical abilities	Pre-test		Post-test		Arithmetic mean of difference	T value calculated	Level Sig	Type Sig
	Mean	standard deviation	Mean	standard deviation				
Explosive force of the arms	6.537	0.887	7.625	0.7440	1.087	5.800	0.000	Sig
Explosive force of the two legs	1.836	0.071	1.965	0.7191	0.128	9.892	0.001	Sig

Force characterized by speed for the arms	7.250	3.011	11.12	3.136	3.875	17.102	0.001	Sig
Force characterized by speed for the legs	6.258	1.323	4.837	0.465	1.447	3.888	0.001	Sig

Significant below a significance level of ≥ 0.05 and below a degree of freedom of 6

Presentation and analysis of the results of the experimental group's cardiac and physical tests and their analysis of the defensive skills in handball:

Table (3) shows the results of the pre- and post-tests of the experimental group and their analysis of defensive skills in handball

Defensive skills	Pre-test		Post-test		Arithmetic mean of difference	Standard deviation of differences	arithmetic mean of difference	Level Sig	Type Sig
	Mean	standard deviation	Mean	standard deviation					
Defensive movements forward and backward	15.56	0.97	18.000	0.57	2.428	0.976	6.58	0.000	Sig
Various defensive moves	5.52	0.78	7.86	0.9	2.281	0.951	6.35	0.002	Sig
Defense against attack	15.000	1.32	13.02	0.91	1.800	1.07	4.46	0.004	Sig

Presentation and analyzing the results of cardiac and physical tests for the control group for physical abilities may be researched:

Table (4) shows the arithmetic means, standard deviations, and T-values of the pre- and post-tests for the control group in physical abilities.

Physical abilities	Pre-test		Post-test		Arithmetic mean of difference	Standard deviation of differences	T value calculated	Level Sig	Type Sig
	Mean	standard deviation	Mean	standard deviation					
Explosive force of the arms	6.55	1.110	6.967	0.993	0.4175	0.273	4.311	0.001	Sig
Explosive force of the two legs	1.827	0.064	1.913	0.0564	0.0862	0.0373	6.254	0.024	Sig

Force characterized by speed for the arms	11.125	3.136	8.375	2.445	2.7500	3.0118	2.582	0.032	Sig
Force characterized by speed for the legs	6.151	0.604	5.300	0.295	0.851	0.449	5.353	0.002	Sig

Significant below a significance level of ≥ 0.05 and below a degree of freedom of 6

Table (5) shows the arithmetic means, standard deviations, and T-values of the pre- and post-tests of defensive skills for the control group in defensive skills.

Defensive skills	Pre-test		Post-test		Arithmetic mean of difference	Standard deviation of differences	arithmetic mean of difference	Level Sig	Type Sig
	Mean	standard deviation	Mean	standard deviation					
Defensive movements forward and backward	17.43	1.512	16.52	1.272	0.91	0.857	1.291	0.123	Non sig
Various defensive moves	6.43	0.972	6.42	0.787	0.001	1.414	0.000	0.614	Non sig
Defense against attack	14.41	1.38	14.72	1.16	0.314	1.613	0.515	0.621	Non sig

Significant below a significance level of ≥ 0.05 and below a degree of freedom of 6

Presentation, analysis, and discussion of the results of post-tests of physical abilities for the control and experimental groups:

Table (6) shows the arithmetic means, standard deviations, and T-values for the post-tests of physical abilities for the control and experimental groups.

Physical abilities	Experimental group		Control group		T value calculated	Level Sig	Type Sig
	Mean	standard deviation	Mean	standard deviation			
Explosive force of the arms	7.625	0.7440	6.967	0.993	4.311	0.004	Sig
Explosive force of the two legs	1.965	0.7191	1.913	0.0564	6.254	0.000	Sig

Force characterized by speed for the arms	11.12	3.136	8.375	2.445	2.582	0.036	Sig
Force characterized by speed for the legs	4.835	0.465	5.300	0.295	5.350	0.001	Sig

Significant below a significance level of ≥ 0.05 and below 12 degrees of freedom

Table (7) shows the arithmetic means, standard deviations, and T-values for the post-tests of defensive skills for the control and experimental groups.

Defensive skills	Experimental group		Control group		T value calculated	Level Sig	Type Sig
	Mean	standard deviation	Mean	standard deviation			
Defensive movements forward and backward	18.00	0.57	16.52	1.272	2.705	0.019	Sig
Various defensive moves	7.86	0.9	6.42	0.787	3.162	0.008	Sig
Defense against attack	13.02	0.91	14.72	1.16	2.725	0.012	Sig

Significant below a significance level of ≥ 0.05 and below 12 degrees of freedom

Discussing the results of the differences between the post-tests for the experimental and control groups:

Through Tables (2) (4) (6), the researchers attribute the significant differences of the post-tests in the physical abilities under study to the nature of the exercises that were then prepared by the researchers, which are physical - preventive exercises, as well as compensating for the deficiency of the sample members (the experimental group) in supplements. Diet and both according to the needs of the sample members. Physical exercises combined with defensive movements had a clear impact on physical abilities. Under research, it is a mistake to believe that developing the physical aspect cannot be isolated from the skill aspects. The exercises that were prepared were intended to develop the muscle groups working in the game, and more importantly, to ensure and prepare groups with kinetic skills similar to performance in the game of handball. Therefore, the researcher paved the way for the preparation of physical exercises. Preventatively, then incorporate physical exercise (Explosive force with defensive movements during the special preparation period or through exercises related to game skills, as those who think that there is an advantage in developing physical abilities - and developing kinetic skills) are mistaken. (Iqbal Abdul Hussein Neamah, W. H. K. . 2021). There may be many models in the world for sustainable universities, but Iraq's exceptional circumstances require networking elements of developmental change with sustainable development capital in universities to shorten the distance and time pressure to achieve development indicators needed by universities as well as society and to have positive impacts.

Continuous training in defensive skills is considered an important factor and the basis for the players' defense to be highly effective during matches, and thus the foundations for solving complex defensive duties and implementing them using different defensive methods are built upon them according to the players' different positions, and this is consistent with what was mentioned by (Rashid , Neamah , 2022). In addition, the nature of sports work, which requires continuous interaction between players and their cooperation together, gives clarity about the extent of their awareness and awareness in implementing what is required of them (Abd Zaid & Neamah, 2021). The good use of activities and exercises in the game of handball has several advantages and fruitful benefits, as it stimulates motivation and attraction and contributes to overcoming the factor of stress and psychological pressure that hinders the learning of skills for many players (Kreem & Neamah, 2021).

Good performance of kinetic skills, as well as good tactical thinking, does not lead to success in implementation unless it relies to a large extent on the required physical abilities . In addition to the defensive skills, and this is consistent with what (Jamil Qasim and Ahmed Khamis Radhi) mentioned, defenders must recognize early the intention of the attacker who is performing the training exercise, and this diversity in training through the training units implemented by the players is what created the adaptations to perform the skills proficiently. (Hadeel Talib Mohammed, & Dr. Suhad Qassim Saeed. 2021) Training produces changes as a temporary response to the performance of physical activity (Badwi , Almousawi ,& Mousa , 2023). Sports training with high-intensity loads (maximal loads) makes the blood more fluid and less able to coagulate, and this is an adaptation of the trainee or athlete is considered a catalyst for the transfer of oxygen (Al-Nedawy & Al-Mousawi, 2022), Sports

Training produces changes as a temporary response to the performance of physical activity (Saeed, Khalifa & Noaman, 2019). As for the element calcium, its ratio in the blood in a balanced way is under the control of the parathyroid hormone, controlling its reabsorption and subtraction from the renal tubes on a regular basis (Alyaa, & Qassim. 2022) The higher the amount of Sweat, the higher the concentration of sodium ions in the blood plasma, because the sweat solution contains more water than it contains salts. (Hasan, & Shbeeb. 2021) As for the element calcium, its ratio in the blood in a balanced way is under the control of the parathyroid hormone, controlling its reabsorption and subtraction from the renal tubes on a regular basis (Alyaa, & Qassim. 2022). The sports field. In addition, physiology is an expression of the physical and chemical state of the various Therefore, the regularity of the sample in the exercise led to fat burning resulting in a decrease in weight. In addition, the exercises designed to include various physical movements (Almusawi DS. 2019) that the program prepared by the researchers have positively affected the research variables. The two researchers attribute this development of the experimental group and its superiority over the control group in the skill of learning forward transmission from below and learning the skill of receiving the transmission to the method of programmed education in which the(Krem and Almusawi. 2021)

Conclusions and Recommendations:

Conclusions

- The exercises prepared by the researchers have a clear positive effect on the physical and skill abilities under study.
- Prepared physical exercises have a clear positive effect on the physical abilities under study.
- Preventive physical exercises have a clear effect on the physical and skill abilities under study.

- The supplements given to the sample have a positive effect, as compatibility with physical and preventive exercises has an effect on abilities.

Recommendations:

- Adopting preventive physical exercises prepared by training researchers
- Adopting preventive physical exercises to reduce injuries that players may be exposed to
- Use nutritional supplements and learn about their positive effects in achieving optimal performance

References:

Alyaa Ali, and Suhad Qassim. (2022). "The Effect of Cross Fit Exercises on the Development of Explosive Force, Speed of Kinesthetic Response , and Performance Accuracy of the Skill of Crush Beating for Volleyball Players". Modern Sport, vol. 21, no. 2, p. 0010,. doi:10.54702/msj.2022.21.2.0010.

Mawahib Hamid Al-Jubouri and Suhad Q, Almousawi .(2020). The effect of special exercises using rubber ropes to develop special endurance and achieve a 200-meter freestyle swimming. Modern Sport, vol.19, no. 4, p.0156 . https://doi.org/10.54702/msj.2020.19.4.0156

Suhad Qaeim Almousawi. (2022). The effect of crossfit training in a stylistic, unified and multiple direction to develop some physical and functional abilities of young volleyball players . Journal of Sport Science, vol. 14, no. 53, pp. 185-96, DOI:10.26400/sp/53/13

Krem, Z. A. ., and S. Q. . saeed Almusawi. (2021). "The Effect of the Programmed Education Strategy to Learning the Under Hand Service and Receiving Service Skills of Volleyball for Juniors". Indian Journal of Forensic Medicine & Toxicology, vol. 15, no. 3, pp. 4802-7, DOI:10.37506/ijfmt.v15i3.16208.

M. A. J. S. Q. S. A. . Dr. Najah Mahdi Shalash . (2021). "Effect of the opposite hierarchical training method to developing explosive force, which is characterized by speed and some functional variables for basketball players", Annals of RSCB, vol. 25, no. 6, pp. 730–738,. http://annalsofrscb.ro/index.php/journal/article/view/5488

Marwa Hussein Hasan, and Huda Badwi Shbeeb. (2021). "The Effect of Intense Match-Speed Exercises on Some Special Physical Abilities and Skills of Volleyball Players". Indian Journal of Forensic Medicine & Toxicology, vol. 15, no. 3, pp. 2348-53. DOI:10.37506/ijfmt.v15i3.15665.

Saeed, S. Q., Khalifa, M. F., & Noaman, M. H. (2019) . Screening of Obesity, Blood Pressure and Blood Glucose among Female Students Athletes at the College of Physical Education and Sport Sciences in the University of Baghdad. Indian Journal of Public Health Research & Development, vol.10, no.6 , pp.1041-1044 .

Al-Nedawy , R. I. A. ., & Saeed Al-Mousawi , S. Q. (2022) . Effect of a training program on the development of physical abilities in football goalkeepers. SPORT TK-Revista EuroAmericana de Ciencias del Deporte, vol.11, p.36, https://doi.org/10.6018/sportk.522961

Badwi Shbeeb, H. ., Saeed Almousawi, S. Q. ., & Mousa Jawad, S. (2023) . Analysis of the amount of lost fluids, some blood components and mineral salts in volleyball under hot weather conditions. SPORT TK-Revista EuroAmericana de Ciencias del Deporte, vol.12, p. 36 , https://doi.org/10.6018/sportk.577361

Hadeel Talib Mohammed, & Dr. Suhad Qassim Saeed. (2021). The effect of physical exertion training using a vertimax device in developing the characteristic force with speed and the skill of shooting by jumping in front - high with the hand ball for youth. Modern Sport, 20(1), 0158. https://doi.org/10.54702/msj.2021.20.1.0158

Almusawi DS. (2019). Effect of Battle Ropes Training in Some Components of Health Fitness and Vision of the Body Image of Women Aged (30-35) Years. Indian Journal of Public Health Research and Development. https://ijphrd.com/issues.html

Intidhar Jumma Mubarak, Huda Badawi, Iqbal Abdul-Hussein. (2023). The effect of physical effort training according to the anaerobic threshold to avoid overtraining in the development of rapid force and shooting skill from jumping high in handball. Wasit Journal of Sports Sciences 10-23,1,13 https://doi.org/10.31185/wjoss.180

Musa, D. S. (2020). The requirements of sustainable development for colleges of physical education and sports science in Iraq. Modern Sport, 19(2), 0137. https://doi.org/10.54702/msj.2020.19.2.0137

Shahad Faeq Rashid , Iqbal Abdul Hussein Neamah.(2022). The effect of using games in developing some concepts of traffic safety for fifth grade primary students, revista iberoamericana de psicología del ejercicio y el deporte Vol. 17 nº 4 pp. 234.

Aelad Mohammed Abd Zaid and Iqbal Abdul Hussein Neamah .(2021) Comparing environmental awareness under the Corona pandemic between students of the Faculty of Physical Education and Sports Sciences at the University of Kufa . review of international geographical education, 11(5) .pp.4696

Iqbal Abdul Hussein Neamah, W. H. K. . (2021). The Effect of Competitive Games on Trend towards Handball for Orphan Pupils of (10-12) Years Old. Annals of the Romanian Society for Cell Biology, 25(6), 4011–4021. Retrieved from http://www.annalsofrscb.ro/index.php/journal/article/view/6175