

# THE EFFECT OF PHYSICAL EXERCISES IN VARIOUS WAYS TO DEVELOP FLEXIBILITY FOR PLAYERS OF THE NATIONAL CENTER FOR SPORTS TALENT FOOTBALL (AGES 13-14 YEARS)

Hayder Abdul qader Neamah, Prof .Dr. Usama Ahmed Hussein

University of Baghdad / College of Physical Education and Sports Sciences

DOI: 10.37648/ijrssh.v10i01.048

## ABSTRACT:

*The Importance of the research was in paying attention to training flexibility by designing and applying exercises with different styles static stretching (positive and negative), ballistic stretching, PNF and dynamic stretching). The problem of the research was in diagnosing weakness in all types of flexibility. The aims of the research were using exercises with different styles and identifying their effect on flexibility. The researchers hypothesized statistical differences in favor of the post tests. The researchers used the experimental method. The sample was (142) soccer players aged 13 – 14 years old from the national center for gifted in soccer while the subjects were (19) players. The pretests were followed by the main experiment for (16) weeks with two training sessions for (9 – 11) minutes for each types of stretching. The results showed significant differences in favor of the posttests. The researchers concluded that the applied exercises positively developed flexibility on soccer players aged 13 – 14 years old.*

*Keywords : (flexibility, static stretching, ballistic stretching, dynamic stretching, PNF, gifted, soccer)*

## INTRODUCTION

Reaching the highest levels in the game of football requires preparing the players from a young age and according to codified educational and training curricula that lay the right and solid foundations for building a base of emerging players working to produce a generation of talents who possess high capabilities for competition, excellence and achievement, as this preparation process Which is called the long-term preparation process takes a certain time, and this time varies from one game to another depending on the time when the achievement appeared in that game and the time period needed to reach that achievement, and this

data requires knowledge and determination of the appropriate time to start the practice of The game, and that this long period is estimated in the field of football and as an average teacher approximately (10-12) years, and despite the existence of many models in various countries of the world aimed at building the capabilities of the player in the long term, these models or models all agree to divide these The long period to several training stages and according to the age and the age characteristics in terms of biological, psychological and motor changes that are reflected in determining the goals and content of the work in each of these training stages, in other words that the age characteristics that accompany the age are the ones that determine the

content of the training work in those stages Different, and it is The stage that passes from the age of the budding or emerging player and has not been utilized in training the specific capabilities that are undergoing a growth boom according to the content of the training work for that stage, it is difficult to compensate it, meaning that these capabilities cannot be developed later at the same level of development if they were trained in the appropriate period, and from these capabilities Physical that must be paid attention to in its training and development according to the training (training) stage and the life span of the research category (13-14 years) that passes into adulthood and the second growth spurt is the ability of flexibility, as this growth spurt is accompanied by an increase in muscle mass and an increase in the length of the limbs and trunk which It has a direct impact To me the ability of flexibility, hence the importance of research came in the necessity of training the ability of flexibility during this period to preserve or develop the previous gains of flexibility through preparing physical exercises in various ways which are (fixed (positive and negative) lengths, mobile lengths, ballistic lengths, and prolonged neuromuscular facilitation) For sensory receptors (PNF) and knowing the effect of these methods on developing flexibility. As for the research problem, it came in light of what was previously diagnosed by researchers through watching the last championship matches held by the National Center in its stadium, and the teams of the national centers participated in it. Intention from different Iraqi governorates, ages (13-14) years, as a clear weakness in flexibility was diagnosed through some movement aspects such as (weighted before and after scoring, camouflage with trunk, and when starting after stopping and changing direction), so this study came as an attempt to address and develop The appropriate solutions to it through stomach exercises.

While the aim of the research was to prepare physical exercises in various ways to develop flexibility for the players of the National Center for Sports Talent for Football, ages 13-14 years, and to identify the effect of exercises prepared in developing flexibility among the members of the research sample.

While the researchers assumed:

-There are statistically significant differences between the results of the pre- and post-test of the elasticity variable among the members of the research sample and in favor of the post-test.

The research fields included the human field represented by (19) players from the National Center for Sports Talent Football / Baghdad, ages (13-14) years for the season (2018-2019), and the temporal field extended from (1/9/2018) to ( 29/12/2018), and the sphere is represented in the stadium of the National Center for Sports Talent Football / Baghdad, to implement the vocabulary of research.

There is a group of previous studies that dealt with the same topic of the current research, including the following:

-In a study (Fares Hussein, 2005), the researcher used the experimental approach to design the two control and experimental groups, with pre and post tests, on a sample consisting of (32) players from Sinjar Sports Club in Nineveh Governorate for the year 2004 under (19) years, at the rate of (16) A player for each group, and the training curriculum included (40) training units using the training network and the method of introductory training, and it took (8) weeks to implement (5) training units per week, and the researcher concluded that the proposed training curriculum using the training network had a positive effect on flexibility I have the experimental group.

-As for the researcher's study (Nawar Abdullah, 2007), he used the descriptive approach in the survey method, and he chose the youth teams of the provinces of the Middle Euphrates Football Association, which number (4) teams (Najaf, Babil, Karbala, and Diwaniyah), so that the sample of the research (88) players represent lines The three games, and the duration of the tests lasted (20) days. The researcher concluded that there were no significant differences in the flexibility of the three playing lines, as well as the convergence of the players' levels and all lines of flexibility in the middle level.

As for the researcher (Abdullah Hawaii, 2008), he used the experimental approach in designing the experimental and experimental groups, with pre and post tests, on a sample of elected players emerging in Diwaniya Governorate, ages (15-17) years, and by (20) players, ( 10) Players for each group, for a period of (9) weeks, as the total of training units reached (54) training units for the experimental group that trains by two training units per day, and the control group trains by one training unit per day, as the number of units reached (27) units Training, and the researcher found a clear development of the experimental and control

groups in flexibility and in different proportions FH, as well as a marked evolution of the experimental group that was trained by two units training day and better than the control group, which was trained by the training unit and one day.

-In a study (Place et al., 2013) aimed to know the effect of stretching exercises using facilities of the neuromuscular sensory receptors (PNF) on the strength of the anterior thigh muscle, flexibility and vertical jumping, and the research sample consisted of (12) players, and they were divided into two equal groups. Control and experimental (6) players for each group, and the players of the control group underwent positive flexibility exercises, and the experimental group did flexible exercises for (5 w) shortly (PNF) for the front thigh muscles, then (5 w) positive elasticity for two minutes with (4) sessions For each man, there were no statistically significant differences between positive flexibility exercises and exercise S (P.N.F.) in the strength of the thigh muscles and the level of vertical jump.

- Finally, in a study (Meshari 2016) that aimed to know the effect of short length training (PNF) on some special physical variables and the level of skill performance of swimming beginners, and to know the effect of stretching training (PNF) on some special physical variables and the level of skill performance of swimming beginners, The experimental method was used in the design method of the two groups with pre and post tests, and the sample was chosen intentionally by the beginners of the Kuwaiti Arab Club, and it reached (16) players at the age of (14) years, and they were divided into two equal groups, one of which was an experimental one on which flexibility training (PNF) was applied, and the other Female officer i Remained the traditional method, the results of the study indicated that there is a positive effect of exercise prolongation (P.N.F) on physical variables and the level of performance skills of the sample.

## **MATERIALS AND METHODS:**

The researchers used the experimental method, and in a single group design method, pre- and post-test, to suit the nature of the research problem. The research community included the players of the national centers to sponsor sports talent for football / Iraq for the age

group (13-14) years and registered with the Ministry of Youth and Sports for the sports season (2018/2019) and the number (9) centers in various governorates of Iraq, as the number of members of the search community (142) players, while the sample of the research was represented by the players of the National Center for Sports Talent for Football / Baghdad, as it was chosen in an intentional manner, which numbered (22) players, and (3) players were excluded from them, for their lack of commitment and discontinuation from training, to become the final number of the sample (19) players, for the research sample to constitute a percentage (13.38%) of the total With total search.

And used a Japanese-made video camera and accessories (Canon), a Japanese-made (HP) laptop, and an electronic stopwatch (2). Flatbeds (24), Cones (20), cones. Conical shape, number (25), rug for floor exercises, measuring one square meter, number (20), and rug measuring (180 cm) length and width (1 m) number (8), a tool for lengthening FOAM ROLL) (number 19).

The researched variable was determined in the light of field diagnosis, which is represented by flexibility, and in the light of references and scientific sources, the following flexibility test was nominated:

Test name: Modified Sit and Reach Test (Walker, 2011, p. 98).

Purpose of the test: to measure the elasticity of the muscles of the lower back, hips, and posterior thigh.

-Required resources: a suitable place with flat ground and a wall, a box of wood or any solid material measuring (30 cm) for length, width, and height and fixed on the surface of the box from the top with a ruler of length (55 cm) or more, tight, registered, and a form Sign Up.

Procedures: The laboratory sits with the long sitting position and the lower back of the laboratory and its head are adjacent to the wall (horizontal viewing level). The maximum extent towards the box to take the first reading after stability for at least two seconds while keeping both the lower back and head adjacent to the wall, then the laboratory extends its arms to the maximum extent possible with bending the trunk forward with straightening of the knee joint and keeping the hands position one on the other to be taken Take it Read the second after standing for at least two seconds. As in Figure (1).

-Recording: the distance between the two readings (from the point parallel to the edge of the middle finger) is measured to the nearest centimeter, and each



:Figure 1  
Shows the modified sitting and stretching test

The researchers, in cooperation with the auxiliary team, conducted the first exploratory experiment at the stadium of the National Center for Sports Talent Football / Baghdad, on (17/8/2018) and coincidentally (Friday) for a period of one day, using a sample from the research community of (9) Players from the same position, after being randomly chosen (the lottery method), and the purpose of this experiment was regarding the candidate test for the application and many things were reached, including: Ensuring the suitability of the candidate test with the level of the individuals appointed to the research, and the validity of the tools used in The test, in addition to the definition of the staff Assistant with their duties.

The second exploratory experiment was conducted on the same stadium on (23/8/2018), and on Thursday (Thursday) in cooperation with the auxiliary work team and on the same sample as the first exploratory experiment, and this experiment ended on (Sunday) on (26/8/2018), The goal of the experiment was for the purpose of identifying the appropriateness of the prepared exercises, and the test was conducted on the members of the research sample in the researched variable on (Tuesday) on (28/8/2018) at exactly (quarter past six o'clock) afternoon at the stadium of the National Center for Talent Care / Baghdad, and included flexibility test.

laboratory is given two attempts, and the best attempt is calculated and is the longest distance.

Notes: During the test, the laboratory is not allowed to bend the knee joint or put on the shoe.

The main experiment: The exercises prepared on the research sample were applied on (1/9/2018), and on (Saturday) until (29/12/2018) on (Saturday), at the National Center for Sports Talent Football / Baghdad, and it took Carrying out exercises (16 weeks), and about the following arrangement:

- Applying the exercises prepared according to the style of ballistic stretching and stretching type (PNF) technique (contract - relax working muscles - contract) (Contract - Relax Agonist - Contract) (CRAC), and technique (contract - relax) (CR) (Contract-Relax) Within the main department, with only one training unit every Saturday, for a period of (16) weeks and a time ranging from (18-22) minutes, and by (9-11) minutes for each type (ballistic, PNF), and thus the total time for a period of ( 16) A training unit for a total of (288-325) minutes.
- Applying exercises in the style of mobile prolongation during the warm-up period of the training unit, and on Monday of each week for a period of (15) minutes and with a total time of (240) minutes.
- Applying the exercises in the fixed (positive and negative) extension method and using the auxiliary tool (FOAM ROLL), during the period of calming and relaxing from the training unit, and on Wednesday of each week for a period of (15) minutes, and with a total time (240) minutes. The post-test was conducted on (2/1/2019) and on (Wednesday).

**RESULT AND DISCUSSION:**

Results: After completing the application of the main experiment and implementing the pre and post test of the researched variable on the research sample in order to obtain the results, it was statistically treated by appropriate means and the interpretation of the results scientifically in order to achieve the goals of the research and its hypothesis test, and the researchers felt that these results should be presented in the form of tables and forms to facilitate the task Identifying them, as this reduces the possibility of error in the following stages of research and enhances scientific evidence and gives it strength (Al-Sheikhly, 2019, p. 79), as follows:

Table (1)

Shows the statistical parameters for the pre- and post-test of the elasticity variable among the members of the research sample

The test is after		The test is before		measruing unit	variable
standard deviation	Arithmetic mean	standard deviation	Arithmetic mean		
4.175	8.105	3.413	1.737	cm	Flexibility

Table (2)

Shows the difference of the arithmetic mean, its standard deviation, the calculated value (t), the significance of the differences and the percentage of development between the results of the pre and post tests of the physical variables (flexibility)

% Of develop ment	Indication of differences	Error level	Computed t value	PF	P	measruing unit	variable
366.609	moral*	0.000	8.043	3.451	6.368	cm	Flexibili ty

\*Moral at degree of freedom (19-1 = 18), and error level (0.05)

The researchers attribute the causes of the moral differences between the results of the pre and post test of the physical variable (flexibility) and in favor of the results of the post test for the individuals of the research sample to codify the training loads according to the scientific foundations and principles by applying the following training methods:

The first method is to use both positive and negative static stretching exercises, by performing a voluntary muscle contraction to move one of the parts of the body that creates that joint (whose elasticity is to be developed) to the maximum possible range of motion and constant in it for a period of time, and this type is called positive fixed stretching, such as Hamstring Stretch: To stretch the back thigh muscles and hips by tilting the player’s torso toward the legs after extending

the knee joint and placing the palms of the hands on the floor next to or on the feet, or when moving the part of the body that creates that joint to the maximum possible range of motion for a period It is called a fixed negative elongation, such as: Seated Hip Flexion with the help of a colleague who presses the shoulders of his colleague sitting forward and downward, and recalls (Al-Mamdaghah, 2017, p. 678). Flexibility can be developed in the fixed way, both positive and negative, by performing a physical exercise in a specific position and holding in it for a few seconds, while performing gradual intensity pressure to extend the working muscles surrounding that joint to be developed, and then repeat it several times. The researchers applied the exercises of this method to the research sample in the section devoted to calm and relax from the training unit

and perform the movement gradually and slowly until reaching the maximum range of mobility possible from the ability of each player, then persist in that position for a period of not less than (5) seconds and for more than (12) Seconds for each iteration.

The second method is represented by the use of dynamic stretching exercises. In this type, one of the body parts of that joint or both are moved gradually until reaching the maximum possible range of motion for that joint whose flexibility is to be developed, and work was done according to this method by performing rotational movements, as in a rotating exercise Torso Rotations, Hip Rotations, or performing flexural movements, such as: (Side-to-Side Hops) exercise to develop the flexibility of the hip joint, or tidal movements, such as: Hops on the Spot, to develop muscle Workers on the knee and ankle joints, and the researchers agree with (Al-Hazaa, 2009, p. 205): that fixed stretching and stretching Kinetic movement is one of the most used types for the development of flexibility and safer joints, and Williamson, 2017, p10 states: that the use of the technique of both constant and kinetic elongation can improve two elements of flexibility: muscle length and the range of kinetic extent of the joint. Preparation in a fast kinetic period, in the period of calming and relaxing in a slow kinetic rhythm, as well as in periods of intermittent rest between repetitions and exercises carried out to develop the remaining variables under discussion within the training unit.

As for the third method, it is represented by performing ballistic stretching exercises or self-movement prolongation. In this type of exercise that is characterized by reciprocal movements by action and reaction, the developmental joints are placed to the maximum range of their movement by contracting the muscle groups working around that joint quickly and effectively. Al-Bishtawi and Al-Khawaja, 2010, p. 337): It is (one of the main means of developing flexibility, as it is exercises that perform reciprocal movements and are carried out in the form of groups for a period of not less than ten weeks). There is a prevailing belief among specialists that this type is not useful in improving flexibility Compared to an exercise Kinetic or static elongation, but rather the joint is exposed to injury (Al-Hazaa, 2009, p. 205), while Plowman and Smith, p. 6012011: states that (ballistic elongation may cause muscle pain. Although there is no

evidence or research Clinical supports this concept, but some fear that the force generated as a result of the repeated pull chain will exceed the limits of the natural extension of the tissues involved and cause injury, although it is considered an effective method of developing flexibility). In light of the results, the researchers believe that it is an effective method in Developing flexibility on the condition of a gradual movement in the performance of the required movement, as in the performance of the movement to extend the back muscles The back thigh with an exercise that raises the man quickly and forcefully above the level of the head. Initially the man is raised straight to the pelvis level with the trunk going down on it, then it is raised to the chest level and then raised to the level of the head, then to the top of it with the tilt remaining toward the man in a simple way Every time. Exercises of this method were applied to the research sample in the main part of the flexibility development training module.

And finally, the method of stretching exercises by the neuromuscular facilitation of the sensory receptors (PNF) Proprioceptive Neuromuscular Facilitation), which is one of the stretching techniques in which the muscles that are intended to be lengthened are first contracted with maximum shrinkage, and then these muscles are relaxed and then lengthened by the contraction of the opposing muscles or by means of external assistance such as the ex. Plowman and Smith, p. 6022011, indicate that PNF is one of the best effective methods for developing the flexibility of different joints. There are many neuromuscular techniques approved to apply this type of extension, but there are two most common methods that are used: CR-contract (Contract-Relax), CRAC (Contract-Relax Agonist-Contract), and in the performance of each of the two techniques, the muscles to be lengthened are first positioned To its maximum kinetic range, and then it is contracted vertically permanently or in motion, and in both methods it requires the assistance of a colleague or use a tool to provide the seat. Required and anybody as long stretching). The PNF technique (CRAC) technique was applied to the research sample in the main section of the training unit on flexibility development, and the CR technique was applied with the movement lengthening exercises during the warm-up or preparation period and in the rest periods between the repetitions, groups and exercises implemented to

develop the remaining variables under consideration Inside the training unit.

In addition to the aforementioned, the researchers attribute the moral causes to the characteristics of the age stage, as it is mentioned (Abu Al-Ela, 2012, p. 251) based on the changes in the growth of bones, muscles, tendons, and others. It was possible to determine the most effective periods for the development of flexibility, and it became clear that the age stage (12-14) A year in which the effectiveness of developing flexibility increases twice as effective as in the age of (18-20) years, and this must be taken into consideration when planning training for athletes. (Hoffman and Mino, 2011, p18) also indicates the need to develop flexibility in this stage of life, which is the stage of puberty due to the increase in muscle mass and the length of the limbs compared to the previous age group. This is one of the important reasons that prompted the researchers to address the variable of elasticity, as it is one of the important capabilities according to the characteristics of this age group.

Therefore, the researchers sought to follow the above-mentioned methods that serve the process of developing flexibility by following the method of programming stages of work within the training unit to serve the research sample, in addition to following the principle of individual training that is appropriate to the capabilities and capabilities of each individual in the sample, as the researchers adopted the level of maximum severity in Development of flexibility and on the basis of the maximum kinetic range that the component parts of that performance-related joint can reach and in light of individual differences between the players, and it indicates that (Al-Taher, 2016, p. 197) that the foundations on which the degree of flexibility focuses vary from one individual to another according to the anatomical and psychological capabilities A bona fide characteristic of the individual depends largely on the ability of the tendons, ligaments and muscles on elongation. The researchers adopted in increasing the training load in flexibility training by increasing the training size represented by time or repetitions with the level of intensity fixed at the maximum limits according to the maximum possible range of motion of the joint.

#### CONCLUSIONS:

In light of the aims of the research, its imposition, presentation of results, analysis and discussion of the variable under study, and in light of developments in the research, the following conclusions were reached:

- The exercises applied according to the different methods have a positive effect in developing flexibility among the sample members.
- The methods adopted by the two researchers, namely fixed (negative and positive) lengths, moving lengths, ballistic lengths, and lengths to facilitate the work of sensory receptors (PNF) of both types, are appropriate in training flexibility with the age group (13-14) years.
- The corrugation with the training loads by corrugating with volumes and fixing the intensity according to its maximum limits for the elasticity variable, had an effective effect in developing that variable.

#### ENDORSEMENT:

The recommendations were made in light of the results and the conclusions reached, as follows:

- Using the various methods applied in the exercises designed to train flexibility with the age group (13-14) years.
- Adoption of maximum intensity work with the variable elasticity, and that the ripple with training loads is through ripple volumes and not intensity.
- Carrying out other studies on several samples, and each specific method is applied to each sample, knowing the effect of each method and its rate of development, then comparing the effect and rate of development of these methods.

#### REFERENCES:

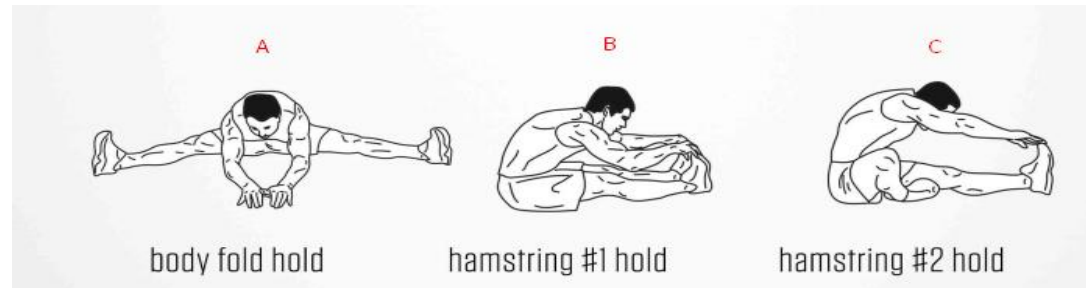
- Abu El-Ela Ahmed Abdel-Fattah (2012). Contemporary Sports Training, 1st floor, Cairo: Dar Al-Fikr Al-Arabi.
- Ramy Mohamed El-Taher (2016). New in Sports Training Science, Cairo: Dar El-Fayrouz.
- Saad Menem El-Sheikhly (2019). Studies and visions in physical education and sports, part 1, Baghdad: Shams Al-Andalus Office.
- Abdullah Hawail Farhan Al-Kaabi (2008): The effect of training curricula of different sizes on physiological and physical variables and the skillful performance of junior football, Master Thesis, College of Physical Education / University of Qadisiyah.

- Faris Hussein Mustafa Al Hamo (2005): The effect of using the training network with the method of introductory training on developing some functional, physical and skill variables for young footballers, Master Thesis, College of Physical Education / University of Mosul.
- KafaMashari (2016) The Effect of Short Flexibility Training (P.N.F) on Some Special Physical Variables and Level of Skill Performance Among Swimming Beginners, Scientific Journal of Physical Education and Sports / Egypt, 77, 342-362.
- Mohamed Reda Al Madamgeh (2017). Sports Training Science - Theories and Applications, Baghdad: Dar Al-Waddah.
- Muhannad Hussain al-Bishtawi and Ahmad Ibrahim al-Khawaja (2010). Sports Training Principles, i, Amman: Wael House for Publishing & Distribution.
- Nawar Abdullah Hussein Al-Lami (2007): Defining normative levels for some (special physical traits, basic skills, and physical measurements) for different playing lines, Master Thesis, College of Physical Education / University of Qadisiyah.
- Hazza bin Muhammad Al-Hazza (2009). Physical effort physiology, theoretical foundations and laboratory procedures for physiological measurements, ANNEX (1)

Part 1, Saudi Arabia: King Saud University, Scientific Publishing and Press.

- Brad Walker. (2011) *Ultimate Guide to Stretching and Flexibility*. 3<sup>rd</sup> ED (NY: Injury Fix and Stretching Institute).
- Hoffman D. and Mino H. (2015). *allgemeinBewegungs- und Trainingswissenschaft*. InternationalerTrainerkurs (ITK). Universität Leipzig-SportwissenschaftlicheFakultät.
- Lexie Williamson. (2017) *The Stretching Bible: The Ultimate Guide to Improving Fitness and Flexibility*. UK: Bloomsbury Sport.
- Place N., Blum Y., Armand S., Maffiuletti N. A., and Behm, D. G. (2013). Effects of a Short Proprioceptive Neuromuscular Facilitation Stretching Bout on Quadriceps Neuromuscular Function, Flexibility, and Vertical Jump Performance. *Journal of Strength and Conditioning Research*, 27(2), 463-470.
- Sharon A. Plowman and Denise L. Smith. (2011) *Exercise physiology: for health, fitness, and performance*. 3<sup>rd</sup> Ed. (China: Lippincott Williams & Wilkins).

It illustrates models of exercises for training flexibility through the methods used (fixed (negative and positive), mobile, ballistic, and elongated by facilitating the work of the neuromuscular sensors (PNF)) for the age group (13-14) years.



Samples of static stretching exercises (positive)

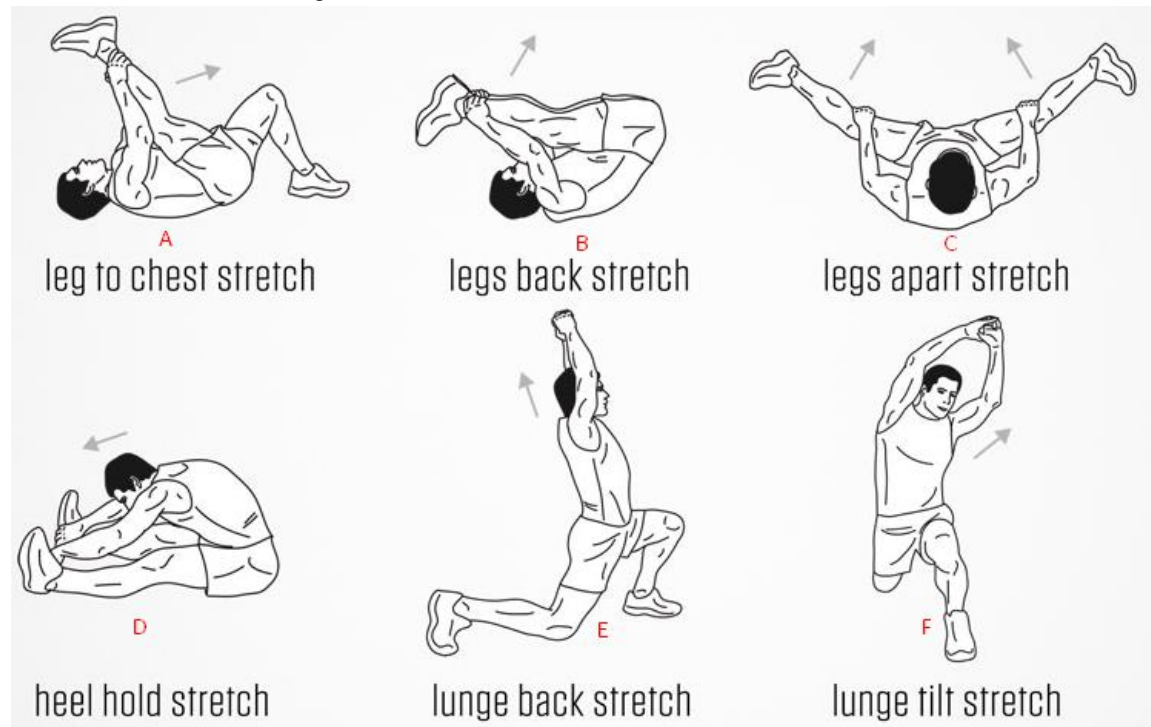




Exercise models for stretching



Models for ballistic stretching exercises



Models for stretching exercises by facilitating the work of the PNF sensors.