# The effect of a training program Using Proprioceptive Neuromuscular Facilitation (PNF) on the improvement the special physical abilities and numerical level for an 110Meter Hurdles Juniors

Lecturer / Ramy Mohamed Al Taher Salem Hassan*

## Introduction& Problem of research

No doubt, the tremendous developments that have occurred in the sports competitions' performance are considered a human miracle. That can be seen, clearly, during the Olympic Games and World Championships. Accordingly, scientists and organizers of the training process has been urged to focus on doing research and exploration with the objective of, developing and improving juniors' physical performance and skill levels .

"Mohammed abdelzaher" (2014) stated that: Sport training is of Verve operations and basic that indispensable to reach the level of the junior to the maximum permit within its physical and skilled abilities (16:19)

"Sedky Sallam" 2014, sees that: The most important aims of training process are to prepare a junior reaching the highest possible level of special fitness for the competition. (8: 83)

"Saad Fathallah" 2015, indicates that: Athletics are characterized by its multiple types of races and competitions; each race and competition has its different requirements to achieve those requirements, we should follow the general approach to sports training built in light of the scientific basis and objectivity. (6:33).

Warren Doscher " (2009) stated that: the special physical variables are one of the most important pillars of performance in Hurdles races, as they are among the races that are characterized as difficult both physically and technically; the reason, is the need for continuous exchange between normal running steps and crossing the hurdle, that requires high Sufficiency of flexibility while maintaining a considerable rate of speed. (26: 159)

"Michael a. Clark et al" (2012) see that: that dedication to enroll flexibility into the training program, leads to the development of other physical attributes force, speed and agility and then improve the performance skill and numerical level. (20: 143)

"Mufti Hammad" 2010, stated that: Proprioceptive Neuromuscular facilitation (PNF) is considered one of the best ways to enhance the flexibility and range of motion, where it aims in its performance to make the maximum outcome of the neurological reflexive actions. (17: 299)

**Lecturer at theories and applications of track and field competitions Department Faculty of Physical Education for Boys Benha University**

**Educational email : ramy.sallem@fped.bu.edu.eg**

"The International Federation of Athletics,(IAAF)" 2009 , sees that : The training with Proprioceptive Neuromuscular facilitation (PNF) is among the distinctive styles that enhance flexibility and range of motion as the technique of (PNF) is working on the rest period before the hard work which leads the muscle group to operate in the case of extension, and then to contract in the case of fastness against resistance while it is in the prolongation , and this in its turn leads to widen the kinetic range. (2:13)
"The International Federation of Athletics (IAAF)," 2010, adds that: The training with Proprioceptive Neuromuscular facilitation (PNF) produces a plus for flexibility and range of motion if the comparison other forms to flexibility , next to increased strength and balance of strength with provide stability in joint and increased muscular compatibility nervous . (3: 16)

The researcher noted deficiencies of some juniors in the stage of crossing the hurdle in the championship of the Republic under (18) years old, which in turn affects the numerical level; the researcher has attributed this to the low level of flexibility that is considered as a foundation stone in the 110meter hurdle. Having a reference to the results of international standard numbers to the 110meter hurdles race, the researcher noted a decrease in the level of the Egyptian record compared to the international one, and the following table illustrates this:

**Table (1)**

**The difference between the Egyptian record and the international record**

| The Record | Player | Nationality | Record |
|---|---|---|---|
| **World Record** | Aries Merritt | (USA) | 12.80s |
| **Egyptian Record** | Abd elrhman taher | Egypt | 14.06s |

Through the previous table, we can note the difference is great between the Egyptian record and the world record, which is (1.26) Sec, which caused the researcher to think deeply about many things that may have an impact on the decline of the Egyptian numerical level in the 110-meter hurdles. The researcher did a pilot Study on a sample of athletics coaches about training methods of Proprioceptive Neuromuscular facilitation (PNF) in terms of their nature, types and how they can be applied to juniors, the researcher discovered – through the study results- that the trainers do not know about to administrative trained in ways neurological facilities, and in the light of this possible identification of the research problem as a scientific attempt towards the development of the problem of low solutions and more consistent level of performance and numerical level and try to increase the efficiency of improving the numerical level of rates in the light of the Development flexibility to juniors contest the 110meter hurdles and through the design of a training program includes exercises (PNF), to gaining for coaches and taken into account when developing sports training junior programs.

**Aim of the research:**

Develop numerical level of the 110 meter / hurdles race through the development of a proposed training program using Proprioceptive Neuromuscular Facilitation (PNF) and their effect on the special physical abilities and numerical level for an 110Meter Hurdles Juniors under studying .

**Research hypotheses:**

To follow the research procedures in order to achieve the objectives, the researcher assumes the following:

- There are significant Statistical differences between the pre and post measurements' average related to the special physical abilities and numerical level for an 110Meter Hurdles Juniors for post measurement.
- There are special rates of change in to the special physical abilities and numerical level for an 110Meter Hurdles Juniors for post measurement.

**The Definition used in the search:**

- Proprioceptive Neuromuscular Facilitation (PNF): Defined by International of Athletics Federations (IAAF), **2010:** as a way to motivate or facilitate the mechanic of neuromuscular work through stimulating the receptors to achieve maximum flexibility and include on a series of contractions and relaxations. (3:12)
- Drills of Proprioceptive Neuromuscular Facilitation (PNF): Defined by Mufti Hammad 2010: as a set of exercises of special, technical performance work to increase contractility or relaxation of muscles, through reflecting to "mechanical". (17: 299)
- Special physical abilities: Defined by Michael Clark, ET, al. (2012) as: the attributes required by the chosen sporting activity and has a strong and direct influence on the level of skills performance. (20: 138)

**Previous studies**

**Arabic previous studies:**

"Akram Hussein Jabr and Ayman Hamid Mohsen participated in research 2016 (1) entitled "the effect of (PNF) exercises on the flexibility and technical performance to improve some of Romanian wrestling handles for youth (66.74 kg weight)". researchers have used the experimental method in a manner the equal two groups through a sample of 12 Romanian wrestlers in Qadisiyah province clubs, and the most important results of the exercises neuromuscular facilities receptor sensory (PNF) in a manner to repeat contraction (RC) played a major role in the

improvement of the flexibility of the joints and muscles working out for gladiators.

**Previous studies in foreign languages:**

Do both of" Derya Ozer, Tobrk Derya Özer Kaya, Şeyda Toprak Çelenay" 2014 (19) a research entitled "the impact of PNF on shoulders' muscles strength, on a sample of (40) players, were divided into two groups. Each group consists of (20) players, the experimental group using neural facilities muscle exercises receptor sensory and (20) a control group using the traditional program, using the experimental method, has yielded significant results that neuromuscular facilitation exercises receptor sensory have had a clear impact on the development of flexibility and muscle strength to the muscles of the shoulders of the total experimental compared to controls.

**Research procedures:**

**Research Method** :

The researcher used the experimental method due to its suitability to the nature of the research and its procedures using the experimental design of the (pre-post) evaluation for one experimental group..

**Research community:**

A junior of 110 meter hurdles for youth (under 18 years), to be registered in Egyptian athletics Federation, Qalyoubiyah area season 2015/2016.

**Research Sample:**

Was selected sample way intentional clubs following (Banha sporting club – Nasser youth center –tookh youth club) Annex (18) (19)statement explains clubs affiliated members research sample, and enrolled in union Egyptian athletics Federation ,Qalyoubiyah area season 2015/2016 m (under 18 years) , where the total number of samples (11) juniors from m were divided into: -

- (7) Players as experimental Basic sample .
- (4) Players for conducting survey studies.

**Table (2)**

The research sample Describe

| The Research Sample | The Research Sample Survey | | The Research Sample Actual | | Total Of The Research Sample | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| | 4 | 36.36% | 7 | 63.64% | 11 | 100% |

**Sample Describe:**

To make sure research sample under curved equinoctial the research procedure Describe for basic research sample before programs

performance in variables (length – weight – age – old training ), as shown in table number (3) .

**Table (3)**

Statistical characterization of the search inclusive sample of (Height - weight - chronological age - old training)

| S | Variables | Measuring unit | Arithmetic Mean | Standard Deviation ± | Median | Sprain |
|---|---|---|---|---|---|---|
| 1 | Length | Meter | ١.٧٩ | ٠.٠٣ | ١.٧٨ | 1.00 |
| 2 | Weight | Kg | ٦٨.٢٧ | ٤.٨٢ | ٦٦.٠٠ | 1.41 |
| 3 | Age | Year | ١٦.١٩ | ٠.٤٢ | ١٦.٢٠ | -0.07 |
| 4 | Old training | | ١.٩٦ | ٠.١٧ | ٢.٠٠ | -0.70 |

Table (3) shows that the range of bend coefficient extend from (-0.70: 1.41) or Confined between (± 3) which means that the sample is homogeneous in growth variables (in question), and its results equinoctial represent of the society.

**Table (4)**

Sample's Statistical characterization of special physical abilities tests and numerical level to a junior- 110 meters hurdles (under study)

| S | Variables | Measuring unit | Arithmetic Mean | Standard Deviation ± | Median | Sprain |
|---|---|---|---|---|---|---|
| 1 | Dash 4 seconds from high start | Meter | ٢٨.٧٨ | ٠.٧٦ | ٢٨.٥٢ | 1.03 |
| ٢ | Crawling in the form of 8 | Seconds | ٢٧.٨٢ | ٩.٤٢ | ٢٦.٥٤ | 0.41 |
| ٣ | Trunk flexion down from stand | Centimeter | ٩.٩١ | ٠.٩٤ | ١٠.٠٠ | - 0.29 |
| ٤ | Trunk flexion forward from sitting along | | ١٧.٧٣ | ٠.٧٩ | ١٨.٠٠ | - 1.02 |
| ٥ | Maximum range of hip right | Angle degree | ٩٣.٠٠ | ٢.٦٥ | ٩١.٠٠ | 2.26 |
| ٦ | Maximum range of hip left | | ٨٨.٦٤ | ٤.٥٠ | ٨٩.٠٠ | - 0.24 |
| ٧ | Maximum range of ankle right | | ٤٩.٢٧ | ١.١٠ | ٤٩.٠٠ | 0.74 |
| ٨ | Maximum range of ankle left | | ٤٤.٣٦ | ١.٥٠ | ٤٤.٠٠ | 0.72 |
| ٩ | Maximum range of knee right | | ٩٣.١٨ | ٣.٩٢ | ٩٢.٠٠ | 0.90 |
| ١٠ | Maximum range of knee left | | ٨٩.٧٣ | ٢.٦٥ | ٩٠.٠٠ | - 0.31 |
| 11 | Cubes race 4×9 | Seconds | ٩.٣٦ | ٠.٥١ | ٩.٥٥ | - 1.13 |
| 12 | Broad jump from stability | Centimeter | ٢٠٠.٢٧ | ٦.٤٠ | ١٩٩.٠٠ | 0.60 |
| 13 | Electrical activity of rectus abdominals left | Micro volt | ٢٢.٢٧ | ٢.٢٨ | ٢٢.٠٠ | 0.36 |
| ١٤ | Electrical activity of rectus abdominals right | | ٢٩.٥٥ | ٥.١١ | ٣١.٠٠ | - 0.85 |
| ١٥ | Electrical activity of La stissimus dorsi M.left | | ٢٩.٠٩ | ٢.٥٥ | ٢٩.٠٠ | 0.11 |
| ١٦ | Electrical activity of La stissimus dorsi M. right | | ٣٢.٦٤ | ١.٤٣ | ٣٢.٠٠ | 1.34 |
| ١٧ | Electrical activity of Adductor longnus left | | ١٩.٢٧ | ١.٢٧ | ١٩.٠٠ | 0.64 |
| 18 | Electrical activity of Adductor longnus right | | ٢٨.٢٧ | ١.١٩ | ٢٨.٠٠ | 0.69 |
| 19 | Electrical activity of Biceps dfemoris M. left | | ٤٦.١٨ | ٣.١٢ | ٤٦.٠٠ | 0.17 |
| ٢٠ | Electrical activity of Biceps dfemoris M. right | | ٤١.٧٢ | ٢.١٥ | ٤٣.٠٠ | - 1.78 |
| ٢١ | Electrical activity of Castro cnemi us M.left | | ١٣.٣٦ | ١.١٢ | ١٣.٠٠ | 0.97 |
| ٢٢ | Electrical activity of Castro cnemi us M. right | | ١٩.٦٤ | ١.٨٦ | ٢٠.٠٠ | - 0.59 |
| ٢٣ | numerical level of 110m hurdles | Seconds | ١٥.٩٥ | ٠.١٦ | ١٥.٩١ | 0.75 |

Table No. (4) Shows that the torsion coefficients ranged from (- 1.78: 2.26), it is confined to the (± 3) which indicates that the homogeneous in the special physical abilities sample and numerical level to contest 110 meters hurdles of the sample( under study ), and its results equinoctial represent of the society**.**

**Means and tools of data collection:**

The researcher used many and varied ways to collect data which may assist in the implementation of the basic experiment of study, commensurate with the research's nature and collecting data.

**Data registration forms:**

Form of junior variables measurements registration t (age- length and weight) of the sample in question Annex number (1).

Form of record measurement of (special physical abilities and numerical level to contest of the 110 meters hurdles)

For the sample under study. Annex number (3)

**References, research and studies related to the search Reference Survey:**

The researcher has used a network of international information and "Academy of Scientific Research and Technology," National Network for Scientific and Technological Information "for the latest references, Arab and Foreign Studies associated with the search topic, besides the International Association of Athletics Federations publications.

**Personal interview:**

Researcher Conducted several personal interviews with athletics experts, Annex number (10) The purpose of these interviews is to offer the training physical program and tests, as well as identifying key features of the program and exercise flexibility by using the appropriate methods of neuromuscular facilities receptor sensory (PNF). Identification the most important working muscles in the race of 110-meter hurdles.

**Table (5)**

**Special physical abilities test of the 110-meter hurdles race Annex Number (2)**

| s | Test | Measuring unit | Symbol | The objective of measurement |
|---|---|---|---|---|
| 1 | Dash 4 seconds from high start | Meter | M | Speed |
| ٢ | Crawling in the form of 8 | Seconds | S | Compatibility |
| ٣ | Trunk flexion down from stand | Centimeter | CM | Flexibility |
| ٤ | Trunk flexion forward from sitting along | | | |
| ٥ | Maximum range of hip right | Angle degree | O | |
| ٦ | Maximum range of hip left | | | |
| ٧ | Maximum range of ankle right | | | |
| ٨ | Maximum range of ankle left | | | |
| ٩ | Maximum range of knee right | | | |
| ١٠ | Maximum range of knee left | | | |
| 11 | Cubes race 4×9 | Seconds | S | Agility |
| ١٢ | Electrical activity of rectus abdominis left | Micro volt | MV | Maximum power During the maximum muscle contraction on the dynamometer |
| | Electrical activity of rectus abdominis right | | | |
| | Electrical activity of La stissimus dorsi M.left | | | |
| | Electrical activity of La stissimus dorsi M. right | | | |
| | Electrical activity of Adductor longnus left | | | |
| | Electrical activity of Adductor longnus right | | | |
| | Electrical activity of Biceps dfemoris M. left | | | |

| | | | | |
|---|---|---|---|---|
| | Electrical activity of Biceps dfemoris M. right | | | |
| | Electrical activity of Castro cnemi us M.left | | | |
| | Electrical activity of Castro cnemi us M. right | | | |
| 13 | Broad jump from stability | Centimeter | CM | Muscular Power |

**Tools and equipment used in the research:**

By looking at many references and previous studies, the researcher could find the instruments and tools that serve his research and contribute to the completion of his research procedures and achieve its .

**Objectives, Tools:**

**Used equipment**

rubber-rings - athletics track - different weights Dambalz. - Medical balls and Swiss ball –hurdles- Stop Watch.

**Devices:**

- Rasta meter Device for measuring length.
- dynamometer.
- Medical Scale body weight Annex Number (5).
- A device for measuring the flexibility (Guymon Goniometer) Annex Number (15)
- electrical activity of muscles device (EMG) Annex Number (4)

**Physical capabilities of a race of 110 meter hurdles:**

The most important physical attributes of junior 110 meter hurdles has been obtained through a questioner were conducted by the researcher to the experts Annex number (12) the results were as shown in the following table.

**Table (6)**

| Components of fitness | Maximum power | Muscular Power | Speed | Accuracy | Compatibility | Flexibility | Agility | Balance |
|---|---|---|---|---|---|---|---|---|
| The percentage of agreement | 80% | 90% | 100% | 0% | 100% | 100% | 100% | 70 % |

Researcher has consented 80% minimum physical capabilities approved By the experts.

**Survey studies:**

The researcher conducted the survey during the period from Sunday (24/07/2016) till Tuesday (26/07/2016) on a sample consists of (4) junior of the same research community but outside the core sample .he applied the specific tests for the following purposes:

- Check the safety devices, tools and address the obstacles, if any.
- Determining the time it takes exercises and tests under discussion.
- Give an idea of the sample tests used under discussion.

**Scientific transactions of physical tests:**

- Check the safety of devices, tools and addresses the obstacles, if any.
- Determining the time exercises takes tests and measurements under discussion.
- Give an idea of the sample tests used under discussion.

**Test of validity:**

Significance of differences between the two groups was calculated (distinctive and non-distinctive) in physical tests" under discussion" through the validity test on two groups each with a strength of four juniors in the race of 110 meter hurdles, and represents the search reconnaissance sample (distinctive group) of the same sample of the research group and other community non-distinctive) of the faculty students "the same students age.

**Table (7)**

**Validity coefficient of the variables under consideration**

| s | test | Measuring unit | Arithmetic Mean for ultimate group | Arithmetic Mean for ir ultimate group | Average of grade | | Z test for mann-whitney | Sig.(p.value) |
|---|---|---|---|---|---|---|---|---|
| | | | | | Arithmetic Mean for ultimate group | Arithmetic Mean for ir ultimate group | | |
| 1 | Dash 4 seconds from high start | Meter | ٢٨.٨٣ | ٢٧.١٨ | ٦.٥٠ | ٢.٥٠ | ٢.٣١ | ٠.٠٢ |
| ٢ | Crawling in the form of 8 | Seconds | ٣٠.٠٦ | ٣٩.٧٥ | ٢.٧٥ | ٦.٢٥ | ٢.٠٢ | ٠.٠١ |
| ٣ | Trunk flexion down from stand | Centimeter | ٩.٧٥ | ٧.٥٠ | ٦.٢٥ | ٢.٧٥ | ٢.٠٨ | ٠.٠٤ |
| ٤ | Trunk flexion forward from sitting along | | ١٧.٢٥ | ١٤.٥٠ | ٦.٥٠ | ٢.٥٠ | ٢.٣٥ | ٠.٠٢ |
| ٥ | Maximum range of hip right | Angle degree | ٩٣.٠٠ | ٨٧.٧٥ | ٦.٣٨ | ٢.٦٢ | ٢.١٩ | ٠.٠٣ |
| ٦ | Maximum range of hip left | | ٩٠.٧٥ | ٨٢.٧٥ | ٦.٢٥ | ٢.٧٥ | ٢.٠٢ | ٠.٠٤ |
| ٧ | Maximum range of ankle right | | ٤٨.٧٥ | ٤٤.٢٥ | ٦.٥٠ | ٢.٥٠ | ٢.٣٤ | ٠.٠٢ |
| ٨ | Maximum range of ankle left | | ٤٤.٥٠ | ٣٩.٥٠ | ٦.٥٠ | ٢.٥٠ | ٢.٣٢ | ٠.٠٢ |
| ٩ | Maximum range of knee right | | ٩٤.٥٠ | ٨٧.٧٥ | ٦.٥٠ | ٢.٥٠ | ٢.٣٢ | ٠.٠٢ |
| ١٠ | Maximum range of knee left | | ٩١.٠٠ | ٨٥.٥٠ | ٦.٥٠ | ٢.٥٠ | ٢.٣٢ | ٠.٠٢ |
| 11 | Cubes race 4×9 | Seconds | ٩.٣٠ | ١٠.١١ | ٢.٧٥ | ٦.٢٥ | ٢.٠٢ | ٠.٠٤ |
| 12 | Broad jump from stability | Centimeter | ١٩٩.٧٥ | ١٨٨.٧٥ | ٦.٢٥ | ٢.٧٥ | ٢.٠٣ | ٠.٠٤ |

*** Statistically significant when Sig. (P.value) <0.05**

Seen from the table (7) that all values (p.Value) calculated ranging from (0.01: 0.04), the lowest level of moral 0.05 for all tests, that is, the difference between the two groups a moral and a statistically significant, suggesting that the ability of these tests on discrimination between levels is they are honest tests.

**Stability tests:**

It was also a reliability coefficient through the use of application of the test method, and then re-tests on the same distinctive group used in the application of the same sample and out of sample testing of basic community and within an interval time of (4) days sincerity

## Table (8)
**Reliability coefficient of the variables under consideration**

| S | test | Measuring unit | The first application | | The second application | | Values of (R) and it significance |
|---|---|---|---|---|---|---|---|
| | | | Arithmetic Mean | Standard Deviation ± | Arithmetic Mean | Standard Deviation ± | |
| 1 | Dash 4 seconds from high start | Meter | ٢٨.٨٣ | ٠.٩٦ | ٢٨.٧٩ | ٠.٨٩ | *٠.٩٩٩ |
| ٢ | Crawling in the form of 8 | Seconds | ٣٠.٠١ | ٧.٦٤ | ٢٩.٨٥ | ٧.٩٣ | *٠.٩٩٨ |
| ٣ | Trunk flexion down from stand | Centimeter | ٩.٧٥ | ٠.٩٦ | ٩.٨٣ | ٠.٨٩ | *٠.٩٩٠ |
| ٤ | Trunk flexion forward from sitting along | | ١٧.٢٥ | ٠.٩٦ | ١٧.٣٠ | ٠.٩٥ | *٠.٩٩٥ |
| ٥ | Maximum range of hip right | Angle degree | ٩٣.٠٠ | ٣.١٦ | ٩٢.٧٥ | ٢.٧٥ | *٠.٩٩٥ |
| ٦ | Maximum range of hip left | | ٩٠.٧٥ | ٥.٠٦ | ٩٠.٠٠ | ٥.٠٣ | *٠.٩٨٠ |
| ٧ | Maximum range of ankle right | | ٤٨.٧٥ | ٠.٩٦ | ٤٨.٨٨ | ٠.٨٥ | *٠.٩٦٨ |
| ٨ | Maximum range of ankle left | | ٤٤.٥٠ | ١.٩١ | ٤٤.٢٥ | ١.٧١ | *٠.٩٦٨ |
| ٩ | Maximum range of knee right | | ٩٤.٥٠ | ٣.٥١ | ٩٤.٠٠ | ٣.١٦ | *٠.٩٦٠ |
| ١٠ | Maximum range of knee left | | ٩١.٠٠ | ٢.١٦ | ٩٠.٥٠ | ١.٢٩ | *٠.٩٥٦ |
| 11 | Cubes race 4×9 | Seconds | ٩.٣٠ | ٠.٦٢ | ٩.٢٣ | ٠.٥٢ | *٠.٩٨٢ |
| 12 | Broad jump from stability | Centimeter | ١٩٩.٧٥ | ٦.٨٠ | ١٩٩.٢٥ | ٦.٨٥ | *٠.٩٨٩ |

*** The value of "t" Driven at the level of moral (0.05) = 0.950**

table (8) indicates that all significant moral values of the correlation coefficient in the abstract level (0.05) for the tests, with the results of the table indicated that the values (r) calculated ranged between (0.956: 0.999), while the value of (r) Tabulated 0.950 This indicates that D-link between the first two applications and the second, which refers to the stability of those tests.

**Pre-measurements:**

The pre-measurements for research experimental sample, were done on Thursday (28/7/2016) in the Laboratory Faculty of Physical Education for Boys Benha(tests of weight, height and kinetic range and muscles electric activity of the of the availability of EMG device "and" Ganaomitr mail, on Saturday (30/7/2016) in Banha Sporting sodium, where the rest of the physical attributes and number level were measured.

**Training program:**

The training program was developed in the light of the scientific basis for sports science training through the following:

**Procedural steps for the design of the training program:**

**Determine the program's objectives**:

Improve the attributes of physical level and special numerical level for contest junior in the 110-meter hurdles of the sample in question.

**Determine the period of application of the program:**

In the light of the previous Reference comprehensive surveys of previous studies and scientific references, it was found that the duration of training programs as the following:

Mention "Michelle Clark" Michael a. Clark et al (2012) M: that the appropriate period to prepare for sports competitions often ranging between 6-8 weeks. (20:١٧٣ )

Ninos (2001) indicates: a period of 6: 8 weeks long is enough for the appearance of physical and physiological changes to training programs prolongation (PNF). (23:29)

"The International Federation of Athletics" (2010 m): states that the use of Proprioceptive Neuromuscular facilitation (PNF) to be (2: 3) days per week (16: 3).

In light of the foregoing and after consulting the experts Annex Number (11) the researcher proposed that the duration of the program is to be 8 weeks by 3 units per week is sufficient to achieve the objectives of the research and reach the number of (24) training modules and training units.

**Determine the severity of load:**

"Hamdi watod " (2012 m) stated : on initiating flexibility exercises by using neural muscular facilities for sensory receptors dominated by high character intensity of training that ranges from 85: 100% except during the general preparation. (5: 21)

See Nelson et al 2007: on the severity of prolongation Using Neural facilities muscle sensory receptor levels are as follows:

**Table (9)**

| Variable | First level | Second level | Third level | Fourth level | Fifth level |
|---|---|---|---|---|---|
| Stability in extension | 5 - 10 s | ١٠ - 1٥ s | ١5 - 20 s | 20 - 25 s | 25 - 30 s |
| Rest between extension | 5 - 10 s | ١٠ - 1٥ s | ١5 - 20 s | ٢٠ - 25 s | 25 - 30 s |
| Extension repetition | Two repetition | Three repetition | Four repetition | Five repetition | Six repetition |
| Extension intensity | 10 - 30 % | 20 - 40 % | 40 - 60 % | 60 - 80 % | 80 - 100 % |

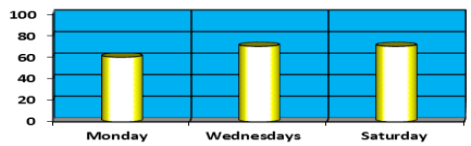
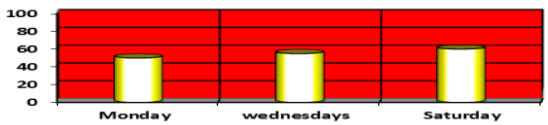
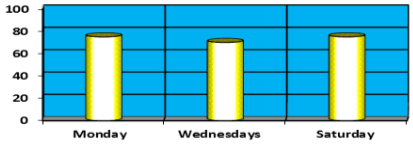
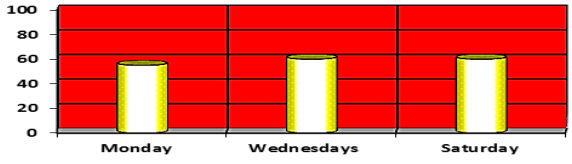
(22: 10-11)

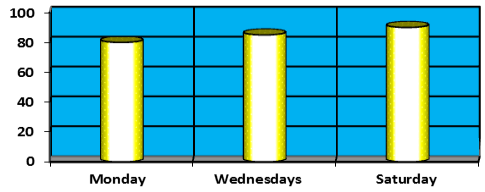
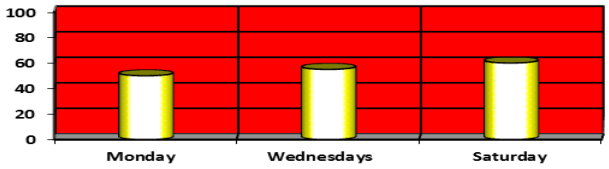
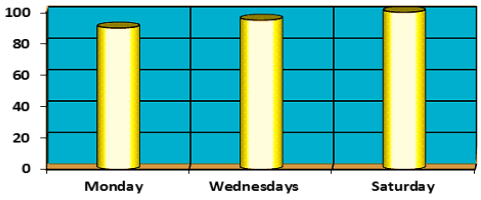
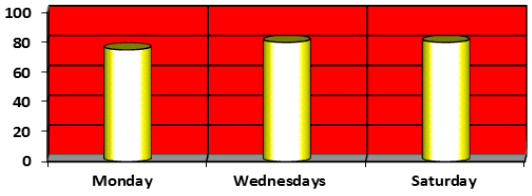
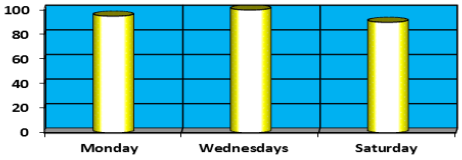
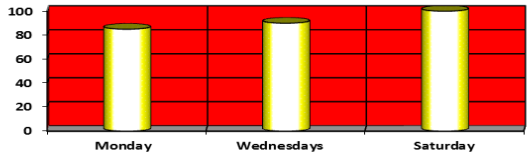
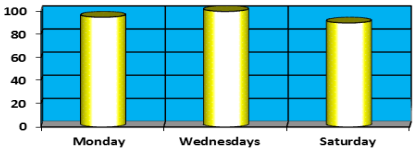
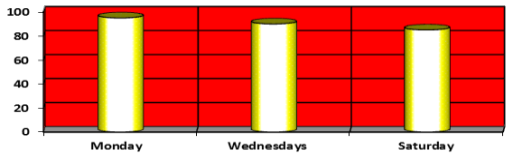
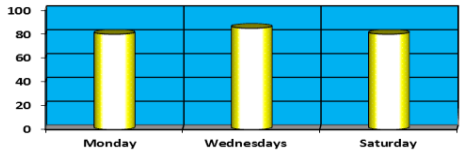
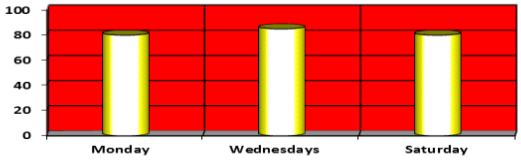
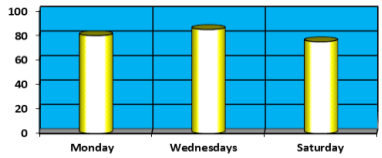
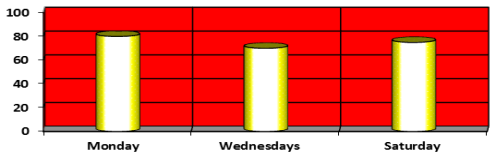
The researcher used, in the training program of the sample, the fourth and fifth level

**The training program is designed (periods of the program):**

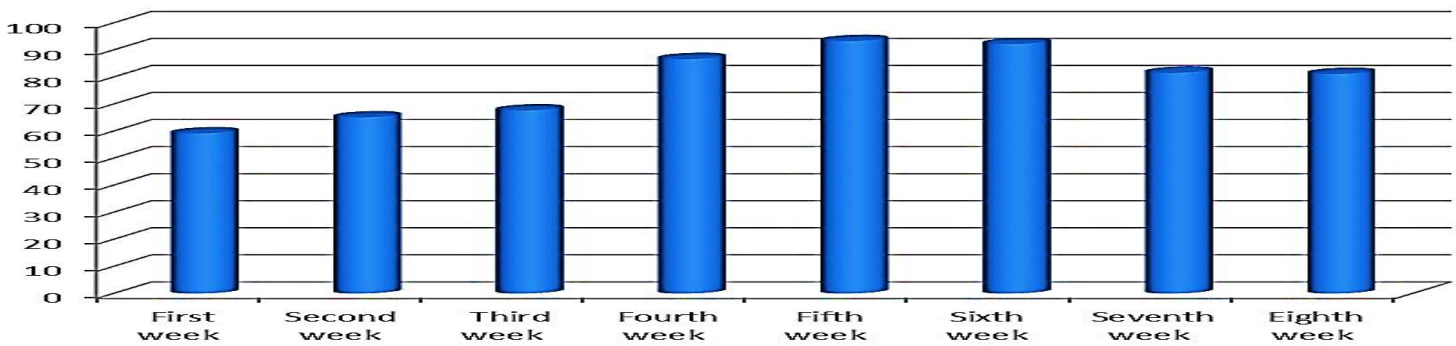
Shown in Table No. (10) distribution of the relative periods of the program and load intensity Training, where it was during the run year by two weeks , the period of the special preparation by 4 weeks , the period of preparation for the contest 2 week , and used method of (low load by the level of competition) (tab ring).

**Table (10)**

| | | | |
|---|---|---|---|
| General preparation | First week | The average intensity of PNF exercises 68.3 %   | The average intensity of skill preparation 55%   |
| | Second week | The average intensity of PNF exercises 73.3 %   | The average intensity of skill preparation 58.3%   |

| | | | |
|---|---|---|---|
| Special preparation | Third week | The average intensity of PNF exercises 85 %   | The average intensity of skill preparation 68.3%   |
| | Fourth week | The average intensity of PNF exercises 95 %   | The average intensity of skill preparation 78.3%   |
| | Fifth week | The average intensity of PNF exercises 95 %   | The average intensity of skill preparation 91.6%   |
| | Sixth week | The average intensity of PNF exercises 95 %   | The average intensity of skill preparation 90%   |
| Pre -competition preparation | Seventh week | The average intensity of PNF exercises 81.6 %   | The average intensity of skill preparation 81.6%   |
| | Eighth week | The average intensity of PNF exercises 87.3 %   | The average intensity of skill preparation 75%   |

Form to The average intensity of using in training program(skill preparation - PNF exercises)



**Module parts within the proposed program:**

The module consists of three main parts, where those parts are connected with the aim of each unit, whether education or training, and these parts are.

**Warming-up:**

Included warm-up on the small games and exercises of stretches Annex Number (9) with the aim of:

- Raise body temperature and protection from injuries.
- Increased respiratory rate and heart rate.

**The Basic part:**

- The proposed training program Exercises, neuromuscular training facilities for sensory receptors (PNF) Annex number (8).
- Skills Part of the competition of 110 meter hurdles Annex number (6).

**Cool down:**

Finally, it included training on light running exercises and some swings and shakes for two hands and the two legs; the following table shows the temporal distribution of the training unit Annex number (16).

**Table (11)**

**Temporal distribution of the training unit**

| Part unit | Warm up | The basic part | | Cool down | Total |
|---|---|---|---|---|---|
| | | PNF exercises | skill preparation | | |
| Time min | 15 m | 40 m | 30 m | 5 m | 90 m |

**The application of the proposed training program:**

The proposed training program application Annex number (17)(19) on the research sample, starting on Monday (1/8/2016) till Saturday (24/9/2016) for (8) weeks by three of training modules every week days (Monday, Wednesday, Saturday) in Banha sporting stadium on basic members of research sample, the following table shows the general content of the proposed training program.

**Table (12)**

**General content of the proposed training program**

| s | Variable | Distribution time |
|---|---|---|
| ١ | Phases of the program | (General preparation - Special preparation - Pre -competition preparation ) |
| ٢ | Number of weeks | 8 week |
| ٣ | The number of training units of week | 3 units |
| ٤ | Total of training units | 24 units |
| ٥ | Total of training units time | 90 m |
| ٦ | Total application time on week | 270 m |
| ٧ | Total time of training program application | 2160 m |

**Post-measurements:**

After the ending the program, Post measurement test has been conducted on Monday (26/9/2016) till Tuesday (27/9/2016) by using the same measuring instruments and tools, which has been used during the pre and consecutive stages and in the same places, conditions and instructions measurements and the same assistances.

**Statistical treatments:**

After collecting the data results of various measurements in question of compilation the variables the appropriate statistical treatments to achieve the objectives and ensure the validity of hypotheses has been made in the Institute of statistical studies at Cairo University, through the statistical program Statistical Package for Social Sciences, which has the symbol (SPSS) (vergen20) through a statistical program (Excel).

- Arithmetic Mean
- Standard Deviation
- Median
- Sprain
- Wilcox on Test
- Improvement percentages
  - **The Results Review & Explanation Discussion:**
  - **Review of the results:**

**Table (13)**

**Significance of differences between pre and post measurement in the special physical abilities and numerical level to a junior of 110 meters hurdles to the sample under study**

| S | Variables | Measuring unit | Arithmetic Mean for pre measurement | Arithmetic Mean for Post measurement | Average of grade | | Z test from Wilcoxon | Sig.(p.value) |
|---|---|---|---|---|---|---|---|---|
| | | | | | Signal (-) | Signal (+) | | |
| 1 | Dash 4 seconds from high start | Meter | ٢٨.٧٣ | ٢٩.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٢ | ٠.٠٤ |
| ٢ | Crawling in the form of 8 | Seconds | ٢٦.٥٠ | ٢٤.٩٣ | ٣.٠٠ | ٠.٠٠ | ٢.١٧ | ٠.٠٣ |
| ٣ | Trunk flexion down from stand | Centimeter | ١٠.٠٠ | ١٢.٨٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٤ | ٠.٠٤ |
| ٤ | Trunk flexion forward from sitting along | | ١٨.٠٠ | ٢١.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٤ | ٠.٠٤ |
| ٥ | Maximum range of hip right | Angle degree | ٩٣.٠٠ | ٩٦.٢٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٦ | ٠.٠٤ |
| ٦ | Maximum range of hip left | | ٨٧.٠٠ | ٨٩.٢٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٣ | ٠.٠٤ |
| ٧ | Maximum range of ankle right | | ٤٩.٤٠ | ٥٢.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٣ | ٠.٠٤ |
| ٨ | Maximum range of ankle left | | ٤٤.٤٠ | ٤٦.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٧ | ٠.٠٤ |
| ٩ | Maximum range of knee right | | ٩٣.٤٠ | ٩٥.٨٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٧ | ٠.٠٤ |
| ١٠ | Maximum range of knee left | | ٩٠.٢٠ | ٩٢.٢٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٦ | ٠.٠٤ |
| 11 | Cubes race 4×9 | Seconds | ٩.٣٩ | ٩.١٢ | ٣.٠٠ | ٠.٠٠ | ٢.٠٢ | ٠.٠٤ |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 12 | Broad jump from stability | Centimeter | ٢٠٠.٢٠ | ٢٠٨.٢٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٣ | ٠.٠٤ |
| 13 | Electrical activity of rectus abdominis left | Micro volt | ٢١.٦٠ | ٢٣.٨٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٤ | ٠.٠٤ |
| ١٤ | Electrical activity of rectus abdominis right | | ٢٨.٢٠ | ٣٢.٢٠ | ٣.٠٠ | ٠.٠٠ | ٢.٠٢ | ٠.٠٤ |
| ١٥ | Electrical activity of La stissimus dorsi M.left | | ٢٨.٢٠ | ٣١.٦٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٦ | ٠.٠٤ |
| ١٦ | Electrical activity of La stissimus dorsi M. right | | ٣٢.٤٠ | ٣٥.٦٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٧ | ٠.٠٤ |
| ١٧ | Electrical activity of Adductor longnus left | | ١٩.٢٠ | ٢٢.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٤ | ٠.٠٤ |
| 18 | Electrical activity of Adductor longnus right | | ٢٨.٦٠ | ٣١.٦٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٦ | ٠.٠٤ |
| 19 | Electrical activity of Biceps dfemoris M. left | | ٤٥.٤٠ | ٤٧.٢٠ | ٠.٠٠ | ٣.٠٠ | ٢.١٢ | ٠.٠٣ |
| ٢٠ | Electrical activity of Biceps dfemoris M. right | | ٤١.٠٠ | ٤٢.٤٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٧ | ٠.٠٣ |
| ٢١ | Electrical activity of Castro cnemi us M.left | | ١٣.٦٠ | ١٥.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٧ | ٠.٠٤ |
| ٢٢ | Electrical activity of Castro cnemi us M. right | | ١٩.٢٠ | ٢٣.٠٠ | ٠.٠٠ | ٣.٠٠ | ٢.٠٣ | ٠.٠٤ |
| ٢٣ | numerical level of 110m hurdles | Seconds | ١٥.٩٦ | ١٥.٦٤ | ٣.٠٠ | ٠.٠٠ | ٢.٠٢ | ٠.٠٤ |

*** Statistically significant when Sig. (P.value) <0.05**

It is seen from the table (13) that all values (p.Value) calculated below the level of moral 0.05 in all tests, which means that the difference between the two measurements prior and subsequent moral and a statistically significant difference between the two measurements pre and post and in favor of telemetric in special physical attributes and numerical level tests race of 110 meter hurdles of the sample in question.

**Table (14)**

**Percentage change in special physical abilities and numerical level tests for junior of 110 meters hurdles to the sample in question**

| S | Variables | Measuring unit | Pre measurement Arithmetic Mean | Post measurement Arithmetic Mean | The percentage of improvement % |
|---|---|---|---|---|---|
| 1 | Dash 4 seconds from high start | Meter | ٢٨.٧٣ | ٢٩.٠٠ | ٠.٩٤ |
| ٢ | Crawling in the form of 8 | seconds | ٢٦.٥٠ | ٢٤.٩٣ | ٥.٩٢ |
| ٣ | Trunk flexion down from stand | Centimeter | ١٠.٠٠ | ١٢.٨٠ | ٢٨.٠٠ |
| ٤ | Trunk flexion forward from sitting along | | ١٨.٠٠ | ٢١.٠٠ | ١٦.٦٧ |
| ٥ | Maximum range of hip right | Angle degree | ٩٣.٠٠ | ٩٦.٢٠ | ٣.٤٤ |
| ٦ | Maximum range of hip left | | ٨٧.٠٠ | ٨٩.٢٠ | ٢.٥٣ |
| ٧ | Maximum range of ankle right | | ٤٩.٤٠ | ٥٢.٠٠ | ٥.٢٦ |
| ٨ | Maximum range of ankle left | | ٤٤.٤٠ | ٤٦.٠٠ | ٣.٦٠ |
| ٩ | Maximum range of knee right | | ٩٣.٤٠ | ٩٥.٨٠ | ٢.٥٧ |
| ١٠ | Maximum range of knee left | | ٩٠.٢٠ | ٩٢.٢٠ | ٢.٢٢ |
| 11 | Cubes race 4×9 | Seconds | ٩.٣٩ | ٩.١٢ | ٢.٨٧ |
| 12 | Broad jump from stability | Centimeter | ٢٠٠.٢٠ | ٢٠٨.٢٠ | ٣.٩٩ |
| 13 | Electrical activity of rectus abdominis left | | ٢١.٦٠ | ٢٣.٨٠ | ١٠.١٩ |
| ١٤ | Electrical activity of rectus abdominis right | | ٢٨.٢٠ | ٣٢.٢٠ | ١٤.١٨ |
| ١ | Electrical activity of La stissimus dorsi M.left | | ٢٨.٢٠ | ٣١.٦٠ | ١٢.٠٦ |

| | | | | | |
|---|---|---|---|---|---|
| ٥ | | | | | |
| ١٦ | Electrical activity of La stissimus dorsi M. right | | ٣٢.٤٠ | ٣٥.٦٠ | ٩.٨٨ |
| ١٧ | Electrical activity of Adductor longnus left | | ١٩.٢٠ | ٢٢.٠٠ | ١٤.٥٨ |
| 18 | Electrical activity of Adductor longnus right | | ٢٨.٦٠ | ٣١.٦٠ | ١٠.٤٩ |
| 19 | Electrical activity of Biceps dfemoris M. left | Micro volt | ٤٥.٤٠ | ٤٧.٢٠ | ٣.٩٦ |
| ٢٠ | Electrical activity of Biceps dfemoris M. right | | ٤١.٠٠ | ٤٢.٤٠ | ٣.٤١ |
| ٢١ | Electrical activity of Castro cnemi us M.left | | ١٣.٦٠ | ١٥.٠٠ | ١٠.٢٩ |
| ٢٢ | Electrical activity of Castro cnemi us M. right | | ١٩.٢٠ | ٢٣.٠٠ | ١٩.٧٩ |
| ٢٣ | numerical level of 110m hurdles | Seconds | ١٥.٩٦ | ١٥.٦٤ | ٢.٠١ |

It is shown in Table No. (14) That, there is an improvement in all results details tests of special physical abilities and numerical level of the 110 meters hurdles players (under study) ranging (0.94: 28.00) was due to the importance of using trained Proprioceptive Neuromuscular facilitation (PNF) in the level of physical attributes to develop special numerical level of "110 meter hurdles " juniors ( under study) .

## The Result Discussion and Explanation:

Through the presentation of the findings through a researcher measurement (pre- post), the researcher will analyze and discuss the results and in the light of the following hypotheses: -

**Discuss the results achieving the validity of the first hypothesis, stating:**

There are significant Statistical differences between the pre and post measurements' average related to the special physical abilities and numerical level for an 110Meter Hurdles Juniors for post measurement. from the results stated in table (13) there is statistically significant differences between the pre and post measurement in the test of (Dash 4 seconds from high start - Cubes race 4×9 " numerical level 110 meter hurdles), where its P .value (0.04) and less than the value .P. (crawling in the form of 8) the P.value her (0.03), a value less than the level of moral 0:05which was widely accepted by the researcher as a limit of the statistical significant, as the average of grades increases, in the direction of negative signals, which is an indication of improvement and in favor of the posttest measurement where the less time the numerical level has increased..

also, it appears that there is statistically significant differences between the pre and post measurements of differences test (Trunk flexion down from stand - Trunk flexion forward from sitting along -Trunk flexion forward from sitting along - Positive range of hip joint prone position of the feet open - Broad jump from stability - Positive range of hip joint

bending knee on chest)where its P.value (0.04), a value less than the level of moral 0.05 widely accepted by the researcher as limit to statistical significant as the average grades rises in the direction of the signals positive and this is an indication of the improvement in the interest of post measurements.

this exception testing range positive for the hip knee bent on the chest where the average grade increases in the direction of negative signals is an indication of the improvement in the interest of post measurement where the less distance between the knees and chest, the better flexibility.

Also, it appears that there is statistically significant differences between the pre and post measurements of differences test(Maximum range of hip right- Maximum range of hip left- Maximum range of knee right- Maximum range of knee left - Maximum range of ankle right - Maximum range of ankle left) where its P.value (0.04) a value less than the level of moral 0.05 widely accepted by the researcher as limit to statistical significant as the average grades rises in the direction of the signals positive and this is an indication of the improvement in the interest of post measurements.

also, it appears that there is statistically significant differences), a value less than the level of moral 0.05 widely accepted by the researcher as limit to statistical significant as the average grades rises in the direction of the signals positive and this is an indication of the improvement in the interest of post measurements between the pre and post measurements of electrical activity 0f muscles, as their p,value(0.04) except (Electrical activity of rectus abdomens right- Electrical activity of rectus abdomens left ) as their p,value(0.03) .the researcher attributes these differences with statistical significant to the impact of Proprioceptive Neuromuscular facilitation (PNF) required by (110 meter hurdles race) as the researcher puts in account , using exercises similar to the nature of the competition's skill performance.

This is consistent with the indication of, "the International Federation of Athletics," 2010: through an abstraction about the benefits of the stretching technic with PNF. The training by using the Proprioceptive Neuromuscular facilitation (PNF) produces a significant outcome for kinetic range when compared to other technics of stretching, in addition to enhancing muscle strength, general strength and balance. While providing stability in the joint and increase the neuromuscular compatibility, as well as the balance of power while providing stability in the joint (3:16).

According to, "C Bourne" 2002: The neuromuscular facilitation of sensory receptors (PNF) is one of the newest and best methods used in the upgrading of physical attributes, particularly flexible (24:58).

also Mohammad Abdul Majid Nabawi conformed these results with Study "(2011) (15)" which indicated the presence of significant differences between the two measurements pre and post experimental group and in favor of special physical variables and numerical level , as a result of the use of exercises neuromuscular facilities receptor sensory (PNF).

Thus, it has been confirmed validity of the first hypothesis, which states:

There are significant Statistical differences between the pre and post measurements' average related to the special physical abilities and numerical level for an 110Meter Hurdles Juniors for post measurement.

**Discuss the results achieved verity of the second hypothesis, which stated:**

There are special rates of change in to the special physical abilities and numerical level for an 110Meter Hurdles Juniors for post measurement.

The table number (14) shows improvement ratios between the averages of two measurements (pre and post), the experimental group in physical variables and numerical level , under discussion, table shows the percentages of improvement ratios of improvement for the average post measurements averages for the pre measurements are as follows:

Test 4 Seconds running of high start-up rate of improvement in the post test measurement for pre measurement 0.94%, and the researcher attributed this improvement to drill core in athletics (a, b, c) and exercises neuromuscular facilities receptor sensory (PNF), which in turn led to an increase of kinetic range, which in turn led to an improvement in stride length, and the preparation of general exercises number (3, 5, 13, 23, 30).

The tests of crawling in the form of (8). The improvement percentage of the pre measurement reached 5.92%. Researcher Attributes this improvement to the exercises of neurological facilities (PNF) and especially the performance of exercise in a way slow mutual contraction with Slow Reversal-Hold, where it is stated by Talha Hossam El-Din and others 1997 (9 ): the training in this way leads to increase of compatibility to work and kinetic performance muscular control this side of compatibility exercises in the general preparation and exercises to prepare the skill of loneliness the training part and Trunk flexion down from stand and the percentage of improvement has reached in the post measurement for the pre measurement 28.00% and Trunk flexion forward from sitting along has reached improvement rate in post measurement for the pre of 16.67%. Researcher attributes this improvement to the exercises of

Neuromuscular facilities receptor sensory (PNF), especially exercises of Lower part number (8,10, 11, 12,24, 31,33, 34, 35) and upper part's exercises extremity number (38,46, 47, 55,59) and which would improve

and develop flexible vertebral "trunk" and test the maximum range of right joint pelvis right and the percentage improvement in the post measurement for the pre one, 3.44% and test the maximum range of the joint pelvis left rate of improvement in the pre Measurement test for pre measurement 2.53%. researcher attributes this improvement to the exercises neurological facilities muscle receptors sensory (PNF), especially exercises Lower party number (2, 6, 7, 9, 13, 16, 19, 20, 21, 22, 27, 29, 36) Which led in turn to improve and develop flexibility of pelvis joint and the maximum range test of the left ankle joint and reached the improvement rate test of the right ankle joint post measurement to 5.26% for the pre one. And test of the maximum range of the left ankle joint and reached the improvement rate in post measurement 3.60% for the pre one. Researcher attributes this improvement to the use of exercises neuromuscular facilities receptor sensory (PNF), especially exercises of Lower party number (1, 3, 5, 25, 26). which led in turn to improve and develop a Maximum range of hip right and test the maximum range Maximum range of ankle right and reached the improvement rate in post for measurement the pro one of 5.26% and test the maximum range of the ankle joint left and reached the improvement rate in post measure for the pre one of 3.60% .researcher attributes this improvement to the exercises neuromuscular facilities receptor sensory (PNF), especially exercises Lower party number (1,3, 5 and 25,26) which led in turn to improve and develop a detailed ankle joint and test the maximum range of the knee joint right and the percentage improvement in the post measurement for the pre one of 2.57%, and test a maximum range of the knee joint left and the percentage improvement in the telemetric tribal measurement 2.22%. Researcher of this improvement to the exercises neurological facilities muscle receptors sensory (PNF), especially exercises lower limb No. (3.15, 23.30, 26), which led in turn to improve and develop a detailed flexible knee, and test a broad jump of the stability and reached the improvement rate post for one measurement 3.99% .lower part exercises nos.(3,15,2330,26) which led to improving and developing the knee joint flexibility Broad jump from stability ,the ratio of improvement in post measurement for the pre measurement3.99% to the basic exercises in athletics (a , b, c) especially exercise (jump higher on one foot hoping and exercise running and strides stepping) and exercises neurological facilities muscle receptors sensory (PNF), which in turn led to an increase kinetic range,and hoping especially(stepping) which led to increasing the kinetic range resulting enhancing the length of stepping in addition to general preparation exercises no. (2,16, 24.29, 31.32, 33), Cubes race 4×9, which reached improvement rate in telemetric pre measurement 2.87%. researcher attributes this improvement to the exercises neurological

facilities muscle receptors sensory (PNF), which in turn led to an increase kinetic range, which in turn led to an improvement in stride length which resulted in the evolution of digital test time, this exercise next year to prepare number (3, 17).

And tests of electrical activity which improvement ranged in post measurement for the pre one of (3.41: 19.79%). Researcher of this improvement to the exercises neurological facilities muscle receptors sensory (PNF).

Electric activity tests in which the improvement ratio has reached in the post measurement for the pre measurement (19.79: 3:41) % .the researcher attributes the improvement to the use of to the exercises neurological facilities muscle receptors sensory (PNF).in particular contact-hold-relax method and Reversal Of Antagonists which led in turn to the development of the electrical activity of muscles thus increasing electrical activity of muscles and this is consistent in what he referred to "Nelson and others" Nelson et all 2007 m: that way of contact-hold-relax method and Reversal Of Antagonists lead to increased arousal of the muscles working by facilitating the entry into force of the neural gleams through the nervous system and thus increase the electrical activity of muscles (22:35).

"International Federation of Athletics," 2010 also confirms citing "Jankins" 2005: The training Proprioceptive Neuromuscular facilitation (PNF) leads to muscle activity largely through device (EMG muscle) muscles that have been lengthened (3:16).

And testing of the numerical level to the 110 meters hurdles and the percentage improvement in the post measurement for the pre measurement of 2.01%, and this is attributed this to investigator to exercise nerve facilities muscle receptors sensory (PNF), which has worked in turn improves physical attributes special enhancement speed and compatibility, which affects in turn positively on the steps the three barriers between the agility and flexibility, which affect the clarifier "transgression" barrier in less time and strength as fast as the characteristic that affect the speed of paying for the land encroachment.

Where it is stated by " Nagarwal et all 2010 m (21): The exercises nerve muscle facilities for sensory receptors (PNF) lead to the positive increase range of motion and increase the speed of the moving party in addition to strength and agility and compatibility.

These findings are consistent with the "Saleh Abdel-Hafiz" 2008 study (7): where noted an improvement between the two measurements pre and post experimental group and in favor of the posttest measuring special physical variables numerical level as a result of the use of the exercises neurological facilities muscle receptors sensory (PNF).

As these results also agree with the study, "Tawfiq Mohammed the Prophet," 2007 (4): where noted an improvement between the two measurements pre and post experimental group in physical characteristics and special numerical level for post measurement.

Thus, it has been confirmed validity of the second hypothesis, which states:

**"There are special rates of change in to the special physical abilities and numerical level for an 110Meter Hurdles Juniors for post measurement. "**

- **Conclusions and recommendations:**
- **Conclusions:**

  Through goals and inquires , According to the variables of the study As pointed out by the statistical method used and characteristics that are commensurate with the nature of the study results. Researcher reached the following conclusions:

• exercises nerve muscle facilities for sensory receptors (PNF) have a positive effect in terms of the moral on the special physical attributes and numerical level for 110 meter hurdles Junior.

• exercises nerve muscle facilities for sensory receptors (PNF) the development are the best special physical attributes and numerical level for 110 meter hurdles junior with methods that has an effective way to improve communication between the muscles and nervous system.

**Recommendations:**

Based on what has been and what conclusions came about Results and through the advanced interpretation, researcher states the following

• Further studies using neuromuscular exercises facilities for sensory receptors (PNF) to other contests in the races and track and field.

• The use of neural muscular facilities for sensory receptors Program (PNF) are at needed to be prepared.

• Further studies on neuromuscular facilitation of sensory receptors (PNF) are needed be issued in the field of Physiology.

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