

## **The effect of a recreational program on improving the elements of balance and sensory-motor perception for people with special needs in integration schools**

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### **Introduction and research problem:**

Interest has recently begun in the sport of the disabled, and has become viewed from the scientific and applied aspects, for its progress and permanent development, as this sport needs general and special physical abilities that vary according to the disability, its severity and the type of activity practiced, so concerted efforts by scientists and researchers to develop training programs.

Intellectual disability is one of the forms of disabilities resulting from a mental deficiency (the degree of intelligence), and they are a category of society that needs more care and attention. (138:3)

Mentally handicapped children with simple disabilities (learnable) if they are well educated, they are more similar to their normal peers than they are different from them, their basic needs are play, and motor sufficiency is not much different, they do not show significant delay in normal movement and compatibility. (12: 508)

Activities for the disabled have emerged from general sports activities, and modified sports programs have been prepared for them, which aim to help the disabled player to reach balanced growth so that he can reach international levels, by developing training methods so that we get rid of

traditional systems and keep pace with development.(2:20)

Hence the importance of sensory-motor perception, as it is an important factor in the general motor performance, as the sensory-motor perception receptors are responsible for changing, adapting the position of the body, its direction and the relationship of its parts, as well as the relationship of the parts to each other, hence the sensory-motor perception allows controlling the direction, and correcting the movement during its performance, whether in terms of shape, range or direction.(53:24)

The importance of sensory-motor perception in gymnastics is shown by the player's sense of the movement of his body parts and the extent of control over changing the position of the body according to what is required by the motor duty, as the muscles working in each of their skills require a certain strength for motor performance according to muscle contractions and the sense of muscular effort, speed of movement and balance, as well as that the player must feel and realize his multiple positions during the performance, in terms of when to speed up and when to slow down, when to change the center of gravity of the body, this is depending on the requirements of the position that the

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athlete experiences when performing gymnastic movements.(175:2)

Adele Shenouda and Samia Farghaly (1999) **add** that the performance on the ground movements device is characterized by the ability to perceive the place, directions and range of movement in the limbs, and the movement of the body as a whole, and the movements performed on this device lead to an increase in the turnout of learners because of the factors of fun, pleasure and suspense. 4:62)

He has noted Researcher Who is it During the work ofH In the field of training Gymnasts People with special needs Mentally handicapped group who are able to learn United Arab Emirates that one of the most important problems facingH gymnasts People with special needs are unable to maintain balance and compatibility while performing motor sentence skills on the ground movement apparatus in Hambaz in the presence of a disability they suffer from. And in a traditional training environment that is not looking for fun, excitement and progress of the level. Which called the researcher to the need to search for everything new and new in Training Sports Which Helps that group to overcome the difficulties they face in the training process to raise the technical level throughl Improvement Level of sensory abilities – motor, in addition to which the programs Training Prepared For this category Lack To the sensory perception exercises - motor , It is This scientific premise Researcher saw Setting a set of Exercises Proposed for the development of some Capacity Sense –

Kinetic (perception of distance Moving forward - Aware of the jump distance Up - perception Time – Perceive the power exerted on the legs - perceive the force exerted on the arms - perception Dynamic balance) For gymnasts People with special needs and mental disabilities.

Therefore, the researcher saw the use of sensory-motor perception exercises to add the element of suspense in the daily training unit, which may have an effective impact on improving the sensory-motor perceptions andthe level of performance of the technical sentence on the floor exercise device for gymnasts with special needs and mentally handicapped learners.

#### **Research Objectives :**

This research aims to develop a training program using sensory-motor cognition exercises for gymnasts with special needs and mentally handicapped learners and to know its impact on the following:

1- Perceptions of sense - kinesthetics (perception of the distance of moving forward - perception of the distance of jumping up - perception of time - perception of the force exerted by the legs - perception of the force exerted to the arms - perception of dynamic balance).

#### **Research hypotheses:**

1- The training program using sensory perception exercises - kinesthetic positively affects the sensory perceptions - motor (awareness of the distance of moving forward - perception of the distance of jumping up - perception of time - perception of the force exerted by the legs - perception of the force exerted to the

arms - perception of dynamic balance) for gymnasts with special needs mentally handicapped learnable.

**:Search terms**

**الإدراك Perception :**

It is "that mental process that interprets the sensory effects received by the brain with the addition of previous information and experiences, and the sensory effects after the brain is affected by them and understood are called perceptions." (71:28)

**Sensory perception - kinetic**

It is "the sense that enables us to determine the position, state, and extension of the body parts, as well as its direction of motion, as well as the overall position of the body and the characteristics of the movement of the body as a whole." 198:8)

**Handicapped : Handicapped**

It is "an individual who does not reach the level of other individuals of his age due to a physical disability, behavior disorder or deficiency in his dual physical abilities, or an individual whose potential to obtain and settle in suitable work has decreased due to actual deficiency as a result of a physical, mental or sensory disability." (126 :17)

**Intellectual disability Mental Disability :**

It is "a state of deficiency, delay, backwardness or incomplete cognitive mental development, born by the individual as a result of genetic or environmental factors that affect the nervous system, which leads to a lack of intelligence, and its effects are

evident in the poor level of individual performance in areas that are related to maturity, learning and psychological compatibility." (10:250)

**Search Procedure:**

**Research Methodology:**

The researcher used the experimental method to suit the nature of the present research, by following the experimental design with one group by pre-dimensional measurement method.

**Research population and sample:**

The research sample was deliberately selected from students of integration schools with special needs with mental disabilities who are able to learn in the age group of (7-12) years from the following sports bodies: In the sports season 2022/2023, which numbered (14), and (5) players were selected for the exploratory study on them, thus the basic research sample becomes (9) A student with special needs with intellectual disabilities who are able to learn.

**Moderation of the distribution of the members of the research sample:**

The researcher calculated the moderation of the distribution of the members of the research sample in the growth rates: age - height - weight - training age, sensory perceptions - movement *under research*, and the level of performance of the technical sentence on the ground exercise device in the gymnasium, and tables (1) and (2) illustrate this.

**Table (1)**

**Moderation of the distribution of research sample members in growth rates (age, training age , height and weight) n = 14**

Torsion coefficient	Broker	Standard deviation	Arithmetic mean	Unit of measurement	Variables
0.95	10.30	1.11	9.95	year	Age
0.72	3.00	0.83	3.20	year	Training age
0.82	133.00	5.49	134.50	poison	Length
0.93	35.00	4.03	36.25	kg	Weight

It is clear from Table (1) the moderation of the distribution of the members of the research sample in the growth rates (age, training age, height, weight) as the torsion coefficients range between  $\pm 3$ , which indicates the

moderation of the distribution of the members of the research sample in the growth rates under research, and that they are located within the limits of the moderate curve.

**Table (2)**

**The moderation of the distribution of the members of the research sample in the kinesthetic perceptions Under search n = 14**

Torsion coefficient	Broker	Standard deviation	Arithmetic mean	Unit of measurement	Variables
0.86	33.50	5.26	35.00	poison	Recognize the distance of moving forward
0.79	18.50	3.81	19.50	poison	Realize the jump distance up
0.49	4.47	2.19	4.83	W	Perceiving time
0.96	83.50	6.24	85.50	poison	Realizing the power exerted on the legs
0.91	7.25	2.31	7.95	kg	Perceive the force exerted on the arms
0.74	41.00	6.92	42.71	degree	Dynamic balance perception

It is clear from Table (2) the moderation of the distribution of the members of the research sample in the perceptions of sense - kinetic, as the torsion coefficients range between  $\pm 3$ , which indicates the moderation of the distribution of the members of the research sample in those variables, and

that they are located within the limits of the equinox curve.

Data collection tools:

First: Devices and tools used in the research:

- Rastamir device to measure the total length of the body.

- **Calibrated medical scale to measure weight.**

- **Stopwatch.**

- **Tape measure.**

- Gymnastics hall equipped.

Second : Expert Survey:

The researcher Conducting a reference survey for scientific studies that dealt with sensory-motor perception (7) ,(9),(13),(21),(22) To determine the most important Perceptions Sense – Kinetic People with special needs and mental disabilities Learners , consisting of the following skills (front rolling – Curved rear rolling – Rear Scale – Passing by a handstand position – Rise up to make a bounce - Rise up to make half a roll around the longitudinal axis) To determine the most important Perceptions Common sense – Its own kinetic, and those were developed Perceptions In a special form that was displayed to Experts in gymnastics training (Appendix 1), and the researcher selected the experts according to the following conditions:

- The years of experience after the doctorate should not be less than (15) years.

The researcher indicates that the percentage of experts agreeing on these sensory-kinetic perceptions ranged between (30%: 100%).

The researcher chose Perceptions Sense – kinetic whose percentage exceeds (80%) Where their number (6) Realizations They are as follows:

- Perceive a distance

Move Forward.

- Realize the jump distance upwards.

- Realize the power exerted by the two men. – Recognize the force

exerted on the arms.

- Perceiving time.

- Recognize dynamic balance.

Third: Sensory - Kinetic Aptitude Tests: Appendix (2)

1- Cognition test distance Moving forward. 2- testing Realize the jump distance upwards.

3- Testing the perception of the power exerted by the two men. 4- Test the perception of the force exerted on the arms.

5- Dynamic balance perception test.

6- Time perception test.

**First Survey:**

The first exploratory study was conducted on the (5) exploratory research sample. Players Gymnastics People with special needs with mental disabilities From the research community and outside the basic sample, from 1/8 to 8/8/2022, and aimed to identify the following:

- Ensure the suitability of the tests for the members of the research sample.

- Verification of scientific transactions (truthfulness - stability) for the tests under research.

Scientific transactions (truthfulness - stability) for the tests under research:

**First: Honesty Coefficient:**

The researcher calculated the validity of the aptitude tests Sense – Kinetic Under research using the

sincerity of differentiation between the members of the survey research sample as a non-distinguished group of (5) A student with special needs with mental disabilities From the research community and outside the basic sample, and the distinguished group

consists of (5) juniors under (11) years, and the significance of the differences between the results of the two distinct and non-distinguished groups was calculated from 1/8 to 3/8/2022, and Table (3) shows that:

**Table (3)**  
**Significance of the differences between distinct and non-distinct groups**  
**In tests of sensory abilities - kinesthetics under research**

Value "T"	featured -Non group $n=5$		Featured Collection $n=5$		Unit of measurement	Tests
	on	M	on	M		
*8.43	4.11	36.40	2.97	15.00	poison	Recognize the distance of moving forward
*7.85	2.37	21.00	2.24	8.20	poison	Realize the jump distance up
*4.03	1.53	4.91	0.42	1.71	W	Perceiving time
*18.74	5.19	86.20	4.66	20.80	poison	Realizing the power exerted on the legs
*9.82	1.02	8.00	0.51	2.40	kg	Perceive the force exerted on the arms
*9.37	4.56	41.80	6.82	80.20	degree	<i>Dynamic balance perception</i>

Grandfather value "T" at 0.05 = 2.306

\* D at 0.05

It is clear from Table (3) that there are statistically significant differences at the level of 0.05 between the two distinct and non-discriminatory groups in the sensory-motor abilities tests under research and in favor of the distinguished group, which indicates the validity of the tests for what they were developed for.

Second: Stability coefficient:

The researcher used the method of applying the test and reapplying

itTest - Retest To calculate the stability coefficient for aptitude tests Sense – Kinetic Under research with an interval of (7) days between the first and second applications, in the period 1/8 to 8/8/2022 on the exploratory research sample, and the simple correlation coefficient was calculated between the results of the first and second applications, and Table (4) shows that:

**Table (4)**  
**Stability coefficient for sensory aptitude tests - kinematics under research n = 5**

Value of "t"	Second application		First application		Unit of measurement	Tests
	on	M	On	M		
*0.899	3.72	35.00	4.11	36.40	poison	Recognize the distance of moving forward
*0.895	2.41	19.00	2.37	21.00	poison	Realize the jump distance up
*0.901	1.39	4.83	1.53	4.91	W	Perceiving time
*0.886	4.62	85.00	5.19	86.20	poison	Perceiving the power exerted on the legs
*0.902	0.89	7.25	1.02	8.00	kg	Perceive the force exerted on the arms
*0.894	4.11	43.00	4.56	41.80	degree	Dynamic balance perception

**Tabular value of t at 0.05 = 0.878**

It is clear from Table (4) that there is a statistically significant correlation at the level of 0.05 between the results of the first and second applications Aptitude Tests Sense – Kinetic Under research ranged between (0.886 : 0.902) indicating the constancy of that Tests.

**Training program using sensory-motor perception exercises:**

**First: The objective of the proposed training program:**

- 1- Developing sensory perceptions - kinesthetics (perception of the distance of moving forward - perception of the distance of jumping up - perception of time - perception of the force exerted by the legs - perception of the force exerted to the arms - perception of dynamic balance) for gymnasts with special needs who are able to learn.
- 2- Improving the level of performance of the technical sentence on the floor exercise device in gymnastics.

**\* D at 0.05 level**

Second: The foundations of developing the proposed training program:

- To lead to the achievement of the goal for which it was set.
- Its movements should be similar to the skills of the technical sentence on the ground exercise device.
- Players can isolate the sense of sight and rely on the motor sense when performing the proposed set of sensory-motor perception exercises.
- The training should be at the level of the capabilities of the members of the research sample.
- Improve the intensity of pregnancy every two weeks by gradually increasing the number of repetitions or increasing the repetitions and groups together for the proposed exercises, and stabilizing the interval rest period.
- Gradation from easy to difficult according to the following :

\* Give a model of correct motor performance.

\* The members of the basic research sample carry out the proposed sensory-motor perception exercises first using the sense of sight, and secondly without the sense of sight.

### **Codification of proposed sensory-motor perception exercises:**

It's done Limit the number of repetitions For each Exercise and the time it takes, and intervals of rest through the following:

Maximum repetition  
of the exercise in (30) seconds

2

The researcher indicates that the proposed set of exercises to develop sensory-motor abilities under research related to the skills of the technical sentence on the device of ground movements for gymnasts with special needs who can learn is explained in detail in Appendix (4).

Time distribution of the proposed training program:

- The duration of the application of the proposed training program is (8) weeks.
- The number of training units per week (3) training units.

- The number of training units in the program is (24) training units.
- The time of the training unit (30) s (sensory perception exercises - motor).
- Total training hours (12) hours.

Notes The researcher indicated that the load size distribution For Trainings proposed for the development of Capacity Sense – Kinetic Under research related to the level of performance of the skills of the technical sentence on those with Special Needs Mentally handicapped Learners shown in the table (5):

**Table (5)**  
**Time distribution of the proposed exercises to develop sensory abilities - kinesthetics under research**

Intervals	Suggested exercises for sensory abilities – motor						Load size				The week
	Dynamic balance perception	Perceiving time	Perceive the force exerted on the arms	Realizing the power exerted on the legs	Realize the jump distance up	Recognize the distance of moving forward	The Collection		Iteration		
							into	Who is it	into	Who is it	
30s	1	1	1	1	1	1*	3	2	4	3	The first
30s	2	2	2	2	2	2	3	2	4	3	Second
30s	3	3	3	3	3	3	3	2	6	5	Third
30s	4	4	4	4	4	1	-	4	6	5	Fourth
30s	1	1	5	1	1	2	-	4	6	5	V
30s	2	2	1	2	2	3	-	4	-	5	Alsas
30s	3	3	2	3	3	1	-	4	-	5	Seventh
30s	4	4	3	4	4	2	-	5	8	6	Eighth



**Pre-measurements:**

**The researcher conducted the tribal measurements of the members of the basic research sample in the sensory perceptions - motor and the level of performance of the technical sentence on the floor exercise device for gymnasts with special needs with mental disabilities who can learn from 11/8/2022 to 13/8/2022.**

Applying the training program using sensory-motor perception exercises :

The training program was applied using sensory-motor perception exercises (Appendix 5) on the members of the basic research sample from 16/8/2022 to 10/10/2022, for a period of (8) weeks connected by three weekly training units.

Dimensional measurements:

**The researcher conducted dimensional measurements in the perceptions of the sense - kinesia and the level of performance of the technical sentence on the floor exercise device for gymnasts with special needs and mentally handicapped learners after the completion of the application of the proposed training program in the same order and**

**conditions as the pre-measurements, from 12/10/2022 to 14/10/2022.**

Statistical methods under consideration:

**The researcher processed the data statistically using the following statistical methods:**

- **Arithmetic average.**
- Standard deviation Z.
- Broker.- Torsion coefficient.
- Test "T". -Simple correlation coefficient.
- Improvement rates.

**Presentation and discussion of results:**

First: Presentation and discussion of the results of the first hypothesis, which states: "The training program using sensory perception exercises - kinesthetic positively affects the sensory perceptions - kinesthetic (perception of the distance of moving forward - awareness of the distance of jumping up - perception of time - perception of the force exerted by the legs - perception of the force exerted to the arms - perception of dynamic balance) for gymnasts with Special needs of learnable mentally handicapped people."

**Table (6)**

**The significance of the differences between the pre- and post-measurements of the members of the research sample Basic in sensory perceptions - kinetic under research n = 9**

Value "T"	Telemetry		Pre-measurement		Unit of measurement	Variables
	on	M	On	M		
*5.92	4.15	22.00	4.97	34.44	poison	Recognize the distance of moving forward
*3.86	3.29	14.00	3.62	19.22	poison	ze the jump distance upReali

Follow Table (6)

**The significance of the differences between the pre- and post-measurements of the members of the research sample Basic in sensory perceptions - kinetic under research n = 9**

Value "T"	Telemetry		Pre-measurement		Unit of measurement	Variables
	on	M	On	M		
*3.11	1.52	2.69	2.01	4.81	W	Perceiving time
*12.93	4.97	50.00	5.48	85.00	poison	Realizing the power exerted on the legs
*4.16	1.83	4.31	2.19	7.72	kg	Perceive the force exerted on the arms
*3.77	5.16	51.78	5.63	42.00	degree	Dynamic balance perception

Grandfather value "T" at 0.05 = 2.306

It is clear from Table (6) that there are statistically significant differences at the level of 0.05 between **the pre- and post-measurements** of the members of the basic research sample in sensory perceptions - kinetic (perception of the distance of moving forward - perception of the distance of jump up - perception of time - perception of the force exerted to the legs - perception of the force exerted to the arms - perception of dynamic balance) **in favor of dimensional measurement.**

The researcher attributes Improvement in Sensory perceptions - kinesthetic Under research For the members of the research sample Basic into Effectiveness content Training Program Proposed where The researcher relied on the development of Sensory perceptions - kinesthetic Under research to isolate the sense of sight For gymnasts with special needs and learning disabilities Using an eyebrow mask To see, During the

\* D at 0.05

performance of Training Group Suggested up to Player depends On receivers Sensory in the muscles, tendons and joints to be responsible for sending Signals The sensory neurosis of the central nervous system, which acts as a guide and guide For Parts Body.

**This finding is consistent with what Jackson (2013) pointed out** that sensory-motor perception extends the sensory centers in the brain for muscle contraction and relaxation, shortening or lengthening, speed, speed and strength of movements and changing the positions of body parts relative to each other, and spatial accuracy in terms of distance, direction and time of movement.24:51)

This finding is also consistent with the results of the study of: **John & Alex (2002) (25), Lazio and Baristow (2002) (27), Stone et al. (2003) (30), Iman Mohammed Mohammed (2006) (9), Mayouf Thanoun Hantoush (2012). (21),**

Mohamed Ramadan Mohamed (2013) (16), Howayda Fathi Elsayed (2014) (22), Mohamed Hassan Mohamed (2015) (15), Mohamed Abdo Mohamed (2015)(19), Maysa Ahmed Mohamed (2016) (13), Amal Rajab Mohamed (2022) 7) On the

effectiveness of using the proposed training programs in improving the perceptions of sense - kinesthetic for juniors and players of individual and team sports.

Table (7)

Rates of improvement of the measurement after the pre-measurement of the sample members Basic research in sensory perceptions - kinetic under research

Single group n = 9			Variables
Improvement rates	you go away	southern	
56.55%	22.00	34.44	Recognize the distance of moving forward
37.29%	14.00	19.22	Realize the jump distance up
78.81%	2.69	4.81	Perceiving time
70.00%	50.00	85.00	Realizing the power exerted on the legs
79.12%	4.31	7.72	Perceive the force exerted on the arms
23.29%	51.78	42.00	Dynamic balance perception

It is clear from Table (7) that there are improvement rates for the measurement of distance from the tribal members of the basic research sample in the perceptions of sense - kinetic ranged between (23.29%: 79.12%), and this result is consistent with what **John and Alex (2002)** pointed out (25) that this type of perception does not grow in the player without training, and may even not exist at all, and continuous training begins the brain in Understand these signals, and exploit them in directing the course of motor performance, depending on the size and quality of training.

**Aboulela Abdel Fattah et al. (2002)** add that the sensory-motor perception whenever it is correct, the motor

performance is a high degree of accuracy, and the player who perceives the performance correctly has the ability to solve the problems faced during the performance of the skill.(1 : 45)

#### Conclusions:

In the light of the results of the research, its objectives and hypotheses, and within the limits of the research sample , the researcher was able to reach the following conclusions:

1- The proposed training program positively affects the perceptions of sense - movement (perception of the distance of moving forward - awareness of the distance of jumping up - awareness of the force exerted by the legs - perception of the force

exerted to the arms - perception of time - perception of dynamic balance).

2- The development of sensory-motor perceptions positively affects the level of performance of the technical sentence on the floor exercise apparatus for gymnasts with special needs with mental disabilities who are able to learn.

3- The existence of improvement rates in the measurement of distance from the tribal members of the basic research sample in the perceptions of sense - kinetic under research ranged between (23.29%: 79.12%).

4- The existence of an improvement rate in the dimensional measurement of the tribal members of the basic research sample in the level of performance of the technical sentence on the ground exercises device for gymnasts of (27.99%).

#### **Recommendations:**

**Within the limits of the research sample and the results and conclusions of the research, the researcher recommends the following:**

1- Using the proposed training program *to develop* sensory-motor abilities *because of its effective impact on improving the level of* performance of the technical sentence on the floor exercise device for gymnasts with special needs and mentally handicapped *learners*.

2- Inclusion of sensory-motor training in the annual training plan for gymnasts with special needs and mentally handicapped learners for the effectiveness of the motor sense in developing the level of performance on the ground exercise device.

3- The use of sensory-motor abilities tests under research when selecting junior gymnastics with special needs and mentally handicapped learners.

4- Organizing refinement courses related to sensory-motor training for gymnastics coaches.

5- Conducting similar studies on some other sensory-motor abilities as well as some physiological and psychological variables for gymnasts with special needs with mental disabilities who are able to learn.

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