Evaluation of some sensory perceptions – kinetic on the technical performance of the rotation stage in the crawl swimming on the back for people with special needs and mentally handicapped (learnable)

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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.

Kirchhner (2000), Osama Riad and Nahed Abdel Rahim (**2012**) agree that the problem of disability is a humanitarian and social problem in most societies, and the volume of interest in this problem is increasing, especially in developed societies, where helping people with intellectual disability is one of the manifestations of the progress of these societies, and is even a criterion for the extent of economic and social progress. Where the rehabilitation of these disabled to be an effective productive capacity that contributes to the benefit of society, and thus contributes to reducing the burden on the family of those challenged with intellectual disability, and many terms have emerged used to refer to intellectual disability such as mental weakness or mental retardation and mental deficiency, and English law has defined it as "a state of cessation or lack of complete development of the mind arising from genetic or acquired reasons." (26: 272)،(5 : 45)

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)

Afaf Abdel Karim (1995**) points out that children with** simple mental disabilities (learnable) if they are well educated, they are similar to their normal peers more than they are different from them, their basic needs

are play, and motor sufficiency is not much different, they do not show a significant delay in normal movement and compatibility. 12:508)

rts Activities for the disabled have emerged from general spo 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 keep pace with development traditional systems and. (2:20)

(Wajih Mahjoub (2012 and (Hassan Allawi (2002 Mohammed " perception motor-agree that sensoryis the reflection of external things that affect the moment of their presence directly in the individual, which occurs as a result of identical neural arousal in themotor -brain, and sensory perception is builton a physiological basis, as it is a nervous stimuli resulting from external stimuli that go to different parts of the brain to occur close neural associationsmotor perception is-orySens ، "the process of regulating the sensory input and giving it meaning and thus serving as an (121:23) ،(14:402) ".important function as a guide to behavior

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

motor perception in-The importance of sensory swimming is shown sense of movement of his body parts and the extent of by the player's 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 to muscle contractions and certain strength for motor performance according as well as ،speed of movement and balance ،the sense of muscular effort that the player must feel and realize his multiple positions during thePerformance, in terms of when to speed up and when to slow down, and the center of gravity of the body, this is according to the when to change requirements of the situation that the player goes through when performing (175:2)**.** movements swimming

Mechling & Effenbreg(2008) that if motor perception is not **argue** compound movements, motor performance will be generally heightened in -incorrect, with difficulty in performing movements, becoming non

movement is in unable to perform them, and obstruction when ،continuous (29:contact with each other. 32

Mohamed Shehata (2006) **points out** that the development of sensory-motor perception can be done through the use of motor activities and exercises, aimed at forming a balance of sensory-motor information to understand the technique of movement, and thus result in better mastery and control of motor technique. 175:18)

Aziza Mahmoud Salem (2008) **states** that swimming occupies an advanced place for many other sports activities, and is considered one of the activities loved by the soul, and the player's practice of ground movements helps in preparing him on other swimming devices, and teaches him to control and control parts of his body, whether on the ground or during performance in the air, in order to provide a factor of security and safety.

(50:11)

Search problem :

Through the work of the researcher swimming instructor with the category of people with special needs, she noticed a lack of rotation in swimming among mentally handicapped children who are able to learn, and for this 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 perceptions of sense - motor and the level of rotation performance in swimming people with special needs with intellectual disabilities who are able to learn.

Research Objectives :

This research aims to develop a training program using sensory-motor perception exercises for swimming players 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).

2- Rotation in swimming .

Research hypotheses:

1 - There are statistically significant differences between the measurement before and after in the perceptions of sense - kinetic (perception of the distance of moving forward - perception of the distance jump 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 swimming players with special needs mentally handicapped learnable in favor of telemetry.

2- The development of sensory-motor perceptions positively affects the level of rotation performance in swimming people with special needs and learnable mentally handicapped people.

Search terms:

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 characteristics of the movement of the body as overall position of the body and the (a whole." 198:8

(250 : 10)

Search Procedure:

Research Methodology:

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

Research population and sample:

The research sample was deliberately selected from swimming players with special needs with mental disabilities who are able to learn in the age group of (7-12) years Swimming Experts Academy for Sports Services affiliated to Al-Wafa and Al-Amal, Fifth District of Nasr City, in the sports season 2021/2022, and their number is (14) swimming players, and (5) players were selected from them To conduct the exploratory study on them, thus the basic research sample becomes (9) swimming players with special needs with mental 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

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, as the torsion coefficients range between ± 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 equinox curve.

Table (2)
The moderation of the distribution of the members of the research sample in the kinesthetic perceptions
performance of the technical sentence under and the level of
14 = n consideration

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
0.89	6.50	1.21	6.86	degree	Rotation in swimming

It is clear from Table (2) the moderation of the distribution of the members of the research sample in the perceptions of sense - kinetic, and the level of rotation performance in swimming***, as the torsion coefficients range between*** ± 3, which indicates the moderation of the distribution of the members of the research sample in those variables, and 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.

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 Associated Turning in swimming people with special needs and mentally handicapped Learners , consisting of skills 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 swimming training (Appendix 1), and the researcher selected the experts according to the following conditions:

- To have a doctorate degree in physical education (swimming training).
- The years of experience after the doctorate should not be less than (15) years.

The researcher points out that the percentage of experts' agreement on these sensory-kinetic perceptions ranged between (30% to 100%).

Third: Sensory Aptitude Tests – Kinetic: 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.

Fourth: Evaluation of the level of skill performance:

It's done assessment Performance level Rotation in swimming People with special needs and mental disabilities Learners Through a committee consisting of (4) Certified swimming arbitrators (Appendix 3), with the degree calculated from (10) Degrees For the sentence ، Where the grand class was deleted ،and the minimum degree and divide the sum of the remaining two degrees on Two to calculate the degree The player in the performance of the sentence under consideration.

First Survey:

The first exploratory study was conducted on the (5) exploratory research sample. Players Swimming People with special needs with mental disabilities From the research community and outside the basic sample, from 1/8 to 8/8/2021, 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) Players Swimming People with special needs with mental disabilities From the research community and outside the basic sample, and the distinguished group consists of (5) junior swimming 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 3/8/2021, 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"	Non-featured group ن=5		Featured Collection ن=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	Dynamic balance perception

***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 8/8/2021 on the exploratory research sample, and the simple correlation coefficient between the results of the first and second applications was calculated, and Table (4) shows that:

Table (4)
Stability coefficient forsensory 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**	**Realizing 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 *** D at 0.05 level**

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 Intravenous (0.8)86 : 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 swimmers with special needs who are able to learn.

2- Improving rotation in swimming .

Second: The foundations of developing the proposed training program:

- To lead to the achievement of the goal for which it was set.
- Her movements should be similar to artistic skills
- 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:

$$\frac{\text{Maximum repetition of the exercise in (30) seconds}}{2}$$

The researcher indicates that the proposed set of exercises to develop sensory-motor abilities under research related to the technical skills of swimmers 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 distribution of the load size For Trainings proposed for the development of Capacity Sense – Kinetic Under research 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
							The Collection		Iteration		
	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	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 - kinesthetics and level of rotation performance in swimming with special needs and mentally handicapped learners in **the period from 11/8/2021 to 13/8/2022.**

Applying **the training program using sensory-motor perception exercises**:

* **Training number in Appendix (4).**

The training program was applied using sensory-motor perception exercises (Appendix 5) on the members of the basic research sample from 16/8/2021 to 10/10/2021, for a period of (8) weeks connected by three weekly training units.

Dimensional measurements:

The researcher conducted dimensional measurements in the sensory perceptions - kinesthetics and level of rotation performance in swimming people with special needs and mentally handicapped learners **after completing the application of the proposed training program in the same order and conditions as the pre-measurements, from 12/10/2021 to 14/10/2021.**

Statistical methods under consideration:

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

- Arithmetic mean. - Standard deviationj.- Median. - Torsion coefficient.- Test "T". - Simple correlation coefficient - improvement ratios.

Presentation and discussion of results:

First: Presentation and discussion of the results of the first hypothesis, which states

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**	**Realize the jump distance up**
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* D at 0.05**

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 the perceptions of sense - kinetic

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 I depended Researcher on Development Sensory perceptions - kinesthetic Under research to isolate the sense of sight For learnable Learnable Athletes with Disabilities with Disabilities Using an eyebrow mask To see, During the 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 during the performance of Technical skills.

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 El Sayed** (2014) (22), Mohamed Hassan Mohamed (2015) (15), Mohamed Abdo Mohamed (2015)(19), Maysa Ahmed Mohamed (2016) (13**),** Amal **Rajab Mohamed** (2021) 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)

Thus, the validity of the first hypothesis is achieved.

Second: Presentation and discussion of the results of the second hypothesis, which states: *" The* ***development*** of sensory-motor perceptions positively

affects the level of rotation performance in swimming people with special needs, mentally handicapped and learnable**."**

Table (8)

The significance of the differences between the pre- and post-measurements of the members of the basic research sample at the level of Rotation performance in swimming n = 9

Value "T"	*Telemetry*		*Pre-measurement*		*Unit of measurement*	**Variable**
	on	*M*	*on*	*M*		
3.94*	**0.79**	**8.78**	**1.21**	**6.86**	**Degree**	**Rotation in swimming**

***Grandfather value "T" at 0.05 = 2.306* * D at 0.05**

It is clear from Table (8) 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 the level of rotation performance in swimming in favor of the post-measurement.

The researcher attributes the improvement in the level of rotation performance in swimming to the effectiveness of developing sensory-motor abilities through a set of exercises proposed in the training program, which were applied to the members of the basic research sample, and this result is consistent with what was indicated by Mr. Abdel Maqsoud (2000) Sensory-motor perceptual exercises are performed without relying on the sense of sight, which contributes to placing higher requirements on the senses of the internal regulation circuit, which leads to an improvement in the level of skill performance.6:76)

This finding is also consistent with the results of the study of: John & Alex (2002) (25), Lazio and Barstow (2002) (27), Stone et al. Stone,et.,al (2003) (30), Iman Mohammed Mohammed (2006) (9), Mayouf Thanoun Hantoush (2012). (21), Mohamed Ramadan Mohamed (2013) (16), Howayda Fathi El Sayed (2014) (22), Mohamed Hassan Mohamed (2015) (15), Mohamed Abdo Mohamed (2015)(19), Maysa Ahmed Mohamed (2016) (13), Amal Rajab Mohamed (2021) 7) On the effectiveness of developing sensory-kinetic perceptions in improving the level of technical and digital performance of juniors and players in individual and team sports

Table (9)

The percentage of improvement of the dimensional measurement from the pre-measurement of the members of the basic research sample at the level of For swimming players

Single group n = 9			**Variable**
Improvement rates	***you go away***	***southern***	
27.99%	**8.78**	**6.86**	**Rotation in swimming**

It is clear from Table (9) that there is an improvement rate for the remote measurement from the tribal members of the basic research sample in the level of rotation performance in swimming amounted to (27.99%).

The researcher attributed the improvement *of the members of the basic* research sample in the level of *rotation performance in swimming* to the high level of sensory abilities - motor, especially (perception of the distance of moving forward

- perception of the distance of jump up - perception of time - perception of the force exerted by the legs - perception of the force exerted to the arms - perception of dynamic balance) All of them are within the requirements for the performance of the skills that make up the swimming players.

This finding is consistent with what he referred to **Mr Abdul Maqsoud (2000) that Trainers must Coverage Players' eyes with visor mask for vision from time to another during training so that they can see later more sharply, as it is performed Dispensing about Sense of sight For a while during training to cast higher requirements on the senses of a circle marshalling The interior, which leads to rapid development in its level, and therefore improve Performance level Skills for athletes. (6: 76)**

Thus, the validity of the second hypothesis is achieved

Conclusions:

In light of the results of the research , its objectives and hypotheses, andwithin 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 rotation performance in swimming people with special needs and learnable intellectual disabilities.

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 measurement of the distance from the tribal members of the basic* research sample in the level of rotation performance in swimming 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* rotation performance in swimming People with special needs and learnable mental disabilities.**

2- Inclusion of sensory-motor training within the annual training plan for swimming players with special needs and mentally handicapped learners for the effectiveness of the motor sense in developing the level of performance

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

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

5- Conducting similar studies on some other sensory-motor abilities as well as some physiological and psychological variables for swimming players with special needs and mentally handicapped learners.

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