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The role of swimming in improving the function of respiratory system and helping to alleviate severity of asthma attacks in children from point of view from specialist's doctors.

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ABSTRACT

he research aims to determine The role of swimming in improving the function of respiratory system and helping to alleviate severity of asthma attacks in children from point of view from specialists doctors, we used the descriptive approach in this study, the research sample included 10 doctors specializing in respiratory diseases and pediatrics, of whom 7 from public sector and 3 from private sector between magra and setif, We used the questionnaire instrument to know point of view from specialists doctors about our topic and the SPSS program to reach accurate results, The results indicated that swimming has a role in improving the function of respiratory system and helping to alleviate severity of asthma attacks in children.

1. Introduction

The relationship between sport, medicine, and health in our society is becoming increasingly through an analysis changing political economies, altered perceptions of the body and sciences developing contribution to the human condition. Surveying the various ways in which medicine interacts with the world of sport, it examines the changing practices and purposes of sports medicine today.(Dominic Malcolm, 2017, 2)

Swimming is an attractive form of exercise, as it is easily accessible, inexpensive and isotonic because it does not involve bearing of bodyweight, due to the buoyancy of water compressive joint forces are lower and, as a consequence adverse impact on the musculoskeletal system as well as injuries are rare.

Indeed, the incidence of orthopaedic injury among swimmers is substantially lower than in runners of cyclists.

Moreover, because of colder temperature as well increased thermo conductivity of water, the incidence of heat related illness is small.

As such, it is an ideal form of exercise for obese patients, the elderly and patients with arthritis.

However, surprisingly little is known about the effects of regular swimming for health promotion and disease prevention.

In contrast to the public perception that swimming is a minor form of exercise it is one of the most popular and most practiced forms of physical activity.

In the US and most industrialized countries, swimming is the second most popular dynamic exercise modality, second only to walking. (hirofumi tanaka, 2009, 378)

Asthma is a major non communicable disease affecting both children and adults, with high morbidity and relatively low mortality compared with other chronic diseases. (Dharmage et all, 2019, 2)

Asthma is among the most common chronic diseases in children, and swimming is one of the most practiced sports in western countries where sedentary and obesity are increasing, especially among children. (laia font ribera, 2011, 582)

Comparing swimming to other sports have found that swimming is unlikely to provoke an asthma attack.

Swimming aids normal physical and psychological development and regular swimming can increase lung volume and help develop good breathing techniques.

Swimming can improve muscle tone and general fitness and provide enjoyment for people with asthma.

Children participating in swimming have shown significant improvement in all clinical variables including symptoms, hospitalizations, emergency room visits and school absenteeism compared with their previous medical history or with age matched controls. (Shing wang, Ping hung, 2009, 838)

Through these paragraphs, especially when we knew that results of some earlier studies proves the positive effect of swimming on asthma disease, (Idris et all, 2019, 58) we try to Know the content and function of respiratory system, showing point of view from doctors about asthma symptoms and attacks in children, detecting the role of swimming in improving the function of respiratory system and helping to alleviate severity of asthma attacks in children under this general question:

Does swimming play a role in improving the function of respiratory system and helping to alleviate severity of asthma attacks in children from point of view from specialist's doctors?

1.1. Research terminology:

-Swimming: An integrated sport activity that requires the use of one's entire body to move through water without having a walk at the bottom. (Mostefa Boudebza, 2021, 411)

- Swimming is a water exercise, all people from different ages and genders can practice it, its practitioners acquire strength, energy and perky. (Gasmi Bachir, 2010, 85)

- **Respiratory system:** The respiratory system, functionally, can be separated in two zones; conducting zones (nose to bronchioles) form a path for conduction of the inhaled gases and respiratory zone (alveolar duct to alveoli) where the gas exchange takes place. Anatomically, respiratory tract is divided into upper (organ outside thorax - nose, pharynx and larynx) and lower respiratory tract (organ within thorax - trachea, bronchi, bronchioles, alveolar duct and alveoli). (Apeksh P, Amit S, 2015, 533)

- **Asthma:** Asthma is a chronic, heterogeneous disease with symptoms and features that include wheeze, cough (particularly at night and during exertion), dyspnea and chest tightness, variable airways obstruction and bronchial hyper responsiveness (BHR). The underlying chronic inflammation is often characterized by eosinophilia activity and allergic inflammation, and airways remodeling is a frequent feature of asthma, even

in young children, although not in the very early stages. (Marielle W et all, 2015, 907)

2. Method and Materials:

2.1. Research Methodology:

As the topic is from medical field about doctor's point of view, we chose the descriptive approach for the current research.

The descriptive approach is what describes the phenomenon and explains it and determines the relationship between its elements, collects the data to get results and approves or Denys the hypotheses. (Hedj ben ichouch. S, Ghadban Ahmed. H, 2022, 333)

2.2. Research society:

The research society included 26 doctors specializing in respiratory diseases and pediatrics.

2.3. Participants:

The research sample included 10 doctors specializing in respiratory diseases and pediatrics, of whom 7 from public sector and 3 from private sector between magra and setif, we choose them with random method.

2.4. Research Field:

- Human field: 10 doctors specializing in respiratory diseases and pediatrics, of whom 7 from public sector and 3 from private sector.
- Spatial field: between magra (msila) and setif.
- Temporal field: from 10/03/2022 to 12/04/2022.

2.5. Research Variables:

a. Independent variable: swimming.

b. Dependent variable: the function of respiratory system and asthma attacks.

2.6. Research instruments:

Questionnaire of three degrees (agree, disagree, strongly agree) was distributed for the purpose to knowing the point of view from specialist's doctors about our topic in this current research.

The questionnaire Consists two axes:

- The first axis (Swimming and the function of respiratory system) consists 5 phrases, their numbers (1, 2, 3, 4, 5).
- The second axis (Swimming and asthma attack) consists 5 phrases, their numbers (6, 7, 8, 9, 10).

We calculated the psychometric characteristics of the questionnaire before we distributed to the sample of this research, where the stability coefficient was 0,67 and the honesty coefficient was 0,81 using the SPSS program.

2.7. Statistic instruments:

Statistic instruments it's from the important ways that lead to understand fundamental factors that impacts on studied phenomenon through analysis and discuss results, each researcher has his instruments that's related with his studied topic. (Boukoufa Mohamed, 2022, 320)

The purpose of using statistical processing is to reach analysis, explication and conclusion.

The instruments statistic using in this research are:

- Chi-square.
- Cronbach's Alpha .

3. Results:

-Show the results and its discussion:

- Showing and analyzing some phrases from the first part of specialist's doctors questionnaire (Swimming and the function of respiratory system):

Table N01: Showing phrases (3, 4, 5) from the first part of questionnaire:

Phrases	Odds	Repetition =10	Percent age%	Chi-square	signification level	Df	Asymp_sig	statistic decision
phrase 03	Disagree	0	0	0.4	0.05	1	0.5	there is no statistic signification
	Agree	4	40					
	Strongly agree	6	60					
Total		10	100					
phrase 04	Disagree	0	0	3.6	0.05	1	0.05	There is statistic signification
	Agree	2	20					
	Strongly agree	8	80					
Total		10	100					
phrase 05	Disagree	9	90	6.4	0.05	1	0.01	There is statistic signification
	Agree	1	10					
	Strongly agree	0	0					
Total		10	100					

- According to the table N01 we notice that the direction of this axis is approval direction.

- from the 3rd phrase (Swimming is one of the best exercises for asthma because it builds up the muscles that the child uses for breathing; it also exposes the lungs to warmer and moister air, which is less likely to trigger asthma symptoms.) the percentage reached 40% for agree and 60% for

strongly agree, that's prove the agreement of most doctors on this phrase, we find the value of chi-square 0.4 and it's not statistically signified because the sig value is 0.5 and it's greater than signification level 0.05 in df 1.

- from the 4th phrase (Aerobic exercises such as swimming is excellent for building lung capacity.) the percentage reached 80% for strongly agree, that's prove the agreement of most doctors on this phrase, we find the value of chi-square 3.6 and it's statistically signified because the sig value is 0.05 and it's equality with signification level 0.05 in df 1.

- from the 5th phrase (Swimming cure asthma in children.) the percentage reached 90% for disagree, that's prove the disagreement of most doctors on this phrase, we find the value of chi-square 6.4 and it's statistically signified because the sig value is 0.01 and it's less than signification level 0.05 in df 1.

And because the agreement percentage is more than the others in the most phrases then swimming plays a good role to improve the function of respiratory system from point of view from specialist's doctors.

- Showing and analyzing some phrases from the second part of specialist's doctors questionnaire (swimming and asthma attacks):

Table N02: Showing phrases (8, 9, 10) from the second part of questionnaire:

Phrases	odds	Repetition =10	Percentage%	Chi-square	signification level	Df	Asymp_sig	statistic decision
phrase 08	Disagree	2	20	3.2	0.05	2	0.2	there is no statistic signification
	Agree	6	60					
	Strongly agree	2	20					
Total		10	100					
phrase 09	Disagree	0	0	1.6	0.05	1	0.2	There is no statistic signification
	Agree	2	20					
	Strongly agree	8	80					
Total		10	100					
phrase 10	Disagree	0	0	0.0	0.05	1	1.0	There is no statistic signification
	Agree	5	50					
	Strongly agree	5	50					
Total		10	100					

- According to the table N02 we notice that the direction of this part is

approval direction.

- from the 8th phrase (The transition to a crisis stage of asthma can be prevented by regular swimming.) the percentage reached 60% for agree, that's prove the agreement of most doctors on this phrase, we find the value of chi-square 3.2 and it's not statistically signified because the sig value is 0.2 and it's greater than signification level 0.05 in df 2.
- from the 9th phrase (A certain amount of increased lung capacity can be gained by physical exercise that involves heavy or deep breathing.) the percentage reached 70% for agree, that's prove the agreement of most doctors on this phrase, we find the value of chi-square 1.6 and it's not statistically signified because the sig value is 0.2 and it's greater than signification level 0.05 in df 1.
- from the 10th phrase (The medical protocol can be adjusted according to the child's changing condition because of swimming practice.) the percentage reached 50% for agree, that's prove the agreement of some doctors on this phrase, we find the value of chi-square 0.0 and it's not statistically signified because the sig value is 1.0 and it's greater than signification level 0.05 in df 1.

And because the strongly agreement percentage is between 70% and 50% and 20% then swimming in this part plays a role to alleviate severity of asthma attacks in children from point of view from specialists doctors. We explain this that swimming helps asthma's children to avoid suddenly severity attacks.

4. Discussion :

4.1. Results discussion of the first part (Swimming and the function of respiratory system):

From results of the Table N01 we deduce that swimming and regular practice of it for asthma's children helps lung functions and easier its work also helps doctors to adjust treatment protocol.

- Swimming is a message and duty for all people.
- Parents should educate their children to practice sports (swimming, archery and horse riding). (Faysal Rachid. A, 1995, 44)

4.2. Results discussion of the second part (swimming and asthma disease):

From results of the Table N02 we deduce that swimming in treatment program asthma children helps them to avoid suddenly severity attacks.

- Swimming is recommended as one of the most appropriate sports in asthmatic children since the humid environment of the swimming pool is

considered protective against exercise-induced bronchoconstriction. (Uyan et all ،2009 ،33)

- Swimming improves respiratory and circulatory system competence and reduces weight, psychological pressures for chronic diseases people. (Dlimi omar, 2018, 167)

5. Conclusion :

From these results and its discussion about (swimming and the function of respiratory system, swimming and asthma disease) which shows that swimming helps lung functions and improve psychological pressures for chronic diseases people, we deduce that swimming plays a role in improving the function of respiratory system and helping to alleviate severity of asthma attacks in children.

The study recommended:

- practicing different water exercises permitting to improve fitness and respiratory system competence for child.
- Regular practice of swimming especially in warm water is calming respiratory airways for allergic children.
- The support of watersports environments encourages people to swim and rejuvenate their mood psychological, physiological and physical.
- Prioritize health and Confirmation of relationship between swimming and health is an instrument to guide children to practice swimming sport that's inversing positively on different body functional systems.

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