Measuring Body Mass Index and the level of health-related fitness of middle school students with intellectual disabilities in Saudi Arabia

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Aim. The purpose of this study was to measure body mass index (BMI) and the level of health-related fitness (LHRF) of middle school students with intellectual disabilities in Riyadh, Saudi Arabia, collecting data researchers used running test (1600 meters), sitting for the top test, muscular strength test, muscular endurance test, muscular capability, interview. Methods. A descriptive surveys method was used; Sample was selected in the manner deliberate search of fifteen male participants were porously chosen from Ibn al-Bitar Middle School. Results and conclusion. BMI of middle school students with intellectual disabilities is (26.21) they are obese, the elements of health-related fitness of middle school disabled students are low. Key words: Body Mass Index - Health - Fitness - Intellectual disability.

Thinking disability is a crucial problem that faces different sectors of the society. Consequently the sponsors and supporters of the disabled help them in educational, social and psychological fields. They aim to develop their abilities and skills and also encourage them to participate in the society. Intellectual disability can be defined as a low level of intelligence that appears at any time from child birth until adulthood. Based on degree of the disability, it can be associated with late maturity, unsuccessful learning or difficult adaption with society. Intellectually disabled category suffers from very low mental development in comparison with normal people. Their mental development stops for some reason at a certain point. Thus intellectual disability is a total or partial breakdown of mental development. It appears in child birth as a result of environmental or genetic factors. Its consequences appear in different fields and activities of learning and social adaption. In most cases, dynamic development of the intellectually disabled individuals is slow in comparison with normal people. Their mental development stops for some reason at a certain point. Thus intellectual disability is a total or partial breakdown of mental development. It appears in child birth as a result of environmental or genetic factors. Its consequences appear in different fields and activities of learning and social adaption. In most cases, dynamic development of the intellectually disabled individuals is slow in comparison with normal people. Their mental development stops for some reason at a certain point. Thus intellectual disability is a total or partial breakdown of mental development. It appears in child birth as a result of environmental or genetic factors. Its consequences appear in different fields and activities of learning and social adaption.

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Incompetence of joints, muscles and bones affects dynamic systems and causes shortages in dynamic abilities. Subsequently the intellectually disabled individuals suffer from weak muscles and unbalanced development of muscle groups. Enhancing dynamic abilities of the intellectually disabled children is very important. It develops their observations, concepts, creative abilities, knowledge, and recognition of dimensions and directions such as space and time. Consequently they get used to logical behavior and problem solving. It is evident that dynamic education is an educational system that depends on principles of dynamic development and enables them to perform their educational and dynamic duties. Most societies are concerned with health-related fitness because of its health benefits. Educational foundations and medical associations recommend tests of physical fitness to the intellectually disabled children for being vulnerable to diseases caused by lack of movement. Many studies show that the intellectually disabled individuals suffer from low level of fitness and high percentage of obesity compared with their normal peers as a result of staying away from fitness. Physical education and fitness activities help the disabled recover their muscular, nervous and psychological harmony. It has rules and goals, not just a physical activity. Physical activities become part of curative and rehabilitative programs because of its great advantage for those who are intellectually disabled. Its educational and social return is quick and tangible. They become more enthusiastic and involved in the society. Loss of self-confidence is no more one of their problems. However, physical activities that are introduced for the intellectually disabled individuals miss accuracy and quality, especially in the countries that started applying the program lately (El-Salhy-2011). Arab countries, for example, did not reach international levels due to several reasons: the trainers are not fully qualified in addition to lack of proper physical fitness and dynamic measurements. While the researchers were overseeing schools in KSA, they observed that some trainers don’t provide especial physical activities for the disabled. The trainers are unaware of even the simplest physical fitness measurements that help them apply appropriate programs for the disabled. Consequently they are desperate and unwilling to train this category. That is why the researchers make their studies on the level of health-related fitness and body mass for the disabled and suitability of traditional measurements and tests for them. They concentrate on the disabled as they represent the largest category at schools.

Materials and methods

During the 2013 season, fifteen male of middle school students with intellectual disabilities in Riyadh, Saudi Arabia., participated in this study after providing written informed consent in accordance with the responsible school manager and their family. This study was approved by the Ethics Committee of Scientific Research, Faculty of Sport Sciences and Physical Activity, King Saud University. The guidelines of the ethics Committee include respect for persons, beneficence, and justice. The ethics Committee aims to ensure the practice of sound ethical principles in the field of scientific research to maintain health and human rights. The investigators received written consent from the participants, their family and school manager and interviewed some of the participants and their family. A descriptive surveys method was used. Information on BMI was collected from participated using a height and weight measurement. Information on the level of health-related fitness (LHRF) was collected from participated using a running test (1600 meters), Sitting for the top test, muscular strength test, muscular endurance test, muscular capability, interview.

Results

BMI of the sample ranges between 21.778 and 37.778. The average is 26.21 (Table I). Average measurement of muscle flex-
rating, they are obese due to lack of exercises and inability to take advantage of the physical education classes in school. The curriculum doesn’t meet their requirements. These factors led to excessive body mass. Therefore the researchers recommend using fitness exercises that are suitable for level and kind of the intellectual disability. Diet is necessary in order to maintain their health at the present and future. These results agree with the study of Fox et al. 13 which indicated that the intellectually disability 32.13 cm, average endurance Muscular 16.93, average power muscle 83.66 cm, average muscle strength 11.66 kit, Jerry Processing/walking 800 meters of 9.11 minutes (Tables II).

### Discussion

The results of this study suggest that BMI of middle school students with intellectual disabilities is (26.21). According to Melhem
bled children have overweight. Mishan Harbi study.\(^{14}\) indicated that BMI of the disabled is high.

That the elements of health-related fitness of middle school disabled students are low. The results agree with the study of Alexander c & Anthony.\(^{15}\) which confirms that the disabled has low level of fitness. The results agree also with the studies of Bik Chow et al.\(^{16}\) Chen, Chao-Chien& Lin, Yi-Chun.\(^{17}\) Mike Gillespie.\(^{18}\) and Mishan Harbi.\(^{14}\) These studies confirm that students with intellectual disabilities have low level of health-related fitness.

**Conclusions**

BMI of middle school students with intellectual disabilities in Riyadh was high compared with similar studies and scientific criteria. The level of health-related fitness of middle school students with intellectual disabilities in Riyadh was low compared with similar studies and scientific criteria.

**Practical implications**

— Focusing on physical activities for the disabled.

— Developing especial physical education curricula for the disabled.

— Measuring weight, body mass index (BMI) and fitness elements periodically for the disabled.

**References**

1. Algarity A. Measuring attitudes towards the disabled. the Anglo-Egyptian Bookshop, Cairo, Egypt; 2005. p. 54.


12. Abdullah H. development of social skills and an en- trance to integrate people with special needs in regular schools and public life; a seminar experiences of integrating people with special needs, Gulf Cooperation Council (GCC), aspirations and challenges, 2-4 March, Bahrain; 1998. p. 29-41.


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