

THE DEVELOPMENT OF FLEXI BAR TRAINING MODEL FOR OVERWEIGHT ADULT

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Abstract

The aimed of study to develop a flexi bar training model for overweight adults. The 17 exercise experts who were exercise trainers, sport scientists, and university lecture. Delphi technique was applied for conducting the research. After 3 rounds, the researcher analyzed the data using Median, Mode and Interquartile range. The results revealed that the experts had corresponding opinion toward the development of flexi bar training model at the most important level. This research also pointed out that the experts correspondingly agreed that the components of flexi-bar exercise model and flexi bar training model were appropriate for exercise, and it was an alternative for exercise to stimulate energy expenditure rate which results in good physical fitness and biochemistry in bloods. In addition, it strengthens muscles and structures of joints of overweight adults; and it was a model for exercise program for those who have few physical activities and abnormality in physical movement in the future.

Keywords: flexi-bar / delphi technique / overweight

INTRODUCTION

Overweight is generally based on Body Mass Index (BMI). WHO found that Asian people have smaller physical sizes than American, European, and African people. Therefore, the BMI of Asian people those who have BMI ranged from 23.00 - 24.99 kg/m² were considered overweight. To decrease the rate of having health problems in overweight adults, it is focused on promoting appropriate physical behaviors and activities, nutrition, and exercises (WHO, 2017). There are various models of exercises for losing fat such as aerobic dance, walking, running, and cycling (Viskic-Stalec et al., 2017, Nybo et al., 2010, Ingrid, Cira, & Jonas, 2009).

Flexi-bar exercise an alternative exercising activity to increase lean body mass, efficiency of muscle contraction and basal metabolism rate (Olson et al, 2006, Figueroa et al,2012, Di Loreto et al., 2004). Flexi bar is an exercise with vibration equipment and is designed to have low frequency. There is resistance against vibration along the bar where the weight at both ends were the scale to control the weight of vibration timing (Masoud, 2016). Flexi-bar can be practical as exercise equipment easily and safe. However, the data identifying the use of flexi-bar with overweight has not been reported. The research objective was to study the useful information for the development of flexi-bar training model to be appropriate for overweight adults.

METHODS

Participants

17 participants willingly participating in the research were selected through purposeful

selection method to reduce errors and keep it as static as possible (Macmillan, 2012). The samples were divided into 3 groups; 7 fitness trainers, 3 sport scientists in sports division in private hospitals who were graduated bachelor degree or higher, had at least 5-year experience in their position, and 7 university lecturer who were expert in sport science and exercise, master degree or higher, and having at least 5-year experience in teaching.

Procedure

3 Round Questionnaire was used for the research using Delphi Technique. The questionnaire for round 1 was a semi-structured questionnaire with open-ended questions conducted for the experts to provide their opinion independently regarding the issues of the research study. The questionnaire for round 2 was developed from the opinion of all experts in the first round. The data was analyzed. This rating scale questionnaire with 5 scales ranging from 5, 4, 3, 2 and 1 which refers to the score of the patterns of flexi-bar training model ranked by the experts from highest to lowest. The experts can give their opinion to support the agreement or disagreement regarding each question at the end of the questionnaire, the experts can also write down their suggestion. The answer from the experts to the questionnaire for round 3 were investigated for Median, Mode, and Interquartile range and redesign questions using the same wording as in round 2 and the position of the scores given by the experts in the previous questionnaire. Then, it was sent back to the expert. The experts can see similarity and differences of Median, Mode, and interquartile range of the answers from all experts, and considered whether they will

change or confirm their answers and write down the reasons in short at the end of each question item.

DATA COLLECTION

The researcher introduced personal information, explaining the objectives of the research and describing the use of Delphi Technique in doing research in brief. After that, we sent the semi-structured questionnaire with open-ended questions to the experts by post and e-mail. The experts answered the questionnaire and provided their opinion freely about the questions. In round 2, The questionnaire was conducted as rating scale questionnaire ranging 5, 4, 3, 2 and 1. The experts scored the patterns of the flexi-bar training model. The experts can give their opinion to support the agreement or disagreement regarding each question. The answers from this round questionnaire were analyzed and calculated in percentage levels, Median, Mode and Interquartile Range. In

round 3, the questions using the same wording as in round 2 but adding the positions of Median, Mode, and interquartile range and the position of the scores given by the experts in the previous questionnaire. In this round they can change or confirm their answers and wrote down the reasons in short at the end of each question item. When there is nothing to be changed answer, it means the data has high reliability (Pool patarachewin, 2010).

RESULTS

It was found that in round 3, 15 experts did not change the answers, approximately 88.24 %. Meanwhile, 2 experts changed the answers in round 2, approximately 11.6%. Murry and Hammons who stated that if changing rate is lower than 20%, the next round of questionnaire can be cancelled (Murry & Hammons, 2008).

Table 1. Median, Mode and Interquartile range and the level of importance of questions regarding flexi-bar training model

The Development of Flexi-bar training model	Median	Mode	Interquartile Range	Level of importance
1. Specifications of flexi-bar	5	5	0	Strongly agree
2. Patterns of flexi-bar training model	5	5	0	Strongly agree
3. Advantages of Flexi bar-training model for overweight adults	5	5	0	Strongly agree

DISCUSSION

The experts had corresponding opinion that the flexi bar that it can be used for exercise (Markus, 2009). While vibrating flexi-bar, the vibration is generated along small amplitude of movement. There is resistance or intensity of work with vibration along the bar where the weights at both ends are used to control the intensity or times of vibration. The flexi bar has low-frequency rate which is approximately 5 Hertz (Dong et al., 2018). The results showed that the experts had corresponding opinions toward the steps of flexi-bar training at highest level for all aspects. There was warm-up activity and readiness preparation by doing static stretching following with dynamic stretching for 10 minutes in order to increase muscular flexibility and temperature to help the blood vessels expand and ready for transporting oxygen through all parts of the body. The most important is increasing heart rate as appropriate as needed for exercise (Hsuan et al., 2017). Flexi-bar training model is mixed between movement

and vibrating to increase working load of deep muscles while forcing to resist vibration intensity (Heinz et al., 2017). During this training, the body will learn how to expend energy and remember the techniques postures and muscular force appropriately (Okely et al., 2017). Another important factor of active vibration generation is stimulating tonic vibration reflect to work continuously and help increase basal metabolism rate during exercise (Cardinale & Bosco, 2003). The experts had correspondingly agreed with the objective of the research that active vibration with flexi bar for exercise can effectively create balance of trunk muscles and strengthen joints. In addition, long-term exercise will help reduce resistance within blood vessels and increase efficiency of oxygen transporting in overweight adults.

CONCLUSION

This research study implemented Delphi technique to gather the knowledge from the experts to be applied for the development of

flexi-bar training model to be appropriate for the overweight. There were advantages of exercise with flexi bar found in various aspects. It can be used as guidelines to develop a training model in

experiment study to find out the effect of long-term exercise and change in physical fitness and biochemistry in blood of the overweight adults.

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