

***The effect of 8 weeks of Pilates exercises on pain change and kyphosis angle in women's health in Tehran's second district***

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**Abstract**

Pilates largely avoids high impact, high power output, and heavy muscular and skeletal loading. Pilates largely avoids high impact, high power output, and heavy muscular and skeletal loading. The aim of this study was the effect of Pilates exercises on pain and kyphosis angle on the health of 30 young women in the second district of Tehran with an age range of 20 to 50 years with mild kyphosis. The studied samples were selected based on the inclusion and exclusion criteria of the study, as well as through objective observation, kyphometer, pain ruler, checkerboard. Mackenzie, Williams exercises and special exercises for the back muscles (lying down) have also been used. Data analysis was performed by descriptive statistics, inferential statistics, Kolmogorov-Smirnov test, analysis of covariance, using SPSS software version 26. The results showed that the level of significance for the distribution of variables is normal and Pilates exercises are effective in changing the

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angle of kyphosis, reducing pain in women 20 to 50 years old. The results showed that using Pilates exercises on the muscles of the abdomen, back and spine caused a change in the angle of kyphosis, thus the support area of kyphosis is also treated. Pilates largely avoids high impact, high power output, and heavy muscular and skeletal loading. Pilates largely avoids high impact, high power output, and heavy muscular and skeletal loading.

**Keywords:** Pilates exercises, Kyphosis angle, Pain intensity, Women's health, Exercise.

### **Introduction**

Today, different methods are used to treat situational kyphosis. Among these methods, we can mention the use of corrective movements or hydrotherapy methods (Ghasemi Paein Dehi, 2014 and Sokhangoei et al., 2010). However, due to the fact that a series of specific Pilates Exercises called McKenzie and Williams Exercises focus on the back and spine muscles and strengthen these muscles to improve kyphosis, in the present study, the effect of Pilates Exercises on pain and kyphosis angle of Tehran women have been studied. The purpose of this study is to help statistical tests to consider the effect of corrective exercises on body structure and functional pattern, quality of life and postural control in people in the age group of (20 to 50), which includes Pilates exercises in two stages of pre-test and post-test. The test is for eight weeks on the pain, the angle of the kyphosis, and the instruments (kyphometer, checker board, pain ruler). In addition, due to the structure of the kyphosis that the person was exposed to, it also affected the respiratory pattern. As a result of Pilates Exercises, pain and kyphosis angle, as well as respiratory pattern, motor correction of individual pattern, deformity of skeletal structure, increase in strength and range of motion are effective.

### **Research Tools**



The aim of this study was to investigate the effect of Pilates Exercises on pain and kyphosis angle on the health of 30 young women in the second district of Tehran with a range of 20 to 50 years with mild kyphosis. The studied samples were selected based on the inclusion and exclusion criteria of the study, as well as through objective observation, kyphometer, pain ruler, checker board. Also, Mackenzie, Williams Exercises and special exercises for the back muscles (lying down) have been used. To analyze the data, descriptive statistics, inferential statistics, Shapirville test, analysis of covariance were used with the help of SPSS software version 26. The results showed that the level of significance for the distribution of variables is normal and Pilates Exercises are effective in changing the angle of kyphosis and reducing pain in 20 to 50 years old women. The results showed that with Pilates Exercises emphasizing the muscles of the abdomen, back and spine, in addition to changing the angle of kyphosis, back pain caused by kyphosis is also treated. Also, with Pilates muscles become stronger and strengthening the muscles also increases the amount of stability from the waist up. For this reason, it is used in the treatment of some acute diseases and the improvement of disorders such as kyphosis.

### **Data Analysis**

Table 1: Analysis of univariate covariance on kyphosis angle scores

Effect Size	The Significance Level	F	Average of Squares	Degrees of Freedom	Sum of Squares	Title of Exam
0/458	0/001	22/787	19/146	1	19/146	Kyphosis angle pre-test
0/252	0/005	9/086	105/169	1	105/169	Group (control / test)
			2/57	27	69/387	Error
				30	44503	Total



The results of the above table showed that there is a significant difference between the post-test scores of pain intensity in the control and test groups by removing the variety of pre-test scores. The effect size or ETA coefficient indicates that 25.2% of the changes in the kyphosis angle post-test score in the experimental group were due to 8 weeks of Pilates Exercises.

### **Conclusion**

The results of the present study showed that Pilates exercises are effective in changing the kyphosis angle of women aged 20 to 50 years and the health of young women in Tehran's second district. The results showed that by emphasizing Pilates Exercises on the muscles of the abdomen, back and spine, in addition to changing the angle of kyphosis, back pain caused by kyphosis is also treated. As a result, Pilates affects the pain and kyphosis angle, and also respiratory pattern, motor correction of individual pattern, Deformation of skeletal structure and increasing the power and range of motion. With Pilates muscles become stronger and strengthening the muscles also increases the amount of stability from the waist up. For this reason, it is used in the treatment of some acute diseases and the improvement of disorders such as kyphosis.

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