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## Impact of Pilates on Anxiety Attention, Motivation, Cognitive function and Achievement of Students: Structural Modeling

Konul Memmedova <sup>a\*</sup>

<sup>a</sup>*Department of Psychological Counseling and Guidance, Near East University (North Cyprus)*

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### Abstract

Few studies in psychology and medical researches have studied effect of pilates on students anxiety, attention, motivation and cognitive function. Pilates has many physical and mental benefits. This study examined the association between pilates exercises and students anxiety, attention, motivation and cognitive functions that are very important parameters affecting on academic performance. The first time is represented the structural model of the problem. The ways that pilates affects on anxiety, attention, motivation, and cognitive function are established.

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*Keywords:* medical researches, Pilates, structural model, pilates affects

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### 1. Introduction

In developing his method, Pilates (founder of Pilates exercises) combines both eastern and the western concepts (Pilates and Robbins, 2012) by including mental focus and specific breathing of yoga with the ancient Greek and Roman exercise systems.

Pilates provides complete coordination of body, mind and spirit. Pilates is based on six principles which enable to increase attention, motivation and enhance cognitive functions while minimizing stress on the body (Ungaro, 2002).

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\* Konul Memmedova. Tel.: +90 (392) 223 64 64; fax: +90 (392) 223 64 61.  
*E-mail address:* [konul.memmedova@neu.edu.tr](mailto:konul.memmedova@neu.edu.tr)

### 1.1 Principle of pilates

Centering: Physically bringing the focus to the center of the body, which include the abdominals, pelvis, buttocks and back.

Concentration: Bringing one's full attention to the form and execution of each exercise.

Control: Engaging the mind to unite with the body to economize movement (i.e. learning to use only the muscles necessary to perform a task, while the rest of the body relaxes).

Precision: Employing the notion that every movement has a purpose, resulting in a "less is more," and "quality over quantity" philosophy. When a movement is performed well a few times, there is no need to do more.

Breath: Moving in tandem with the breath, resulting in enhanced lung capacity, overall coordination and facilitating a stronger mind-body connection.

Flow: Fluidity, grace, and ease are goals applied to all exercises. The energy of an exercise connects all body parts and flows through the body in an even way.

### 1.2 Benefits of pilates

The mind–body approach has many physical, psychological and social impacts (Hillman, Erickson, Kramer, 2008; Ungaro, 2002) given below:

- Increase flexibility, strength and vitality
- Strengthen the immune system.
- Improve balance.
- Help manage chronic health conditions such as asthma, carpal tunnel syndrome, depression, back pain, osteoarthritis and osteoporosis.
- Improve concentration and focus.
- Reduce stress and anxiety and , relieve tension and boost energy
- Encourage the connection of our physical, mental and spiritual selves.
- Help us maintain a strong, flexible spine and Provide a greater awareness of our posture.
- Strengthen deep abdominal muscles.
- Help with motivation by engaging our mind and enhancing body awareness.
- Promote recovery from strain or injury.
- Increase the range of motion of joints.
- Improve circulation.
- Offer relief from back pain and joint stress.
- Compliment sports training and develop functional fitness for daily life.
- Improve the way our body looks and feels.
- The medical community also recognizes Pilates as a modality that assists with physical therapy. Pilates work is often incorporated into conventional therapy to facilitate healing an protect clients from future injury.

## 2. Structural Model of impact of pilates on psychological factors

Impact of pilates on attention, motivation and cognitive functions factors can be represented by the following structure:

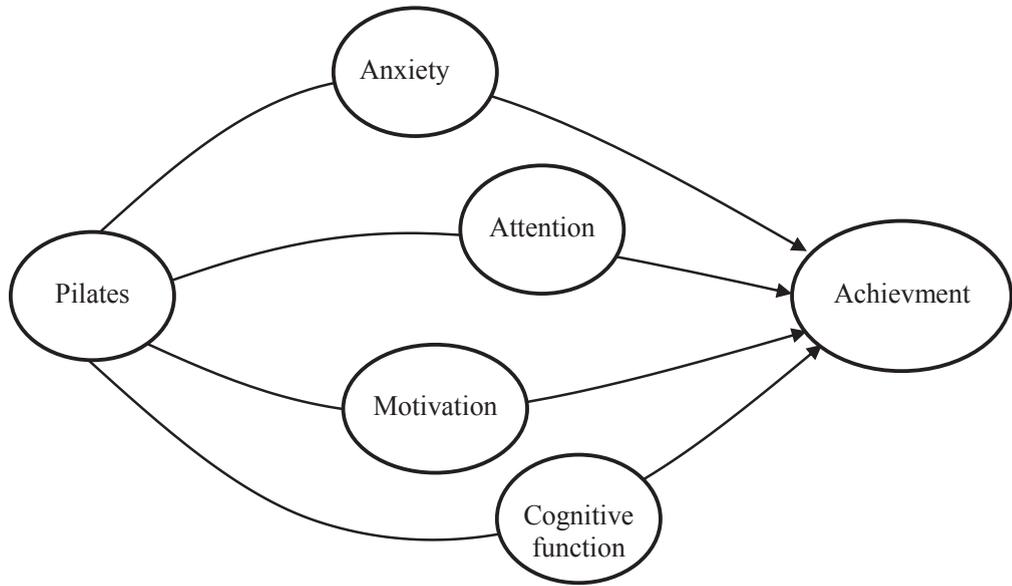


Figure 1. Structural Model of impact of pilates on psychological factors

Pilates affect on above mentioned psychological factors through several ways.

Consider each cases separately.

Anxiety is one of the major psychological variables which is considered as an important part of personality development. Anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive, and behavioral components.. However, when anxiety becomes overwhelming, it may fall under the classification of anxiety disorder pilates reduce stress, anxiety, fatigue and improve mood. Pilates helps an individual to deal with a demanding situation by prompting them to cope with it. American and European studies are found a negative correlation between anxiety and academic achievement (Taruna Malhotra, Sheena Sabharwal, 2013). Pilates reduces the anxiety by following mechanism:

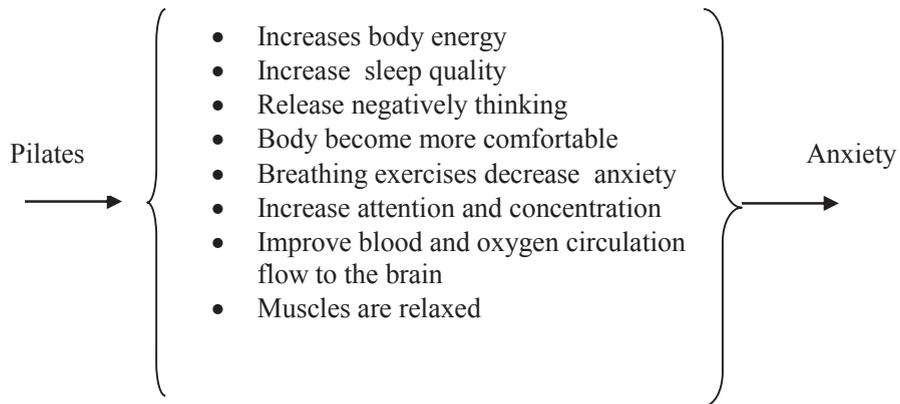


Figure 2. Impact of pilates on anxiety

Attention was originally defined by the psychologist, William James, over a hundred years ago, as processing ‘one out of what seem several simultaneously possible objects or trains of thought. It implies withdrawal from some things in order to deal effectively with others’ . You might think of attention as a filter or funnel, in which many pieces of information come into the brain, but only one of these pieces of information is processed. Pilates by following ways increases attention.

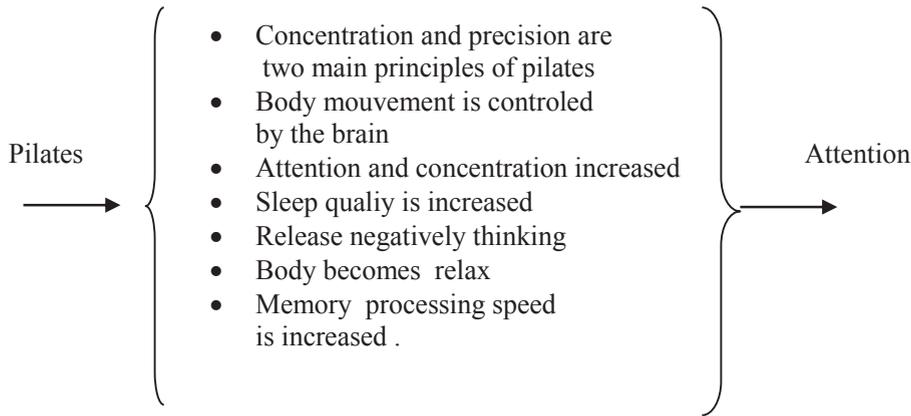


Figure 3. Impact of pilates on attention

Motivation is defined as the process that initiates, guides, and maintains goal-oriented behaviors. In other words motivation refers to factors that activate, direct, and sustain goal-directed behavior (<http://psychology.about.com/od/mindex/g/motivation-definition.htm>). In educational perspective motivation is student’s willingness, need, desire, and compulsion to participate in, and be successful in, the learning process Particularly with respect to students, motivation for academic achievement is of great importance. By such motivation people are stimulated to successfully complete an assignment, achieving a goal or a degree of qualification in their professions (Amrai , Motlagh, Zalani & Parhon, 2011). Motivated behaviors are energetic, oriented and permanent.

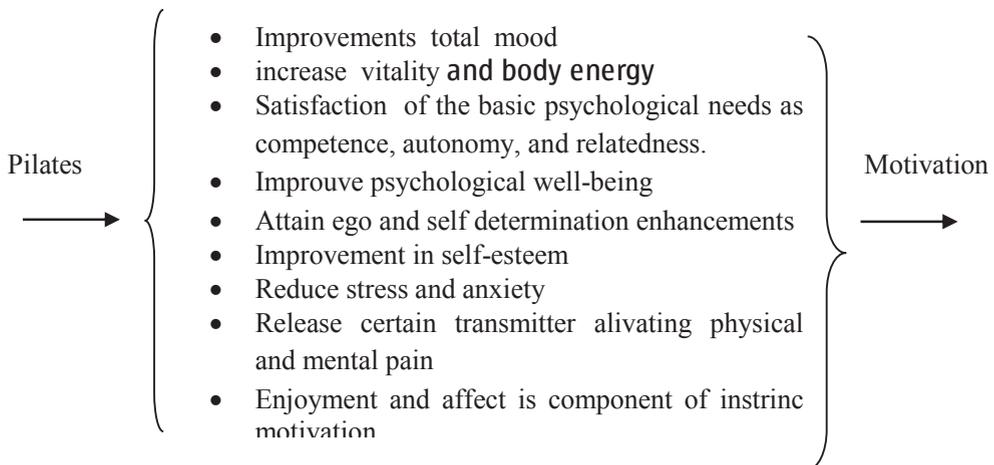


Figure 4. Impact of pilates on motivation

Pilates exercise improves muscular strength, balance, posture; flexibility, bone density, and decrease back pain. The development of musculoskeletal fitness with long term resistance training is associated with enhanced cardiovascular function and musculoskeletal metabolism. Pilates increases a cognitive function – pilates is different than many other forms of exercise because it requires the mind to pay attention to what you are doing. Research shows that when required to think about how you are moving, your brain cells grow at a faster rate and your nervous system creates better connections throughout your body.

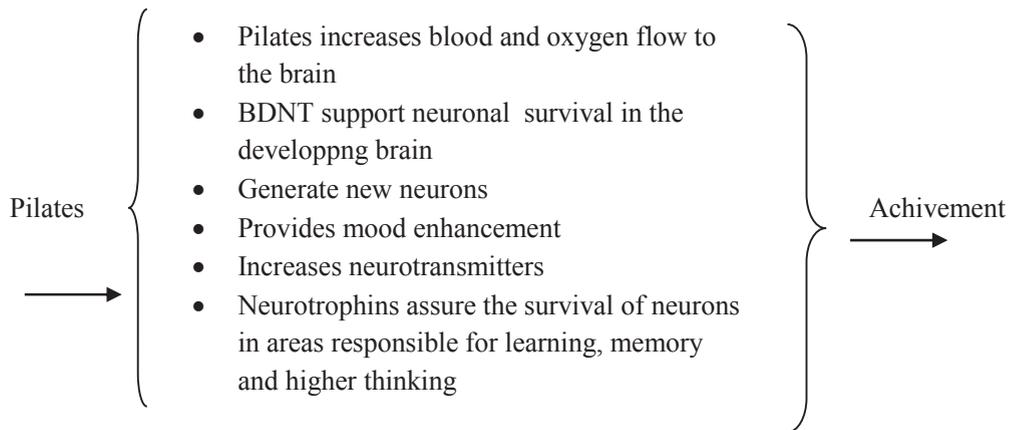


Figure 5. Impact of pilates on cognitive functions

Pilates reduce stress, anxiety, fatigue and improve mood, motivation and achievement.

Beyond academic achievement many researchers connects pilates to absenteeism, drop-out rate, and social communications of students (Aladro-Gonzalvo, et al. 2012).

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