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Valley Outpatient Rehabilitation VOR

Pilates Based Physical Therapy

INTRODUCTION:

Pilates-based physical therapy is gaining momentum in the rehabilitation community as an effective treatment approach for diagnoses related to postural dysfunction, poor movement patterns, joint instability, and muscular imbalance. Pilates-based therapeutic exercises and principles are used in conjunction with traditional physical therapy methods to increase proprioception, coordination, balance, control, strength, flexibility, stability, and mobility. These exercises are very versatile and adaptive and can be used to effectively treat patients regardless of age, ability, or fitness level. The techniques have been successful in rehabilitating patients with the following diagnoses: scoliosis, glenohumeral instability, impingement, rotator cuff tendonitis, thoracic outlet syndrome, chronic sprain/strains, herniated cervical and lumbar discs, spondylolisthesis, incontinence and pelvic floor dysfunction, patellar tracking problems, fibromyalgia, and musculoskeletal problems related to pregnancy, and many others.

HISTORY:

Joseph H. Pilates, born in Germany in 1880, combined his research studies with his personal physical experiences to create what is now known as Pilates. Most of this development occurred while Joseph was interning at a British prison camp during WWI. He adapted and “enhanced” hospital beds so that he could teach his exercises to the patients as they recovered. After WWI, many athletes and theater performers turned to Joseph for assistance in training. Max Schmelling, world heavyweight boxer, sought out Joseph Pilates and convinced him to immigrate to the United States and open the first Pilates studio in New York City. Joseph later coined the term Contrology, the process of coordinating body and mind to control physical movement, to name his work. Joseph died in 1967 but his work continued to develop and broaden through his students. However, in 1992, Sean Gallagher purchased the trademark and assets of the studio. Because of this trademark, companies and teachers could not use the term Pilates to describe their work for many years. Fortunately, this trademark was revoked in the year 2000 and has allowed Pilates to become a sought after method in fitness and rehabilitation over the past five years.

THE FOUNDATIONS AND PRINCIPLES BEHIND THE WORK:

Joseph Pilates authored a book in 1920 called *Return to Life Through Contrology*. Within this book he described six key principles of his work, Concentration, Control, Centering, Flow, Precision, and Breathing. Although Pilates itself has not been extensively researched as to its effectiveness as a rehabilitation technique, the following principles and what they imply from a physical therapy standpoint have been. In Pilates-based physical therapy we see a unique method of utilizing many different evidence-based rehabilitation techniques within one treatment approach.

Concentration: Each exercise requires active kinesthetic, proprioceptive, and postural awareness from the patient. Neutral spine is the foundation of each exercise and stability must be maintained while the patient performs the movement of the exercise. Patients are educated in self-evaluative tactile and visual techniques to monitor their movement while external feedback is also provided from the therapist. Time is also taken to educate the

client as to the purpose behind what they are doing. The goal is that through knowledge, concentration, and self-correction, kinesthetic and proprioceptive awareness will increase and new movement patterns and/or muscle recruitment will be developed.

Control: With increased awareness comes increased control. Emphasis is placed on how a patient moves from point A to point B with any given exercise. Movements do not happen by mistake and proper body mechanics and alignment must be maintained. This ensures proper muscle recruitment when strengthening, stretching, or performing active range of motion (AROM) exercises. This skill is then applied to more functional activities in preparation for returning to work or ADLs. The end results are motor learning and empowerment of the patient. Achieving better control of the body often translates into better control of the pain.

Centering: All healthy movement must come from a stable and strong center. In Pilates-based therapy, all therapeutic exercise reinforces proximal stability with distal mobility. Proximally, the area of focus is the spine and the rectangular area between the shoulder and pelvic girdles. Joseph Pilates referred to this area as the “Powerhouse”. Distally, the focus is placed on the extremities. It is important to note that every exercise taught with this approach is “full body”. Every joint requires stability and this stability is achieved not only from immediate anatomical structures but also through a chain-like connection to a strong center. For example, while rehabilitating an ankle injury, focus will be placed not only on the ankle joint, but also the knee, the hip the pelvis, and the spine.

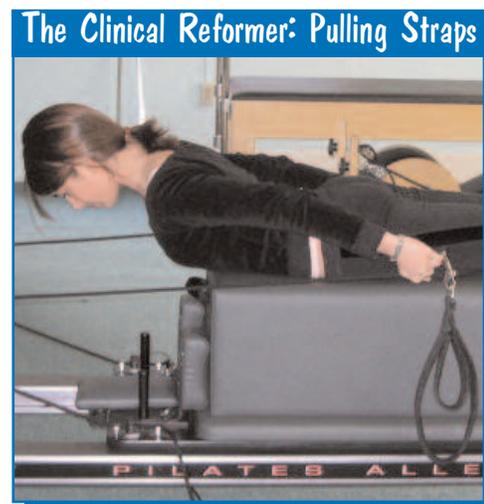
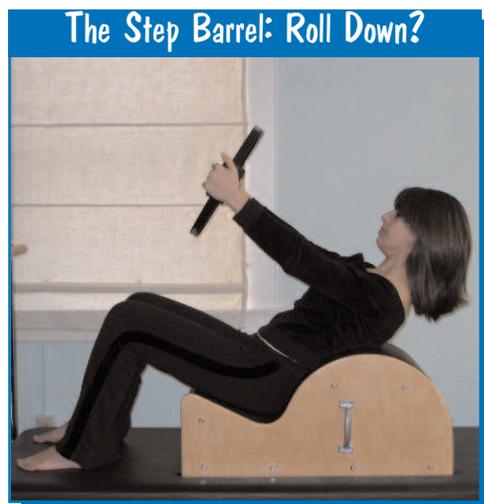
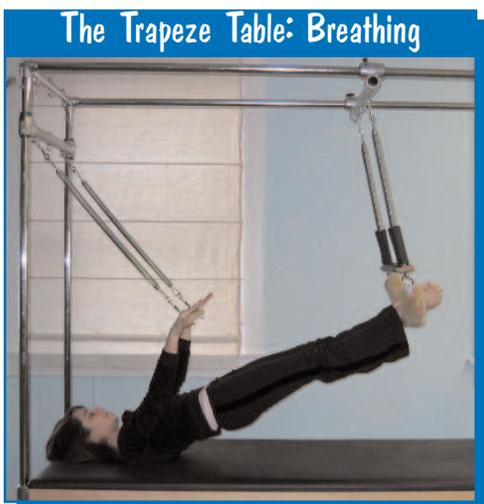
Flow: Mastery of the first three principles will result in the fourth. The “full body” approach of Pilates-based therapy focuses on rehabilitation of the involved area, but also reintegration of that area with the rest of the body. Range of motion, strength, flexibility, stability, and mobility goals can all be met. The client must then be taught how to use and synchronize these new achievements to move and function correctly.

Precision: During a Pilates-based physical therapy session, it is essential that the therapist directly supervise the patient’s performance of the exercise. The physical therapist can then identify substitutions, compensations, points of weakness, and errors in technique and then correct them with verbal, manual, and visual cues. Correct muscle recruitment and firing patterns are reinforced and faulty movement patterns are retrained.

Breathing: Proper breathing is the second foundation behind every Pilates-based therapeutic exercise. Diaphragmatic breathing is taught in a way that encourages abdominal muscle recruitment for proximal stability and expansion of the ribcage. Continuous cueing of breathing eliminates the valsalva maneuver, promotes relaxation, and helps to synchronize the body.

THE EQUIPMENT AND THE EXERCISE:

The Pilates-based therapeutic exercise is primarily performed on one of eight specially designed pieces of equipment. This equipment was developed by Joseph Pilates and is essential for successful rehabilitation uti-



lizing this method. On this equipment, springs, loops, ropes and a moving platform are used to safely assist and/or resist a patient through the movements. Progression of the exercise is accomplished by increasing or decreasing the tension and by changing the patient's position on the machines to work towards simulation of functional positions and movement. The gravity-reduced setting that these machines provide is an optimal motor learning environment. Faulty movement patterns can be broken down and the components can be retrained and perfected. This may first be accomplished by lying on the machine and can then be progressed to sitting, kneeling, and ultimately standing on it.

The equipment resistance is created through springs of differing tensions. This resistance can either be used to assist or resist a movement depending on the exercise and the position of the patient on the machine. The spring resistance also emphasizes control in the concentric and eccentric phase of the exercise and is continual and equal to the force generated by the muscles throughout the entire ROM. In many of the exercises, the spring resistance is useful in realigning the body and can also provide needed feedback to the patient for successful completion of the exercise.

There are hundreds of exercises that can be performed on these machines. The Pilates technique combines isometric, concentric, and eccentric muscle actions all in one exercise. Emphasis is placed on muscular balance between opposing muscles and between right and left sides of the body. With these exercises the therapist has the ability to target a specific area of the body while at the same time allowing for multi-

plane movement and multi-joint involvement that more closely resembles functional use of the body.

Currently, most people are more familiar with the Pilates mat exercises and are not aware the Pilates equipment exists. This is due to commercial advertisement and the fact that most gyms can afford to offer this form of Pilates within their facility. In the rehabilitation setting, it is not recommended that patients start on the mat, as the exercises are difficult to do correctly and safely. In this environment the patient is working independently against gravity with no external guidance or assistance. A good example would be to compare an exercise done with free weights versus nautilus machines. Once the patient has learned the correct way to do an exercise on the Pilates equipment they are often given modified mat exercises as their home exercise program. In addition to the few exercises they are given, patients will spend most of their effort and time outside of the clinic incorporating new body positions and movement patterns into their normal daily life.

CONCLUSION:

Pilates-based physical therapy is a refreshing new approach to rehabilitation that combines the more traditional methods of modalities and manual therapy with a functional and full body approach to strengthening, stabilization, stretching, proprioception, muscular endurance, and postural and movement reeducation. The approach is very versatile and adaptive and is appropriate for patients regardless of age, ability, or fitness level. Clinicians across the country are seeing profound qualitative and quantitative results with this technique and it has become widely accepted as an appropriate form of rehabilitation.

The Combo Chair: Footwork



The Trapeze Table: Walking



The Clinical Reformer: Chest Expansion





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NEWS *briefs*

Shellie Sakash, a licensed physical therapist and certified Pilates instructor, is the Pilates-based physical therapy program coordinator at OSPTA in Upper St. Clair, PA. Shellie specializes in designing and incorporating Pilates-based rehabilitation programs into the physical therapy clinic. She is also a master level instructor for PowerHouse

Pilates, LLC and travels throughout the country to train medical professionals in the Pilates technique. Please call the Upper St. Clair office to schedule a consultation with Shellie.

To schedule an appointment, please look below for the office convenient to you.

Also, OSPTA@Home provides home health services to assist the homebound patient.

OSPTA would like to thank Ms. Shellie Sakash, PT and Ms. Lauren Nahas for their contribution to the newsletter.

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