

ACTIVE PERINEAL REHABILITATION

Hypothesis / aims of study

Physical therapy is considered as the first treatment option for pelvic floor muscle disease, these treatments are done with pelvic floor muscles exercises (kinesiotherapy) with or without the use of other resources such as biofeedback, electrical stimulation and vaginal cones.

The several protocols that we can find have no consensus about treatment duration, techniques used, and these protocols do not respect the evolution of the treatment and the individuality of each patient. They are made with only one type of therapy and have no change in the intensity of the exercises session by session.

The Active Perineal Rehabilitation protocol has 14 sessions and it respects the 3 phases of rehabilitation: teaching, agility and strength. This protocol has the objective to rehabilitate pelvic floor muscle in order for them being able to take in their functions. The author aims that this protocol becomes the gold standard treatment for pelvic floor muscle rehabilitation.

Study design, materials and methods

This protocol was developed when I was taking my master degree in Science of Physiotherapy between 2009-2011. I used a big literature review, my practice and my knowledge in this process.

Results

The Active Perineal Rehabilitation protocol uses kinesiotherapy with biofeedback, electrical stimulation, vaginal cones and home exercises. It consists of 14 individual sessions that gradually evolve the intensity of exercises, and 12 weeks duration. In the first month the sessions are realized twice a week, in the second month they are weekly, and in the last month they are fortnightly.

All treatment is making in individual session, with vaginal probe for electro stimulation and biofeedback. All 14 sessions are programmed in the medical device for pelvic floor rehabilitation. Because it uses a biofeedback all sessions are individualized, always it is making in the patient maximal strength percentage, the physical therapist can constantly carry patient performance. The biofeedback graphics make the session more ludic and help in the exercise performance. The patients are recommended to make exercises at home and to use vaginal cones.

This protocol is based on the exercise physiology, taking in consideration the cognitive, neuromuscular and metabolic alterations caused by the rehabilitation. It is indicated for muscle rehabilitation in the treatment of both female and male urinary incontinence, sexual dysfunction, fecal incontinence, constipation, genital prolapse and pelvic pain. When these conditions are in a more advanced stage and surgery is required, the protocol is recommended before and after surgery as a complementary treatment.

Interpretation of results

The pelvic floor muscle rehabilitation should not be different from the rehabilitation of other striated muscles. Each pelvic floor muscle has a specific function, but when asked to voluntary contract, they contract as a whole, the isolated contraction of each it is not possible. The movement generated by the contraction of these muscles is the elevation cranially and anteriorly at the pubic symphysis direction, closing the urethra, vagina, and anus, and lifting the pelvic organs. All physiotherapy treatments for disorders of the pelvic floor muscle should be made based on this movement.

It is essential that a thorough assessment is made to determine the causes of the condition and treatment goals. The session indicated for the patient is the one that he can accomplish, but with some degree of difficulty or challenge. This protocol should be adapted to the needs of each, some patients may need to make a session more than once and others may skip some sessions. The evolution of patient depends on the ongoing treatment assessment.

In a program of training and rehabilitation it is necessary to consider the neurophysiological and muscle changes aiming at a progressive development of muscle strength and performance; training should be adapted according to the context, physical capacity of each individual, respecting the objectives of each.

Untrained individuals should start with 2-3 sessions per week. The evolution of training for untrained individuals to intermediaries may be in training volume and / or frequency. The frequency of 4 to 5 times per week must be done by trained individuals.

The contraction of the pelvic floor muscle is not innate, it must be taught to the patient and requires training, this is the main goal of the treatment. When we make a move, the central nervous system thinks the of action to be performed and not on each individual muscle that will perform this action. Through repetition of an activity, a program it's created in the upper levels of the central nervous system, which corresponds to a set of actions stored in memory.

Agility is important to stop a movement and change direction quickly. In the first weeks of training, neuromuscular changes happen, that occur in improved intramuscular coordination, improved intermuscular coordination and improvement of reflex activity.

The improved intramuscular coordination is due to the increase in motor units recruited and the increased frequency of recruitment. This is achieved by application of muscle contraction intensity near the maximum voluntary contraction strength (90 %) and repeat the movement at great speed.

The hypertrophy depends on: the type of program followed, muscle action, intensity, volume, exercise selection and order, rest time between sets and frequency. The hypertrophy of type I fibers is achieved with a workout with higher training volume but with lower intensity. The hypertrophy of type II fibers is achieved with strength training and power intensive.

When the muscle fiber no longer responds to the stimulus train with increased volume, muscle hyperplasia resulting from a division of the muscular fiber occurs, yielding two original size fibers which may then pass through the hypertrophy process.

Concluding message

Pelvic floor muscle rehabilitation has shown to be an effective treatment; studies had shown that the cure rate for incontinence ranges from 28 to 84%. This wide range of results is due to the different evaluations methods used in each study. Patients who have their treatments accompanied by a specialist physiotherapist have better outcomes than those who do exercise without supervision.

Pelvic floor muscle exercises causes neuromuscular and metabolic changes responsible for increased reflex response, strength, endurance, coordination, tone and hypertrophy; treatment outcomes depend on the type of training adopted, motivation, adherence to training and muscle and nervous integrity.

This protocol has been utilized by me in my practice since 2011; his successful outcomes confer his clinical validation. I am checking its scientific validation in my PhD, it will permit all physical therapists specialist use it, increasing efficiency and credibility of these treatments.

PROTOCOL DESCRIPTION																			
Session	muscle fiber II									muscle fiber I									time minutes
	E	P	A	%MS	NR	PW	PR	NS	TS	E	P	A	%MS	NR	PW	PR	NS	TS	
1	10	SS	SD	60	8	4	12	2	60	15	SS	SD	30	10	5	15	2	60	40,93
3	10	SS	SD	80	10	3	9	2	60	15	SS	SD	50	10	10	10	2	60	40,67
4	10	SS	SD	80	10	3	6	2	60	15	SS	SD	50	10	10	10	3	60	44,00
5	10	SS	SD	90	12	3	6	2	60	15	SS	MG	50	10	15	10	3	60	47,10
6	10	SS	SD	90	12	3	6	2	60	15	SS	MG	60	10	15	10	3	60	47,10
7 e 8	10	SS	SD	60-90	15	3	3	3	60	15	ST	SD	60	10	20	10	2	45	45,00
9 e 10	10	SS	SD	60-90	15	3	3	3	60	15	ST	SD	40-90	10	20	10	2	45	45,00
11 e 12	10	SS	SD	60-90	15	2	2	2	45	15	ETP	MG	40-90	10	25	10	3	45	49,00
13 e 14	10	SS	SD	60-90	20	2	2	3	45	15	ST	MG	40-90	10	30	5	3	30	51,00
E= electrotherapy (minutes)										NS= number of sets									
P= patient position										TS= time between of sets (seconds)									
A= patient action										SS= patient semi - seated									
%MS= percentage of maximum strength										SD= patient stopped									
NR= number of repetitions										ST= patient standing									
PW= period of work (seconds)										MG= patient moving									
PR= period of rest (seconds)										Time: total duration of the session (minutes)									

Disclosures

Funding: None **Clinical Trial:** No **Subjects:** NONE