

The implications of therapeutic swimming and physical therapy in the rehabilitation of physical disabilities functional

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Keywords: kyphosis, lordosis, scoliosis, recovery, therapeutic swimming.

Abstract: This study mainly aims to determine the role that therapeutic swimming has in the recovery of main physical and functional disabilities. The main physical and functional disabilities that we chose are: kyphosis, lordosis and scoliosis. These deficiencies affect many people like: children, youth, adults and even old people. The study included six patients, 3 were included in the experimental group and three in the control group. The rehabilitation program for the subjects that was included in the experimental group contained water exercises and techniques of therapeutic swimming. They had a faster visible progress than those from the control group that followed only physiotherapy rehabilitation.

Introduction

Postural deficiency is defined as the deviation "from the normal shape and physical functions of the body that disturbs normal growth and development of the body, changing appearance, reducing the skills and strength to adapt to physical effort, reducing the ability to work" (Dominteanu, T., 2005, Fozzie, C. A., 2002).

Functional physical deficiencies that will be presented in this study are: kyphosis, lordosis and scoliosis. These are spine physical disabilities.

Kyphosis represents a deviation of the spine in the anterior-posterior plane with convex curvature oriented posterior. These are the most common and typical deviations of the spine, which can take different forms and characters, the causes and mechanisms of the shape, extent and location of the spine, evolution and possibilities of correction (Dominteanu, T ., 2008).

The literature recognizes several types of kyphosis: functional kyphosis (attitude kyphosis, habitual, professional, compensation

kyphosis) and pathological kyphosis (congenital, rachitic, paralytic, traumatic, rheumatic, senile kyphosis, etc..).

Lordosis is a deviation of the spine in the anterior-posterior plane, convex curvature is directed anterior. Their evolution is largely favorable, they do not reach a high degree of deformation and balance are compensated fairly quickly (Muresan, E. 2006).

Like kyphosis, lordosis may be functional (attitude, habitual, compensatory lordosis) and pathological (congenital, rachitic, paralytic, myopathic lirdosis, etc..).

Professor Adrian Ionescu defined the scoliosis as "a constant deviation of the spine in the frontal plane, which can take the form of a simple side slope, a partial or total bowing, or a system of two or more curves in the opposite direction". Scoliosis can be functional (attitude, scoliosis by custom, static or professional) and pathological (rachitic, paralytic, rheumatic, traumatic, etc.).

Materials and methods

Research methods included in this study were: literature review, discussions with specialists, testing method, experimental method, the method of graphical representation, etc.

In this study were included six male subjects, three were included in the experimental group and 3 in the control group. All six subjects had a recovery program in kinesiology, each for his affection, but those in the experimental group had a therapeutic swimming program.

	Name and surname	Age	Deficiency
Experimental group	N.G.	12 years	Thoracic kyphosis
	D. B.	11 years	Lumbar lordosis
	L. A.	13 years	Scoliosis in the "C", the left
Control group	B. R.	12 years	Thoracic kyphosis
	L. D.	12 years	Lumbar lordosis
	M. M.	11 years	Scoliosis in the "C" Right

Table 1. Subjects in the experimental and control groups

Regarding the performed tests, all six patients were evaluated and measured, the parameters retained for this study included: degree of spine mobility, pain and pathological curvature.

All six subjects achieved treatment program for 5 weeks with 4 sessions each week, and each treatment session lasted for the 80 minute experimental group and the control group for 50 minutes.

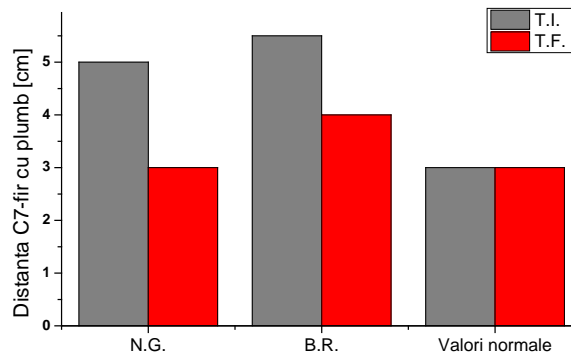
Results and conclusion

Results obtained at the initial and final tests subjects were introduced into a table and then graphically represented. Subjects in the experimental group had a higher development in terms of the measured parameters compared to those of the control group.

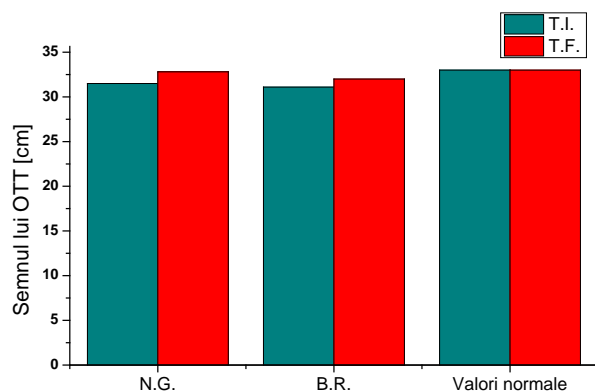
The table below shows the results obtained by the tests in patients with kyphosis proposed.

Tests / Subjects	N.G (experimental group)		B.R.(control group)		Normal value
	I.T.	F.T.	I.T.	F.T.	
Distance between C7 and plumb wire (cm)	5	3	5,5	4	3
Distance between L1 and plumb wire (cm)	5,4	4	5,9	4,8	4
Distance: occipital - wall (cm)	4	0,5	4,5	1,3	0
OTT sign (cm)	31,5	32,8	31,1	32	33
Pain level	3	0	3	1	0

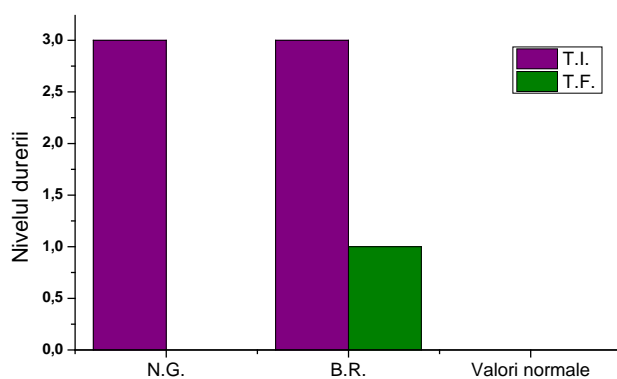
Table 2. Thoracic kyphosis subjects results



Graph 1. Representation of distance between C7 and plumb wire test



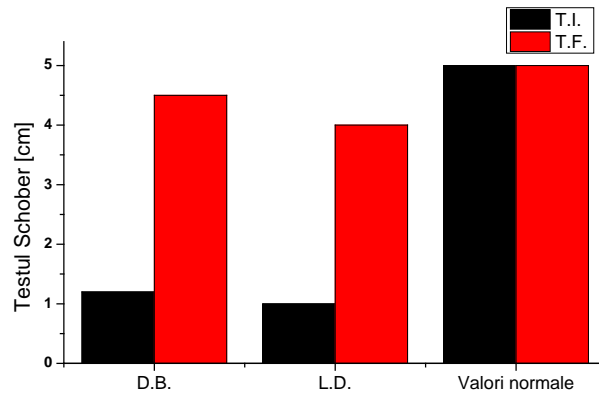
Graph 2. Representation OTT sign test



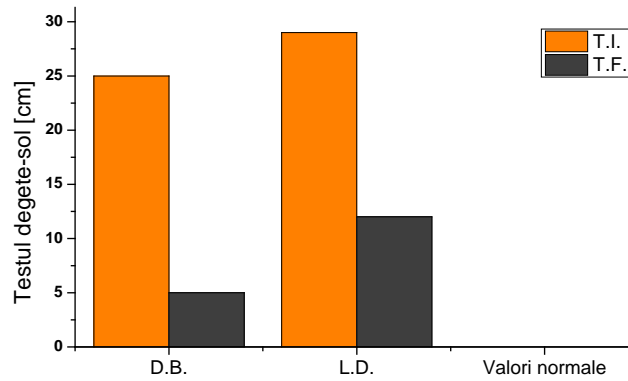
Graph 3. Representation of pain level test

Tests / Subjects	D.B.(grup experiment)		L.D.(grup de control)		Valori normale
	T.I.	T.F.	T.I.	T.F.	
Schober Test (cm)	1,2	4,5	1	4	5
Stibor Sign (cm)	7	10	6,8	9,6	> 10
Toes – ground distance (cm)	25	5	29	12	0
Pain	4	0	4	1	0

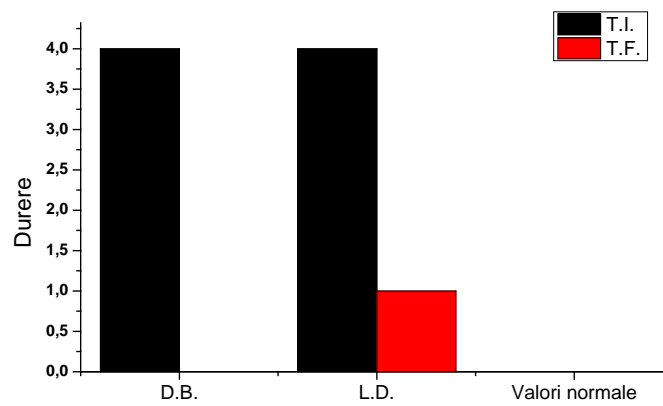
Table 3. Results of subjects with lumbar lordosis



Graph 4. Representation of Schober test



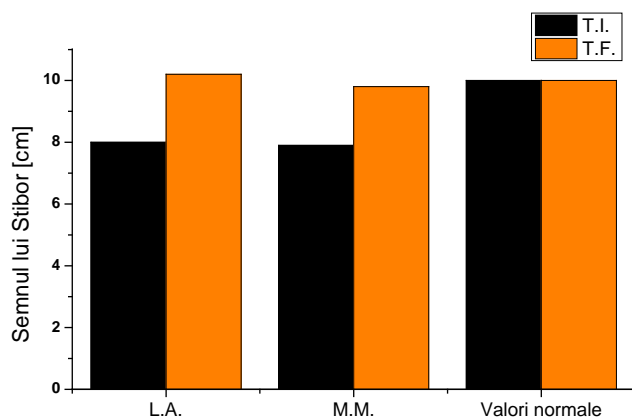
Graph 5. Representation of finger-ground test



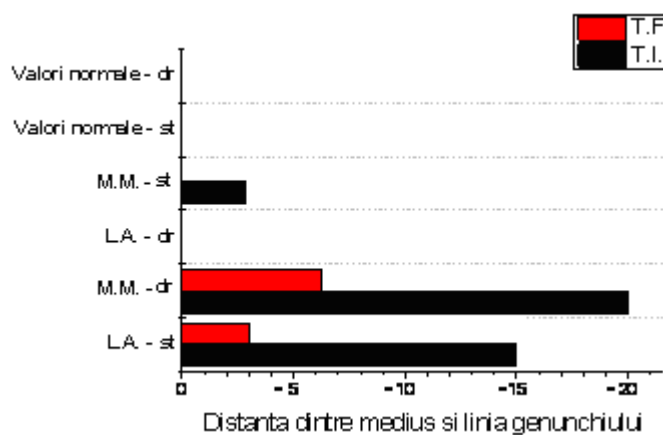
Graph 6. Representation of pain

Tests / Subjects	L.A. (experimental grup)		M.M. (control grup)		Normal value
	I.T.	F.T.	I.T.	F.T.	
OTT sign (cm)	26	32	24	30	33
Schober Test (cm)	3,9	4,8	3,5	4,1	5
Stibor sign (cm)	8	10,2	7,9	9,8	> 10
The distance between the knee and the line medius	left	-15	-3	-3	0
	right	0	0	-20	-6
Pain	3	0	3	0	0

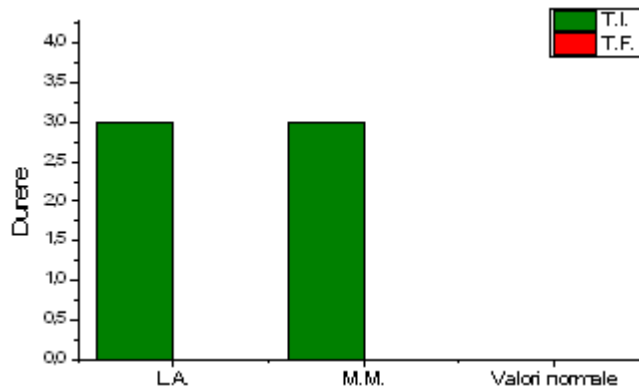
Table 4. Subjects results of "C" scoliosis



Graph 8. Representation of the distance between medius and knee line



Graph 7. Representation of the sign of Stibor



Graph 9. Representation of pain

The results indicates that the experimental group were included in the treatment program and therapeutic swimming as methods of recovery have progressed faster than others, the obtained values being normal or close to normal, due to the shorter period of rehabilitation.

Using the swimming methods in the complex treatment of physical therapy demonstrates its effectiveness in correcting physical deficiencies, both through positive influences exerted by appropriate technical processes and increasing objectivity correction sessions in which subjects participate with greater interest (Balan V., 2007).

Bibliography:

1. Bălan, V., (2007), Ghid metodologic pentru corectarea deficiențelor fizice prin înot, Editura Didactică și pedagogică, București;
2. Dominteanu, T., (2005), Deficiențe fizice și înotul, ca sport adaptat – terapeutic, Editura Printech, București;
3. Dominteanu, T., (2008), Îndrumar pentru lucrări practico-metodice – Înot terapeutic, Editura Printech, București;
4. Fozza, C.A., (2002), Îndrumar pentru corectarea deficiențelor fizice, Editura fundației România de mâine, București
5. Mureșan E. și colab., (2006), Corectarea deficiențelor fizice – mijloace utilizate în apă și pe uscat, Editura Fundației România de mâine, București.

Titlu: Implicațiile înotului terapeutic și a kinetoterapiei în reabilitarea deficiențe fizice funcționale.

Cuvinte cheie: cifoasă, lordoză, scolioză, înot terapeutic, recuperare.

Rezumat: Acest studiu are ca scop principal determinarea rolului pe care înotul terapeutic îl are în recuperarea principalelor deficiențe fizice funcționare. Principalele deficiențe fizice funcționale pe care le-am ales sunt: cifoza, lordoza și scolioza. Aceste deficiențe afectează foarte multe persoane: copii, tineri, adulți și chiar bătrâni.

Studiul include 6 pacienți, 3 care au fost incluși în grupul experimental și trei incluși în grupul martor. Subiecții din cadrul grupului experimental li s-au inclus în programul de recuperare exerciții în apă și tehnici specifice înotului terapeutic. Aceștia au înregistrat progrese vizibil mai rapide decât cei din cadrul grupului martor care au urmat ca si terapie de recuperare doar kinetoterapia.

Titre: Les implications de natation et la thérapie physique fonctionnelle dans la réadaptation de handicaps physiques.

Mots-clés: cyphose, lordose, une scoliose, piscine thérapeutique, la récupération.

Résumé: Cette étude vise principalement à déterminer le rôle qu'il a la natation dans l'opération de récupération de principale handicapées physiques. Les principales déficiences physiques fonctionnelles que nous avons choisi sont: cyphose, lordose et scoliose. Ces déficiences touchent de nombreuses personnes: enfants, jeunes, adultes et même les personnes âgées.

L'étude a inclus six patients, 3 ont été inclus dans le groupe expérimental et le groupe de contrôle comprenait trois. Les sujets du groupe expérimental ont été inclus dans le programme de réhabilitation des exercices dans l'eau et les techniques de natation. Ces progrès visibles plus rapidement que ceux du groupe de contrôle qui a suivi en tant que thérapie de réadaptation physique seulement.