A TRIAL ON THE ROLE OF THE KINETIC THERAPY
AND ON THE IMPORTANCE OF THE BODY WEIGHT INDEX
IN THE RECOVERY OF PATIENTS DIAGNOSED WITH COXARTHROSIS

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The coxarthrosis is a medical condition that frequently occurs in adults, especially 2-4% of the persons who are 40-70 years old [1]. From an etiological point of view, 40% of the coxarthrosis cases are primitive [2]. The objectives of this trial are to emphasise the role of the kinetic therapy in the recovery of patients diagnosed with primary coxarthrosis as well as the role of the body weight index in the recovery of these patients [3]. The evaluation of the patients includes: the visual analogue scale of the pain (VAS), the WOMAC scale for the evaluation of the pain, of the rigidity and of the physical dysfunction, the balance of the joints and the perimeters for the lower limbs [4]. The WOMAC test indicates the decrease in the values of the pain and rigidity parameter, values that are found especially at the control moment [5]. The body weight index may be considered as a reference element in the treatment of patients with coxarthrosis. A complex recovery treatment may reduce the length of the recovery treatment [6]; if it is correlated to the reduction of the body weight index, it contributes to the increase in the quality of these patients' lives [7].
Keywords: primary coxarthrosis, the quality of life, recovery, nutritional status.

Introduction. The coxarthrosis is a medical condition that frequently occurs in adults, especially 2-4% of the persons who are 40-70 years old [8]. The main cause is the lack of balance between the force elements and the endurance exerted upon the bone and upon the cartilage. From an etiological point of view, 40% of the coxarthrosis cases are primitive [9]. Other factors are involved, too: heredity, the hormonal status, the nutritional status, the professional activity and the muscular hypotony [10].

The objectives of the recovery treatment in coxarthrosis are: the reduction of the pain and of the inflammatory process, the recovery of the joint mobility at the knock knees, the possibility to recover the balance and the walk, the prevention of disabilities, the increase in the quality of life [11]. Even if the evolution of the disease is slow and progressive, [12] with the episodes of worsening and remission, it is very important to have a complex recovery treatment in the outpatient department/in the hospital or in a specialized balneary climatic resort.

Objectives. The objectives of this trial are to emphasise the role of the kinetic therapy in the recovery of patients diagnosed with primary coxarthrosis as well as the role of the body weight index in the recovery of these patients.

Material and method. The trial included 78 patients diagnosed in the outpatient department with primary coxarthrosis throughout the year 2016. The inclusion criteria were: the age over 35, a clinical and X-ray diagnosis of primary coxarthrosis, the patients' consent to be included in this trial. The exclusion criteria were: the age under 35 and over 80, chronic medical conditions, psychical conditions, the patients' refusal to take part in this trial.

The evaluation of the patients was made at the beginning of the treatment, 20 days after the treatment and three months later. It included: the visual analogue scale of the pain (VAS), the WOMAC scale for the evaluation of the pain, of the rigidity and of the physical dysfunction, the balance of the joints and the perimeters for the lower limbs [13].

The patients were given medication according to the guides (anti-inflammatory, nonsteroidal, antalgic or decontracturing), electrical therapy and kinetic therapy [14]. The dependant variables (the improvement of the pain, the decrease of the joint rigidity and the increase in the joint mobility)

Results. Among the 78 patients there were 34 men (43.58%) and 42 women (66.42%).The patients were distributed according to their age group (Table 1 and Graph 1).

Table 1

**The distribution of the patients according
to the age group and gender**

Gender/Age	35-45	46-55	56-65	66-80
Women	9	16	11	6
Men	5	2	17	10
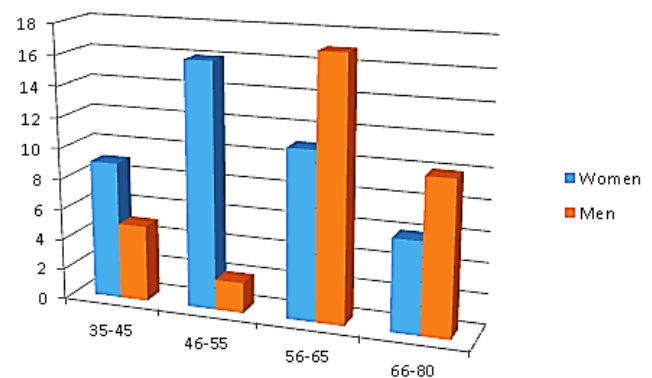
**Graph 1. The distribution of the patients according to
the age group and gender**

The pain was evaluated according to the VAS scale. The results were found out to be statistically

significant for the initial/final moment and for the initial/control moment; they are statistically insignificant for the final/control moment.

Table 2

**The evolution of the data obtained
for the VAS scale**

| VAS/	initial	final	control
Statistic elements			
max	10	7	6
min	3	2	1
average	6,368421	4,4736842	2,5789474
median	7	4,5	2,5
dev std	1,882141	1,4739849	1,1917847
test t-std	0,042323	0,0825117	0,0374921
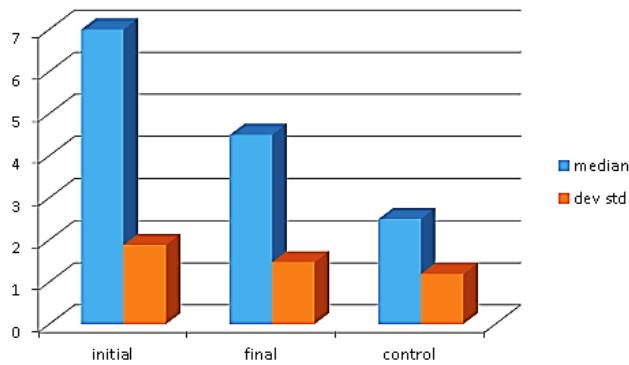
**Graph 2. The evolution of the data obtained
for the VAS scale**

The WOMAC scale enabled the evaluation of the pain, of the rigidity and of the physical dysfunction whereas the results are in the following table.

Table 3

**The evolution of the data obtained
for the WOMAC scale**

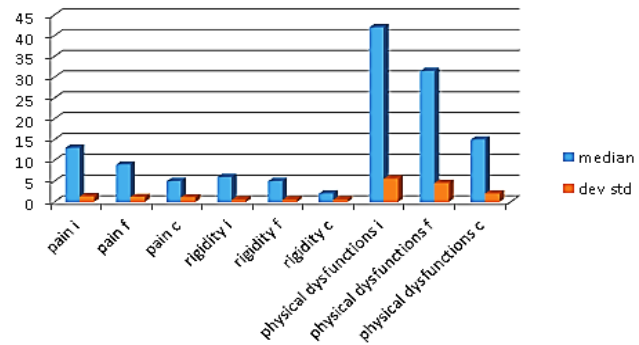| WOMAC/	initial	final	control
Statistics elements			
max	6	4	2
min	3	1	1
average	4,09210526	2,51315789	1,11842105
median	3	2	1
dev std	1,32843398	0,68300163	0,32525294
test t-std	0,03758904	0,09929031	0,02630532
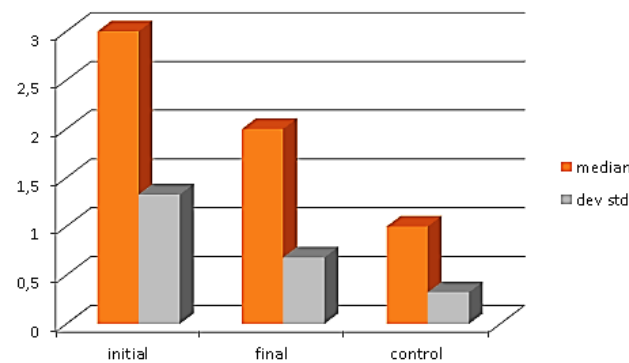
**Graph 3. The evolution of the data obtained
for the WOMAC scale**

The overall results are statistically insignificant for all the considered moments.

Table 4

**The evolution of the data obtained
for the WOMAC scale on sections**

WOMAC/ Statistics elements	pain i	pain f	pain c	rigidity i	rigidity f	rigidity c	physical dysfunctions i	physical dysfunctions f	physical dysfunctions f
max	16	12	7	7	5	3	57	40	20
min	13	8	4	6	4	2	40	24	9
average	14,13157895	9,42105263	5,44736842	6,47368421	4,55263158	2,47368421	46,78947368	31,36842105	14,44736842
median	13	9	5	6		2	42	31,5	15
dev std	1,289362688	1,20292042	1,12421513	0,50262469	0,50052604	0,50262469	5,603131956	4,542663258	2,042186651
test t-std	0,063021436	0,10316041	0,03743282	0,03166929	0,14773959	0,04296592	0,047080586	0,107374472	0,032382354

**Graph 4. The evolution of the data obtained
for the WOMAC scale on sections**

Yet, for the pain and rigidity parameter, the obtained results are statistically significant for the initial/final moment and for the initial/control one; they are statistically insignificant for the final/control moment. For the physical dysfunction parameter, the results are statistically significant for the initial/final moment and for the final/control one; they are extremely significant for the initial/control moment.

The results for body mass index are shown in Table 5.

Table 5

**The evolution of the data obtained
for the values of the body weight index**

Statistics elements	IMC initial	IMC final	IMC control
max	44,44	43,69	42,22
min	20,96	20,58	20,42
average	29,9323684	29,3423684	34,815
median	29,41	28,94	62,98
dev std	4,45928869	4,47568509	4,415115575
test t-std	0,00313305	0,12404577	0,042928149
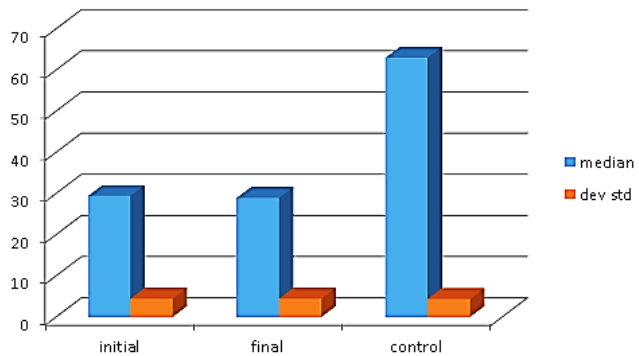
**Graph 5. The evolution of the data obtained
for the values of the body weight index**

The results are statistically significant for the initial/control moment, extremely significant for the initial/final moment and statistically insignificant for the final/control moment.

The perimeters measured at the level of the thighs right and left (Tabel 6).

Table 6

The evolution of the data obtained for the values of the thighs' perimeter

perimeter thigh/	right			left		
Statistic elements	initial	final	control	initial	final	control
max	80	79	76.6	59	57	55
min	32	31	30	36	33.5	32
average	48.942	48	46.592	48.284	45.5	43.6
median	49	48	46,25	48.5	45,75	44,05
dev std	6,783426454	1727859798	485500939,8	547324059,8	2,2671346	1,07081257
test t-std	0.002781	0.00705	0.000167	0.011161	0.006319	0.000522

The results are extremely significant for all the moments at the right thigh in comparison to the left one where the results are statistically significant at the initial / final moment and extremely significant for the other moments.

Table 7

The evolution of the data obtained for the nutritional status

Evaluation moment/	Initial		final		control	
status	women	men	women	men	women	men
Normal weight	4	1	8	2	10	6
Overweight	22	16	18	18	20	16
1st degree obesity	10	14	12	12	8	10
2nd degree obesity	2	2	0	2	0	2
3rd degree obesity	2	2	2	2	2	2

The patients' evaluated nutritional status shows that the persons with the third degree obesity who have a decreased value of the body weight index need to follow a long term kinetic therapy programme whereas the daily menu should be correlated to the daily activity and to the rate of the basal metabolism. For women it is found that the body weight index is gradually reduced, which is obvious in the low number of the persons with sec-

ond degree obesity as well as in the corresponding increase in the number of the overweight persons and of the normal weight persons, in comparison to the men whose reduction is limited.

Table 8

The evolution of the data obtained for the joint mobility thigh − flexion

Thigh flexion/	right			left		
Statistical elements	initial	final	control	initial	final	control
max	144	150	150	144	146	150
min	12	19	20	14	21	21
average	64,973684	75,184211	87,236842	64,684211	74,631579	85,947368
median	60	70	80	63	71	83
dev std	29,428772	29,897474	31,146479	27,404238	26,872956	27,754108
test t-std	0,0426709	0,0312131	0,0085539	0,0339338	0,0354682	0,0078079

The results for the joint mobility measured in the flexion of the right/left thigh show statistically significant values both at the right thigh and at the left one for the initial/final moment and for the final/control moment; they are extremely significant for the initial/control moment.

Conclusions: 1. The complex treatment enabled the increase in the joint mobility at the level of the knee knee joints.

2. The evaluation according to the WOMAC scale enables the emphasis of the decrease in the pain and rigidity parameter and it improves the joint mobility.

3. The complex recovery treatment may reduce the length of the recovery treatment; if it is correlated to the reduction of the body weight index, it may lead to the increase in the quality of these patients' lives.

The body weight index and the nutritional status may influence the recovery of the patients diagnosed with coxarthrosis; this is why they are parameters that must be taken into consideration within the complex recovery programme.

References:
1. Onose G. (2008). Compendium of neurorehabilitation adults, children and elderly, Edit. University «Carol Davila» Bucureşti, pg. 231-238.
2. Ancuţa C. Physical Medicine and Rehabilitation essential in Medical Publishing «Gr.T. Popa» − UMF Iaşi − 2010.
3. Sonziana Călina Silişteanu − The influence of the body weight index (BMI) in the recovery of the degenerative diseases of the joints, Balneo Research Journal DOI: http://dx.doi.org/10.12680/balneo.2016.120 − Vol. 7, No. 2, May 2016.
4. Popescu R., Trăistariu R., Badea P. User rating clinical and functional in recovery, Ed. Medical University, Craiova, 2004.
5. Cordun M. (2009). Kinantropometrie, Edit. CD Press, Bucureşti, p. 203-206.
6. M. Banciu − Rheumatology VOL. I (569-573).
7. Lupu I. (2006). Quality of life in health. Definitions and assessment tools. Life quality, vol. 17, nr. 1-2: 1-21.
8. Silisteanu S.C., Covasa M. «Assisting the quality of life for old age persons (over 65 years old) with disabilities», Computational Intelligence for Multimedia Understanding (IWCIM), 2015 International Workshop on.
9. Ivan G. Osteoarthritis, Ed «Romanian Writing», Craiova, 1982.
10. Nica A.S. Compendium of physical medicine and rehabilitation, University Publishing «Carol Davila» Bucuresti, 1998.
11. Sbenghe T. (2002) − Kinesiology − Science movement, Edit. Medical, Bucureşti, pg. 263; 178, 326, 376-395.
12. Cervini C., Fichera R.C., Goupille P., Grassi W. − Treaty of rheumatology, University Medical Publishing House «Iuliu Hatieganu» Cluj-Napoca, 2003.
13. Kulie T., Slattengren A., Redmer J., Counts H., Eglash A., Schrager S. «Obesity and Women's Health: An Evidence-Based Review» J. Am. Board. Fam. Med., Vol. 24(1), pp. 75-85, 2008.
14. Rădulescu A. − Electrotherapy, Ed. Medical, 2003.