

# Treatment goals and treatment in exercise therapy

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## Introduction

Exercise therapy according to Cesar (Cesar therapy) and that according to Mensendieck (Mensendieck therapy) are concerned with the treatment and prevention of musculoskeletal complaints. The treatment in these professions consists of an exercise program that is directed towards improving posture and mobility. The exercise programs are intended to stimulate active individual motor learning processes.<sup>1,4</sup>

Compared with physical therapy, both therapies stress the pedagogical aspects of the motor learning process, whereas exercise therapy by physical therapists stresses training of specific (parts of) movements. Physical therapy treats functional disorders by means of different kinds of interventions (physical applications, massage therapy and exercise therapy), whereas Cesar and Mensendieck therapy are aimed at improving functional disorders, particularly by means of an exercise program consisting of physical exercise and patient education.<sup>3,4</sup>

Cesar and Mensendieck therapy have much in common: both are well-known rehabilitation professions in the Netherlands, but are little known outside. In the Netherlands both professions work primarily in primary health care (in private practice) and to a much lesser extent in institutional care (nursing homes, hospitals and rehabilitation centres). Both professions treat the same kind of patients. Patients come from all age groups and about two-thirds are female. Most of the patients have complaints related to back problems.<sup>1,2,5</sup> Postural impairments, pain, impairments of muscle tone and length, and impairments of joint motion occur in more than half of the patients.<sup>5</sup> However, there are some differences in approach between both therapies. These differences are expressed in the nature of the exercises (Cesar: dynamic; Mensendieck: static) and the instruction (Cesar: verbal instruction and demonstration; Mensendieck: verbal instruction).

Together, the physical exercise and information are intended to provide the patient insight in his or her com-

## Abstract

In the present study a quantitative description is given of treatment in exercise therapy according to Cesar and according to Mensendieck. Information was gathered from a survey on exercise therapy in the Netherlands. Characteristics of treatment are described including treatment goals, emphasis of the exercise program, number of visits, duration of the treatment, reason for termination of treatment, and extent of achievement of treatment goals. The study focuses on the relationship between treatment goals and the emphasis of the exercise program.

The patients on average visited their therapists 14-15 times. The period between the first and the last contact on average lasted 14-16 weeks.

Treatment goals related to impairments were more frequently indicated than those related to disabilities. Significant relationships between treatment goals and emphasis of the exercise program were found. Most of these relationships were self-evident: e.g. postural exercises were relatively frequently applied to pursue the improvement of posture. But also more informative (i.e. less self-evident) relationships were found.

In about two-thirds of the patients treatment was terminated, because a positive result was achieved. Treatment goals were almost or fully achieved in more than half of the patients.

**Keywords:** Exercise Therapy; Diagnosis; Treatment; ICIDH.

plaints, to eliminate the causes of the complaints and/or to allow the patient to adapt to a new situation.<sup>3,4</sup> The exercise program consists of a variety of exercises. These exercises have a specific aim in relation to the diagnosis and the results of the examination of the patient (e.g. there are exercises to improve posture, relaxation, basic motor skills, and muscle strength). In the treatment of an individual patient, specific exercises are emphasized dependent on which treatment goals are pursued.

The relationship between exercise therapy diagnosis, treatment goals and treatment is given in Table I. The exercise therapy diagnosis (Cesar or Mensendieck) consists of all functional disorders diagnosed by the exercise therapist. The International Classification of Impair-

ments, Disabilities and Handicaps (ICIDH)<sup>6</sup> is considered an adequate system to classify the data concerning functional disorders. The diagnostic assessment of the exercise therapist is mainly at the level of impairment and disability.<sup>5,7</sup> Treatment goals are the impairments and disabilities that are intended to improve by the exercise program. Treatment goals are intended to give direction to the exercise program. Depending on the treatment goals, specific exercises are emphasized in the treatment.

Table I. Relationship between diagnosis, treatment goals and treatment

Diagnosis	Treatment goals	Emphasis of treatment
All impairments and disabilities diagnosed in a patient	Subset of impairments and disabilities	Aspect (exercise) that is emphasized in the treatment to pursue an improvement in the impairments and disabilities chosen as treatment goals

Little empirical information is available on the treatment given by exercise therapists. In earlier research on exercise therapy,<sup>12</sup> the number of visits and duration of treatment is described, but no data was gathered on treatment goals and the exercises which were emphasized in the treatment. The goal of the present study is two-fold. The first aim is to give a quantitative description of treatment in exercise therapy according to Cesar and Mensendieck. Characteristics of treatment are described, including treatment goals, emphasis of the exercise program, number of visits, duration of the treatment, reason for termination of treatment and extent of achievement of treatment goals. The second aim of the study is to determine whether a relationship exists between treatment goals and the emphasis of the exercise program. If such relationships do exist, it can be concluded that treatment goals help to explain why therapists choose to emphasize specific exercises. The relationship between treatment goals and the emphasis of the exercise program give an empirical insight into the rationale of the therapeutic choices of exercise therapists. At present such information is only available in text books, not as the result of empirical studies.

## Methods

### Materials

A survey was conducted to collect data on patients applying for treatment by exercise therapists in the Netherlands. From January 1992 to March 1993, 48 Cesar therapists and 52 Mensendieck therapists participated in the survey. The therapists were selected at random from the lists of practice addresses, which were made by the professional associations of both professions. Table II shows gender, age and setting of the participating therapists.

Table II. Characteristics of the therapists.

	Cesar (N=48)	Mensendieck (N=52)
gender:		
- male	1 (2.1%)	52 (100%)
- female	47 (97.9%)	
mean age (yr)	32.5	31.9
setting:		
- primary health care	43 (89.6%)	45 (86.5%)
- institutional care	5 (10.4%)	7 (13.5%)

Data were recorded for 1020 patients by the Cesar therapists and 1088 patients by the Mensendieck therapists. The number of patients registered by each therapist was agreed upon prior to the start of the survey. The mean number of patients registered by each therapist was 21. In principle any patient applying for treatment was eligible for inclusion.

### Registration form

A standard registration form was used to obtain information on patients applying for treatment and consisted of three main categories. The first category concerns general patient characteristics, complaints and indication for referral. The second category concerns the exercise therapy diagnosis, which has been described previously.<sup>5,7</sup> The third category concerns treatment. In this section, information was gathered on treatment goals, emphasis of the exercise program, to what extent treatment goals were achieved during the registration period, the number of visits and duration of treatment. The treatment goals which could be indicated are posture muscle strength, muscle tone, sensomotor skills, ventilation, relaxation, pain, fatigue, disabilities in locomotion, disabilities in basic motor skills, disabilities in exercise tolerance and patient education. The exercises which could be emphasized during the treatment are pain reduction/postural exercises, mobilisation exercises, respiratory exercises, relaxation exercises, ADL-training and sensomotor training. It should be noted that most of these exercises are described in terms of the goal which they are intended to achieve (e.g. postural exercises are intended to improve posture). During the development of the registration form, it appeared impossible to describe exercises without mentioning the goal of the exercises. This situation is not unique to Cesar and Mensendieck therapy, but also occurs in physical therapy.<sup>8</sup> The same exercise could be used for different purposes depending on frequency, intensity and other parameters. It seems that detailed analysis of these parameters is required, if one wants to avoid mentioning the goal of the exercises.<sup>1</sup>

The drawback of describing exercises in terms of goals is that some self-evident results are to be expected from the analysis of the relationship among treatment goals and exercises emphasized during the treatment. For example, it is not surprising to find that postural exercises are used to improve posture. However, because other non self-evident relationships are to be expected, we have continued our study.

The data on general patient characteristics, complaints, indication for referral, the exercise therapy diagnosis and treatment goals were obtained at the first treatment session. The data concerning treatment were obtained at the last session. At the end of the treatment period, the exercise therapist could also indicate to what extent treatment goals were achieved on a five-point scale ranging from 'not achieved' to 'fully achieved'.

#### Data analysis

The relationship of treatment goals and the emphasis of the exercise program was analyzed by means of logistic regression. For each individual emphasis of the exercise program, it was tested whether the frequency of indication of this emphasis was dependent on which treatment goal was pursued. Significance of the overall test for logistic regression (model Chi-square) indicates that the treatment goals predict how often the emphasis in the treatment was indicated. The exponents of the regression coefficients (Exp(B)) are odds ratios and consequently measures of the strength and direction of the relationship. An odds ratio of a treatment goal higher than 1 indicates a positive relationship: with that particular treatment goal the emphasis of treatment was indicated more frequently than without that treatment goal. An odds ratio less than 1 indicate a negative relationship: with that particular treatment goal the emphasis of treatment was indicated less frequently than without that treatment goal. To test that the odds ratio is not equal to 1, the Wald statistic was used. This statistic has a Chi-square distribution. For both the overall test and the partial test the significance level was set at .05. The differences in the extent of achievement of the treatment goals with the mean extent of achievement of all treatment goals were tested with Chi-square tests. Significance was set at the .05 level.

#### Results

##### General

Table III lists the age and gender of the patients. All age groups were represented; more than two-thirds of the patients were female.

Table III. Characteristics of the patients.

	Cesar (N=1020) %	Mensendieck (N=1088) %
gender:		
- male	32.7	33.0
- female	67.3	67.0
age (yr)		
- 0-19	21.3	17.8
- 20-39	46.2	46.9
- 40-64	25.3	28.0
- >= 65	7.2	7.3

The patients treated by Cesar therapists on average visited their therapist 15.2 times (SD 8.3). The period between the first and the last contact on average lasted 15.8 weeks (SD 9.9). The patients treated by Mensendieck therapists on average visited their therapist 14.1 times (SD 7.8). The period between the first and the last contact on average lasted 14.2 weeks (S.D. 8.3). Table IV shows the distribution of the number of visits of both patient groups.

Table IV. Number of visits.

No. of visits	Cesar (N=1020) %	Mensendieck (N=1088) %
- 1-6	10.7	11.5
- 7-12	39.8	46.9
- 13-18	22.7	22.8
- 19-24	18.1	12.7
- >24	8.7	6.1

##### Treatment goals

Table V shows the focus of treatment goals. Treatment goals related to impairments were more frequently indicated than treatment goals related to disabilities. The treatment goals improvement of posture, pain reduction and improvement of muscle strength were indicated in more than half of the patients treated by Cesar therapists. The reduction of increased muscle tone was indicated in about two-fifths of the patients treated by Cesar therapists. Patient education was indicated in two-thirds of the patients treated by Cesar therapists. In the patients treated by Mensendieck therapists the treatment goals improvement of posture and pain reduction were indicated in more than half of the patients and the reduction of increased muscle tone in about half of the patients. The improvement of muscle strength was indicated in about two-fifths of the patients. Patient education was indicated in slightly more than two-thirds of the patients.

##### Emphasis of the exercise program

Table VI shows which aspects of the treatment or exercise program were emphasized. A maximum of three aspects could be indicated per patient. Pain reduction techniques/postural exercises were most frequently indicated: in both patient populations in about three-quarters of the patients. ADL-training (training of Activities of Daily Living) was the next most frequently indicated aspect: ADL-training was indicated in 59% of the patients treated by Cesar therapists and in 49% of the Mensendieck group. In half of the patients treated by Cesar therapists exercises to improve muscle strength were emphasized. This aspect received less emphasis in patients treated by Mensendieck therapists.



Table V. Treatment goals\*

Evaluation of the treatment	Cesar (N=1020) %	Mensendieck (N=1088) %
<b>Treatment goals related to impairments:</b>		
improvement of posture	81.0	83.3
improvement of muscle strength	60.0	43.7
reduction of increased muscle tone	40.2	49.3
improvement of sensomotor skills	3.2	5.0
improvement of ventilation	10.8	13.1
improvement of relaxation	17.2	23.5
pain reduction	74.2	80.9
reduction of fatigue	9.9	12.5
<b>treatment goals related to disabilities:</b>		
reduction of disabilities in locomotion	10.8	12.0
reduction of disabilities in basic motor skills	11.7	13.9
reduction of disability in exercise tolerance	13.4	8.6
patient education	69.8	67.2
other	16.8	10.0

\*) The percentages refer to all patients. A maximum of five treatment goals could be indicated.

Table VI. Emphasis of treatment\*

	Cesar (N=1020) %	Mensendieck (N=1088) %
Pain reduction techniques/ postural exercises	73.7	79.9
Mobilisation exercises	27.0	26.6
Respiratory exercises	9.9	9.2
Relaxation exercises	24.0	32.4
Exercises to improve muscle strength	9.3	33.5
ADL-training	59.1	49.7
Sensomotor training	4.6	4.9
Patient education/advice	28.3	35.8
Other	5.1	2.9

\*) The percentages refer to all patients. A maximum of three aspects could be indicated.

#### Relationship between treatment goals and the emphasis of the exercise program

The relationship between treatment goals and the emphasis of the exercise program was tested with logistic regression. The analysis was done separately for each aspect (type of exercise) that could be indicated. Tables VIIa and VIIb show the results of the analysis in patients treated by Cesar therapists and Mensendieck therapists. With each aspect, the self-evident relationships with treatment goals were found: postural exercises were relatively frequently applied to pursue the improvement of posture; respiratory exercises were relatively frequently applied to pursue the improvement of ventilation, etc. However, other relationships were also found. In Cesar therapy, mobilisation exercises were emphasized to pursue

reduction of increased muscle tone and reduction of disabilities in locomotion. In Mensendieck therapy, mobilisation exercises were emphasized to pursue pain reduction, reduction of disabilities in locomotion and reduction of disabilities in exercise tolerance. In both therapies, respiratory exercises were emphasized to pursue improvement of relaxation. In Mensendieck therapy, respiratory exercises were also emphasized to pursue reduction of disabilities in exercise tolerance. Exercise to improve muscle strength were in both therapies also emphasized to pursue the improvement of posture.

Differences between both therapies in the relationship between treatment and emphasis of treatment were most obvious with ADL-exercises and sensomotor training. In Cesar therapy, ADL-exercises were emphasized with improvement of posture, improvement of muscle strength, pain reduction and improvement of locomotion. In Mensendieck therapy, ADL-exercises were emphasized to pursue the improvement of posture and pain reduction. In Mensendieck therapy the analysis with sensomotor training showed more positive relationships than the analysis in Cesar therapy. In Mensendieck therapy, sensomotor training was emphasized to pursue improvement of disabilities in locomotion, improvement of disabilities in basic motor skills and improvement of disabilities in exercise tolerance and, of course, to pursue improvement of sensomotor skills. In Cesar therapy sensomotor training was emphasized to pursue improvement disabilities in basic motor skills, and to pursue improvement of sensomotor skills.

The logistic regression analysis also showed negative relationships (odds ratio <1;  $p < .05$ ). This indicates that the emphasis of treatment that was analyzed was relatively infrequently indicated in combination with the concerned treatment goal. For example, if the goal was to improve

Table VIIa. Logistic regression analysis with treatment goals and emphasis of treatment.

Cesar therapy  
N=1020

	emphasis of treatment								
	pa/po	mobil	resp	relax	muscl	ADL	senso	educ	other
Overall test(Chi <sup>2</sup> )	306.0*	65.5*	384.0*	310.2*	390.4*	122.1*	164.0*	177.8*	141.4*
treatment goal	OR	OR	OR	OR	OR	OR	OR	OR	OR
improvement of posture	<u>3.70*</u>	1.35	0.83	<u>0.60*</u>	<u>2.08*</u>	<u>2.01*</u>	0.53	0.58*	0.22*
improvement of muscle strength	0.85	1.00	0.42*	<u>0.42*</u>	<u>10.01*</u>	<u>1.73*</u>	0.34*	0.38*	1.03
reduction of increased muscle tone	1.19	<u>1.40*</u>	0.89	<u>2.94*</u>	<u>0.70*</u>	0.88	0.69	0.93	<u>2.42*</u>
improvement of sensomotor skills	0.98	0.18*	1.59	<u>0.52</u>	1.00	0.49	<u>36.63*</u>	0.14*	2.18
improvement of ventilation	<u>0.34*</u>	0.65	<u>76.30*</u>	<u>3.05*</u>	0.62	0.43*	<u>0.10*</u>	0.83	2.06
improvement of relaxation	0.87	0.70	<u>2.21*</u>	<u>9.27*</u>	0.22*	0.67*	0.43	1.44	0.53
pain reduction	<u>8.47*</u>	0.72	<u>0.34*</u>	<u>1.45</u>	0.61*	<u>1.51*</u>	<u>0.37*</u>	0.87	0.30*
reduction of fatigue	<u>0.96</u>	1.30	1.27	1.49	0.88	<u>0.65</u>	0.27	1.52	0.10*
improvement of disability in locomotion	0.74	<u>3.61*</u>	0.59	<u>0.31*</u>	0.67	<u>1.91*</u>	0.80	0.82	<u>3.89*</u>
improvement of disability in basic motor skills	1.05	1.29	0.41	0.65	1.42	1.32	<u>5.09*</u>	0.93	0.56
improvement of disability in exercise tolerance	1.48	1.15	0.68	0.63	0.86	1.16	0.37	1.44	1.05
patient education	1.44	0.74	1.01	0.68	0.92	0.98	0.52	<u>4.05*</u>	1.66
other	1.13	0.92	1.15	<u>0.77</u>	0.79	1.28	0.33	<u>0.60*</u>	<u>14.44*</u>
Constant	-1.42	-1.06*	-2.54*	-1.34*	-1.20*	-0.69*	-1.26	-0.77*	-3.04*

\*) p<.05 (positive relationships are underlined).

pa/po = Pain reduction techniques/postural exercises  
 mobil = Mobilisation exercises  
 resp = Respiratory exercises  
 relax = Relaxation exercises

muscl = Exercises to improve muscle strength  
 ADL = ADL-training  
 senso = Sensomotor training  
 educ = Patient education/advice

Table VIIb. Logistic regression analysis with treatment goals and emphasis of treatment.

Mensendieck therapy  
N=1088

	emphasis of treatment								
	pa/po	mobil	resp	relax	muscl	ADL	senso	educ	other
Overall test(Chi <sup>2</sup> )	194.2*	62.8*	367.5*	305.5*	443.6*	86.7*	138.5*	162.5*	55.5*
treatment goal	OR	OR	OR	OR	OR	OR	OR	OR	OR
improvement of posture	<u>3.48*</u>	0.73	0.40*	0.81	1.69*	1.93*	4.85*	0.83	0.38*
improvement of muscle strength	1.01	0.85	0.39*	<u>0.66*</u>	<u>10.95*</u>	1.08	2.21	0.63*	0.68
reduction of muscle tone	1.15	0.93	0.93	<u>5.12*</u>	<u>0.41*</u>	1.24	0.97	0.95	1.43
improvement of sensomotor skills	0.58	1.07	0.15	<u>0.84</u>	1.49	0.93	<u>40.03*</u>	1.37	2.17
improvement of ventilation	<u>0.46*</u>	0.64	<u>31.48*</u>	1.53	0.84	0.52*	1.33	<u>1.64*</u>	0.91
improvement of relaxation	0.82	0.99	<u>2.71*</u>	<u>10.05*</u>	0.27*	0.56*	1.47	1.39	0.46
pain reduction	<u>4.63*</u>	<u>1.75*</u>	0.53	<u>1.35</u>	0.50*	1.50*	0.42*	<u>1.88*</u>	0.36*
reduction of fatigue	1.26	0.79	1.67	1.49	1.55	1.00	2.21	1.29	1.04
improvement of locomotion	0.75	<u>2.37*</u>	0.42	0.96	1.59	0.93	<u>2.86*</u>	0.81	<u>2.64*</u>
improvement of basic motor skills	1.32	1.09	0.11*	1.30	0.58*	1.30	<u>5.59*</u>	0.98	0.43
improvement of exercise tolerance	0.87	<u>1.99*</u>	<u>2.95*</u>	1.34	1.55	1.28	<u>3.63*</u>	1.33	0.20
patient education	0.67	0.68*	0.95	0.82	0.88	1.24	1.35	<u>4.87*</u>	0.83
other	0.91	1.38	0.25	0.79	<u>2.24*</u>	1.26	0.50	0.91*	<u>6.15*</u>
Constant	-0.29	-1.02*	-2.49*	-2.18*	-1.34*	-1.04*	-5.88*	-2.09*	-2.34*

\*) p<.05 (positive relationships are underlined).

pa/po = Pain reduction techniques/postural exercises  
 mobil = Mobilisation exercises  
 resp = Respiratory exercises  
 relax = Relaxation exercises

muscl = Exercises to improve muscle strength  
 ADL = ADL-training  
 senso = Sensomotor training  
 educ = Patient education/advice



muscle strength, respiratory exercises were not chosen; this was found in both therapies.

**Evaluation of the treatment**

Table VIII shows the reason for termination of treatment. In both patient populations in about two-thirds of the patients treatment was terminated because a positive result was achieved.

Table VIII. Reason for termination of treatment.

	Cesar (N=1020) %	Mensendieck (N=1088) %
A positive result was achieved	66.5	64.8
No positive result was achieved	6.8	8.7
The complaint increased	0.8	1.0
Other therapy	3.9	4.4
Stopped by the patient	11.5	8.3
Treatment not yet terminated at the end of the study	3.4	6.7
Other	7.0	6.7

The extent of achievement of treatment goals is presented in Figures 1a and 1b. In both patient populations more than half of the patients scored 4 or 5 on all treatment goals. Differences in the extent of achievement of treatment goals against the mean extent of achievement were recorded (Chi-square tests,  $p < .05$ ). The differences were small. Evaluating the percentages of patients in which the score was 4 or 5, in Cesar therapy the most evident differences were found with the improvement of muscle strength, the improvement of relaxation and patient education. The extent of achievement of the improvement of muscle strength and the improvement of relaxation was worse than the mean extent of achievement of all treatment goals. The extent of achievement of patient education was better. In Mensendieck therapy, the most evident differences were found with the treatment goals improvement of relaxation, reduction of fatigue and patient education. The extent of achievement of the first two treatment goals was worse than the mean extent of achievement of all treatment goals. The extent of achievement of patient education was better than the mean extent of achievement.

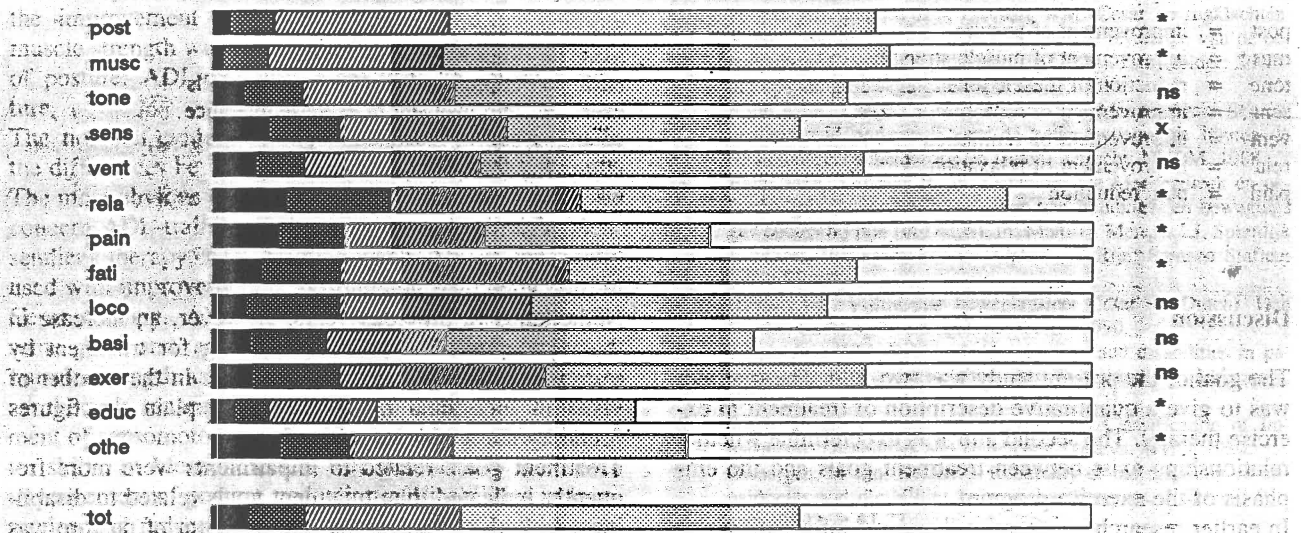


Figure 1a. Extent of achievement of treatment goals in Cesar therapy\*.

\*) The difference of extent of achievement on a treatment goal with the mean extent of achievement on all treatment goals (total) was tested using Chi-square tests. An \* indicates that a significant difference was found ( $p < .05$ ), ns indicates no significant difference. An x indicates that this category was not tested due to empty cells.

- post = improvement of posture
- musc = improvement of muscle strength
- tone = reduction of muscle tone
- sens = improvement of sensomotor skills
- vent = improvement of ventilation
- rela = improvement of relaxation
- pain = pain reduction

- fati = reduction of fatigue
- loco = improvement of locomotion
- basi = improvement of basic motor skills
- exer = improvement of exercise tolerance
- educ = patient education
- othe = other
- tot = total

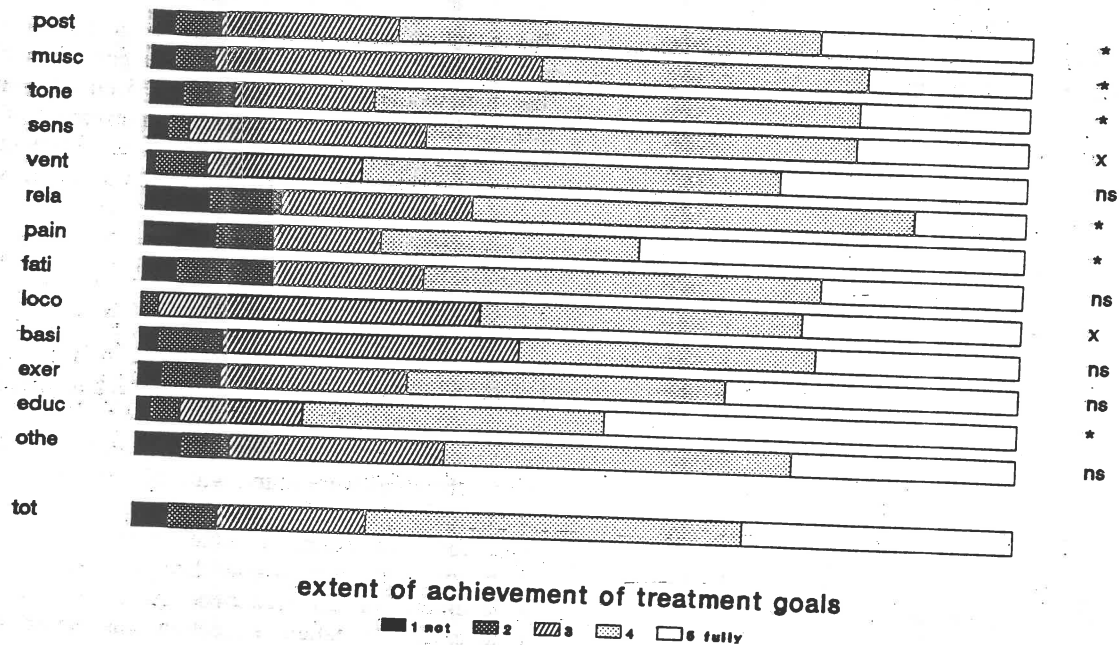


Figure 1b. Extent of achievement of treatment goals in Mensendieck therapy\*.

\*) The difference of extent of achievement on a treatment goal with the mean extent of achievement on all treatment goals (total) was tested using Chi-square tests. An \* indicates that a significant difference was found ( $p < 0.05$ ), ns indicates no significant difference. An x indicates that this category was not tested due to empty cells.

- |   |  |
|---|--|
| post = improvement of posture           | fati = reduction of fatigue              |
| musc = improvement of muscle strength   | loco = improvement of locomotion         |
| tone = reduction of muscle tone         | basi = improvement of basic motor skills |
| sens = improvement of sensomotor skills | exer = improvement of exercise tolerance |
| vent = improvement of ventilation       | educ = patient education                 |
| rela = improvement of relaxation        | othe = other                             |
| pain = pain reduction                   | tot = total                              |

### Discussion

The goal of the present study was two-fold. The first aim was to give a quantitative description of treatment in exercise therapy. The second aim was to determine whether relationships exist between treatment goals and the emphasis of the exercise program. In earlier research on exercise therapy<sup>1,2</sup> information was gathered on the number of visits and the duration of the treatment. Comparing this information with the results of the present study there appears to be a difference. Hasper<sup>1</sup> reported a mean number of visits in Cesar therapy of 22-24 times. The duration between the first and the last visit was about 20 weeks. Balm and Lange<sup>2</sup> reported an average number of visits of 18.3 and an average duration of 4.6 months (about 20 weeks). In the present study, for both Cesar and Mensendieck therapy a smaller number of visits (15 and 14 times, respectively) and a shorter duration (16 and 14 weeks, respectively) was found. Possibly there was a decrease on the duration of treatment in exercise therapy in previous years. This conclusion seem to be in conflict with data from the health insurance funds<sup>9</sup> where an increase was found in the total number of visits of patients to Cesar and Mensendieck therapists in the

Netherlands in previous years. However, an increase in the total number of patients applying for treatment by exercise therapists and not an increase in the number of visits in individual patients could explain the figures found by the health insurance funds.

Treatment goals related to impairments were more frequently indicated than treatment goals related to disabilities. In both therapies, the improvement of posture was indicated in about 80% of the patients, and the reduction of disabilities in locomotion in 11-12% of the patients. This is in agreement with the occurrence of impairments and disabilities reported in another article on the results of the survey.<sup>5</sup> Both the exercise therapy diagnosis and treatment goals are focused on impairments instead of disabilities.

The occurrence of treatment goals in Cesar and Mensendieck therapy shows similarities and differences between both therapies. The three most frequently indicated treatment goals in both therapies were improvement of posture, pain reduction and patient education. In addition, the improvement of muscle strength in Cesar therapy and the reduction of increased muscle tone in Mensendieck therapy were frequently indicated. This is in agreement with the differences in approach between both therapies.

Cesar therapy is more focused on training movements and thereby increasing muscle strength (among other things). Mensendieck is more focused on alerting the patient to proprioceptive information, which is intended to reduce muscle tone (and other things).

With regard to the treatment it was found that pain reduction techniques/postural exercises and ADL-exercises were frequently used in both therapies. In Cesar therapy, more attention was paid to exercises to improve muscle strength. This is in accordance with differences in treatment goals discussed above: more emphasis on the improvement of muscle strength in Cesar therapy and on the reduction of muscle tone in Mensendieck therapy.

Significant relationships between treatment goals and the emphasis of the exercise program were found. Most of the positive relationships were self-evident because the emphasis of treatment frequently was described in terms of the goal that is pursued. It is not surprising to find that pain reduction techniques were emphasized to pursue pain reduction. Much more interesting are the findings with regard to the non-self-evident relationships. In both therapies ADL-exercises also showed a positive relationship with pain reduction. This finding shows that exercise therapy aims at correction of habits which cause the pain and not solely at reduction of the patient's complaints. Other non-self-evident findings in both therapies were: respiratory exercises were emphasized to pursue the improvement of relaxation; exercises to improve muscle strength were emphasized to pursue improvement of posture; ADL-exercises were used to improve posture.

The non-self-evident relationships also offer insight in the differences between Cesar and Mensendieck therapy. The most obvious differences between the both therapies concern ADL-training and sensomotor training. In Mensendieck therapy, ADL-training was relatively frequently used with improvement of posture and pain reduction. In Cesar therapy, ADL-training was used to pursue the same goals and, additionally, to pursue improvement of muscle strength and improvement of locomotion. In Cesar therapy, sensomotor training was used with improvement of sensomotor skills and improvement of basic motor skills. In Mensendieck it was additionally used with improvement of posture, reduction of disabilities in locomotion and reduction of disability in exercise tolerance. These findings show some differences in the treatment between the two techniques. Differences in approach between Cesar and Mensendieck therapy have been described previously.<sup>3,4</sup> For the first time, the present study offers empirical evidence for these differences.

In earlier research some data were gathered on the result

of exercise therapy by the judgement of the patients.<sup>12</sup> The conclusion drawn from these studies is that most of the patients were satisfied with the result of the exercise therapy. In the present study the judgement of the exercise therapist was assessed. Conclusions drawn from the judgement of one's own work should be treated with caution because positive outcomes can be expected. It should be emphasized that the present study is not equivalent to a true outcome study. Nevertheless, the data provide some insight into the results of the treatment. Two indications were given for the result of treatment. Firstly, the reason for termination of the treatment. In both patient populations the treatment was terminated in two-thirds of the patients because a positive result was achieved. Secondly, the extent of achievement of treatment goals was evaluated by the therapists. In more than half of the patients the extent of achievement of treatment goals was almost or fully achieved (score 4 or 5). There were differences in the extent of achievement of treatment goals, but these differences were small. Overall, these data and the data from earlier research suggest positive outcome of exercise therapy, but presently no firm conclusion can be drawn on this topic. In future it is necessary to test the efficacy of exercise therapy.

## References

1. Hasper HC, Janssen BY, Lievaart WM. Cesar en rugklachten. Verslag van het 2e fase onderzoek naar de resultaten van de oefentherapie Cesar bij rugklachten (in Dutch). Den Dolder: Stichting opleiding Bewegingstherapie Cesar. 1990.
2. Balm MFK, Lange CJ de. Oefentherapie Mensendieck: Een inventariserend onderzoek naar de patiëntenpopulatie binnen de eerstelijnsgezondheidszorg (in Dutch). Utrecht: NVOM, 1988.
3. Balm MFK, Gijsbers EKW. Oefentherapie Mensendieck en oefentherapie-Cesar: het beïnvloeden van houdings- en bewegingsgewoonten bij pijn (in Dutch). In: Matti H, Menges LJ, Spierdijk J, editors. Pijninformatarium Alphen a/d Rijn: Samson Stafleu; 1993; PB4500.
4. Hasper, HC. Vijftig jaar bewegingsleer-Cesar (in Dutch). Den Dolder: Stichting Vormingsfonds Cesar; 1990.
5. Zijlenderduin WM, Dekker J. Impairments and disabilities in patients treated by exercise therapists. Submitted for publication, 1994.
6. World Health Organisation. International Classification of Impairments, Disabilities and Handicaps. Geneva: WHO, 1980.
7. Gisbergen, M van, Dekker J. Reliability of the diagnosis of impairments and disabilities by exercise therapists. *J Rehabil Sciences* 1992; 3: 67-73.
8. Heerskens YF, Heuvel J van den, Heuvel SP van den, Mischner-Van Ravensberg CD. Deel II. Ontwerpstandaard voor een Classificatie Verrichtingen Paramedische Bewegingsberoepen (CVPB) (in Dutch). Amersfoort, SWSE, 1993.
9. Ziekenfondsraad. Financieel Jaarverslag Ziekenfondsraad (in Dutch) 1991.