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The additional use of MOTOMed or motor splint as a therapeutic measure for the improvement of motor and conditional relation with patients having an implanted knee joint prosthesis. An examination within the framework of a four-week clinical rehabilitation.



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Problem

The objective is to objectify the increase in results in the framework of improvement of the mobility and strength with patients with state after implantation of an endoprosthesis in the knee area.

Question

Is the MOTomed (RECK company) a contribution to optimize the success of rehabilitation in case of a four-week clinical rehabilitation?

Experimentees

18 patients with knee total endoprosthesis (cemented, partly cemented), starting from 3 weeks post operation,
sex regularly divided (8 men, 10 women),
Age between 55 and 80
Most of the patients were totally capable of being loaded, 3 were partly capable of being loaded
All the patients were mobilized



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Method

Comparison MOTOmed ← → motor splint

⇒ Measurement of the mobility in the knee joint at the beginning and at the end of the four-week rehabilitation

⇒ Analysis of the gait (controlled by computer) at the beginning and at the end

Subjective criterions at the beginning and at the end (questioning of the patients)

Criteria:

strong = 3 medium = 2 little = 1 none = 0

- a) feeling of tension
- b) burning
- c) stiffness
- d) pain
- e) pressure in the knee

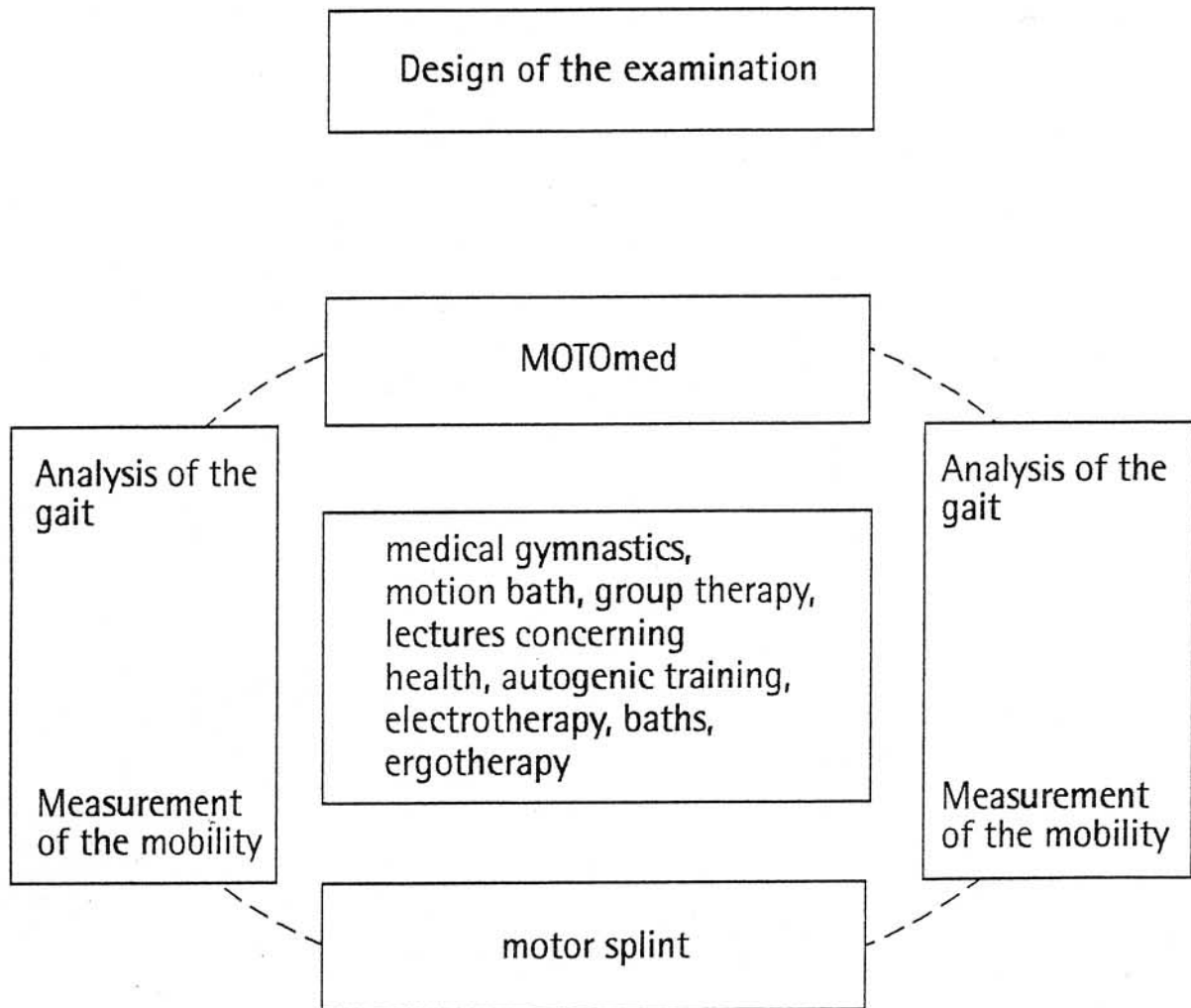
⇒ Subjective estimation of the therapists at the beginning and at the end with support of the analysis of the gait

- a) co-ordination during walking
- b) flexibility
- c) bland posture



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Results

Improvement of the measured mobility after 4 weeks in case of all patients

	MOTomed: 9 patients	Motor splint: 9 patients
Flexion		
at the beginning Ø	70°	72°
at the end Ø	103°	96°
Extension		
at the beginning Ø	8°	9°
at the end Ø	2°	5°

Improvement after 4 weeks in the framework of the analysis of the gait in the following sections:

MOTomed:

- the patients can put their heels better on the ground
- less pressure in the middle part of the foot
- improved dynamics in case of the roll movement over the big toe
- considerable approach of the pressure of walking on both sides
- most extensive optimized structure of the gait
- hardly recognizable bland posture during the measurement of the distribution of the strength

Motor splint:

Results of points a) - f) are partly identical, but altogether not as optimal as after the use of the MOTomed.



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Subjective criterions, estimation of the patients

Average of 18 patients:

Criterions: strong = 3 medium = 2 little = 1 none = 0

	MOTOmed: 9 patients		Motor splint: 9 patients	
	beginning	end	beginning	end
feeling of tension	2	1	3	2
burning	1	0	2	0
stiffness	2	0	3	1
pain	2,5	0	3	1
pressure in the knee	2	1	2	1

Summary

The examination shows, that all patients have gained an improvement of their state of health during the rehabilitation. In this case, the use of the MOTOmed of the RECK company as an additional measure for the support of mobility, co-ordinative improvement, gain of strength and the pleasure to move, shows advantages over the motor splint. That patients after an operation are able to move without pain and tension after a long period of severe pain and bland posture, shows also the valuable psychological use of the MOTOmed.

The prospect of a further use of the MOTOmed even after the clinical rehabilitation (supported by the rehabilitation clinic and the health insurance) normally motivates the patient. But we cannot leave out of consideration, that the motor splint comply in a limited way with the development of movement in the case of some patients. Though, some of these patients were not able to use the MOTOmed due to their extension/flexion deficit.

Just in the computer controlled analysis of the gait, we saw a considerable improvement at the end of the rehabilitation (more by the additional use of the MOTOmed than by the alternative use of the motor splint).