

MULTI-CENTER CLINICAL INVESTIGATION
ON THE EFFECT OF INCORPORATING
DYNASPLINT TREATMENT INTO STANDARD
PHYSICAL THERAPY PRACTICE FOR RESTORING
RANGE OF MOTION OF ELBOWS AND KNEES

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As Presented at the
New York A.P.T.A. State Chapter Meeting,
April 26, 1985, New York, New York

BACKGROUND

This clinical investigation was conducted at four independent rehabilitation centers located across the United States. The purpose of the investigation was to determine the impact Dynasplint treatment has on restoring range-of-motion to patients with stiffened elbows and knees following immobilization from illness, trauma and/or surgery.

Parameters included in a survey questionnaire were: patient age, diagnosis, type of restriction, whether a Dynasplint device was used or not, number of weeks of Dynasplint use, number of visits to a physical therapist and/or physician during the course of therapy, number of other therapies used, costs per visit to a physical therapist and/or physician, total number of weeks of therapy, and approximate total cost of therapy.

OBJECTIVE

The objective of this prospective and retrospective survey was to determine the impact of Dynasplint devices on rehabilitation practice patterns and costs.

ANALYSIS

The surveyed centers submitted clinical data pertaining to a total of 65 patients, 33 receiving Dynasplints and 32 receiving standard therapy only. The attached charts summarize the computations for each parameter providing a comparative analysis for both patient groups with respect to direct rehabilitation costs (Chart A) and rehabilitation times (Chart B).

Table I summarizes the most significant findings with respect to Dynasplint use.

It is likely that the wide geographic dispersion of the four treatment centers will account for both the varying degrees of experience with Dynasplint devices and the significant variance in their rehabilitation practice patterns. In spite of these differences, all four centers achieved sizeable reductions in all parameters, with the exception of the "number of therapies used" parameter at one of the centers (38% increase). However, this same center experienced average reductions of 57% in the number of therapy visits, 39% in rehabilitation time, and 35% in direct costs for therapy.

SUMMARY

The incorporation of Dynasplint devices into treatment protocols for restoring joint range of motion will significantly impact rehabilitation practice patterns due to sizeable reductions in: (A) The number of required physical therapy sessions; (B) The length of the rehabilitation period; and (C) The direct costs of physical therapy.

TABLE 1: SUMMARY OF DYNASPLINT EFFECTS ON PHYSICAL THERAPY TREATMENT PARAMETERS

<u>Parameter</u>	<u>Percentage Reduction</u>				
	<u>Tucson AZ</u>	<u>Baltimore MD</u>	<u>Hoffman Estates IL</u>	<u>Cherry Hill NJ</u>	<u>Composite (All Centers)</u>
Total Cost for Therapy	61%	67%	9%	35%	53%
Number of Physical Therapy Visits	69%	79%	75%	57%	69%
Number of Therapies Used (Modalities/Procedures)	32%	53%	19%	(+38%)	29%
Total Therapy Weeks	38%	63%	79%	39%	53%

CHART A: COMPARISON OF PATIENT REHABILITATION COSTS WITH AND WITHOUT THE USE OF DYNASPLINT

Provider Location	Average Age	Number of Patients	Movement Restricted	Total Number of Therapies Used	Dynasplint Used	Total Number of Weeks of Dynasplint	Total Number of Visits to a Physical Therapist	Total Number of Visits to a Physician	Cost per Visit to Physical Therapist	Cost per Visit to Physician	Average Total Dynasplint Costs	Approximate Total Cost for Therapy
Hoffman Estates, IL	29.83	12	Flex & Ext.	2.83	Yes	7.83	3.58	4.50	26	35	253.80	347
	34.0	12	Flex & Ext.	3.5	No	-	14.58	5.33	26	35	-	379
Percent Decrease												
				19%			75%	16%				9%
Cherry Hill, NJ	44.3	7	Flexion	4.2	Yes	5.3	23.8	N/A	28	N/A	198.94	865
	30.67	6	Flex & Ext.	2.6	No	-	55.5		24		-	1,332
Percent Decrease												
				(38%)			57%					35%
Tucson, AZ	41.0	8	Flexion	4.0	Yes	10.75	37.37	N/A	27	35	317.86	1,327
	31.13	8	Flex & Ext.	5.88	No	-	119.38	4.38	27	35	-	3,223
Percent Decrease												
				32%			69%					59%
Baltimore, MD	41.7	6	Flex & Ext.	2.7	Yes	12.2	14.4	6.3	34	39	349.67	839
	44.5	6	Flex & Ext.	5.7	No	-	69.5	11.0	36	39	-	2,502
Percent Decrease												
				53%			79%	43%				67%
Composite Averages (All Centers)	31.4	33	Flex & Ext.	3.4	Yes	8.8	18.0		28	28	275.0	784
	34.6	32	Flex & Ext.	4.8	No	-	58.8		28	28	-	1,667
Percent Decrease												
				29%			69%					53%

CHART B: COMPARISON OF TOTAL REHABILITATION TIME REQUIRED WITH AND WITHOUT THE USE OF DYNASPLINT ON ELBOWS AND KNEES

Provider Location	Patient's Age	Number of Patients	Movement Restricted	Dynasplint Used	Total Number of Weeks of Dynasplint	Total Number of Weeks of Therapy
Hoffman Estates, IL	29.83 34.00	12 12	Flex & Ext. Flex & Ext.	Yes No	7.83 -	2.92 14.17
79% Reduction						
Cherry Hill, NJ	44.3 30.67	7 6	Flexion Flex & Ext.	Yes No	5.3 -	13.5 22.08
39% Reduction						
Tucson, AZ	41.0 31.13	8 8	Flexion Flex & Ext.	Yes No	10.75 -	20.90 33.75
38% Reduction						
Baltimore, MD	41.7 44.5	6 6	Flex & Ext. Flex & Ext.	Yes No	12.2 -	10.7 29.1
63% Reduction						
Composite Averages (All Centers)	31.4 34.6	33 32	Flex & Ext. Flex & Ext.	Yes No	8.8 -	10.9 23.4
53% Reduction						

() = Increase

Patient Treatment Data Compiled by George R. Hepburn, R.P.T., et al., 1984.