



# Newsletter



## Prosthetics and Orthotics Clinic

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### Prosthetics Up-Date 1980: *Foot and Knee Components*

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This paper is, in part, based on a lecture given by the author at the International Congress on Technical Orthopedics, 1979, in Nuremburg, Germany.

The data relating to prosthetic foot and knee components was obtained from a survey of the relative sales volume of the various components by three of the largest U.S. distributors of prosthetics components from practically all manufacturers. The distributors cooperating in this were Knit Rite, Inc., Kansas City Missouri; Northeast Paramedical Industries, New York, New York; and Pel Supply Company, Cleveland, Ohio.

These firms were requested to provide the relative percentage of sales of the various foot (Table I) and knee components (Table II), rather than the absolute volume of sales. The table on knee components includes conventional versus modular constructions. The average percentages (mean) of the various prosthetic feet and knee components sold by the three firms are listed in the last columns of Tables I and II respectively. On the basis of these data, one may infer current prescription and fitting practices in the United States.

An attempt to get similar data on below-knee and above-knee suspension systems, based on the percentage of sales of supracondylar cuff, BK side joints, hip joints, suction socket valves, and Silesian belts, appeared not valid after analysing the data collected because of the

possibility of various combinations of suspension systems that may be prescribed and used. It is, therefore, hoped that readers of the Newsletter will return the questionnaire on Page 10 which addresses the subject of BK and AK sockets and suspension systems with due consideration of the various possibilities of combination of suspension systems.

#### Discussion

Referring to Table I, there appears to be a vastly increased use of SACH feet versus other types of prosthetic feet. This may be interpreted in terms of the far greater frequency in recent years of BK versus AK amputations due to improved surgical techniques. Although from the author's experience it appears that SACH feet are used to an increasing extent and with great frequency in AK prostheses. In Table II, one notes a surprisingly low use of hydraulic mechanisms, which may be interpreted in terms of the increase in the geriatric population which, in general, do not benefit as much as younger amputees from the hydraulic systems. Support for this interpretation may be viewed in the larger percentage of safety knees, and single-axis knees with knee lock used which total 66% of all knee units sold.

TABLE I

Prosthetic Foot Component	Percentage of each component supplied			Mean
	Supplier #1	Supplier #2	Supplier #3	
SACH	75	83	89	82
Articulated	23	12	8	14
Universal Ankle Joint	2	5	3	4

TABLE II

Prosthetic Knee Component	Percentage of each component supplied			Mean
	Supplier #1	Supplier #2	Supplier #3	
Manual knee locks:				
conventional	43	14	6	21
modular	5	9	5	6
Total	48	23	11	27
Safety knee:				
conventional	10	32	45	29
modular	5	15	10	10
Total	15	47	55	39
Polycentric:				
conventional	1	0	1	1
modular	1	1	0	1
Total	2	1	1	2
Free knees (friction controlled):				
conventional	2	8	21	10
modular	0	2	3	2
Total	2	10	24	12
Knees with extension assist:				
conventional	20	6	0	9
modular	5	2	3	3
Total	25	8	3	12
Hydraulic knees:				
conventional	7	9	6	7
modular	1	2	0	1
Total	8	11	6	8

## Guest Editorial

### *Of Prosthetics And 1980*

The survey of prosthetics components shown in this issue yields conclusions mostly related to above-knee amputees, as indicated in the text associated with Tables I and II. Fortunately more lower-limb amputations today are below-knee, so one really cannot tell much about trends in prosthetics practice from these data except to note that the SACH foot is indeed a success. This however should not make us complacent about this design, for

we should never be happy with anything that we have in prosthetics. Our objective should always be constant improvement.

As suggested, data are needed on below-knee fittings to give us a better impression of the state of lower-limb prosthetics today. Surveys of suppliers will show little; needed are data from the fitters of the country.

Many of you know that the support of the VA Research Program

of the University of California at Berkeley and San Francisco many years ago yielded the crucial biomechanical parameters in lower-limb amputee prosthetic service associated with fit and alignment. But never to be overlooked as very significant to service is the "tender loving care" and the training provided to the patient by the emphatic prosthetist. In any case, components although secondary are still important. But clearly