

Alan Finnieston included in his reply an announcement that his firm intends to offer "a series of instructional programs on the correct use of plastics in contemporary orthotic

practice" and suggests that those interested in attending contact him at 1901 N.W. 17th Avenue, Miami, Fla. 33125.

The results of this survey have

been forwarded to the formal education programs in this country and abroad with the hope that the faculties will be stimulated to initiate programs in this area.

The Geriatric Amputee¹

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The purpose of this presentation is to challenge each of you to become an advocate for the geriatric amputee, and to evaluate his potential on factors other than his age.

To dispel the theory of a person being too old to use a prosthesis I would like to share a couple of real situations.

We had a dear 77-year-old man receive his prosthesis at our clinic at Deer's Head in the spring. Last summer I met his grandson, and when I asked him how his grandfather was, he replied, "oh, he's fine now that he has his new leg. He's even courting a girl friend." Then there is the 85-year-old woman who received a new prosthesis and yet another new one at the age of 87 to enable her to continue caring for and babysitting her great grandchildren.

This afternoon I would like to talk first about factors to be considered in the management of the geriatric lower-limb amputee, and then pre-

sent some statistics gathered from a review of the amputees who received their prostheses through the clinic at Deer's Head Center during its first two years of operation.

The management of the amputee can be divided into three phases:

1. Post amputation and/or pre-prosthetic training.
2. Prescription.
3. Post prosthetic training.

One of the problems we had in the management of the geriatric amputee was the scarcity of information provided by the referring physician. We sometimes got little more information than that the patient had had an amputation — not even a mention of whether it was an AK or BK, or whether it was on the right or the left.

To help overcome this situation we developed a questionnaire to develop not only the necessary basic history, but, more importantly, information such as cardiac status and the condition of the remaining lower limb. We also included the question "is he able to increase exertion 50 per cent more than is required for normal walking or wheelchair use."

We used the reference "On energy requirements for prosthesis use of geriatric amputee" to establish that question (2).

Depression

In the pre-prosthetic period there are many aspects to consider. From our first contact with the geriatric amputee we usually get a definite

feeling about his general mental status. We often find that he is depressed: his self-image has been shattered; he is suddenly unable to walk, work, or even get out of the house; he is faced with a great fear of the future. "What," he asks, "is going to happen to me and my family?"

To help him cope with these many frightening problems, the social worker, who we feel is an important member of the team, can be of value from the beginning by helping him face reality, helping solve some of his problems, and by giving him added encouragement.

Range of Joint Motion

Loss of range of motion is more rapid in the geriatric patient because of loss of tissue elasticity. Management is to institute bed positioning and range of motion exercises and encourage freedom of movement as soon as possible. Our goal to have not more than 10 deg. of flexion contracture in hip and knee. Stretching exercises must be carried out if contractures have developed, but one must remember that the older patient tolerates stretching poorly.

Muscle Strength

There is a generalized decrease in strength with age which is compounded by the effects of surgery and forced inactivity. Management is through general strengthening exercise, but the cardiac status and other systems must be considered in planning the exercise program. Usually we must accept less than what is considered as ideal strength. The goal is that the patient be able to support himself by a walker or crutches.

²Peizer, E. On the energy requirements for prosthesis use by geriatric amputees, in "The Geriatric Amputee," Committee on Prosthetics, Research and Development, National Academy of Sciences, 1961.

¹Presented at the Annual Meeting of the American Physical Therapy Association of Md., Inc., November 13, 1976.

Often times the geriatric amputee has poor balance and is fearful of falling. He has to be encouraged to try walking with crutches or walkerette and must be well guarded to prevent falling. Ideally our highest pre-prosthetic goal is independence in walking with crutches, however, as we are more concerned with safety and realize the older person does not have the agility and balance of a younger person, walking independently with a walkerette is acceptable. Our chief concern is the safety of the patient and his ability to function. We emphasize the specific stump exercises for extension and abduction of the hip for the AK and the quadriceps for the BK.

Shaping the Stump

In the older amputee generalized soft tissue atrophy is already present and stump wrapping should be monitored carefully. The patient and his family usually lack a clear understanding for the need of stump wrapping, so clear explanations and instructions should be given to insure proper shaping of the stump.

Length of Time Before Prescription

We usually find that most new amputees are presented at our Prosthetic Clinic about 2 months post amputation. Sometimes it is more than that and once in a while less. If it has been 2 months or longer, usually there has been adequate time for reduction of contractures, an increase in strength, proper shaping of the stump, and for learning to walk with assistive devices. If the time is shorter and the patient is able to handle himself on crutches or walkerette but still lacks range of motion or has not stabilized in the shrinking process, we usually go ahead and present him at clinic. The physician in charge of the clinic at DHC has at times given a provisional prescription, stating that when the contracture has been reduced or shrinkage has stabilized the prosthetist may proceed with fabrication of the prosthesis.

The team approach is used at the clinic at DHC. The team consists of the physician in charge, the prosthetist, the physical therapist, the

occupational therapist, the social worker, counselors from the Division of Vocational Rehabilitation, the patient, and his family, whenever possible.

Prescription for the Geriatric Amputee

Usually, when a patient has worn a prosthesis previously, a prescription for a duplication of the present prosthesis is made, i.e., when a person has a plug socket or a thigh corset, it is duplicated as closely as possible. For a new amputee, we try to prescribe components to meet the criteria which we developed during our evaluation.

Sockets

Quadrilateral sockets with partial suction and valve, usually fitted with a heavy cotton sock, is the design of choice unless there is extensive soft tissue atrophy, when a 5-ply woolen sock is used.

Suspension

A hip joint with pelvic band gives greater security. Suction is generally not prescribed for the geriatric patient because he does not have the muscle strength or tone to use it. At times a "Silesian bandage," or belt, is prescribed, but the patient often has difficulty with internal rotation of the prosthesis when he pulls the "bandage" tight. We recently had to change a "Silesian bandage" to hip joint and pelvic band for a woman.

Knee

Maximum stability at heel strike is necessary for the geriatric patient. The manually locked knee joint provides this stability in ambulation. It does result in gait deviations, but safety with the geriatric patient is our chief concern. It is better to have gait deviations than no gait at all. To help overcome partially the need to circumduct or vault the prosthesis is generally made ½ to 1-in. shorter than the contralateral leg.

Another knee component that is prescribed sometimes is the BOCK safety knee which provides stability through friction upon weight-bearing.

Foot Components

When a locked knee is used a single-axis foot is desirable because it permits the entire plantar surface of the foot to make contact with the floor early in the stance phase. With a person who is not a vigorous walker, such as an older person is apt to be, an extra soft heel bumper is indicated.

When a SACH foot is used with an articulated knee an extra soft heel cushion is desirable.

Post-Prosthetic Training

Post-prosthetic training for a geriatric amputee should be considerably different from that for a young vigorous person. Balance, strength, agility, and endurance will all be reduced greatly and we must proceed more slowly. Goal setting will vary greatly from individual to individual — from limited use in the home to general activities of daily living, to return to work, from walking with no assistive device, to walking with cane or canes, crutches, or walkerette.

We must set realistic goals for the geriatric amputee. Many of these people have not been active for a long period before amputation, and they will probably not regain vigorous strength and agility. But if we can return them to the life style to which they were accustomed then I think we have reached our goal.

As I have said several times before, we are concerned with safety. While we would like to have a perfect gait, without any assistive device, we settle for safe gait with an assistive device. But when a 75-year-old man can climb on and run a tractor on the farm, what difference does it really make if he uses a cane? Or, if a 75-year-old woman is taking care of herself, staying by herself most of the day and performing household chores, is it so awful she uses a walkerette?

Last year we conducted a review of the patients who received a prosthesis through our clinic during the first 2 years of its existence. The purpose of this was to ascertain whether or not the clinic was meeting the needs of the patient; i.e., were we prescribing the proper kind

of prosthesis for the individual? And, we felt, this would be partially determined by the use the patient made of his prosthesis. All patients had had their prosthesis for at least a year.

We interviewed each of these 24 patients on the day of the clinic, having them complete a questionnaire. Level of amputation, age

group, and cause of amputation are given in Table I. Five of these questions with the result are given in Tables 2-6.

It was apparent to us from these statistics that we evidently were meeting the needs of the patients and that the amputees over 60 years of age function about on the same level of those under 60.

Table 1
Classification of Patients

Under 60	Over 60
A/K — 9	A/K — 5
B/K — 5	B/K — 5
Vascular — 5	Vascular — 9
Trauma — 9	Trauma — 1

Table 2
I Wear My Artificial Limb:

Under 60 - 14			Over 60 - 10	
No.	%		No.	%
12	85	a. Every day	9	90
1	7	b. Almost every day		
		c. A few times each week	1	10
1	7	d. A few times each month		
		e. Hardly ever		
		f. Never		

Table 3
When I Wear My Limb It Is On:

Under 60			Over 60	
No.	%		No.	%
12	85	a. 7 or more hours a day	9	90
1	7	b. 4 to 6 hours a day		
1	7	c. 1 to 4 hours a day	1	10
		d. less than 1 hour		

Table 4
When My Limb Is On I Can:

Under 60			Over 60	
No.	%		No.	%
1	7	a. Only sit		
13	93	b. Walk in the house	10	100
13	93	c. Go up and down stairs	9	90
13	93	d. Go shopping, church or visit	9	90
8	57	e. Work	5	50 ¹
6	42	f. Drive a car	4	40 ²
3	21	g. Dance	0	0

¹plus one who performs house chores

²one also drives a tractor

Table 5
When I Walk I Use:

Under 60			Over 60	
No.	%		No.	%
4	28	a. A cane	6	60
2	14	b. A walkerette	2	20
0	0	c. Crutches	0	0
8	57	d. Nothing	2	20

Table 6

Literature Cited

I Need Someone To Assist Me When I Walk:

Under 60			Over 60	
No.	%		No.	%
3	21	a. Yes	1	10
11	78	b. No	9	90

1. Burgess, Ernest M., Robert L. Romano, and Joseph H. Zettl, *The management of lower-extremity amputations*, Prosthetic and Sensory Aids Service, Veterans Administration, TR 10-6, August 1969.

The Current Issue

Much has been expressed orally and written concerning the special needs of the elderly, or the geriatric, or the infirm lower-limb amputee, but very little formal attention seems to have been given to the problem

except for the surgical and immediate aftercare techniques set forth by Burgess and others (1). Your comments on Mrs. Leists' article along with your experiences, observations, and recommendations will

be most welcome. For your convenience and to make correlation of the replies easier a questionnaire is included. However your replies should by no means be limited to the questionnaire.

NEWSLETTER QUESTIONNAIRE

(Return to AAOP, 1444 N Street, N.W., Washington, D.C. 20005)

In your experience in management of lower-limb geriatric amputees:

1. Should the prosthesis weigh less than conventional prostheses?

- AK Yes No
 BK Yes No

Please comment:

2. What type of knee do you generally use for above-knee cases?

- Manual lock
 Weight-bearing (Safety) Knee
 Other (please specify)

Please comment:

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