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A study to test the individual's recall of teaching, relative to the prevention of hip flexion and abduction contractures in patients with above-the-knee amputation

A STUDY TO TEST THE INDIVIDUAL'S RECALL OF TEACHING, RELATIVE TO THE PREVENTION OF HIP FLEXION AND ABDUCTION CONTRACTURES IN PATIENTS WITH ABOVE-THE-KNEE AMPUTATION

BY

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CHAPTER I

INTRODUCTION

Following World War II, it was estimated that there were 21,000 military amputees.[1] The problem of amputation is not, however, limited to wartime. Later investigation revealed that there were approximately six times as many amputations performed among the civilian population of this country during that same four-year period.

Due to continued advances in the field of medicine and allied sciences, the number of older people in the population in whom cardiovascular disease is likely to develop will steadily increase. Moreover, the tremendous and rapid technical developments of the era in which we are living further enhance the likelihood of one's being injured on the job or on the highway. Because of these two considerations, it is expected that there will be an increasing number of persons entering the hospital for amputations.

Therefore, it behooves the nurse of today to have a broad perspective of health and disease. She is expected to develop and utilize skills, knowledge, and appreciations in all aspects of nursing care. Rehabilitation, which is considered an integral part of medical-surgical nursing care, is largely educational and one phase of concern is the prevention of superimposed deformities. It is a continuous

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[1]Howard A. Rusk, Rehabilitation Medicine (St. Louis: The C. V. Mosby Co., 1958), p. 351.

process which begins when the patient enters the hospital and ends when he has returned to as normal a life as possible. This means that the nurse should be able to administer care through every phase of the patient's recovery as well as be able to teach this care to other team members, the patient, and his family.

In planning care for the individual who has had an above-the-knee amputation, one of the nurse's main objectives should be the teaching necessary for the prevention of hip flexion and abduction contractures. The extent and depth of her teaching will have some influence on the development or prevention of these contracture deformities. When such complications occur they lead to difficulty in the fitting of a prosthesis, thereby delaying ambulation and prolonging dependency. This points up the significance of teaching for these patients, and the responsibility of the nurse in recognizing her role in this aspect. This has been the main concern of the writer.

Statement of the Problem

This study is concerned with the investigation of patients' recall of teaching, as done by the nurse, relative to the prevention of hip flexion and abduction contractures in patients with above-the-knee amputation.

Definitions

In order to assist the reader in developing a frame of reference similar to that of the author, the following key terms are defined:

Stump: that part of the limb left after amputation.

Prosthesis: an artificial substitute for a missing extremity. It may be constructed of willow wood, aluminum, fiber, or plaster.

Prosthetic evaluation: assessment by the physician of whether the patient is physically and psychologically ready for prosthetic prescription.

Prosthetic prescription: the prescription of a prosthesis by the physician to meet the individual needs of the patient.

Flexion: bending or contracting inward, thereby decreasing the angle between two bones.

Abduction: the movement of an extremity away from the body.

Contracture: a permanent shortening of muscle fibers.

Deformity: deviation from the normal shape and size of a structure of the body, resulting in either disfigurement or disability.

Contracture-deformity: when a muscle becomes shortened there may be associated changes in bone structure.

Justification

While working as a head nurse in the amputation clinic of the hospital selected for this study, the investigator was impressed by the number of patients with above-the-knee amputations who were found to have hip flexion and abduction contractures. Although the amputee is prone to develop this complication as a result of the specific type of surgery performed, its development suggests that the patient did not receive the quality of care, with the teaching, that is such an integral part of his rehabilitative program.

Glover stated that "the steady rise in the average age of our population is likely to increase the number of amputations that are

necessitated by circulatory disturbance or vascular insufficiency."[1] Yet McCarthy found that "the ten volumes of Nursing Research contains no reports of studies on this subject."[2] It would seem that the nursing profession, if it is to meet the changing health demands of society, should begin to concern itself with establishing a scientific basis for planning the care of the person who has had an amputation.

Purpose of the Study

Specific purposes of the study are to determine:

1. If there is a relationship between teaching, or lack of it, and the development of hip flexion and abduction contractures.
2. What the areas are, where the greatest lack appears to be, in relation to teaching during and following the patient's hospitalization.
3. Whether the nurse is meeting the rehabilitative needs of this type of patient and to what extent.
4. Whether there is a difference in the amount of teaching received by patients relative to their being hospitalized in a teaching versus a non-teaching hospital.

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[1]John R. Glover, "The Major Amputations," American Journal of Nursing, I, No. 9 (September, 1950), reprint.

[2]Eileen McCarthy, "An Exploratory Study of the Care of the Patient with Unilateral Above Knee Amputations to Determine the Significance of Prone Lying in the Prevention of Hip Flexion and Abduction Contractures" (Unpublished Master's thesis, Boston College, 1962).

Scope of the Study

This study was conducted in a large metropolitan hospital which has an outpatient department consisting of forty-five clinics. The amputation clinic meets bimonthly on the second Thursday and last Friday of the month. Eight male and female patients, between the ages of 40 and 70, who have had unilateral above-the-knee amputations for whatever etiologic reason other than trauma, were selected as participants in this study. No consideration was given to ethnic or cultural differences in the group interviewed. Some of the patients had their surgery performed at this hospital and were referred directly to this clinic, while others were referred from hospitals throughout the state. All patients interviewed were on public financial assistance of some type, since this was the basis for the individual's referral and acceptance at this clinic. The interview took place at the time of the patient's initial or second visit to the clinic and was limited to a period of time no later than six weeks post amputation. This limitation was imposed since the amount of teaching done by the nurse was determined through the patient's recall of such, and it was felt that this short time lapse would provide more reliable information. This follows the law of recall or reinstatement which is a most widely used and important method for measuring retention.[1] A further limitation of this study might well be failure on the part of the patient to recognize teaching when it was done other than planned per se.

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[1]Floyd Ruch, Psychology and Life (Chicago: Scott, Foresman and Co., 1948), p. 362.

Because of the small group of patients analyzed, the findings in this study cannot be generalized beyond this group.

Preview of Methodology

This study was conducted for the purpose of measuring teaching, as done by nurses, for individuals with above-the-knee amputation. It was specifically concerned with those aspects of teaching relative to the prevention of hip flexion and abduction contractures. A structured open and close ended interview schedule was constructed for this purpose. This interview schedule was administered to a purposive sampling of eight patients who were selected from the amputation clinic of a large metropolitan hospital in the Boston area.

Sequence of Presentation

In Chapter II, the writer discusses the theoretical framework in which this study was done. A statement of the hypothesis is also included in this chapter. Chapter III describes the methodology used, the tools used to collect the data, and the procurement of the data. A description of the findings of the study are presented in Chapter IV. Chapter V summarizes the study, states conclusions reached, and the recommendations made.

CHAPTER II

REVIEW OF THE LITERATURE

The literature for the past ten years was reviewed with two points of view in mind: the role of the professional nurse as a teacher, and the current practices in the nursing care of the patient following above-knee amputation relative to the prevention of hip flexion and abduction contractures.

Patient teaching is an essential and integral part of nursing care and as such is the recognized responsibility and function of the professional nurse. The positive effect of early ambulation and shorter periods of hospitalization on the well being of the patient have added impetus to the necessity for patient teaching to enable him to care for himself at home. Consequently, the patient's responsibility in self-care and the nurse's responsibility in early teaching and rehabilitation have increased proportionately.[1]

Nursing educators have long been aware of the importance of patient teaching by nurses. Lambertson, in her philosophy of nursing, states:

> The distinctive function of nursing refers to the physiological and/or psychosocial responses to health which may or do result in a state of dependence upon others for meeting needs which normally are within the potential of the individual or family. In a therapeutic-educative relationship, nursing assists the

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[1]Ruth Freeman, "Nurse's, Patient's, and Progress," Nursing Outlook, L (January, 1959), 16.

> individual and/or family to achieve their potential for self-direction for health.[1]

Brown affirms the importance of this function of nursing when, in discussing the preparation of the professional nurse of the future, she states that such preparation should include "the art of teaching health to persons, whether sick or well and whether individually or in a group."[2] Skinner, et al. stress the growing importance of the teaching role of the nurse in planning for the care of patients when they say:

> Teaching has always been an integral part of good nursing care and health education. But the nurse today finds that her role as a teacher is gradually assuming greater proportions. Now the nurse in the hospital is beginning to recognize, correctly label and expand her teaching efforts. She finds that she holds a key role since she is with the patient during his acute illness and is on the spot to help him plan and initiate his recovery program.[3]

Harmer and Henderson, in concurring with the aforementioned writers, state, "If the nurse consistently encourages the patient's optimum participation in his hygienic and therapeutic program, she must spend a large part of her time encouraging, guiding, or teaching."[4]

Progressively planned learning experiences will assist the patient to understand the nature of his illness, motivate him to participate in his recovery program, aid him in accepting his illness and limitations, and help him in the planning of realistic goals.

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[1]Eleanor C. Lambertson, Education for Nursing Leadership (Philadelphia: Lippincott Co., 1950), pp. 88-89.

[2]Esther Lucille Brown, Nursing for the Future (New York: Russell Sage Foundation, 1948), p. 139.

[3]G. Skinner, et al., "To Nurse Is to Teach," American Journal of Nursing, LVIII, No. 1 (January, 1958), 92.

[4]Bertha Harmer and Virginia Henderson, A Textbook of the Principles and Practice of Nursing (New York: The Macmillan Company, 1955), p. 80.

To implement the above-mentioned objectives, it is obvious that teaching which is rehabilitative in scope should begin at the time of the patient's admission to the hospital. During this period, the patient's medical, social, intellectual, and psychological background can be appraised to determine how much and what kinds of teaching may be necessary. Collaboration with other team disciplines in developing a preoperative teaching program that would prepare the patient to participate more effectively in the postoperative program should also be undertaken at this time.[1] Shafer, et al. emphasize the importance of the nurse's responsibility in preoperative teaching relative to the patient who has had an amputation. They state, "Preparation for the use of crutches should begin before the operation by teaching the patient to lie on his abdomen and do push-up exercises."[2] If procedures such as the performance of exercises and positioning in bed are explained preoperatively, it is felt by the writer that there is far less resistance to their being done postoperatively. A knowing patient is a cooperative one.

The qualifications of the nurse as a teacher are similar to those of the teacher in any other field of endeavor. Of paramount importance is that she understand and be able to make effective application of some of the major concepts and modern theories of the teaching-learning process. Burton, an authority in the field, states that "notable differences exist between individuals in speed of learning, energy

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[1]Mary Barabas, Contemporary Head Nursing (New York: The Macmillan Company, 1962), p. 83.

[2]Kathleen Shafer, et al., Medical-Surgical Nursing (St. Louis: The C. V. Mosby Co., 1958), p. 341.

output, depth of feeling and facility of insight."[1] The learning process must be suitably geared to the level of each individual's understanding, as well as his physical and psychological readiness to learn. The nurse needs to remember that the patient must be allowed to progress at his own rate of speed in implementing the plan for his care. If due consideration is not given to this factor, the overeager nurse may create a stressful situation which may well result in discouragement on the patient's part, thereby causing a delay in the learning process.[2]

Another important principle of teaching mentioned by Burton is, "Adults do not learn what they do not need. The teacher is to aid and guide learners, as maturity develops, to see many needs which are not immediately felt but which are necessary for individual and societal well being."[3] In consideration of this law of learning, it is essential that the nurse understand the patient's needs and adapt her instruction to the patient's level of understanding, limitations, and past learning experiences. Knowledge must be presented in a meaningful way and the importance of the matter presented for learning must be understood and have relevance for the individual. Recognizing and seizing teaching opportunities requires a mature sense of balance. Faddis and Hayman emphasize this when they say, "Important as teaching is, it is never appropriate if it is imposed upon a person who is not ready to receive

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[1]William Burton, The Guidance of Learning Activities (New York: Appleton-Century-Crofts, Inc., 1952), p. 166.

[2]Mary Moskopp and Jane Sloan, "Nursing Care for the Amputee," American Journal of Nursing, LX, No. 9 (September, 1950), 552.

[3]Burton, loc. cit.

it."[1] Thus, the nurse must be aware that effective use of psychologically sound teaching-learning principles, continued guidance of the patient, and assisting him in the attainment of worthwhile goals result in effective learning. Therefore, with proper utilization of the aforementioned principles one can assume that there would be fewer numbers of postoperative complications. One must bear in mind, of course, the inevitability of the effects of certain uncontrollable variables.

In the patient who has developed hip flexion and abduction contractures following above-the-knee amputation, there would seem to be some factor or factors indicative of interference with the educative process. When these complications occur, certain limitations are then placed upon the patient. Physicians, nurses, and members of related disciplines are aware of these limitations. Orr states, "Contractures constitute a deformity which is likely to occur if the proper treatment is not carried out during the healing period. The best treatment is always prevention."[2] In general, authorities seem to place much of the responsibility for the prevention of this complication on safe and knowledgeable nursing care. Bryce, a physical therapist who has had considerable experience working with amputees, feels that "the first ten post-operative days, the healing period, is a period of prevention. Success depends not only on the physical therapist, but also on the cooperation of the patient and the nursing staff."[3] Morrissey says,

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[1]Margene Faddis and Joseph Hayman, Care of the Medical Patient (New York: McGraw-Hill Book Co., Inc., 1952), p. 115.

[2]Thomas G. Orr, "Amputations," A Textbook of Surgery, ed. Frederick Christopher (Philadelphia: W. B. Saunders Co., 1942), p. 548.

[3]Margaret Bryce, Physical Therapy After Amputation (Madison: The University of Wisconsin Press, 1954), p. 7.

"Contracture deformities are preventable if the causal conditions are properly understood and preventive measures are instituted early."[1] Moskopp and Sloan feel that an understanding of why the surgery involved fosters the development of hip flexion and abduction contractures is essential, and state:

> The patient's tendency to assume positions of deformity due to unequal muscle pull depends greatly on the site of amputation. Some groups of muscles normally have a stronger pull than their opponents. For this reason the knee and hip persistently tend to assume a position of flexion rather than extension. In the mid-thigh amputation the insertion of the abductor muscles on the greater trochanter is still intact but much more of the area of insertion of the adductor group has been amputated. Therefore, the mid-thigh amputee tends to lie with his stump in abduction and outward rotation.[2]

The desirability of maintaining a full range of motion in the hip joint, by careful attention to positioning and general body alignment, is recognized by many authorities as being important throughout the course of the amputee's convalescence.[3]

Of particular importance in the immediate postoperative period is the type of bed provided for the individual who has recently had an amputation. This bed should provide firm and even support, which can be accomplished by the placement of a bed board underneath the mattress. A soft mattress is undesirable because, according to Bryce, "The weight of the body at the pelvis will result in from 5-10 degrees of flexion

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[1]Alice Morrissey, Rehabilitation Nursing (New York: G. P. Putnam's Sons, 1951), p. 90.

[2]Moskopp and Sloan, loc. cit.

[3]Margaret Arey, "The Care of Patients with Amputations," American Journal of Nursing, XLIV, No. 1 (January, 1944), 21.

at the hip joint."[1]

Elevation of the stump, to minimize edema and the danger of hemorrhage, is best accomplished by means of elevating the foot of the bed. The practice of placing a pillow under the stump for this purpose has been shown to have certain inherent dangers. Morrissey states:

> Maintenance of this position over a long period of time with prolonged flexion of the hip and knee joints can result in contractures of the hip and knee that seriously interfere with the fitting of a prosthetic appliance. These contractures prolong rehabilitation because extensive stretching exercises over a period of months are required to correct the resultant deformities.[2]

Wohl concurs with Morrissey and says:

> Caution against the excessive use of pillows to support an extremity or relieve pain should be emphasized. Contractures occur, or if already present are made worse, by placing a pillow or other support under a joint in an effort to relieve pain or to give the patient what would appear to be better posture or position.[3]

The significance of prone lying, which encourages extension and hyperextension of the stump, cannot be overemphasized. The individual who has had an above-the-knee amputation needs complete hip extension in order to learn an acceptable or even comfortable gait in walking with a prosthesis. Bechtol states:

> During post-operative care, prevention of flexion contractures of the joint is of the utmost importance. This can be accomplished in the upper extremity by having the patient carry his joints through a full range of motion as soon as

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[1]Bryce, op. cit., p. 6.

[2]Morrissey, op. cit., pp. 218-219.

[3]Michael Wohl, Long Term Illness (Philadelphia: W. B. Saunders Co., 1959), p. 53.

> possible, and in the lower extremity by having the patient lie on his abdomen.[1]

Shafer, et al. feel that:

> Unless there is a medical order to the contrary, the patient who has had a lower limb amputation should turn on his abdomen for a short time the day following his operation, and thereafter he should lie on his abdomen for some time, at least two times each day.[2]

The side lying position is an alternate method of positioning which may be used to keep the hip joint mobile. The nurse should be aware, however, that propping the stump high on pillows to effect neutral alignment may actually encourage an abduction contracture. The preferred method would be to have the patient lie on his side with the stump supported by the opposite thigh. By means of gravity, the stump would then be in a position of adduction.[3]

Much of the literature reflected agreement on the inherent dangers of unlimited sitting activities. Bryce says, "The above the knee amputee should not be allowed to sit for more than brief periods of time during the first ten post-operative days."[4] Thus the practice of allowing the patient to sit for long periods of time with the head rest elevated or prolonged sitting privileges in a wheelchair may jeopardize his future success in the use of a prosthesis. The nurse's responsibility is to provide variety in bed position and daily activities.

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[1]C. Bechtol, "Amputations," Christopher's Textbook of Surgery, ed. Loyal Davis (Philadelphia: W. B. Saunders Co., 1960), p. 1179.

[2]Shafer, et al., op. cit., p. 293.

[3]Moskopp and Sloan, loc. cit.

[4]Bryce, op. cit., p. 6.

The nurse's assistance with therapeutic exercises will vary with the stage of the recovery and will depend on hospital policy. The availability of physical therapists and the extent and type of the reconditioning program will determine the degree of the nurse's participation. Knocke believes that the nurse should be as well versed in the specialties of other team members as she is in her own. She goes on to say:

> It is the nurse who sees that the patient applies to his daily activities the principles of treatment, therapy and exercise prescribed for him. Her co-operation or lack of it can many times be an important factor in the success or failure of a reconditioning program since she spends more time each day with the patient than any other member of the hospital staff.[1]

Licht and Johnson pointed out the teaching responsibilities shared by all team members in interpreting to the patient the importance of close adherence to the prescribed exercise program. They say:

> As in other phases of amputee management the patient must be oriented to the purposes and reasons for therapeutic exercises prescribed, if maximum co-operation and progress are to be attained. Concomitantly, he should be well aware of the serious consequences which may occur if he fails to participate and co-operate fully in the program.[2]

Therefore, the nurse is in the unique position of coordinating all the activities of the other disciplines in her plan of care.

Since many patients are discharged from the hospital before a prosthesis has been prescribed, the interval of time between discharge and the initial evaluation visit is vital. Planning for home care prior

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[1]Lazelle Knocke, "The Role of the Nurse in Rehabilitation," American Journal of Nursing, XLVII (April, 1947), 76.

[2]Stanley Licht and Edmund Johnson, Therapeutic Exercises (Baltimore: Waverly Press, Inc., 1961), p. 586.

to the patient's discharge should include teaching the patient and members of his family the important aspects of his physical care, a realization of the goals to be attained and the adjustments that may be necessary. At the same time, plans should be made for providing continuity of care through an outside agent, such as the public health nurse, if the need exists.

Despite the fact that patient teaching has been shown to be effective in the prevention of postoperative complications, we still see a goodly number of them occurring. This makes one wonder whether the nurse recognizes the importance of teaching and to what extent and depth she does it. This led the author to postulate the following hypothesis.

Statement of Hypothesis

There is a significant correlation either positive or negative between the amount of patient and family teaching, as done by the nurse, and the subsequent development or absence of hip flexion and abduction contractures.

CHAPTER III

METHODOLOGY

This study was conducted in a large general hospital with a capacity of 1,000 beds, located in the Greater Boston area. Permission was obtained by letter to conduct the study from the assistant director of nursing service. This hospital has an outpatient department consisting of 45 clinics, of which the amputation clinic is one. This clinic being a very active one and the investigator's familiarity with it were influential factors in its selection for this study.

The amputation clinic is held from 9:00 A.M. to 1:00 P.M. on the second Thursday and last Friday of the month. It is staffed by three physicians, a coordinator of amputee services, one social worker, two graduate nurses, and a student nurse who is rotating through the clinic for experience. On an average, twenty patients are seen per clinic session.

Selection and Description of the Sample

A purposive sampling of eight patients between the ages of 40 and 70, who had unilateral above-the-knee amputation for whatever etiological reason other than trauma, was selected as participants for this study. A random sampling was not possible because of the limited number of patients available. All patients interviewed were on public financial assistance of some type.

The selection of the patient was dependent upon whether this was the initial visit to the clinic or a second visit, and was limited to a

period no later than six weeks post-amputation.

Of the patient sample, four individuals at the time of their initial visit had hip flexion and abduction contractures which delayed prosthetic prescription. The remainder of the sample served as a comparison group and consisted of patients who, at the time of their initial or follow-up clinic appointment (second visit), did not have hip flexion and abduction contractures necessitating a delay in prosthetic prescription. In both groups the degree of contracture development was determined by the physician at the time of the patient's first visit. This information was obtained from the investigator's review of the patients' records.

Methods Used to Collect Data

The writer constructed an open and close-ended interview schedule consisting of 84 items.[1] The face sheet of the interview schedule contained questions referable to the patient's personal and medical history. These data were obtained by the interviewer, with the supplementary information being obtained from his medical record. The interview schedule was divided into the following areas:

I. Pre- and Postoperative Teaching Relative to Bed Positioning, Items 1-13.

II. Postoperative Positioning of the Stump, Items 14-22.

III. Sitting-up Activities, Items 23-30.

IV. Postoperative Exercises of the Stump, Items 31-48.

V and VI. Aspects of Home Care as Taught to the Patient and Members of

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[1]See Appendix A.

His Family, Prior to His Discharge and Return to the Amputation Clinic for Prosthetic Evaluation, Items 49-84.

Procurement of Data

The investigator attended five amputation clinic sessions. The length of time spent in attendance at each of these clinic sessions was approximately two and one-half hours, at which time an average of two patients were interviewed. The total number of patients interviewed was eight. The investigator introduced herself to the patients as a nurse who was particularly interested in learning more about the care of amputees from the patients themselves. All of the patients appeared to be quite willing to participate in the study. The interviews were scheduled in such a way as not to interfere with his/her turn to see the physician or to prolong, in any way, his/her stay in the clinic. The interview schedule was not pretested.

The interviews with each patient lasted on an average of thirty minutes. Questioning took place in a room with only the investigator in attendance. The interviewer wrote in the answers or encircled "Yes" or "No" replies on the interview schedule at the time of the interviews.

CHAPTER IV

PRESENTATION OF DATA

The study population was composed of eight patients, all of whom were making their initial visit to the clinic. The following tables summarize the findings.

TABLE I

THE STUDY POPULATION CATEGORIZED BY AGE, SEX, RESIDENCE SINCE DISCHARGE, TIME SPAN BETWEEN DISCHARGE AND INITIAL CLINIC VISIT, AND PRESENCE OR ABSENCE OF CONTRACTURES

Patient No.	Age	Sex	Residence Since Discharge			Time Span Between Discharge and Initial Clinic Visit	Presence of Contractures	
			Home	Nursing Home	Other		Yes	No
1	70	F		x		6 weeks		x
2	70	M	x			6 weeks	x	
3	70	F	x			3 weeks	x	
4	68	M			Daughter's	6 weeks		x
5	65	F			Daughter's	6 weeks		x
6	61	M	x			5 weeks		x
7	58	M			Daughter's	4 weeks	x	
8	47	F	x			4 weeks	x	

As shown in Table I, the sampling divided itself into two groups. The group that was comprised of two males and two females, who at the time of their initial visit had hip flexion and abduction con-

tractures, was designated at Group I. Group II consisted of the remaining two male and two female patients who, at the time of their initial visit, did not have hip flexion and abduction contractures. This, therefore, indicated a delay in prosthetic prescription for those members of Group I, while the lack of such complications in those members of Group II expedited the prescription process.

The age range of the eight patients comprising the sample was from 47 to 70, with a mean age of 64. The age range for the four women represented was from 47 to 70. The age range for the men was 58 to 70.

Following discharge from the hospital and prior to initial evaluation at the amputation clinic, four patients were discharged to their own home in the care of their spouse. One patient was discharged to a nursing home and three others in the care of one of their children. The range of time between discharge from the hospital and referral to the clinic was from three to six weeks.

TABLE II

THE STUDY POPULATION CATEGORIZED BY THE PATIENT'S UNDERSTANDING OF HOSPITALIZATION, TYPE OF HOSPITAL, AND TIME INTERVAL BETWEEN ADMISSION AND AMPUTATION

Patient No.	Patient's Understanding of Reason for Hospitalization		Type of Hospital		Time Interval Between Admission and Amputation
	Amputation	Evaluation	Teaching	Non-Teaching	
1		x		x	1 month
2	x			x	3 days
3		x		x	2 weeks
4		x		x	2 weeks
5	x		x		3 days
6		x		x	4 days
7		x		x	10 days
8		x	x		1 week

Table II shows that two patients had previous knowledge that they were being admitted to the hospital to have an above-the-knee amputation. The remaining six patients understood that they were being admitted for purposes of evaluation.

One patient from each group had his/her surgery performed at teaching hospitals in contrast to the remaining six, whose surgery was performed at non-teaching hospitals.

Preoperative teaching is an important consideration for the prevention of contracture deformities. In relation to this, an effort was made to ascertain the number of days individuals were hospitalized prior to scheduled surgery. This showed the range to be 3 to 31 days, with a median of 8.5 days.

Analysis of Data

I. Pre- and Postoperative Teaching Relative to Bed Positioning, Items 1-13.

None of the patients interviewed indicated that they had had any preoperative teaching relative to bed positioning and exercises. In the postsurgical period, one patient in Group I and one patient in Group II indicated that they had been given instructions about positioning, but that they were not given instruction relative to the length of time they were to spend in various positions. The remaining six patients, or 75 per cent of the sampling, indicated that they had been given no instruction relative to positioning.

In Group I, three patients indicated that the most frequently assumed position was that of lying on their back with the bed elevated. Only one patient in Group II indicated this. One patient from each group stated that he/she spent most of the time in the supine position with the bed level. In Group II, two patients stated that the side-lying position was the most frequently assumed position.

Two patients, one from each group, indicated that they had been instructed to change their position from the supine to the prone-lying position. One patient in Group II understood the reason for this, as explained by the physical therapist, but assumed this position for only 10 minutes a day. The other patient, not understanding the reason for this position change, assumed this position for 30 minutes daily. The remaining six patients, or 75 per cent of the sample, indicated that they had not been instructed to lie prone. Three patients from each group stated that the position they assumed at night was supine with the bed level. One patient from each group stated that he/she slept in

the side-lying position.

Two patients from Group I and two patients from Group II indicated that a trapeze was placed over their beds for lifting or sitting-up purposes. None of them, however, stated that this was utilized for changing one's position. One half of the sampling indicated that there was no assistive device placed over their beds.

None of the patient sampling indicated that a traction apparatus had been used on their stumps in the postsurgical period as a means of keeping their stumps in extension.

II. Postoperative Positioning of the Stump, Items 14-22.

One patient in Group I stated that his stump had been supported by two pillows in the back-lying position for most of the time he was in the hospital. Two patients in Group II indicated that their stumps had been supported in the side-lying position. Only one patient in Group II had been instructed by a nurse regarding the hazards of pillow supports under the stump, while none received this information in Group II.

None of the patients indicated that trochanter blanket rolls or sandbags had been used in an effort to maintain the stump in the preferred adducted position.

III. Sitting-up Activities, Items 23-30.

The time span before patients were allowed out of bed for the first time postoperatively ranged from one to four days. Seven patients, or 87.5 per cent of the sample, were given no instruction regarding limitations in sitting activities. One patient from Group II

stated that a nurse had discussed the importance of limiting one's sitting activities. The remaining patients had no understanding of why this was important. Two patients from Group I and four from Group II (these patients did not have contractures) stated that they had unrestricted use of a wheelchair during their hospitalization. One patient from Group II was restricted in the use of a wheelchair.

Once the patients were allowed out-of-bed privileges, six stated that most of their time was spent in the sitting position, but two patients from Group I stated that supine lying was their most frequently assumed position.

IV. Postoperative Exercises of the Stump, Items 31-48.

Three patients from Group I and three from Group II were not started on any formal exercise program during their hospitalization. One patient from each of the groups, or 25 per cent of the sample, was started on exercise programs in the teaching hospitals. These exercises were performed in the prone and supine-lying positions with and without supervision. The patient in Group I performed these exercises as suggested by the physical therapist three times daily for 10 minutes. The patient in Group II was not given any instruction relative to the number of times he was to perform the exercises, but did, however, perform them twice daily for five minutes. Both patients stated that they understood the reasons for stump exercising as explained by the physical therapist.

The patient in Group I was unable to recall all of the exercises she was to do, but stated that she had written instructions to follow. The patient in Group II had no written instructions, but stated that

she had total recall of them.

The patient in Group I stated that the physical therapist did not have anyone with her when she performed the exercises. The patient in Group II stated that the physical therapist had a student physical therapist with her when she performed them.

Both patients stated that in addition to stump exercises they were instructed in arm strengthening exercises by the physical therapist. Neither patient, however, understood the purpose of these exercises.

V and VI. Aspects of Home Care as Taught to the Patient and Members of His Family Prior to His Discharge and Return to the Amputation Clinic for Prosthetic Evaluation, Items 49-84.

Two patients in Group I and one patient in Group II, or 37.5 per cent of the sample, stated that they were not given any instructions in preparation for discharge. Two patients in Group I and three patients in Group II were given information relative to discharge and continuous rehabilitation. This information covered such areas as stump care, exercises, and bandaging. Of these five patients, only one had been given written instructions regarding exercise activities. In the entire sample there was no evidence that family members were included in any of the discharge planning and teaching.

Prior to discharge, one patient from Group I and two patients from Group II were told that the visiting nurse would be attending them in their homes following hospital discharge. The patient in Group I was told by the hospital physical therapist that supervision of stump exercises would be carried on by the visiting nurse. The two patients in Group II were given this information by the hospital physician. He

informed these patients that the visiting nurse would be assisting them with stump bandaging, exercises, and the use of ambulatory aids. Five patients had no knowledge of, or planning for, discharge follow-up. Of these five, one patient from Group II was later visited by the visiting nurse, but he had no knowledge prior to discharge that this would occur.

Three patients in Group I and one patient in Group II took ambulatory aids home with them. Of these, only one patient was able to walk with this assistive device prior to discharge. The remaining two patients (Group I) were given crutches, with no instruction in their use either prior to or following discharge. The remaining four patients in the sample received no assistive ambulatory devices whatever.

One patient in Group II was urged to obtain a wheelchair by order of the hospital physician. Advantages and disadvantages of sitting in the wheelchair were not explained and the limitations were not outlined.

Two patients from Group I and one patient from Group II exercised their stumps for varying periods of time in the home setting. The periods of time ranged from once daily for five minutes to three times daily for 10 minutes. Of the three, one patient from Group I was started on this exercise program while in the hospital. Continued supervision in the community was offered by the visiting nurse association.

Four patients, two from each group, stated that most of their time following discharge was spent sitting in a wheelchair. Four other patients, two from Group I and two from Group II, spent most of their time sitting in a wheelchair. It is interesting to note that only one

patient in Group II was urged to obtain a wheelchair, yet one other from this group and two others from Group I purchased wheelchairs without being advised to.

All eight patients stated that they were able to perform hygienic measures of care such as bathing and dressing. However, they were able to accomplish these measures in a limited manner in that they could not perform these activities independent of help.

The entire sample stated that they rested for short periods of time during the day. Four patients in Group I and one patient in Group II rested in the supine position. The remaining three patients from Group II stated that they rested in the side-lying position.

Four of the patients were not referred to the Visiting Nurse Association for home care supervision. Of these, three were from Group I and one from Group II. The patients who received the services of the Visiting Nurse Association were as follows: In Group I, the nurse visited one patient for teaching and supervision of crutch walking and stump bandaging. In Group II, the nurse visited three patients for purposes of supervision and instruction of stump exercises and crutch walking.

All patients denied that they ever supported their stumps for purposes of comfort in the home setting, or that anyone ever suggested that they do so.

Two patients from each group were unable to ambulate independently upon discharge. The remaining four patients stated that they were able to use crutches and/or walker for purposes of ambulation. Of these same four patients, one from Group I and two from

Group II stated that the visiting nurse supervised their performance of crutch walking activities. The remaining patient (Group I) received no such supervision.

In reference to the patients' ability to assist with household activities, it was found that two patients (one from each group) participated in such activities as cooking and washing clothes and dishes. The remaining 75 per cent of the patients (three from each group) stated that they did not engage in any such functions.

Discussion of Data

From the analysis of the data the subsequent conclusions were drawn.

I. Pre- and Postoperative Teaching Relative to Bed Positioning

The period of time between admission to the hospital and date of amputation apparently was not being utilized in preparing the patient for amputation surgery. This was borne out by the fact that 100 per cent of the sample indicated that they had no teaching relative to bed positioning and exercises prior to surgery. Postsurgery, 25 per cent of the patients had been given minimal instruction regarding positioning, while 75 per cent indicated they had received none whatever.

A point of major significance which evolved from the data showed that the majority of the patients who had contractures had assumed a sitting position in bed. This is a factor which in itself would enhance the development of hip flexion contractures during the convalescent period. Instruction in the prone-lying position, which would allow for extension and hyperextension of the stump, had not been given

to 75 per cent of the total sample. These are good indications that little planned teaching had been done.

Academically, great significance is attached to the use of assistive devices. Despite the fact that 50 per cent of the patients (one half in the teaching and one half in the non-teaching hospitals) had been given assistive devices to use, this total sampling is too small a number to enable the investigator to arrive at any valid conclusions as to the value which these hospitals place on such devices.

II. Postoperative Positioning of the Stump

A very minimal amount of teaching had been given this particular group of patients regarding postoperative positioning of the stump.

III. Sitting-up Activities

It is interesting to note that the data did not substantiate the fact that the unrestricted use of a wheelchair, as pointed out by Bryce,[1] would aid the development of hip flexion contractures and jeopardize the patients' future success in the use of a prosthesis.

IV. Postoperative Exercises of the Stump

Since only two patients were hospitalized in teaching hospitals, it is impossible to make any generalizations regarding differences in the amount of teaching, if any, in either the teaching or the non-teaching hospitals. In effect, there was a very minimal amount of instruction given in both types of hospitals regarding postoperative exercising of the stump.

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[1]Bryce, op. cit., p. 6.

V and VI. Aspects of Home Care as Taught to the Patient and Members of His Family Prior to His Discharge and Return to the Amputation Clinic for Prosthetic Evaluation

The fact that 75 per cent of the patients who did not develop contracture deformities had visiting nurse supervision gives credence to the belief that continuity of care under guidance is an important factor in the prevention of the development of the aforementioned deformities. Gross negligence in the area of teaching family members, as shown by the data, appears to be a sad commentary on the recognition of this area as one of the most essential aspects of rehabilitation.

It can be concluded from this sampling that there was a great lack of teaching in all of the areas that have been outlined in this study as being vital in the pre- and postoperative care of the patient undergoing amputation surgery.

Although the identity of the persons who did the teaching was ascertained, it would be difficult to say who assumed the major responsibility because of the variance in personnel, as indicated by the responses. It would seem that a minimal amount of teaching was carried out by the hospital nurses for meeting the rehabilitative needs of patients with above-the-knee amputation.

Because there was such a minimal amount of teaching done and by such diverse persons, it would not be valid to say that this was a test of the patient's recall of teaching as done by the hospital nurse, but rather teaching done by other personnel.

The hypothesis was proved in the sense that there is a correlation, positive in this instance, between the amount of patient and family teaching, and the subsequent development or absence of hip

flexion and abduction contractures. This was substantiated by the fact that those patients who had virtually no teaching developed these contracture deformities, and those who had minimal planned and/or incidental teaching were found not to have had these developments. An important consideration at this point is that despite the fact that these patients had only a minimal amount of teaching, they still did not develop contractures. This leads one to speculate as to what other factors might have been operating in this direction. It would seem logical, therefore, to assume that there must be other variables which might account for the development and/or absence of these complications. It is felt that neither the tool devised for this study nor the small sample investigated could account for these factors at this time.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

This study was concerned with the investigation of patients' recall of teaching, as done by the nurse, relative to the prevention of hip flexion and abduction contractures in patients with above-the-knee amputation. The patients for this study were selected from the amputation clinic of a large metropolitan hospital in the Boston area. Eight patients, of whom four were men and four were women, comprised the sample. Four of the individuals had hip flexion and abduction contractures which delayed prosthetic prescription at the time of their initial visit to the clinic. The other four patients, at the time of their initial clinic visit, did not have the aforementioned contracture deformities. The presence and degree of contracture development was determined by the physician at the time of the patients' first visit.

An open and close-ended interview schedule consisting of 84 items was constructed by the writer and was administered to eight patients. These individuals were chosen from the five amputation clinic sessions attended by the writer. The interviews were scheduled in such a way as not to interfere with the patient's turn to see the physician or to prolong his/her stay in the clinic. The interview schedule had not been pretested. The line of questioning concerned itself with the following areas:

I. Pre- and Postoperative Teaching Relative to Bed Positioning

II. Postoperative Positioning of the Stump

III. Sitting-up Activities

IV. Postoperative Exercises of the Stump

V and VI. Aspects of Home Care as Taught to the Patient and Members of His Family Prior to His Discharge and Return to the Amputation Clinic for Prosthetic Evaluation.

The interview with each patient lasted on an average of 30 minutes. Questioning took place in a room with only the investigator in attendance.

The findings and conclusions which have been presented in Chapter IV indicate that there was no teaching done prior to surgery, and a minimal amount, at the most, postoperatively regarding the rehabilitation of these patients. In the identification of the persons who did the teaching in the hospital, it was found that no one member of the interdisciplinary team assumed major responsibility for this. Minimal though the teaching was in amount, most of it had been done outside the hospital environment. Analysis showed that it was the visiting nurses, to whom these patients had been referred, who did the major part of the instruction and supervision. There also emerged a correlation between the amount of patient and family teaching, and the subsequent development and/or absence of hip flexion and abduction contractures. This was substantiated by the fact that those patients who had no teaching developed these complications, and those who had a minimal amount of teaching were found not to have these developments. The interesting point to be noted is that with such a minimal amount of teaching, these deformities did not develop. In questioning this phenomenon, it can therefore be assumed that there must have been other variables present

which might have accounted for the absence of contracture deformities.

Recommendations

1. That planned and individualized teaching programs be instituted for the care of the patient who faces the prospect of an amputation.
2. That a planned in-service education program be instituted and functional in order to help the nurse to acquire more extensive knowledge regarding the teaching needs of patients with above-the-knee amputation.
3. That a teaching guide be developed to serve as a tool to be used by the nurse in the care of patients with amputations. This might be an effective method of making the nurse more cognizant of her teaching responsibilities. It might also help her to increase skill in teaching patients and help her to assume broader responsibility for meeting the needs of these patients and their families.
4. That the development of nursing care plans and effective use of these be instituted as a means of communication among nurses, physicians, and other paramedical disciplines.
5. That nursing education continue to stress the importance of assisting the patient to maintain full range of motion with a clear understanding of the fundamental principles upon which these nursing measures are based.
6. That the dearth of information relative to the care of patients with amputations be mitigated by directed studies in this area both at the level of higher education and in

nursing research.

7. That the interview schedule used in this study be refined by rewording and reducing the number of items in order to elicit more exact information.
8. That this tool in its revised form be used on a larger sample under the same conditions.

APPENDIX A

INTERVIEW SCHEDULE

PERSONAL DATA OR INFORMATION SHEET

1. Age _____
2. Sex _____
3. Hospital where amputation performed _____
4. Did you know specifically that you were to have your leg amputated upon admission to the hospital, or did the doctor tell you that you were being admitted for evaluation? _____
5. How many days were you in the hospital before you were told that it would be advisable for you to have your leg amputated? _____
6. Date of amputation _____
7. Care since discharge?
   A. Home _____
   B. Nursing home _____
   C. Other hospital _____
8. Length of time since discharge from the hospital and referral to the amputation clinic _____
9. Prosthesis prescribed at time of initial visit? Yes No

INTERVIEW SCHEDULE

Positioning

1. Did anyone tell you before surgery about some of the things you would have to do following surgery relative to

   position in bed _____ exercises _____ others _____

2. Who told you about these things?

   Doctor ___ Nurse ___ Physical Therapist ___ Visiting Nurse ___

   Others ___

3. Was a traction apparatus used on your stump following surgery?

   Yes No

4. Following surgery were you given any instructions about positioning?

   Yes No

5. Were you given any instructions in relation to the length of time you were to spend in certain positions? Yes No

6. In which position did you spend most of your time?

   side lying ___ face lying ___ on back--bed level ___

   on back--bed raised ___

7. Were you instructed to change your position from the back lying to the face lying position? Yes No

8. How long did you stay in this position? _____

9. Did you understand the reasons for changing your position?

   Yes No

10. Who explained this to you? Doctor ___ Nurse ___

    Physical Therapist ___ Visiting Nurse ___ Others ___

11. Which position did you sleep in at night? side lying ___

face lying ___ on back--bed level ___ on back--bed raised ___

12. Was there a trapeze or assistive device of a similar nature over your bed? Yes No

13. What was this used for? _____

Stump

14. Was your stump supported by anything following survery? Yes No

15. With what? _____

16. When was your stump supported? A few days postop. ___

at night ___ during rest periods ___ others ___

17. Did anyone suggest that you not support your stump? Yes No

Who? _____

18. Did you understand the reasons for this? Yes No

19. Was a pillow used to support your stump in any of the following positions? face lying ___ back lying___ side lying ___

others ___

20. Were sandbags or a blanket roll used against the side of your stump? Yes No

21. Did you understand the reasons for their use? Yes No

22. Who explained this to you? Doctor ___ Nurse ___

Physical Therapist ___ Visiting Nurse ___ Others ___

Sitting-up Activities

23. When did you get up for the first time following surgery? _____

24. Did you sit in a chair the first time you were allowed out of bed?

Yes No

25. Were you given any instructions about sitting up? Yes No

26. Were you given any instructions relative to the length of time you were to spend sitting up? Yes No

27. Who explained this to you? Doctor ___ Nurse ___
Physical Therapist ___ Visiting Nurse ___ Others ___

28. Did you have a wheelchair at your disposal or when you wanted it while you were in the hospital? Yes No

29. Once you were allowed up, in which position did you spend most of your time? lying flat in bed ___ sitting up in bed ___
sitting in a chair or wheelchair ___

30. Did you understand the reasons for limited sitting-up activities?
Yes No

Exercises

31. Who first started you on exercises to your stump? Doctor ___
Nurse ___ Physical Therapist ___ Visiting Nurse ___
Others ___

32. In which positions were you told to exercise your stump?
sitting in bed ___ lying flat on back ___
lying on your stomach ___ others ___

33. Were you given any instructions relative to the number of times that you were to do these exercises? Yes No

34. How many times a day did you exercise? No. of times ___
No. of minutes ___

35. Did anyone watch you? Yes No Who? _____

36. Did you understand the reasons for doing these exercises? Yes No

37. Who explained this to you? Doctor ___ Nurse ___

Physical Therapist ___ Visiting Nurse ___ Others ___

38. Were you able to remember all the exercises that you were to do?

Yes No

39. Were these exercises written down for you? Yes No

40. Did the physical therapist ever have anyone with her when she supervised you doing your exercises? Yes No Who? _____

41. Were you instructed in any other kinds of exercises to do other than those for your stump? Yes No

42. What were they?

arms ___ trunk ___ good leg ___ others ___

43. Who showed you these exercises? Doctor ___ Nurse ___

Physical Therapist ___ Visiting Nurse ___ Others ___

44. Did you understand the reasons for doing these exercises? Yes No

45. Did you do any of the above exercises prior to surgery? Yes No

46. Which ones? arm ___ trunk ___ good leg ___ others ___

47. Where did you do them? wheelchair ___ lying in bed ___

sitting up in bed ___ others ___

48. Did anyone watch you doing them? Yes No Who? _____

Preparation for Discharge

49. Prior to discharge, were you instructed in any special activities to carry out at home? Yes No

50. What were they? stump exercises ___ stump care ___

positioning ___ stump bandaging ___ others ___

51. Were you given any written instructions relating to these activities? Yes No

52. What written instructions were you given? _____

_____

53. Who gave these instructions to you? Doctor ___ Nurse ___

Physical Therapist ___ Visiting Nurse ___ Others ___

54. Prior to discharge, were any family members shown the exercises that you were to do at home? Yes No

55. Did these family members perform any of these exercises on you while you were in the hospital? Yes No

56. Did anyone watch them do these exercises? Yes No Who? _____

57. Were you told before your discharge that somebody would be visiting you at home to help you and your family with any particular activities? Yes No

58. What activities were these? stump exercises ___

stump bandaging ___ crutch walking ___ others ___

59. Who told you about this person? _____

60. Did you take any special equipment with you when you went home?

Yes No

61. What type of equipment did you take with you?

crutches ___ walker ___ others ___

62. Were you able to walk alone, with the help of an assistive device, prior to discharge? Yes No

63. Were you or your family members advised to obtain a wheelchair for home use? Yes No

64. Who advised you to do this? _____

65. Were you given any instructions relative to the length of time you were to spend in the wheelchair? Yes No

66. Did you understand the reasons for this? Yes No

67. Who explained this to you? Doctor ___ Nurse ___

Physical Therapist ___ Visiting Nurse ___ Others ___

Discharge

68. How many times a day and for how long did you exercise your stump at home or in the nursing home? No. of times _____

No. of minutes _____

69. Did anyone watch or assist you with these exercises?

Yes No Who? _____

70. In which position did you spend most of your time at home or in the nursing home? sitting up in bed ___ lying flat in bed ___

sitting in a chair or wheelchair ___ others ___

71. What activities were you able to do for yourself? _____

_____

72. Did you rest for short periods of time during the day? Yes No

73. In which position did you lie when you rested?

on back--in bed ___ on stomach--in bed ___ others ___

74. How many times a week did the visiting nurse come to see you? _____

75. In what activities did she supervise you?

walking ___ stump exercises ___ stump bandaging ___

others ___

76. Did anyone suggest that you use a support under your stump for comfort? Yes No

77. Did you ever place a pillow under your stump for purposes of comfort? Yes No

78. Who suggested that you support your stump? _____

79. Were you able to get around at home or in the nursing home using an assistive device? Yes No

80. What kind of device did you use? _____

81. How many times a day did you use this device? _____

For how long? _____

82. Did anyone watch you while you walked? Yes No Who? _____

83. Were you able to help with any household activities? Yes No

84. What were these activities?

sitting up ___ standing up ___

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