SPECIAL NEEDS OF THE ELDERLY:
A HOME STUDY COURSE
FOR HEALTH PROFESSIONALS

A graduate project submitted in partial satisfaction of the requirements for the degree of

Master of Public Health

by

Alma Ruth Nahas

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The Graduate Project of Alma Ruth Nahas is approved:

Jahet B. Brady, M.P.H.

Roberta M. Madison, Dr. P.H.

Michael V. Kline, Dr. P.H.
Committee Chairperson

California State University, Northridge
"When I see one bent with age, I see a person whose eyes have witnessed things I have only read about. The aged are the valiant ones, the strength and continuity of the family. To them belong honor and dignity. It is their right to receive it, and our solemn duty to bestow it."

R.C. Sproul
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ABSTRACT

SPECIAL NEEDS OF THE ELDERLY:
A HOME STUDY COURSE
FOR HEALTH PROFESSIONALS
by
Alma Ruth Nahas
Master of Public Health

The purpose of this study was to design, develop and evaluate the effectiveness of a home study course for health care professionals caring for the frail elderly in the clinical setting.

A review of literature dealing with health needs of the elderly and the role of professional nurses in helping to meet these needs yielded information that was pertinent to the implementation of the study. It was established that the elderly are the largest users of health resources in the United States. Improvement of quality of life for this population requires not only proficient medical care for acute illness, but also education for health promotion and disease prevention. In order to function effectively as
providers of consumer health education for the elderly, nurses need a solid theoretical and scientific background in aging.

The educational intervention developed for this study combined information and learning activities relevant to the special needs of the elderly. Positive qualities of aging were emphasized.

The test instrument used in the study consisted of a written survey designed to measure knowledge of health needs associated with the aging process and attitudes of the health care professional toward older people. This test was administered before and after the educational intervention.

The health professionals participating in the study were divided into three groups. Group A, the experimental group, received the educational program. Groups B and C were control groups and received only the test instrument, which was repeated as a post-test after a six-week interval.

An analysis was made of the changes in test scores within all groups and between the experimental and control groups. Comparison of mean scores demonstrated that there was greater improvement in both knowledge and attitude within the experimental group than within the control groups. In comparison between groups, the experimental group showed a greater knowledge gain,
but the control groups demonstrated more attitude improvement.

None of the attitude changes were great enough to be significant. There were, however, statistically significant changes in the knowledge scores within all groups, between the control groups, and between the experimental and one control group.

Study findings strongly indicate that the home study course as an educational modality can provide an effective learning opportunity for health care professionals.
CHAPTER I

INTRODUCTION

Modern scientific and technological achievements have resulted in a marked decline in death rates and improvement in life expectancy. In 1900, there were only three million persons 65 or over in the United States. They constituted four percent of the total population. In 1978 there were 24 million or 11 percent of the total population. Current official projections for the year 2000 are for 32 million and 12-13 percent depending on the birth rate. (52:445) Furthermore, an examination of demographic trends reveals that the 75 plus age group has been steadily expanding; the aging population has been gradually getting older. (43:291)

The proportion of people with health problems increases with age. As a group, the elderly are more likely to suffer from multiple, chronic, and often disabling conditions. At any given time they comprise 20 to 40 percent of the patient population in acute care hospitals. Furthermore, 25 percent of those elderly admitted to hospitals return two or more times in the ensuing twelve months. (37:37)

In addition to their presenting acute illness, older adults tend to suffer from at least one chronic disease, so that chronic and degenerative diseases are
now the principal diagnoses of the elderly. (6:64-65)
Eighty percent of persons over 65 have one or more
chronic conditions, and their medical treatment accounts
for about 30 percent of the nation's health care expendi-
utures. (27:71)

National Health Survey findings disclose that the
aged are the largest users of health resources and the
demand for care rises with age within the older age
span. (12:51) Compared with the population as a whole,
older people tend to have more hospital stays for longer
periods of time, more physician visits, and more days
of disability. They also spend more money on drugs.

As this segment of the population increases, we can
epect a continuing rise in the need for health services.
(4:41) There will be increasing emphasis on coping
with chronic disease and on prevention of its develop-
ment. More attention will be given to improving quality
of life and eliminating health-threatening behavioral
and environmental risk factors. Success in this endeavor
will depend a great deal upon educating the elderly to
assume personal responsibility for their health, provid-
ing the information they need to make health decisions,
and encouraging self-care and independence. (16:130-135)

Background of the Problem

Since nursing service is the largest single compon-
ent of all services needed to provide health care for
the elderly, it might be assumed that nurses would be in the forefront of health promotion, health maintenance, and health teaching efforts. (3:279) Unfortunately, the average registered nurse lacks both educational preparation and experience in geriatric care. (5:253)

In 1973, the American Nurses' Association published The Standards of Geriatric Nursing Practice, based on the premise that there are primary factors which make the nursing of older people different. Since that time there has been an effort to provide gerontological nursing education at the graduate level, and at present there is a rapid increase in the number of gerontological nursing textbooks and journals. (57:434)

In spite of this increased awareness of the needs of the elderly, until very recently the gerontological component of basic nursing programs was either nonexistent or limited to gerontological principles taught within existing courses.

A 1976 unpublished study conducted by the American Nurses' Association revealed that only nine percent of nursing schools require courses in gerontological nursing. (5:253) At the same time, nearly 97 percent of the almost 1 million practicing registered nurses, two-thirds of whom are employed in hospitals, base their practice on entry-level preparation. Their lack of education and experience tends to foster the development of negative
attitudes toward the elderly, who are perceived by many nurses as child-like, unable to participate in their own care, and impediments to efficiency in the technologically oriented hospital. (5:255-256)

STATEMENT OF THE PROBLEM

All nurses in the State of California are subject to mandatory continuing education relicensure requirements. These requirements may be met by enrolling in a variety of courses and/or workshops. In spite of the wide variety of course offerings, there is a blatant paucity of material dealing with the problems of the elderly. There is a need to provide a convenient, low-cost, and easily accessible opportunity for the practitioner to increase knowledge and improve nursing skills in caring for the elderly.

PURPOSE OF THE STUDY

The purpose of this study is to design, develop and test a home study continuing education course dealing with the general and specific characteristics and health needs of the elderly. The emphasis of the course will be upon increasing the knowledge and encouraging positive attitudes of practitioners who care for the frail elderly in the clinical setting.
CONCEPTUAL ASSUMPTIONS FOR THE STUDY

In developing a home study continuing education course, the following conceptual assumptions are made:

1. Continuing education programs are designed to provide educational opportunities for the acquisition of knowledge and the extension of professional competency of practitioners.
2. The standards of geriatric practice are based upon the premise that care of older people is different.
3. The role and functions of nursing are ideally suited to meet the health needs of the elderly population.
4. Adult learners are essentially self-directing and prefer educational experiences that provide opportunities for immediate application of problem-centered information.
5. Attitudes of practitioners toward the elderly can be influenced positively by selected learning experiences.

STATEMENT OF HYPOTHESES

The following hypotheses will be tested in this study:

1. Completion of a home study course will not
significantly increase the practitioner's knowledge of the special health needs of the elderly.

2. There will be no significant relationship between knowledge and the expression of positive attitudes toward the care of the elderly.

**SCOPE AND LIMITATIONS OF THE STUDY**

All of the practitioners involved in this study will be licensed to practice as registered nurses or licensed vocational nurses in the State of California. It is expected that their prior training and experience in geriatric nursing will vary in amount and quality and will not constitute a part of the study.

Influences of ethnic and cultural background and socio-economic levels will not be considered in the study.

Because of the nature of the study, it will not be possible to monitor or evaluate the learning environment or amount of time spent in learning.

Furthermore, owing to the lack of randomization of the population, it will not be possible to generalize the findings of this study to other target groups.

**DEFINITION OF TERMS**

The following definitions are important to this
study:

**Aging:** All the regular changes that take place in biologically mature individuals as they advance through the life cycle. (25:444)

**Gerontology:** The field of study dealing with the aging process. (51:445)

**Geriatrics:** The application of gerontological knowledge to medical care. (51:446)

**Continuing Education:** The organized, planned presentation of appropriate educational experiences at a professional level which are related to the needs and purposes of employment or practice settings. (32:19)

**Nursing:** The art and science of assessing and treating human response to variations in an individual's state of health. (48:1)

**Elderly:** Persons over the age of 70.

**Frail elderly:** Individuals over the age of 75 characterized by severe physiological and/or psychological impairments in activities of daily living. (18:433)

**Population:** Licensed registered or vocational nurses.

**Practitioner:** A licensed registered or vocational nurse concerned with or engaged in the nursing care of the elderly.
CHAPTER II

REVIEW OF THE LITERATURE

Selected literature relevant to the following topics is reviewed below:

(a) The Role of the Practitioner in Geriatric Nursing
(b) Attitudes of Professional Nurses Toward the Elderly
(c) Continuing Education in Geriatric Nursing
(d) Home Study Course as a Tool for Continuing Education

The Role of the Practitioner in Geriatric Nursing

The White House Conference on Aging is concerned with improving the quality of life for the elderly. Health measures identified as national health priorities, i.e., health promotion, disease prevention, and health education, were cited by Benson as essential components of nursing practice. (4:39-43)

Lambersten noted the central focus of nursing as care, comfort, guidance, and assisting individuals to cope with problems that lie along the health-wellness continuum. Therefore she perceived the major function of geriatric nursing to be physiological and psychological assessment, health counseling, health education and preventive, restorative, and curative measures. (32:9-20)
The PRODIST publication on Preventive Medicine, U.S.A. identified nursing as the one profession now conducting the most consumer health education in the United States and attributed this to nurses' numerical superiority, knowledge of health and illness, and direct contact with the consumer. (42:48-49)

In addition to these functions, Futrell felt that nurses should become involved in policy making that sustains the older person in the community and in research activities to improve techniques of health care intervention. (17:433)

In their study of the role of the RN in the long-term care facility, Greenberg and Moffat observed that nurses whose training and experience followed the traditional "medical model" of health administration often felt ill-equipped to function in expanded nursing roles. Viewing the patient from within a disease framework and utilizing the skills with which they felt comfortable, they provided primarily custodial care. (23:1-9)

In order to function creatively and effectively in meeting the needs of the ill elderly, psychological and sociological as well as physiological, the nurse must be given a broad-based scientific and theoretical background in aging. Fundamental information relevant to this background of knowledge is presented in this study.
Attitudes of Professional Nurses Toward the Elderly

Research upon which the Standards of Geriatric Nursing Practice (26:1973) is based led to the conclusion that the attitude of practitioners providing the care is one of the major issues in geriatric nursing. Lambersten proposed that another major issue is the value practitioners in general place upon geriatric nursing as a professional commitment. (32:18-20)

Rokeach agreed with other researchers that an attitude consists of an organization of beliefs and contains cognitive, affective, and behavioral components. (45:127) Researchers seem to agree that attitudes are learned, and Lefrancois is among learning theorists who state that what has been learned can be relearned, unlearned, or modified. (3ST)

Sherif stated that the only possible data from which attitudes can be inferred are observable behaviors, verbal or non-verbal. (50:25)

Until recently, societies' negative attitudes about old people have influenced providers of health care to focus on institutionalization and maintenance. (5:253-256)

Objective appraisals of nursing personnel revealed that, in many instances, their attitudes toward the elderly are, like those of society as a whole, characterized by negativism and stereotyping. (3:279-281)
A study by Campbell indicated that stereotypical attitudes concerning old people existed among all levels of nursing personnel. Registered nurses, who had the most extensive educational background, were the least willing to accept stereotypical statements, but also the least willing to work with the elderly. (9:147-151)

Gillis found that, on the basis of education, nurses prepared at the associate degree and diploma levels were the most positive in their attitudes toward the aged; baccalaureate nurses were less positive than licensed vocational nurses. (21:517-519)

DeLora and Moses, in a study of collegiate nursing students, reported that the more highly qualified students favored specialty areas in pediatrics and obstetrics, while geriatrics was associated with students who had lower aptitude scores. (10:137-144)

La Monica portrays an attitude as a response toward a person, idea, or object that leads to a certain behavior. As a step in creating positive attitudes she stresses the need to explore and develop a personal understanding of one's own attitudes. (33:23-26)

The results of a study by Heller and Walsh demonstrated that attitudes of nursing students toward the aged, as well as their preferences for working with the elderly, could be influenced positively by selected learning experiences. (27:9-17)
Subsequent studies by other researchers support their findings, and Hart, Freel, and Crowell conclude that an experience specifically structured to assist in identifying problems, needs, and potentials of the healthy elderly, combined with opportunities for frequent contact with a number of well elderly persons can significantly improve attitudes toward the aged. (26:10-16)

In the light of these findings, the Investigator felt that inclusion of an attitude survey in this study would increase its usefulness. Not only will it provide a sampling of attitudes toward the elderly held by nurses in the target population, but by forcing nurses to explore their feelings about the elderly it will be a step in creating dissonance. Finally, post-test repetition of the attitude questionnaire will serve to assess the effectiveness of the educational intervention in improving attitudes. Since the ultimate result of increased knowledge and improved attitudes is a modification of behavior, (29:31-34), long-term benefits of the study should be an increased willingness of the participants to care for elderly patients. Nursing care of the elderly should also be improved.

Continuing Education in Geriatric Nursing

In a study dealing with hospitalized elderly, Rossman concluded that all personnel, including nurses, are unable to deal adequately with the fragility of aged
individuals who are hospitalized. (47:107-116)

Violinn reports on a 1979 University of Washington questionnaire study of registered nurses employed in nursing homes, home health care agencies, or public health departments. It revealed that two-thirds of the respondents felt that more clinical and theoretical preparation in their basic education would have increased the quality of their geriatric nursing care. Almost half (42%) favored continuing education courses as a means of enhancing their nursing performance and professional self-confidence. The most favored topic to be included in such courses were gerontological changes, drug use and effects, and nursing interventions. (56:106-107)

Results of a Kansas City study show that mandatory continuing education, begun in Kansas in 1978, has improved the quality and quantity of courses available and has increased the nurse/consumer's sophistication in selecting them. (20:15)

An examination of continuing education course offerings in California, which cover a wide range of topics from administration and acupuncture through legal aspects of nursing to physical assessment and wellness awareness, revealed a marked scarcity of courses dealing with the problems of the elderly. Those that do exist deal more with gerontological theory than
with nursing intervention. The Investigator was unable to locate any home study courses in geriatric nursing.

One of the concerns of the 29th annual meeting of the Western Gerontological Society held in Albuquerque, New Mexico, in April, 1983 was continuing education in gerontology. It is hoped that more educational opportunities will result from the ideas shared at that meeting.

Continuing education courses provide a practical and non-threatening learning experience for the nurse who wishes to review old skills or acquire new ones. The information presented in this study will serve as a review for the experienced geriatric nurse. At the same time, it will provide the beginner with a basic foundation upon which to build skills in caring for the elderly.

The Home Study Course as a Tool for Continuing Education

The Fifty-third Yearbook (1950) of the National Society for the Study of Education called attention to the principle that "learning is a change in behavior correlated with experience." (34)

The Educational Policies Commission of the National Education Association and the American Association of School Administrators stated that research in the field of education has demonstrated repeatedly that passive spectatorship is a poor way to learn. Experiments with techniques which emphasize participation involving
activity and practice have provided evidence that such techniques facilitate the acquiring of factual information and are clearly superior to spectatorship. (37:83)

Glaser defined learning by discovery as teaching a concept or association which involves learner "discovery" of the concept or association. This type of teaching is characterized by provision of inductive sequences and allowance for learning by error. (22:13-15)

Gagne noted that discovery processes of learning require more time than do the processes of simply acquiring and storing information. For this reason, he recommended that when principle learning and problem solving are a part of the lesson, guided discovery should be employed to decrease the time of search while maintaining the advantages of internal selection. (19:149-150)

Fodor and Dalis emphasized the importance of instructor guidance in problem-solving (discovery) learning in order to prevent the student from reaching inaccurate conclusions and/or developing inappropriate solutions to problems. Their suggestions for this guidance included providing students with opportunities to practice recalling and applying concepts and with methods of evaluation that monitor this practice and provide feedback. (15:80-81)

Pigors described the case method of instruction as one which focuses on developing independent thinking,
analytical concepts, and skills for putting knowledge to use in organizational and social problem solving. This method was composed of three elements: case report, case analysis, and case discussion. (40:174-205)

Friesen asserted that instructional programs should be developed in accordance with specific adult learner characteristics. He stated that learning is enhanced when the material to be learned is based on experience rather than theory, new knowledge can be related to past learning, and study material is directly related to the learner's present job. He further noted that an informal setting is conducive to learning. He presented programmed learning as a learning package designed for a specific learner population. In this package, material is presented in small, self-pacing units which require active learner participation and teach to a predictable level of proficiency. (17:55-57) In their discussion of health education methods, Ross and Mico mentioned programmed instruction as a useful tool for imparting a body of information to a large number of people on an individual basis. They noted that, ideally, it permits learning at the individual's own pace, allowing frequent self-testing for comprehension. (46:254-255)

The recent CSUN-sponsored national conference on "Strategic Planning for United States Higher Education" opened with a general panel discussion of "Crucial Issues
Confronting Higher Education in this Decade." Robert MacNeil, Panel Moderator, pointed out that demographic changes in the United States are leading to changes in higher education. Allan Oster identified one of these changes as a developing shift in student populations toward older, night, and part-time students. (44)

Speaking during the general session on "Strategic Planning for Higher Education -- Putting it all Together", Dr. Howard Bowen of Claremont Graduate School concluded that higher education will experience temporary financial retrenchment and will focus more sharply on efficiency and quality in the delivery of its services. (44)

The home study course method appears to be admirably suited as a tool for applying the concepts of learning and the teacher strategies set forth in the above literature. In their catalog listing 250 courses available for independent study through correspondence, the University of California Extension staff emphasized a few of the advantages of such study. Among those listed were the advantages of being able to select one's own learning environment and study at one's own pace. Added to these were the advantages of enrolling at any time during the year and arranging study time to fit job commitments. The quality of instruction to be provided was attested to by promising individual guidance from instructors chosen for expertise in their fields. (36:2)
Summary

The literature reviewed supported the notion that, while the efforts of well-qualified practitioners are crucial to the development and implementation of programs to improve the quality of life of the elderly, most nurses possess neither the necessary knowledge nor the positive attitudes to be truly effective.

It is suggested that more positive attitudes toward aging can be created by providing learning experiences that focus on wellness and the elderly person.

Continuing education is presented as a medium for presenting aging as a natural progression in living, illness as a situation in which the elderly are particularly vulnerable, and strategies to meet the nursing needs of these ill, older people. (5:255)

Individual "discovery" methods of teaching are presented as useful tools for increasing knowledge and proficiency in the adult learner. (19:150)

These suggestions will be adapted and tested in this study.
CHAPTER III

METHODOLOGY

The intention of this descriptive study was to assess changes in knowledge and attitudes of nurses as related to the elderly. The intervention used to accomplish change was a home study continuing education course which provided information and learning activities relevant to the special needs of the elderly.

Methods and procedures utilized in the study will be discussed in this Chapter according to three phases and corresponding to the order in which the research activities were conducted.

Phase I: Needs Assessment of the Target Population

Section 1. Purpose of the Needs Assessment

The purpose of carrying out a needs assessment was two-fold: to determine the potential demand for home study courses, and to identify the subject areas in which nurses caring for the elderly felt that they needed increased information and skill.

Section 2. Method of the Needs Assessment

As discussed in Chapter two, an examination of continuing education course offerings in California revealed a noticeable lack of subject material dealing with health problems of the elderly. Simultaneously, informal interviews with persons involved
with nursing care of the frail elderly disclosed general feelings of insecurity and dissatisfaction with relation to their professional preparation for the task. The consensus seemed to be that there must be more they could do for their elderly patients if they only knew how.

Personal observations made by the Investigator during fifteen years of experience as a nurse in extended care and skilled nursing facilities convinced her that much nursing "burn-out" results from the frustrations of feeling trapped in a "dead-end" job. This frustration undoubtedly stems from a lack of understanding of the elderly and insufficient knowledge of nursing interventions that would increase their independence and enhance their well-being.

In order to obtain further support for the above conclusions reached through informal methods of assessment, it was decided to distribute an interest survey to nurses in both acute and long-term care facilities. (See Appendix A)

The survey requested nurses to rank factors which influenced their selection of continuing education courses, preference in continuing education course opportunities, and topics they would like to see included in a course dealing with health needs of the elderly.

Demographic information, which, it was felt, might influence their responses, was also included in the survey.
Owing to the subjective nature of the questions, the survey was not pre-tested in a sample population. It was, however, developed in consultation with the Director of the Department of Education at Northridge Hospital, Director of Inservice Education at Sherman Oaks Convalescent Hospital, and professors from the Health Science department at California State University Northridge.

Section 3. Selection of the Needs Assessment Population

In order to obtain responses from nurses with varied backgrounds and experiences, the survey questionnaires were distributed at several locations. One hundred questionnaires were distributed over a four week period through the education departments of Valley Presbyterian and Holy Cross Hospitals, through the nursing offices of Sherman Oaks Convalescent Hospital and the Jewish Home for the Aged of Los Angeles at Reseda, and by the administrator of the nurse's registry, Nursefinders of Van Nuys. In order to assure anonymity, participants were not asked for names, addresses, or specific job locations.

Section 4. Evaluation of the Needs Assessment

The questionnaire responses were recorded and tallied and the BMDP program was used to generate and summarize statistical data. The percentage of participant response to each survey item was recorded and topic
choices were ranked from highest to lowest. The Pearson Chi Square statistic was employed to test relationships between variables.

Section 5. Design of the Needs Assessment Questionnaire

The needs assessment instrument was a one-page questionnaire composed of eight items. Questions one through three, and seven and eight dealt with demographic information and asked participants to check the appropriate column relating to their age, sex, level of education, possession of living elderly relatives, and frequency of care of elderly patients. Questions four and five asked the participants to rank factors which influenced their choice of a continuing education course and types of continuing education opportunities which they preferred from one to four, one representing greatest influence or highest preference and four denoting least influence or preference. Question six listed seven topics which could be included in a course dealing with the health needs of the elderly. It requested participants to number these topics in the order in which they would like them included in such a course.

The final form of the survey did not request participants to give reasons for their answers because it was felt that participation would be increased if questions were brief. Respondents were also not queried specifically whether or not they would enroll in a home study
course if one were available. However, at the end of each of questions four, five and six, space was provided for the participant to write an additional comment or explanatory note if so desired. Several participants did add written comments to their questionnaires.

Section 6. Value of the Needs Assessment

Although limited in scope, the responses to the interest questionnaire reinforced the conclusions drawn from the informal assessment. Furthermore, they compared favorably with the findings of Violinn in the 1979 University of Washington study. (56:106-107)

Based upon survey responses, it was decided that the home study course developed as the educational intervention for the study would focus on the health aspects of the aging process and their implications for nursing intervention.

Phase II: Implementation of the Intervention

Section 1. Selection of Study Population

Subjects for the study were volunteers from the population of nurses at Northridge Hospital Medical Center and Valley Hospital. In order to comply with State of California Continuing Education Regulations it was necessary to announce the course objectives in advance of the study. Furthermore, continuing education units were offered to those nurses who completed the study as
an incentive for their participation. These factors made it impossible to select a truly random sample of the population, but, in order to minimize the danger of bias, the subjects at Northridge Hospital were randomly assigned to experimental and control groups by assigning alternate registrants to A and B groups. Choice of the group to receive the intervention was made by use of a random numbers table.

It was arbitrarily decided that the subjects at Valley Hospital would serve as a second control group in order to minimize the effects of possible inter-group communication.

In order to guard against possible pre-sensitization, nurses at both Northridge and Valley Hospitals were deliberately excluded from participation in the needs assessment interest questionnaire survey.

Section 2. Research Design

The research design used to test the intervention was the Pre-Test, Post-Test, Control Group Design, (8):

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test</th>
<th>Treatment</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Experimental</td>
<td>₀₁</td>
<td>x</td>
<td>₀₂</td>
</tr>
<tr>
<td>B Control</td>
<td>₀₃</td>
<td></td>
<td>₀₄</td>
</tr>
<tr>
<td>C Control</td>
<td>₀₅</td>
<td></td>
<td>₀₆</td>
</tr>
</tbody>
</table>

Section 3. Instrumentation of the Study

The instruments employed in the study consisted of an attitude scale and a test of gerontological knowledge, administered as pre and post-tests, and a home study
continuing education course developed as the educational intervention. (See Appendix B and C)

Kogan's Old People's Attitude Scale was selected as the basis for the attitude survey because its reliability was considered moderate at the time of its development, (30:44-51), it was designed to be administered to a group, and it is considered easy to score. (51:93-98) However, some of the test items appeared to be out-dated in the light of current gerontological knowledge. In order to assure reasonably good content validity, these items were deleted and replaced by items from Palmore's Test on Aging (39:315-320). All test items were evenly divided between positively and negatively worded statements in order to guard against possible influence from response set. The subjects were instructed to place their response to each item in one of six response categories: strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree.

The test of gerontological knowledge was developed from material in current medical and nursing literature. Sources of information were compared for accuracy and only items with consensual validity were included. Before implementation in the study, the test was reviewed by members of the education department at Northridge Hospital for additional validation.

The test was composed of fifty multiple-choice
questions designed to sample broad knowledge of health problems related to the elderly. The categories of knowledge tested and the number of questions related to each category are listed below.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitions</td>
<td>2</td>
</tr>
<tr>
<td>Common Characteristics</td>
<td>3</td>
</tr>
<tr>
<td>Sensory Changes</td>
<td>4</td>
</tr>
<tr>
<td>Behavior</td>
<td>8</td>
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<tr>
<td>Learning</td>
<td>4</td>
</tr>
<tr>
<td>Organic Brain Function</td>
<td>4</td>
</tr>
<tr>
<td>Pain</td>
<td>2</td>
</tr>
<tr>
<td>Musculo-skeletal System</td>
<td>1</td>
</tr>
<tr>
<td>Sexuality</td>
<td>3</td>
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<tr>
<td>Cardio-vascular System</td>
<td>6</td>
</tr>
<tr>
<td>Pulmonary System</td>
<td>1</td>
</tr>
<tr>
<td>Urinary Tract</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>Nursing Interventions</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

Section 4. Development of the Educational Intervention

The home study course was developed in conformity with State of California regulations. (See Appendix D)

The content of the course was derived from material in professional textbooks and journals and from knowledge acquired from personal experience in working with frail
elderly patients.

Section 5. Content of the Educational Intervention

The educational intervention deals with health aspects of aging and presents normal changes of aging, common health disorders of the elderly, and nursing interventions appropriate for the aged. It includes situational learning activities and illustrative material as well as suggested sources of information for further study.

Section 6. Validation of the Intervention

Since the nature of a home study course precludes interaction between instructor and subject, and because the potential users of the course may have varied educational and cultural backgrounds, the material was presented in as clear and readable a fashion as possible. The Flesch Test of Readability determined that the reading level of the intervention fell between the 11th and 12th grade levels. (14)

Readability of the material was further tested by submitting the course for reviewing to five nurses selected at random from the nursing population at the Jewish Home for the Aging of Los Angeles. They attested that it was readable and easy to understand and suggested no areas that required clarification.

The course was reviewed for validation of theory content and applicability of learning activities by a panel of experts selected for their:
1. Experience in caring for elderly patients in a hospital setting;
2. Knowledge of nursing theory and technique relevant to the elderly;
3. Understanding of self-teaching methods of learning; and,
4. Experience in staff development.

The panel was composed of two staff educators and a community educator from Northridge Hospital, a nursing supervisor from Sherman Oaks Convalescent Hospital, and a geriatric nurse practitioner on the staff at the Jewish Home for the Aging.

Section 7. Distribution of the Intervention

All materials were delivered to Northridge and Valley Hospitals and there distributed by members of the education department to subjects of the appropriate groups.

Section 8. Instructions to Subjects

When they volunteered to participate in the study, subjects were told that they would be expected to take a pre and post-test in addition to completing the home study material. It was further explained to them that completion of a separate home study test and course evaluation sheet would be necessary in order to fulfill state continuing education requirements. They were reminded that they would receive five continuing education units at no charge to them upon completion
of the entire study.

Each subject was issued an identification number upon registration and instructed to use this number on the tests in order to preserve anonymity and confidentiality.

In addition to these general instructions, each subject was provided with a written instruction sheet giving specific instructions for the group to which she was assigned.

Section 9. Methodological Assumptions and Limitations

It was assumed that post-test scores might be influenced in part by history and pre-test sensitization, but no attempt was made for control of these factors.

Phase III: Evaluation of the Intervention

1. Collection and Recording of Data

Dates of application of the pre and post-test and intervention and subsequent assessment scores will be recorded for each group in the study.

2. Processing and Analysis of Data

The null hypotheses for the purpose of testing are shown as:

\[ H_0: \text{Group A}_1 = \text{Group A}_2 \]
\[ \text{Group B}_3 = \text{Group B}_4 \]
\[ \text{Group C}_5 = \text{Group C}_6 \]
\[ \text{Group A}_2 = \text{Group B}_4 \]
\[ \text{Group A}_2 = \text{Group C}_6 \]
Group B \( o_4 \) = Group C \( o_6 \)

All test scores will be tabulated and the mean changes compared using a t-test. From the results, inferences will be drawn as to the efficacy of the interventions employed in the study.
CHAPTER IV

RESULTS AND DISCUSSION

This Chapter presents and evaluates data obtained from the needs assessment survey and educational intervention. Each was administered to groups of licensed nurses employed in health care facilities in the San Fernando Valley.

Evaluation of the Needs Assessment

The general response to the survey was highly positive. Of one hundred questionnaires distributed, eighty-three percent (N=83) were completed and returned. Those collecting the surveys reported that several participants expressed difficulty in ranking the topics to be included in a course dealing with problems of the elderly. They felt that all the topics were important. Others asked to be notified when such a course was available.

After the questionnaire responses had been recorded and tallied, the BMDP 2DIF program was used to generate and compare statistical data. The following findings were felt to be important for the study.

1. Seventy-five percent of the participants were between the ages of twenty-one and fifty;
2. Only 14 percent of the participants were baccalaureate registered nurses; 33 percent
were licensed vocational nurses, and the remaining 53 percent were fairly evenly divided between diploma and associate degree registered nurses.

3. Fifty-three percent of participants have elderly, living relatives and 48.2 percent care for elderly patients daily in the course of their work;

4. Relevance was stated by fifty-one percent of participants to be the factor which most influences selection of a continuing education course. Interest ranked next in importance, 37 percent, followed by cost and convenience, at 28 and 24 percents respectively;

5. The most favored continuing education opportunity was the one-day workshop, selected by 55 percent of participants. The home study course was rated first by only 15 percent of respondents; and,

6. Topic choices ranked from highest to lowest as follows:

   Health Aspects -- 33.7 percent
   Chronic Illness -- 27.7 percent
   Psycho-social Aspects -- 22.9 percent
   Nutrition and Exercise -- 19.3 percent
   Dementia and Depression -- 16.9 percent
Death and Dying -- 13.3 percent
Drug Use and Misuse -- 12.0 percent

The Pearson Chi Square statistic was employed to test relationships between variables and there was no significant relationship found between any demographic variables and ranking of influencing factors or topic choices. (53:248)

As mentioned previously, several participants added written comments to their questionnaires in the space provided for this purpose. From these comments, assuming that they are representative of the target population, it was strongly suggested that one-day workshops were selected for continuing education classes because they provide a topic of interest or relevance to the participant. Hospital in-service classes were ranked in second place, presumably for the same reasons. Since cost and convenience were not considered of major importance to this population, the home study course was not as likely to be chosen, particularly since there have not been many topics available in home study format.

The enthusiastic expressions of interest in and desire for information relevant to nursing care of the elderly seemed to indicate that a course providing such material would be well-received in any format.

Evaluation of the Educational Intervention

Data evaluated in this section were obtained from
pre and post-tests administered in connection with a home study course which dealt with health aspects of aging. These tests were designed to measure the participants' general knowledge of the health needs of the elderly and attitudes toward the elderly as a group.

Collection and Recording of Data

The test of general gerontological knowledge consisted of fifty multiple-choice questions was scored by subtracting the number of wrong responses from the total possible score of fifty. The attitude survey was composed of twenty-two statements pertaining to characteristics and behavior of elderly persons.

Participants were instructed to read each statement and record their response to it in one of six categories: strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree. Responses to negatively worded statements were assigned values ranging from one for "strongly disagree" to six for "strongly agree". The response values were reversed for the positively worded statements. For example, the respondent who agreed with the following negatively worded statement would receive a score of five.

"Most old people make one feel ill at ease."

Strongly Disagree__Disagree__Slightly Disagree__Slightly Agree__Agree__Strongly Agree__

Agreement with the positively worded statement would result in a score of two.
"Most old people are very relaxing to be with."

Strongly Disagree ___ Disagree ___ Slightly Disagree ___ Slightly Agree ___ Agree ___ Strongly Agree ___

The response values were tallied and averaged and the mean score was recorded. Because of this method of scoring, a low score reflected a more positive attitude than a high score.

The tests were administered to one experimental and two control groups, with a six-week interval between pre and post-tests. During this interval, the experimental group completed the home study course. The control groups did not receive the course until after they had taken the post-test.

Test scores were recorded and tabulated for each group and the individual means for each section of the test instrument were calculated and recorded on the Group Data Sheet (Tables 1, 2, and 3).

Comparison of Data

After the data were calculated and recorded, they were compared to determine any differences in knowledge and attitude scores between pre and post-tests.

The first comparison was made between pre and post-test scores of each group. (Table 4). Both Group A (the experimental group) and Group B (the first control group) scored higher on the knowledge post-test than on the pre-test, but the Group A gain was 13.30
percent as opposed to a 6.25 percent improvement in Group B. On the other hand, Group C (the second control group) demonstrated a drop of .73 percent in knowledge between pre and post-test scores.

All three groups showed improvement in attitude scores on post-test. Group A again led with an improvement of 29.44 percent. Group B, however, demonstrated an improvement of only 1.44 percent as contrasted with a 3.57 percent gain in Group C.

A second comparison was made between the mean post-test scores of Group A and the scores of Groups B, C, and B/C combined. (Table 5) In this comparison, Group A demonstrated knowledge gains of 8.66 percent over Group B, 18.06 percent over Group C, and 13.22 percent over B and C combined.

When attitude scores were compared, it was noted that Group A again scored higher than Group B, with a 1.44 percent gain. Group C, however, demonstrated a 6.83 percent attitude improvement over Group A. When combined with Group B, this gain averaged 2.88 percent greater improvement in attitude in the control groups than in the experimental group.
TABLE 1

Group A Data Sheet: Individual Mean Scores of Tests on Group A of Target Population

<table>
<thead>
<tr>
<th>Identification</th>
<th>Written Knowledge Pre</th>
<th>Written Knowledge Post</th>
<th>Written Attitude Pre</th>
<th>Written Attitude Post</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
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Mean 30.08 34.88 3.94 2.78
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<th>Identification</th>
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<th>Written Attitude</th>
</tr>
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<td>Mean</td>
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</table>
**TABLE 3**

Group C Data Sheet: Individual Mean Scores of Tests on Group C of Target Population

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<th>Identification</th>
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</tr>
<tr>
<td>Attitude</td>
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<td>2.78</td>
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</table>
TABLE 5

Percentage Differences in Mean Post Test Scores Between Groups

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<tr>
<th></th>
<th>GROUP A</th>
<th></th>
<th>GROUP B</th>
<th></th>
<th>GROUP C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>%</td>
<td>Pre</td>
<td>Post</td>
</tr>
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<td>-2.88</td>
<td>2.78</td>
<td>2.86</td>
</tr>
</tbody>
</table>
Statistical Analysis of Data

Since the purpose of the study was to evaluate the effectiveness of a home study course in increasing knowledge of and improving attitudes toward the elderly, a statistical analysis was performed on the data recorded in Tables 1-3. The purpose of analysis was to determine the significance of mean differences between:

1. Pre-test/post-test within the experimental group;
2. Pre-test/post-test within each control group;
3. Pre-test/post-test between the experimental group and each control group; and,
4. Pre-test/post-test between control groups.

The decision to accept or reject the hypotheses was made by use of Student's t-statistic, a highly robust test developed to test differences in means in small samples. (31:203-204) In using the t-test, the Investigator assumed that the population variances of the groups tested were equal and selected the 0.05 level of significance for rejection of the hypotheses. (31:203)

There were no significant differences in the mean test scores of the three study groups at the time of pre-test. Results of the statistical analysis of pre-test/post-test mean scores are shown in Table 6.

A comparison of the mean knowledge scores within the study groups revealed that there was a significant difference in pre and post-test scores for Groups A and B. (p. 001 and p. 05 respectively). Although there was
significance for Group C (p. .001), this was in a negative
direction. That is, the mean test scores decreased on
post-test. The Investigator therefore rejected the
hypothesis that the groups were equal.

When mean attitude scores were compared, there were
no significant differences within the experimental and
control groups. The hypothesis that these groups were
equal was therefore accepted.

A comparison was next made of mean post-test scores
between the experimental group and the control groups.
There was no significant difference in knowledge scores
between Groups A and B, and the hypothesis was accepted
that these groups were equal. The difference between
Group A and Group C was significant at .001 and the
hypothesis was rejected.

There were no significant differences in attitude
scores between Groups A and B or A and C, and the hypoth-
esis that these groups were equal were accepted.

The final comparison of scores was made between
the control groups B and C. There was a significant
change in the knowledge score at the .05 level of signi-
ficance and the hypothesis of group equality was rejected.
There was no significant change in the attitude score
between the groups and the Investigator therefore accepted
the hypothesis that the groups were equal.
TABLE 6
Written Knowledge/Attitude Pre-Test/Post-test
Mean Scores

<table>
<thead>
<tr>
<th></th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t-value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A N=25</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>4.76</td>
<td>3.81</td>
<td>6.2</td>
<td>≤.001</td>
</tr>
<tr>
<td>Attitude</td>
<td>.06</td>
<td>.36</td>
<td>.86</td>
<td>N.S.</td>
</tr>
<tr>
<td><strong>Group B N=24</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>2.04</td>
<td>4.096</td>
<td>2.4</td>
<td>≤.05</td>
</tr>
<tr>
<td>Attitude</td>
<td>.90</td>
<td>.03</td>
<td>.04</td>
<td>N.S.</td>
</tr>
<tr>
<td><strong>Group C N=19</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>- .21</td>
<td>3.6</td>
<td>-4.84</td>
<td>≤.001</td>
</tr>
<tr>
<td>Attitude</td>
<td>.09</td>
<td>.4</td>
<td>.09</td>
<td>N.S.</td>
</tr>
<tr>
<td><strong>Group A/B N=49</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>2.92</td>
<td>5.7</td>
<td>1.78</td>
<td>≤.1</td>
</tr>
<tr>
<td>Attitude</td>
<td>.90</td>
<td>.4</td>
<td>.63</td>
<td>N.S.</td>
</tr>
<tr>
<td><strong>Group A/C N=44</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>6.30</td>
<td>3.2</td>
<td>6.4</td>
<td>≤.001</td>
</tr>
<tr>
<td>Attitude</td>
<td>.10</td>
<td>.38</td>
<td>.08</td>
<td>N.S.</td>
</tr>
<tr>
<td><strong>Group B/C N=43</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>3.37</td>
<td>4.11</td>
<td>2.67</td>
<td>≤.05</td>
</tr>
<tr>
<td>Attitude</td>
<td>-.80</td>
<td>.43</td>
<td>-.56</td>
<td>N.S.</td>
</tr>
</tbody>
</table>
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to design, develop and evaluate the effectiveness of a home study course for health care professionals caring for the frail elderly in the clinical setting.

A review of literature dealing with health needs of the elderly and the role of professional nurses in helping to meet these needs yielded information that was pertinent to the implementation of the study. It was established that the elderly are the largest users of health resources in the United States. Improvement of quality of life for this population requires not only proficient medical care for acute illness, but also education for health promotion and disease prevention. In order to function effectively as providers of consumer health education for the elderly, nurses need a solid theoretical and scientific background in aging. Negative attitudes of nursing personnel toward the elderly are, at least in part, attributable to a lack of this background of knowledge.

The educational intervention developed for this study combined information and learning activities
relevant to the special needs of the elderly. Positive qualities of aging were emphasized and reference was made to some of the myths commonly associated with "growing old."

The test instrument used in the study consisted of a written knowledge/attitude survey, and it was designed to measure knowledge of health needs associated with the aging process and attitudes of the health care professional toward older people. This test was administered before and after the educational intervention.

The health professionals participating in the study were divided into three groups. Group A received the educational program; Group B was a control group selected from the same environment as the experimental group; and Group C, the second control group, was selected from a comparable population in a different geographical area. Groups B and C received only the test instrument, which was repeated as a post-test after a six-week interval.

An analysis was made of the changes in test scores within all groups and between the experimental and control groups. Comparison of mean scores demonstrated that there was greater improvement in both knowledge and attitude within the experimental group than within the control groups. In comparison between the groups,
the experimental group showed a greater knowledge gain, but the control groups demonstrated more attitude improvement.

None of the changes in mean attitude scores were great enough to be significant at the .05 level of significance. Statistically, significant changes in knowledge scores were demonstrated within all groups, between the two control groups, and between the experimental group and the second control group.

**Conclusions**

Conclusions Drawn From Statistical Analysis

1. There were no significant differences in the mean test scores of the three study groups at the time of the pre-test. Thus, the groups are considered to be comparable.

2. Changes in mean test scores at the time of the post-test indicated that the educational intervention was effective in increasing knowledge and improving attitudes of the experimental group.

3. Although the knowledge gain demonstrated by Group B, which did not receive the educational program, was not as great as that of the experimental group, it was statistically significant. Members of this group appeared
highly motivated and may have used the interval between tests to review areas of information in which they felt deficient.

4. Control Group C, which had the lowest mean score at the time of pre-test, demonstrated a further decline in knowledge at the time of post-test. It did, however, demonstrate an improvement in attitude. The mean attitude score of Control Group B also improved on post-test. This finding suggests that exposure to the test instrument alone may have a positive impact on attitude. The difference in scores may reflect an actual attitude change or simply an increased awareness and examination of previously held attitudinal beliefs.

General Conclusions

1. Owing to the small number size of the study groups, trends in either increase or decline of mean test scores cannot be deemed conclusive.

2. The measuring instrument failed to demonstrate statistically significant changes in attitudes. Existence of such significant changes might not be evident with the use of this particular testing tool.

3. The diverse working schedules of the participants made it necessary to administer the test
instrument to members of the study groups at different times and at various job locations. The unequal number size of the control groups can be attributed to the failure of some participants to complete the study under these circumstances.

4. The supervisors who administered the test instrument demonstrated differences in enthusiasm and efficiency. These differences may have affected the completion rates and/or performance scores of the participants.

Un-measured Positive Outcomes

In addition to the significant increase in knowledge scores which followed completion of the home study course, other positive outcomes deserve mention.

Those participants who completed the course rated it highly in terms of clarity, relevance and applicability to practice. All said they would recommend the course to associates.

Staff and supervisors alike stressed that the educational experience has increased awareness within their departments with regard to the special needs of the elderly, and stimulated them to re-evaluate their approaches to nursing care. There have been requests for additional information and educational experiences relevant to this topic.
These observations indicate receptivity on the part of health care professionals toward programs designed to help them meet the health needs of the elderly population more effectively.

Findings of the study indicate that the home study course can provide an effective learning opportunity for health care professionals.

**Recommendations**

On the basis of study findings the following recommendations are made:

1. Course content should be divided into sections providing more detailed coverage of fewer topics. In such a format, there could be more application of theory to practice. Furthermore, nurses would be able to select the section of the course most relevant to their practice.

2. The course content should be adapted for use by family members caring for the frail elderly at home. The need for such an adaptation has been stressed by nurses involved with discharge planning and home health care.

3. The study should be expanded to include larger target populations. It is suggested that by increasing the size of the study group trends in the increase or decline of mean test scores could be more clearly defined.

4. Should this study be replicated, an attempt should be
made to administer the test instrument to all study
group participants at the same time and place. The
Investigator feels that this procedure would diminish
distractions, thereby possibly increasing test scores.
In addition, it would increase compliance, causing
a larger percentage of participants to complete
the study.

5. It is further recommended that the test instrument
be administered to all groups by the same individual.
This would guard against participant sensitization by
differences in demonstrated levels of administrator
enthusiasm.

6. It is suggested that the test instrument be expanded
to include a tool for measuring the behavioral
application of concepts presented in the study course.
Improved patient care would be one indication of
the effectiveness of the course.

7. It is recommended that the home study course be
included in the curriculum offerings of health
agencies who provide educational opportunities for
staff members. The enthusiastic acceptance of the
course by the study participants and requests for
additional information appear to indicate that it
provides an effective learning opportunity for
health professionals.
CHAPTER VI

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APPENDIX A
CONTINUING EDUCATION INTEREST SURVEY

1. Please check your age group.
   21-35 _______ 36-50 _______ 51-65 _______ Other _______

2. Please check your sex.
   Male ______ Female ______

3. Please check your degree.
   LVN ______ RN(diploma) ______ RN(AA) ______
   RN(baccalaureate) ______

4. Please number the following factors in the order of the influence they exert on your choice of a CE Course.
   (1 - most influence, 5 - least influence)
   Relevance of topic to present job ______ Cost ______
   Convenience of location ______ Personal interest ______
   Other (specify) ________________________________

5. Please number the following continuing education opportunities in order of preference (1 - most prefer, 4 - least prefer)
   Weekend Seminar ______ 1 day workshop ______
   Home Study ______ Hospital Inservice ______
   Comment ______________________________________

6. In a course dealing with the health needs of the elderly, which topics would you like to see included (number in order of preference)
   Health Aspects of Aging ______ Nutrition and Exercise ______
   Dementia and Depression ______
Coping with Chronic Illness____Psycho-social
Aspects of Aging_____Death and Dying_______
Drug Use and Misuse_______Other (specify)_____

7. Do you have elderly, living relatives over the age of 75?
   Yes_______  No________

8. Does your present job involve care of the elderly?
   Yes, daily_____ Yes, frequently_______
   Yes, occasionally______ No________
   Comment__________________________________
APPENDIX B
SPECIAL NEEDS OF THE ELDERLY PATIENT

Can your elderly patients rely on your knowledge of their special needs? Take this test and see.

Please answer the questions by circling the letter of the answer that you feel is the most correct.

1. The term Gerontology refers to:
   a. diseases of the elderly
   b. social programs for the elderly
   c. the process of aging
   d. none of the above

2. Vision changes in aging are due to:
   a. thickening of the lens
   b. changes in the structure of the eyeball
   c. changes in light and dark adaptation
   d. all of the above

3. The senses which show the least decline in acuity with age are:
   a. sight and hearing
   b. taste and touch
   c. hearing and taste
   d. touch and smell

4. When caring for a patient with high frequency hearing loss you would:
   a. be sure to see that his hearing aid was turned up.
b. speak slowly and clearly

c. encourage patient to have corrective surgery

d. both a and c

5. "Senile" behavior patterns are:
   a. common in the elderly
   b. irreversible
   c. neither of the above
   d. both of the above

6. Strokes affect the brain by:
   a. preventing oxygenation of brain tissue
   b. interfering with electrical impulses to brain tissue
   c. causing diffuse degeneration of brain tissue
   d. none of the above

7. The best way to maximize recovery of abilities lost due to brain damage is to:
   a. follow a set routine when performing activities for the patient
   b. help the patient set realistic goals
   c. provide a choice of activities for the patient
   d. encourage active participation in activities by the patient.
8. Older people seem to learn best when:
   a. the task is meaningful
   b. they can work at their own pace
   c. the instructions are simple and relevant
   d. all of the above

9. A common characteristic of old age is:
   a. cautiousness
   b. rigidity of behavior
   c. decline in intelligence
   d. all of the above

10. In the elderly, the symptoms of dizziness, fatigue, and disorientation are often due to:
    a. hypertension
    b. dehydration
    c. senility
    d. diabetes

11. Osteoporosis may be delayed or prevented by an adequate intake of:
    a. Vitamin D
    b. Vitamin C
    c. iron
    d. calcium
12. In the elderly, sexual activity:
   a. decreases markedly with advancing age
   b. can serve as an outlet for physical and emotional tension
   c. may aggravate symptoms of heart disease and arthritis
   d. both a and c

13. Paranoid symptoms in the elderly may be related to:
   a. social losses
   b. hearing deficiency
   c. changes in environment
   d. all of the above

14. An important nursing intervention to relieve anxiety in the elderly patient is:
   a. provision of meaningful activities
   b. explanation of rules and procedures
   c. attentive listening
   d. administration of appropriate medication

15. Impotence occurs most frequently in male patients with the following disease:
   a. diabetes
   b. hypertension
   c. arthritis
   d. lung cancer
16. An elderly person who talks too much, too fast, may be trying to cope with:
   a. grief
   b. anxiety
   c. loneliness
   d. boredom

17. Drugs which can decrease sexual function include:
   a. thiazide diuretics
   b. digitalis
   c. corticosteroids
   d. all of the above

18. The most common psychiatric diagnosis in elderly people is:
   a. depression
   b. schizophrenia
   c. organic brain syndrome
   d. manic-depressive psychosis

19. Pain in the elderly patient frequently:
   a. leads to narcotic addiction
   b. increases the threat of pneumonia
   c. makes the patient more active
   d. is verbally expressed

20. Appropriate nursing interventions for pain relief in the elderly would include:
a. frequent injections of narcotic analgesics
b. alternate hot and cold baths
c. distraction techniques
d. encouragement of bed rest

21. Acute brain syndrome is characterized by:
   a. gradual onset
   b. lethargy
   c. visual hallucinations
   d. none of the above

22. Denial and regression are:
   a. common coping mechanisms in the elderly
   b. symptoms of chronic brain syndrome
   c. seldom seen in the elderly
   d. associated with arteriosclerotic brain disease

23. Depressed elderly patients respond well to:
   a. reality orientation therapy
   b. change of environment
   c. television comedies
   d. closeness and touch

24. Normal cardiac parameters of aging include:
   a. gradual enlargement of the heart
   b. thickening of the valves and endocardium
   c. marked changes in the electrocardiogram
   d. increased ability to utilize oxygen
25. In an elderly patient, a blood pressure measurement of 140/90 is considered to be:
   a. normal
   b. diagnostic of hypertension
   c. related to valvular heart disease
   d. a sign of impending shock

26. Hypertensive arterial disease is an urgent health problem in the elderly because:
   a. it is difficult to diagnose
   b. it impairs circulation to vital organs of the body
   c. it may lead to chronic infection
   d. none of the above

27. The elderly patient suffering from an acute coronary occlusion has:
   a. more dyspnea than a younger person
   b. less pain than a younger person
   c. increased risk of congestive heart failure
   d. all of the above

28. The most common pulmonary abnormality of the aged is:
   a. lung cancer
   b. emphysema
   c. chronic bronchitis
   d. hypostatic pneumonia
29. The safest diuretic for a patient with interstitial edema is:
   a. furosemide
   b. cranberry juice
   c. water
   d. potassium iodide

30. Patients with severe congestive heart failure are more comfortable:
   a. when maintained on bed rest
   b. when oxygen is administered by use of a face mask
   c. when extremities are elevated
   d. when sitting in a chair

31. The chief source of cardiac energy is:
   a. oxygen
   b. glucose
   c. sodium
   d. protein

32. Long-term use of an indwelling Foley catheter:
   a. increases urinary output
   b. may lead to formation of kidney stones
   c. leads to lower urinary tract infection
   d. is contraindicated in neurogenic incontinence
33. Antacids administered to an elderly patient with renal failure:
   a. increase drug metabolism in the kidneys
   b. should not contain magnesium
   c. should be given alternately with diuretics
   d. enhance the benefit of antibiotics

34. The antibiotics of choice for treatment of renal infection in the elderly are:
   a. penicillin, ampicillin, and tetracycline
   b. neomycin and streptomycin
   c. furadantin and bacitracin
   d. penicillin and furadantin

35. Normal urinary output of the elderly person can range from:
   a. 300-500 ml/hour
   b. 50-150 ml/hour
   c. 25-500 ml/hour
   d. 100-600 ml/hour

36. The first sign of acute renal failure is often:
   a. hematuria
   b. anuria
   c. oliguria
   d. polyuria
37. Ageism is:
   a. treating older people with dignity and respect
   b. stereotyping of and discrimination against
      people because they are old
   c. allowing older people to make their own
      decisions about their lives
   d. considering the special needs of the elderly
      in our society

38. Chronological age is:
   a. a reliable indicator of a man's sexual
      functioning
   b. a standardized measure of aging
   c. correlated with mental functioning
   d. a convenient but frequently inaccurate
      indicator of a person's physical and mental
      status

39. The major characteristic of older people is that
    of being:
   a. individualistic
   b. rigid in behavior
   c. poorly educated
   d. chronically dysfunctional
40. The use of first names or nicknames when first meeting an older person implies:
   a. a thoughtless and careless attitude toward older people
   b. a warm, supportive relationship
   c. the appropriate relationship between professionals and older patients
   d. respect for the differences between the old and young

41. The basic reason(s) for health care professionals to study aging is (are):
   a. to better understand our relationships to older persons and our own aging process
   b. to perceive individual development as a lifelong process
   c. to participate in providing needed services for the aged
   d. all of the above

42. The elderly patient:
   a. has an average normal reaction to stress
   b. reacts to stress with greater deviation from normal
   c. bounces quickly back to normal
   d. is oblivious to stress
43. The first symptom of acute illness in an elderly person may be:
   a. a decreased level of consciousness
   b. increased agitation
   c. both of the above
   d. neither of the above

44. Health decisions are accepted and tolerated best by the elderly when:
   a. family members approve the decision
   b. the patient has an acute illness
   c. the physician makes the decision
   d. the patient actively participates in making the decision

45. The least sedating antipsychotic drug is:
   a. Haldol
   b. Mellaril
   c. Dalmane
   d. Valium

46. When attempting to teach an elderly patient, it is important to remember all of the following motivational factors except:
   a. the need to feel that the learning is useful
   b. the inability to see fine print
   c. the need to believe that the information being taught is correct.
d. medications that cause fatigue and reduce interest

47. Signs of decreased sensory perception associated with age include all of the following except:
   a. loss of high frequency hearing
   b. decreased sensitivity to cold temperatures
   c. reduced ability to read fine print
   d. difficulty in discerning variations of color

48. Good teaching techniques to use with the elderly include all of the following except:
   a. division of the information into short units
   b. having the patient review the information verbally
   c. using concrete examples
   d. giving the patient an audio cassette for self-paced learning

49. In the elderly, reminiscing is:
   a. a sign of senility
   b. an attempt to return to happier days
   c. an aid to acceptance of aging
   d. an attempt to cope with boredom
50. When writing a care plan for an elderly patient, it is important to remember all of the following except:

a. elderly patients are fearful
b. the elderly patient does not conform well to routine
c. elderly persons are present-oriented
d. elderly persons have developed good mechanisms for coping with stress
SPECIAL NEEDS OF THE ELDERLY PATIENT

TEST KEY

1. c 23. d 45. a
2. d 24. b 46. b
3. d 25. a 47. b
4. b 26. b 48. d
5. c 27. d 49. c
6. a 28. c 50. d
7. d 29. c
8. d 30. d
9. a 31. b
10. b 32. c
11. d 33. b
12. b 34. a
13. d 35. c
14. c 36. c
15. a 37. b
16. b 38. d
17. d 39. a
18. c 40. a
19. b 41. d
20. c 42. b
21. c 43. c
22. a 44. d
ATTITUDE TOWARD AGING

The following statements are related to the elderly and the aging process. After you read each statement, please make a check mark in the response category which most nearly corresponds with your initial reaction to the statement.

1. It would probably be better if most old people lived in residential units with people their own age.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree             disagree    agree            agree

2. Most old people are really no different from anybody else; they are as easy to understand as younger people.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree             disagree    agree            agree

3. Most old people make excessive demands for love and reassurance.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree             disagree    agree            agree
4. People grow wiser with the coming of old age.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
disagree disagree agree agree

5. The majority of old people are seldom bored.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
disagree disagree agree agree

6. Most old people are set in their ways and unable to change.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
disagree disagree agree agree

7. Old people should have more power in business and politics.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
disagree disagree agree agree

8. Most old people tend to let their homes become shabby and unattractive.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
disagree disagree agree agree

9. Most old people make one feel ill at ease.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
disagree disagree agree agree
10. The majority of old people are working or would like to have some kind of work to do (including volunteer work).

Strongly Disagree Slightly Slightly Agree Strongly

disagree disagree agree agree

11. It is evident that most old people are very different from one another.

Strongly Disagree Slightly Slightly Agree Strongly

disagree disagree agree agree

12. Most old people spend too much time prying into the affairs of others and giving unsought advice.

Strongly Disagree Slightly Slightly Agree Strongly

disagree disagree agree agree

13. In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it.

Strongly Disagree Slightly Slightly Agree Strongly

disagree disagree agree agree
14. One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences.

Strongly __ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___

15. The majority of old people are socially isolated and lonely.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___

16. Most old people are cheerful, agreeable, and good humored.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___

17. Most old people are constantly complaining about the behavior of the younger generation.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___

18. Most old people are very relaxing to be with.

Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
19. Most old people should be more concerned with their personal appearance; they are too untidy.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree           disagree    agree          agree

20. Most old people are healthy enough to carry out their normal activities.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree           disagree    agree          agree

21. Older people tend to become more religious as they age.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree           disagree    agree          agree

22. The majority of old people are frequently irritated or angry.
   Strongly ___ Disagree ___ Slightly ___ Slightly ___ Agree ___ Strongly ___
   disagree           disagree    agree          agree
APPENDIX C

SPECIAL NEEDS OF THE ELDERLY

Prepared by
A. Ruth Nahas, R.N., B.S.N.

Graduate project
for M.P.H.
California State University
Northridge, California
January, 1983
OBJECTIVES

Upon completion of this course, you will be able to:

1. Define gerontology.
2. List three causes of vision change in aging.
3. Differentiate between conductive and high-frequency hearing loss.
4. Explain the effect of regular exercise on the vascular, pulmonary, and musculo-skeletal systems.
5. List six physiologic changes of aging which may affect nutrition.
6. Determine an individual's ideal weight and calculate percentage of overweight.
7. Discuss the value of fiber in the diet.
8. List five factors that should be considered in planning a well-balanced diet for an elderly person.
9. Discuss three positive aspects of aging and their implications for health care planning.
10. List four factors that influence learning ability in the elderly.
11. Recognize and differentiate between four common respiratory patterns that occur in the ill elderly.
12. Name three common errors in maintaining intake and output records, and tell how they can be corrected.
13. Define incontinence and discuss methods of control.
14. Name five systemic causes of confusion.
15. Discuss preventive measures for "sundown syndrome."
16. Recognize symptoms of anxiety and respond with appropriate interventions.
17. State three purposes of range of motion exercise.
18. Demonstrate correct positioning of an unconscious patient in bed to prevent development of muscle contractures.
19. List five common sites for development of pressure sores and discuss techniques for preventing them.
20. Formulate nursing goals and write a care plan for achieving them.
SPECIAL NEEDS OF THE ELDERLY

IMPACT OF AGING ON NURSING

Modern scientific and technological achievements have resulted in a marked decline in death rates and improvement in life expectancy. In 1900 there were only three million persons aged 65 or over in the United States and they constituted 4 percent of the total population. In 1978, there were 24 million or 11 percent. Furthermore, the fastest growing segment of the population is the group over the age of 75.

These older persons are the largest users of health resources. 80 percent of persons over the age of 65 use health care facilities of one kind or another and at any given time they comprise 20-40 percent of the patient population in acute care hospitals. 22 percent of all pharmacy prescriptions in the United States are used by persons over 65, and their medical treatment accounts for about 30 percent of the nation's health care expenditures.

In addition to acute illnesses, older adults tend to suffer from multiple chronic conditions which are often disabling. Since they tend to have more physician visits and more hospital stays for longer periods of time, nursing service will become increasingly
involved in providing health care for the elderly.

Any nurse who has cared for elderly patients for any length of time is well aware that there are primary factors which make the nursing of older people different. These factors can be better understood by looking at some of the principles of gerontology, which is simply the study of the processes of aging. When we, as nurses, understand these processes and their effect upon the health of the elderly person, we will be more comfortable in our role as nursing care-giver. In addition, we will be much better equipped to educate the elderly to assume personal responsibility for their health, to make health decisions, and to cope with chronic diseases.

COMMON PHYSICAL CHANGES OF AGING

There is no single point in time when one suddenly becomes old. Aging is a life-long process, and one's lifestyle and habits greatly influence this process. Just as there are physical changes associated with "growing up", so there are definite changes in the body as it passes middle age. Aging is a universal phenomenon, but it occurs at varying rates in different
individuals. Even in the same individual, organs may age at different rates. Many of the changes of aging can be slowed down or postponed by a healthy lifestyle, and some can even be reversed.

CHANGES IN BODY COMPOSITION

During the aging process there are changes in the composition of the body. As normal cells die they are replaced by fat cells or supportive tissue, resulting in a general increase in the fat content of the body and a decrease in lean muscle tissue. These cellular changes gradually decrease the person's reserve capacity for dealing with stress.

CHANGES IN APPEARANCE

As body composition changes, there are changes in general appearance. Loss of subcutaneous fat and supportive tissue causes the skin to wrinkle. It loses elasticity, and slower cell replacement causes a decrease in its ability to adjust to temperature changes. Hair follicles atrophy, and the hair turns gray and becomes thinner.

Older people may appear to be shrinking in size and indeed may lose as much as two to four inches in height. The effects of gravity compressing the
spinal column may account for some of the "shrinkage" and much is due to postural changes resulting from scoliosis, kyphosis, and osteoporosis.

Although, in general, cartilage becomes thinner and is lost, the cartilage of the nose and ears continues to grow, so that they may increase in size and appear out of proportion to the rest of the face.

SENSORY CHANGES

Sensory changes of aging are among the first to be felt, since it is through our senses that we perceive and interact with the world around us. Sensory experiences are important for psychological well-being, and many older persons have been labeled "confused", "belligerent", or "uncooperative" when, in reality, they were experiencing sensory deprivation.

Vision

Vision changes in aging are due to a change in the shape of the eye itself, retinal changes, and/or thickening of the lens. While the retina requires more light, the thickening lens allows less light to pass through. These changes result in decreased ability to focus, impairment of depth perception, and difficulty
in color discrimination, particularly for shades of blue and green. More time is required for light and dark adaptation and there is increased sensitivity to glare. In general, people past sixty need twice as much light as when they were forty.

Hearing

One out of every four persons over 65 has some degree of hearing loss. Changes in the sound conduction mechanism result in an overall decrease of sensitivity to sound. This type of hearing loss may often be reversed by surgery or corrected by the use of a hearing aid.

THE MOST COMMON CAUSE OF CONDUCTIVE HEARING LOSS IS A BUILDUP OF CERUMEN IN THE EAR CANAL.

TIPS FOR CARE OF A HEARING AID

Never expose the hearing aid to heat; don't leave it in the sun or on a radiator.
Don't allow moisture to get inside the aid; steam from a vaporizer or the shower can damage it.
Never use any aerosol (hair spray or medicine) on a patient with a hearing aid in place.
Never drop a hearing aid.
When not in use, turn the aid off. Remove the battery from the case, and leave the case open.
Store the hearing aid in a well-identified container.
Presbycusis is the term which refers to hearing loss related to neurological and circulatory changes in the inner ear. It is characterized by a loss of sensitivity to high-frequency sounds. Persons with presbycusis can hear, but have difficulty distinguishing between sounds. They may miss much of an ordinary conversation because of failure to hear the consonants. Misinterpretation of snatches of conversation may cause paranoia in some people.

WHEN YOU CAN'T HEAR
WELL, YOU TALK ALL
THE TIME. ONLY THEN
DO YOU KNOW WHAT IS
BEING SAID.

Others may compensate for their feelings of isolation by developing an over-bearing manner.

High-frequency hearing loss is usually not improved by using a hearing aid, since amplifying the sound does not replace the lost frequencies.

Other causes of hearing loss include acoustic trauma, allergies, post-inflammatory reactions, and use of drugs such as furosemide, salicylates, and some antibiotics.

Hearing loss usually progresses more rapidly from 70 to 75 years than before, and significant communication problems may seem to develop "overnight".

Persons with a hearing loss should be evaluated
by a professional audiologist to identify the cause and extent of the deficit. Improvement in design and patient evaluation and preparation have increased the proportion of hearing-impaired individuals that can successfully use hearing aids. For those that refuse to use an aid or would not benefit from its use, there are some simple measures to improve communication.

ARE YOU BEING HEARD?

Face the person while speaking.
Speak slowly and distinctly.
Pitch your voice lower than usual.
Use short, concise statements.
If necessary to repeat, use different words the second time.
Use non-verbal cues.
Allow time for the person to respond.
DON'T speak louder. That will only raise the frequency of your voice and make it more difficult to be heard.

LEARNING ACTIVITY: To better understand the person who has a hearing loss, try this experiment.

Turn your radio on and select a news program.
Simulate conductive hearing loss by turning the volume down. Then adjust the tone to full bass. This will simulate high-pitch hearing loss. With the radio adjusted in this fashion, how well did you understand the news commentator?
Taste, touch and smell

The senses of taste, touch, and smell also gradually decline with age. There may be up to an 80 percent decrease in ability to taste by the age of 80, and this factor, along with a decrease in the ability to differentiate odors, affects the elderly patient's appetite and choice of foods. Interestingly, the ability to taste sweet things has a lesser decline, which may be the reason that many older persons seem to crave sweets.

SENSORY DEPRIVATION EXERCISE: OLD FOR A DAY

Today you are going to experience some of the frustrations of the elderly person.

Coat the lenses of a pair of sunglasses with vaseline and put them on.
Plug your ears with cotton.
Wear a pair of heavy shoes that are too large.
Have someone fasten your right arm firmly to your side. (left arm if you are left-handed)
Wear a cotton glove on your other hand.

Now you are ready to prepare and eat a meal and perform your usual household tasks.

When you have completed this experiment, write down your reactions.

How long did you play your role?
What special difficulties did you encounter?
How did you feel?
CARDIOVASCULAR CHANGES

The chief age-related change in the heart is a decrease in stroke volume associated with thickening of the valves. At age 75 the heart pumps only about 65 percent as much blood as at age 30. The resting rate of the heart is usually not changed, but when stressed, it takes longer for it to return to its normal resting rate. Other organs of the body receive less blood and the body does not adapt as well to such stresses as fever or unusual physical exertion.

With aging, arteriosclerotic changes develop in the blood vessels, impeding the flow of blood to different parts of the body. The capillaries thicken and perfusion across the capillary beds is measurably decreased, so that there may be inadequate oxygenation of tissue.

<table>
<thead>
<tr>
<th>FUNCTION REMAINING (%)</th>
<th>Age 30</th>
<th>Age 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Flow To Brain</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60</td>
<td></td>
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<tr>
<td></td>
<td>40</td>
<td></td>
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<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cardiac Output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Flow To Kidney</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A REGULAR DAILY WALK IS A VALUABLE ACTIVITY FOR INCREASING BLOOD FLOW TO THE MYOCARDIUM AND EXTREMITIES.

Blood Pressure

Blood pressure measures the amount of pumping pressure necessary for the heart to force blood through
the vascular system. Elderly persons usually maintain a higher "normal" BP due to loss of elasticity in the blood vessels. However, a high pressure 24 hours a day increases the likelihood of pump failure or the bursting of an artery. Hypertension is perhaps the best-documented risk factor for suffering a stroke, a heart attack, or kidney disease, and careful monitoring of blood pressure is an important aid in assessing the patient's response to medical treatment.

For accuracy, take the blood pressure reading with the patient lying down, sitting, and standing, and monitor the changes.

**Accuracy of blood pressure readings**

varies greatly if an inappropriate cuff size is used. Use of regular, rather than large cuffs

### HOW TO CORRECT BP READINGS

<table>
<thead>
<tr>
<th>ARM CIRCUMFERENCE (cm)</th>
<th>SYSTOLIC (S) AND DIASTOLIC (D) CORRECTIONS (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LARGE CUFF</td>
</tr>
<tr>
<td>20</td>
<td>+11</td>
</tr>
<tr>
<td>22</td>
<td>+9</td>
</tr>
<tr>
<td>24</td>
<td>+8</td>
</tr>
<tr>
<td>26</td>
<td>+7</td>
</tr>
<tr>
<td>28</td>
<td>+5</td>
</tr>
<tr>
<td>30</td>
<td>+4</td>
</tr>
<tr>
<td>32</td>
<td>+3</td>
</tr>
<tr>
<td>34</td>
<td>+2</td>
</tr>
<tr>
<td>36</td>
<td>+1</td>
</tr>
<tr>
<td>38</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>-2</td>
</tr>
<tr>
<td>42</td>
<td>-4</td>
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<tr>
<td>44</td>
<td>-5</td>
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<tr>
<td>46</td>
<td>-6</td>
</tr>
<tr>
<td>48</td>
<td>-7</td>
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<tr>
<td>50</td>
<td>-9</td>
</tr>
<tr>
<td>52</td>
<td>-10</td>
</tr>
<tr>
<td>54</td>
<td>-11</td>
</tr>
<tr>
<td>56</td>
<td>-13</td>
</tr>
</tbody>
</table>

Add positive numbers and subtract negative numbers from readings obtained.
on obese patients can result in a mis-diagnosis of hypertension in as many as 37 percent of the patients. On the other hand, use of a cuff that is too large can cause unrealistically low readings. Optimum cuff sizes are:

- regular for arm circumferences less than 33 cm.
- large for arm circumferences of 33-41 cm.
- thigh-size for arm circumferences greater than 41 cm.

PULMONARY CHANGES

Throughout the respiratory process, the lungs maintain homeostasis of arterial blood by supplying it with inhaled oxygen. They also maintain the blood's pH by retaining or disposing of carbon dioxide. This process is affected in the elderly by a number of age-related changes.

Degeneration or atrophy of the respiratory muscles decreases the maximum breathing capacity. Increasing rigidity in the collagen fibers of the lung's connective tissue causes a loss of elasticity which results in an elevated residual volume. These factors combine to reduce the vital capacity, which is the total amount of air one can breathe in and out in a single breath. At age 70, vital capacity is reduced to less than fifty percent of what it was at age 30.

Effective ventilation is also hindered by reduction in surface area of the alveoli and decreased
oxygen perfusion, which give the elderly person a lower tolerance for any decrease in oxygen supply. In addition, the effectiveness of the ciliary activity declines and the cough mechanism becomes less effective.

All of these changes of aging are factors in the sharp rise in incidence of chronic respiratory diseases in the elderly population and help to explain the greater risk of developing pneumonia as a complication of an acute illness.

OLDER PERSONS SHOULD BE ENCOURAGED TO BREATHE DEEPLY AT REGULAR INTERVALS, EVEN WHEN AMBULATORY.

NEURO-MUSCULO-SKELETAL CHANGES

Nervous System

The nervous system is not immune to the effects of aging. After the age of fifty, a person's brain cells decrease at the rate of about one percent a year, but this cell death does not appear to affect intellectual capacity or the ability to make decisions. The neurons of the central and peripheral nervous systems undergo degenerative changes so that the speed of nerve conduction is decreased. Simple neurological functions, however, remain relatively unaffected, and the elderly person's sluggish response to external stimuli is most often due to changes in other body systems.

Sensory alterations are caused by degenerative
changes in the cranial nerves, while central nervous system changes may diminish deep tendon reflexes, impair position sense and diminish the ability to detect vibration. These changes affect coordination, flexibility and speed of movement of older persons and narrow the range and versatility of their motor responses. The common gait of the elderly person, with short steps and a wider leg stance, is an instinctive attempt to achieve better balance and a stable distribution of weight.

GAIT IS A KEY ASSESSMENT PARAMETER IN ANY EVALUATION OF THE PRESENT OR POTENTIAL ACTIVITY STATUS OF OLDER PERSONS.

Muscular System

A person's muscular strength reaches its peak between the ages of twenty and thirty, and gradually declines by about one percent per year from then on. Muscle changes include decreased muscle mass and a decrease in collagen formation. These changes may result in muscle weakness and loss of resilience in joints and supporting structures.

In conjunction with a decrease in muscle mass, there is an overall decline of 15-20 percent in the water content of the body. This decline is accounted for by an increase of body fat and by decreased water in the individual cells. The older individual exposed to heat
or illness is therefore more susceptible to dehydration.

The functioning of the neuro-musculo-skeletal system is a major variable influencing the activity level of older persons. Much of the disability suffered by relatively inactive persons results from weak or stiff postural muscles. A systematic program of reconditioning exercise may slow the decline of muscle and joint strength and greatly improve the person's quality of life.

YOU CAN EASILY TEST THE STRENGTH OF VARIOUS MUSCLES BY HAVING THE PATIENT MOVE AGAINST RESISTANCE.

Skeletal System

The support system of the body is the skeletal system, which loses bone at different rates depending upon sex and individual factors. In the average female, bone loss begins about the age of forty, and by the time a woman is seventy years of age she has lost as much as 30 percent of her bone. Men, on the other hand, begin to lose bone at about fifty-five and have only lost 10-15 percent of their bone by the age of seventy. This loss of bone is caused by increased resorption of bone from within the medullary cavities without an increased formation of new bone on the outside periosteal surfaces. Although the quality of the bone remains normal, its quantity progressively diminishes.
This bone mineral decline is known as osteoporosis and is one of the most common phenomena of aging. In advanced osteoporosis, skeletal strength cannot be maintained and fractures occur with minimal stress.

Inactivity ranks high among the causes of osteoporosis. In fact, current research seems to indicate that as much as fifty percent of all decline attributed to physiological aging is really disuse atrophy resulting from inactivity in our modern, industrialized world.

<table>
<thead>
<tr>
<th>EFFECTS OF INACTIVITY</th>
<th>VALUE OF EXERCISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decline in lean body mass.</td>
<td>1. Increased high-density lipoprotein in the blood, decreasing risk of heart attack.</td>
</tr>
<tr>
<td>2. Increase in fat tissue.</td>
<td>2. Increased bone mineral content, lowering risk of osteoporosis.</td>
</tr>
<tr>
<td>4. Alteration in blood lipids and decreased cardiovascular fitness.</td>
<td>4. Reduces tension and has tranquilizing effect.</td>
</tr>
</tbody>
</table>

Measurement of height provides a base for
evaluating spinal changes. An accurate estimate of height may be made by having the person raise the arms to shoulder level and measuring the distance from the longest finger on one hand to the longest fingertip on the other hand. In most persons with a normal spine, the height equals the fingertip-to-fingertip measurement. When the fingertip's measurement is more than the height, the amount of spinal compression can be estimated by the difference between the two measurements.

GASTRO-INTESTINAL CHANGES

The normal changes of aging that occur in the gastro-intestinal system are not as debilitating as those in most other body systems. In the stomach there is a loss of surface epithelial cells and the secretion of the digestive juices hydrochloric acid and pepsin is reduced to about one third of the level found in young adults. These changes can lead to malabsorption of calcium and iron and decrease production of the intrinsic factor needed for absorption of Vitamin $B_{12}$.

Decreased enzyme secretion in the small intestine may cause decreased absorption of carbohydrates and
delayed fat absorption. A decrease in pancreatic enzymes affects the absorption of amino acids. In addition, there is often an age-related diminution of insulin production by the pancreatic beta cells, so that the older person may have an increased blood glucose level without experiencing any symptoms of illness.

Normal changes in the liver include decreased liver weight, reduced regenerative capacity, and decreased blood flow to the liver. These changes may affect the capacity of the liver to destroy toxic substances and metabolize drugs.

GI tract motility, bowel wall and anal sphincter tone, and abdominal muscle strength may also decrease with age, contributing to constipation, which is perhaps the most frequent gastro-intestinal complaint of elderly persons.

| IN THE ABSENCE OF OTHER SYMPTOMS, A person having three bowel movements per week does not require treatment. | MANY OLDER PERSONS DEFINE CONSTIPATION AS SIMPLY A DECREASE IN THE FREQUENCY OF BOWEL ELIMINATION. |

Laxative abuse is common in the elderly and requires education in the areas of diet, activity, and bowel training. Increased dietary fiber (roughage), an adequate fluid intake, and a program of regular exercise will usually prevent the incidence of constipation, which is
properly defined as difficulty in passing stool.

Most age-related gastro-intestinal problems actually stem from poor oral health. About one-half of the American population have no natural teeth by the age of sixty-five. Approximately eight percent of those have either an incomplete set of dentures or no dentures at all. Of those with teeth remaining, more than eighty percent have peridontal disease. Yet over seventy percent of the nation's elderly have not visited a dentist in five years or more.

Aging causes a natural decrease in the quantity and quality of saliva secreted. The number of taste buds is also reduced. Masseter muscle weakness reduces the biting force from the 300 pounds per square inch of many adults to as little as 50 pounds per square inch in the elderly. Reduced biting force leads to a preference for softer foods which in turn increases the muscle weakness due to lack of stimulation. Selection of soft foods also usually means an increase in carbohydrate intake and a lowered consumption of meat, with resulting obesity and protein, iron, and Vitamin B deficiencies.

Denture wearers often report a diminished ability to taste and difficulty in chewing certain types of foods. An increase in bone resorption of both the maxilla and mandible increases the risk of dentures fitting improperly. These ill-fitting dentures cause irritation of the under-
lying tissue, with inflammation and pain.

Provision and education for proper oral hygiene are essential in promoting good general health for the elderly.

TIPS FOR CARE OF DENTURES

1. When not being worn, store dentures in a container with the teeth down.

2. **DO NOT RINSE DENTURES IN HOT WATER.** This may warp or discolor them.

3. To make a safe, effective, and inexpensive denture cleaning solution:
   
   Mix 1 tbsp. (15 cc.) sodium hypochlorite (household bleach)  
   1 tsp. (4 cc.) Calgon (for detergent action)  
   4 ounces water
   
   Soak dentures overnight, brush, and rinse.

EFFECTIVE ORAL HYGIENE FOR THE PATIENT WITHOUT TEETH

Mix 15 cc. of fine ice chips and water with 2-3 drops of a commercial mouthwash. Wrap a gauze sponge around your finger, dip it in the solution, and gently clean the patient's gums, gum folds, tongue, and inner cheeks.

DOES YOUR PATIENT FIND IT HARD TO HOLD A TOOTHBRUSH?

Try these modifications.

1. For those with arthritis of the hand, tape a wide elastic band to the handle.
2. For those with limited arm movement, extend the handle by taping it to a rod.

3. For those with central nervous system disorders, enlarge the handle by pushing it through a soft rubber ball.

Can you think of other methods to encourage your patient to maintain good oral hygiene?

List them below and then try them out. How did they work?
EXECRETORY CHANGES

A person's renal function begins to diminish after the age of forty and by the age of ninety it may have decreased by as much as fifty percent.

Blood flow to the kidneys is reduced because of diminished cardiac output and atherosclerotic vascular changes. There is a decrease in the size and number of functioning nephrons, which affects their filtering, reabsorption, and concentrating ability.

<table>
<thead>
<tr>
<th>NORMAL URINE OUTPUT RANGES</th>
<th>NORMAL BUN LEVEL INCREASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM 25-500 ML PER HOUR</td>
<td>TO MORE THAN 20 MGM PERCENT</td>
</tr>
</tbody>
</table>

Bladder capacity may be reduced by as much as one-half and the bladder, ureters and urethra lose some of their muscle tone. These changes may result in incomplete bladder emptying and chronic urine retention, which predispose the bladder to infection.

The sensory stretch receptors in the bladder wall which give the signal to void may not be activated until the bladder is nearly full, resulting in a sense of urgency which may be especially troublesome at night.

In spite of these physiological changes, the renal system of healthy elderly persons is functionally adequate. Although age changes may predispose to the development of incontinence, they do not cause it, and at least 85 percent of community-living elderly and 55 percent of nursing home residents have no difficulty with
SEXUALITY AND AGING

Sexual activity is an important assertion and commitment of self. Even in the elderly it can provide psychological reinforcement and serve as an outlet for physical and emotional tension.

Aging modifies the organs associated with sexual response. In women, a decline in estrogen and progesterone levels causes atrophy of the vulva, vagina, and breasts. The vaginal lining becomes thin and loses its ability to lubricate and expand. The uterus shrinks rapidly after menopause until it reaches about one-fourth its pre-menstrual size. The breast tissue loses elasticity and the nipples flatten. The physiologic changes that occur in aging men include decreased testosterone production that causes the testes to atrophy and soften and decreases sperm production. Seminal fluid also decreases in volume and becomes less viscous. The prostate gland enlarges and its secretions diminish. The older man is slower to erect, to mount, and to ejaculate and the refractory period lengthens.

Although the intensity and duration of physiologic response to sexual stimulation are reduced, both men and women are capable of satisfactory and satisfying sexual experiences. Loss of sexual vigor should be no greater than the loss of other physical
capabilities and studies have documented that sexual interest and activity may persist through the nineties. The most important factor in the maintenance of effective sexuality is the consistency of active sexual expression.

In addition to the psychological benefits of sexual activity, there is evidence that it is also physically therapeutic. During intercourse heart rate, blood pressure, and oxygen consumption increase at levels comparable to moderate rather than strenuous exercise. Also, there is an increase in adrenal corticosteroids which relieves some of the symptoms of arthritis.

Sexual function can be adversely affected by physical disability or illness such as diabetes, and by many drugs commonly used in treatment of diseases of the elderly. Digitalis, thiazide diuretics, and corticosteroids all have a diminishing effect upon sexual function. However, the most common deterrents to sexual activity in the elderly are fear of aggravating an illness or causing injury and the enculturated belief that sex is somehow not appropriate for them.

Nurses working with the elderly have a responsibility to share their knowledge and to recognize and respect the sexual needs of their patients, remembering that a sense of intimacy, emotional rapport, and the affectionate touch are all important aspects of human sexuality.
NUTRITIONAL NEEDS OF THE AGED

Normal Aging Changes and Nutritional Requirements

The normal changes of aging affect body composition. Stores of adipose tissue usually increase, while there is a decrease in lean body mass and bone mineral content.

TEST YOURSELF: List 6 physiological changes of aging which may affect nutrition.

1. 4.
2. 5.
3. 6.

HINT: You may wish to refer back to previous discussion of aging changes.

Many people mistakenly believe that the elderly need fewer nutrients than younger people. Actually, although decreased activity and a slower metabolic rate may lower a person's caloric requirements, daily protein, vitamin and mineral requirements remain the same.

Protein-calorie malnutrition is a major problem in persons over the age of 75 and contributes significantly to this group's mortality. Protein is essential for the building and repair of tissues but cannot be stored in the body. Excess protein intake is converted to and stored as fat. Healthy adults need a daily protein
intake of 0.8 to 1.0 Gm/kg of ideal body weight. This requirement increases in times of stress to as much as 1.5 to 2.0 Gm. during an acute illness. In general, calorie requirements for weight maintenance are 33 calories per kilogram of ideal body weight. These requirements may more than double in times of severe stress. The accompanying nomogram is an age-adjusted scale used to calculate percentage of overweight and to determine ideal weight.
The nomogram is an age-adjusted scale used to calculate percentage of overweight and to determine ideal weight. To determine percentage overweight, measure the individual's height and weight. Draw a line joining these points on the height and weight scales, extending this line through the percentage scale. The point at which this line intersects the percentage scale gives the percentage overweight. To determine the ideal weight, draw a line from the appropriate point on the height scale through the zero on the percentage scale. The point of intersection on the weight scale gives the ideal weight.

Other common dietary deficiencies of older people include calcium, iron, and Vitamin A and C.

Calcium is the most abundant mineral in the body. 99 percent of the 1200 grams of calcium it contains is concentrated in the bones and teeth. The RDA for calcium has been set at 800 mg per day for adults because about 350 mg per day is lost through normal elimination and only 20-30 percent of the dietary intake of calcium is absorbed. For full absorption, calcium must be balanced with phosphorus and protein in the diet. In a ten state survey, the average calcium intake of persons over 60 was about 400 mg per day for females and 500 mg for males.

<table>
<thead>
<tr>
<th>FUNCTIONS OF CALCIUM</th>
<th>GOOD DIETARY SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Build and maintain bones and teeth.</td>
<td>1. Milk and milk products</td>
</tr>
<tr>
<td>2. Blood clotting. Calcium must be present to start the formation of a clot.</td>
<td>2. Dark green leafy vegetables (1 cup) kale = 206, turnip greens = 267, broccoli = 136</td>
</tr>
<tr>
<td>3. Required in nerve transmission and regulation of the heart beat.</td>
<td>3. Seafoods – sardines (3x1) 1 = 87, clams (8 oz. = 121), oysters (1 cup = 226)</td>
</tr>
</tbody>
</table>
FACTORS THAT DECREASE CALCIUM ABSORPTION

1. Vitamin D deficiency
2. High fat diet
3. Inactivity
4. Emotional stress
5. Aging

Iron is essential for the formation of hemoglobin, the oxygen-carrying pigment in red blood cells. Forty percent of persons over the age of 60 in the U.S. have iron-deficiency anemia.

Vitamin A is important for good vision and healthy skin, while Vitamin C speeds wound healing, increases resistance to infection, and aids in the development of blood vessels and connective tissue.

For the older person, 55-60 percent of the total daily calorie intake should come from carbohydrates. The greater proportion of these carbohydrate calories should be provided from complex carbohydrates, which are the body's main source for energy and supply most of the vitamins and minerals in the diet. An important component of complex carbohydrates is fibre, which is not really a nutrient, since it is not absorbed by the body. Its function is to move food rapidly through the digestive tract, reducing the opportunity for harmful substances to move into the blood stream. Its water-binding
properties lead to formation of a soft, bulky stool and reduce the need for the use of laxatives to achieve regular elimination. Weight for weight, bran has the highest fiber content of all readily available foods. Fresh fruit and vegetables are other good fiber sources. As the elderly boost their fiber intake to protect against certain intestinal diseases, they should also reduce their intake of dietary fat to lower the risk of heart attacks and strokes in an aging arterial system.

DO YOU KNOW? What element in the diet provides no calories and yet is essential for the functioning of every body cell?

Water is the nutrient that is often forgotten although survival time without it is only 2-3 days. It represents from 45 to 75 percent of total body weight and functions to transport nutrients and oxygen to cells and remove metabolic waste products. It also lubricates joints, cushions delicate organs, and serves as an air conditioning system for the body. An adequate fluid intake is necessary for the prevention of dehydration, which, with its symptoms of dizziness, fatigue, and disorientation, is often mis-diagnosed as "senility" in
elderly persons.

**Signs and Symptoms of Malnutrition**

Signs of malnutrition are often overlooked in the elderly because they mimic the normal changes of aging. Furthermore, we tend to equate malnutrition with emaciation and forget that the obese elderly patient may be deficient in protein or vitamins.

<table>
<thead>
<tr>
<th>SIGNS AND SYMPTOMS OF MALNUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL</strong>: weight loss or obesity, muscle wasting, weakness, lethargy, confusion, irritability.</td>
</tr>
<tr>
<td><strong>HAIR</strong>: dull, dry, sparse.</td>
</tr>
<tr>
<td><strong>SKIN</strong>: dry, scaly, loss of fat under skin, ulcerations.</td>
</tr>
<tr>
<td><strong>NAILS</strong>: brittle, ridged, spoon shaped.</td>
</tr>
<tr>
<td><strong>EYES</strong>: conjunctival pallor, infection or redness, fissured eyelids.</td>
</tr>
<tr>
<td><strong>TEETH, JAWS</strong>: dental caries, missing teeth, gums spongy, and bleed easily.</td>
</tr>
<tr>
<td><strong>MUSCULOSKELETAL</strong>: muscle atrophy, dependent edema, bow legs.</td>
</tr>
<tr>
<td><strong>NEUROLOGICAL</strong>: anorexia, walking difficulty, sensory loss, apathy.</td>
</tr>
<tr>
<td><strong>CARDIOVASCULAR</strong>: tachycardia, arrhythmia, cardiac enlargement.</td>
</tr>
<tr>
<td><strong>GASTROINTESTINAL</strong>: constipation, diarrhea, liver enlargement.</td>
</tr>
</tbody>
</table>
LEARNING ACTIVITY: NUTRIENTS ASSOCIATED WITH SPECIFIC HEALTH PROBLEMS.

The accompanying chart presents some specific health problems and the nutrients associated with them. Complete the chart, listing foods you would add or delete for the prevention or treatment of the health problems.

---

Maintenance of Good Nutrition

Maintenance of good nutrition for the elderly patient involves more than providing a well-balanced diet with consideration for specific health problems. Acute illness greatly increases nutritional requirements, and unless these needs are met, it is not likely that other therapy for the illness will be successful.

At the same time, illness is an appetite depressant, as are also many of the diets and drugs prescribed as part of treatment regimens.

Successful nutritional management begins with a careful assessment of the patient's dietary history, taking into consideration ethnic and religious influences, food likes and dislikes, and daily eating patterns. This should be followed by an assessment of the patient's
physical condition, remembering that the sensory changes of aging have an influence on appetite. The physical assessment should consider such things as alertness, dentition, attention span, ability to feed self, ability to suck and swallow, sitting strength and endurance, and presence of intact cough and gag reflexes.

TIPS FOR PROMOTING GOOD NUTRITION

1. Provide appetizing, colorful meals.
2. Provide socialization during mealtime. Most elderly patients eat better in the company of others.
3. Encourage patients to feed themselves whenever possible, using finger foods as necessary to facilitate the process.
5. If patient must be fed, place food within his line of vision to stimulate appetite.
6. Allow sufficient time for eating and enjoying the meal.
7. Use garlic, onion, and spices such as oregano to add flavor without the use of salt.
8. Provide extra protein and calories in a sweet-tasting pudding or milkshake base.
### FOODS ASSOCIATED WITH SPECIFIC HEALTH PROBLEMS

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>NOT ENOUGH</th>
<th>TOO MANY</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>iron</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>caffeine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td></td>
<td>calories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atherosclerosis</td>
<td></td>
<td>cholest-</td>
<td>erol</td>
<td></td>
</tr>
<tr>
<td>Dehydration</td>
<td>water,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>fluids</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td>sugars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digestive Disorders</td>
<td>fiber,</td>
<td>refined</td>
<td>carbo-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>water</td>
<td>hydrates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyper-tension</td>
<td>calcium</td>
<td>salt,</td>
<td>sugar</td>
<td></td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>calcium</td>
<td>protein</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td></td>
<td>calories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>calories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer (breast,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bladder)</td>
<td></td>
<td>fat,</td>
<td>caffeine</td>
<td></td>
</tr>
</tbody>
</table>
For the long-term nutritional management, it is important to educate the family members so that the nutritional gains made will not be lost when the patient is discharged. Be sure instructions are clear and don't just assume that you are being understood. I distinctly remember one embarrassing session with a sweet elderly lady who was most distressed because her husband refused to drink his high-protein milkshake, into which she had been "slipping an egg", as I had instructed. Questioning revealed that she had been using a hard-boiled egg. Enough said?

MENTAL CHANGES OF AGING

Normal psychological changes of aging are less universal, less severe, and more difficult to assess than the physical changes that occur. Long-term studies of healthy individuals between the ages of 60 and 94 have reported little or no loss of intellectual function with age.

Intelligence

Rather than demonstrating a decline in intelligence, studies seem to show a shift in the kind of intelligence used as people age. There is very little change in verbal comprehension, logical thinking, and numerical skills acquired through years of education and experience. In fact, this body of "crystallized intelligence" continues to increase with age. Some
decrease is seen in "fluid intelligence", the sudden bright ideas or flashes of insight that may come to mind. Whether this is due to a genuine change in intellectual ability or simply the result of attempts to cope with the demands of society is still being debated.

It is true that people tend to become more cautious as they age. This is probably not so much a mental change as an attempt to guard against the risks posed by declining physical abilities. The physical need for a stimulus to be increased if it is to be perceived contributes to the slowing of behavior that is one of the most distinguishing characteristics of older people. They may perform as well as younger people, but it takes them longer.

Learning

There is very little decrease in the primary capacity to learn. Learning performance is influenced by perception, sex, attention, motivation, and physical health of the learner. Many older people become anxious in learning situations because they believe that society expects them to be incompetent. This belief becomes a self-fulfilling prophecy that results in decreased learning. There are, however, some important factors that influence learning ability in the elderly.

1. Older people learn better when they are allowed to work at their own pace.
2. Older people have difficulty maintaining optimum levels of motivation. Both too much or too little motivation interferes with their learning.

3. Older people learn best if the task to be learned is perceived as being meaningful.

4. Older people function best in a learning situation if the demands of the task are simplified and instructions are given clearly without the addition of irrelevant information.

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**DID YOU KNOW THAT?**

Learning refers to a change from one trial to another.

Memory refers to a time interval between trials.

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**Memory**

The healthy brain operates a very efficient information storage and retrieval system. A stimulus entering this system is registered in short-term memory for immediate use and recall for several minutes after the information has been presented. There is a limited capacity for short-term memory storage, so that, if the stimulus is not reinforced, addition of new stimuli will crowd it out and it is lost. A reinforced stimulus passes into the long-term memory storage system, which has an
unlimited capacity for storage. Continued reinforcement strengthens the retention of long-term memory.

As the brain ages, diminished neural activity may interfere with the storage and/or transmission of short-term memory. For this reason, the elderly person may experience difficulty in recalling events of the immediate past, while having no trouble at all remembering the experiences of youth. The elderly patient who constantly recounts events of earlier years may be attempting to maintain emotional equilibrium and a sense of identity.

Memory retention may be adversely affected by interference from previously learned information. This interference can be minimized by presenting new learning material simply, slowly, and with repetition.

Memory recall, the retrieval of stored material, may be aided by the use of visual cues.

While memory loss is a physiological possibility associated with aging, it is important to remember that everyone has more brain cells than will ever be used. The vast majority, over 96 percent, of the elderly will retain their full mental capacity until death.

Positive Aspects of Aging

In spite of the mental and physical deterioration often accompanying aging, it has its positive
aspects as well. To begin with, as people age, there is an increase in the amount of general knowledge they possess. This knowledge can be organized more efficiently and applied to new situations with better judgment, so that, in general, wisdom does increase with age.

The elderly have achieved a sense of identity and have a more stable value system than younger people. They are, therefore, able to be less pretentious and value "being" more than "doing".

In general, the elderly have few responsibilities, more personal freedom, and an increased life expectancy. They know the value of life, but, at the same time, are better able to cope with death than people of younger age. Most elderly people do not fear their own death but seem to react to its ultimate inevitability with acceptance.

Our challenge as nurses is to base our nursing actions on a realistic viewpoint of aging. We must make a conscious effort to help our elderly patients preserve their self-esteem and achieve their maximal health potential.

COMMON PROBLEMS OF THE ILL ELDERLY

The response of the elderly patient to illness is an individual one, but often includes one or more additional problems commonly associated with illness or severe stress in the aged.
Fluid imbalance may occur as a result of disease or trauma, as a side effect of medication, or whenever a stressful situation causes insufficient or excess fluid intake. The first step in its prevention is to anticipate the possibility of its occurrence when making nursing observations. Observations that apply to body fluid and electrolyte disturbances include skin and membrane changes, speech changes, skeletal muscle changes in function, sensory changes, anorexia, thirst, and fatigue. Assessment of "vital signs", temperature, pulse and respiration, so often taken and recorded in a perfunctory manner, may offer clues to fluid and electrolyte status.

Fever increases metabolic fluid loss as well as promoting loss of water vapor through increased respiratory rate.

Evaluate the pulse according to rate, volume, regularity, and ease of obliteration.

<table>
<thead>
<tr>
<th>PULSE</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased rate</td>
<td>Sodium excess or magnesium deficit</td>
</tr>
<tr>
<td>Decreased rate</td>
<td>Magnesium excess</td>
</tr>
<tr>
<td>Weak, irregular <strong>rapid</strong></td>
<td>Severe potassium deficit</td>
</tr>
<tr>
<td>Weak, irregular <strong>slow</strong></td>
<td>Severe potassium excess</td>
</tr>
<tr>
<td>Bounding, hard to obliterate</td>
<td>Volume excess and circulatory overload</td>
</tr>
</tbody>
</table>
Rapid, weak, thready Sodium deficit, interstitial fluid shift, and hypovolemic circulatory collapse

Respiratory changes usually occur with changes in the body pH. Evaluate respiration according to rate, depth, and regularity. When counting respirations, observe the patient at rest and make sure he's unaware that you're counting, or, by becoming aware of his breathing, he may alter his natural pattern. Always count for at least one full minute for accuracy. The patient's respiratory rhythm should be even except for an occasional deep breath.

**RESPIRATORY PATTERN CHART**

<table>
<thead>
<tr>
<th>EUPNEA</th>
<th>Normal respiration rate and rhythm. For adults, 12-20 bpm. Also, occasional deep breaths at rate of 2 or 3 bpm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TACHYNEA</td>
<td>Increased respirations, as seen in fever. Respirations increase about 4 bpm for every degree Fahrenheit above normal.</td>
</tr>
<tr>
<td>BRADYNEA</td>
<td>Slower, but regular. Normal during sleep. May occur as a result of alcohol or narcotic intake, brain tumor, or metabolic disorder.</td>
</tr>
<tr>
<td>APNEA</td>
<td>Absence of breathing. May be periodic.</td>
</tr>
</tbody>
</table>
HYPERPNEA

Deeper respirations; normal rate.

CHEYNE-STOKES

Respirations gradually become faster and deeper, then slower, over a 30-170 second period. Periods of apnea for 20-60 seconds alternate.

KUSSMAUL'S

Faster and deeper respirations without pause. Breathing sounds labored. May occur from renal failure or metabolic acidosis.

Although suspected fluid imbalance can be confirmed by laboratory tests, reliable objective evidence may be obtained by a daily body weight and a carefully maintained intake and output record. Recorded intake should include all fluids (by whatever route administered), plus foods that are liquid at room temperature. Output should include urine, vomitus, diarrhea, drainage, and blood. Note and estimate perspiration. The amount and time of day that fluid is taken in or excreted should be recorded.

COMMON ERRORS IN MAINTAINING INTAKE AND OUTPUT RECORDS

1. Failure to explain the need for I and O record to staff.

2. Failure to explain the need for I and O record to the patient and family.
3. Postponing recording of an amount to "a more convenient time."


5. Failure to measure small amounts of fluid accurately.

6. Assuming the water pitcher was emptied by the patient (not poured on plants or drunk by visitors).

7. Incorrectly estimating fluid taken as ice. (A full glass of ice equals one half glass of water when melted).

8. Not estimating perspiration. (One necessary bed change equals about 1 liter of fluid lost).

9. Failure to check the catheter for patency when urine drainage decreases.

10. Failure to record fluid not returned after irrigation.

---

Dehydration

Dehydration occurs when daily fluid intake is insufficient to balance the amounts of water lost through normal metabolic processes. Its development in patients with severe illness or injury, excessive drainage, coma, or inability to swallow, is usually anticipated and preventive measures are instituted. Elderly patients, however, may become dehydrated for less obvious reasons.

Loss of appetite and a diminished thirst mechanism may lower fluid intake. In addition, some elderly persons deliberately restrict their intake of
fluids for fear of incontinence. Weakness and/or mental confusion may prevent them from obtaining fluids even when they are readily available. Another common cause of dehydration in the elderly is increased urinary output resulting from the aging kidney's inability to concentrate the urine. Dehydration and electrolyte imbalance can also result from the repeated use of enemas, especially the Fleet enema, which tends to pull water into the colon from the tissues and vascular system.

HOW MUCH IS ENOUGH? As a general guideline, visible fluid intake plus three meals, plus water of oxidation (300 ml) should exceed the daily urine output by at least 500 ml. The minimum urine output in an adult should be 600 ml.

Fluid Overload

Fluid overload, or water intoxication, is a hazard in elderly persons with physiologic conditions causing fluid retention. If unchecked, it can lead to congestive heart failure and pulmonary edema. Common warning signs of fluid overload are dependent edema and distended
neck veins. Water intoxication is especially likely to develop in elderly patients receiving hypotonic or isotonic 5% D/W intravenous fluids in addition to a plentiful oral fluid intake. To correct the condition, water intake should be limited and the IV solution changed to isotonic dextrose saline solution.

INCONTINENCE

Incontinence may be defined simply as the passage of urine at an undesirable place or time. It is a symptom which may result from one or a combination of factors and is a frequently occurring problem for the ill elderly. In fact, it has been estimated to be ten times the most common problem in hospitalized geriatric patients.

There are two major categories of incontinence; central incontinence, caused by physiological factors, and spurious, or apparent incontinence resulting from environmental factors. It is spurious incontinence that poses the greatest problem since its causes are many and vary from reactions to drug therapy such as diuretics and sedatives to such a simple thing as distance to the toilet.

Most elderly persons are embarrassed by incontinence, which they may view as a sign that they are "becoming childish" or losing control. Their efforts to conceal or deny the problem PUTTING A NIGHT LIGHT IN THE BATHROOM MAY CURTAIL "NIGHT-WANDERING"
may result in agitation and bizarre behaviors which, in turn, earn them the label of being confused or senile. Because uncontrolled incontinence often leads to withdrawal and isolation, the incontinent patient should be treated with understanding and acceptance and efforts should be made to control the incontinence.

The easiest way to deal with incontinence, particularly in a hospitalized patient, is by inserting an indwelling catheter. This method, while convenient for the hospital staff, is, at best, uncomfortable for the patient, and, at its worst, may even be life-threatening. Foley care has been described as the worst care a patient receives in the hospital. It is associated with 99 percent of all urinary tract infections and a patient with a urinary catheter has a one-in-two chance of developing a catheter-associated urinary tract infection. This UTI can lead to acute and chronic renal failure, pyelonephritis, and hypertension. Antibiotic regimens to control bacterial growth have proved to be only minimally effective because they encourage the development of organisms which are multi-antibiotic resistant. For these reasons, it is wise to consider alternatives to catheterization whenever possible.

Insertion of a catheter eliminates the normal external defense mechanisms of the genitourinary tract.
TO OBTAIN A STERILE URINE SPECIMEN, A CAREFULLY COLLECTED CLEAN-VOIDED MIDSTREAM SPECIMEN IS AS VALUABLE AS CATHETERIZATION. The body identifies the catheter as a foreign object and mucus secretion is stimulated. This mucus coating makes it easier for bacteria to travel from the perineum to the bladder. Meanwhile, changes in urine pH make it a more conducive medium for bacterial growth. When use of a Foley catheter is absolutely necessary, the period of use should be as brief as possible. After forty-eight hours the risk of infection significantly increases.

TIPS FOR CARE OF A PATIENT WITH A FOLEY CATHETER

1. Leave the catheter alone. Irrigating and changing catheters only increase the risk of infection.

2. Change the catheter only if it is malfunctioning, obstructed, or contaminated.

3. Use sterile technique when inserting the catheter or withdrawing a urine sample from the closed system.

4. Keep the urine drainage bag below the level of the bladder to prevent backflow of urine, but do not let the bag sit on the floor.

5. Wash the perineum with soap and water at least twice a day and after each bowel movement. This
mechanical cleansing is the primary means of reducing contamination.

6. Routine use of antibacterial ointments is not effective in preventing infection and Betadine washings can irritate sensitive tissue and make it more susceptible to bacterial growth.

Alternatives to catheter control of incontinence include intermittent straight catheterization, use of a penile condom for males, pelvic floor exercises, and behavior modification techniques. Of all the alternatives tested, the simplest and best has proved to be frequent toileting, which assists the patient in bladder training. Successful bladder training requires:

1. A timed schedule of toileting
2. An adequate fluid intake

Many elderly persons try to prevent incontinence by limiting their fluid intake. This practice can cause dehydration, increase the incidence of stone formation and impair kidney function. A daily fluid intake of at least 2400 ml is desirable.

BLADDER TRAINING IS REALLY TRAINING THE TIMING OF THE CARE-GIVER TO MATCH THE PATIENT'S NATURAL BODY RHYTHMS.
CONFUSION

Everyone has a physiologic need to maintain order and balance between internal and external environments. When this balance is disrupted, the individual tries very hard to restore a sense of equilibrium, often adopting behaviors that do not make sense in the context of the observer, who then labels them "confused." Feelings of confusion, with corresponding "irrational" behavior, occur in everyone at some time or other, but confusion tends to occur more often and last longer in persons who are in poor health and whose environmental patterns are interrupted.

STOP AND THINK! Can you recall an occasion when you experienced confusion? How did you behave? Was your behavior "appropriate"?

The subjective nature of confusion creates diagnostic problems. To begin with, broad deviations from a behavioral mean can still be considered normal and, in a nursing situation, we often lack the necessary information for comparing past and present behaviors. Personal bias also hinders objective diagnosis, and behavior not socially or culturally acceptable to the observer is more likely to be labeled confused.

Categories of patients especially vulnerable
to being perceived as confused include:

1. Patients with communication problems
2. "Problem" patients (demanding or cantankerous)
3. Patients who are physically unattractive
4. Patients who are depressed
5. Patients who challenge our personal values.

The elderly person usually learns to adjust to the sensory changes that accompany aging and can cope with changes in the external environment as long as the changes are gradual and there is no systemic problem interfering with brain cell metabolism. In general, however, the elderly have a reduced ability to deal with stress, and are easily thrown into a state of confusion. It is estimated that 50 percent of older patients in long-term care units are there because of confusion or will develop confusion during their stay. In a small percentage of these patients their confusion results from organic brain disease or arteriosclerotic obstruction to cerebral blood flow, but for most of them, confusion is simply a signal that something is interfering with their state of physiologic balance.

For the nurse, "confusion" should never be a label placed on a patient. Instead, it is a red light that says, "Something is wrong. Find out what it is, and do something about it."

Systemic Causes of Confusion

Any condition that interferes with brain cell metabolism may cause confusion. Is your patient confused? Then ask yourself:

1. Is the patient getting enough $O_2$?
   Brain tissue requires 25 times the amount of oxygen used by a comparable unit of skeletal muscle tissue, and there is no storage depot for oxygen in the brain. The aging brain becomes somewhat hypoxic and adapts to this state, but confusion results when extra stress further lowers the oxygen supply.

2. Is the patient hypoglycemic?
   Brain cells depend on glucose for the energy for their electrical activity.
   The long half-life of oral hypoglycemics used to treat diabetes may result in a cumulative effect and cause prolonged hypoglycemia. In the elderly, this may cause confusion, nightmares, lethargy, or bizarre behavior.

3. Does the patient have an elevated blood sugar?
   Even in a non-diabetic, hyperglycemia may result from physical or emotional stress or as a side effect of drugs such as niacin or diuretics. Impairment of awareness may be the first symptom.
4. Is the patient dehydrated?
Confusion and lassitude can result from fluid and electrolyte imbalance.

5. Is the patient too cold?
Because of a decreased ability to regulate body temperature, persons over 65 can lose body heat rapidly even at room temperatures of 60-65 degrees Fahrenheit. Responses become sluggish when body temperature reaches 96.8, a level that is not unusual for the elderly. Confusion begins at body temperatures of 93.2-95.

6. Does the patient have an elevated temperature?
The aging body loses some of its cooling ability because of a reduction in the number of sweat glands. With a temperature elevation of 101.3 or higher, the elderly patient may show signs of confusion, and visual hallucinations often occur.

Other possible systemic causes for confusion include pernicious anemia, severe malnutrition, stress, drug reactions, and postural or drug-related hypertension.

Confusion Resulting from Alterations in the Normal Physiologic State

Bizarre behavior often accompanies the inability to empty the bladder completely, especially in males. Restlessness, agitation, and "confused" behaviors may also result from attempts to deny or conceal incontinence.
Violation of the body's feedback system that indicates completion of the customary bedtime rituals results in sleeplessness. Interruption of normal sleep patterns, in turn, may cause confusion. Unfamiliar surroundings, dependence on others for sleep preparation rituals, and unaccustomed positions for sleep all interfere with the body's feedback mechanisms. Attempts to meet sleep needs without the customary ritual and position may result in behavior commonly known as the "sundown syndrome". This nighttime agitation and irrational behavior begins at bedtime and ends magically when the first rays of morning sunlight filter into the room. Attempts to help the person sleep by giving "sleeping pills" only increase the confusion and may induce day-time lethargy. Preventive measures are far more effective. They may include:

1. Adherence to the patient's customary night rituals as much as possible.
2. Frequent visits to the patient's room for reassurance beginning about three pm. Explain repeatedly, if necessary, what the bedtime routine will be and assure the patient that there will be someone within call to give help if needed.
3. Leave a light on in the room at night. (whatever amount of light the person wants).

4. If these measures are ineffective, small doses of Haldol given early (about 4 pm) before the agitated behavior begins may prevent it.

Confusion may also accompany pain, especially if the amount of discomfort experienced is greater than the individual's perception of the cause and meaning of the discomfort. Overstress from attempts to cope with prolonged chronic pain may also result in confused behavior, which is often increased by the medication given to ease the pain. The long half-life of many commonly used sedatives and the elderly person's diminished ability to metabolize drugs may combine to cause a cycle of discomfort → medication → confusion → medication → increased agitation → increased medication until the behavior is finally controlled and the patient is "unresponsive due to senility". DON'T LET IT HAPPEN TO YOUR PATIENTS.

DEPRESSION AND ANXIETY

The ability of a person to adapt to a particular environment depends on the ability of the ego to handle the demands of that environment and to resolve the conflicts which arise. The ability of the impaired ego to function depends on the environmental stresses, the internal conflict experienced, and the defense mechanisms
available to the aged person. Common defense mechanisms used by the elderly are regression, projection, and denial.

HOW DO YOUR PATIENTS COPE? From your nursing experience, give an example of observed coping behavior in which one of the above defense mechanisms was used.

What was the defense mechanism?
Was it effective?
Was the accompanying behavior "appropriate"?
If not, what nursing intervention was employed?
Was it effective?
If not, how would you change it?

Depression and anxiety often accompany attempts to cope with a changing environment. They are common in old age and may be present chronically or intermittently.

**Depression**

Possible symptoms of depression include apathy, insomnia, irritability, negativism, constipation, and performing routine activities in "slow motion".

The elderly person can be helped to avoid or overcome depression by being included in his own care, being allowed and encouraged to make decisions as much as possible. Always think of the elderly patient as an adult human being with fears and frustrations and treat him with dignity and respect. Let your treatment show
that you care about his concerns, but be careful not to reinforce negative feelings. Instead, be reassuring and realistically positive, helping the patient to expect and find satisfaction in each improvement.

**Anxiety**

Signs of anxiety change with advancing age and may take many forms. They may include insomnia, somatic complaints, restlessness, incompetence, hostile and dependent behavior, and fatigue. Anxiety may be behind such behavior as fidgeting with bedding, constant sorting and arranging of possessions, and conversation overload. (the person who talks too much, too fast).

The most effective intervention for the anxious person is attentive listening, allowing ventilation of complaints without trite reassurances, but demonstrating a caring attitude. The presence of a friendly person during an examination or treatment and advance preparation for a new situation also help reduce anxiety.

Both the depressed and anxious elderly respond well to closeness and touch. Simply holding the patient's hand has been found to diminish psychotic behavior in the institutionalized aged.

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ELDERLY PERSONS MAY HAVE THEIR LIVES SHORTENED, NOT SO MUCH DUE TO THEIR PHYSICAL CONDITION ITSELF, BUT DUE TO THE ATTITUDE OF THEIR CARETAKERS.
MUSCLE CONTRACTURE

For the elderly, hospitalized patient, the most likely complications to occur are contractures and skin breakdown. These conditions are difficult to treat successfully, but may often be prevented if aggressive nursing measures are begun immediately upon hospitalization.

Any joint left immobile for a prolonged period will suffer some loss of function from contracture formation. Contractures and deformities form when a muscle assumes a shortened length for a prolonged period. The muscle fibers and surrounding connective tissue adapt to the new length, lose their elasticity, and cannot be re-lengthened. In the elderly, this process can occur in less than a month, with definite physical changes developing after only three to seven days.

Nursing measures essential for keeping muscles at their normal length and thus preventing contractures include:

1. Daily attention to the goal of progressive mobilization, moving the bedfast patient toward maximum mobility.

2. Patient/family education to provide understanding of, cooperation with, and assumption of responsibility for measures designed to increase mobility.

3. Range of motion exercises, both active and passive, to ensure that every joint remains as functional.
as it was before hospitalization.
4. Proper positioning to gain or maintain mobility.

**Range of Motion Exercise**

Range of motion exercises are intended to increase circulation, maintain joint mobility, and prevent contractures and should be an immediate part of patient therapy unless medically contraindicated. In consultation with the physician and physical therapist an individualized exercise program should be set up for each patient, taking into consideration existing health problems that may affect joint motion. This program should be carried out at least twice daily and its principles should be incorporated into all the patient's daily activities. Whenever possible, consult the patient and consider his preferences in scheduling activities, as this will enhance cooperation with the program and increase the likelihood of the patient's assuming responsibility for exercising after going home from the hospital.

**GUIDELINES FOR RANGE OF MOTION EXERCISES**

1. Determine the patient's full range of motion by noting the point at which movement meets with resistance or causes pain. NEVER USE FORCE TO EXCEED THESE LIMITS!
2. If the patient is unconscious, perform passive exercises on each extremity.

3. If the patient is conscious, perform passive exercises on paralyzed extremities; encourage active exercises of non-affected extremities.

4. Always perform exercise motions gently, slowly, and rhythmically.

5. Make sure the patient's body is aligned properly during the exercise period.

6. Repeat each passive exercise three times during the exercise session.

7. Modify the exercise program as the patient's condition changes.

8. Explain the exercise program in detail in the nursing care plan.

9. An arthritic patient should receive analgesic and anti-inflammatory medication before beginning daily activities.

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**Positioning**

Much of the damage suffered by patients who are developing contractures takes place while they are lying quietly and comfortably in bed between exercise periods, and some of the most comfortable positions are the most damaging. Most at risk for contracture development are patients with flaccid paralysis from peripheral nerve
damage, muscle spasticity from central nervous system
damage, or joint inflammation from rheumatoid arthritis.
All of these patients need careful positioning to provide
the extension needed to prevent flexion contractures.

The asymmetrical tonic neck reflex may be
present in patients with central nervous system involve­
ment and can be utilized to facilitate range of motion
and positioning. If this reflex is present, when the
patient's head is turned to one side, the arm and leg
on that side extend, while the arm and leg on the other
side flex.

POSITIONING GUIDELINES

SUPINE POSITION: should be used when the patient is

alert, with the following precautions.

**Head:** Support the head with two small pillows,
beginning at the upper thoracic region.

**Trunk:** Align the body with the spine straight,
shoulders level with hips.

**Upper Extremities:** Extend and support the arms,
elevating them slightly on small pillows
to prevent edema. In flaccid paralysis,
a rolled washcloth may be placed in the
affected hand to maintain functional
posture and muscle tone of the hand, wrist,
and fingers. However, in cases of
spasticity, this intervention is ineffective and a resting splint should be used.

Lower Extremities: Prevent the hip from rolling outward by placing a pillow or rolled bath blanket along the outside of the thigh. Do not use pillows under the knees or elevate the knee gatch on the bed for long periods or knee contractures will develop. A small flat folded towel under the knees and another one under the Achilles tendon of the heel will provide enough flexion to relieve spasticity.

Measures to prevent footdrop include use of an overbed cradle to protect the feet from the pressure of the bed linens and a padded footboard to support the heel at a ninety degree angle. The footboard should not be used in spastic paralysis, as it tends to increase spasticity. Footdrop may also be prevented by wearing splints or high-topped tennis shoes, but these should be removed periodically to prevent skin breakdown. Sandbags and rubber donuts are not recommended as positioning aids since they tend to cause skin breakdown and/or impaired circulation.
SIDE- LYING POSITION: especially good for preventing respiratory problems in unconscious patients.

Head: Place a small pillow under the head for comfort and proper alignment.

Trunk: Keep the spine straight. A pillow at the patient's back gives added support and comfort.

Upper Extremities: Bring uppermost arm forward in front of the patient, bending the elbow slightly but keeping the wrist extended. Support this arm on a pillow. Bring the bottom arm up alongside the face with the palm up.

Lower Extremities: Flex the uppermost leg and bring it forward, supporting it on pillows to prevent the hip from rolling forward. Keep the lower leg extended straight and level with the spine. To avoid the possibility of pressure sores, be sure the patient's top leg does not rest on the lower leg.

Any position, no matter how good, cannot be maintained forever. The patient who needs positioning also requires position changing. This should be done at least every two hours to stimulate circulation, encourage
mobility, and prevent skin breakdown.

LEARNING ACTIVITY: Study the following positioning diagrams. Identify those that show wrong positions and state the correction that should be made.
PRESSURE SORES

Pressure sores, as the name implies, are sores or ulcers that are caused by pressure, particularly over bony prominences, which interrupts normal circulatory function and results in damage to and death of subcutaneous tissue. Not only are these sores difficult to heal and therefore physically and psychologically debilitating, but they may result in life-threatening bacteremia.

Predisposing conditions for pressure sores include altered mobility, impaired neurologic function, chronic illness, inadequate nutrition, and skin breakdown from pressure, edema, and incontinence. Since many elderly persons suffer from one or more of these conditions it is not surprising that an estimated 20-30 percent of the hospitalized elderly develop pressure sores. These sores heal slowly, and treatment is expensive, time-consuming, and often frustrating.

Now for the good news. Pressure sores are preventable. Keys to prevention are repositioning, cleanliness, and eternal vigilance, but in this situation an ounce of prevention is definitely worth a pound of cure.

TIPS FOR THE PREVENTION OF PRESSURE SORES

1. During each shift, check the skin of patients for changes in color, turgor, temperature and sensation.
2. Reposition bedridden patients at least every two hours around the clock.

3. Minimize the pressure caused by the pull of gravity by using a footboard and by not raising the head of the bed to an angle that exceeds sixty degrees.

4. Use pressure relief aids such as:
   - eggcrate mattresses
   - sheepskin in direct contact with the patient's skin
   - rubber gloves or plastic bags partially filled with water to cushion heels and elbows.

5. After a position change, stimulate circulation by gently massaging areas where there has been pressure. Massage with firm, circular movements over the entire area, repeating 5-6 times.
   - If the patient is wearing special positioning aids, remove them periodically to check and massage the area.
   - If you notice signs of beginning breakdown, massage around the area, not over it.

   - When bathing a patient, use lotion instead of soap, except for the axilla, genital and perineal areas.
   - Give perineal care after each episode of
incontinence. Wash the area with soap and water.
Change bed linen frequently for patients who are incontinent or diaphoretic.

7. Avoid the use of skin-damaging agents such as harsh soap, alcohol-based products, and tincture of benzoin.

8. Take advantage of every opportunity to include range of motion exercise in the activity of the moment. Simply having the patient tighten arm and leg muscles is valuable isometric exercise.

9. Assess the patient's nutritional status and daily fluid intake pattern. Encourage fluid intake up to 2000 cc per day unless medically contraindicated.

10. Provide patient/family teaching to help them understand the importance of preventive measures and give them the opportunity of practicing preventive techniques.

PRESSURE EXERTED OVER AN AREA FOR ONE TO TWO HOURS AT A TIME PRODUCES TISSUE ISCHEMIA.
PRESSURE POINT: COMMON SITES OF DECUBITUS ULCERS

Decubitus ulcers may develop in any of these pressure points. To prevent sores, change the position of the patient frequently, and check carefully for any change in skin color or tone.
HURRY UP AND WAIT

Everything's a little slower
As we edge along life's path.
Folks can usually get there
Just before the aftermath.

It takes a little longer
To get up out of bed,
And the time is really stretched out,
For the clearing of the head.

The slowness ain't no big thing
Cause these folks have lots of time
But a problem surely rises
When the staff's still in their prime.

It's hurry here and hurry there
That work just must be done!
We have many little boxes
To check mark one by one.

There are B.P.s, baths, and B.M.s
Medications, enemas--
To get yourself in high gear;
Change your rhythm now...for us.

Hurry up and get to breakfast,
Hurry up and eat it all,
Now wait until I get back
Cause if you don't you'll fall.

Yes, I'm going to bathe you,
So hurry back and wait.
I'll be down to get you
So please don't hesitate.

Our folks may all be slower,
But that we can not heed;
For us, it must be plumb stop...
Or hit it at full speed!

In the above poem, Marian Smith cleverly
describes the conflict that exists between the needs of
the elderly patient and the training and objectives of
the staff who plan and carry out the nursing care. On
one hand, we have the patient, whose physiological and psychological responses are slower, who usually does not conform well to a fixed environment, who is oriented to the present, and who may well be feeling fearful and abandoned. The staff, on the other hand, is future-orient-ed, moves rapidly, tends to be impatient, and is concerned with juggling an increased work load against the time constraints of the shift. Conformity to routine often becomes the order of the day, and the patient who does not fit the "mold" is labeled uncooperative, belligerent, or worse.

If nursing care of the elderly is to be effective, we must:

1. Consider the common changes of the age group and also assess the individual changes and condition of the patient.

2. Recognize the patient's limitations and at the same time encourage independence and responsibility.

3. Accept the patient as the product of the sum of his experiences in life and offer interventions on the basis of demonstrated and/or expressed needs.

For every person there is a realm of freedom and a realm of constraint. As nurses, we not only need to teach our elderly patients what their real constraints are, but also to help them live fully in what freedom there is. We must foster the spirit demonstrated by
the following sentence penned one morning by a ninety year old lady who was recovering from her third brain surgery for a malignancy.

\[
\text{Never give up}
\]
\[
\text{Keep trying until you have achieved the goal for which you are striving}
\]

NURSING CARE PLANS

Every effective nursing intervention requires a plan for action, and nurses make many such plans routinely as they go through a day's assignment. Too many times these informal plans are followed only by the nurse who made them, and are communicated to the rest of the staff by a few words in a shift report or a hasty notation in a log book. Each nurse may approach a care problem differently and the patient becomes the bewildered recipient of many strategies with varying degrees of effectiveness. The purpose of
the formal, written nursing care plan is to aid in maximizing the patient's quality of life by assessing care problems and formulating a unified plan for dealing with them. Strategies are reviewed periodically for effectiveness and are changed whenever necessary to meet the stated goals. The results of the interventions are measurable, and patients and staff alike can feel the satisfaction that comes with progress toward a goal.

The basic components of nursing care plans may be expressed by the following diagram.

WHERE ARE WE?

WHERE ARE WE GOING?

HOW WILL WE GET THERE? WHEN WILL WE ARRIVE?

DID WE GET THERE?

Information and input for the plan may come from many sources, but the most important of these sources is the patient.

PRACTICE BEING A GOOD LISTENER AND A CAREFUL OBSERVER.
Remember the purpose of the plan? To maximize the patient's quality of life. In order to accomplish this, it is necessary to know the patient.

Assessment of the following areas may uncover problems that need to be included in the nursing care plan:

1. **Physical condition**
   - Skin
   - Vision and/or hearing loss
   - Mobility
   - Speech problems
   - Bladder and bowel control
   - Specific problems relating to individual diagnoses

2. **Mental condition**
   - Orientation
   - Agitation
   - Memory loss
   - Confusion
   - Depression

3. **Nutritional needs**
   - Allergies
   - Appetite
   - Overweight
   - Underweight
4. **Socialization**

Self-esteem

Participation in group activities

Interaction with peers and staff

Once the problem has been defined, the care plan can be formulated.

Where are we?

State the problem:

SPECIFICALLY

SIMPLY

SUCCINCTLY

Where are we going?

Plan a course of action for each problem that is:

REALISTIC (within the realm of possibility)

RELEVANT (consider patient's diagnosis, general physical condition, and temperament)

RESULT-ORIENTED (progress can be specifically described and evaluated)

How will we get there?

Decide on the specific approach that will be used to carry out the course of action.

**REMEMBER:** each person is an individual and your success may depend on "tailoring your pattern to fit the cloth."
When will we arrive?

Set a time limit for each approach. Short-term goals are easier to evaluate and are more motivating for both nurse and patient.

Did we get there?

Obviously this question cannot be answered until the approach has been tried, but it is important to review and recycle as the plan is in progress, keeping the following questions in mind:

- What progress has been made?
- What approaches need changing?
- What new problems have emerged?

REMEMBER: When you write a nursing care plan:

KEEP IT SIMPLE
KEEP IT SHORT
BE SURE PROGRESS CAN BE MEASURED

LEARNING ACTIVITY: PUT THE PIECES TOGETHER

Two new patients are admitted to your unit. From the admitting records you are able to gain the following information.

Mr. C. -- 68 years old -- diagnosis CVA
Profession - self-employed mechanic
Family Background - Italian descent, married, has one married son and two grandchildren who live nearby.

Physical Assessment - right facial paralysis, right hemiplegia, moderate hearing loss, wears glasses and dentures.

Mrs. G. - - 73 years old - - Fracture left hip, pinned; osteoarthritis

Profession - housewife

Family Background - widow, lives alone in apartment complex. Has two daughters, one living in New York and the other in San Francisco.

Physical Assessment - able to begin weight-bearing, but fearful of further injury. Has indwelling Foley catheter. Vegetarian because of religious beliefs.

Applying the knowledge you have gained from this course and referring to the nursing care plan diagram, develop a care plan to maximize quality of life for these patients in the following areas:

1. Skin care
2. Bladder control
3. Mobility
4. Nutrition
5. Communication
6. Self-esteem

SUGGESTED REFERENCES FOR FURTHER STUDY AND ENJOYMENT

Read these for enjoyment and to gain an increased awareness of the challenges facing the aging population in today's world.

**Fiction**


**Non Fiction**

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TEST

SPECIAL NEEDS OF THE ELDERLY

Circle correct answer(s)

1. As a result of the aging process, adults over the age of 75:
   a. have a diminished capacity for dealing with stress
   b. gradually become more alike
   c. are less susceptible to acute illness
   d. all of the above

2. Vision changes in aging cause:
   a. decreased ability to focus
   b. decreased sensitivity to glare
   c. color blindness
   d. both a and b

3. Presbycusis refers to:
   a. conductive hearing loss
   b. dizziness
   c. inflammation of the inner ear
   d. high-frequency hearing loss
4. Communication with hearing-impaired persons can be improved by:
   a. speaking louder
   b. using non-verbal cues
   c. repeating a statement at least twice
   d. all of the above

5. The chief age-related change in the heart is:
   a. development of irregular rhythm
   b. decrease in resting rate
   c. decrease in stroke volume
   d. none of the above

6. Hypertension is:
   a. common in the elderly
   b. a risk factor for development of kidney disease.
   c. a frequent cause of stroke
   d. all of the above

7. Osteoporosis may be prevented by:
   a. daily exercise
   b. increased calcium intake
   c. both of the above
   d. neither of the above

8. The most frequent gastro-intestinal complaint of the elderly is:
   a. constipation
   b. diarrhea
   c. "acid stomach"
9. Most age-related gastrointestinal problems are caused by:
   a. poor nutrition
   b. lack of exercise
   c. poor oral health

10. A person's daily protein, vitamin and calorie requirements are unchanged by aging.
    a. True
    b. False

11. Sexual activity can provide both physical and psychological benefits for the elderly.
    a. True
    b. False

12. Severe stress increases the body protein and calorie requirements.
    a. True
    b. False

13. The preferred source of fuel for the body is:
    a. fat
    b. protein
    c. carbohydrates
    d. fiber

14. Calcium absorption is decreased by:
    a. insufficient protein intake
    b. lack of exercise
    c. both of the above
d. neither of the above

15. Individuals between the ages of 60 and 95 experience a slow, steady decline in intelligence and learning ability.
   a. True
   b. False

16. Match the following term with their corresponding respiratory pattern.
   a. eupnea
   b. Cheyne-stokes
   c. tachypnea
   d. Kussmaul's

17. The minimum urine output in an adult should be:
   a. 600 ml.
   b. 1000 ml.
   c. 350 ml.

18. Incontinence at night is best prevented by limiting fluid intake after six p.m.
   a. True
   b. False

19. Effective range of motion exercises require the patient's active participation.
   a. True
   b. False
20. Successful bladder training requires:
   a. an adequate fluid intake
   b. timed toileting
   c. patience
   d. all of the above

21. Confusion may be caused by:
   a. sensory deprivation
   b. hypothermia
   d. all of the above

22. The "sundown syndrome" is characterized by:
   a. a pre-occupation with sunsets
   b. irrational behavior at night
   c. insistence on following a bedtime ritual

23. The person who talks too much, too fast, may be suffering from:
   a. anxiety
   b. depression
   c. confusion

24. Insomnia is a symptom of:
   a. depression
   b. anxiety
   c. both of the above
   d. neither of the above

25. As long as correct nursing techniques are employed in caring for the elderly, the attitude of the caregiver is of little importance.
   a. True
26. The most likely complications for an elderly, hospitalized patient are: (circle 2)
   a. pressure sores
   b. bladder infection
   c. muscle contractures
   d. confusion

27. The term gerontology refers to:
   a. study of diseases of the elderly
   b. nursing care of the elderly
   c. study of the processes of aging

28. Muscle contractures begin to develop when a joint is immobile for:
   a. two weeks
   b. one month
   c. three to seven days

29. Foley catheter care should include:
   a. routine weekly change to prevent mucus buildup
   b. daily irrigation with sterile normal saline
   c. frequent perineal care

30. An arthritic patient should receive pain medication:
   a. after exercising
   b. before exercising
   c. instead of exercising
31. Patients on bed rest should be placed in the position in which they feel most comfortable.
   a. True
   b. False

32. The best position for an unconscious patient is:
   a. supine
   b. side-lying
   c. prone
   d. semi-Fowler's

33. Sandbags are useful aids for preventing external hip rotation in an unconscious patient.
   a. True
   b. False

34. Positioning is important for maintenance of mobility.
   a. True
   b. False

35. An eggcrate mattress is useful in the prevention of:
   a. pressure sores
   b. muscle contractures
   c. insomnia

36. Predisposing conditions for pressure sores include:
   a. chronic illness
   b. altered mobility
   c. poor nutrition
37. To toughen the skin and help prevent pressure sores, apply:
   a. alcohol
   b. tincture of benzoin
   c. neither of the above
   d. both of the above

38. The purpose of a nursing care plan is to:
   a. improve the patient's quality of life
   b. provide a balanced nurse/patient ratio
   c. decrease costs of hospital care

39. An effective nursing care plan must state specific, individual patient goals.
   a. True
   b. False

40. Long-term goals are most motivating for both patient and nurse.
   a. True
   b. False
EVALUATION

SPECIAL NEEDS OF THE ELDERLY

PLEASE RATE EACH OF THE FOLLOWING FACTORS USING THIS CODE:

1 - strongly disagree  3 - no opinion
2 - disagree           4 - agree
5 - strongly agree

1. Format easy to follow  1 2 3 4 5
2. Page layout increased interest  1 2 3 4 5
3. Content based on current professional information  1 2 3 4 5
4. Content clear and easy to understand  1 2 3 4 5
5. Learning activities relevant to content  1 2 3 4 5
6. Bibliographical information helpful  1 2 3 4 5
7. Information applicable to own practice  1 2 3 4 5
8. Would recommend the course to others  1 2 3 4 5

PLEASE ANSWER THE FOLLOWING QUESTIONS BRIEFLY.

Use the reverse side of the page if necessary.

1. What topics, if any, would you like to see added to this course?

2. What topics, if any, would you like to see deleted from the course? Why?
TEST KEY

1. a 21. d
2. a 22. b
3. d 23. a
4. b 24. c
5. c 25. b
6. d 26. a, c
7. c 27. c
8. a 28. c
9. c 29. c
10. b 30. b
11. a 31. b
12. a 32. b
13. c 33. b
14. c 34. a
15. b 35. a
16. a, c, d, b 36. d
17. a 37. c
18. b 38. a
19. b 39. a
20. d 40. b
1450.

APPENDIX D

BOARD OF REGISTERED NURSING

REGULATIONS RELATING TO CONTINUING EDUCATION
AND EFFECTIVE DATE OF REVISION

ARTICLE 5. CONTINUING EDUCATION

1. "Continuing Education" means the variety of forms of learning experiences, including, but not limited to, lectures, conferences, academic studies, inservice education, institutes, seminars, workshops, extension studies, and independent/home study programs undertaken by registered nurses for relicensure. These learning experiences are meant to enhance the knowledge of the registered nurse in the practice of nursing in direct and indirect patient care.

2. "Course" means a systematic learning experience, at least one hour in length, which deals with and is designed for the acquisition of knowledge, skills, and information in direct and indirect patient care.

3. "Content Relevant to the Practice of Nursing" means content related to the development and maintenance of current competency in the delivery of nursing care as specified in Section 1456. Effective May 1, 1982.

4. "Independent/Home Study Courses" means continuing education courses offered for individual study by an approved provider.

5. "Hour" means at least fifty (50) minutes of participation in an organized learning experience.

6. "Approved Providers" means those individuals, partnerships, corporations, associations, organizations, organized health care systems, educational institutions, or governmental agencies offering continuing education as approved by the Board.
1451. License Renewal Requirements.

(a) Pursuant to Section 2811 of the Code, each licensee shall pay the renewal fee and submit proof, satisfactory to the Board that during the preceding renewal period or preceding two years, the licensee has started and successfully completed thirty (30) hours of continuing education approved by the Board.

(b) In lieu of submitting such proof, the licensee may take and must successfully complete an examination given by the Board and designed to test current knowledge in the registered nursing field. A licensee who fails the examination must successfully complete thirty (30) hours of continuing education approved by the Board before his/her active license can be renewed. The examination may not be repeated within any one renewal cycle.

(c) Licensees shall submit proof to the Board of successful completion of the required number of approved continuing education hours by signing a statement under penalty of perjury, indicating compliance and agreeing to supply supporting documents on request.

1451.2 Continuing Education Courses.

(a) Continuing Education course credit may be given for the following continuing education courses:

1. Courses offered by an approved Provider as specified in Section 1454. In addition to classroom courses, courses may be designed by an approved Provider for participation in activities which include nursing practice, publishing and/or research, provided that such courses meet the requirements of Section 1456.

1454. Approved Providers.

(a) For the purpose of this Article, the title "approved provider" can only be used when an individual, partnership, corporation, association, organization, organized health care system, educational institution or governmental agency, having committed no act which would lead to disciplinary action pursuant to Section 1463, has submitted a provider application on forms supplied by the Board, remitted the appropriate fee and has been issued a provider number. Effective March 1, 1982.
(b) An individual, partnership, corporation, association, organized health care system, governmental agency, educational institution and other organizations may be issued only one provider number; provided, however, that any autonomous entity within such organization may be issued one provider number. Effective March 1, 1982.

(c) An approved provider shall have a written and published policy, available on request, which provides information on:

1. refunds in cases of non-attendance
2. time period for return of fees
3. notification if course is cancelled.
   Effective July 1, 1982.

(d) The approved provider is required to accept full responsibility for each and every course, including, but not limited to record-keeping, advertising course content as related to Board standards, issuance of certificates and instructor qualifications. When two or more providers co-sponsor a course, only one provider number shall be used for that course and that provider must assume full responsibility for record-keeping, advertising course content as related to Board standards, issuance of certificates and instructor(s) qualifications. Effective March 1, 1982.

(e) Providers may not grant partial credit for continuing education. Effective January 17, 1982.

(f) Approved providers shall keep the following records for a period of four years in one location within the State of California, or in a place approved by the Board:

1. course outlines of each course given
2. record of time and places each course given
3. course instructor vitae or resumes
4. name and license number of registered nurses taking approved course and a record of any certificate issued to them. Effective March 1, 1982.

(g) Approved providers must notify the Board, within thirty (30) days, of any changes in organizational structure of a provider and/or the person(s) responsible for the provider's continuing education course(s), including name and address changes. Effective March 1, 1982.
(h) Provider approval is non-transferable. Effective January 17, 1982.

1455. Continuing Education Hours. The Board will accept hours of approved continuing education on the following basis:

(a) Each hour of theory shall be accepted as one hour of continuing education.

1456. Continuing Education Courses. The content of all courses of continuing education must be relevant to the practice of nursing and must:

(a) be related to the scientific knowledge and/or technical skills required for the practice of nursing, or

(b) be related to direct and/or indirect patient/client care.

(c) Learning experiences are expected to enhance the knowledge of the Registered Nurse at a level above that required for licensure. Courses related to the scientific knowledge for the practice of nursing include basic and advanced courses in the physical, social, and behavioral sciences, as well as advanced nursing in general or specialty areas. Content which includes the application of scientific knowledge to patient care in addition to advanced nursing courses may include courses in related areas, i.e., human sexuality; death, dying, and grief; foreign languages (conversational); therapeutic interpersonal relationship skills; pharmacology; and those related to specialty areas of nursing practice.

1457. Instructor Qualifications.

(a) It is the responsibility of each approved provider to use qualified instructors.

(b) Instructors teaching approved continuing education courses shall have the following minimum qualifications:
The registered nurse instructor shall:

a. hold a current valid license to practice as a registered nurse and be free from any disciplinary action by this Board, and

b. be knowledgeable, current and skillful in the subject matter of the course as evidenced through

(1) holding a baccalaureate or higher degree from an accredited college or university and validated experience in subject matter.

or

(2) experience in teaching similar subject matter content within the two years preceding the course.

or

(3) have at least one year's experience within the last two years in the specialized area in which he/she is teaching.

Course Verification.

(a) Approved providers shall issue a document of proof, i.e., gradeslip, or transcript to each licensee to show that the individual has met the established criteria for successful completion of a course.

(b) A certificate or diploma documenting successful completion shall contain the following information:

1. Name of student and registered nurse license number or other identification number.

2. Course title.

3. Provider name (as approved by the Board), address, and provider number.

4. Date of course.

5. Number of continuing education contact hours.

6. Signature of instructor and/or provider, or provider designee.
7. This document must be retained by the licensee for a period of four years after the course concludes.

(c) Course verification must be issued within a reasonable length of time after the completion of the course, not to exceed ninety days. Effective January 17, 1982.

1459. Advertisement. Information disseminated by approved providers publicizing continuing education shall be true and not misleading and shall include the following:

1. The statement "Provider approved by the California Board of Registered Nursing, Provider Number____for____contact hours."

2. Provider's policy on refunds in cases of non-attendance by the registrant.

3. A clear, concise description of the course content and/or objectives.

4. Provider name as officially on file with the Board. Effective May 1, 1982.