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Challenges to Native American Health

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CHALLENGES TO NATIVE AMERICAN HEALTH

by

Suzanne Grant
Bachelor of Science in Physical Therapy
University of North Dakota, 1999

An Independent Study

Submitted to the Graduate Faculty of the

Department of Physical Therapy

School of Medicine

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Masters of Physical Therapy

Grand Forks, North Dakota

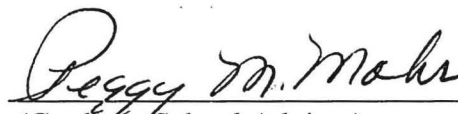
May
2000



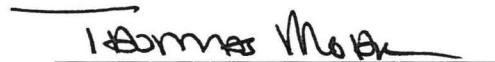
This Independent Study, submitted by Suzanne Grant in partial fulfillment of the requirements for the Degree of Master of Physical Therapy from the University of North Dakota, has been read by the Faculty Preceptor, Advisor, and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.



(Faculty Preceptor)



(Graduate School Advisor)



(Chairperson, Physical Therapy)

PERMISSION

Title Challenges to Native American Health
Department Physical Therapy
Degree Masters of Physical Therapy

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Signature Suzanne Grant

Date 12/1/99

TABLE OF CONTENTS

List of tables	v
Acknowledgements	vi
Abstract	vii
Chapter I Introduction	1
Chapter II Historical Context of Native American health	3
Chapter III Overview of Challenges to Native American health	6
Chapter IV Availability of services	9
Chapter V Summary and conclusion	11
Appendices	18
References	33

LIST OF TABLES

Table	Page
1. Indian Health Service Structure	16
2. Number of Service units and Facilities	16
3. Leading Causes of death in All Indian Health Service Areas	17
4. Leading Causes of death: US all races	17

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ABSTRACT

The purpose of this literature review is: to describe the historical context of Native American health, identify current challenges to Native American health and propose strategies to deal with the adverse effects of one of these challenges.

The historical context of Native American health discussed includes a history of Indian Health service and its role as provider of American Indian health care since 1830. Challenges to the Indian Health Service population outlined include diabetes, cardiovascular disease and alcoholism. Strategies to deal with the adverse effects of diabetes and the high rate of lower extremity amputation, as it relates to Native Americans, are discussed. An example of a preprosthetic home program that may be implemented to address lower extremity amputation within IHS.

Appropriate training and experience, continuing education, and structured treatment programs are crucial to the management of the diseases that affect this population. Methods to provide continuing education and training of health care personnel within the IHS needs to be incorporated within the current system. Collaboration between IHS and outside providers can contribute to the continuity of care that is lacking within the current structure.

CHAPTER I

INTRODUCTION

According to the 1990 census, more than 2.2 million people in the United States are Native American.¹ Native American groups include American Indians, Eskimos and Aleuts. American Indians are culturally diverse and geographically scattered throughout the United States. There are nearly 300 federally recognized reservations; 500 recognized tribes, bands, or Alaskan Native villages; and an estimated 100 additional tribes that do not benefit from federally recognized status.²

Native Americans differ from other groups in the United States in one fundamental way.³ The federal government has a certain legal responsibility to Indian tribes and their members. Based on various treaties signed by the United States and the tribes during the 19th century, laws enacted by congress and judicial rulings, the United States government must provide medical care to eligible Native Americans. Since 1955, the Indian Health Service, within the US Public health service, has been responsible for providing this medical care.

Challenges of the Indian Health Service have changed within the last two generations. Diseases and causes of death among American Indians are different than those prevalent 44 years ago.⁴ Due to the provision of safe water, sanitary waste disposal and primary medical care, infectious disease and gastroenteritis have given way to alcoholism, diabetes and cardiovascular disease. The purpose of this literature review is to describe the historical context of Native American health, identify the current challenges to Native American health and to propose strategies to deal with the adverse effects of one of these challenges.

CHAPTER II

HISTORICAL CONTEXT OF NATIVE AMERICAN HEALTH

The role of the federal government as provider of Native American health care began in 1830 as a result of treaty obligations through which tribes negotiated for medical services in return for the lands they ceded to the US government.⁵ Despite treaty obligations, present day involvement of the government in Native American health is not considered entitlement. The extent and type of health care for American Indians is dependent on annual congressional appropriations. Thus no supplemental funding is available from year to year if more money is needed for health services.

Currently, the responsibility for providing health care to approximately 1.5 million Native Americans lies with the federal Indian Health Service, which consists of 12 area offices that contain 150 administrative units called service units.⁶ (See Table 1) Service units are analogous to county or city health departments that are responsible for a designated geographical area. The size and range of health services offered varies from unit to unit. Some programs are large comprehensive medical and dental centers and others offer only referral services.

Indian health service operated 37 hospitals, 61 health centers, 4 school health centers and 48 health stations as of October 1, 1996.⁶(See Table. 2) The IHS employs approximately 840 physicians, 380 dentists, 100 physician assistants, and 2,580 nurses.⁷ IHS also employs allied health professionals such as nutritionists, health administrators,

and engineers. Also employed are approximately 102 therapists, 48 of whom are physical therapists and the remainder are occupational therapists or speech therapists.⁸

There are three modes of delivering IHS services: direct, tribal and contract.³

Direct and tribal clinical services are those that are provided at facilities operated by IHS or tribal contractors and are often the only sources of care available. Contract health services are those medical services that are not available directly at the service unit. Contract health services usually include expensive diagnostic and treatment services that can be delayed or denied if funds are unavailable. Given the remote location of much of the Indian population, it is likely that direct care facilities will continue to be the primary source of care for Native American people.⁹

The official goal of the IHS is to raise the health status of American Indian and Alaskan Native people to the highest possible level.⁷ Although the health status of American Indians has substantially improved since 1955, the quality and quantity of life measurements indicate the health of this population continues to lag behind that of the rest of the United States.

Regarding Native American population, almost every indicator of quality and quantity of life is substantially lower than that of the dominant culture.¹⁰ The 1990 census indicated that the median household income in 1989 for Indians residing in the current reservation states was \$19,897, while for the United States (US) "All Races" median incomes were \$30,056.⁶ Indians have approximately twice the number of unemployment and 2 1/2 times the number of families living in or near poverty. The 1992-1994 age adjusted death rate (all causes) for American Indians is 35 percent greater than the general US rate. Age adjusted diabetes death rates are more than two times

higher for Indians than for the general population.⁶ The age-adjusted death rate from alcoholism is over five times higher in Native Americans than for the general population.

IHS efforts thus far have been focused on (a) ensuring adequate levels of preventive and clinic services and (b) attacking specific health problems with targeted programs of health promotion and disease prevention.⁴ Although there are many programs in IHS directed toward prevention, there are few programs available to deal with rehabilitation and other type of specialized services for persons with disabilities.¹¹

CHAPTER III

OVERVIEW OF CHALLENGES TO NATIVE AMERICAN HEALTH

The five leading causes of death for Native Americans are as follows: diseases of the heart, malignant neoplasm, accidents, diabetes mellitus, and chronic liver disease.⁶ (See Table 3)

Cardiovascular

Heart disease is the leading cause of death for both American Indian men and women.⁵ Risk factors for cardiovascular disease include elevated serum cholesterol levels, hypertension, smoking, diabetes, alcohol use and obesity. Welty and Lee et al¹² measured the prevalence of these risk factors among 4,549 members of thirteen tribal groups in three geographical areas and concluded that risk factors are not homogeneous throughout the tribes studied. The risk factors common to each of the three geographical areas were cigarette smoking, obesity and diabetes. Since risk factors vary among tribes, prevention programs should be tailored to decrease the risk factors most prevalent.¹²

Diabetes

Since the early 1960's, diabetes has disproportionately affected Native Americans when compared with other populations.¹³ Currently, American Indians and Alaska Natives (AI/AN) have a three to five fold higher prevalence of NIDDM, develop the disease at a younger age and suffer a higher rate of complications.¹⁴

Risk factors that are strongly associated with diabetes include age, obesity, parental diabetes, and Indian ancestry.¹⁵ Welty and Lee et al¹² also analyzed the

prevalence of diabetes risk factors. Risk factors were prevalent in all tribes studied. An interesting conclusion of this study was that individuals with less than 50% Indian ancestry had much lower diabetes rates than those with at least 50% Indian ancestry.¹⁵

Diabetes is a disease that is characterized by chronic hyperglycemia resulting from abnormalities in the metabolism of carbohydrates, protein and fat.¹⁶ In insulin dependent diabetes, patients exhibit a severe lack of insulin and require exogenous insulin. In non-insulin dependent diabetes mellitus (NIDDM), insulin levels may be depressed, normal or elevated but insulin resistance (decreased tissue sensitivity to insulin) is typically present. In NIDDM patients are not dependent on exogenous insulin but may require it to maintain blood glucose in an optimal range. Ninety percent of all diabetics have non-insulin dependent diabetes.

The complications of diabetes are largely the result of chronic hyperglycemia. Hyperglycemia of long duration brings about structural and functional changes in the blood cells, capillary membranes and platelets.¹⁶ Microvascular complications of diabetes include retinopathy, nephropathy, and neuropathy. Nephropathy leading to end stage renal disease occurred in Indians at almost six times the rate seen among whites (1983-1986).¹⁷ Along with hyperglycemia, lipid abnormalities also occur with diabetes and are responsible for macrovascular changes. Macrovascular complications include hypertension, coronary heart disease, and peripheral vascular disease. Heart disease is the leading cause of death for Indian people.

In 1979, IHS established a Diabetes program to improve diabetic care and the health status of AI/AN.¹⁴ The program provides professional training, educational material, and support for quality improvement activities. The Indian Health Service

Diabetes program developed a minimum standard of care similar to ADA Clinical Practice Recommendations, which include yearly immunizations, labs and foot exams. The goal of standards of care is to improve glycemic control through diet, exercise and drugs.

Alcoholism

Alcohol use is either directly or indirectly responsible for two of the five leading causes of Native American death: accidents and chronic liver disease.⁴ Native Americans suffered an accidental mortality rate 2.12 times higher than the US average. Many of these accidents can be attributed to driving under the influence of alcohol- an estimated 75 % of all accidental deaths within the NA population are alcohol related.⁴ Chronic liver disease and cirrhosis are responsible for three times more deaths among NA than found in the general population.

Indians have the highest frequency of drinking associated problems of any ethnic group.⁵ Binge drinking (having five or more drinks per occasion) and driving under the influence of alcohol are two areas of concern for health providers in this population. Alcohol related deaths occur at more than five times the rate for the US population. Welty and Lee et al¹² noted that binge drinking is common in every tribe surveyed.

IHS also established an Alcoholism and Substance Abuse program whose mission is to eliminate the disease of alcoholism and other drug dependencies.⁷ This program supports individual communities in their effort to provide treatment, rehabilitation and prevention programs.

CHAPTER IV

AVAILABILITY OF SERVICES

Given the high incidence of cardiovascular disease, diabetes, accidental injuries and alcoholism, it is not unusual to find that disability is a major problem among the Native American/Alaska Native population. The 1987 Survey of American Indians and Alaska Natives (SAIAN) indicated that about one third of the adult population eligible to receive services at IHS had at least some limitations in their ability to work, engage in other activities, or perform basic functions, such as walking or eating, because of health problems.¹¹ Persons with disabilities require a wide range of services including rehabilitation and therapeutic services. Primary care should be coordinated with ongoing treatment of the disabling condition.¹¹

Although IHS has programs directed at the prevention of disabling conditions, few programs are available that provide rehabilitation and other similar types of specialized services for persons with disabilities.¹⁸ IHS may provide limited rehabilitation services that focus more on the patient's acute care needs.¹⁹

Funding may also play a role in the availability of services provided by IHS. All IHS areas operate on a limited budget and services are often targeted toward prevention and primary care.¹⁹ As a rule, disabling conditions are considered high cost, non-emergent, and low priority conditions that are subject to management constraints.¹⁸

Convenience factors also play a role in availability of IHS sponsored services. Expensive diagnostic and treatment services may be purchased through contractual arrangements with other providers. Private providers are not readily available in areas occupied by Native American people, some of whom live in the most remote and sparsely populated areas of the country.¹¹ Furthermore, a high proportion of this population is poor and would have difficulty arranging transportation to private providers.

Not only do persons living in rural areas have to travel long distance for health care services, but also lack information on other sources of health care – especially specialized rehab and therapeutic services- because of physical and social isolation.¹¹ Although some IHS eligibles with disabilities can access needed services outside of IHS, it is likely that many others are compelled to do without these services, even if needed.

CHAPTER V

SUMMARY AND CONCLUSION

The goal of IHS is to raise the health status of American Indians and Alaska Native people to the highest possible level.⁷ In order to reach this objective, IHS personnel need be knowledgeable regarding the specific challenges to Native American health. Appropriate training and experience, continuing education, and structured treatment programs are crucial to the management of the diseases that affect this population. IHS will need to devise ways to improve continuity of care while, at the same time, minimizing expense. Methods to provide continuing education and training within the IHS system need to be developed.

Contract health through IHS refers to those services that are provided by a private contractor outside the IHS system. Contract health care should be coordinated with primary care providers within the system. In order to accomplish this, communication between providers is imperative. Currently, communication is accomplished through written reports and telephone calls. Closer collaboration of providers could benefit the continuity of patient care.

Continuing education of personnel within IHS regarding follow-up care and home program management could help ensure adequate follow-up of treatment plans prescribed by contract health providers. This communication is especially important in the implementation of home health care programs. The purpose of home programs are to assist patients to attain treatment goals set forth by both the patient and health care

provider. Advantages of home programs are that they give the patient control of their treatment goals and assist the patient to attain these goals without the need to travel to clinical centers.

Interventions to Diabetes

Examples of intervention that would benefit from extensive collaborative follow-up care include those associated with diabetes, specifically lower extremity amputation. Indian groups in the U.S have two to five times the prevalence of diabetes as when compared to the U.S population. Lower extremity amputations (LEA) secondary to diabetes are not uncommon. A National Hospital discharge Survey²⁰ data reported that ~50% of all hospitalizations for LEA occurred among diabetic subjects, >85% of IHS hospitalizations for LEAs occurred among diabetic patients.

The risk factors associated with increased LEAs among AI/AN include age, sex and duration of diabetes.²¹ Incidence rates for the first LEA among diabetic subjects increases with increasing age and subjects between the ages of 15 and 44 had a 158-fold increase in the risk of the first LEA, when compared with non diabetic subjects.²⁰ The risk of amputations is also greater in men with diabetes compared with women with diabetes.

It is likely that AI/AN patients with diabetes would benefit from a pre-prosthetic home program. Generally, patients will be seen by contract health providers for acute care and for prosthetic fitting. At discharge from the acute care settings, communication of the pre-prosthetic home program to local IHS personnel would be beneficial. For example, goals of a pre-prosthetic home program for a lower extremity amputation include maintaining functional strength and ROM in all extremities, promoting healing of

the incision, and to regaining independence in mobility and self care. A basic pre-prosthetic home program for a lower extremity amputation is provided in the appendices as an illustration of materials that would enhance communication for the patient's benefit.

The use of a pre-prosthetic home program and consultative services by trained professionals at IHS could circumvent issues such as limited rehabilitation facilities and travel time by the patient. Instead of traveling long distances to a private provider for follow up and monitoring of a home program, the patient would be supervised by local IHS personnel. Also, if a patient is supervised locally, the expense to contract health services could be minimized to some extent.

This is just one example of how collaboration between health providers may be enhanced and effectiveness of service provision for the AI/AN population increased. Collaboration could also be effective in other challenges to Native American health such as cardiovascular disease and the need for cardiac rehabilitation. It would be recommended that increased collaborative effort in treating challenges through: a) provision of health care providers in close proximity to NA population and b) frequent and consistent communication between contract health providers and, local, primary providers.

In IHS, there is a general lack of rehabilitative services and the need for personnel to provide these services.¹⁸ The cost that IHS would incur in hiring personnel to provide rehabilitative services could be saved in travel costs, contract health costs and loss of work hours for patients. It could also increase the quality of service provided to patients and provide a more holistic approach to patient care. General health and well-being would be increased and therefore general health costs decreased.

Areas that could be developed include physical therapy (PT), occupational therapy (OT), and speech therapy. PT would benefit Native American patients in many ways, including teaching preventative techniques, maximizing rehabilitation outcomes and function, and providing patient education. Preventative services could reduce the challenges to Native American Health by decreasing risk factors like obesity, which is a major factor contributing to the identified challenges facing the Native American population. PT is effective in the treatment of many physical conditions such as diabetes and cardiovascular disease. Physical therapists also provide in-patient duties that include mobility training, general strengthening, wound care, and post-op care following orthopedic surgery. These services assist patients to regain function and independence in executing daily activities. This would result in shorter absences from employment and reduced costs of medical supervision during the rehabilitation period. These services could assist IHS in many ways to reach their goal of raising the health status of AI/AN to the highest possible level.

TABLES

Table 1. Indian Health Service Structure

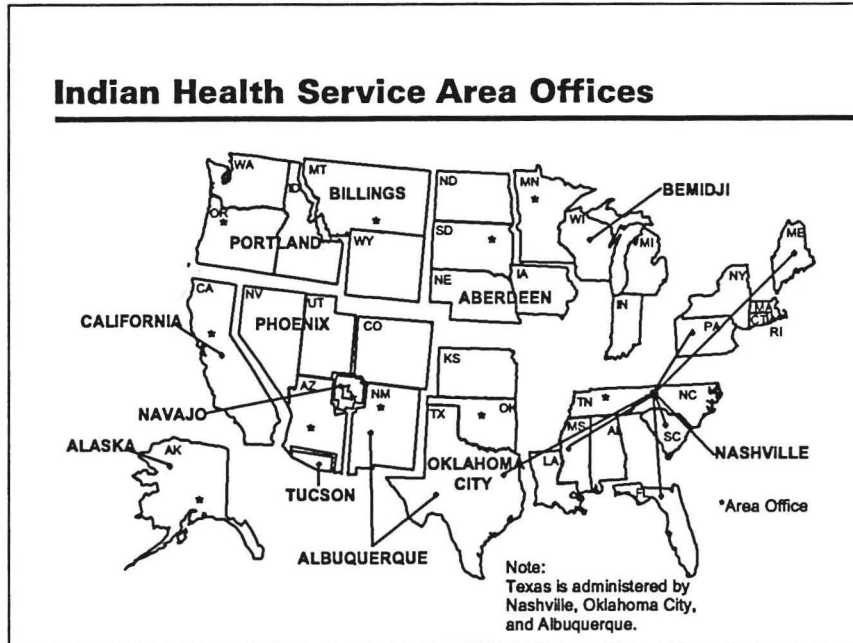


Table 2. Number of Service units and Facilities

Number of Service Units and Facilities

Operated by IHS and Tribes, October 1, 1996

Type of facility	Total	IHS	Tribal		
			Total	I	III
Service Units	150	66	84		
Hospitals	49	37	12	3	9
Ambulatory Facilities	492	113	379	168	211
Health Centers	195	61	134	90	44
School Health Centers	8	4	4	2	2
Health Stations	121	48	73	60	13
Alaska Village Clinics	168	—	168	16	152

I - operated under Title I, P.L. 93-638 Self-Determination Contracts
III - operated under Title III, P.L. 93-638 Self-Governance Compacts

Table 3. Leading Causes of death in All Indian Health Service areas

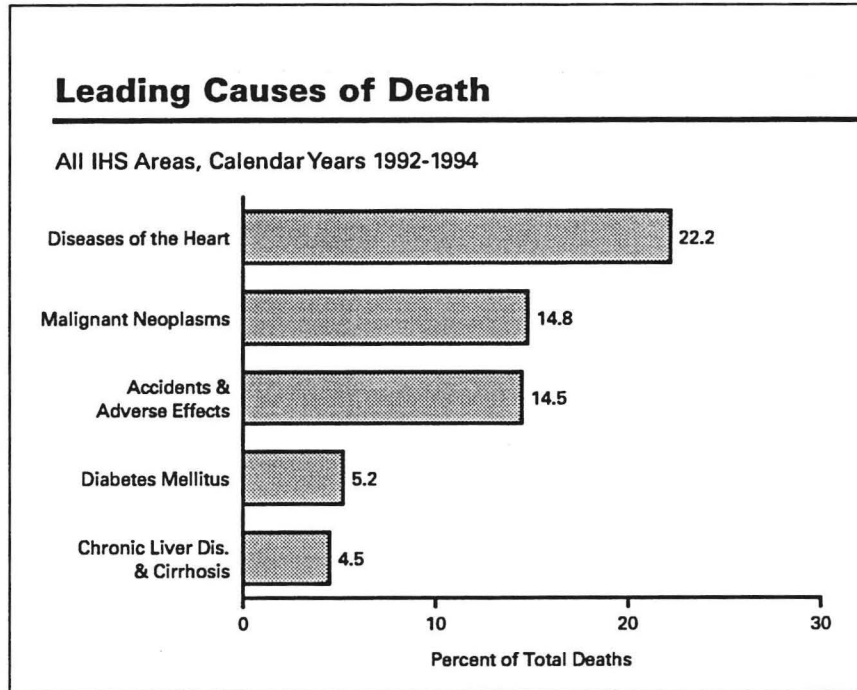
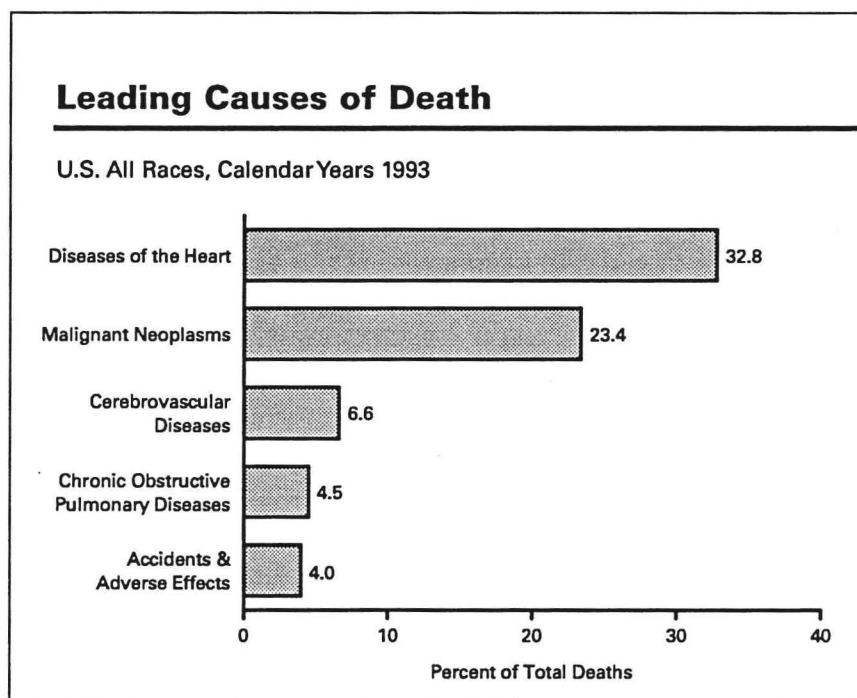


Table 4. Leading Causes of Death: US all races.



APPENDIX A

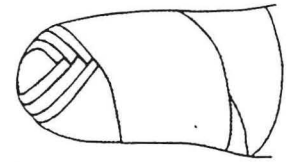
Goals of the pre-prosthetic treatment program

1. help the individual to regain or maintain functional strength and range of motion in all extremities.
2. promote healing of the incision and shrinkage of the residual limb
3. help the individual to regain independence in mobility and self care
4. help the individual to adjust physically and mentally to the loss of a limb
5. maintain the viability of the uninvolved lower extremity

Ace Wrapping

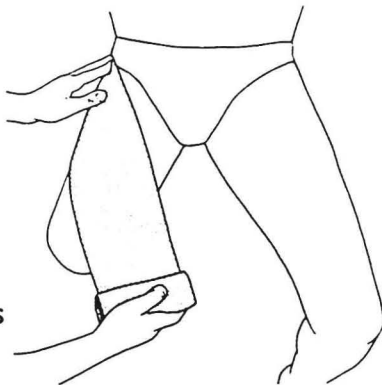
Transfemoral Amputee

- Ace wrapping should always be initially instructed by a trained health care professional, because inappropriate application can be harmful.
- Always use a clean wrap with good elastic quality.
- Wrapping should always be completed in a diagonal pattern with no wraps directly horizontal all the way around the limb and without excessive wrinkles.
- The wrap should be anchored to itself with tape. Avoid using clips or taping to the skin.



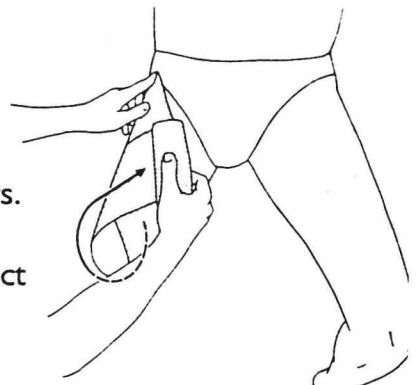
1

Anchor end of 6" ace outside of hip with one hand and hold roll in the other hand. Initiate wrapping diagonally down across to bottom inside corner.



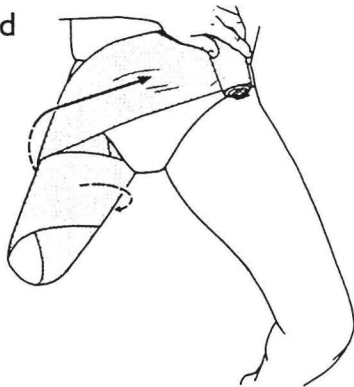
2

Wrap around back bottom end to encompass both bottom corners. Advance diagonally up across front aspect toward groin.



3

Continue wrapping around the top back thigh, outside of hip and initiate first "hip spika" by advancing across the abdomen.



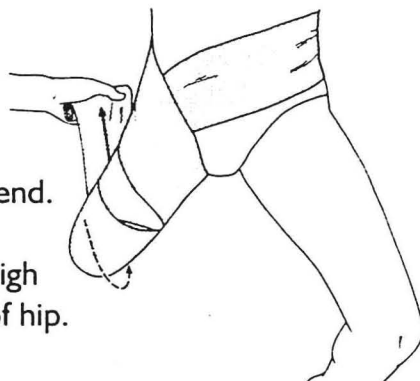
4

Wrap around the trunk one time and then angle down around as high as possible through the groin region.



5

Progress around back thigh and then down across front aspect to close the bottom end. Continue wrapping diagonally up back thigh toward the outside of hip.



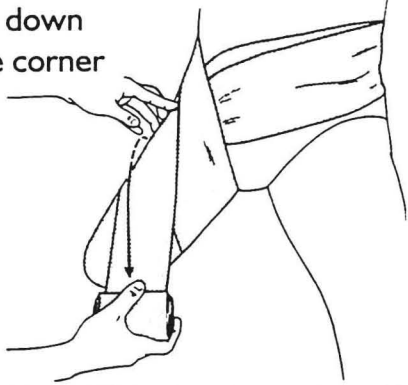
6

Complete second "hip spika" by wrapping across the abdomen and around the trunk. 6" ace will usually end over residual limb hip or thigh. Anchor with tape.



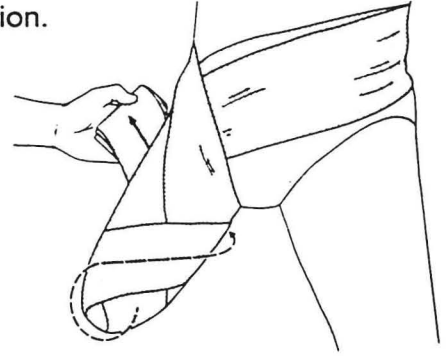
7

Start 4" ace wrap by anchoring with one hand in the same start position and progress roll diagonally down across to bottom inside corner with opposite hand.



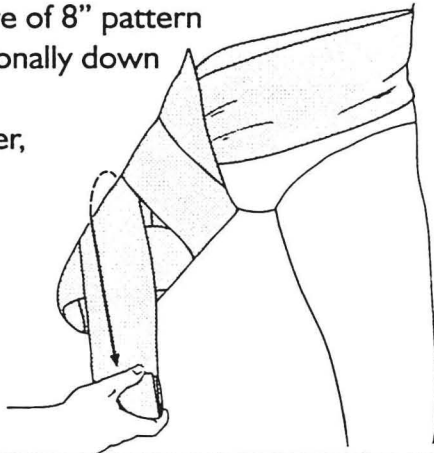
8

Wrap a snug, close turn around the bottom end. Continue diagonally up across the front thigh and around the back top aspect to anchor start position.



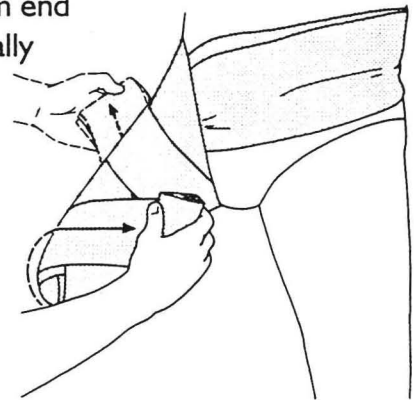
9

Continue this "figure of 8" pattern by progressing diagonally down across toward the inside bottom corner, slightly wider than the first time.



10

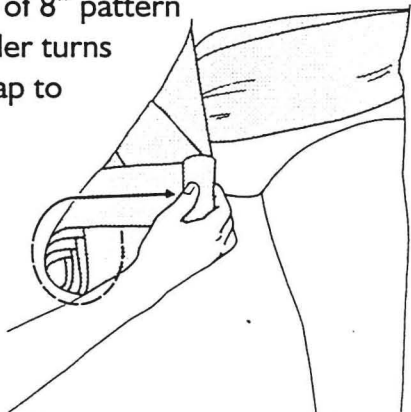
Complete the slightly wider wrap around the bottom end continuing diagonally up across the front thigh and back to the start position.



11

Continue the "figure of 8" pattern with successively wider turns and mildly looser wrap to create a decreasing gradient pressure up the residual limb.

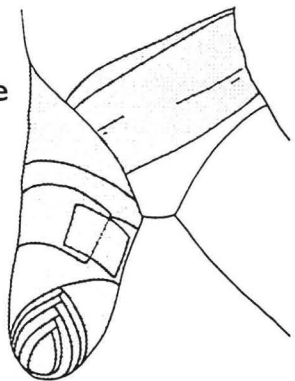
Wrap should be more snug at the bottom and looser at the top.



12

Adjust pressure on the end of the ace wrap to terminate over a non-weight bearing surface and anchor with tape. You should see a herring bone pattern progressing up the front thigh.

Leave no open skin areas.

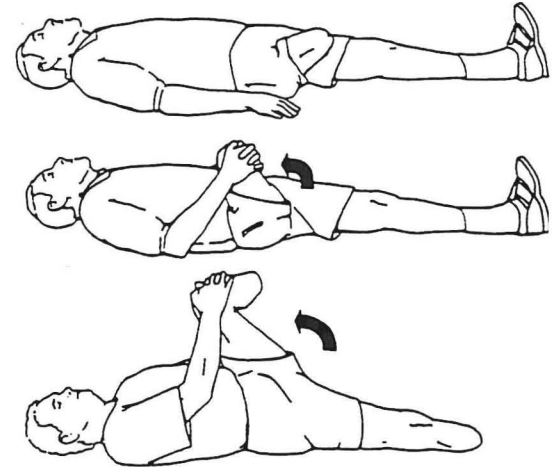


- On average, 2 six inch and 1 four inch bandages are needed. For a longer or larger limb, 2 four inch bandages may be necessary.
- It is often easier to use a double length ace wrap or tape ends of the 6" bandage together ahead of time. However, be careful the seam is not over high pressure areas when wrapping.
- It is important to wrap outside to inside as ace wrapping for the transfemoral amputation is to assist positioning as well as compression.

1. Hip Extensor Stretch

- a. Lie comfortably on your back with both legs straight.
- b. Bend your hip so that your residual limb moves toward your chest.
- c. You should feel this stretch on the back of your thigh and buttocks.

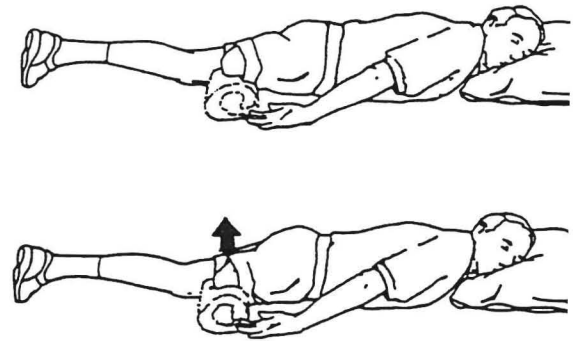
_____ Hold	_____ Reps
_____ Rest	_____ Sets



2. Hip Flexor Stretch

- a. Lie comfortably on your stomach with both legs straight.
- b. Place a towel roll under your residual limb. The height of the towel roll should cause a slight stretch to the front of your thigh and hip. (If you are a below-knee amputee place the towel roll support just above your knee. **Do not** put pressure on your knee cap.)
- c. You should feel this stretch on the front of your thigh and hip.

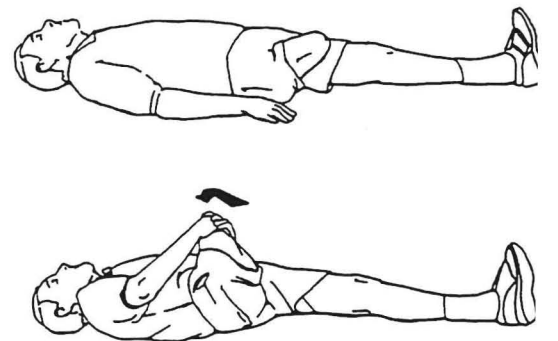
_____ Hold	_____ Reps
_____ Rest	_____ Sets



3. Hip Abductor/External Rotator Stretch

- a. Lie comfortably on your back with both legs straight.
- b. Bend your hip so that your residual limb or bent knee moves toward your opposite shoulder.
- c. You should feel this stretch on the outside of your thigh and buttocks.

_____ Hold	_____ Reps
_____ Rest	_____ Sets



4. Hip Adductor Stretch

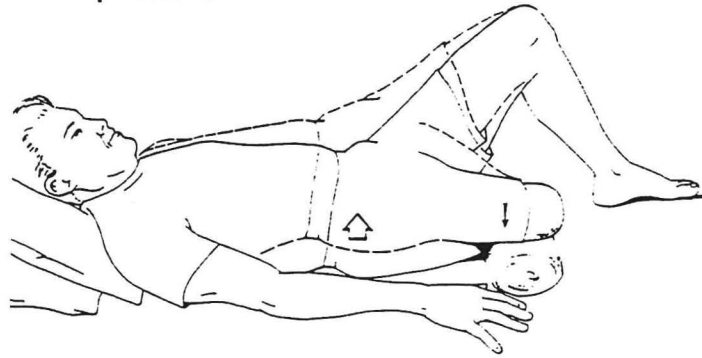
- a. Sit on a firm surface with your legs straight.
- b. Keeping one leg still, spread your legs apart as far as possible using one hand to assist in the movement of your leg and the other to help maintain your balance.
- c. You should feel this stretch on the inside of your thigh.



_____ Hold	_____ Reps
_____ Rest	_____ Sets

Basic Program for Transfemoral amputation

Hip extension

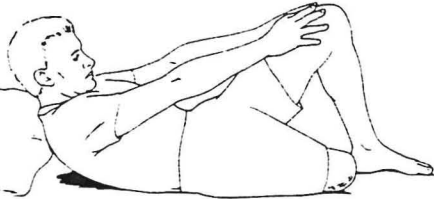


Push down into towel roll while lifting buttocks.
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

Abdominal crunch

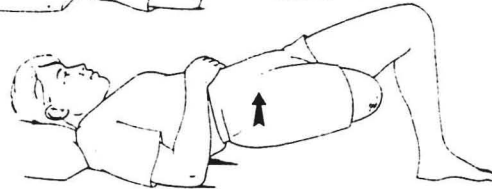
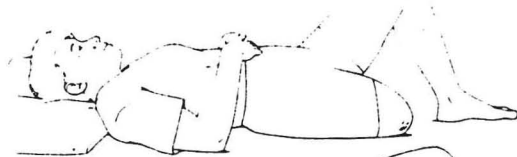


Tighten stomach muscles to tilt pelvis and flatten back.
Raise head and shoulders, and slide fingers up thigh toward knee.
Breath normally



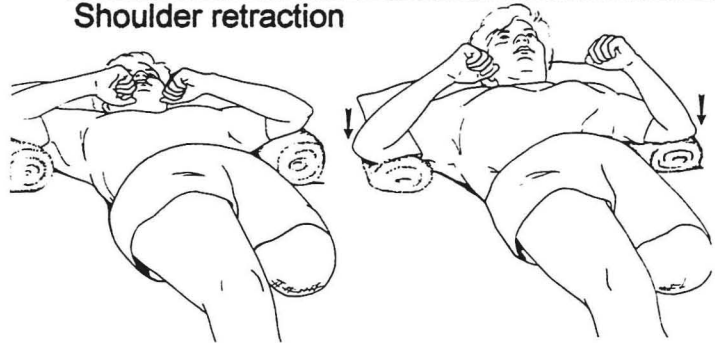
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

Bridging



With sound knee bent and foot flat, tighten buttock muscles while lifting hips.
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

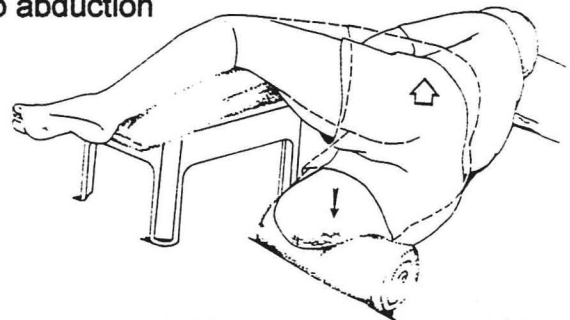
Shoulder retraction



With arms out to sides, elbows on towel rolls, push down into towel rolls while tightening back muscles

Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

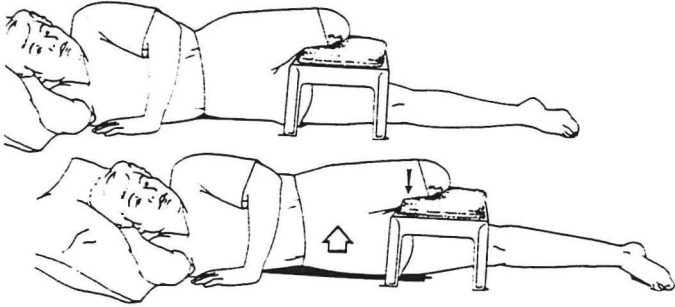
Hip abduction



Lie on residual limb side with towel roll under thigh and sound limb supported on a stool.
Push down into towel roll while attempting to lift hips. Attempt to keep residual limb in straight line with body.
Hold ____ seconds. Repeat ____ times
Do ____ sessions per day.

Basic Program for Transfemoral amputation

Hip adduction



With residual limb on a stool, and hip as straight as possible, squeeze down into stool while attempting to lift hips.

Hold ____ seconds. Repeat ____ times.

Do ____ sessions per day.

Gluteal Sets

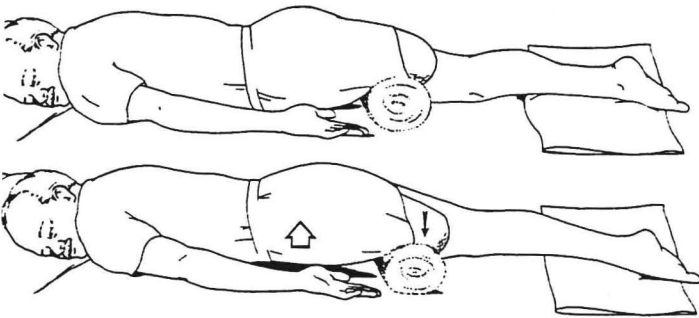


Squeeze towel roll between thighs
And tighten buttock muscles.

Hold ____ seconds. Repeat ____ times.

Do ____ sessions per day.

Hip flexion



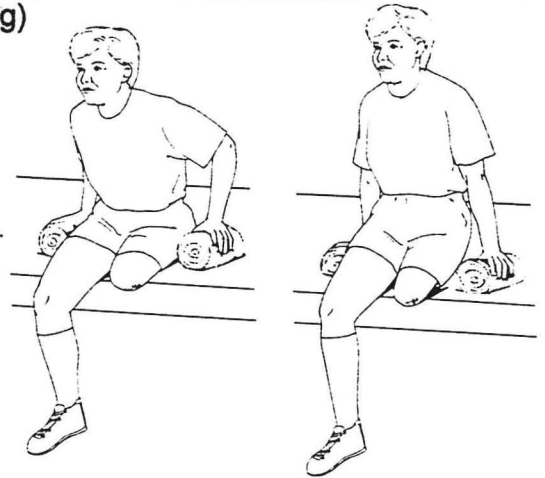
With towel roll under shin of residual limb,
Push down into towel roll while lifting hips.

Hold ____ seconds. Repeat ____ times.

Do ____ sessions per day.

Push up (Sitting)

With a 4-6' book
or towel roll
under each hand
press down
while lifting body
Use foot to help
with balance.



Hold ____ seconds. Repeat ____ times.

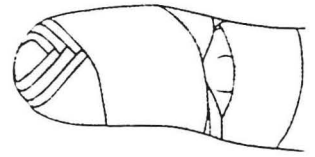
Do ____ sessions per day.

APPENDIX B

ACE WRAPPING

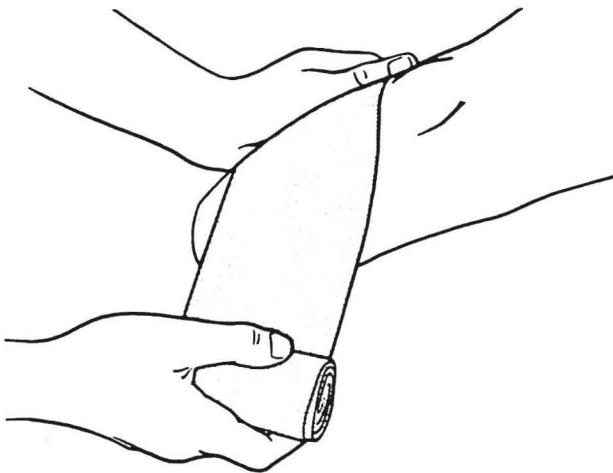
Transtibial Amputee

- Ace wrapping should always be initially instructed by a trained health care professional, because inappropriate application can be harmful.
- Always use a clean wrap with good elastic quality.
- Wrapping should always be completed in a diagonal pattern with no wraps directly horizontal all the way around the limb and without excessive wrinkles or open areas below the knee.
- The wrap should be anchored to itself with tape. Avoid using clips or taping to the skin.



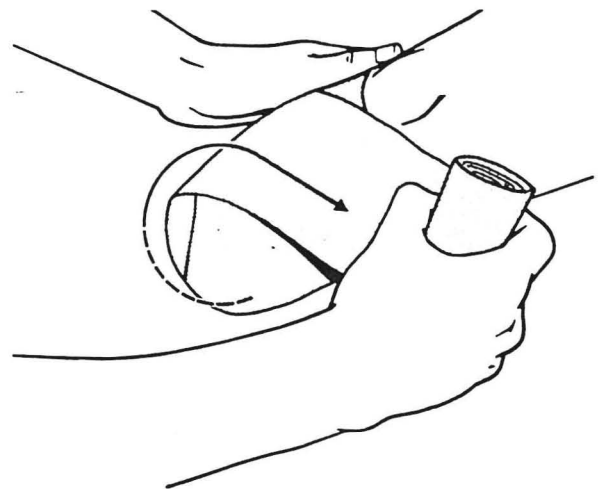
1

Anchor end of ace with one hand and hold roll in the other. Initiate wrapping diagonally down across residual limb.



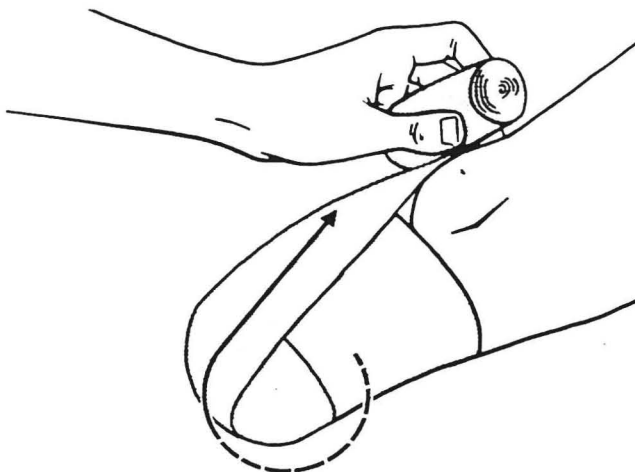
2

Wrap around back bottom end to encompass both corners and advance diagonally up across front aspect



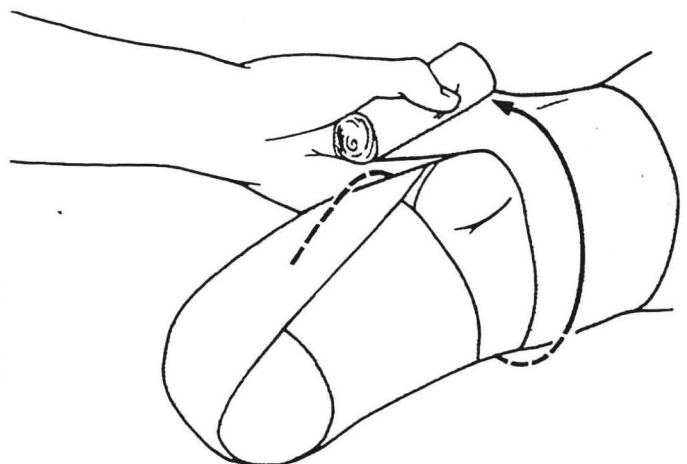
3

Turn wrap down the back aspect to enclose central bottom end and continue wrapping up across the front aspect to anchor the start position.



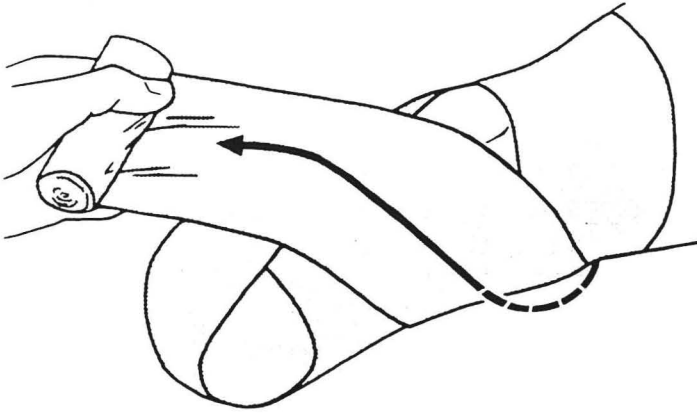
4

Wrap diagonally around the back of the knee and continue up around the thigh above the patella.

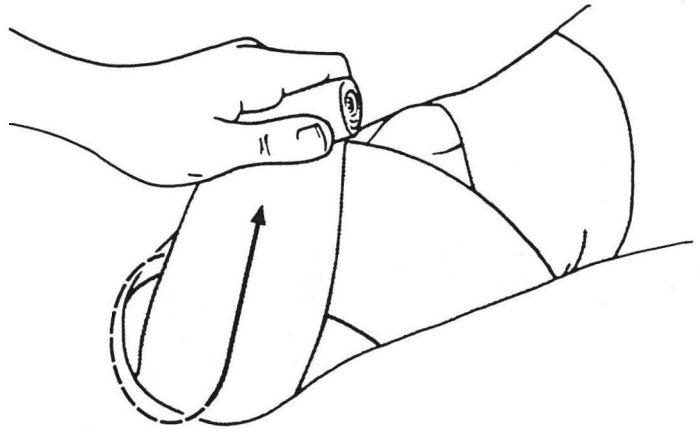


ACE WRAPPING Transtibial Amputee (cont'd)**5**

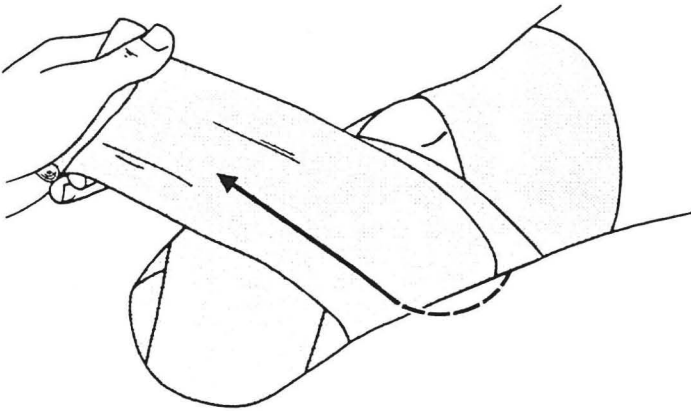
Continue wrapping diagonally down around the back knee and then down across the front of the residual limb.

**6**

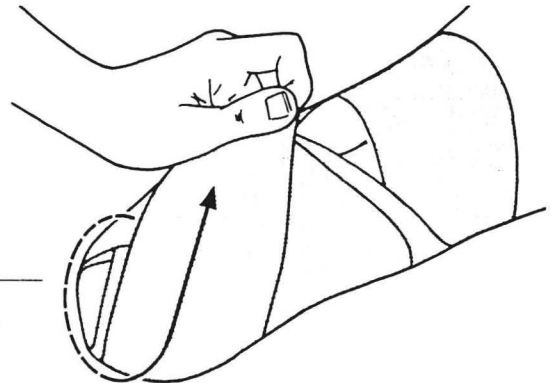
Progress wrapping snugly and in a close turn around the bottom end to initiate "figure of 8" wrapping.

**7**

To complete a "figure of 8", wrap around the top back limb and down across the front aspect toward the bottom corner.

**8**

Wrap around the bottom end with a turn slightly wider than in step six and progress up and across the front of the limb to the start of the "figure of 8" pattern. Continue this pattern with successively wider turns and a mildly looser wrap to create a decreasing gradient pressure up the limb to end of roll. Wrap should be more snug at the bottom and looser at the top. Secure with tape.



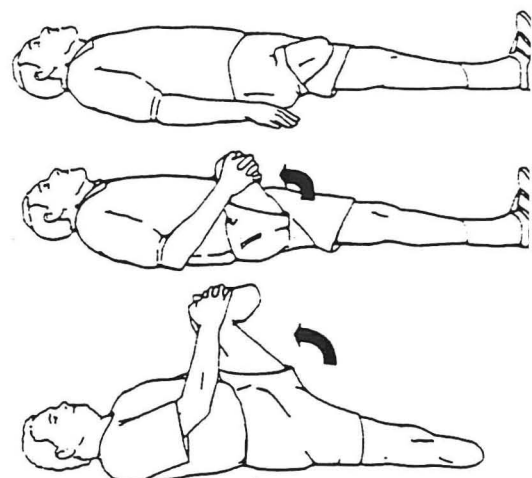
*Leave no open skin areas
except over the kneecap.*

- On average, 2 four inch Ace bandages are needed. For length greater than 7-8", 3 bandages may be necessary.
- It is often easier to use a double length ace wrap or tape ends of the Ace bandage together ahead of time. However, be careful the seam is not over high pressure areas when wrapping.

1. Hip Extensor Stretch

- Lie comfortably on your back with both legs straight.
- Bend your hip so that your residual limb moves toward your chest.
- You should feel this stretch on the back of your thigh and buttocks.

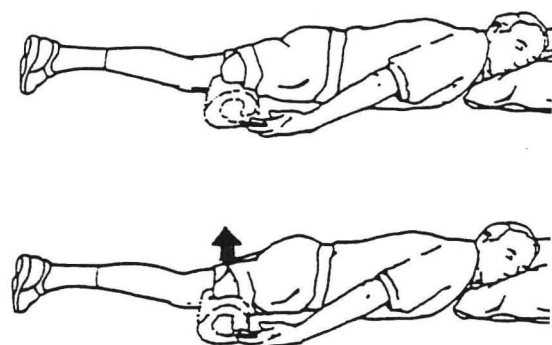
_____ Hold	_____ Reps
_____ Rest	_____ Sets



2. Hip Flexor Stretch

- Lie comfortably on your stomach with both legs straight.
- Place a towel roll under your residual limb. The height of the towel roll should cause a slight stretch to the front of your thigh and hip. (If you are a below-knee amputee place the towel roll support just above your knee. **Do not** put pressure on your knee cap.)
- You should feel this stretch on the front of your thigh and hip.

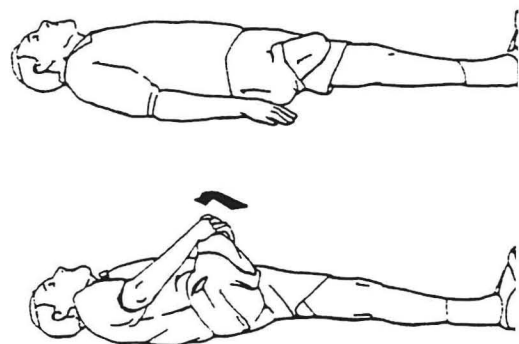
_____ Hold	_____ Reps
_____ Rest	_____ Sets



3. Hip Abductor/External Rotator Stretch

- Lie comfortably on your back with both legs straight.
- Bend your hip so that your residual limb or bent knee moves toward your opposite shoulder.
- You should feel this stretch on the outside of your thigh and buttocks.

_____ Hold	_____ Reps
_____ Rest	_____ Sets



4. Hip Adductor Stretch

- a. Sit on a firm surface with your legs straight.
- b. Keeping one leg still, spread your legs apart as far as possible using one hand to assist in the movement of your leg and the other to help maintain your balance.
- c. You should feel this stretch on the inside of your thigh.



_____ Hold	_____ Reps
_____ Rest	_____ Sets

5. Knee Extensor Stretch

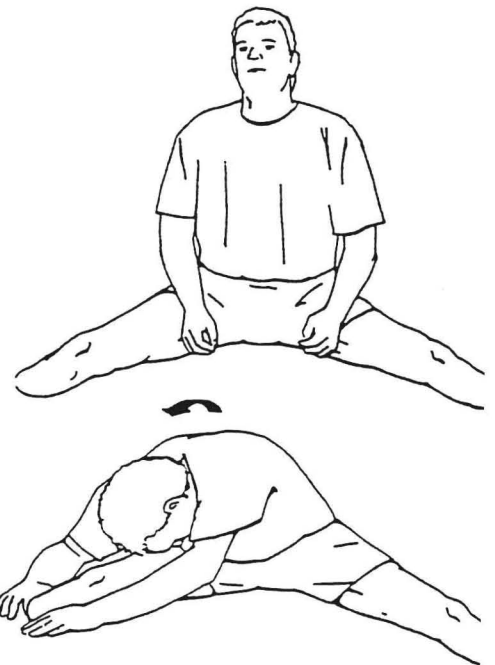
- a. Lie comfortably on your back with both legs straight.
- b. Bend your hip, bringing your knee toward your chest. Grasp your leg below the knee and bend your knee as far as your range of motion will allow.
- c. You should feel this stretch on the front of your thigh.



_____ Hold	_____ Reps
_____ Rest	_____ Sets

6. Knee Flexor Stretch

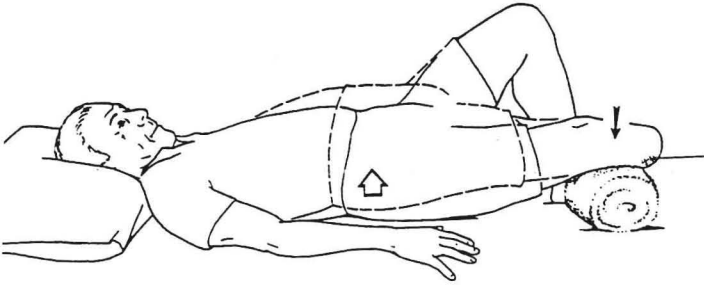
- a. Sit on a firm surface, with your legs apart, and knees straight.
- b. Keeping your back straight, bring your chest toward your thigh as you reach forward with your arms.
- c. You should feel this stretch on the back of your thigh.



_____ Hold	_____ Reps
_____ Rest	_____ Sets

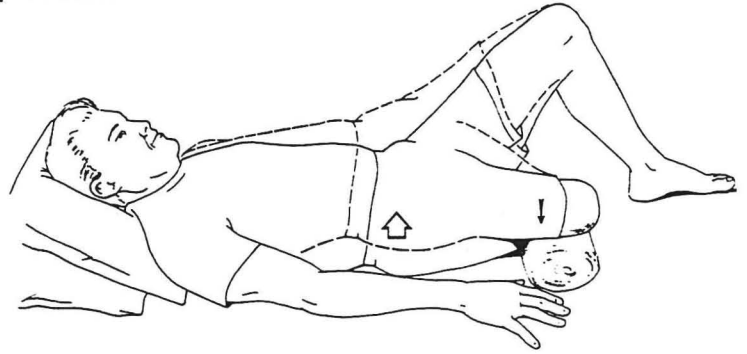
Basic Program for Transtibial amputation

Quad set/Hip extension



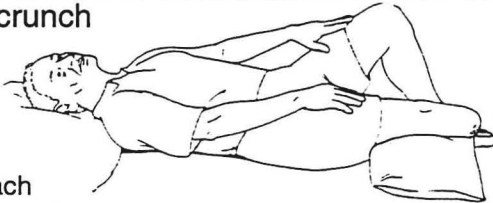
With towel roll under calf of residual limb, tighten thigh muscle to straighten knee. Push down into towel roll to lift buttocks. Hold ____ seconds. Repeat ____ times. Do ____ sessions per day.

Hip extension

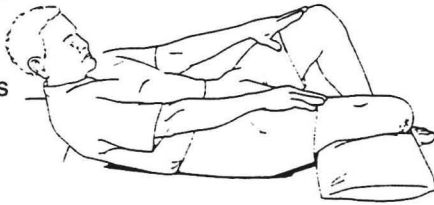


Push down into towel roll while lifting buttocks. Hold ____ seconds. Repeat ____ times. Do ____ sessions per day.

Abdominal crunch

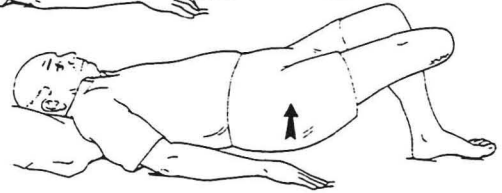
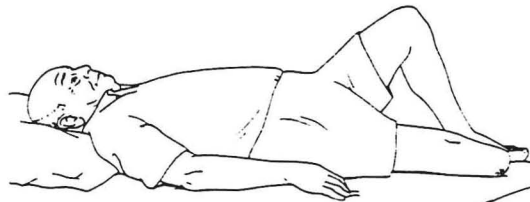


Tighten stomach muscles to tilt pelvis and flatten back. Raise head and shoulders, and slide fingers up thigh toward knee. Breathe normally



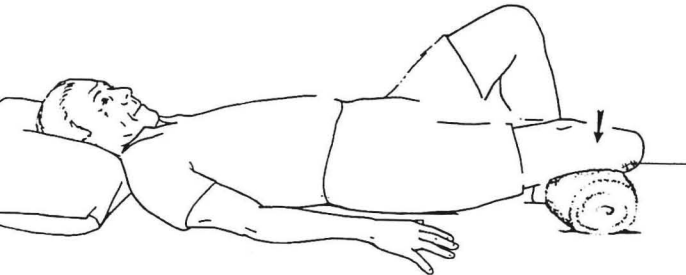
Hold ____ seconds. Repeat ____ times. Do ____ sessions per day.

Bridging



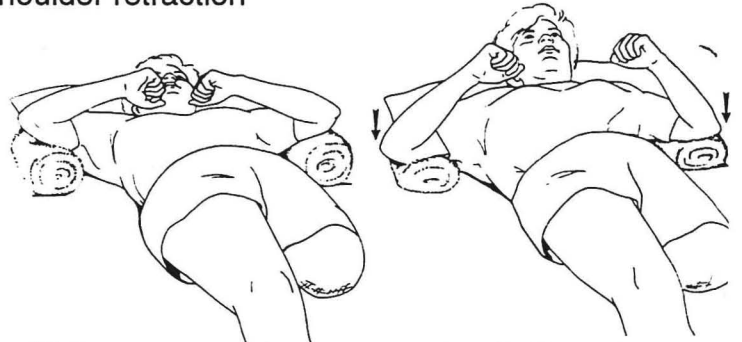
With sound knee bent and foot flat, tighten buttock muscles while lifting hips. Hold ____ seconds. Repeat ____ times. Do ____ sessions per day.

Knee flexion



With towel roll under residual limb, push down into towel roll to bend knee. Hold ____ seconds. Repeat ____ times. Do ____ sessions per day

Shoulder retraction

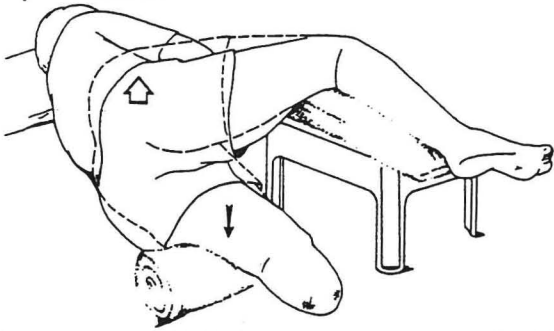


With arms out to sides, elbows on towel rolls, push down into towel rolls while tightening back muscles.

Hold ____ seconds. Repeat ____ times. Do ____ sessions per day.

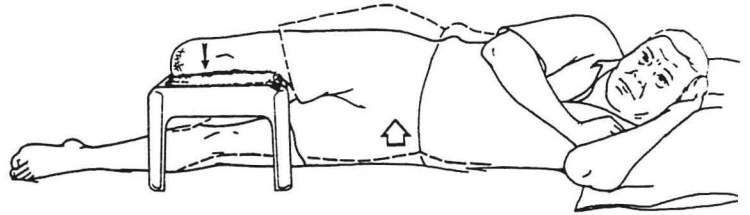
Basic Program for Transtibial amputation

Hip abduction



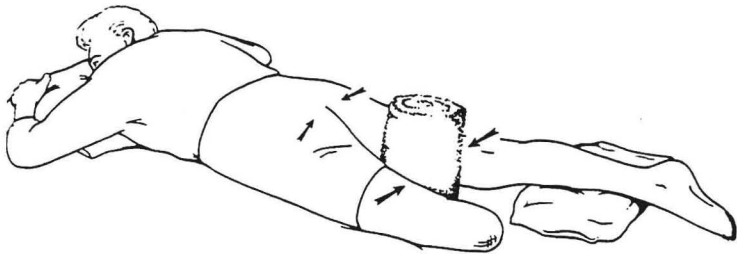
Lie on residual limb side with towel roll under thigh and sound limb supported on a stool.
Push down into towel roll while attempting to lift hips.
Attempt to keep residual limb in straight line with body.
Hold ____ seconds. Repeat ____ times
Do ____ sessions per day.

Hip adduction



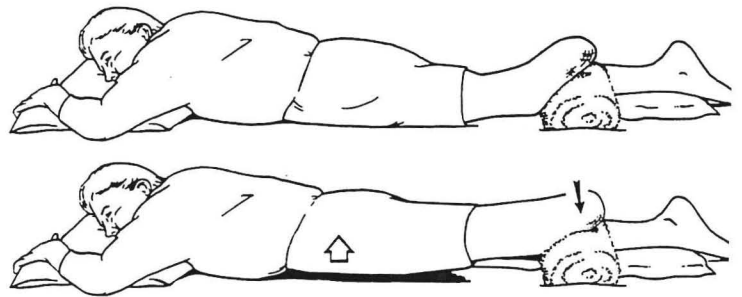
With residual limb on a stool, and hip as straight as possible
Squeeze down into stool while attempting to lift hips.
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

Gluteal Sets



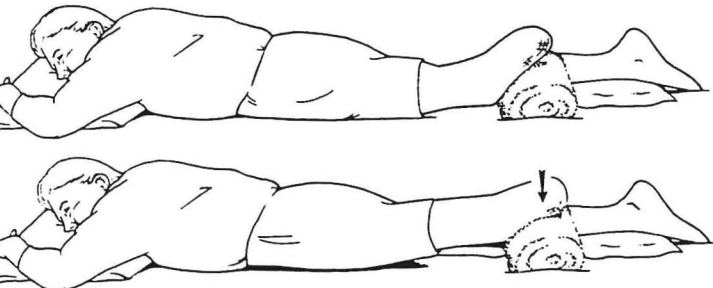
Squeeze towel roll between thighs
And tighten buttock muscles.
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

Hip flexion/Quad set



With towel roll under shin of residual limb,
Push down into towel roll while lifting hips.
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

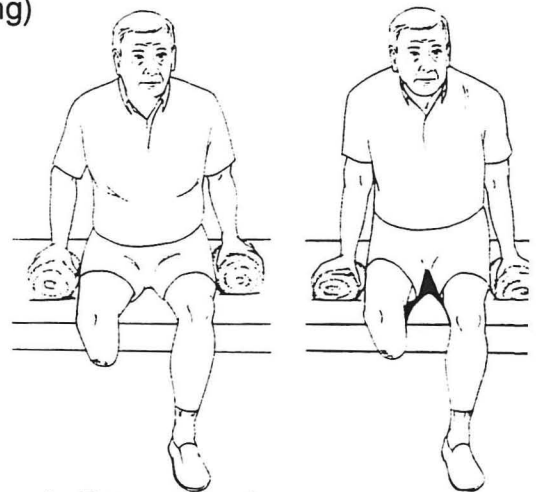
Knee extension



With towel roll under shin of residual limb,
Push down into towel roll to straighten knee.
Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

Push up (Sitting)

With a 4-6' book
or towel roll
under each hand
press down
while lifting body
Use foot to help
with balance.



Hold ____ seconds. Repeat ____ times.
Do ____ sessions per day.

November 11, 1999

From: Suzanne Grant, University of North Dakota

To Whom It May Concern:

I am writing to receive permission to photocopy several selected figures from VHI Lower Extremity Amputee kit. I would like to photocopy the following figures:

Basic program TFA: Cards #1,2,4,5,7,8,9,10,11

Basic program TTA: Cards #1,2,4,5,6,8,9,10,12

Ace wrapping for transtibial amputee: Tip Sheet 3a, 3b

Ace wrapping for transfemoral amputee: Tip Sheet 4a, 4b

This project is done in partial fulfillment of graduation requirements for a master's of Physical Therapy, University of North Dakota. I want to include them in my Physical Therapy independent study paper, "Native American Health." The figures will also be used in an educational pamphlet that will be distributed to health care professionals in the State of North Dakota. This is not for publication or resale.

I appreciate your timely response to my request for information on permission to copy. Thank you for helping to meet my requirements.

Sincerely,

Suzanne Grant
Suzanne Grant

I give my permission to copy the above figures for use as specified.

Nancy Swift Date 11.22.99
Signature

Fax # (701) 777-4199

November 11, 1999

From: Suzanne Grant, University of North Dakota

Dear Mr. Gailey:

I am writing to receive permission to photocopy several selected figures from Home Exercise Guide for lower extremity amputees, 1994. I would like to photocopy the following figures:

Pg.3 Hip extensor stretch, Hip flexor stretch, Hip abductor/External rotator stretch

Pg. 4 Hip adductor stretch, Knee extensor stretch, Knee flexor stretch

This project is done in partial fulfillment of graduation requirements for a master's of Physical Therapy, University of North Dakota. I want to include them in my Physical Therapy independent study paper, "Native American Health." The figures will also be used in an educational pamphlet that will be distributed to health care professionals in the State of North Dakota. This is not for publication or resale.

I appreciate your timely response to my request for information on permission to copy. Thank you for helping to meet my requirements.

Sincerely,

Suzanne Grant
Suzanne Grant

I, Robert Gailey, give my permission to copy the above figures for use as specified.

RS G
Signature

Date

11/24/99

Fax # (701) 777-4199

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