

 <p style="text-align: center;">DIVISION OF ADULT INSTITUTIONS</p> <p style="text-align: center;">POLICY AND PROCEDURES</p>	DAI Policy #: 500.31.08	Page 1 of 6
	Original Effective Date: 05/06/13	New Effective Date: 05/06/13
	Supersedes: N/A	Dated: N/A
	Administrator's Approval: Jim Schwochert, Administrator	
	Last Reviewed, No Changes: 11/22/16	
Required Posting or Restricted:		
<input checked="" type="checkbox"/> Inmate <input checked="" type="checkbox"/> All Staff <input type="checkbox"/> Restricted		
Chapter: 500 Health Services		
Subject: Exercise During Hemodialysis		

POLICY

The Division of Adult Institutions shall promote exercise while on dialysis which has been shown to improve blood circulation in the lower extremities thus enhancing the dialysis treatment. This increased circulation may improve dialysis adequacy.

REFERENCES

A Guide for the Nephrologist, UVA SitFit Exercise Program, University of Virginia Health System. Medical Education Institute, Inc. 1995
Sit Fit Exercise Program, UVA Renal Services, Medical Educational Institute, Inc. 1995
Exercise During Dialysis Enhances Results and Overall Physical Performance, Science Daily, May 15, 2006

DEFINITIONS, ACRONYMS AND FORMS

Advanced Care Practitioner (ACP) – Practitioner with prescriptive authority.

BP – Blood pressure

DOC – Department of Corrections

DOC-3679 – Hemodialysis Exercise Flow Sheet Pedal Cycle

MD – Medical Doctor

RN – Registered Nurse

SOB – Shortness of breath

TX – Treatment

UVA – University of Virginia

PROCEDURE:**I. General Guidelines**

- A. Exercise training has been shown to:
 1. Improve lipid profiles.
 2. Improve blood pressures.
 3. Stabilize blood sugars.

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4. Improve sleep.
 5. Prevent hospitalizations.
 6. Improve physical strength and endurance.
 7. Prevent falls by aiding in strengthening ambulation.
 8. Decrease the risk for heart complications.
 9. Improve the inmate patient's sense of well-being.
- B. The safety and effectiveness of the exercise program will depend on the current clinical status of the inmate patient.
- C. Inmate patients who could benefit from exercise at dialysis include those:
1. With no musculoskeletal impairments.
 2. Who sustain stable dialysis treatments.
 3. Who have vital signs and blood glucose levels within guidelines for exercise.
 4. With no concurrent medical conditions that may contraindicate exercise.
 5. Who want to exercise.
 6. With stable cardiac profiles.

II. Nephrology Provider Responsibilities

- A. Suggest a program for exercise at dialysis for those inmate patients who are maintained on dialysis with few, if any, medical concerns other than End Stage Renal Disease.
- B. The risks of exercise shall be provided to the inmate patient.
- C. Write an order to participate in dialysis exercise program. Inmate patients new to Hemodialysis shall wait one month prior to starting the exercise program to allow for physical and psychological changes which can occur.
- D. Recommended intensity of exercise for dialysis inmate patients is very low, typically less than the intensity for activities of daily living.
- E. For low level function inmate patients, exercise duration shall be 5-30 minutes. For higher level function inmate patients, exercise duration shall be 30-60 minutes.
1. Exercise is routinely done within the first hour of dialysis treatment in order to prevent exercise induced hypotension. Exercise later in treatment is acceptable if inmate patient is hemodynamically stable and vital signs are within acceptable range.
 2. Add one minute each week for a goal of 30 minutes per treatment.
 3. Begin with warm up stretches.
 4. Inmate patient to start with easy warm cycling for up to 5-7 minutes.
 5. Proceed with low-moderate intensity cycling.
 6. Easy cool-down cycling for several minutes.
 7. When goal of 30 minutes is reached, exercise intensity should vary during exercise period.

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- F. Contact MD and obtain specific order to exercise more than 30 minutes but less than 60 minutes.
- G. Identify inmate patients with complex medical needs for consideration of a referral to physical therapy or other rehabilitation program prior to initiating any exercise program. These include inmate patients:
1. With functional limitations.
 2. With compromising cardiac profiles.
 3. Who are hemodynamically unstable on dialysis.
 4. With severe bone disease.
 5. With a poorly functioning catheter.

III. RN Responsibilities

- A. The RN shall assess the inmate patient each treatment day for the following contraindications before initiating exercise during dialysis:

Contraindications	Nursing Action
Pre exercise hypotension of systolic BP less than 100 mmHg and symptomatic or diastolic less than 70 mmHg and symptomatic	<ul style="list-style-type: none"> ▪ Evaluate reason for Hypotension (i.e., dry weight, medications, dehydration). ▪ Defer exercise on that day. If habitually low, refer to provider for lower end limit for exercise initiation.
Consistent high pre-dialysis potassium levels (> 5.5mg/dL):	<ul style="list-style-type: none"> ▪ Defer exercise until potassium levels are stable.
Pre- exercise Hypertension of Systolic 200/100 mmHg or greater:	<ul style="list-style-type: none"> ▪ Reassess BP. If BP decreases to within parameters exercise may be initiated later in the treatment.
Tachycardia (= \geq 100 per minute) or other arrhythmia	<p>If atypical or symptomatic for inmate patient :</p> <ul style="list-style-type: none"> ▪ Defer exercise on that day. ▪ Notify MD. <p>If tachycardia typical for inmate patient:</p> <ul style="list-style-type: none"> ▪ Refer to provider for high end limit for exercise. ▪ Start exercise slowly with longer warm up and decrease intensity. ▪ Recheck heart rate 30 minutes into treatment. ▪ If still elevated, stop exercise.
Access site or needle insertion difficulties	<ul style="list-style-type: none"> ▪ Defer exercise that day or minimize inmate patient access movement.
Inter-dialytic weight gain > 3.5 Kilograms	<p>If habitual:</p> <ul style="list-style-type: none"> ▪ Educate on why exercise is prohibited with excessive fluid gains. ▪ Notify provider to determine if upper IDWG is necessary. ▪ Defer exercise that day. <p>If single occurrence:</p> <ul style="list-style-type: none"> ▪ Educate inmate patient on why exercise is prohibited with excessive fluid gains. ▪ Defer exercise for that day.
New illness that has not been diagnosed or fever > 100° F	<ul style="list-style-type: none"> ▪ Defer exercise until after provider consultation.
Recent inmate patient hospitalization	<ul style="list-style-type: none"> ▪ Notify Provider to obtain new order for

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Contraindications	Nursing Action
	exercise.
Unstable angina	<ul style="list-style-type: none"> ▪ Not a candidate for exercise program.
Nausea/vomiting	<ul style="list-style-type: none"> ▪ Defer exercise that day. ▪ Notify Provider as indicated.
Persistent or extreme shortness of breath	<ul style="list-style-type: none"> ▪ Defer exercise that day. ▪ Notify Provider.
Foot/ankle ulcer	<ul style="list-style-type: none"> ▪ Defer only if exercise will put pressure on the ulcer.
Diabetic: Blood sugar between 90 and 300 if blood sugar < 90 or >300 or if inmate patient symptomatic of hypo or hyperglycemia	<ul style="list-style-type: none"> ▪ Check blood sugar prior to initiating exercise and 15 minutes after exercise. ▪ Check blood sugar as needed with signs or symptoms of hypo or hyperglycemia. ▪ Defer exercise for that day. ▪ If habitual, refer to Provider for other limits if appropriate.
Acute Illness	<ul style="list-style-type: none"> ▪ Defer exercise for that day. ▪ Notify Provider as indicated.
More than one dialysis session has been missed or shortened in one week	<ul style="list-style-type: none"> ▪ Defer exercise for the remainder of the week.
Exercise causes orthopedic pain	<ul style="list-style-type: none"> ▪ Defer exercise for that day. Notify HSU Provider.

- B. After Hemodialysis is initiated, begin the process for exercise.
1. Place inmate patient in upright seated position. Lock dialysis chair wheels into place. Position dialysis chair by the wall.
 2. Position exercise cycle base as close to the front of the dialysis chair as possible.
 3. Place inmate patient feet on pedals and attach ankle straps. Adjust plastic foot strap to accommodate foot size.
 4. Adjust base of cycle to move it closer or farther away from the dialysis chair to allow for appropriate leg extension. Try to extend leg completely with only a slight bend in the knee. Over or under extension of the leg can result in unnecessary knee pain or leg fatigue.
 5. Obtain vital signs prior to exercise, five minutes into exercise, and post exercise. Additional vital signs may be obtained per the discretion of the RN.
- C. At any time during the Hemodialysis treatment various inmate patient situations may arise. The RN shall perform an assessment and utilize best judgment regarding exercise during the treatment.
- D. The RN shall instruct the inmate patient to stop exercise or decrease the intensity at any time there is a concern for safety. Inmate patient non-adherence to the recommendations of the RN can result in the loss of the ability to exercise in dialysis. Sample situations requiring assessment with potential intervention include:
1. If the inmate patient is experiencing dizziness, lightheadedness, nausea, or other adverse events. Stop exercise during the dialysis session.

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- 2. Leg cramps. Decrease the intensity of the exercise. This may alleviate cramping.
 - 3. BP during exercise increasing to >220 mmHg, diastolic blood pressure greater than 115 mmHg, or increase of more than 20mmHg, or a decrease in systolic pressure that does not correspond to fluid removal staff shall stop exercise for that day. Defer to Provider.
- E. At the end of exercise if inmate patient presents with:
- 1. Persistent tachycardia \geq 120: At next exercise session, increase cool down period and decrease intensity of exercise. Refer to Provider if symptoms persist. No further exercise until ACP evaluation.
 - 2. Nausea or vomiting: At next exercise session, decrease intensity of exercise, exercise in the first hour of treatment, increase cool down time. Refer to provider if symptoms persist. No further exercise until ACP evaluation.
 - 3. Persistent chest pain, SOB, arrhythmia, or headache: Refer to provider. No further exercise until ACP evaluation.
- F. At end of exercise session, obtain vital signs and a blood sugar, if indicated.
- G. Document on the DOC-3679 – Hemodialysis Exercise Flow Sheet Pedal Cycle.

Bureau of Health Services: _____ **Date Signed:** _____
James Greer, Director

_____ **Date Signed:** _____
Ryan Holzmacher, MD, Medical Director

_____ **Date Signed:** _____
Mary Muse, Nursing Director

Administrator's Approval: _____ **Date Signed:** _____
Jim Schwochert, Administrator

DIVISION OF ADULT INSTITUTIONS FACILITY IMPLEMENTATION PROCEDURES

Facility: Name		
Original Effective Date:	DAI Policy Number: 500.31.08	Page 6 of 6
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Will Implement <input type="checkbox"/> As written <input type="checkbox"/> With below procedures for facility implementation		
Warden's/Center Superintendent's Approval:		

REFERENCES

DEFINITIONS, ACRONYMS, AND FORMS

FACILITY PROCEDURE

- I.
 - A.
 - B.
 - 1.
 - 2.
 - a.
 - b.
 - c.
 - 3.
 - C.

II.

III.

RESPONSIBILITY

I. Staff

II. Inmate

III. Other