**DIABETES MANAGEMENT EVALUATION**

**CRITERIA:**

1. HgA1c > 7.0%
2. Pain or functional limitations

**EVALUATION:**

The following tests and measures will be performed and recorded for each patient:

Anthropometric/Vitals:

Body Mass Index

Blood Glucose

Resting BP and HR

Functional Outcome Tools:

Foot Function Index

Barthel Index

Timed Up and Go (TUG)

Observation

Posture

Foot Inspection

Footwear Evaluation

Gait Analysis

Strength:

30 Second Stand Test

MMT/Grip Strength

Neuro-Vascular:

Semmes Weinstein Monofilament

Pedal Pulses

Cardiovascular:

6 Minute Walk Test

Based on the above findings, the physical therapist will develop a plan of care with the patient’s individual needs and goals in mind. The program will include aerobic/cardiovascular training, strength training, patient education, functional training, foot care, and referral to a dietician for diet modifications. The patient may also be referred to an orthotist, podiatrist, or physician for additional services if necessary.

**GOALS**

Patients will be seen 3 times per week for 4 weeks, as well as 1 time per week at week 6 and 10 for follow-up visits. Goals will be assessed on a weekly basis to ensure successful outcomes for each patient. This program will aim to achieve the following goals for each patient:

**Short Term Goals (2 weeks):**

1. Independent management of blood glucose levels in conjunction with exercise program.
2. Improved performance and tolerance of functional activities.
3. Compliance with home exercise program.
4. Independent performance of daily foot inspections.

**Long Term Goals (4 weeks):**

1. Improved BMI and weight loss of approx. 3-5% of baseline weight.
2. Increased aerobic capacity by 20-25% as measured by treadmill/cycle test.
3. Increased gross muscular strength by 20-25% as measured by 30 second stand test.
4. Improved walking tolerance and aerobic capacity to 30 minutes of continuous activity.
5. Independence with home exercise program and dietary management for improved long-term glycemic control and overall health/wellness.

**Follow-up Visits (6 weeks & 10 weeks):**

Follow-up visits will ensure independence with home exercise program and allow opportunity to progress exercises as necessary. In addition, each patient will be provided with resources to help them achieve successful long-term management of diabetes that will fit their individual needs, time constraints, and budget.

**Discharge**

The therapist will follow-up with patient one week following discharge to ensure successful transition to home exercise program. A discharge summary will be sent to the patient’s referring/primary physician and HgA1C will be obtained from physician for outcome evaluation (both pre- and post- measurements).

**DIABETES MANAGEMENT PROGRAM**

**(3x/wk for 4 weeks and 1x/wk at week 6 and 10)**

**WEEK 1**

* Patient will demonstrate independent foot inspection
* Treadmill/cycle warm-up
* LE/UE Stretching
* Cardio - 15 minutes treadmill/cycle at RPE 11-13 OR 50-60% peak HR
* Sit to Stands (to fatigue)
* Wall push-ups (to fatigue)
* Heel Raises/Toe Raises (15-20 reps)
* Hip Rolls/Bridges on mat (~10 reps)

**WEEK 2**

Progress to (as tolerated):

* Cardio – 20 minutes at RPE 11-13 OR 50-60% peak HR
* Patient to demonstrate independent blood glucose management before/during/after exercise

Add (as tolerated):

* Standing Hip Abduction w/ TB (10-15 reps)
* Rows (10-15 reps)
* Mini Lunges (sagittal plane, 10-15 reps)
* Tricep Pushdown (10-15 reps)
* Single Leg Stance (for time)

**WEEK 3**

Progress to (as tolerated):

* Cardio – 25 minutes at RPE 11-13 OR 50-60% peak HR

Add (as tolerated):

* Lat Pulldown (10-15 reps)
* Mini Lunges (frontal plane, 10-15 reps)
* Bicep Curls (10-15 reps)
* Hamstring Curls (10-15 reps)
* Heel to Toe/Tandem Walking

**WEEK 4**

Progress to (as tolerated):

* Cardio – 30 minutes at RPE 11-13 OR 50-60% peak HR

Add (as tolerated):

* Step-ups (15-20 reps)

**WEEK 6 & 10 (FOLLOW-UP VISITS)**

* Review HEP and progress resistance/reps as necessary

**DIABETES MANAGEMENT PROTOCOL**

**CRITERIA:**

1. HgA1c > 7.0%
2. Pain or functional limitations

**EVALUATION:**

Subjective

Functional Outcome Measures – Barthel & TUG & LEFS

|  |  |
| --- | --- |
| **Test** | **Data** |
| Blood Glucose |  |
| Vitals | Resting HR:Resting BP: |
| Body Fat % | \*Type in additional comments under “observation” |
| BMI | Weight:Height: |
| Semmes Weinstein (5.07mm)(positive/negative) | 1st toe (R) - (L) - 3rd toe – (R) - (L) - 5th toe – (R) - (L) – 1st MTP – (R) - (L) – 3rd MTP – (R) - (L) – 5th MTP - (R) - (L) – Medial Arch - Lateral arch - Calcaneus – Dorsum - \*type in blank box under each location under “Semmes Weinstein Lower”  |
| Pulses – (present/absent) | Posterior Tibial - Dorsalis Pedis –  |
| Posture Analysis |  |
| Foot Inspection |  |
| Footwear Inspection |  |
| 30 Second Stand Test | Number of stands completed:\*Type in additional comments under “strength” tests |
| MMT/Grip Strength |  |
| Flexibility |  |
| Gait Analysis |  |
| 6MWT | Use Excel protocol/datasheet; |

* **Refer all patients to** **dietician**.
* **Refer patients to podiatrist** **and/or orthotist if they have loss of protective sensation.** If they have loss of protective sensation and absent pulses OR have a history of skin breakdown they are at high risk for foot ulceration and should be following up with a podiatrist on a regular basis.
* **Refer to physician if they have not had HbA1c tested in the past 6 months** so we know what their glucose control is prior to the program.

**GOALS:**

Short Term Goals (2 weeks):

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4. Independent performance of daily foot inspections.

Long Term Goals (4 weeks):

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4. Improved walking tolerance and aerobic capacity to 30 minutes of continuous activity.
5. Independent with home exercise program for improved long-term glycemic control and overall health/wellness.

**PROGRESS NOTES:**

Do a progress note at the end of week 2 and 4, as well as at week 6 and 10 (follow-up visits). All measurements in the chart above should be reassessed on those weeks.

**DISCHARGE:**

Refer patient to physician for HgA1c check. Be sure to send their discharge summary to their physician. Also refer for other services if necessary and provide resources for personal trainers, massage therapists, etc. Follow-up with the patient one week following discharge.

**Rocky Mountain Physical Therapy**

Diabetes Management Program

Patient Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Diagnosis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Date: |  |  |  |  |  |  |  |  |  |
| Pain Level |  |  |  |  |  |  |  |  |  |
| **Cardio:**Mode & Duration |  |  |  |  |  |  |  |  |  |
| Level/Resistance |  |  |  |  |  |  |  |  |  |
| HR/RPE |  |  |  |  |  |  |  |  |  |
| Signs/Symptoms |  |  |  |  |  |  |  |  |  |
| **Stretching:** |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Strength:** |  |  |  |  |  |  |  |  |  |
| Sit to Stands |  |  |  |  |  |  |  |  |  |
| Wall Push-ups |  |  |  |  |  |  |  |  |  |
| Rows |  |  |  |  |  |  |  |  |  |
| Heel/Toe Raises |  |  |  |  |  |  |  |  |  |
| Bicep Curls |  |  |  |  |  |  |  |  |  |
| Hamstring Curls |  |  |  |  |  |  |  |  |  |
| Bridges |  |  |  |  |  |  |  |  |  |
| Squats |  |  |  |  |  |  |  |  |  |
| Shoulder Press |  |  |  |  |  |  |  |  |  |
| Standing Hip Abd |  |  |  |  |  |  |  |  |  |
| Tricep Pushdown |  |  |  |  |  |  |  |  |  |
| Lat Pulldown |  |  |  |  |  |  |  |  |  |
| Mini Lunges |  |  |  |  |  |  |  |  |  |
| Step ups |  |  |  |  |  |  |  |  |  |
| **Balance:** |  |  |  |  |  |  |  |  |  |
| SL Stance |  |  |  |  |  |  |  |  |  |
| Tandem Walking |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

Precautions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_