

In Diabetes

SECTION: DIABETES

WRITING EXERCISE PRESCRIPTION IN A PATIENT WITH DIABETES

Physical exercise has been considered as one of the cornerstones in the treatment of diabetes mellitus along with nutrition and medication from the past 100 years.

• PHYSICAL ACTIVITY:

- Any bodily movement produced by the skeletal muscles resulting in energy expenditure above resting state.

• PHYSICAL FITNESS:

- A set of attributes that people have or achieve, which relates to the ability to perform physical activity.
- Aerobic activity for 30 min. extended (gradually) to 60 min. every day or most days/week/ 150 mins per wk.
- HR during activity should be gradually increased to reach 60–70% of HR max. (220-AGE)

R_X Diabetes and Physical Activity
Your Exercise Prescription

Patient Name: _____ Date: _____

As your healthcare provider, I recommend that you follow the physical activity prescription ticked below (choose all that apply):

- 1. Increase physical activity in your day and reduce sedentary time. Limit sedentary recreational time to no more than 2 hours per day.
- 2. Begin regular aerobic exercise*: _____ minutes _____ times per week. (Goal is to build to 150 minutes per week, but some people may have to start with as little as 5 to 10 minutes per day and build gradually.)
- 3. Begin resistance exercise** 2 days per week.
- 4. Continue to do regular aerobic exercise* 5 days per week for a minimum of 30 minutes per session.
- 5. Continue to do regular resistance exercise** 3 or more days per week.

*Aerobic exercise is continuous exercise such as walking, bicycling or jogging that elevates breathing and heart rate.

**Resistance exercise involves brief repetitive exercises with weights, weight machines, resistance bands or one's own body weight to build muscle strength.



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- Exercise session should include 5-10 min. of warm-up and a 5 min of cool-down.
- Exercise must involve most major muscles in both lower and upper parts of the body.
- Exercise must be regular. Benefits are diminished after 1 -2 weeks of stopping .
- Moderate intensity weight training program is recommended to maintain muscle strength (8-12 repetitions, 2 times /week).
- For those with feet problems, avoid running. Alternate between walking, swimming, and cycling.

THINGS ONE SHOULD KEEP IN MIND DURING EXERCISE:

- Use proper shoes, with silica gel or air-filled soles, and always keep feet dry.
- When using insulin, avoid exercise if glucose levels below 100 mg/dl or above 250 mg/dl.
- Do not inject insulin into a body part that is expected to be used during exercise.
- Avoid dehydration by keeping your body always hydrated.
- Exercise must be regular. Benefits are diminished after 1 -2 weeks of stopping.

GRADED EXERCISE TESTING FOR DIABETIC:

- It is recommended before any moderate to high intensity exercise, especially if:
 - Age is > 35 yrs.
 - Type 2 diabetes for > 10 yrs duration.
 - Type 1 diabetes for > 15 yrs duration.
 - Presence of any CHD risk factors.
 - Presence of microvascular disease (retinopathy, nephropathy).
 - Presence of peripheral vascular disease.

EXERCISE PRESCRIPTION FOR SPECIAL CASES

• DIABETIC WITH PERIPHERAL NEUROPATHY:

- Peripheral neuropathy may result in loss of sensation in the feet.
- Moderate-intensity walking not contraindicated; with proper footwear & daily foot examination for lesions.
- Foot-injury cases or open sores – no weight-bearing
- Repetitive exercise on insensitive feet can lead to ulceration & fractures.



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- Limit weight-bearing exercise (Treadmill, Prolonged walking, Jogging, Step exercise, etc.)
- Alternative exercises are: Swimming, Bicycling, Arm exercise, Chair exercise, etc.

• **Diabetic with Autonomic Neuropathy:**

- This condition may limit exercise capacity & increase the risk of CV event during exercise.
- Hypotension and hypertension are more likely to develop after vigorous exercise.
- Those patients may have difficulty with thermoregulation:
 - Avoid exercise in hot or cold environments.
 - Encourage adequate hydration.

• **IF HYPOGLYCEMIA OCCURS DURING OR AFTER EXERCISE:**

IT WILL MOST LIKELY OCCUR IF THE PATIENT

- Takes insulin or SULFONYLUREA
- Skips a meal.
- Exercises for a long time.
- Exercises strenuously.

IF IT OCCURS, WHAT CAN BE DONE?

- Patient must eat a snack before exercise, or.
- Adjusts the medication dose.
- Remember: Patient should always carry a source of CHO with him (An apple or orange juice, or a piece of fruit).

• **TYPES OF PHYSICAL ACTIVITY**

The Mnemonic: “SAFE” exercises are recommended:

- Strengthening exercises
- Aerobic exercises
- Flexibility exercises
- Endurance exercises



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• HOW MUCH EXERCISE?

Exercises should be done according to FITT principle.

- **FREQUENCY:** Exercising 4 to 6 times a week.
- **INTENSITY:** 30-40 min of exercise at 50- 60% of target heart rate.
- **TYPE:** SAFE exercises are recommended.
- **TIME:** Morning is ideal

• MODERATE & VIGOROUS INTENSITY PHYSICAL ACTIVITIES

MODERATE:

- Brisk walking, Recreational swimming, Volleyball, Slow aerobics, Moderate cycling
Gardening, Tennis-double, Badminton etc..

VIGOROUS:

- Jogging, Running, Tennis-single, Basketball, Rope skipping, Squash, Fast aerobics, Fast cycling, Stepping, Soccer, etc.

Dr. Minal Mohit