Physical Activity and Exercise for Diabetes and Bone Health

Physical activity and exercise can help your bone health by:

- Increasing or maintaining bone density.
- Improving posture and body mechanics.
- Improving balance to decrease fall risk.

EXERCISES TO INCREASE / MAINTAIN BONE DENSITY

- Exercise / activity that puts pressure through the bones can increase bone density and strength.
- High-impact activities in childhood can increase bone density.
- Pre- and post-menopausal females benefit from aerobic-style exercises with impact and resistance exercises.

EXERCISES FOR POSTURE AND BODY MECHANICS / SAFE MOVEMENTS

- It is important to move with your body in safe positions, especially at the spine, to avoid osteoporosis-related fractures.
- Exercises may be needed to improve your posture and body mechanics with a focus on:
  - Stretching short muscles (neck, shoulder girdle, hips, knees, and calves).
  - Strengthening weak muscles (spine, hip, shoulder girdle, abdominals, and extremities).
- It is helpful to practice your normal activities with good body mechanics, including those done at home, work, recreation, and sports (for example, yoga and Pilates). It may help to work with a physical or occupational therapist to learn safe movements to protect your spine.

In collaboration with the Bone Health & Osteoporosis Foundation

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EXERCISES TO IMPROVE BALANCE AND DECREASE FALL RISK

- Many osteoporosis-related fractures are the direct result of a fall, including hip, wrist, shoulder, pelvic, and spine fractures. Almost all osteoporosis-related hip fractures are due to a fall to the side. People with diabetes may be at increased risk of falls and, therefore, fractures.
- An exercise program to decrease falls and fractures should:
  - Include balance-challenging / agility exercises.
  - Include leg strength and power exercises focused on the hip, knee, and ankle muscles.
  - Primarily be done in a standing position.
  - Be high intensity (challenging enough for you) to provide benefit.
  - Include static positions (for example, standing still on one leg) and dynamic / moving activities (for example, walking heel to toe down a hallway).
- If you have balance problems, your program could be prescribed for you by a physical or occupational therapist or an exercise specialist.
- Consider tai chi as an exercise program to improve balance.

MOVEMENT PRECAUTIONS FOR THOSE WITH OSTEOPOROSIS

- Avoid high loads through vertebral bodies of the spine.
  - Try to maintain your best, upright posture/best spine alignment.
  - Avoid spine flexion or rounding over of the spine.
  - Avoid strenuous overhead lifts.
  - Avoid full trunk rotations (such as the end of a golf swing or forced twisting in yoga).
  - Avoid activities that increase the risk of a fall.

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PHYSICAL ACTIVITY AND EXERCISE RECOMMENDATIONS ACROSS THE LIFESPAN:

Children and Adolescents

- 60 minutes or more of moderate-to-vigorous physical activity daily, including:
  - Aerobic activity (most of the 60 minutes).
  - Muscle-strengthening at least 3 days/week and bone-strengthening, high-impact activities at least 3 days/week.

Adults

- Move more and sit less throughout the day.
- Aerobic activity should include at least 150 minutes to 300 minutes of moderate-intensity or 75 minutes of vigorous-intensity activity, or a combination of the two, spread throughout the week.
- To enhance bone health, aerobic activities should include high impact.
- Those with peripheral neuropathy should exercise with caution.
- Muscle-strengthening should be done at least 2 days per week, with at least moderate intensity. Include all major muscle groups, starting with one set of each exercise with enough resistance to cause fatigue by 8-12 repetitions. Progress to 2-3 sets of each exercise, focusing on proper alignment and form during exercise.

Older adults

- Follow the guidelines for adults.
- With chronic conditions, understand if conditions affect the ability to do regular physical activity safely.
- Exercise should include multicomponent physical activity, including balance training and aerobic and muscle-strengthening activities.
- If unable to do 150 minutes of moderate-intensity aerobic activity a week due to chronic conditions, be as physically active as your conditions allow.

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Resources

- Patient Resource Library: Break Free From Osteoporosis® Resource Library - Bone Health & Osteoporosis Foundation
- Bone Basic – Exercise: Be Bone Strong™ – Exercise to Stay Healthy - Bone Health & Osteoporosis Foundation
- Safe Movement in English: Safe Movement - Bone Health & Osteoporosis Foundation
- US Department of Health and Human Services: Physical Activity Guidelines for Americans, 2nd edition

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