

Bone up on physical activity and osteoporosis

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What public health issue will impact more than half of women and at least a quarter of men over the age of 50? Unfortunately, those percentages represent the women and men who will suffer an osteoporotic fracture at some point. Osteoporosis involves a weakening of the skeleton that increases the risk of bone fracture.

Bone is a dynamic tissue that is always breaking itself down and building itself back up throughout the lifespan. After around the age of 30, bone breakdown starts to outpace bone replacement which results in a slow steady annual loss of about one percent of measurable bone mineral density (BMD) that persists across adulthood. Many factors impact the balance between breakdown and replacement; some that cannot be changed (e.g., family history) and others that are under personal control (e.g., low calcium, vitamin D, and protein intake; sedentary lifestyle).

General exercise recommendations based on the ACSM Guidelines for those with osteoporosis focus on aerobic, resistance and flexibility exercises. For those with osteoporosis, certain exercises may need to be avoided (e.g., activities that put a sudden, high and/or unusual stress on bone) and should be individualized by an exercise specialist.

As an example of how to develop an exercise program to improve bone health for someone who is otherwise healthy with no known orthopedic problems, see the first couple of weeks from a four-week sample beginner exercise program based on general guidelines:

Sample multimodal beginner exercise program*.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Week 1	Bench step** at slow, steady pace for 15 to 20 min	Three sets of four two-footed jumps from the ground; stretch	One set of 8 to 12 reps of upper and lower body strength training exercises*** at a weight you can't lift more than 12 times	Three sets of six two-footed jumps from the ground; stretch	Walk at a steady pace (with short bursts of faster walking) for 15 to 20 min	Day off or stretch	See Wednesday
Week 2	For week 2, note the increased time for aerobic activity and number of sets and repetitions for jumps and strength.						
	Bench step** at a slow, steady pace for 20 to 25 min	Four sets of six two-footed jumps from the ground; stretch	One set of 8 to 12 reps of upper and lower body strength training exercises using the same weight as week 1	Four sets of eight two-footed jumps from the ground; stretch	Walk at a steady pace (with short bursts of faster walking) for 20 to 25 min	Day off or stretch	See Wednesday

*Every exercise session should include a 5- to 10-minute warm-up before exercise and a 5-to-10-minute cool-down afterward. The cool-down period is a perfect time to include flexibility exercises for good mobility and function.

**The bench step exercise can be replaced by another aerobic activity, including aerobic dance, walking with intermittent jogging or at a vigorous pace (4+ mph), tennis, or rowing.

***Include exercises for the hips and legs, chest, back, shoulders, low back, and abdominal muscles. This content is adapted from [ACSM's Complete Guide to Fitness & Health 2nd edition](#), which has an entire chapter devoted to diet and exercise recommendations to promote bone health. This resource provides user-focused guidance so diet and physical activity recommendations can be turned into action.