



VITAMIN D/ STRONG BONES BEST PRACTICES SERVICE MEMBER RESOURCE

Why do *Strong Bones* matter specifically for service women?

Female service members are at HIGH risk for lower extremity stress fractures, especially in training pipelines. According to Dr. Sarah Fogleman, stress fractures can lead to delays in training and are more common in female recruits compared to male recruits (21% vs. 5.2%).

How does Vitamin D deficiency impact bone health and force readiness?

Vitamin D deficiency is a critical link to stress fractures and bone health. Additionally, stress fractures remain one of the top five most common injuries in the military.

What can you do to maximize bone strength?

CALCIUM: 1300 – 1500 mg/day

- Calcium is a mineral that makes your bones stronger!
- Make sure you are getting 1300-1500mg of calcium per day.
- You can take a calcium supplement or consume it through normal food intake.
- Dairy products are a great source of calcium, but calcium can also be found in select salmon, nuts, and green vegetables.

VITAMIN D: 2000 IU/day

- Vitamin D is important for many body functions, and ESPECIALLY for your bone health! Without enough vitamin D, your bones can't absorb the calcium to make them strong.
- Exposure of both arms and legs to the sun for 5-30 minutes in the late morning/early afternoon without sunscreen can produce approximately 3,000 IU of Vitamin D, but if you are stationed north of Los Angeles, CA or Paris Island, SC you do not get this benefit.
- Sometimes it's hard to get out in the sun. You can also get Vitamin D from some foods (mostly fatty fish), but if you can't get 600 IU of vitamin D through your diet, it's recommended to take a Vitamin D supplement of 2,000 IU/day.

PHYSICAL ACTIVITY:

- Regular physical activity is one of the MOST effective ways to improve bone health! By adequately loading our skeletons through impact and weight training, we can stimulate cells in our bones to lay down new layers of stronger bone tissue.
- Develop a well-rounded exercise program that combines high-impact activity with high-intensity resistance training.
- Going from no exercise to a high volume of exercise in a short time puts you at risk for a stress fracture. To avoid bone injuries, keep up regular physical activity all year!

What else can you do to improve bone health?

- Stop using Nicotine products.
- Avoid excessive alcohol use.
- Maintain a healthy weight.

These recommendations are the same for pregnant and postpartum women

Exercise Recommendations for Service Members to Strengthen Bone Health

- Regular physical activity is one of the most effective ways to maximize peak bone mass during growth and to prevent bone loss during aging.
- **Exercise programs that combine high-impact activity with high-intensity resistance training appear most effective** in augmenting bone mineral density. High impact programs alone are not as effective as when combined with resistance training.
- By adequately loading our skeletons through impact and weight training, we can stimulate cells in our bones to lay down new layers of stronger bone tissue. **Overloading deficient bones without adequate rest can cause stress injuries.**
- Recommend moderate-high impact weight bearing physical activity or related impact loading sports for at least 30 minutes 3-5 days per week.
- **Include muscle strengthening exercises at least 2 days per week at a high intensity** (60-80% of 1RM), progressing challenge over time and targeting the major muscles around the hip and spine (i.e., spinal extensors, hip extensors and abductors, knee flexors and extensors).

The impact of selected exercises on bone health

Highly osteogenic	Moderately osteogenic	Low osteogenic*	Non-osteogenic*
Basketball/netball	Running/jogging	Leisure walking	Swimming
Impact aerobics	Brisk or hill walking	Lawn bowls	Cycling
Dancing/gymnastics	Resistance training	Yoga/Pilates/tai chi	
Tennis	Stair climbing		
Jump rope			

* While certain exercises may have low or no osteogenic benefits, this should not be construed to imply that these exercises do not offer a wide range of other health benefits. ◆

REFERENCES

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