Why Invest in Bone Research?

Osteoporosis

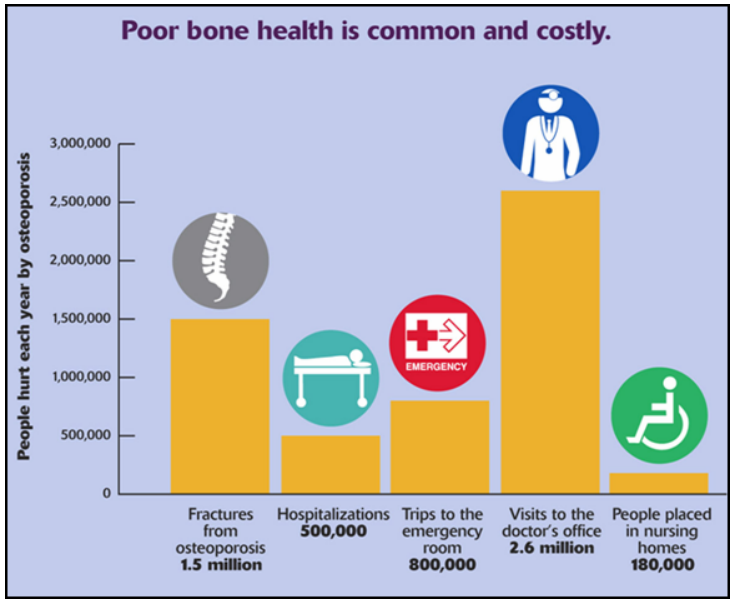
ASBMR
The American Society for Bone and Mineral Research

Today:

- Osteoporosis is a major public health threat for 44 million Americans. Of the 10 million who have osteoporosis, 80 percent are women. Another 34 million have low bone mass and are at risk.
- A woman's risk of hip fracture is equal to her combined risk of breast, uterine and ovarian cancer. A woman is more likely to experience hip fracture than these three forms of cancer.
- Currently, 2 million men have osteoporosis and about 12 million more are at risk. Men with low levels of testosterone make up the greatest at-risk group. This also includes men being treated with certain medications for prostate cancer.
- One in five people with a hip fracture ends up in a nursing home within a year.

The Cost:

- The estimated national direct expenditures (hospitals and nursing homes) for osteoporotic fractures annually are up to $18 billion dollars (in 2002 dollars) and the cost is rising.



Did you know? . . .

Women of all ethnic groups are at risk for osteoporosis. The percentages of women age 50 and older with osteoporosis are as follows:

- 20% of non-Hispanic white and Asian women
- 10% of Hispanic women
- 5% of non-Hispanic black women

In addition, 49% of Hispanic women and 35% of black women have low bone mass, putting them at risk for osteoporosis.

How Is Bone Research Helping People?

- Research found that without intervention one in two women and one in four men age 50 and above will experience a fracture due to osteoporosis.
- Research led us to develop simple, non-invasive and accurate tests that determine bone mass and help predict future fracture risk. These tests also allow us to monitor the impact of treatment.
- Research identified and demonstrated a variety of drugs that can reduce bone loss and fractures and even build new bone. Thirty years ago there was no treatment for osteoporosis.
- Research led to a better understanding of calcium metabolism and, as a result, manufacturers of a variety of food products have fortified their products with this vital nutrient.
- Research showed the necessity of vitamin D, calcium, and other nutrients, in building and maintaining strong bone, while also emphasizing a major public health problem of vitamin D deficiency.
- Research helped us to understand the need for weight-bearing exercise to build and maintain bone in order to reduce fracture risk. Falling can be reduced by strength-building exercise that increases balance and flexibility.
- Research showed that people with osteoporosis are more prone to chronic back pain, height loss, reduced quality of life and institutionalization after fracture.
- Research led to the development of bone densitometry which assists early diagnosis of the disease, prior to fracture.

What Are The Future Opportunities For Osteoporosis Research?

The Surgeon General's Report on Bone Health and Osteoporosis called on us to build the science base on the prevention and treatment of bone diseases. In the field today, we need more research identifying how best to translate basic and clinical research findings into every day practice.

Diagnostics/Imaging

- DXA is an imaging test that measures bone mineral density (BMD). Although DXA is the current gold standard for predicting fracture risk, it has limitations, a major one being that the databases that it uses are largely based on BMD scores of white women. Future work is needed to establish other databases that will allow DXA to be applied to women of other racial groups and ethnicities and to men as well as women.
- New diagnostic measures are needed in order to predict fragility and fracture risk better through three dimensional imaging of bone.
- Current approaches under development may lead to "virtual biopsies" – using computer modeling to avoid invasive procedures and provide critical information about bone strength and fracture risk.

Treatment/Pharmacotherapy

- Estrogen protects bone and prevents fractures. Recently, the Women's Health Initiative has focused on the risks involved in estrogen use. More research is needed on low-dose estrogen and its bone-protective benefits and risks.
- In recent years other agents have been developed that can be effective in the prevention and treatment of osteoporosis. The most widely used treatments, the bisphosphonates and SERMs, slow down bone breakdown. More recently, the first anabolic agent, parathyroid hormone (PTH) has been introduced. The future should bring advances in our ability to monitor the response to treatment with these drugs, perhaps through a panel of biochemical markers. The result will be even more effective use of the agents, in combination with diet and exercise. Also, further understanding of bone cell biology should lead to the development of new agents to better prevent bone loss and stimulate rebuilding of bone.

Healthy Bones: Myths and Realities

Myth*: *Only a small segment of the population suffers from osteoporosis or other bone diseases.
Reality: Osteoporosis is a silent condition that affects millions of men and women across America. Ten million Americans over age 50 have osteoporosis. Another 34 million Americans have low bone mass. If we do not take immediate action, by 2020, half of all Americans over age 50 will have weak bones and low bone mass from osteoporosis.

Myth*: *Osteoporosis is not an inevitable consequence of aging.
Reality: Individuals can do a lot to promote their bone health, beginning in childhood and continuing into old age. With proper nutrition, physical activity and medical attention, Americans can have strong bones and live longer, healthier lives.

Myth*: *Osteoporosis and other bone diseases have no physical consequences.
Reality: Osteoporosis and bone disease often result in painful and debilitating fractures. A fracture can lead to a downward spiral in physical and mental health that, for some people, can even result in death. The risk of death is especially high during the first year after the fracture. Many individuals with fractures experience significant pain, loss of height, and may lose their ability to dress themselves, stand up, and walk. Of those who remain independent, a fracture often leads to a reduced quality of life.

For additional information, contact:

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SOURCES:

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