

**Research Article****BIO-IDENTICAL TESTOSTERONE REVERSES BONE LOSS IN OLDER WOMEN*****Elizabeth M. Sabatella**

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Abstract

This study is based upon an 18 year study of a Caucasian woman beginning at the age of 60. She suspected that something was wrong with her body but was unaware of what that was. Her chiropractor took x-rays of her neck since she was complaining of pain in that area. Low bone density of her neck appeared on that scan. She was referred to her primary care doctor and he referred her for a dexa-scan of her lumbar spine and leg. The results indicated that she had osteoporosis of her lumbar spine and femoral neck, and osteopenia of the total hip. The standard treatment for osteoporosis at that time was administration of Fosamax, which she did start using upon the advice of her doctor. After about a year of use, she began having symptoms of jaw bone necrosis. The subject was a very well educated women, with some experience in research. It was at this point that she began to question the use of Fosamax and began her investigation into other methods of increasing bone density. Her curiosity led her to research bio-identical hormone therapy and eventually found a doctor who was willing to prescribe this therapy for her. Her research background and curiosity about an alternative treatment for osteoporosis led her to begin documentation and study over the course of 18 years on the role of a small amount of bio-identical testosterone for women and a possible alternative for improving bone density in women. DEXA-Scans were done every two years and she kept every record of these scans over the 18 year study. She charted the Bone Mineral Density and T-score of the lumbar spine, total hip and femoral neck. She observed that the bone density increased and the T-score decreased over the 18 year period. Her hypothesis was that bio-identical testosterone was a contributing factor in these results and was hopeful that further studies by others would validate her results.

Keywords: Bio-identical testosterone, Osteoporosis, Osteopenia, DEXA-scan, Older women.

INTRODUCTION

This article will discuss the continued use of Fosamax by women as the primary means to reverse osteoporosis and osteopenia despite the severe side effects and the suggestion that bio-identical testosterone is a more effective method with no known side effects when prescribed in the correct dosage.[Fosamax holds old bone, Testosterone Replacement increases new bone growth]. This article is especially focused on the positive effects of bio-identical testosterone in older women. Fosamax was introduced to the market in 1995 by Merck, with an especially aggressive marketing toward physicians and women. Despite numerous scientific and technological advances since 1995 such as the iPod, Toyota's Hybrid car, YouTube, the iPhone, discovery of liquid water on Mars, and the first image of a black hole, Fosamax continues to be the drug of choice to address bone loss in older women. Severe side effects such as bone fractures, osteonecrosis [jaw bone deterioration], esophageal inflammation and irritation and deterioration of the spine including collapsing spines in older women continue as physicians and researchers have not found a more effective way to treat bone loss in women. Merck has been accused of unethical advertising in how it pushed the drug and downplayed the serious side effects but use of the drug continues. Ten million men and women have used the drug despite publication of the Cornell Medical School study that showed that Fosamax patients were 125 times as likely to suffer non-traumatic femur fracture than patients who haven't taken it. More than 3,300 lawsuits were filed against Merck for femur deterioration and 1,230 complaints linking Fosamax with jaw bone necrosis. Drugs such as Prolia and Raloxifene have since been developed and used in older women but with severe side effects.

This article is a request to the scientific community to explore more effective and safer treatments. While Fosamax was a start in addressing bone loss, [holding on to old bone which eventually collapses] treatment such as bio-identical testosterone helps to produce new bone with little to no detrimental side effects. According to Dr. Tami, MD [2004] the majority of women past 40 have low testosterone and one of the signs of low testosterone in women is osteoporosis or osteopenia. She further states that adequate amounts of testosterone in women help them to make more muscle, may prevent Alzheimers and dementia, and make stronger bones. A 2011 study by the Endocrine Society suggests testosterone may protect women against dementia. It is further stated that low levels in postmenopausal women are linked with greater risk of cardiac disease. Testosterone is one of the best ways to treat osteoporosis and is much safer than Fosamax. Chief Operating Officer of the Compounding Pharmacy of America, Matt Poteet [2019] stated in an article written by him that normal, sustained female testosterone levels in women can help support the maintenance and healthy growth of bone tissue and increase and maintain muscle mass in women. Too little testosterone can directly contribute to a variety of health conditions including osteoporosis, obesity, depression and cancer. He further states that Testosterone Replacement Therapy can benefit women by boosting bone mineral density. While testosterone replacement therapy is an acceptable treatment for bone loss in men, it has not been fully explored as a treatment in women. My hypothesis is that it is a safer alternative than Fosamax and other drugs such as Prolia and Raloxifene with significantly fewer side effects for older women. According to S.R. Davis and P. Mc Cloud, testosterone enhances estrogens effects on post menopausal women's bone density. Recent research suggests that one in seven women use testosterone therapy which seems to have increased bone strength and helped to prevent osteoporosis.A

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study at Kingsberg Medical in Alpharetta, GA stated that testosterone therapy for bone health is beneficial for both men and women diagnosed with low T. Testosterone has a direct impact on osteoblasts [bone forming cells]. Low testosterone levels accelerate the process of bone turnover, when old bone cells are reabsorbed into the body at a faster rate than new bone cells are produced. It is essential to have enough testosterone in the body in order to increase bone density. While estrogen is the hormone that preserves bone density in women, testosterone in the body converts some of the free testosterone into estradiol. This usable form of estrogen preserves the bone mineral density that helps avoid the risk of osteoporosis. Doctors tend to look to estrogen replacement therapy as the first line of defense for women. They often disregard the need for testosterone replacement, especially if these levels are low in women. Low testosterone levels accelerate the process of bone turnover and thus makes an older woman more vulnerable to osteopenia and osteoporosis.

Bone density documentation from 12/13/02 to 02-24-2020

Subject was diagnosed with osteoporosis of the spine and femoral neck and osteopenia of the total hip in 1998. Treatment of bio-identical testosterone began in 2000.

from David A. Sinclair, PhD in his book Lifespan, "Aging is a loss of information." It is my hope that Testosterone Replacement Therapy finally becomes an accepted treatment for bone loss in older women.

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Region	Age	Exam Date	BMD	T-Score
Spine	79	02/24/2020	0.920	-1.20
	77	02/15/2018	0.890	-1.40
	75	12/16/2015	0.900	-1.30
	73	11/12/2013	0.880	-1.50
	70	11/08/2011	0.842	-1.90
	68	11/03/2009	0.839	-1.90
	66	10/30/2007	0.809	-2.20
	65	10/13/2006	0.816	-2.10
	64	11/09/2004	0.820	-2.20
	63	11/20/2003	0.785	-2.40
60	12/13/2002	0.758	-2.82	
Total Hip	79	02/24/2020	0.864	-0.60
	77	02/15/2018	0.857	-0.70
	75	12/16/2005	0.833	-0.90
	73	11/12/2013	0.854	-0.70
	70	11/08/2011	0.842	-0.80
	68	11/03/2009	0.843	-0.80
	66	10/30/2007	0.830	-0.90
	65	10/13/2006	0.815	-1.00
	65	11/05/2005	0.822	-1.00
	64	11/09/2004	0.844	-0.80
63	11/20/2003	0.811	-1.10	
62	12/13/2002	0.789	-1.30	
Femoral Neck	79	02/24/2020	0.624	-2.00
	77	02/15/2018	0.608	-2.20
	75	12/24/2015	0.612	-2.10
	73	11/12/2013	0.614	-2.10
	70	11/08/2011	0.615	-2.10
	68	11/03/2009	0.611	-2.10
	66	10/30/2007	0.603	-2.20
	65	10/13/2006	0.624	-2.00
62	12/13/2002	0.580	-2.50	

This case study indicates a significant increase in bone density in both the spine and total hip over the length of the study. While the femoral neck showed a bone density increase at the beginning of the study, during most of the study the bone density did not show an increase but did show that there was no further bone loss over most of the 18 year study. This study, while using only one subject over the 18 years, could be a starting point for additional scientific research into the successful treatment of bone loss in older women using bio-identical testosterone. In closing, I would like to use a line
