

## Effect of Saliva in oral health of post menopausal women

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**Abstract:** The menopause is physiological changes in women that give rise to adaptive changes at both systemic and oral level. As we all begin to reach an older age, dental health and hygiene becomes a major concern. The dentist is often the first person to appreciate numerous changes that are experienced throughout the body during menopause. Oral discomfort is found in many menopausal women in addition to general climacteric complaints. The principal pre- and post-menopausal oral symptoms are dry mouth, sensation of painful mouth (PM) due to various causes and less frequently burning mouth syndrome

**Objective:** The study was conducted to evaluate the effect of menopause on saliva and dental health. The pH and oral and hygiene status were determined in regularly menstruating and postmenopausal women who are not on hormone replacement treatment.

**Materials and methods:** The study was performed on 25 healthy post-menopausal women patients and 25 healthy non menopausal women selected from patients who attended the out patients section of Saveetha Dental College and Hospitals. The patients were asked to relax and pool their saliva and then was collected in graduated test tube. The pH was measured using litmus paper. Oral Hygiene Index and Russel's periodontal index was clinically measured

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### I. Introduction

Menopause is a permanent cessation of menstruation and is physiologic process which typically occurs in the 5th decade. Many physiological changes take place due to decreased ovarian estrogen production during this period. Estrogen deficiency may cause several problems such as hot flushes, sweating, osteoporosis, cardiovascular disease, cognitive disease, uro-genital infections and skin changes. Among these osteoporosis is given more priority. Decreasing mineralization of the osseous system, pathological changes aggravate in the periodontium. Bone remodeling is coupled process of bone resorption followed by bone formation. At cellular level, osteoclast promote bone resorption by stimulating production of acid and enzymes that dissolve proteins.

Osteoclasts are assisted by transcription factor PU1. Osteoblast promote bone formation by protein matrix primarily consisting of collagen that is soon calcified resulting in mineralizing of bone. Bone loss occur when there is imbalance between bone formation and resorption. The activation of osteoclasts is regulated by various molecular signals, of which RANKL (receptor activator of nuclear factor kappa-B ligand) is one of best studied. This molecule is produced by osteoblasts and other cells (e.g. lymphocytes), and stimulates RANK (receptor activator of nuclear factor κB). Osteoprotegerin (OPG) binds RANKL before it has an opportunity to bind to RANK, and hence suppresses its ability to increase bone resorption. RANKL, RANK and OPG are closely related to tumor necrosis factor and its receptors. The role of the Wnt signaling pathway is recognized, but less well understood. Local production of eicosanoids and interleukins is thought to participate in the regulation of bone turnover, and excess or reduced production of these mediators may underlie the development of osteoporosis.

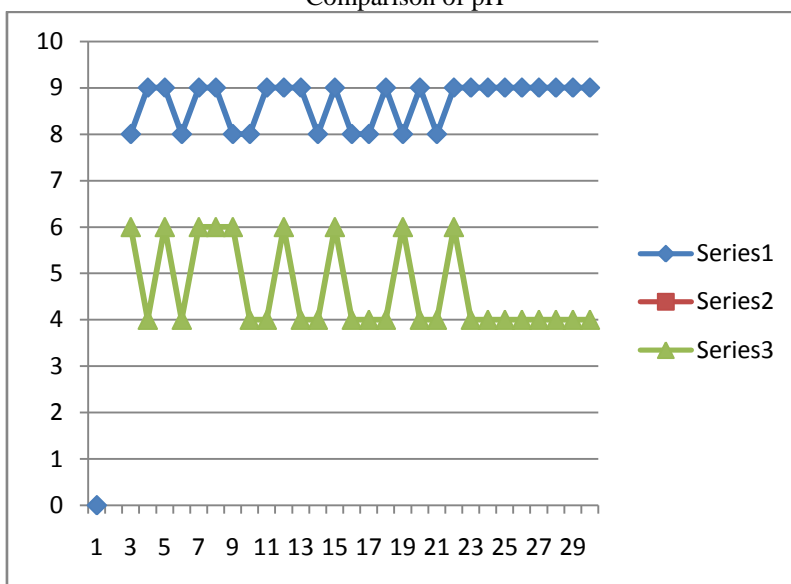
Menopause is associated with few years of rapid bone loss attributed to lower circulating level of 17β-estradiol related to primarily to loss of estrogen mediated inhibition of bone resorption without compensatory formation.

Saliva plays an important role in protecting oral tissues and preventing foreign material from entering the body. Many studies reveal that salivary pH, buffering capacity (BC) and flow rate play important roles in the oral mucosal defence. When the salivary flow rate is reduced, susceptibility to various oral diseases is enhanced.

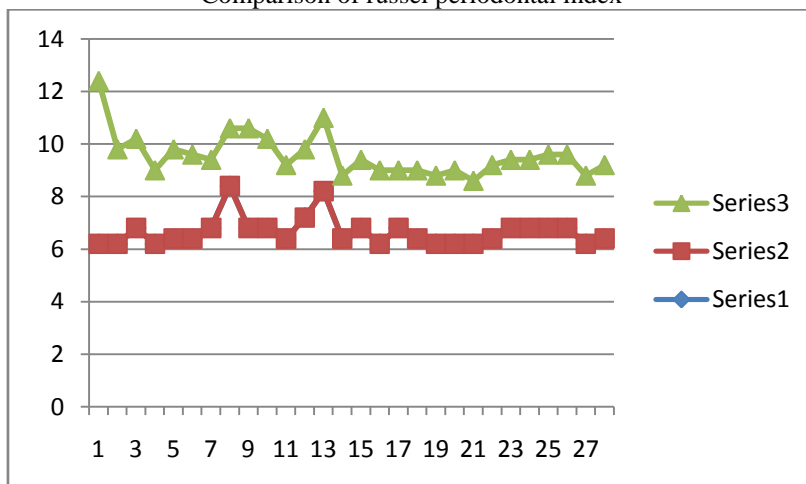
### II. Results

The study consisted of 25 healthy menopausal and non menopausal women to evaluate the correlation between Ph and periodontal disease. Our result showed increased OHI and russel's indices produce a significant increase in periodontal disease. It also reveals that reveals that there is a distinct decrease in the salivary pH and flow rate in postmenopausal women which gives route to poor oral hygiene and more susceptibility to oral physiological changes. Therefore, with aging in females, substance of preventive dentistry increases

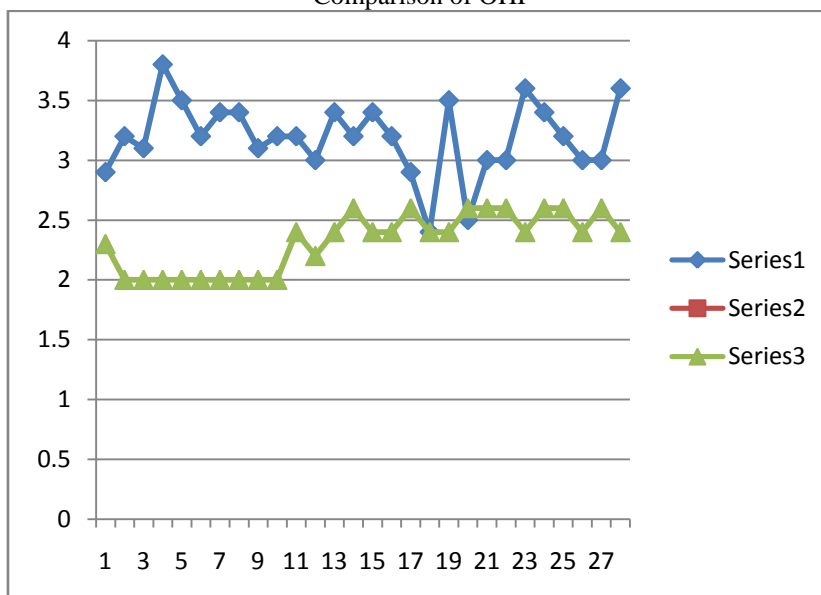
Comparison of pH



Comparison of russel periodontal index



Comparison of OHI



	Post menopausal women mean[sd]	Premenopausal women mean[sd]	P value
pH	4.579±1.01	8.57±0.507	0.43
Russel	6.67±0.61	3.01±0.859	0.24
OHI	3.16±0.32	2.252±0.24	0.32

### III. Discussion

The female hormone estrogen influences many physiological and psychological functions. Some studies have reported no change in salivary flow rate after menopause while other studies have shown lower flow rates in postmenopausal women. OHI values of the postmenopausal women were statistically significantly higher than those of the control group which means that oral hygiene of the postmenopausal women was worse than that of the menstruating women. Endocrinal alteration induced bone resorption appears to be the principle pathogenic mechanism underlying accelerated bone loss in postmenopausal women with no direct relationship between the two phenomena. Female gender-related hormonal situations, such as pregnancy- and puberty-associated gingivitis are known as temporary periodontal diseases. In literature, there are very few studies that correlate only menopause or an estrogen-deficient state to susceptibility to periodontal disease. Though, systemic bone loss may be a risk indicator for periodontal destruction, and augmented rates of bone mineral density loss after menopause are coupled with greater risk of tooth loss. Therefore, avoidance and management of osteoporosis after menopause could also have enhanced future oral health consequences

### IV. Conclusion

In post-menopausal women, alterations of the oral cavity are related to the hormone alterations that characterize these patients and to physiological aging of the oral tissues, potentially giving rise to periodontitis.

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