

# THE PROBLEM OF OSTEOPOROSIS AND ROLE OF THE MENOPAUSAL TRANSITION

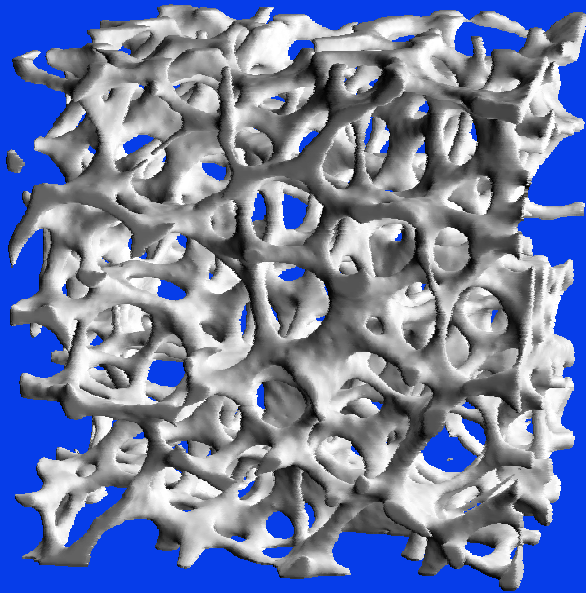
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# THE PROBLEM OF OSTEOPOROSIS

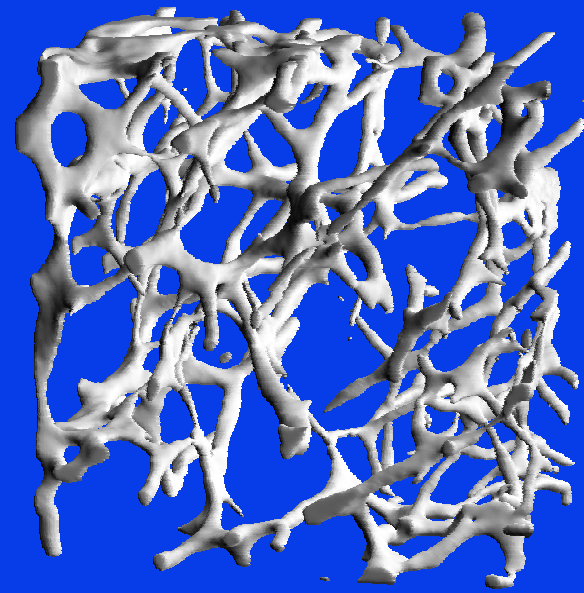
- One of the most important diseases associated with aging
- Osteoporosis/low bone mass currently present in 44 million US women and men aged 50 and older
- One in 2 women and 1 in 5 men will experience an osteoporotic fracture during the course of aging
- Estimated annual cost to the US healthcare system of ~ \$17 billion (2001 dollars)
- By 2010, 52 million and by 2020, 61 million women and men will be affected

# Osteoporosis: Loss of Bone Mass and Structure

**Young Normal**



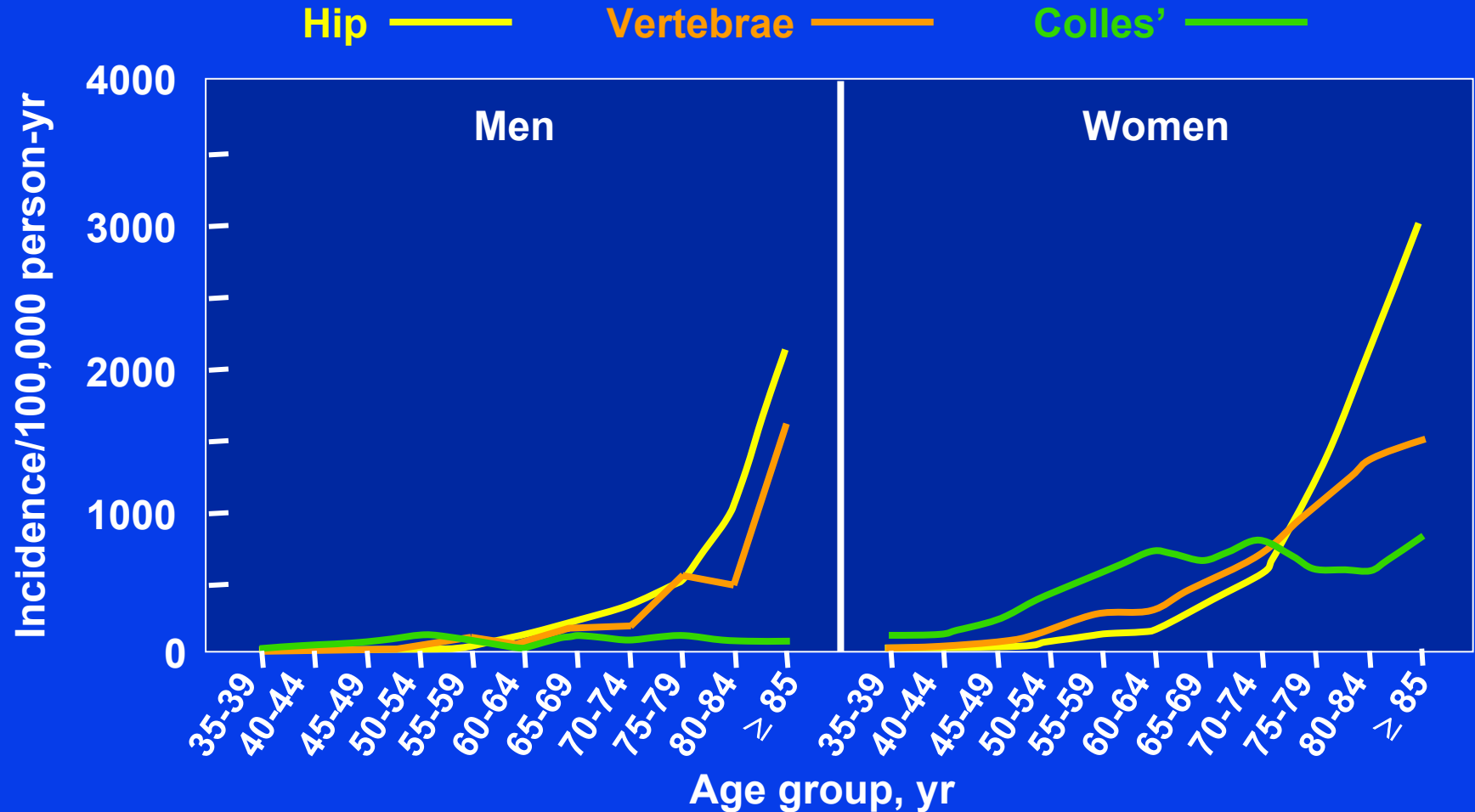
**Osteoporotic**



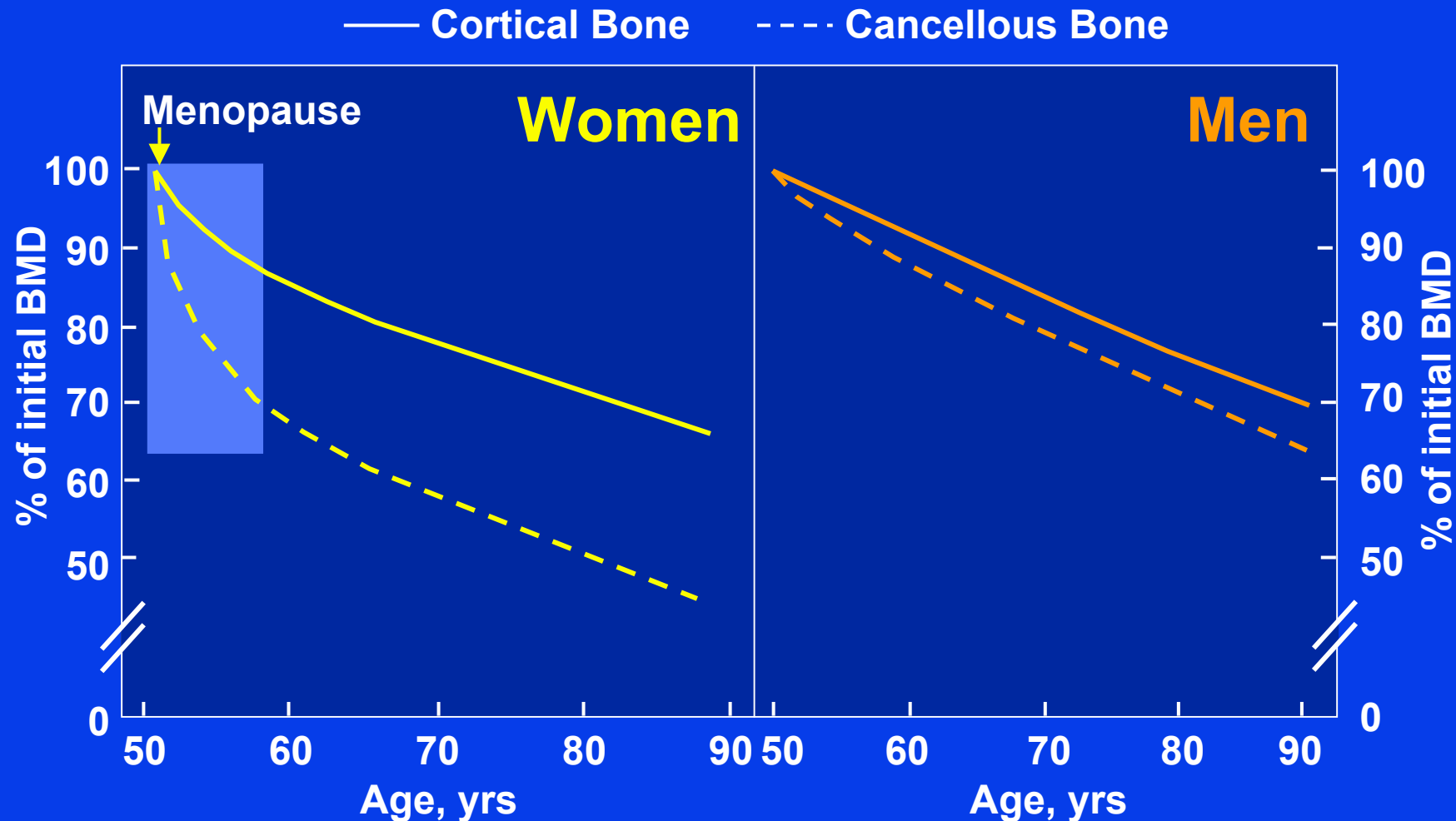
# LIFETIME RISK OF FRACTURE AT AGE 50 YEARS (%)

	<u>White women</u>	<u>White men</u>
Hip fracture	17.5	6.0
Vertebral fracture	15.6	5.0
Forearm fracture	16.0	2.5
Any of the 3	39.7	13.1

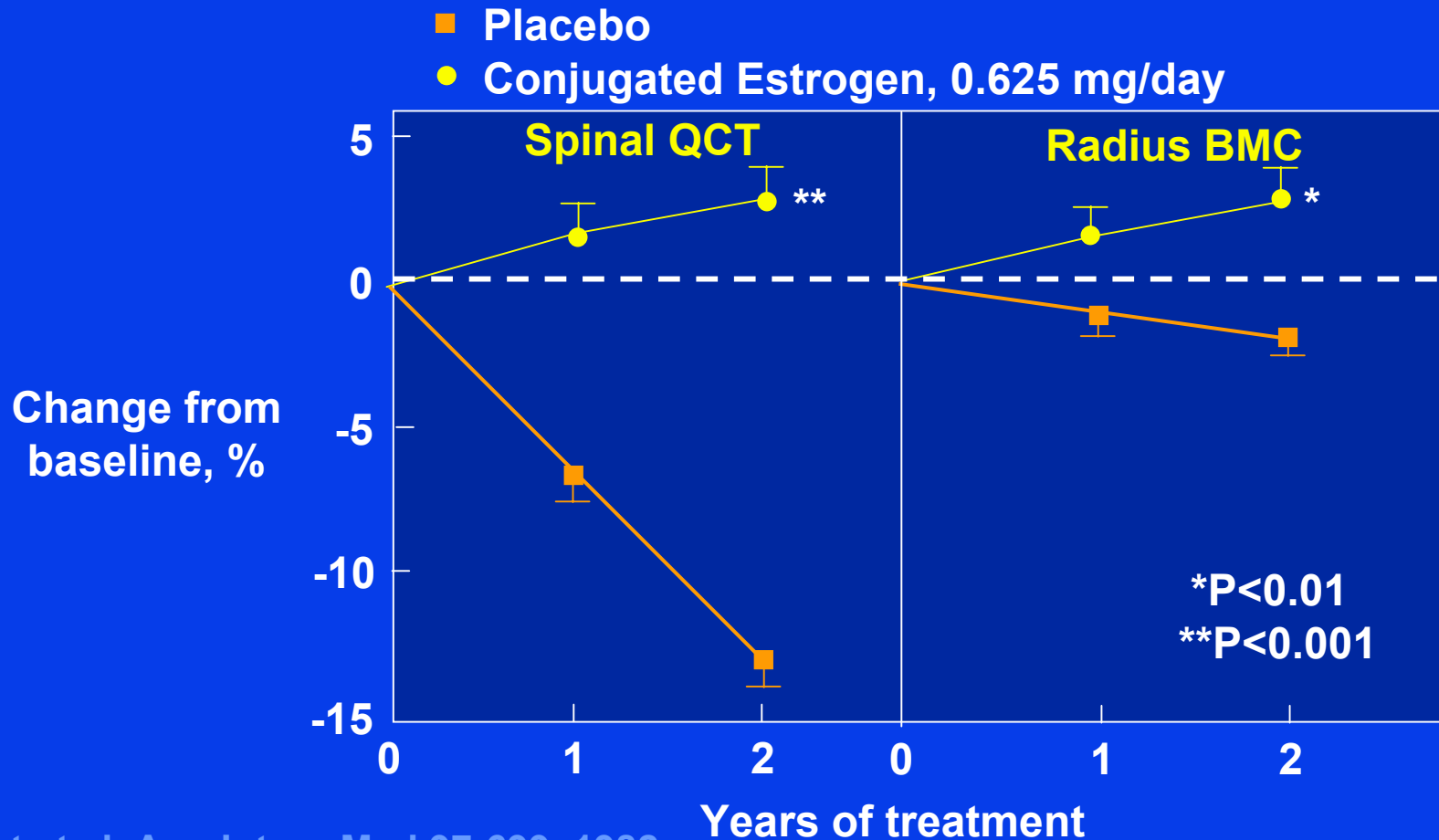
# INCIDENCE OF FRACTURES IN MEN VERSUS WOMEN



# PATTERN OF INVOLUTIONAL BONE LOSS



# OVARIECTOMY INDUCES THE RAPID PHASE OF BONE LOSS AND THIS IS PREVENTED BY ESTROGEN REPLACEMENT



# EFFECT OF AGE AND MENOPAUSE ON TURNOVER

## % Increase Over Premenopausal Levels

\* <0.01

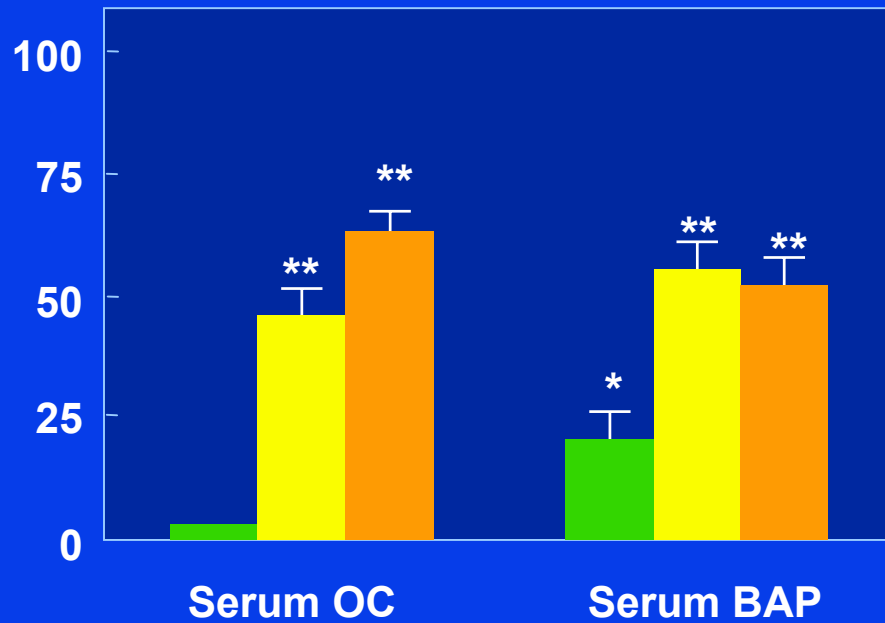
\*\* <0.001

■ Peri MP

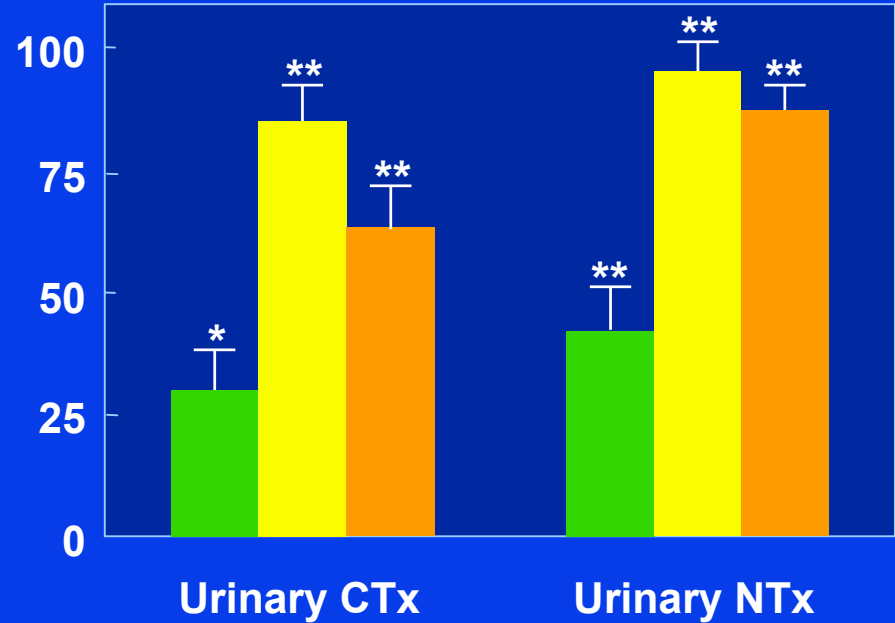
■ Early pMP  
(< 10 yrs)

■ Late pMP  
(> 10 yrs)

### BONE FORMATION



### BONE RESORPTION





# WORKSHOP QUESTIONS

1. Role of female H-P-O axis hormones, their dynamic profiles, and their interactions in determining osteoporosis risk - **Joel Finkelstein**
2. Underlying biologic mechanisms by which bone is affected by female H-P-O axis hormones - **Stavros Manolagas**
3. Role of environmental, behavioral, and lifestyle effects in modulating biologic mechanisms - **Deborah Kado**
4. Important research questions/future directions - **Cliff Rosen**