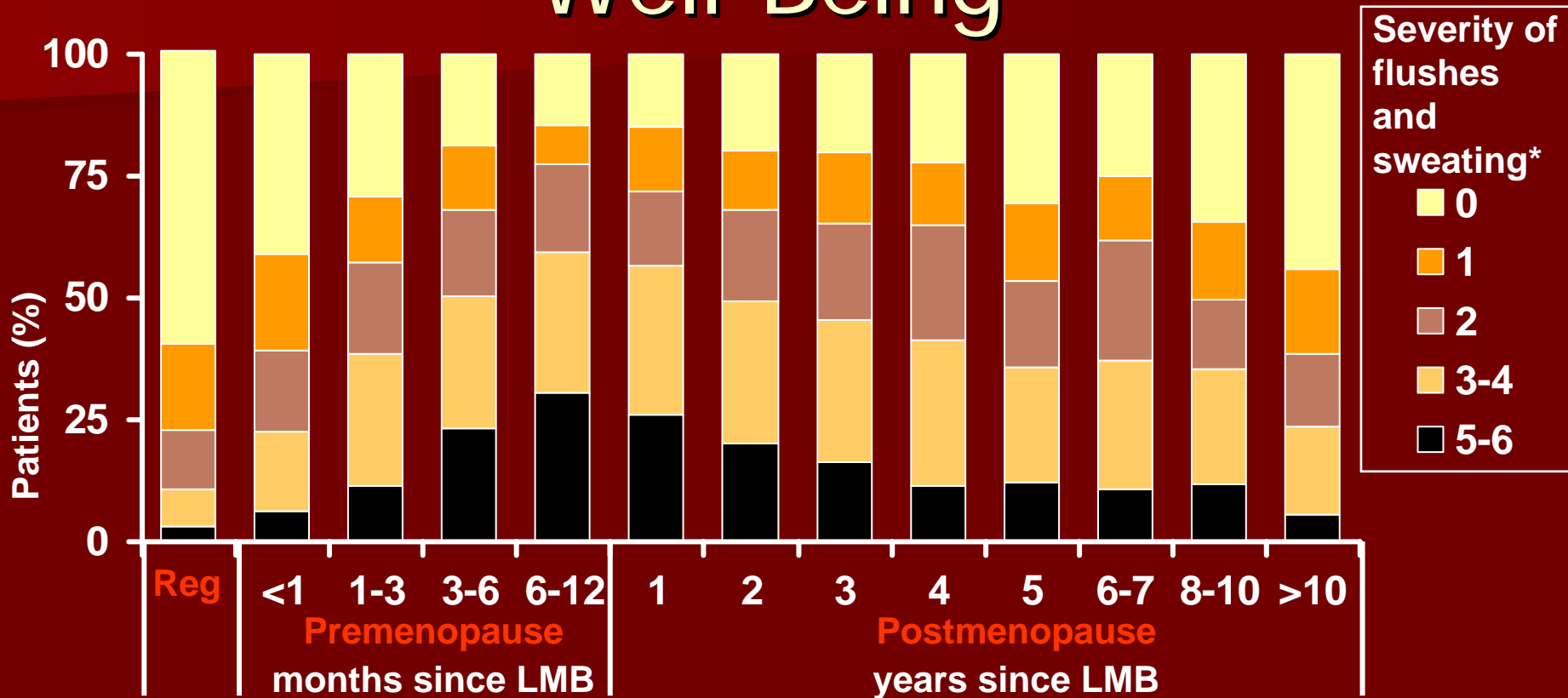


Bio-identical Hormones: a reality check

Impact of Menopause on Well-Being



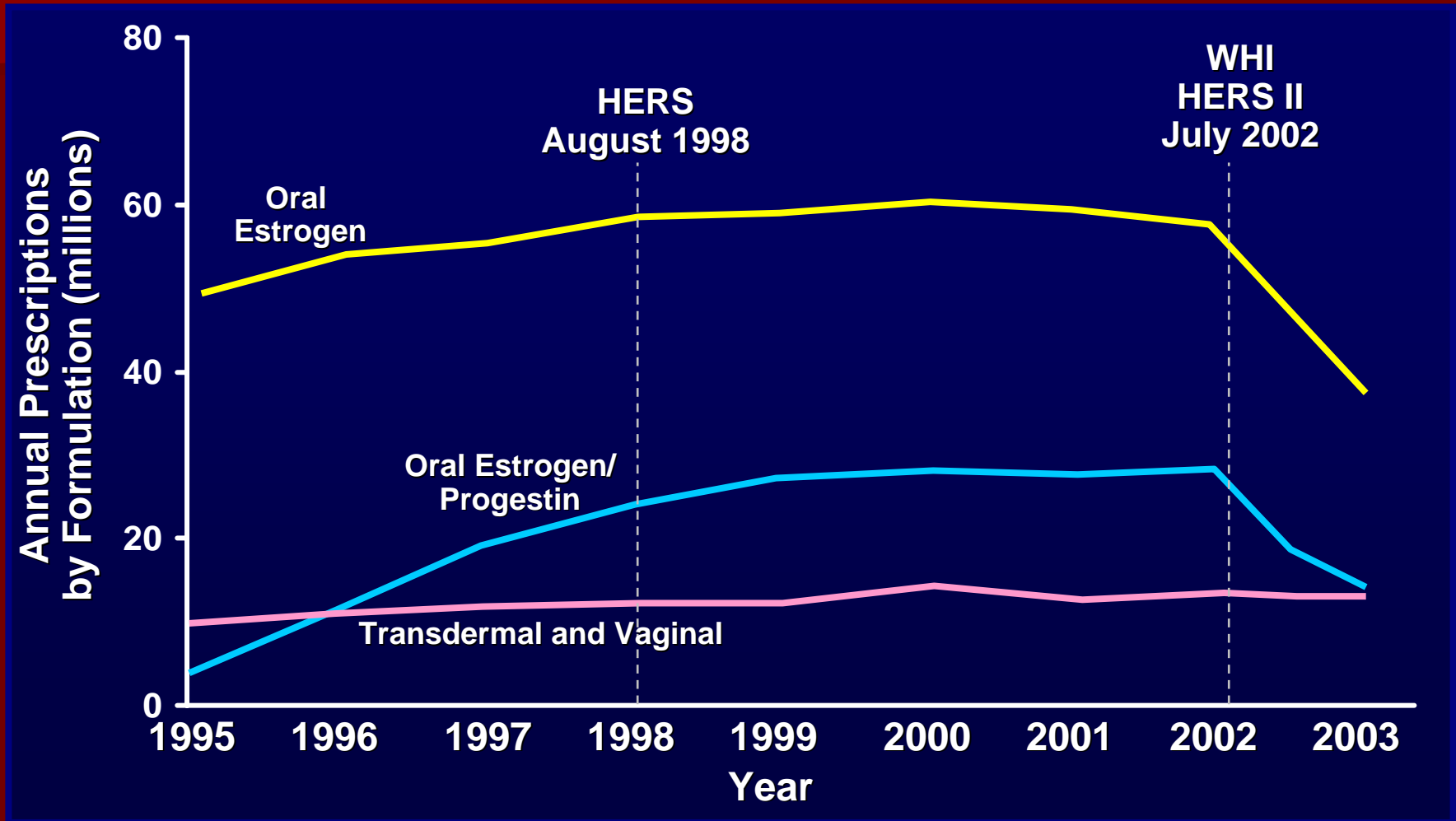
*severity of flushes and sweating were assigned weights (0-3) and totaled
 N = 5,213 women aged 39 to 60 years;

LMB = last menstrual bleeding

Reg = regular menstrual pattern

Oldenhav et al. *Am J Obstet Gynecol.* 1993;168:772.

National Use of Hormones

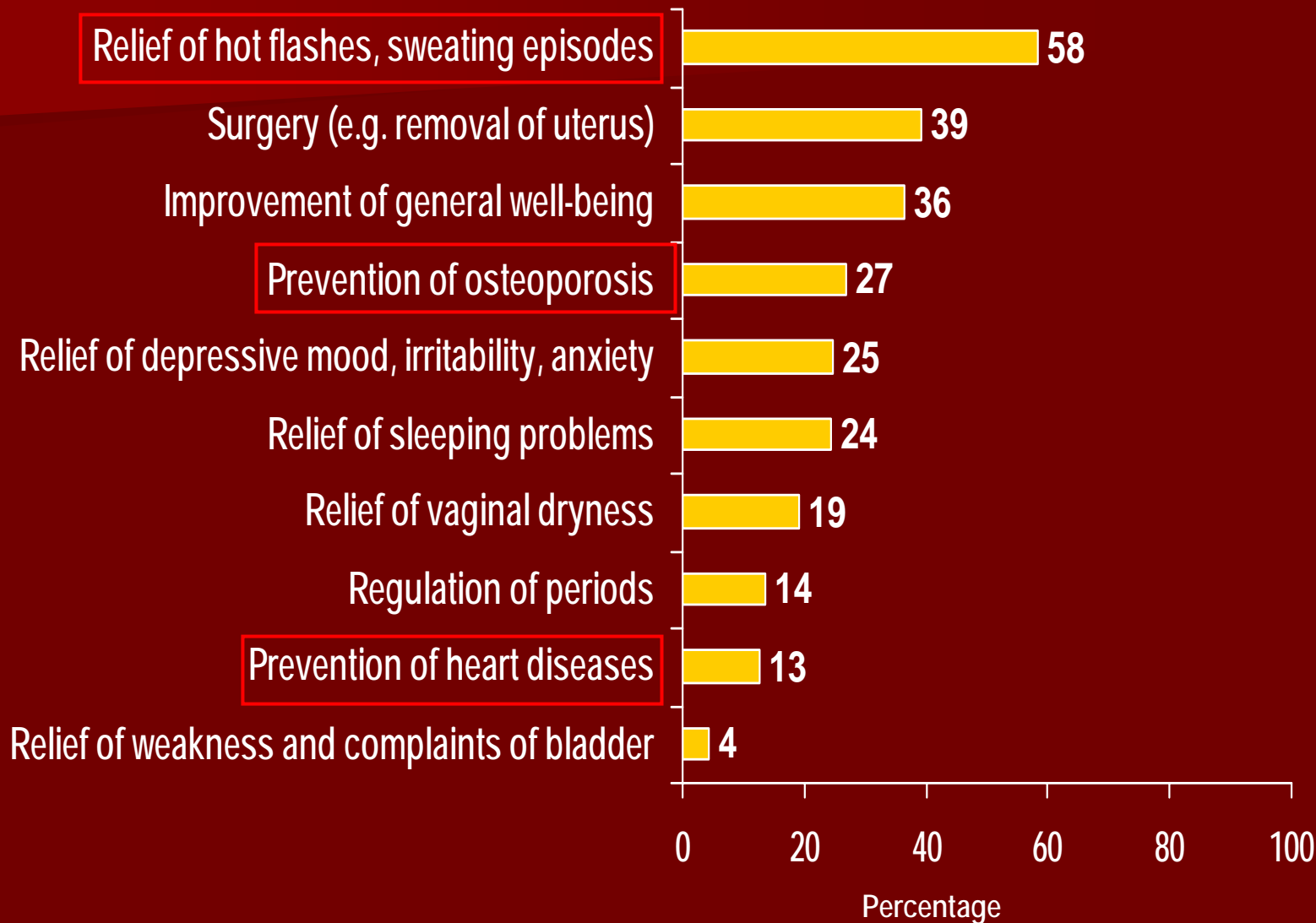


Risks of HT in younger healthy symptomatic women

- No evidence of increased CV risk (“early harm”.) Data from WHI not relevant here. [Lobo, Arch Intern Med 2005](#)
- Breast cancer risk not increased with short term use – even with “standard” HT doses
- Lower doses are safer and are often sufficient for symptoms

US: Decisive reasons for starting HT use

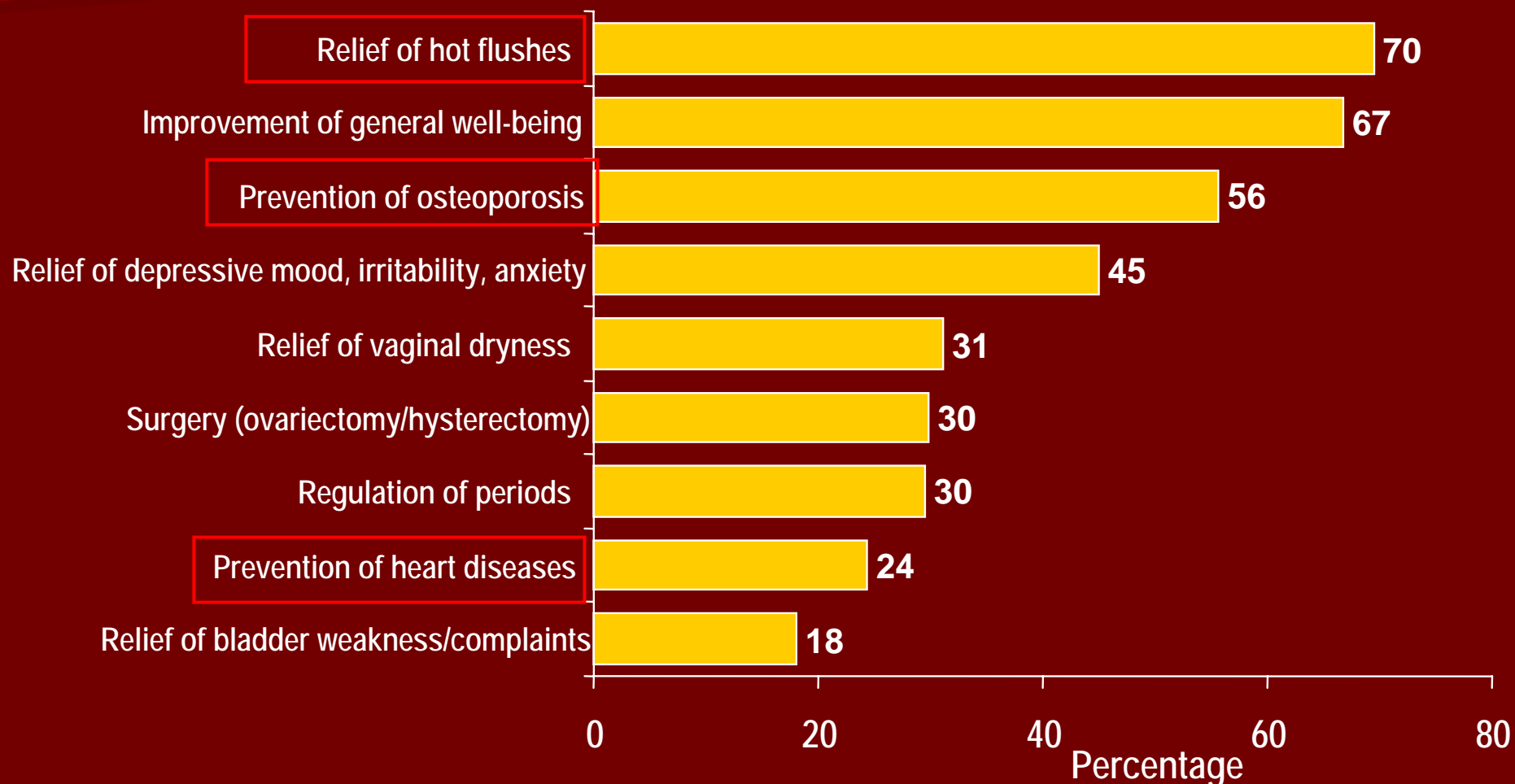
Q: What were the decisive reasons for you starting HT use?



Base: n = 2021 Current & Former HT users

Europe: Decisive reasons for starting HT use

Q: What were the decisive reasons for you starting HRT use?



Base: n = 2472 Current & Former HRT users

Bio-identical hormones: Claims

- Not from synthetic (artificial) sources
- Safer than standard therapy
- Less side effects
- “customized” (based on hormone levels) to individual needs

What does “bio-identical” mean?

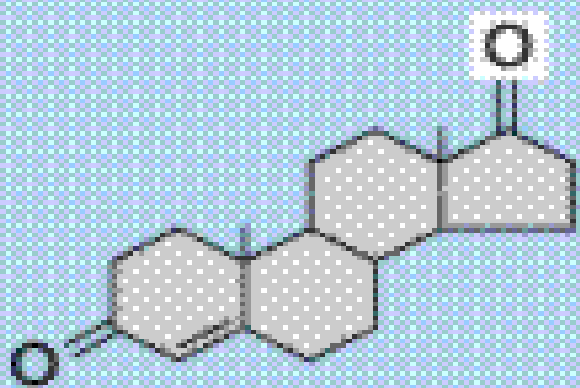
- Native to the human: estradiol, estrone, (definitely decreased after menopause); progesterone (only relevant for menstruation); testosterone, DHEA, DHEAS (decreased with aging); precursors like pregnenolone (not relevant for menopause); estriol (relevant only in pregnancy)
- Popular prescribing for “bio-identicals” has achieved a higher art form

Where do estrogen products come from?

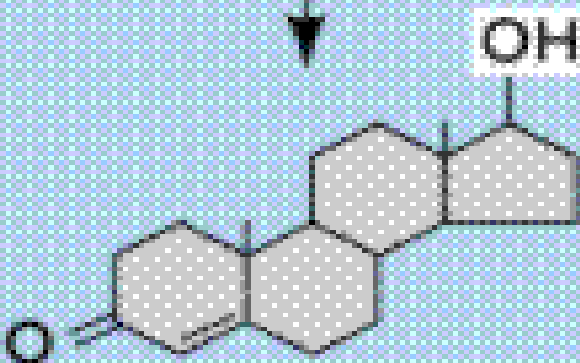
- All products (including “bio-identical”) are synthesized
- Starting point for the steroid may be extracted from a “natural” plant source
- Native crystalline estradiol or estrone which is manufactured in a lab is identical to estradiol/estrone from the ovary and is “bio-identical”

“Cabeza de negro” (yam) containing the sapogenin, diosgenin, the starting point for steroid synthesis

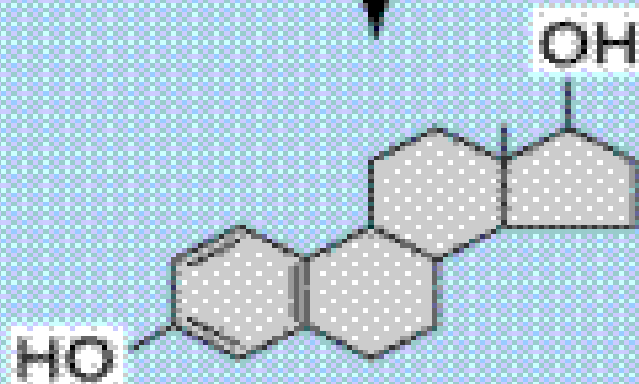




Androstenedione

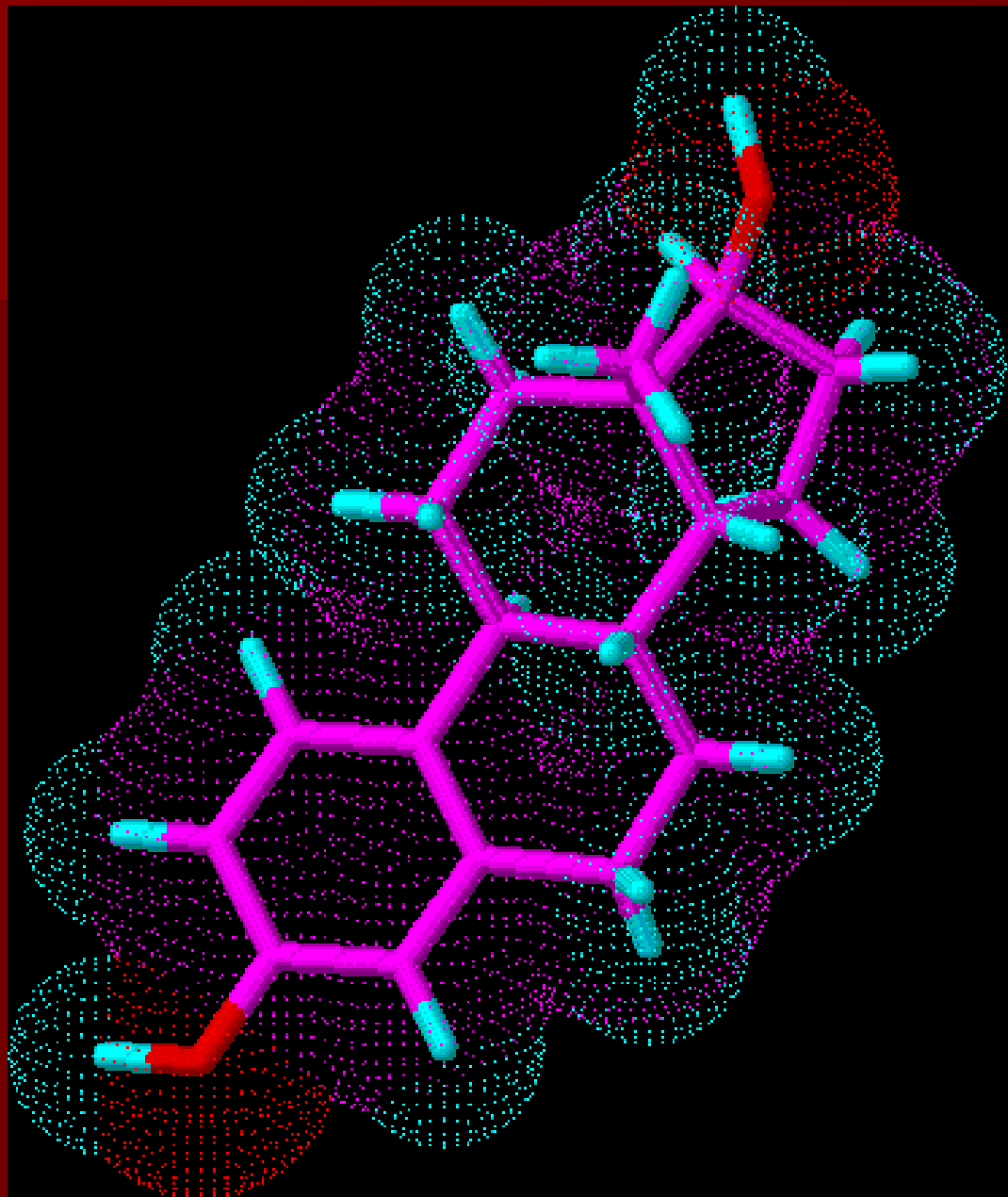


Testosterone



Estradiol

Sex steroids



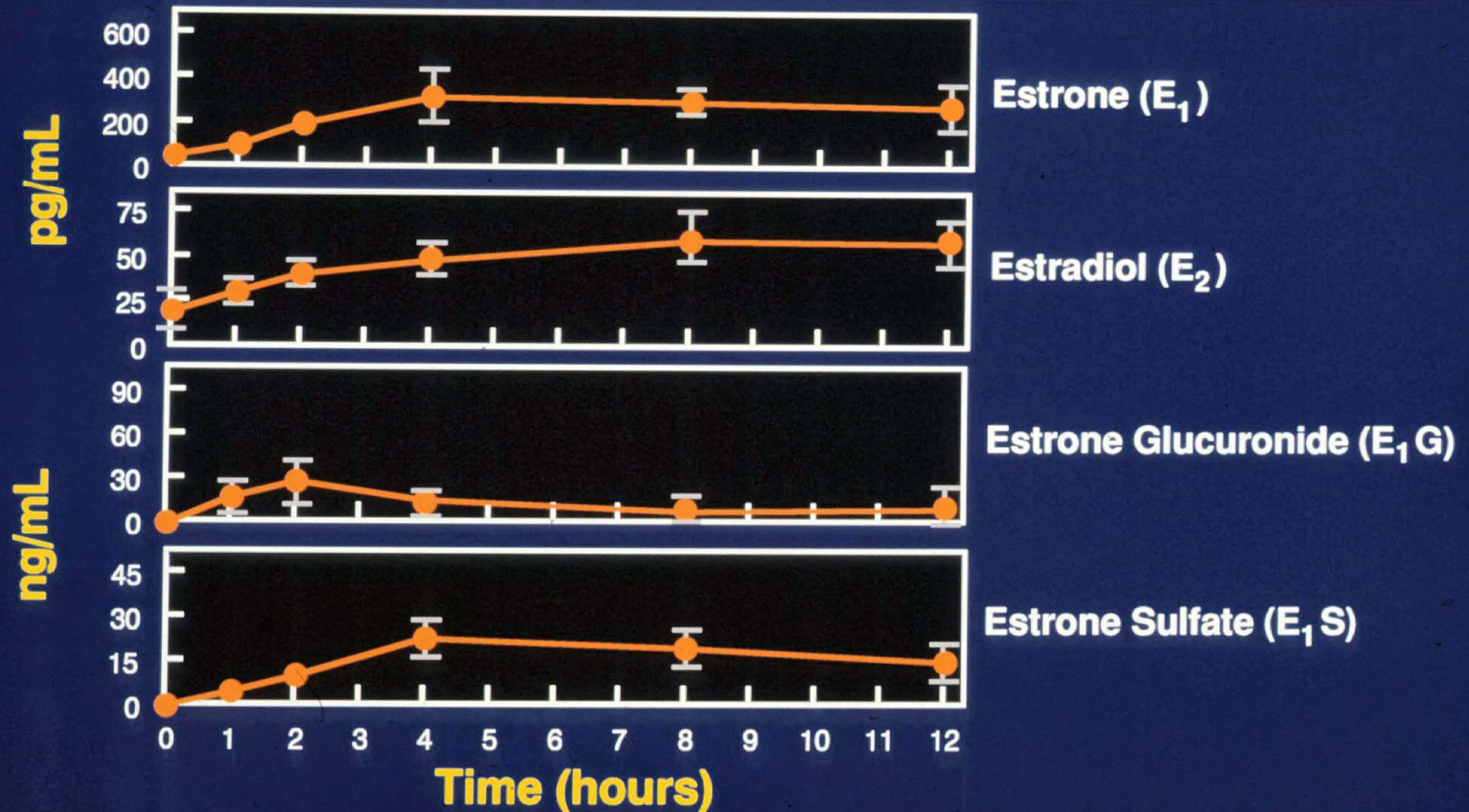
Measurement of hormone levels: many problems

- Serum estrogen assays (estradiol, estrone) not standardized for postmenopausal women (**mostly inaccurate**) – even less reliable with urinary and salivary assays
- Estriol – only relevant in pregnancy
- Testosterone and free testosterone – imprecise and variable normal range (status of age and presence of ovaries)

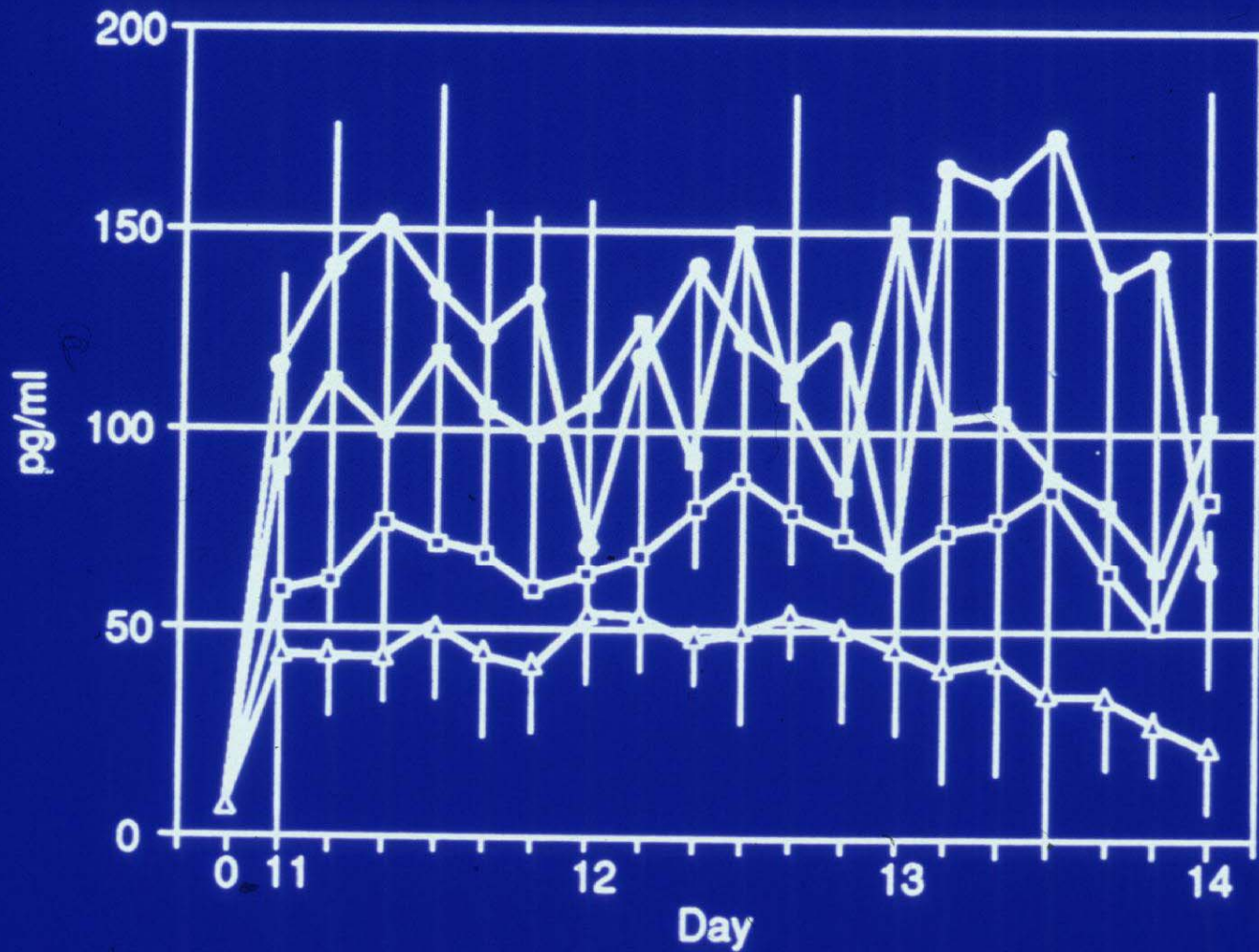
Compounding or blending hormones based on measurements

- Estrogen levels do **not correlate with symptoms**
- Most estrogen assays, particularly salivary assays, are **inaccurate**
- Inability to reliably predict hormone level with a given hormonal preparation (differences in absorption, metabolism and clearance)
Certain hormonal creams are **very poorly absorbed**
- Compounding **does not employ rigorous QC** resulting in batch to batch variability and is not controlled

PHARMACOKINETICS OF 2 mg ORAL 17 β -ESTRADIOL OVER 12 HOURS

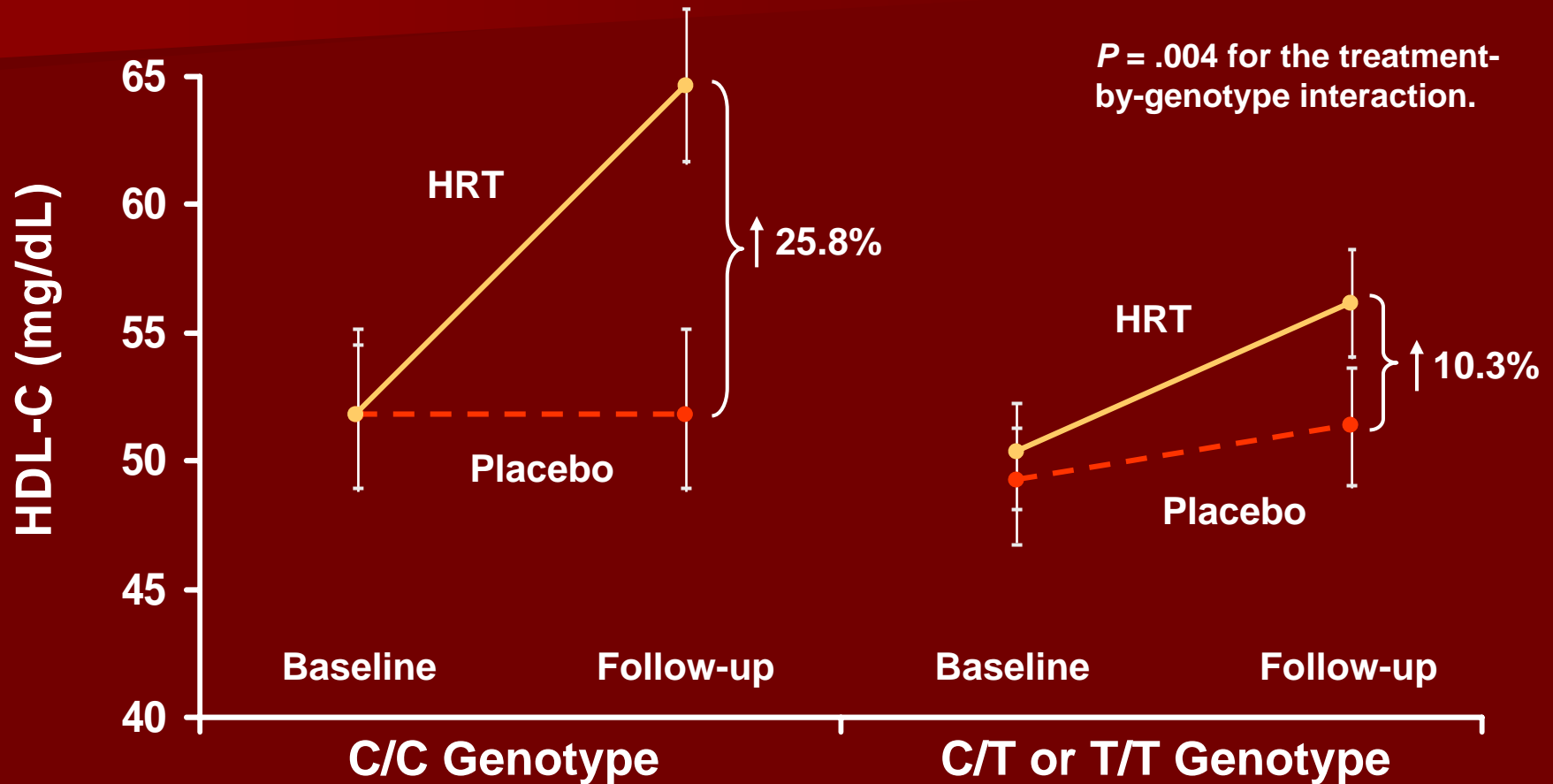


Lobo. *J Reprod Med.* 1992;37:77-84.



Scott RT Jr, et al.
Obstet Gynecol 1991;77:758

Effect of ER α Genotype and HRT on HDL-C



C = cytosine; T = thymine.

Safety Claims with use of Bio-identicals

- No evidence for reduced side effects
- No evidence for increased safety eg. estriol (mainly relevant in pregnancy) is not specific for decreasing breast cancer risk and as with unopposed estrogen can lead to endometrial cancer ([Weiderpass, 1999](#))

Review statements on use of “bio-identicals”

- Claims unfounded. Not any more bio-identical than other FDA approved products. No evidence for being more safe.

Boothby, Menopause 2004

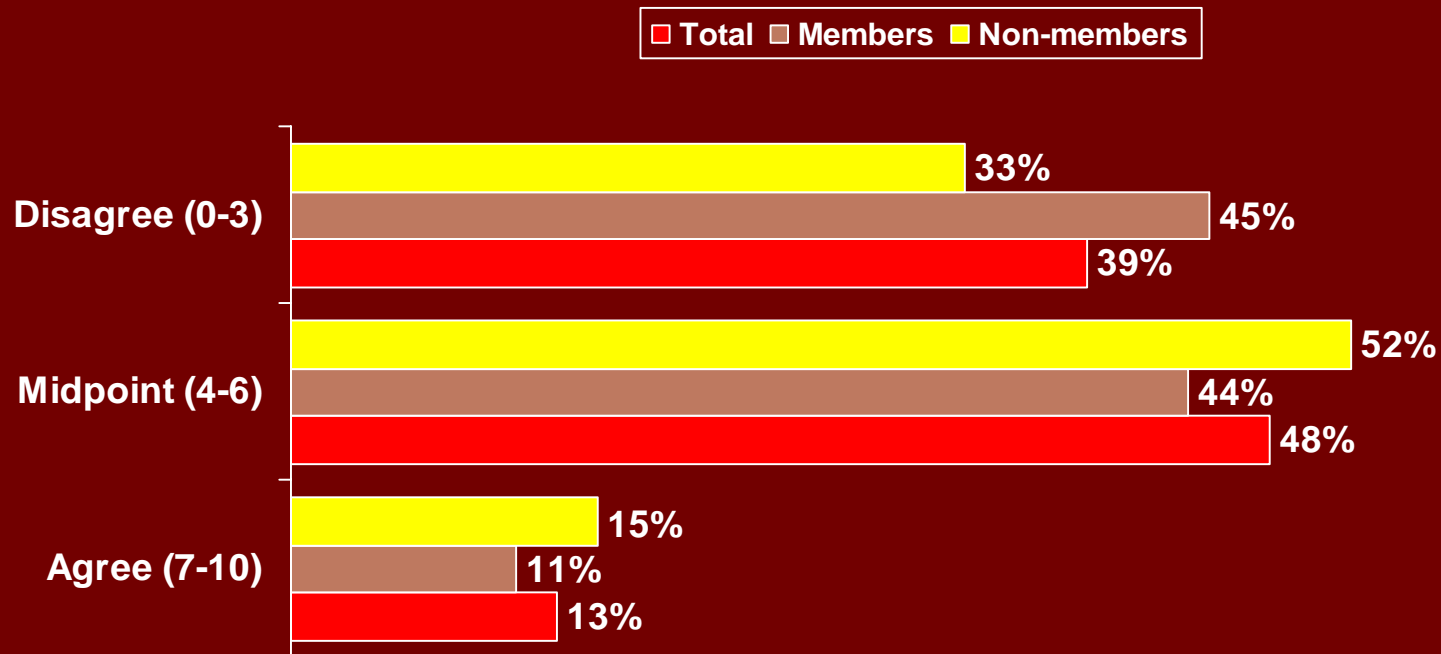
Taylor, Sexuality Repro Menopause, 2005

MacClennan, Climacteric (IMS), 2005

NAMS statement, 2005

ACOG committee opinion, 2005

Are Bioidenticals an Effective, Viable Treatment Alternative?



Combined ratings based on a zero to 10 scale where zero means strongly disagree and 10 means strongly agree.

Philosophical perspective on prescribing of hormones

- Only when needed
- Lowest effective dose
- Use of native products (estradiol, estrone, progesterone) which are FDA approved is appealing, but there is no evidence to date that there is any real difference compared to other non native hormones
- Native products are all “synthetic” but are the “real McCoy”