What are Bio-identical Hormones?

- Compounds with the same chemical structure as hormones produced in the body.
- From wild yams and soybeans - FDA approved and CMPD.
- 60% of clinicians support use Bio-id HRT - NAMS 2015.
- 1 million women > 40 yr use CMPD HRT.
- 1 in 6 women > 80 yr use HRT.

What are synthetic Hormones?

- Synthetic Conjugated Estrogens - Pregnant mares urine.
- WHI study: 16,000 postmenopausal women age 63 studied to observe synthetic HRT to prevent CAD, breast and colon cancer, osteoporosis.
- 2002: E+P study stopped.
- 2016 - NAMS suggests HRT benefits.
Benefits of Bio-id HRT
- Well tolerated, less side effects, dose specific, better symptom control, cost effective
- Delivery methods (oral, transdermal gel, cream, patch, lozenges, troche, pellet, drops, spray)
- Many FDA approved-good studies benefit breast cancer, bone, endometrial lining and overall well being

FDA approved Bio-id HRT
- Estrace pill/vaginal cream
- Climara patch
- Vivelle dot
- Estraderm
- Estrogel
- Estring vaginal
- Vagifem tablet
- Prometrium pill
- Testim/Androgel (men)

Compounding Pharmacies
- Customized-CMPD HRT
- Accredited/USP 795/797 for sterile compounding
- ACHC website-pharmacy credentials
- NEW: DQSA authorized FDA to monitor compounding pharmacies-prevents misleading claims or inconsistent compounding
Contraindications to HRT

- Abnormal undiagnosed vaginal bleeding
- Active/recent blood clots/MI/Stroke
- Suspected or active breast or prostate cancer
- Active liver disease with elevated LFT's
- Pregnancy/breast feeding/caution-smokers

Estrogen

- Estrone (E1): secreted by ovary and fat tissue-most abundant in menopause, may be detrimental to breast tissue
- Estradiol (E2): highest in reproductive years-the most potent estrogen
- Estriol (E3): highest in pregnancy-weakest estrogen useful in vagina and urethra

Progesterone

- Progesterone (P₄): produced by adrenal glands, ovaries and placenta in pregnancy. Levels highest in luteal phase
  *Men from adrenals and testes
- Levels drop in PMS/Perimenopause
- Give progesterone uterus intact-good studies using 200mg of Micronized Progesterone
- The "feel good hormone"-Hysterectomy-give Progesterone!
Testosterone in Women

- **Testosterone**: from ovaries/adrenals, builds muscle, bone, helps libido, vaginal tissue
- **Low levels**: fatigue, muscle loss, depression, bone loss, low libido and affect CV health
- **Transdermal**: low doses-skin or labia, studies-safe effective, not associated with breast cancer risk

Bio-id HRT for Women

- **Irregular cycles**: anovulation, menorrhagia, PCO’s, dysmenorrhea
- **PMS**: breast tenderness, mood fluctuation, water retention, fatigue, depression
- **Perimenopause**: irregular cycles, mood fluctuation, low libido, hot flashes, night sweats, fatigue
- **Menopause**: hot flashes, night sweats, insomnia, mood fluctuation, vaginal dryness, low libido, weight gain, osteopenia/osteoporosis

Menstrual Cycle
Blood vs. Saliva testing

- **Blood**: 1-5% hormones enter tissues
- "Free or Bioavailable" levels more accurate or fractionated Estrogens (E1 and E2)
- **Saliva**: hormones filtered through saliva-not bound to protein-conflicting studies...

*Blood capillary spot and urine metabolites*

Labs for Women

- Estradiol/Progesterone/Free and Total Testosterone
- SHBG/DHEAS
- CBC/CMP/TFT's/Lipids/Vit D/Iron studies
- If cycling draw day 21-23 of cycle
  - (Day 1 is 1st day of cycle)
- Menopause: draw anytime

Transdermal Progesterone

- PMS, PCO’s, Menorrhagia, Perimenopause
- Compound gel:
  - Start with 3%-30mg gel
  - 5% most common >40yr
- **Cycling**: RX: Progesterone gel 3% 1-2 pumps BID day 14 until cycle starts
- OR: 1 pump QHS day 7-14 then increase to BID, stop when cycle starts
Micronized Progesterone

- FDA approved
  - RX: Micronized progesterone 100mg po QHS, stop for 7 days on cycle

- Compound
  - CMPD Progesterone capsules- 50mg-300mg (if peanut allergy or need other dosage)
  - RX: Progesterone caps 150mg po QHS

- >200mg-bloating, weight gain, water retention, somnolence (good for poor sleep)

- Use 200mg po QHS for heavy bleeding

Menopause Dosage:

- CMPD Transdermal QD or BID
- Biest=Estriol (E3) + Estradiol (E2) 80/20 or 50/50
  - RX: Biest 2.5 gel 1-2 pumps BID or 1-4 clicks BID

- May add Progesterone:
  - RX: Biest 1.5/Prog 50 gel 2 pumps BID

- Bio-id Pellet: 25-75mg-good absorption

- Study: FDA patch better absorption than CMPD
Oral capsule dosages: Women

- Same dosage as gel
  - RX: Biest 2.5/Prog 75 1 po BID

- NOTE: Premarin 0.625 mg/Provera 5mg is equal to
  - Biest 2.5/Progesterone 30mg

- BCP's wean 6-8 wks skip every 4th day using oral or transdermal route then every 2nd or 3rd day

Vaginal Estrogen

- Estriol vaginal cream or suppository
  - RX: Estriol 2 mg/gm, 1/4 applicator PV at night 2-3 x a week

- May add Testosterone for libido or dryness
  - RX: Estriol 2mg/gm Testosterone 2mg/gm, 1 supp. PV 2 x a week

- Estriol vaginal gel improves vaginal mucosa and genitourinary symptoms
  - May use DHEA 10 or 20 mg supp. or change to Estradiol

Testosterone dosage: Women

- Transdermal-labia or skin
  - RX: Testosterone cream 20% 1-2 clicks to vulva in am 3x a wk
  - RX: Testosterone gel 2mg/gm 1 pumps in am (skin)

- RX: Estriol 2mg/gm/Testosterone mg: 1 gram PV QHS for 1 week then 2-3x a wk

- Careful if adding Testosterone to HRT BID

- Pellet: 50mg-150mg every 3-6 months

- Large randomized studies show Testosterone improves libido and vaginal atrophy, long term data being collected.
Goal for labs: Women

- **Cycling:**
  - Progesterone: > 6
  - Testosterone: free 1-6 / total up to 60
  - Estradiol: 90-250
  - Best in luteal phase

- **Menopause:**
  - Estradiol: 90-250
  - Fractionated keep E1 and E2 moderate/low
  - Progesterone: > 6
  - Free Testosterone: 1-6 / total up to 60
  - Can draw anytime

Women: excess HRT

- **Estrogen:** breast tenderness, fibrocystic breasts, weight gain, heavy bleeding, cramps, irregular cycles

  *lower dose/amount or increase Progesterone, give DIM;
  
  modulates estrogen metabolism and aromatase*

- **Progesterone:** somnolence, water retention, weight gain, anxiety

- **Testosterone:** acne, irritability, aggression, hair growth or loss, polycythemia, vulvar sensitivity

  NOTE: If HCT > 52: donate blood and lower dose
Bio-id HRT for Men

**Andropause** - decline of Testosterone - risk for mortality

- T levels drop 10% every decade > 30yr, may include elevated Estrogen.
- Low libido, ED, fatigue, weight gain, low stamina, depression, decreased muscle mass, osteoporosis.

Testosterone in Men

- Produced by the testes, builds muscle, bone, helps libido, mood.
- Studies show that testosterone improves mood and well being but doesn’t help improve vitality and cognition.
- Synthetic T - conflicting studies for CAD, BPH or use after treated prostate CA.
- FDA Bio-id studies but not CMPD.

Synthetic Testosterone

- Risks: male infertility, erythrocytosis, heart disease, stroke, blood clots, hostility, depression, BPH, fluid retention, gynecomastia, acne, liver toxicity, may potentiate sleep apnea.
- FDA - new labeling, risks, dependence, abuse.
- Gels safer than injections.
Labs for Men

- Free and Total Testosterone/Estradiol/SHBG/DHEAS
- CBC/CMP/TFT’s/Lipids/Vit. D
- If needed: PSA/Prolactin/FSH/LH
- Draw before 10 am

Male Bio-id T dosage:

- **CMPD Transdermal gel:** 10% 15% 20%
  - 10% = 100mg
  - **RX:** Testosterone gel 10% / Prog 5mg
    - 2 pumps in am decrease with results

- Progesterone lowers aromatase conversion to estrogen
  - *6/7 days a wk, 3-4x a wk, or 1 pump BID

- Easy to apply, absorbs in 1 hour

Testosterone dosages:

- Troches or lozenges: 15-30mg BID
- Pellets: 75mg-400mg-reinsert 3-6 months, once pellet in you can’t take it out - doses based on high levels of T
- Lab goal Total T: >400 Free T 50-240
- If no response change to FDA approved Bio-id Testim or Androgel
- Never give oral-liver toxicity
Men: excess HRT

- **Estrogen**: weight gain, gynecomastia, BPH, depression, anxiety, low libido
  - If Estrogen >30 and symptomatic start Anastrazole 0.5mg 2-3x a wk and DIM 300mg/day ...
- **Testosterone**: acne, aggression, hair loss, water retention, polycythemia
  - If HCT > 52 donate pint of blood, lower dose

Things to remember about transdermals:

- **Women**: upper outer arm, inner thigh, back of knees, (avoid breasts and clitoris)
- Rotate sites every 3 days
- Avoid forearms-cross contamination
- **Men**: apply am to upper outer arm (avoid genitals)
- Wash hands!

Concerns: Bio-id HRT vs. Synthetic

- **FDA Bio-id HRT**: well studied but costly, not many dosages
- **CMPD HRT**: absorption-HRT levels fluctuate ±
  - Gels-cross contamination
  - No randomized large scale controlled trials comparing compounded FDA HRT to CMPD HRT
  - CMPD HRT regulated differently by the FDA
- **Synthetic HRT**: 3 large population studies: WHI, British Million Women and French 3N show PM women using synthetic HRT-significant increase risk-breast cancer, stroke, CAD ±
Bio-ID HRT Studies:

- **French E3N study**: Bio-id HRT same, lower risk of blood clots and stroke as women not on HRT
  - Bio-id estrogen patches/gels safer than pills
  - Cardiovascular and immune markers favorably impacted
    CMPD Biest 8o/2o and/or Progesterone for 36 months \(\text{a}_{\text{a}}\)
- **REPLENISH**: Bio-id Estradiol and Progesterone in capsule vs Estradiol or CEE and Progestins or progesterone 
  (published data suggest a safer profile for Bio-id HRT) \(\text{a}_{\text{a}}\)

Progesterone studies:

- Micronized progesterone safer than synthetic \(\text{a}_{\text{a}}\)
- Micronized progesterone/CEE combo showed substantially lower rate of endometrial hyperplasia than CEE alone \(\text{a}_{\text{a}}\)
- Micronized progesterone decreased breast proliferation induced by Estradiol \(\text{a}_{\text{a}}\)
- FDA - Micronized progesterone well studied

Bone Health:

- Transcutaneous therapy (3-5yr) micronized estradiol and progesterone in PM women increases BMD \(\text{a}_{\text{a}}\)
- Bio-id Estradiol comparable to CEE slows bone loss \(\text{a}_{\text{a}}\)
Studies:

- Low libido/vaginal dryness - early breast cancer had same response to vaginal testosterone as vaginal ring.
- Benefits overall health, symptoms and well-being in women and men - multiple studies.

Pearls:

- Not effective - change dose/delivery/educate
- More is not better - go low and slow
- All hormones associated with some risk - obtain physical, labs, imaging, medical history and follow up
- Document risks, benefits, side effects - CMPD Bio-ID HRT is not FDA approved
- Focus on patient response more than the labs!!

Optimal Health!
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Clinical Herbalist
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parra@consultant.com
<table>
<thead>
<tr>
<th>Female Hormone Symptoms</th>
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**Progesterone Deficiency**

- Swollen Breasts
- Headaches
- Anxiety
- Irregular Menses
- Cramping
- Infertility
- Heavy Cycles

**Progesterone Excess**

- Acne
- Weight Gain
- Low Libido
- Mood Swings
- Depression
- PMS
- Fuzzy Thinking

**Testosterone Deficiency**

- Fatigue
- Memory Problems
- Decreased Libido
- Muscle Weakness
- Bone Loss
- Fibromyalgia
- Mental Fuzziness

**Testosterone Excess**

- Acne
- Loss of Scalp Hair
- Deepening of Voice
- Male-Pattern Hair Growth
- Irritability/Moody
- Clitoral Enlargement

**Estrogen Deficiency**

- Hot Flashes
- Sleep Disturbances
- Dry Skin
- Foggy Thinking
- Heart Palpitations
- Low Libido

**Estrogen Excess**

- Night Sweats
- Vaginal Dryness
- Headaches
- Memory Lapses
- Depression
- Bone Loss

- Water Retention
- Breast Swelling
- Craving for Sweets
- Uterine Fibroids
- Anxiety
- Irritability

- Irregular Cycles
- Heavy Cycles
- Fatigue
- Weight Gain
- Mood Swings
- Fibrocytic Breasts
### Female Hormone Symptoms

<table>
<thead>
<tr>
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<tbody>
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<td>Allergies</td>
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<tr>
<td>Cravings for Sweets</td>
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<tr>
<td>Chemical Sensitivities</td>
<td>Symptoms of Hypothyroidism</td>
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<td>Same symptoms as Low Cortisol, Including:</td>
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<td>Low Body Temperature</td>
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<td>Brittle Nails</td>
<td>Swollen, Puffy Eyes</td>
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