

ORAL AND TRANSDERMAL ESTROGEN DOSE EQUIVALENCES

ORAL ESTROGENS

- Plasma estrogen peaks & troughs
- First pass through GI tract & liver (requires higher dose)
- Increased hepatic enzymes, inflammatory markers
- Increased triglycerides
- Increased blood pressure
- Reduced IGF-1
- Decreased LDL cholesterol and increased HDL

TRANSDERMAL ESTROGENS

- Serum E2 levels relatively constant
- Does not pass through liver – lower doses required
- No change in inflammatory markers
- No change or decrease in triglycerides
- Decrease in blood pressure
- No effect on GH/IGF-1
- Decreases LDL but no change in HDL

Active Ingredient	Brand	Source of Estrogen	Dose Equivalents
ORAL			
equine conjugated estrogen	Premarin	Pregnant mares urine	0.625mg
synthetic conjugated estrogen	Enjuvia	Plant derived: Soy/Yams	0.625mg
esterified estrogens	Menest	Plant derived: Soy/Yams	0.625mg
17- β -estradiol* (micronized)	Estrace	Plant derived: Soy/Yams	1mg
17- β -estradiol*	Femtrace	Plant derived: Soy/Yams	No equivalence data, only studied with placebo
estropipate	Ogen	Plant derived: Yams	0.625mg
	Ortho-Est		

TRANSDERMAL

17- β -estradiol* patch (reservoir)	Estraderm	Plant derived: Soy/Yams	0.05mg
17- β -estradiol* patch (matrix)	Alora	Plant derived: Soy/Yams	0.05mg
	Climara		
	Vivelle		
	Vivelle-Dot		
	Menostar		
17- β -estradiol* gel	Divigel	Plant derived: Soy/Yams, Sunflower seeds, Rapeseed, Poppy seeds, Pine trees	1g Divigel = 34pg/mL estradiol
	Elestrin	Plant derived: Soy, Rapeseed, Pine tree wood	1 pump (0.87g/d) = 0.0125mg estradiol 2 pumps (1.7g/d) = 0.0375mg estradiol
	Estrogel	Plant derived: Oil seed, Soy, Pine tree wood	No comparison studies done in U.S. Rate of delivery is 35 μ g/day which is therapeutically equivalent to Climara 50 μ g/day
17- β -estradiol* emulsion	Estrasorb	Plant derived: Soy	2 packets (3.48g) = 0.05mg systemic estrogen
17- β -estradiol* spray	Evamist	Plant derived: Soy/Yams	No direct comparison trials. 1.53mg/spray. For 1 spray, 21 μ g gets to blood stream (29 μ g for 2 sprays, 40 μ g for 3 sprays). Premarin 0.625mg = just over 3 sprays of Evamist.

NOTES

*The only formulation considered bioidentical, as defined by the 2007 Position Statement of the Endocrine Society.

Matrix patch: Estradiol is embedded in the adhesive layer that is applied directly to the skin.

Reservoir patch: Estradiol is contained in a drug reservoir and its release is controlled by a copolymer membrane; contains more layers than matrix patch.

REFERENCES

Adapted from: Dong BJ. Hormonal Drugs: Female Sex Hormones in: Anderson PO, Knoben JE, Troutman WG, eds. Handbook of Clinical Drug Data. 10th ed. New York, N.Y. McGraw Hill; 2002:679–697.

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