

**Details of the search strategy used, of the trials identified in the search and references w1- w40**

**Table A** Randomised controlled trials of hormone replacement therapy in the primary and secondary prevention of vascular disease

<b>Trial</b>	<b>Indication</b>	<b>No of subjects</b>	<b>Mean age (years)</b>	<b>Female (%)</b>	<b>Ethnicity white (%)</b>	<b>Uterus present (%)</b>	<b>Follow up (years)</b>	<b>Stroke rate (% of controls per year)</b>	<b>Intervention (daily dose)</b>	<b>Compliance (%)</b>	<b>Quality score (0-5)</b>
Marmorston 1965 <sup>w1</sup>	Cerebral thrombosis	200	62.1	37	?	?	?	?	Females: CEO (0.625 mg) Males: CEO (0.625-2.5 mg)	?	2
Veterans Administration Cooperative 1966 <sup>w2</sup>	Cerebrovascular disease	592	?	0	79.2	?	1.4	7.72	CEO (1.25 mg) after 1 year CEO (2.5 mg)	94	5
McDowell et al 1967 <sup>w3</sup>	Non-embolic cerebral infarction	134	64	25	?	?	Treated 0.9, control 1.2	0	CEO (1.25mg)	84	3
Nachtigall et al 1979 <sup>w4</sup>	Hospitalised	168	55.1	100	74	?	10.0	0	CEO (2.5 mg) + MPA (10 mg)	88	4
Raz et al 1993 <sup>w5</sup>	Urinary tract infection	93	65	100	?	?	0.7	0	Estriol cream (0.5 mg)	65	4
Hall et al 1994 <sup>w6</sup>	Rheumatoid arthritis	200	56	100	87	82	2.0	0	Transdermal O2 (50 mg)	74	5
PEPI 1995 <sup>w7</sup>	Healthy	875	56	100	?	68	3	0	CEO ± MPA or MP	76	5

Hall et al 1998 <sup>w8</sup>	Coronary disease	60	59.4	100	?	?	1	0	Transdermal O2 (50 mg) + MPA (5 mg) or CEO (0.625 mg) + MPA (5 mg)	77	2
Mijatovic et al 1998 <sup>w9</sup>	Hysterectomy	60	54.8	100	?	100	2	0	Raloxifene (60 mg or 150 mg) or CEO (0.625 mg)	87	5
Komulainen et al 1999 <sup>w10</sup>	Healthy	458	52.7	100	?	?	5	0	E2Val (2 mg) + CPA (1 mg)	80	2
Ravn et al 1999 <sup>w11</sup>	Healthy	1 609	55	100	85.0	?	4.0	0	Alendronate (5 mg or 2.5 mg) or CEO (0.25 mg) + MPA (5 mg)	73	4
Recker et al 1999 <sup>w12</sup>	Low bone mass	128	72.6	100	?	?	3.5	0.45	CEO (0.3 mg) + MPA (2.5 mg)	61.8	5
Høibraaten et al 2000 <sup>w13</sup>	VTE	140	56	100	?	?	1.3	1.11	O2 (2 mg) + NTA (1 mg)	76	5
Mosekilde et al 2000 <sup>w14</sup>	Healthy	1 006	49.8	100	?	?	5	0.08	O2 (2 mg) ± NA (1 mg)	89.2	2
Os et al 2000 <sup>w15</sup>	Coronary artery disease	118	64.5	100	?	?	1.0	0	Transdermal O2 (50 mg) + MPA (5 mg)	94.2	3
Angerer et al 2001 <sup>w16</sup>	Carotid atherosclerosis	264	?	100	?	?	1	0	O2 (1 mg) + GG (0.025 mg)	98	4
Binder et al	Healthy	59	82	100	86	62	0.75	0	CEO (0.625	81	5

2001 <sup>w17</sup>									mg) + MPA (5 mg)		
Gallagher et al 2001 <sup>w18</sup>	Healthy	489	71	100	98	41	3.0	0.95	CEO (0.625 mg) ± MPA (2.5 mg)	78	5
Hodis et al 2001 <sup>w19</sup>	Healthy	222	62	100	58	62	2.0	0	O2 (1 mg)	94	5
Simon et al 2001 <sup>w20</sup>	IHD	2 763	67	100	?	100	4.1	1.18	CEO (0.625 mg) + MPA (2.5 mg)	78	5
Viscoli et al 2001 <sup>w21</sup>	Stroke	664	71	100	?	55	2.7	6.34	O2 (1 mg)	66	5
Arrenbrecht et al 2002 <sup>w22</sup>	Healthy	160	53	100	99	?	2.0	0	Transdermal O2 (100 mg or 50 mg)	76	4
ESPRIT 2002 <sup>w23</sup>	MI	1 017	62.3/62.9	100	?	?	2.0	0.59	O2 (2 mg)	53	5
Giske et al 2002 <sup>w24</sup>	Hysterectomy	166	49.5	100	?	0	2.0	0	O2 (0.5 mg or 1 mg or 2 mg)	84	4
Waters et al 2002 <sup>w25</sup>	IHD	423	65	100	?	41	2.8	0.67	CEO (0.625 mg) ± MPA (2.5 mg) †	69	5
Wassertheil-Smoller et al 2003 <sup>w26</sup>	Healthy	16 608	63	100	84	100	5.6	0.24	CEO (0.625 mg) + MPA (2.5 mg)	60	5
Holmberg et al 2004 <sup>w27</sup>	Breast cancer	345	55	100	?	?	2.1	0	No specified treatment	?	3
WHI Steering	Healthy	10 739	63.6	100	75.3	0	6.8	0.32	CEO (0.625	46.2	5

Committee 2004 <sup>w28</sup>									mg)		
----------------------------------	--	--	--	--	--	--	--	--	-----	--	--

CEO=conjugated equine oestrogen. DG=desogestrel. O2=17 $\beta$ -oestradiol. E2Val=Oestradiol valerate. CPA=cyproterone acetate. GG=gestogene. IHD=ischaemic heart disease. MI=myocardial infarction. MPA=medroxyprogesterone acetate. NG=norgestrel. NTA=northisterone acetate. VTE=venous thromboembolic. † progesterone given if no hysterectomy

**Table B** Trials excluded from the analysis

Trial	Indication	No of subjects	Mean age (years)	Female (%)	Ethnicity white (%)	Uterus present (%)	Follow up (years)	Stroke rate (% of controls per year)	Intervention (daily dose)	Compliance (%)	Quality score (0-5)
<b>Unreported</b>											
WISDOM <sup>w29</sup>	Healthy	5664	?	100	?	?	?		CEO + MPA CEO		?
<b>Excluded</b>											
Lindsay et al 1976 <sup>w30</sup>	Hysterectomy	120	?	100	?	0	5.0	Unable to ascertain stroke events	Mestranol (28.4 mg)	?	2
McDonald et al 1994 <sup>w31</sup>	Rheumatoid arthritis	62	54	100	?	?	1.0	Unable to ascertain stroke events	NTA (1 mg)	71	4
Perez-Jaraiz et al 1996 <sup>w32</sup>	Bone loss	104	50	100	?	?	1.0	Unable to ascertain stroke events	Transdermal O2 (50 mg) + MPA (10 mg)	94	3
Kyllonen et al	Healthy	78	52.6	100	?	?	2.0	Unable to	O2 (2 mg)	93	2

1998 <sup>w33</sup>								ascertain stroke events	followed by O2 (2 mg) + MPA (10 mg) or O2 (2 mg) followed by O2 (2 mg) + MPA (20 mg)		
De Kleijn et al 1999 <sup>w34</sup>	Healthy	121	47	100	?	100	2.0	Unable to ascertain stroke events	O2 (1.5 mg) + DG (0.15 mg), or CEO (0.625 mg) + N (0.15 mg)	?	5
Guidozzi et al 1999 <sup>w35</sup>	Ovarian cancer	130	?	100	?	?	4.0	Unable to ascertain stroke events	CEO (0.625 mg)	89	2
Herrington et al 2000 <sup>w36</sup>	Coronary disease	309	65.8	100	81.9	38.8	3.2	Only gives stroke/TIA together	CEO (0.625 mg), or CEO (0.625 mg + MPA (2.5 mg)	?	5
Mulnard et al 2000 <sup>w37</sup>	Alzheimer disease	120	75.0	100	~89.0	~84.0	1.3	Unable to ascertain stroke events	CEO (0.625 mg or 1.25 mg)	81.0	4
Watts et al 2000 <sup>w38</sup>	Post-menopausal	406	51.5	100	?	?	2.0	Unable to ascertain stroke	CEO (0.3 mg or 0.625 mg or 1.25 mg)	?	3

								events			
Clarke et al 2002 <sup>w39</sup>	IHD	255	67.0/66.3	100	?	58.4	2.6	Only gives stroke/TIA together	O2 (2.5 mg) or O2 (3 mg) + NG (4 mg)	76.1	3
Chang et al 2004 <sup>w40</sup>	Menopause	279	55	100	0	?	1	No control group	CEO (0.625 mg) + DG (10 mg) or MPA (5 mg)	94.3	4

CEO=conjugated equine oestrogen. DG=desogestrel. O2=17 $\beta$ -oestradiol. IHD=ischaemic heart disease. MPA=medroxyprogesterone acetate. NG=norgestrel. NTA=northisterone acetate.

## Appendix

### Search terms and strategy used

[1]—exp “Hormone replacement therapy” OR exp “Estrogen replacement therapy” OR exp “estrogens” OR “HRT” OR “ERT”

[2]—exp “Randomised controlled trials” OR exp “randomized controlled trials” OR exp “Clinical trials”

[3]—[1] AND [2]

[4]—Limit [3] to English language

[5]—Limit [3] to human

[6]—Limit [3] to (“clinical trial” OR “clinical trial phase I” OR “clinical trial phase ii” OR “clinical trial phase iii” OR “clinical trial phase iv” OR “controlled clinical trial” OR “journal article” OR “multicenter study” OR “randomized controlled trial”)

### References of trials included and excluded in the review, by year of publication

#### Included trials

w1. Marmorston J. *Effect of estrogen treatment in cerebrovascular diseases. Cerebral vascular diseases*. New Jersey: Grune & Stratton, 1965.

- w2. Report of the Veterans Administration Cooperative study of atherosclerosis. An evaluation of estrogenic substances in the treatment of cerebral vascular diseases. *Circulation* 1966;XXXIII and XXXIV:II3-9.
- w3. McDowell F, Louis S, McDevitt E. A clinical trial of Premarin in cerebrovascular disease. *J Chron Dis* 1967;20:679-84.
- w4. Nachtigall LE, Nachtigall RH, Nachtigall RD, Beckman EM. Estrogen replacement therapy II. A prospective study in the relationship to carcinoma and cardiovascular and metabolic problems. *Obstet Gynecol* 1979;54:74-9.
- w5. Raz R, Stamm WE. A controlled trial of intravaginal estriol in post-menopausal women with recurrent urinary tract infections. *N Engl J Med* 1993;329:753-6.
- w6. Hall GM, Daniels M, Doyle DV, Spector TD. Effect of hormone replacement therapy on bone mass in rheumatoid arthritis patients treated with and without steroids. *Arthritis Rheum* 1994;37:1499-505.
- w7. The Writing Group for the PEPI Trial. Effects of estrogen or estrogen/progestin regimens on heart disease risk factors in postmenopausal women. The postmenopausal estrogen/progestin interventions (PEPI) trial. *JAMA* 1995;18:199-208.
- w8. Hall G, Pripp U, Schenck-Gustafsson K, Landgren BM. Longterm effects of hormone replacement therapy on the symptoms of angina pectoris, quality of life and compliance in women with coronary artery disease. *Maturitas* 1998;28:235-42.
- w9. Mijatovic V, Netelenbos C, van der Mooren MJ, de Valk-de Roo GW, Jakobs C, Kenemans P. Randomized, double-blind, placebo-controlled study of the effects of raloxifene and conjugated equine estrogen on plasma homocysteine levels in healthy postmenopausal women. *Fertil Steril* 1998;70:1085-8.
- w10. Komulainen M, Kroger H, Tuppurainen MT, Heikkinen A-M, Alhava E, Honkanen R, et al. Prevention of femoral and lumbar bone loss with hormone replacement therapy and vitamin D3 in early postmenopausal women: a population based 5 year randomized trial. *J Clin Endocrinol Metab* 1999;84:546-52.
- w11. Ravn P, Bidstrup M, Wasnicn RD, Davis JW, McClung MR, Balske A, et al. Alendronate and estrogen-progestin in the long-term prevention of bone loss: four year results from the early postmenopausal intervention cohort study. *Ann Intern Med* 1999;131:935-42.
- w12. Recker RR, Davies KM, Dowd RM, Heaney RP. The effect of low-dose continuous estrogen and progesterone therapy with calcium and vitamin D on bone in elderly women. A randomized controlled trial. *Ann Intern Med* 1999;130:897-904.
- w13. Hoibraaten E, Qvigstad E, Arnesen H, Larsen S, Wickstrom E, Sandset PM. Increased risk of recurrent venous thromboembolism during hormone replacement therapy. *Thromb Haemost* 2000;84:961-7.
- w14. Mosekilde L, Beck-Nielsen H, Sorensen OH, Nielsen SP, Charles P, et al. Hormonal replacement therapy reduces forearm fracture incidence in recent postmenopausal women—results of the Danish osteoporosis prevention study. *Maturitas* 2000;36:181-93.
- w15. Os I, Hofstad AE, Brekke M, Abdelnoor M, Nesheim BI, Jacobsen AF, et al. The EWA study: a randomized study of the use of hormone replacement therapy in women with angiographically verified coronary artery disease. Characteristics of the study population. Effects on lipid and lipoproteins. *J Intern Med* 2000;247:433.

- w16. Angerer P, Stork S, Kothny W, Schmitt P, von Schacky C. Effects of oral postmenopausal hormone replacement on progression of atherosclerosis. A randomized controlled trial. *Arterioscler Thromb Vasc Biol* 2001;21:262-8.
- w17. Binder EF, Williams DB, Schechtman KB, Jeffe DB, Kohrt WM. Effects of hormone replacement therapy on serum lipids in elderly women. A randomized, placebo controlled trial. *Ann Intern Med* 2001;134:754-60.
- w18. Gallagher JC, Fowler SE, Detter JR, Sherman SS. Combination treatment with estrogen and calcitriol in the prevention of age related bone loss. *J Clin Endocrinol Metab* 2001;86:3618-28.
- w19. Hodis HN, Mack WJ, Lobo RA, Shoupe D, Sevanian A, Mahrer PR, et al. Estrogen in the prevention of atherosclerosis. A randomized, double blind, placebo-controlled trial. *Ann Intern Med* 2001;135:939-53.
- w20. Simon JA, Hsia J, Cauley JA, Richards CL, Harris F, Fong J, et al. Postmenopausal hormone replacement therapy and risk of stroke. The heart and estrogen-progestin replacement study (HERS). *Circulation* 2001;103:638-42.
- w21. Viscoli CM, Brass LM, Kernan WN, Sarrel PM, Suissa S, Horwitz RI. A clinical trial of estrogen-replacement therapy after ischemic stroke. *N Engl J Med* 2001;345:1243-9.
- w22. Arrenbrecht S, Boermans AJM. Effects of transdermal oestradiol delivered by a matrix patch on bone density in hysterectomized, postmenopausal women: a 2 year placebo controlled trial. *Osteoporos Int* 2002;13:176-83.
- w23. The ESPRIT Team. Oestrogen therapy for the prevention of reinfarction in postmenopausal women: a randomised placebo controlled trial. *Lancet* 2002;360:2001-8.
- w24. Giske LE, Hall G, Rud T, Landgren BM. The effects of 17b-oestradiol at doses of 0.5, 1 and 2 mg compared with placebo on early postmenopausal bone loss in hysterectomized women. *Osteoporos Int* 2002;13:309-16.
- w25. Waters DD, Alderman EL, Hsia J, Howard BV, Cobb FR, Rogers WJ, et al. Effects of hormone replacement therapy and antioxidant vitamin supplements on coronary atherosclerosis in postmenopausal women. A randomized controlled trial. *JAMA* 2002;288:2432-40.
- w26. Wassertheil-Smoller S, Hendrix SL, Limacher M, Heiss G, Kooperberg C, Baird A, et al. Effects of estrogen plus progestin on stroke in postmenopausal women. A women's health initiative: a randomized trial. *JAMA* 2003;289:2673-84.
- w27. Holmberg L, Anderson H, for the HABITS Steering and Data Monitoring Committees. HABITS (hormonal replacement therapy after breast cancer-is it safe?), a randomised comparison: trial stopped. *Lancet* 2004;363:453-5.
- w28. The Women's Health Initiative Steering Committee. Effects of conjugated equine estrogen in postmenopausal women with hysterectomy. *JAMA* 2004;291:1701-12.

**Not reported**

- w29. Vickers M, Meade T, Darbyshire J. WISDOM: history and early demise—was it inevitable? *Climatreric* 2002;5:317-25.



### Excluded

- w30. Lindsay R, Hart DM, Aitken JM, McDonald EB, Anderson JB, Clarke AC. Long term prevention of postmenopausal osteoporosis by oestrogen. Evidence for an increased bone mass after delayed onset of oestrogen treatment. *Lancet* 1976;i:1038-41.
- w31. MacDonald AG, Murphy EA, Capell HA, Bankowska UZ, Ralson SH. Effects of hormone replacement therapy in rheumatoid arthritis: a double blind placebo-controlled study. *Ann Rheum Dis* 1994;53:54-7.
- w32. Perez-Jaraiz MD, Revilla M, Alvarez de los Heros JI, Villa LF, Rico H. Prophylaxis of osteoporosis with calcium, estrogens and/or elcatonin: comparative longitudinal study of bone mass. *Maturitas* 1996;23:327-32.
- w33. Kyllonen ES, Heikkinen JE, Vaananen HK, Kurttila-Matero E, Wilen-Rosenqvist G, Lankinen KS, et al. Influence of estrogen-progestin replacement therapy and exercise on lumbar spine mobility and low back symptoms in a healthy early postmenopausal female population: a 2 year randomized controlled trial. *Eur Spine J* 1998;7:381-6.
- w34. De Kleijn MJJ, Bots ML, Bak AAA, Westendorp ICD, Planellas J, Coelingh Bennink HJT, et al. Hormone replacement therapy in perimenopausal women and 2-year change of carotid intima-media thickness. *Maturitas* 1999;32:195-204.
- w35. Guidozi F, Daponte A. Estrogen replacement therapy for ovarian carcinoma survivors. *Cancer* 1999;86:1013-8.
- w36. Herrington DM, Reboussin DM, Brosnihan KB, Sharp PC, Shumaker SA, Snyder TE, et al. Effects of estrogen replacement on the progression of coronary-artery atherosclerosis. *N Engl J Med* 2000;343:522-9.
- w37. Mulnard RA, Cotman CW, Kawas C, van Dyck CH, Sano M, Doody R, et al. Estrogen replacement therapy for treatment of mild to moderate Alzheimer disease. A randomized controlled trial. *JAMA* 2000;283:1007-15.
- w38. Watts NB, Nolan JC, Brennan JJ, Yang HM. Esterified estrogen therapy in postmenopausal women. Relationships of bone marker changes and plasma oestradiol to BMD changes: a two year study. *Menopause* 2000;7:375-82.
- w39. Clarke SC, Kelleher J, Lloyd-Jones H, Slack M, Schofield PM. A study of hormone replacement therapy in postmenopausal women with ischaemic heart disease: the Papworth HRT atherosclerosis study. *Br J Obstet Gynaecol* 2002;109:1056-62.
- w40. Chang TC, Lien YR, Chen M, Cheng SP, Chen RJ, Chow RN. Effect of conjugated equine estrogen in combination with two different progestogens in the risk factors of coronary heart disease in postmenopausal Chinese women in Taiwan: a randomized one-year study. *Acta Obstet Gynecol Scand* 2004;83:661-6.