

39. Lauritzen C, Reuter HD, Repges R, Böhnert KJ, Schmidt U. Treatment of premenstrual tension syndrome with *Vitex agnus castus* controlled, double-blind study versus pyridoxine. *Phytomedicine* 1997;4:183–9.
40. Facchinetti F, Borella P, Sances G, Fioroni L, Nappi RE, Genazzani AR. Oral magnesium successfully relieves premenstrual mood changes. *Obstet Gynecol* 1991;78:177–81.
41. Walker AF, De Souza MC, Marakis G, Robinson PA, Morris AP, Bolland KM. Unexpected benefit of sorbitol placebo in Mg intervention study of premenstrual symptoms: implications for choice of placebo in RCTs. *Med Hypotheses* 2002;58:213–20.
42. Christie S, Walker AF, Hicks SM, Abeyasekera S. Flavonoid supplement improves leg health and reduces fluid retention in pre-menopausal women in a double-blind, placebo-controlled study. *Phytomedicine* 2004;11:11–7.
43. London RS, Bradley L, Chiamori NY. Effect of a nutritional supplement on premenstrual symptomatology in women with premenstrual syndrome: a double-blind longitudinal study. *J Am Coll Nutr* 1991;10:494–9.
44. Stewart A. Clinical and biochemical effects of nutritional supplementation on the premenstrual syndrome. *J Reprod Med* 1987;32:435–41.
45. Chakmakjian ZH, Higgins CE, Abraham GE. The effect of a nutritional supplement, Optivite® for women, on premenstrual tension syndromes: II. Effect on symptomatology, using a double-blind, cross-over design. *J Appl Nutr* 1985;37:12–7.
46. Thys-Jacobs S, Ceccarelli S, Bierman A, Weisman H, Cohen MA, Alvir J. Calcium supplementation in premenstrual syndrome: a randomized crossover trial. *J Gen Intern Med* 1989;4:183–9.
47. Thys-Jacobs S, Starkey P, Bernstein D, Tian J; Premenstrual Syndrome Study Group. Calcium carbonate and the premenstrual syndrome: effects on premenstrual and menstrual symptoms. *Am J Obstet Gynecol* 1998;179:444–52.
48. Bryant M, Cassidy A, Hill C, Powell J, Talbot D, Dye L. Effect of consumption of soy isoflavones on behavioural, somatic and affective symptoms in women with premenstrual syndrome. *Br J Nutr* 2005;93:731–9.
49. Burke BE, Olson RD, Cusack BJ. Randomized, controlled trial of phytoestrogen in the prophylactic treatment of menstrual migraine. *Biomed Pharmacother* 2002;56:283–8.
50. Ma L, Lin S, Chen R, Wang X. Treatment of moderate to severe premenstrual syndrome with *Vitex agnus castus* (BNO 1095) in Chinese women. *Gynecol Endocrinol* 2010;26:612–6.
51. Schellenberg R. Treatment for the premenstrual syndrome with agnus castus fruit extract: prospective, randomised, placebo controlled study. *BMJ* 2001;322:134–7.
52. Zamani M, Neghab N, Torabian S. Therapeutic effect of *Vitex agnus castus* in patients with premenstrual syndrome. *Acta Med Iran* 2012;50:101–6.
53. Pakgozar M, Moradi M, Jamshidi AH, Mehran A. [Assessment of *Vitex agnus-castus* L. extract effect on treatment of premenstrual syndrome.] *J Med Plants* 2009;8:98–107. Persian.
54. He Z, Chen R, Zhou Y, Geng L, Zhang Z, Chen S, et al. Treatment for premenstrual syndrome with *Vitex agnus castus*: a prospective randomized, multi-center placebo controlled study in China. *Maturitas* 2009;63:99–103.
55. Pakgozar M, Ahmadi M, Salehi Surmaghi MH, Mehran A, Akhondzadeh SH. [Effect of *Hypericum perforatum* L. for treatment of premenstrual syndrome.] *J Med Plants* 2005;3:33–42. Persian.
56. Ghazanfarpour M, Kaviani M, Asadi N, Ghaffarpassand F, Ziyadlou S, Tabatabaee HR, et al. *Hypericum perforatum* for the treatment of premenstrual syndrome. *Int J Gynaecol Obstet* 2011;113:84–5.
57. Tamborini A, Taurelle R. [Value of standardized Ginkgo biloba extract (EGb 761) in the management of congestive symptoms of premenstrual syndrome.] *Rev Fr Gynecol Obstet* 1993;88:447–57. French.
58. Ozgoli G, Selselei EA, Mojab F, Majd HA. A randomized, placebo-controlled trial of *Ginkgo biloba* L. in treatment of premenstrual syndrome. *J Altern Complement Med* 2009;15:845–51.
59. Agha-Hosseini M, Kashani L, Aleyaseen A, Ghoreishi A, Rahmanpour H, Zarrinara AR, et al. *Crocus sativus* L. (saffron) in the treatment of premenstrual syndrome: a double-blind, randomised and placebo-controlled trial. *BJOG* 2008;115:515–9.
60. Puolakka J, Mäkräinen L, Viinikka L, Ylikorkala O. Biochemical and clinical effects of treating the premenstrual syndrome with prostaglandin synthesis precursors. *J Reprod Med* 1985;30:149–53.
61. Khoo SK, Munro C, Battistutta D. Evening primrose oil and treatment of premenstrual syndrome. *Med J Aust* 1990;153:189–92.
62. Collins A, Cerin A, Coleman G, Landgren BM. Essential fatty acids in the treatment of premenstrual syndrome. *Obstet Gynecol* 1993;81:93–8.
63. Horrobin DF. The role of essential fatty acids and prostaglandins in the premenstrual syndrome. *J Reprod Med* 1983;28:465–8.
64. Guo S. *Clinical study on the treatment of premenstrual syndrome by the Back-Shu and Front-Mu and network points acupuncture* [Master's thesis]. Harbin: Heilongjiang University of Chinese Medicine; 2004.
65. Habek D, Habek JC, Barbir A. Using acupuncture to treat premenstrual syndrome. *Arch Gynecol Obstet* 2002;267:23–6.
66. Guo S, Sun Y. Comparison between acupuncture and medication in treatment of premenstrual syndrome. *Shanghai J Acupunct Moxibust* 2004;23:5–6.
67. Kim SC, Kim SN, Lim JA, Choi CM, Shim EK, Koo ST, et al. [Effects of acupuncture treatment on the premenstrual syndrome: controlled clinical trial.] *J Korean Acupunct Mox Soc* 2005;22:41–60. Korean.
68. Peng L. *The Study on the Treatment of Jiaweisaiyao Coordinate Acupuncture to Premenstrual Syndrome*. Guangzhou: Guangzhou University of Chinese Medicine; 2009. p. 49.
69. Shin KR, Ha JY, Park HJ, Heitkemper M. The effect of hand acupuncture therapy and hand moxibustion therapy on premenstrual syndrome among Korean women. *West J Nurs Res* 2009;31:171–86.
70. Hong Y. Clinical therapeutic effect of scalp acupuncture on premenstrual tension syndrome. *Zhongguo Zhen Jiu* 2002;22:597–8.
71. Xu Y. *Clinical study on the treatment of acupuncture of Back-Shu on premenstrual syndrome* [Master's thesis in Chinese]. Harbin: Heilongjiang University of Chinese Medicine; 2006. p. 1–33.
72. Xu Y, Sun Y. Observation of therapeutic effect of point-through-point acupuncture method in the back on premenstrual syndrome. *J Clin Acupunct Moxibust* 2006;22:37–8.
73. Yu J. *Preliminary observation based on a systematic review of efficacy and safety of acupuncture treatment for premenstrual syndrome* [Master's thesis in Chinese]. Beijing: China Academy of Chinese Medical Sciences; 2006. p. 1–89.
74. Akbarzadeh M, Dehghani M, Moshfeghy Z, Emamghoreishi M, Tavakoli P, Zare N. Effect of *Melissa officinalis* capsule on the intensity of premenstrual syndrome symptoms in high school girl students. *Nurs Midwifery Stud* 2015;4:e27001.
75. Khayat S, Fanaei H, Kheirkhah M, Moghadam ZB, Kasaeian A, Javadimehr M. Curcumin attenuates severity of premenstrual syndrome symptoms: a randomized, double-blind, placebo-controlled trial. *Complement Ther Med* 2015;23:318–24.


76. Ataollahi M, Akbari SA, Mojab F, Alavi Majd H. The effect of wheat germ extract on premenstrual syndrome symptoms. *Iran J Pharm Res* 2015;14:159–66.
77. Hunter MS, Ussher JM, Browne SJ, Cariss M, Jelley R, Katz M. A randomized comparison of psychological (cognitive behavior therapy), medical (fluoxetine) and combined treatment for women with premenstrual dysphoric disorder. *J Psychosom Obstet Gynaecol* 2002;23:193–9.
78. Busse JW, Montori VM, Krasnik C, Patelis-Siotis I, Guyatt GH. Psychological intervention for premenstrual syndrome: a meta-analysis of randomized controlled trials. *Psychother Psychosom* 2009;78:6–15.
79. Graham CA, Sherwin BB. A prospective treatment study of premenstrual symptoms using a triphasic oral contraceptive. *J Psychosom Res* 1992;36:257–66.
80. Lopez LM, Kaptein AA, Helmerhorst FM. Oral contraceptives containing drospirenone for premenstrual syndrome. *Cochrane Database Syst Rev* 2012;(2):CD006586.
81. Pearlstein TB, Bachmann GA, Zacur HA, Yonkers KA. Treatment of premenstrual dysphoric disorder with a new drospirenone-containing oral contraceptive formulation. *Contraception* 2005;72:414–21.
82. Marr J, Heinemann K, Kunz M, Rapkin A. Ethinyl estradiol 20 µg/drospirenone 3 mg 24/4 oral contraceptive for the treatment of functional impairment in women with premenstrual dysphoric disorder. *Int J Gynaecol Obstet* 2011;113:103–7.
83. Coffee AL, Kuehl TJ, Willis S, Sulak PJ. Oral contraceptives and premenstrual symptoms: comparison of a 21/7 and extended regimen. *Am J Obstet Gynecol* 2006;195:1311–9.
84. Coffee AL, Sulak PJ, Kuehl TJ. Long-term assessment of symptomatology and satisfaction of an extended oral contraceptive regimen. *Contraception* 2007;75:444–9.
85. Magos AL, Brincat M, Studd JW. Treatment of the premenstrual syndrome by subcutaneous estradiol implants and cyclical oral norethisterone: placebo controlled study. *Br Med J (Clin Res Ed)* 1986;292:1629–33.
86. Watson NR, Studd JW, Savvas M, Garnett T, Baber RJ. Treatment of severe premenstrual syndrome with oestradiol patches and cyclical oral norethisterone. *Lancet* 1989;ii:730–2.
87. Smith RN, Studd JW, Zamblera D, Holland EF. A randomised comparison over 8 months of 100 µg and 200 µg twice weekly doses of transdermal oestradiol in the treatment of severe premenstrual syndrome. *Br J Obstet Gynaecol* 1995;102:475–84.
88. Studd J. Treatment of premenstrual disorders by suppression of ovulation by transdermal estrogens. *Menopause Int* 2012;18:65–7.
89. Panay N, Rees M, Domoney C, Zakaria F, Guilford S, Studd JWW. A multicentre double-blind crossover study comparing 100mg transdermal oestradiol with placebo in the treatment of severe premenstrual syndrome. *Menopause Int* 2001;7 Suppl 3:19–20.
90. Panay N, Studd J. Progestogen intolerance and compliance with hormone replacement therapy in menopausal women. *Hum Reprod Update* 1997;3:159–71.
91. Faculty of Sexual & Reproductive Healthcare. *Intrauterine Contraception*. London: FSRH; 2015 [https://www.fsrh.org/documents/ceuguidanceintrauterinecontraception]. Accessed 2016 Jun 29.
92. Baker LJ, O'Brien PM. Potential strategies to avoid progestogen-induced premenstrual disorders. *Menopause Int* 2012;18:73–6.
93. Kroft J, Klostermann NR, Moody JR, Taerk E, Wolfman W. A novel regimen of combination transdermal estrogen and intermittent vaginally administered progesterone for relief of menopausal symptoms. *Gynecol Endocrinol* 2010;26:902–8.
94. Di Carlo C, Tommaselli GA, Gargano V, Savoia F, Bifulco G, Nappi C. Transdermal estradiol and oral or vaginal natural progesterone: bleeding patterns. *Climacteric* 2010;13:442–6.
95. Mansel RE, Wisbey JR, Hughes LE. Controlled trial of the antigonadotropin danazol in painful nodular benign breast disease. *Lancet* 1982;ii:928–30.
96. Watts JF, Butt WVR, Logan Edwards R. A clinical trial using danazol for the treatment of premenstrual tension. *Br J Obstet Gynaecol* 1987;94:30–4.
97. Hahn PM, Van Vugt DA, Reid RL. A randomized, placebo-controlled, crossover trial of danazol for the treatment of premenstrual syndrome. *Psychoneuroendocrinology* 1995;20:193–209.
98. O'Brien PM, Abukhalil IE. Randomized controlled trial of the management of premenstrual syndrome and premenstrual mastalgia using luteal phase-only danazol. *Am J Obstet Gynecol* 1999;180:18–23.
99. Brunskill PJ. The effects of fetal exposure to danazol. *Br J Obstet Gynaecol* 1992;99:212–5.
100. Wyatt KM, Dimmock PW, Ismail KM, Jones PW, O'Brien PM. The effectiveness of GnRHa with and without 'add-back' therapy in treating premenstrual syndrome: a meta analysis. *BJOG* 2004;111:585–93.
101. Farmer JE, Prentice A, Breeze A, Ahmad G, Duffy JM, Watson A, et al. Gonadotrophin-releasing hormone analogues for endometriosis: bone mineral density. *Cochrane Database Syst Rev* 2003;(4):CD001297.
102. Leather AT, Studd JW, Watson NR, Holland EF. The prevention of bone loss in young women treated with GnRH analogues with "add-back" estrogen therapy. *Obstet Gynecol* 1993;81:104–7.
103. Di Carlo C, Palomba S, Tommaselli GA, Guida M, Di Spiezio Sardo A, Nappi C. Use of leuprolide acetate plus tibolone in the treatment of severe premenstrual syndrome. *Fertil Steril* 2001;75:380–4.
104. Kanis JA, Johnell O, Oden A, Johansson H, De Laet C, Eisman JA, et al. Smoking and fracture risk: a meta-analysis. *Osteoporos Int* 2005;16:155–62.
105. Johansson H, Kanis JA, Odén A, McCloskey E, Chapurlat RD, Christiansen C, et al. A meta-analysis of the association of fracture risk and body mass index in women. *J Bone Miner Res* 2014;29:223–33.
106. Babatunde OO, Forsyth JJ, Gidlow CJ. A meta-analysis of brief high-impact exercises for enhancing bone health in premenopausal women. *Osteoporos Int* 2012;23:109–19.
107. Blake GM, Fogelman I. The role of DXA bone density scans in the diagnosis and treatment of osteoporosis. *Postgrad Med J* 2007;83:509–17.
108. National Institute for Health and Clinical Excellence. *Osteoporosis: Assessing the Risk of Fragility Fracture*. NICE clinical guideline 146. Manchester: NICE; 2012.
109. Wyatt K, Dimmock P, Jones P, Obhrai M, O'Brien S. Efficacy of progesterone and progestogens in management of premenstrual syndrome: systematic review. *BMJ* 2001;323:776–80.
110. Ford O, Lethaby A, Roberts H, Mol BW. Progesterone for premenstrual syndrome. *Cochrane Database Syst Rev* 2012;(3):CD003415.
111. Ashby CR Jr, Carr LA, Cook CL, Steptoe MM, Franks DD. Alteration of platelet serotonergic mechanisms and monoamine oxidase activity in premenstrual syndrome. *Biol Psychiatry* 1988;24:225–33.
112. Biegon A, Bercovitz H, Samuel D. Serotonin receptor concentration during the estrous cycle of the rat. *Brain Res* 1980;187:221–5.

113. Kugaya A, Epperson CN, Zoghbi S, van Dyck CH, Hou Y, Fujita M, et al. Increase in prefrontal cortex serotonin_{2A} receptors following estrogen treatment in postmenopausal women. *Am J Psychiatry* 2003;160:1522–4.
114. Moses-Kolko EL, Berga SL, Greer PJ, Smith G, Cidis Meltzer C, Drevets WC. Widespread increases of cortical serotonin type 2A receptor availability after hormone therapy in euthymic postmenopausal women. *Fertil Steril* 2003;80:554–9.
115. Marjoribanks J, Brown J, O'Brien PM, Wyatt K. Selective serotonin reuptake inhibitors for premenstrual syndrome. *Cochrane Database Syst Rev* 2013;(6):CD001396.
116. Cohen LS, Soares CN, Lyster A, Cassano P, Brandes M, Leblanc GA. Efficacy and tolerability of premenstrual use of venlafaxine (flexible dose) in the treatment of premenstrual dysphoric disorder. *J Clin Psychopharmacol* 2004;24:540–3.
117. Freeman EW, Jabara S, Sondheimer SJ, Auletto R. Citalopram in PMS patients with prior SSRI treatment failure: a preliminary study. *J Womens Health Gend Based Med* 2002;11:459–64.
118. Eriksson E, Ekman A, Sinclair S, Sörvik K, Ysander C, Mattson UB, et al. Escitalopram administered in the luteal phase exerts a marked and dose-dependent effect in premenstrual dysphoric disorder. *J Clin Psychopharmacol* 2008;28:195–202.
119. Kornstein SG, Pearlstein TB, Fayyad R, Farfel GM, Gillespie JA. Low-dose sertraline in the treatment of moderate-to-severe premenstrual syndrome: efficacy of 3 dosing strategies. *J Clin Psychiatry* 2006;67:1624–32.
120. Freeman EW, Rickels K, Sondheimer SJ, Polansky M, Xiao S. Continuous or intermittent dosing with sertraline for patients with severe premenstrual syndrome or premenstrual dysphoric disorder. *Am J Psychiatry* 2004;161:343–51.
121. Shah NR, Jones JB, Aperi J, Shemtov R, Karne A, Borenstein J. Selective serotonin reuptake inhibitors for premenstrual syndrome and premenstrual dysphoric disorder: a meta-analysis. *Obstet Gynecol* 2008;111:1175–82.
122. Udechuku A, Nguyen T, Hill R, Szego K. Antidepressants in pregnancy: a systematic review. *Aust N Z J Psychiatry* 2010;44:978–96.
123. Furu K, Kieler H, Haglund B, Engeland A, Selmer R, Stephansson O, et al. Selective serotonin reuptake inhibitors and venlafaxine in early pregnancy and risk of birth defects: population based cohort study and sibling design. *BMJ* 2015;350:h1798.
124. Wang M, Hammarbäck S, Lindhe BA, Bäckström T. Treatment of premenstrual syndrome by spironolactone: a double-blind, placebo-controlled study. *Acta Obstet Gynecol Scand* 1995;74:803–8.
125. O'Brien PM, Craven D, Selby C, Symonds EM. Treatment of premenstrual syndrome by spironolactone. *Br J Obstet Gynaecol* 1979;86:142–7.
126. Cronje WH, Vashisht A, Studd JW. Hysterectomy and bilateral oophorectomy for severe premenstrual syndrome. *Hum Reprod* 2004;19:2152–5.
127. Nappi RE, Wawra K, Schmitt S. Hypoactive sexual desire disorder in postmenopausal women. *Gynecol Endocrinol* 2006;22:318–23.
128. Studd J, Panay N. Hormones and depression in women. *Climacteric* 2004;7:338–46.
129. Leminen H, Heliövaara-Peippo S, Halmesmäki K, Teperi J, Grenman S, Kivelä A, et al. The effect of hysterectomy or levonorgestrel-releasing intrauterine system on premenstrual symptoms in women treated for menorrhagia: secondary analysis of a randomized controlled trial. *Acta Obstet Gynecol Scand* 2012;91:318–25.
130. Lukes AS, McBride RJ, Herring AH, Fried M, Sherwani A, Dell D. Improved premenstrual syndrome symptoms after NovaSure endometrial ablation. *J Minim Invasive Gynecol* 2011;18:607–11.
131. Nevatte T, O'Brien PM, Bäckström T, Brown C, Dennerstein L, Endicott J, et al.; Consensus Group of the International Society for Premenstrual Disorders. ISPM consensus on the management of premenstrual disorders. *Arch Womens Ment Health* 2013;16:279–91.
132. Panay N. Treatment of premenstrual syndrome: a decision-making algorithm. *Menopause Int* 2012;18:90–2.

Appendix I: Explanation of guidelines and evidence levels

Clinical guidelines are: 'systematically developed statements which assist clinicians and patients in making decisions about appropriate treatment for specific conditions'. Each guideline is systematically developed using a standardised methodology. Exact details of this process can be found in Clinical Governance Advice No. 1 *Development of RCOG Green-top Guidelines* (available on the RCOG website at <http://www.rcog.org.uk/green-top-development>). These recommendations are not intended to dictate an exclusive course of management or treatment. They must be evaluated with reference to individual patient needs, resources and limitations unique to the institution and variations in local populations. It is hoped that this process of local ownership will help to incorporate these guidelines into routine practice. Attention is drawn to areas of clinical uncertainty where further research may be indicated.

The evidence used in this guideline was graded using the scheme below and the recommendations formulated in a similar fashion with a standardised grading scheme.

Classification of evidence levels	Grades of recommendations
<p>I++ High-quality meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a very low risk of bias</p> <p>I+ Well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias</p> <p>I– Meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a high risk of bias</p> <p>2++ High-quality systematic reviews of case-control or cohort studies or high-quality case-control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal</p> <p>2+ Well-conducted case-control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal</p> <p>2– Case-control or cohort studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal</p> <p>3 Non-analytical studies, e.g. case reports, case series</p> <p>4 Expert opinion</p>	<p>A At least one meta-analysis, systematic reviews or randomised controlled trials rated as I++, and directly applicable to the target population; or A systematic review of randomised controlled trials or a body of evidence consisting principally of studies rated as I+, directly applicable to the target population and demonstrating overall consistency of results</p> <p>B A body of evidence including studies rated as 2++ directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as I++ or I+</p> <p>C A body of evidence including studies rated as 2+ directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2++</p> <p>D Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+</p> <p>Good practice point</p> <p> Recommended best practice based on the clinical experience of the guideline development group</p>

Appendix II: Classification of PMS¹

