considered for treatment. Those in the intermediate zone should be considered for referral for DXA and the fracture probability recalculated using FRAX®. In the UK we have poor provision of DXA scanners. Using the FRAX® tool for triage could make the use of these machines more focused.

In general, smoking and alcohol are weak risk factors, use of steroids and diseases associated with osteoporosis excluding rheumatoid arthritis are moderate risk factors, and parental history of hip fracture is a strong risk factor. In postmenopausal women who have sustained a fragility fracture it is often appropriate to commence treatment without measurement of BMD. However, in younger postmenopausal women, BMD measurement should be considered, especially if the degree of trauma causing the fracture is not clear.

The recent advances in fracture risk prediction, with or without the measurement of BMD, together with advances in cost-effective treatments should be combined in an active strategy toward fracture prevention. The current recommendation is for a case-finding strategy and not screening, but this needs to be an active process, perhaps using fracture liaison services.

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DOI: 10.3399/bjgp09X420293

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The role of exercise in the treatment of menstrual disorders:
the evidence

Two of the most commonly experienced menstrual disorders are premenstrual syndrome (PMS) and primary dysmenorrhoea (that is, menstrual cramps or period pain), which can both adversely effect women's functioning and quality of life.[1–3] Several evidence-based treatments are available for these menstrual disorders such as oral contraceptive pills, non-steroidal anti-inflammatory drugs and gonadotropin-releasing hormone (GnRH) agonist treatment. In terms of non-pharmacological treatments, it is popularly thought that exercise participation reduces the frequency and/or severity of PMS and primary dysmenorrhoea. Studies[4] have shown that clinicians often recommended exercise and women frequently use it for symptom management,[3] but this in itself does not constitute evidence of effectiveness. The American College of Obstetricians and Gynecologists has stated in their patient information leaflet (http://www.acog.org/publications/patient_education/bp057.cfm) that 'for many women aerobic exercise lessens PMS symptoms', although the frequency and duration of exercise required to gain relief from symptoms is not specified. Similarly in the UK, the NHS direct website (http://www.nhsdirect.nhs.uk/articles/article.aspx?articleId=578&sectionId=11) which offers advice to women about possible

treatment for menstrual pain, states that 'moderate physical exercise may help with relieving pain'. However, a question remains about whether this advice is warranted, if so, on what evidence is it based? Trials involving general populations have shown that participation in regular exercise can improve some of the types of symptoms (that is, mood disturbance, fatigue, cognitive dysfunction, and bloating) typically experienced by women who suffer from PMS and/or primary dysmenorrhoea.[5] On this basis, it might seem intuitively appealing to promote exercise as treatment for these disorders, but these data are a long way off from telling us we have evidence that exercise is an effective treatment for these conditions.

PREMENSTRUAL SYNDROME

Several observational studies[6–7] have reported less PMS symptoms in women who are physically active, but no randomised controlled trial that includes a no-exercise comparison group has been published to date. One small (n = 23) randomised trial has assessed the effects of two exercise intervention (strength training versus aerobic exercise) and found PMS scores were significantly improved at follow-up in both exercise groups.[8] There have also been two very small non-randomised controlled trials[9–10] (n = 14 and n = 21 respectively) that have examined the short and longer term effects of exercise upon PMS; improvements in some symptoms were reported in both trials. Moreover, while studies have consistently demonstrated a reduction in PMS symptomatolgy after exercise, the methodological quality of these trials has been poor and data from them could not be considered as evidence supporting effectiveness.

PRIMARY DYSMENORRHOEA

The idea that exercise might help relieve menstrual pain is not new; in 1943 Billig[11] proposed that women with dysmenorrhoea had contracted ligamentous bands in the abdomen and subsequently developed a series of stretching exercises for which he claimed a high rate of symptom relief. The belief that exercise was effective seems to have prevailed and led to anecdotal beliefs among health agencies, clinicians, and women that exercise is beneficial. A meta-analysis[12] that examined risk factors for different types of chronic pelvic pain found exercise was associated with a small reduced risk of dysmenorrhoea (odds ratio: 0.89, 95% CI = 0.80 to 0.99). However, a recent systematic review located only one published randomised controlled trial and this was published two decades ago.[12] In this trial those randomised to exercise reported significantly lower dysmenorrhoea symptomatology than non-exercising controls, but the sample size was very small (n = 36) with only 26/36 participants completing follow-up. Several additional non-randomised intervention studies were located by the review[13] but these were also of very poor methodological quality, the most recent of which was published over 40 years ago.

CONCLUSIONS

Exercise is often seen as a panacea or the 'magic potion' for health problems and disease, without proper regard or scrutiny of the evidence; for example, NICE have recommended exercise as treatment for postnatal depression on the basis of very little evidence.[14] Indeed, while it might also seem intuitively appealing to promote exercise as a treatment for menstrual disorders such as PMS and primary dysmenorrhoea, there is a paucity of evidence to directly support such a view. Of course, there are many other important health reasons for encouraging women to be physically active throughout their lives, and good evidence supports the effectiveness of exercise for conditions such as cardiovascular diseases[15] and exercise performed in moderation is unlikely be harmful.

While the American College of Obstetricians and Gynecologists and the NHS in the UK has provided recommendations to women about the role of exercise as a treatment for menstrual cycle related disorders, it is clear that high quality randomised controlled trials are needed before women are advised that exercise is an effective treatment. We (and that includes health agencies), need to remain focused on what we actually know to be true and we should always be careful about accepting with uncritical enthusiasm the positive effects of any medical treatment, exercise is no exception.

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DOI: 10.3399/bjgp09X420301

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