



Emma Lewis

Exercise in pregnancy

Background

Exercise is an inconsistently managed area in the health of expectant mothers. It is an area where family doctors have an opportunity to be well informed and willing to give advice.

Objective

To provide simple advice on safe exercise practice in pregnancy.

Discussion

Exercise in pregnancy has multiple benefits for the mother, including reduced risk of mental health problems, diabetes and hypertension, and faster recovery after delivery. There are no proven risks to the fetus if practiced safely. Understanding the physiological changes of pregnancy and the possible complications of high-intensity or contact sport is important but in general, moderate levels of exercise 3–4 times per week is safe for both mother and baby in low-risk pregnancies.

Keywords

pregnancy; exercise; sports

responsibility to be informed and willing to advise on this topic.

Statements by the American and British Colleges of Obstetrics and Gynaecology have, in recent years, reported their guidelines for healthy levels of activity in expectant mothers. The Australasian College of Sports Medicine has also published a statement on their perception of risks and benefits.^{1–3} By comparing these and other reviews on the subject, this article will give a general guide to exercise in pregnancy and touch on the special groups that may require more attention.

The physiology of pregnancy is fascinating and a number of changes take place in the mother to accommodate the growing fetus. Women will experience weight gain, generally about 10–15 kg, to account for the baby, the placenta, amniotic fluid and increased blood volume. With this weight being primarily front and central, the normal centre of gravity will inevitably change and this can have an effect on balance and coordination as well as on the lumbar spine.³

With the physiological vascular changes, especially in the second and third trimesters, there is a change in usual vital sign parameters. Resting heart rate increases and maximal heart rate and blood pressure decrease. With this in mind, rapid posture changes should be avoided, heat and hydration status should be closely monitored and women should be aware of how to track their level of exertion (for example, using the Borg's Rating of Perceived Exertion Scale⁴) and when to take a break.⁵

An interesting change, particularly later in pregnancy, is the increasing laxity of ligaments, primarily around the pelvis, but also throughout the body.³ Although this may have minimal impact on many pregnant women, those with a history of joint instability or pre-existing ligamentous laxity should take extra care and consider this in their fitness regime. In all women, high agility activities should be avoided or undertaken with care.

Exercise is an inconsistently managed area in the health of expectant mothers. It is an area where family doctors have an opportunity to be well informed and willing to give advice. Exercise in pregnancy has multiple benefits for the mother, including improved mental health, reduced risk of diabetes and hypertension and faster recovery post delivery. There are no proven risks to the fetus if practiced safely. Understanding the physiological changes of pregnancy and the possible complications of high intensity or contact sport is important but in general, moderate levels of exercise 3-4 times per week is safe for both mother and baby in low-risk pregnancies.

Exercise is an inconsistently managed area in the health of expectant mothers and as a medical community we are yet to come to a solid consensus on the matter. In Australia, particularly in rural areas, the family doctor can be heavily involved in antenatal care and as such has a

A recent study⁶ on expectant mothers in the USA noted that about 50% of women who were overweight or obese were exceeding gestational weight gain recommendations. Importantly, excessive gestational weight gain is a positive predictor for postpartum weight retention.^{7,8} The researchers interviewed the women after the birth of their first singleton baby and detected a few themes in what these women had experienced. Either the advice given on weight gain and exercise had been limited or they were mostly advised to be cautious and limit exercise during pregnancy. There was a perception that their general practice doctors did not possess the knowledge to adequately advise them. It must be noted that obese women do pose a challenge to their healthcare professionals. In addition to their lower exercise tolerance, they can have greater complications, such as diabetes and hypertension, which can make planning an exercise regime more difficult.

Moderate exercise in an expectant mother with a low-risk pregnancy is considered safe. Exercise in pregnancy has been linked to increased self-esteem, better control of pregnancy weight gain, decreased subsequent risk of gestational diabetes and hypertension, and improved general wellbeing of mothers.⁹⁻¹¹ It has also been shown to maintain or increase fitness and muscle tone.⁹ Some studies have reported that women who exercise are likely to have a quicker recovery following birth, although in one study this was related to the lower rate of caesarian sections performed.^{3,9} The increased fitness as well as the addition of pelvic floor exercises to an exercise regime in pregnancy could certainly assist in improved recovery for those women undertaking vaginal delivery.⁵

When it comes to individual sports, some are considered higher risk than others. Given the risk of placental abruption, any contact or potential contact sports should be avoided or at least seriously considered before being undertaken. Horse riding, in particular, has been repeatedly mentioned, although surprisingly under-investigated. As well as the risk of being thrown or kicked by an unhappy horse, the aforementioned balance and coordination issues that come with a third trimester belly can make this activity uncomfortable and potentially dangerous.¹²

In terms of risk to the fetus, there has been no well-supported evidence of risk with moderate exercise. One study has reported babies of low

birth weight in mothers who undertook high-intensity regular exercise (3 times per week or more) late in pregnancy.¹³ There is also a theoretical risk of decreased fetal nourishment in overheated mothers. In the vast majority of studies, however, there has been no significantly increased risk with respect to delivery timing, placental weight or Apgar scores.

By and large, sensibility is the key. Straight line or stationary activities (walking, jogging, swimming, cycling) and strength training can all be undertaken safely. In experienced athletes, group and team sports can also be played with consideration of the risks. Women must always be conscious of their exertion level and hydration status, and in beginning a new exercise regime, such as beginning with three short sessions of low-impact exercise per week and working from there. Expectant mothers must also be conscious of any pregnancy-related complications they may suffer, such as bleeding, sudden oedematous swelling, abdominal and back pains or decreased fetal movements. At the onset of any of these, activity should be ceased and medical assistance sought. Women should be advised to start slowly and be mindful of any changes they feel in themselves.

In women with pre-existing serious medical conditions or with higher risk pregnancies, exercise need not be avoided altogether. It would be unusual for the family doctor to be the only physician involved in the care of these women, and specialist obstetric involvement is wise. Generally, however, in the case of obese women, monitoring exertion and avoiding injury is important. For women with diabetes, close monitoring of blood glucose levels, and diet in accordance with increased activity, should be the focus and a slow introduction of exercise can help to monitor patterns. Similarly, women with hypertension should be started on an exercise program slowly and monitored closely. It is important to discuss the risks and benefits with all expectant mothers and find a safe regime that can help them avoid the possible complications of excess weight gain while still promoting their emotional and physical wellbeing and the health of their unborn child.

Author

Emma Lewis MBBS, BMedSc (Hons), MSpMed, Medicine, Nursing and Health Sciences, Monash University, Clayton, VIC. ms_emma_lewis@yahoo.com

Competing interests: None.

Provenance and peer review: Not commissioned; externally peer reviewed.

References

1. American College of Obstetricians and Gynecologists. Exercise During Pregnancy and the Postpartum Period. ACOG Committee Opinion No. 267. *Obstet Gynecol* 2002;99:171-73.
2. Royal College of Obstetricians and Gynaecologists. RCOG Statement No. 4: Exercise in Pregnancy. Available at www.rcog.org.uk/womens-health/clinical-guidance/exercise-pregnancy [Accessed 6 September 2013].
3. Sports Medicine Australia. Exercise in Pregnancy 2013 (statement). Available at <http://sma.org.au/resources-advice/policies-guidelines/active-women> [Accessed 6 September 2013].
4. Borg G. Borg's Perceived Exertion and Pain Scales. Champaign, IL: Human Kinetics, 1998.
5. Brunker P, Brunker & Khan's Clinical Sports Medicine. 4th edn. Sydney: McGraw Hill Companies, 2012.
6. Stengal R, Kraschnewski J, Hwang SW, Kjerulff, KH, Chuang CH. 'What my doctor didn't tell me': examining healthcare provider advice to overweight and obese pregnant women on gestational weight gain and physical activity. *Womens Health Issues* 2012;22:535-40.
7. Olson G, Blackwell SC. Optimization of gestational weight gain in the obese gravida: a review. *Obstet Gynecol Clin North Am* 2011;38:397-407.
8. Siega-Riz AM, Viswanathan M, Moos MK et al. A systematic review of outcomes of maternal weight gain according to the Institute of Medicine recommendations: Birthweight, fetal growth, and postpartum weight retention. *Am J Obstet Gynecol* 2009;201:339-41.
9. Price B, Amini S, Kappeler K. Exercise in pregnancy: effect on fitness and obstetric outcomes – a randomized trial. *Med Sci Sports Exerc* 2012;44:2263-69.
10. Morris SN, Johnson NR. Exercise during pregnancy: a critical appraisal of the literature. *J Reprod Med* 2005;50:181-88.
11. Wallace AM, Boyer DB, Dan A, et al. Aerobic exercise, maternal self esteem, and physical discomforts during pregnancy. *J Nurse Midwifery* 1986;31:255-62.
12. National Health Service. Exercise in Pregnancy 2013. Available at www.nhs.uk/conditions/pregnancy-and-baby/pages/pregnancy-exercise.aspx [Accessed 6 September 2013].
13. Kardel KR. Effects of intense training during and after pregnancy in top level athletes. *Scand J Med Sci Sports* 2004;15:79-86.
14. Chu SY, Callaghan WM, Bish CL, et al. Gestational weight gain by body mass index among US women delivering live births, 2004-2005: Fueling future obesity. *Am J Obstet Gynecol* 2009;200:271-77.
15. Martin JA, Hamilton BE, Sutton PD et al. Births: Final data for 2005. *Natl Vital Stat Rep* 2007;56:1-103.
16. Juhl M, Kogevinas, M. Is swimming during pregnancy a safe exercise. *Epidemiology* 2010;21:235-58.
17. DeMaio M, Magann EF. Exercise and pregnancy. *J Am Acad Orthop Surg* 2009;17:504-14.
18. Wolfe LA, Davies GA. Canadian Guidelines for Exercise in Pregnancy. *Clin Obst Gyn* 2003;46:488-95.
19. Davies GA, Wolfe LA, Mottola MF, et al. Exercise in pregnancy and the postpartum period. *J Obst Gyn Can* 2003; 25:516-29.

correspondence afp@racgp.org.au