

## **Physical activity in pregnancy infographic: guidance**

### **Brief introduction**

The infographic is the latest addition to a series commissioned by the UK Chief Medical Officers. It aims to provide clarity and consistency, and to equip health professionals to deliver evidence based recommendations on physical activity in pregnancy. The aim is to ensure pregnant women are aware of the benefits of being active throughout their pregnancy and are clear about the physical activity recommendations. The infographic provides details regarding frequency, intensity and time, together with specific examples of suitable activities and key safety messages. This supporting document provides further details regarding the design and key messages on the infographic.

The infographic has been designed as a tool to support health professionals to facilitate effective physical activity counselling during pregnancy.

### **1. The development of the infographic**

The four UK Chief Medical Officers commissioned the Physical Activity and Pregnancy Study, led by a group based at the University of Oxford. The aim was to develop an infographic about physical activity and pregnancy which would contain evidence-informed messages for health professionals to use with the public.

#### Phase 1

A systematic review of reviews of randomised controlled trials of physical activity and pregnancy was conducted. A structured review of the association between physical activity and birth outcomes was also undertaken. A further systematic review examined the qualitative studies regarding the views of pregnant women and health professionals in relation to physical activity in pregnancy information.

Two further scoping reviews were undertaken: firstly, a web-based review of guidelines and advice about physical activity and pregnancy offered by respected institutions and interest groups; and secondly, a review of existing international and national infographics for physical activity and pregnancy. In addition, the concept of the infographic was tested at two workshops with a range of health professionals and academics. Advice was received from an Expert Working Group during this phase.

#### Phase 2

Working with a design team from the National Perinatal Epidemiology Unit, at the University of Oxford, the data from Phase 1 was used to develop the infographic. Following a pilot and full testing phase with a variety of professional networks, the final version was published and is supported by this guidance.

## **2. Evidence for the benefits of physical activity**

We conducted a review and analysis of physical activity research in pregnancy to ensure all messages on this infographic are evidence based<sup>1</sup>.

Four outcomes with definite positive effect were found<sup>1 2</sup> :

1. Reduction in hypertensive disorders
2. Improved Cardiorespiratory fitness
3. Lower gestational weight gain
4. Reduction in risk of gestational diabetes

Physical activity was not shown to increase the risk of preterm birth, small for gestational age, large for gestational age, or other complications for the newborn baby such as a decrease in the Apgar score at 1 minute<sup>1</sup>.

No definite significant effect was found related to the outcomes of back pain and duration of labour. Therefore, these were not included in this infographic.

Although some low-moderate quality evidence exists that exercise may have a positive effect on depression in pregnancy<sup>3</sup>, the other benefit messages of 'improves sleep' and 'improve mood' have been directly adapted from the evidence based adult guidelines<sup>4</sup>. These were included to highlight the benefits all adults receive from physical activity and may especially appeal to pregnant women.

## **3. Advice to a pregnant woman who is new to physical activity**

We would encourage health professionals to use this infographic to discuss the benefits of physical activity with all pregnant women. Pregnancy is an ideal time to adopt a healthy lifestyle with the increased motivation and frequent access to maternity care<sup>5</sup>.

Whilst the guidelines do not differ to those for the general population, women who have been sedentary before pregnancy are recommended to follow a gradual progression of exercise<sup>7</sup>. Hence the infographic message, 'not active – start gradually'.

A recommendation to pregnant women would be to begin gradually with 10 minute bouts of moderate intensity continuous exercise building up to a total of 150 minutes. This activity should be spread throughout the week (see number 5). It is important to highlight to women that 'every activity counts'. An achievable target would be to gradually accumulate their 10 minute bouts of activity throughout the week.

#### **4. Advice to a pregnant woman who is already active**

Pregnant women who are already active should be encouraged to maintain their physical activity levels. However, they may need to change the type of activity undertaken and adapt their activity throughout their pregnancy, for example, replacing contact sports with non-contact sport or an appropriate exercise class (see numbers 8-9).

#### **5. Recommendation of 150 minutes of moderate activity each week**

We recommend 150 minutes of moderate physical activity spread throughout the week for pregnant women. This can be performed in as little as ten minute bouts. This recommendation is based on the evidence review<sup>1</sup> which found that the UK guidelines for adult physical activity<sup>4</sup> are applicable to pregnant women. This is in keeping with other worldwide recommendations<sup>5,6</sup>. The reason why this was chosen as the central message on the infographic was because it is targeted towards the majority of women who are wishing to start or continue their physical activity.

Moderate intensity activity can easily be described as 'activity that makes you breathe faster'. Pregnant women can easily relate to and understand the required intensity. Further clarification is an intensity that increases breathing rate whilst still being able to hold a conversation.

#### **6. Vigorous intensity activity**

When giving pregnant women advice about the intensity of their activity, you may find that some already undertake vigorous activity. We recommend focusing your discussion on how women might adjust their activity as their pregnancy progresses to those they find most suitable and comfortable (see numbers 8-10). Avoid recommending vigorous activity to pregnant women who are new to physical activity. You should emphasise that they should aim for a moderate intensity, starting gradually<sup>7</sup>.

The physical activity recommendations contained within the infographic are based on the adult (19-64 years) UK guidelines<sup>4</sup>. However, vigorous activity is not recommended within this infographic because there was insufficient evidence from the systematic review of reviews (see number 1) to support it<sup>1</sup>.

#### **7. Activities for pregnant women**

A variety of activities can be recommended, apart from those with a high risk of falling or impact injuries and those that involve lying supine after the first trimester (see number 8).

The infographic displays positive messages to encourage pregnant women to incorporate physical activity into their daily routines. It provides examples of recommended activities during their day.

There is little consistent evidence regarding sedentary activity and pregnancy<sup>8</sup>. A sensible approach would be to avoid prolonged periods of sitting and to break up sedentary time. This reflects the guidelines for the adult population<sup>2</sup>.

Light to moderate muscle strengthening exercises have been shown to have no adverse health effects during pregnancy<sup>9</sup> and there is evidence to suggest improvements in muscle strength<sup>10</sup>. Pregnant women are likely to receive the same benefits all adults receive from these exercises. Therefore, we recommend, in keeping with the adult guidance<sup>4</sup>, that pregnant women perform 8–12 repetitions of muscle strengthening activities involving all major muscle groups twice per week. There is an absence of evidence regarding strenuous strength training for pregnant women<sup>9</sup>.

## **8. Activities not recommended for pregnant women**

Activities to avoid during pregnancy can be divided into those with an increased risk of trauma, those with physiological risk factors and those that involve lying in supine positions after the 1<sup>st</sup> trimester.

### Activities with an increased risk of trauma

These include activities where there is a higher risk of falling or high impact injuries e.g. skiing, water skiing, surfing, off-road cycling, gymnastics, horse riding and contact sports such as ice hockey, boxing, football or basketball.

### Activities with physiological risks factors

Scuba diving is not recommended due to the possibility of decompression sickness and gas embolism whilst Sky diving or vigorous exercise above 6000ft is not recommended due to potential lowering of uterine blood flow<sup>5</sup>.

### Activities involving lying in supine positions after the 1<sup>st</sup> trimester

Activities lying flat on your back are not recommended after the 1<sup>st</sup> trimester e.g. aerobics, yoga or pilates in supine positions. This is due to the increased risk of reduced cardiac output and orthostatic hypotension that can occur as the uterus enlarges. This is in keeping with other worldwide recommendations<sup>7</sup>. Note that pregnancy specific yoga or pilates classes should not include these exercises, and can therefore be encouraged<sup>5</sup>.

Activities pregnant women who are not already active should avoid

**Running, jogging, racquet sports, and strenuous strength training** may be less suitable for women who were not already active before pregnancy, due to a reduced capacity to cope with the exercise intensity<sup>5</sup>. Discussing current physical activity levels with pregnant women will help to formulate a plan which can include any agreed adaptations<sup>5</sup> (see number 4)

**9. Three key safety messages at the bottom of the infographic**

Safety message 1: No evidence of harm (maternal or infant)

Concern is sometimes expressed that physical activity in pregnancy is not safe. The evidence supporting this infographic found **no adverse maternal or infant outcomes for healthy women resulting from moderate intensity physical activity during pregnancy.**

Safety message 2: Listen to your body and adapt

Due to physiological changes during pregnancy, women may find that some activities feel different. Pregnancy may affect the frequency, intensity, type and amount of physical activity women can perform. We recommend women 'listen to their body'. A general rule is if it feels pleasant keep going, if it is uncomfortable stop and seek advice.

The warning signs of when physical activity should be discontinued and medical advice sought are apparent and many are irrespective of exercise. They include breathlessness before or following minimal exertion, headaches, dizziness, chest pain, muscle weakness affecting balance and calf pain or swelling<sup>5</sup>. Women may also be advised to reduce/stop physical activity following pregnancy complications such as vaginal bleeding, regular painful contractions or amniotic fluid leakage.

Women should be encouraged to adapt, not stop, their physical activity throughout pregnancy. They should be supported to consider the physiological changes that are occurring which may influence the type of activities they can perform. For example, vigorous running can be replaced with moderate jogging or walking. Supine exercises for strength can be adapted to side or sitting exercises. Adjustments should be considered for any physical work-related tasks<sup>5</sup>.

Safety message 3: Don't bump the bump

This message refers to all activities which place pregnant women at an increased risk of injury through physical contact. We recommend avoiding contact sports and any physical activity where there is a high risk of falls/trauma (see number 8).

## 10. Other safety messages

### *Those with obstetric or medical complications*

The information in this guidance and infographic applies to the uncomplicated pregnancy. Many pregnant women who have obstetric or medical complications can perform moderate intensity physical activity, however recommendations are dependent on each individual. Additional monitoring and specialist support may be required.

### *Keep cool, comfortable & hydrated*

During pregnancy, there are changes and adaptations in thermoregulation. For pregnant women who are extremely active and perform very vigorous activity we recommend they should be careful not to exercise for long durations (over 1 hour) especially in hot humid conditions<sup>5</sup>.

Staying hydrated, wearing loose clothing and avoiding excessive exposure to heat is sound practical advice<sup>5</sup>.

### *Postural balance*

Postural balance can be affected during pregnancy. Therefore, pregnant women are at higher risk of falls<sup>9</sup>. Balance exercises may help to improve this, however it is also advisable that they have support available when performing stretches and balance type activity.

This report is produced to inform the infographic: [bit.ly/startactiveinfo](http://bit.ly/startactiveinfo)

June 2017

## References

1. University of Oxford Physical Activity and Pregnancy Study Group. Physical Activity and Pregnancy Infographic Study Interim Report. 2016. Unpublished work. University of Oxford, Oxford.
2. Rogozińska E, Marlin N, Jackson L, Rayanagoudar G, Ruifrok AE, Dodds J, et al. Effects of antenatal diet and physical activity on maternal and fetal outcomes: individual patient data meta-analysis and health economic evaluation. *Health Technol Assess* 2017 (in press)
3. Daley AJ, Foster L, Long G, et al. The effectiveness of exercise for the prevention and treatment of antenatal depression: systematic review with meta-analysis. *BJOG* 2015;122(1):57-62. doi: 10.1111/1471-0528.12909 [published Online First: 2014/06/17]
4. Department of Health. Start Active, Stay Active. Strategy, 2011. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/213740/dh\\_128145.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213740/dh_128145.pdf) (accessed 20<sup>th</sup> April, 2017)
5. American College of Obstetricians and Gynaecologist. Committee Opinion No. 650: Physical Activity and Exercise During Pregnancy and the Postpartum Period. *Obstet Gynecol* 2015;126(6):e135-42. doi: 10.1097/AOG.0000000000001214
6. Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee report, 2008. Washington, DC: U.S. Department of Health and Human Services.
7. Evenson KR, Barakat R, Brown WJ, et al. Guidelines for Physical Activity during Pregnancy: Comparisons From Around the World. *Am J Lifestyle Med* 2014;8(2):102-21. doi: 10.1177/1559827613498204
8. Fazzi C, Saunders DH, Linton K, et al. Sedentary behaviours during pregnancy: a systematic review. *Int J Behav Nutr Phys Act* 2017;14(1):32. doi: 10.1186/s12966-017-0485-z [published Online First: 2017/03/16]
9. Bø K, Artal R, Barakat R, et al. Exercise and pregnancy in recreational and elite athletes: 2016 evidence summary from the IOC expert group meeting, Lausanne. Part 1- exercise in women planning pregnancy and those who are pregnant. *Br J Sports Med* 2016;50(10):571-89. doi: 10.1136/bjsports-2016-096218
10. O'Connor PJ, Poudevigne MS, Cress ME, et al. Safety and efficacy of supervised strength training adopted in pregnancy. *J Phys Act Health* 2011;8(3):309-20.