

REPs Guidance Paper – Antenatal and Postnatal Women

This information is related only to normal, healthy, adult women experiencing a normal, healthy, single pregnancy, or who have had a normal, healthy birth, and who have had previous normal, healthy pregnancies and births.

In most cases exercise is safe for mother and baby. Exercise at appropriate intensity for the individual concerned is not associated with adverse pregnancy outcomes. Women who have not exercised prior to pregnancy should begin with 15 minutes continuous aerobic activity, increasing to 30 minutes continuous low-moderate intensity aerobic activity.

Pregnancy can be split roughly into three time periods which are known as 'trimesters'. The first trimester is usually 0–13 weeks, the second trimester is 14–27 weeks and the third trimester is 28–42 weeks. The period up to 6 weeks after birth is known as the immediate postnatal period and the period from then up to about a year afterwards

is referred to as the extended postnatal period. A 'normal' pregnancy duration is 40 weeks, plus or minus 2 or 3 weeks, however any baby that is born between 37 and 42 weeks is considered to be 'full term'.

Pregnant women should maintain adequate hydration during exercise, avoid exercising in very hot or humid conditions, consume adequate calories, and restrict exercise sessions to no longer than 45 minutes, according to recommended NHS guidelines. Heart rate should not be used to monitor exercise intensity during pregnancy. Women should be advised to exercise according to how they are feeling and encouraged to use the talk-test to monitor appropriate, individual intensity.

Common symptoms of pregnancy

First trimester	Second trimester	Third trimester
<ul style="list-style-type: none"> • Nausea and sickness often occur. • Tiredness and breathlessness occur with any increases in activity. • There is an increase in resting heart rate (of about 5–10bpm) and breathing rate, which in turn increases the metabolic rate. • The woman undergoes hormonal changes such as the release of relaxin which allows ligaments to stretch • There is a risk of miscarriage around weeks 8–12. • The breasts and the uterus tend to enlarge. • Women gain on average about 1–3kg. 	<ul style="list-style-type: none"> • The linea nigra develops (dark vertical line on the abdomen) as the abdomen continues to expand. • Hormones tend to stabilise during this period and mood improves. • The intestinal tract relaxes. • Colostrum secretion occurs from the breasts. • The woman can suffer bleeding gums. • Backache is common due to certain postural changes. • Weight gain on average is about 6–8kg. 	<ul style="list-style-type: none"> • The woman can become tired very easily. • Discomfort is often felt at this later stage. • Posture continues to be a problem and can exacerbate existing problems. • Some women develop high blood pressure and fluid retention. • Braxton Hicks contractions can occur. These are uterine contractions that occur throughout pregnancy but are not usually felt until later on when they may be mistaken for labour contractions. • The woman can become anxious and not sleep well. • Weight gain on average is about 3–4kg. • Venous return (blood flow back to the heart) can be reduced, causing breathlessness. • Increased urination can occur.

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Physical activity benefits

The Royal College of Obstetricians and Gynaecologists (RCOG) and the American Congress of Obstetricians and Gynecologists (ACOG) agree that physical activity during an uncomplicated pregnancy should be actively recommended. There are potential maternal and foetal benefits such as in the table below.

First trimester	Second trimester	Third trimester	Third trimester
<ul style="list-style-type: none"> • Reduce or alleviate symptoms of pregnancy • Social aspects • Maintain bone density throughout • Decreased risk of diabetes 	<ul style="list-style-type: none"> • Increased energy levels and reserve • Improved digestion • Reduced weight gain (fat) • Reduced back pain • Enhanced maternal well-being 	<ul style="list-style-type: none"> • Increased self-esteem • Better posture • Improved sleep • More energy • Shorter and easier labour 	<ul style="list-style-type: none"> • Leaner baby • Quicker return to pre-pregnancy weight and fitness • Reduced bone loss • Reduce depression

Risks associated with physical activity

The RCOG and ACOG also agree that there are certain risks associated with physical activity such as in the table below;

Risk	Explanation
Joint injury	Particular damage to the bones in the joints which can lead to osteoarthritis.
Hyperthermia	The body temperature can rise more than it would normally and excessive temperature (more than 39.2°C) could affect the baby's development.
Increased risk of a miscarriage	The risk of a miscarriage is obviously higher as the amount and intensity of physical activity increases particularly due to heat stress.
Blood flow and oxygen delivery is reduced	Oxygen is required to supply the working muscles doing the physical activity, which can be diverted away from the placenta.
Hypotension	When lying on the back the foetus can press on blood vessels (the vena cava in particular) causing a loss of blood pressure.
Umbilical cord problems	High-impact activities can result in the umbilical cord being wrapped around the foetus.
Waters can break	High-intensity or impact exercise can cause the waters to break.
Extended or difficult labour	If abdominal and pelvic floor muscles are too strong they can in some cases extend the labour period.
Poor breast milk	Strenuous exercise has been shown in some cases to reduce the quantity and quality of the mother's breast milk.

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Physical activity guidelines

Any pregnant woman wishing to start a programme of regular physical activity should always obtain clearance from their GP prior to starting. Any instructor wishing to offer sessions for women in the antenatal and postnatal stages should make sure that they are qualified to do so.

Screening can be done by using the PARmed-X for PREGNANCY which is available from the Canadian Society for Exercise Physiology (CSEP): <http://www.csep.ca/cmfiles/publications/parq/parmed-xpreg.pdf>

As far as general activity guidelines are concerned, it is suggested that if women are reasonably active prior to becoming pregnant and are generally healthy, then there should be no problems in continuing recommended activity throughout the pregnancy. However, if the individual was sedentary prior to becoming pregnant it is recommended that only low-intensity activity should be undertaken. General guidelines published by the RCOG and the ACOG include the following:

- Use the talk test or Borg rate of perceived exertion (RPE) scale to determine exercise intensity.
- Do not exercise to the point of exhaustion.
- Do not exercise in the supine (on the back) position and minimise motionless standing.
- Dress in light comfortable clothing and keep well hydrated.
- Ingest carbohydrate (30–50g) prior to exercise.
- Avoid abdominal exercises other than transversus abdominis (TA) engagement.
- Maintain training heart rate under 140bpm.
- Avoid high-impact activities.

The ACOG/RCOG contraindications to physical activity in pregnancy can be seen in the table overleaf;



Absolute contraindications to activity	Relative contraindications to activity
<ul style="list-style-type: none"> • Haemodynamically significant heart disease • Restrictive lung disease • Incompetent cervix/cerclage • Multiple gestation at risk of preterm labour • Persistent bleeding in the second and third trimesters • Placenta praevia (where the placenta is partly or fully covering the cervix) after 26 weeks • Pre-eclampsia or pregnancy-induced hypertension • Preterm labour (previous/present) • Preterm rupture of membranes 	<ul style="list-style-type: none"> • Severe anaemia (haemoglobin less than 100g/L) • Unevaluated maternal cardiac arrhythmia • Chronic bronchitis • Poorly controlled type 1 diabetes • Extreme morbid obesity (BMI > 40) • Extremely underweight (BMI <12) • Extremely sedentary lifestyle • Intrauterine growth restriction (IUGR) in current pregnancy • Poorly controlled hypertension/pre-eclampsia • Orthopaedic limitations • Poorly controlled thyroid disease • Poorly controlled seizure disorder • Heavy smoker (more than 20 cigarettes/day)
<p>Reasons to stop activity</p> <ul style="list-style-type: none"> • Excessive shortness of breath • Chest pain or palpitations • Presyncope (feeling faint or feeling about to faint) or dizziness • Painful uterine contractions or preterm labour • Calf pain or swelling • Leakage of amniotic fluid • Vaginal bleeding • Excessive fatigue • Abdominal pain, particularly in back or pubic area • Pelvic girdle pain • Reduced foetal movement • Dyspnoea (shortness of breath) before exertion • Headache or visual disturbance • Muscle weakness • Sudden calf pain or swelling in the ankles, hands or face • Insufficient weight gain (less than 1kg per month) during last two trimesters 	

General guidelines for antenatal physical activity taken from a variety of sources such as the RCOG, the ACOG and the American College of Sports Medicine (ACSM) are synthesised below.

	Aerobic training	Strength training
Mode	<ul style="list-style-type: none"> Walking, cycling and water-based activities are good for this condition 	<ul style="list-style-type: none"> Continue as normal if already active. If not, slow progression from body weight to weights
Intensity	<ul style="list-style-type: none"> RPE level 10–14 60–80% max HR 	<ul style="list-style-type: none"> Avoid heavy loads Overload by increasing repetitions
Duration	<ul style="list-style-type: none"> 5–45 minutes per session Increase by 2 minutes per week but only between 13 and 28 weeks 	<ul style="list-style-type: none"> Perform 1 to 3 sets of 15–20RM 1–2 minutes' rest between exercises
Frequency	<p>Active person:</p> <ul style="list-style-type: none"> 3–4 sessions per week up to 14th week 3–5 per week up to 28th week 3 per week after 28th week <p>Non-active person:</p> <ul style="list-style-type: none"> None before 13th week 3 per week 13th-36th weeks 1–2 per week after 36th week 	<ul style="list-style-type: none"> 2–3 sessions per week Encourage other forms of exercise Decrease weight and sets and increase recovery time as pregnancy progresses
Precautions	<ul style="list-style-type: none"> Avoid high-impact activities and excessive repetition Watch for signs of overheating 	<ul style="list-style-type: none"> If no experience prior to pregnancy, do not start Avoid overstretching and overhead lifts
<p>General precautions:</p> <ul style="list-style-type: none"> Non-active women are advised to seek medical approval before beginning a programme of activity. If any activity causes pain or discomfort it should be stopped immediately. Do the rectus abdominis check 6–12 weeks after delivery before doing certain abdominal exercises. Be aware of episiotomy and take appropriate steps. Avoid motionless standing. Avoid supine exercises (lying on the back) after 16 weeks. 		

Finally, babies should not be used as resistance or a weight for exercise. When exercising with babies in their buggy ensure they are securely strapped in, and if exercising with babies present ensure their safety before the start of any session. Instructors should be aware that women in the childbearing period are vulnerable to injury, nausea, dizziness and fainting – instructors should therefore have up to date first aid skills.

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