Exercise for the management of Gestational Diabetes Mellitus- Recommendations

Exercise is just as important as medication and diet in controlling blood glucose levels (BGLs) in women with Gestational Diabetes Mellitus (GDM). Unfortunately it is an under used therapy. This information is provided to help you feel more informed and confident about exercising while pregnant to improve BGLs.

Exercising whilst pregnant

Many years of research has found that without obstetric or medical complications, pregnant women can generally follow the same exercise recommendations as non pregnant women, with some exceptions and extra considerations. General exercise recommendations include: Accumulate at least 30 minutes of moderate intensity exercise on most, if not all days of the week. This should include aerobic (fitness) exercise and 2-3 resistance (strength) exercise sessions per week.

Generally, if women are exercising before pregnancy it is safe to continue throughout the pregnancy. If not exercising before pregnancy, women may start to exercise but must start easy/ less than the general recommendations and slowly progress. All women, whether having exercised or not, should be cleared to exercise by their specialist first and be monitored along the way.
Safety

Exercise may not be recommended or safe for certain obstetric or medical complications.

Until the condition is controlled, it is not safe to exercise while pregnant if you have:

- A heart condition with unstable or abnormal blood flow
- Restrictive lung disease
- A short cervix (<2.5 cm) or a cervical stitch
- Carrying triplets or more
- Persistent bleeding in 2\textsuperscript{nd} or 3\textsuperscript{rd} trimester
- Placenta previa (placenta has implanted at the bottom of the uterus) after 26 weeks
- Premature rupture of membranes
- Pre-clampia (pregnancy induced high blood pressure)
- Fetal growth restriction (EFW <5%)
- History of >2 pre-term births or preterm labour in current pregnancy
- Genetic haemoglobin disorders

Depending on the individual situation, it may not be safe to exercise. Seek specialist advice & exercise under close supervision if you have:

- Anaemia (<9g/L)
- Uncontrolled heart rhythms
- Twin gestation after 24 weeks
- Chronic bronchitis
- Diabetes with HbA1C >6.5%
- Poorly controlled type 1 Diabetes
- Extremely obese or extremely under weight
- History of an extremely sedentary (little/ no physical activity) lifestyle
- Delayed foetal growth (below 10\textsuperscript{th} percentile for gestational age)
- Poorly controlled high blood pressure
- Poorly controlled seizure disorder
- Poorly controlled hyperthyroidism
- Poorly controlled asthma
- Tobacco use (>5 cigarettes per day)
- Previous miscarriage
- Orthopaedic limitations (pain/ injuries)
- Malnutrition or eating disorder
Benefits of exercise

Once the specialist has cleared you to exercise while pregnant, you may continue/ start exercise according to the recommendations and enjoy the many possible benefits.

For you it may:

- Reduce/ delay the use of insulin
- Decrease risk of developing type 2 diabetes within 5-10 years
- Decrease risk of re-developing GDM in future pregnancies
- Improve blood glucose control
- Reduce lower back pain
- Maintain/ improve fitness
- Improve blood pressure
- Reduce swelling
- Improve psychological wellbeing
- Reduce constipation and bloating
- Reduce fatigue and insomnia
- Reduce incidence of varicose veins and deep vein thrombosis
- Reduce shortness of breath

For your baby it may:

- Reduce the heart rate response to a stint of exercise
- Increase amniotic fluids
- Increase vascular function
- Improve placental growth and health
- Increase tolerance to labour
- Assist with a healthy birth weight and body fat
- Reduce risk of preterm birth
- Improve neurodevelopment
- Lower risk of developing diabetes later in life
Exceptions and extra considerations for exercise

Many changes happen to the body during pregnancy and need to be considered with exercise.

- Avoid contact sports or sports that have a high risk of falling to reduce risk of abdominal trauma
- Scuba diving and exercising at extreme altitudes are not safe sports during pregnancy
- It is not recommended to exercise lying flat on the back after the 2nd trimester as the weight of the uterus can compress a major vein and reduce blood and oxygen flow to the baby. Try exercising lying on an incline, side lying, seated or standing (but avoid long periods of motionless standing)
- Pregnancy increases body temperature and so does exercise. To avoid overheating whilst exercising it is best to exercise in a cool environment or in the water, stay well hydrated and do not exercise continually for long amounts of time e.g. Over an hour
- Take precautions to avoid hypoglycaemia (low blood glucose) if taking insulin
- Pregnancy hormones make joints more lax and balance can be affected by the added weight/change in posture. It may be more comfortable to exercise seated or side/incline lying to avoid falls and injuries
- When resistance (strength) training, take care with weights around the abdominal area. Resistance bands may be more appropriate. Use less resistance and higher repetitions
- Avoid holding breath while straining. This can rapidly increase blood pressure and pressure within the abdomen which may decrease oxygen flow to the baby
- Exercise may increase braxton hicks contractions. Consult specialist for further information
- Listen to your body

Warning signs to stop exercise

If you notice any of the below warning signs while exercising during pregnancy terminate exercise and seek specialist advice.

- Vaginal bleeding
- Difficulty breathing prior to exercising
- Dizziness
- Headache
- Chest pain
- Irregular heartbeat
- Muscle weakness
- Calf pain or swelling
- Preterm labour
- Decreased baby movement
- Amniotic fluid leakage
- Braxton hicks contractions more frequent than every 6 minutes
Exercising to control blood glucose levels

The exercise recommendations for controlling blood glucose levels are the same as the general exercise recommendations previously mentioned, with more exercise resulting in better blood glucose control. Aerobic (fitness) and resistance (strength) exercise both improve blood glucose control and do so in different ways so performing both kinds of exercise is more beneficial than just one.

How does it work?

Exercise helps to lower blood glucose levels because the muscle contractions act as doorways that open to allow glucose to flow from the blood into the muscle cells. The doorways can remain open for up to 2 days after exercise has finished, but tend to close after that. To sustain the blood glucose lowering effect of exercise it is important to exercise at least every 2 days. Exercise to keep those doorways open—It’s just like medicine.

Extra considerations

- If you are taking insulin it is encouraged that you self monitor blood glucose levels immediately before exercise. To avoid taking extra readings try to exercise after one of the readings you are already taking. Do not exercise if BGL’s are below 4 and manage for hypoglycaemia
- Blood glucose levels drop for up to 48 hours after exercise but hypoglycaemia is uncommon if you aren’t taking medication or if you are only taking Metformin. Some medications (sulphonylureas) and insulin can increase the risk of hypoglycaemia. Be mindful of the signs and symptoms and test BGL’s if necessary
- If you are taking Insulin it may need to be adjusted (with guidance from Diabetic Educator) if starting exercise lasting longer than 30 minutes
## Exercise recommendations for controlling blood glucose during pregnancy

<table>
<thead>
<tr>
<th>Type of exercise</th>
<th>Intensity</th>
<th>Duration</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic: Large muscle activities in a rhythmic manner e.g. walking, stationary cycling, swimming etc.</td>
<td>Moderate= Somewhat hard, can still talk while exercising e.g. brisk walking Or *Vigorous= Hard, can’t talk and exercise at the same time e.g. jogging *only do if used to vigorous exercise before pregnancy &amp; cleared to continue by specialist Gradually reduce intensity as pregnancy progresses</td>
<td>Previously active: Less or equal to 30 mins continuously or up to 45 mins if self paced, take care not to overheat Previously inactive: Start with 15 mins and gradually increase, take care not to overheat</td>
<td>Previously active: Most days. No more than two consecutive days without exercising Previously inactive: Start with 3 days per week and slowly increase to at least 4 days per week</td>
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<tr>
<td>Resistance: Multi-joint, strength exercises for large muscle groups e.g. bands, body weight, light weights with care, pregnancy pilates, pregnancy specific pelvic floor exercises</td>
<td>5-10 exercises for major muscle groups 8-15 repetitions at a light- moderate weight 1-2 sets Slow progression</td>
<td>30 mins (including 5 min warm up and 5 min cool down and stretch)</td>
<td>2-3 times per week</td>
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## Exercise ideas

The safest option is to exercise in a supervised setting where the qualified instructors prescribe individualised exercises according to your needs. Below is a list of places in Darwin that specialise in prenatal exercise. *Be sure to inform instructor of GDM & any other conditions/ injuries*

- **Movement for Life Physiotherapy- Antenatal & postnatal hydrotherapy, clinical Pilates**  
  Ph: (08) 8945 3799 email: office@mflphysio.com.au
- **Encore Pilates- Pregnancy specific reformer classes**  
  Ph: 0417-003-974 email: info@encorepilates.com.au
- **The Pilates Way- Exercise programming for pregnancy**  
  Ph: (08) 8927 8526 email: thepilatesway@live.com.au
- **Body Fit- Clinical Pilates classes & Exercise Physiology**  
  Ph: (08) 8981 2886 email: info@bodyfitnt.com.au
- **Bumps and beyond Pilates (Darwin & Moil Physiotherapy)- Pregnancy specific exercise**  
  Ph: (08) 8941 8826 email: darwinmoilphysiotherapy@gmail.com
If you have **been cleared to exercise** and **have no obstetric or medical complications** you may use the following program as a guide for resistance training. Please be mindful this program is general and not individualized.

**Start with a 5 minute warm up and end with a 5 minute cool down of walking or gentle movement**

### Squat

| Sets: 1-2 | Reps: 10-15 | Frequency: 2-3 times per week |

- **Bend at the hip, poke bottom back, keep chest lifted**
- **Drive up through heels**

### Wall push up

| Sets: 1-2 | Reps: 10-15 | Frequency: 2-3 times per week |

- **Hands on the wall at shoulder height and slightly wider than shoulder width**
- **Lower body towards the wall then press back. Keep body straight**

### Calf raises off step

| Sets: 1-2 | Reps: 10-15 | Frequency: 2-3 times per week |

- **Stand on stair edge with heels stretching off the back**
- **Rise on tip toes and lower. Keep knees straight**
**Band row**
Sets: 1-2  |  Reps: 10-15  |  Frequency: 2-3 times per week

Sit or stand tall. Wrap a band around a pole at waist height and hold the ends.
Draw the elbows backwards and squeeze muscles between shoulder blades as you row.

**Clamshell**
Sets: 1-2  |  Reps: 10-15  |  Frequency: 2-3 times per week

Lay on side. Stack hips knees and ankles.
Without letting your top hip drop backwards lift and lower your top knee.

**Four point arm and leg raise**
Sets: 1-2  |  Reps: 10-16  |  Frequency: 2-3 times per week

Start with hands below shoulders and knees below hips with a neutral spine.
Raise one arm and the opposite leg. Avoid twisting. Alternate sides.
**Pelvic floor activation - hold**

Sets: 3  |  Reps: 1  |  Hold: 10 sec  |  Frequency: Daily

- Gradually increase the strength of the contraction then hold
- Contraction is the same feeling as stopping the flow of urine.

**Pelvic floor activation - repeated**

Sets: 3  |  Reps: 10  |  Frequency: Daily

- Contract and relax the pelvic floor as shown.
- Contraction is the same feeling as stopping the flow of urine.
Sit less, move more

The average adult spends **more than half** of their day sitting. Here’s how the time can add up:

- **Drive to work** (1 hour)
- **Brisk walk** (30 minutes)
- **Bedtime**
- **Watch TV/read** (4 hours)
- **Eat dinner** (30 minutes)
- **Strength training** (30 minutes)
- **Drive home** (1 hour)
- **Work on computer** (4 hours)
- **Eat lunch** (30 minutes)
- **Work on computer** (4 hours)

**15 HOURS TOTAL SITTING TIME**

Adults who sit less throughout the day have a lower risk of early death, particularly from cardiovascular disease. In addition to 30 minutes of physical activity per day, try to limit your sitting time and interrupt prolonged sitting as often as you can.
Most people know what they should be doing for better health, but actually doing it gets difficult. By learning about SMART goals and how to set them specifically, you are more likely to get the healthier lifestyle you want.

1. Write your goals down

Goals are targets you set to help you achieve your overall objective.

2. Your goals should be...

SMART

SPECIFIC
- Become healthier
  VS
- Walk for 1 hour without stopping

MEASURABLE
- Lose some weight
  VS
- Lose 2 kg

ATTAINABLE
- Break Usain Bolt’s 100m record
  VS
- Shave 1 minute off my 1 km walk

RELEVANT
- Exercise is my only priority
  VS
- Weave activity into my lifestyle

TIME-BASED
- Lose weight soon
  VS
- Lose 2 kg in 30 days

I will walk 3 days a week on Monday, Wednesdays and Fridays. I will do this at the gym for 30 minutes from 6:00 - 6:30pm. I will get my family members to join me so that we exercise together as a family.