



Pregnancy and Exercise

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Pregnancy is a very exciting time in life that has some dramatic changes for both the female and also the immediate family.

The 40 weeks of pregnancy presents many exciting milestones and testing procedures to ensure a healthy and uncomplicated delivery.



First Trimester

During the first trimester there is a sudden increase in many hormones which help to prepare the body to carry the baby for 40 weeks and subsequent breastfeeding after delivery. It is a crucial stage of development where the fertilisation of the egg occurs. At week 4 the egg is about the size of a poppy seed and is starting to develop a neural tube which is where the brain, spinal cord and spine will continue to develop from.

At 12 weeks you have reached an important milestone, this is officially when the baby has developed into about the size of a lime, you have had all the checks to ensure the baby is healthy and the pregnancy can go full term.

Second Trimester

The second trimester is typically the period where mothers really start to feel their belly expanding to make way for the baby. The changes are physical throughout their mid-section and an increase in breast size will start to occur.

As this trimester rolls through the baby will start to develop a lot of senses, they begin to hear noises and are able to move around in the belly as they still have some room. Their breathing patterns begin and even though they are breathing in fluid and not air, this means once delivery occurs they are able to breathe straight away.

Third Trimester

The third trimester is most notably the stage of pregnancy in which the body is expanding almost daily and you can feel quite uncomfortable.

Back pain from having to move differently is very common and sleeping patterns become very disturbed. During this trimester the baby will not grow much longer but will really start to gain weight, due to this they will assume the foetal position to fit comfortably in the womb until delivery.

At about week 32 almost all the major organs are functioning and during the next few weeks they will need time to mature and develop properly to ensure no health issues. The lungs are the main organ of concern at this time as they require more time to prepare for the outside world. In a lot of cases first time mothers often go longer than 40 weeks, and this is considered very normal.



Pregnancy and Changes to the Body

Cardiovascular

During pregnancy there is always going to be big changes in the blood chemistry and pressure differences in order to give the foetus plenty of oxygen rich blood supply for growth and development.

There is an increase in blood volume, heart rate and stroke volume - this essentially allows greater blood supply to be pumped around the body every single minute regardless of activity level.

All this combined, results in a greater cardiac output which means the expecting mum is able to have a larger volume of blood pumped out to the body with every heartbeat.

Respiratory

Due to the increases in the need for oxygen rich blood for both mum and bub, there will also be an increase in respiratory rate. This is to ensure we are getting the new oxygen in through inspiration and the carbon dioxide out with expiration.

Studies have shown that ventilation rates can increase as much as 50% per minute, and that is without any exercise! This is a substantial change in the physiological routine of the body and therefore it is important to work to set individual heart rate levels during exercise, as this will be the best guide to ensuring you are not over exerting and putting excessive pressure on the respiratory and cardiovascular systems.

Thermoregulation

During pregnancy there is an increased demand on the cardiovascular and respiratory systems. As your basal metabolic rate increases, your heat production also increases.

It is paramount during pregnancy that you do not over heat the body and essentially heat the womb up as there is limited research to indicate that increasing your core temperature more than 1.5 degrees celsius can cause major congenital malfunctions.

Of course, there are limited studies on this, however, the guidelines from the American College of Sports Medicine say it is safe to exercise for those who have been training prior to pregnancy as the most important aspect is ensuring safe heat dissipation.

Cool exercising environments, no longer than 1 hour in duration, low to moderate intensity and not losing too much sweat are some fundamental points to always make sure you take into consideration when exercising.



Body Composition Changes

The body must change shape, weight and composition to have a healthy baby and birth. Understanding that this will happen is very important, and having a comprehensive understanding of what to expect for 'normal' weight gain will be slightly different depending on a number of factors.

It is estimated that during pregnancy you will gain between 11kg-16kg as a guide only! Remember not only is there a baby growing, but you also have the placenta, extra body fluids and tissue growth in your breast and uterus.

It is important to have a healthy weight gain, as being too much over or too much underweight can be detrimental to the health of the foetus.

There is also limited and sometimes obstructed venous return (blood flow back to the heart), which after a short period of time can be quite detrimental to both you and the baby.

This along with the above cardiovascular changes explain the very reason why standing still or laying down for long periods of time are not good especially during the second and third trimesters.



Positive Benefits for the Mother

Exercise is encouraged for women during pregnancy as it aids in strengthening muscles to help reduce lower back pain, improves stamina to help with labour and delivery, as well as developing a healthy lifestyle.

The two key areas of health that exercise will help with are physiological health and psychological health of the mother.

It is crucial to understand your limitations during this special time as there are many important considerations. If you were exercising and had a stable weekly routine prior to conception, then in an uncomplicated pregnancy this routine should generally be fine for the first trimester (except high impact and high intensity in some cases).

If you are a non-exercising mother prior to conception then it is crucial to get the all clear from your GP and begin at a much slower pace as the body isn't conditioned for training.

Physiological Benefits

- Strengthens muscles to support pregnancy and reduce load on body
- Stronger muscles to assist in delivery
- Shorter vaginal delivery time
- Greater energy
- Reduced feelings of fatigue
- Decreased risk and intensity of back pain
- Helps control healthy weight gain
- Decreased risk of gestational diabetes**
- Quicker return to pre baby weight
- Improves venous return
- Improved heart health

Psychological Benefits

- Lowers risk of post-natal depression
- Improves coping mechanisms and stress
- Increased self-esteem
- Increased self-confidence
- Establishing healthy lifestyle habits



Gestational Diabetes

Gestational Diabetes can only be diagnosed during pregnancy and occurs when the body is unable to cope with the increased insulin demand. This results in high blood glucose levels and although most times it will go away once you give birth; it is still a form of diabetes with associated risks during and after pregnancy.

It is estimated that between 34-50% of pregnant women in Australia are overweight or obese which means that their risk of developing gestational diabetes is much higher.

It can be very well managed during pregnancy by monitoring blood glucose levels and keeping them in recommended healthy ranges, developing a healthy nutrition action plan and consistent physical activity. Consult your GP if you are not sure where to get help, and need an action plan in place.

There are plenty of ways to manage it and decrease the risk of complications for the birth of your child. One of the major risks for your child is a larger birth weight: this can cause injury during delivery and also a possible change of delivery method depending on many factors.

Exercise is one of the three key factors of reducing your risk of developing gestational diabetes but furthermore controlling it if diagnosed. It has been shown that moderate levels of exercise before pregnancy reduces the prevalence by 50% and further-more can be reduced by 70% if you exercise at a higher intensity before conception.

At Envy Sports Science Clinic an Exercise Physiologist will be able to create a safe, individualised and progressive exercise program no matter if you are just starting out or have been exercising for years.

Benefits for the Baby

Pregnancy is a complex and amazing biological process that occurs and alters processes in the body such as metabolic, circulatory and cardiopulmonary functions.

When exercise is coupled with this it is extremely important to see an exercise physiologist as the frequency, intensity, duration and type of exercise all interact to have different physiological effects on the body and this needs to be monitored and managed by a professional.

It is very difficult to have strict guidelines for training during pregnancy as there are so many considerations to take into account with each pregnancy being very different. Health professionals support and encourage physical activity during pregnancy for a number of reasons listed above for the mother but it is also important for healthy foetal development.

Properly designed exercise programs that focus on the individual needs have reported to improve the maternal metabolic and cardiopulmonary systems without any adverse effect on the foetus.



Low birth weight of the foetus is a key determinant for infant survival, health and development.

The effects of deconditioning and fatigue have been associated with negative health and lower birth weight.



*Is it Safe to Exercise
when Pregnant?*

The short answer is YES...

Exercise has been shown to have no detrimental effects to the baby or to the mother when done properly and monitored throughout the duration of an uncomplicated pregnancy. This is a crucial element as to why it's imperative to have specialised health professionals looking after you, as there are important guidelines to follow and adhere to.

Depending on your level of exercise and physical activity prior to pregnancy will depend largely on the type of program you can initially perform. It is important not to start anything new without prior approval and to not commence any new sports especially contact sports.

Your exercise physiologist will thoroughly go through your levels of activity at an initial consultation to gauge exactly what you are capable of doing at all stages of pregnancy. You can essentially start exercising at any point during the nine months so long as you have medical clearance.

There are a few really important key tips for those who are exercising and want to continue with their previous program:

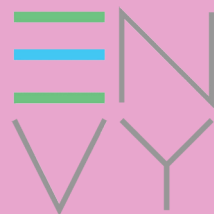
- Be mindful not to increase your core body temperature: even though the foetus in most cases does a very good job at thermoregulation it is important that you do not put it under any excess stress. Hot and humid conditions, no air conditioning or proper air flow, and high intensity exercise can all be dangerous.
- Make sure that your fluid intake is at the recommended levels: always have water on you as dehydration is not ideal.
- Measuring the intensity of exercise: there are many factors that influence the intensity; including stage of pregnancy, challenging pregnancy, prior exercise history, health status, nutrition and water intake, exercising conditions, and of course approval from your exercise physiologist.
- A warm up and cool down: slow increases and decreases to the cardiovascular and respiratory system is very important as the body is already under an increased workload so you could easily stress out your system by not starting or finishing safely.
- The time of the day you exercise does not need to be considered. We are not looking at performance markers during pregnancy, and you need to exercise when you feel like you can. However, you should consider the time of the day if training outside. Please consider the heat and ensure you train when it's not too hot.
- If you are currently involved in a sporting team, you are able to play non-contact sport for as long as you feel physically able to without placing too much stress on the foetus.



There are many changes to the body and especially to the foetus every single week with pregnancy.

It is important to remember that the child has three different trimesters during the 40 weeks, and during each trimester there are some different rules that apply especially in regards to training.

The next section of this brochure is broken up into exercises according to each trimester to show that movements need to be monitored and changed in accordance with each person and their progression through pregnancy.



Trimester One

If you have been training regularly before this time period then in an uncomplicated pregnancy you do not have to change too much in regards to your exercises, intensity and style of training. Water intake, temperature and fatigue are key elements to always monitor throughout training when pregnant.



Trimester Two

This presents a new challenge for the expecting mum as the body dramatically changes in shape. The extension of the belly becomes very evident and a noticeable change in the breasts occur as they are preparing to hold the nutritious milk for the baby. Movement restrictions are most noticeable here due to the increase in belly size.



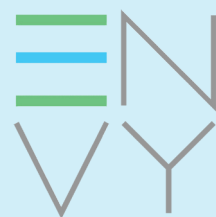
Trimester Three

The last trimester, and one that many say is the most uncomfortable as the belly continues to extend further out. As delivery date approaches the belly will move down and this can put a lot more pressure on the bladder. Bending, squatting and moving in general do become more difficult. Hence as movement capacity decreases, it is key to ensure a change in exercises occurs.



To have a healthy and safe pregnancy it is important to listen to your body, be educated about the different stages of pregnancy and talk to your doctor about your specific requirements during this period.

Pregnancy should be a very exciting, happy and special time with family and loved ones. Simply listening and following health professional's advice is the safest method to take.

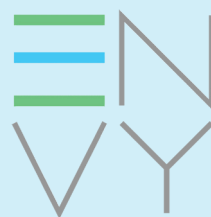


Everyone is Different

Pregnancy is a case by case care situation with everyone being a little different to the next. Always make sure you have medical clearance to train, and if there are any concerns from your doctor please always tell your exercise physiologist.

The below list is a few specific things to avoid in regards to physical activity and exertion:

- Avoid ballistic exercise or excessive stretches: there is no need to overstretch or force the body during pregnancy as you should never be training to 100% capacity, and due to the hormones circulating in the body, the ligaments are loose in preparation for the birth.
- Avoid prolonged periods of standing: Especially in full sunlight, hot weather or where you cannot choose a seated and cool position.
- Never exercise to exhaustion: The body is already under increased pressure when pregnant so you should stop exercising before too much fatigue sets in. Always stay well hydrated and consume some food approximately 90 mins before the session and within 30 minutes after the session .
- Avoid maximal isometric contractions: This will put too much pressure on the cardiovascular system in particular which can cause negative complications.
- Avoid heavy lifts: It is always wise to limit the amount of load you are putting on your body. Your exercise physiologist will work with you to create a program that is safe and still very effective in strengthening your body.



Envy Sports Science Clinic provides scientific and professional exercise prescription to clients by one of our exercise physiologists.

An exercise physiologist is a university trained allied health professional, equipped with the knowledge, skills and competencies to design, deliver and evaluate safe and effective exercise interventions for all clients.



Where are we?

We have two locations - Balmain and Mosman. Both clinics offer the same service to every single client and have the same equipment. It is simply whatever clinic works best for you for travel and convenience.

What we Offer

With particular focus for expecting mothers we offer:

- ✓ Individualised and scientifically developed programs are tailored made specifically to you and your exercise level and experience.
- ✓ A program that is progressed along with the weeks in your pregnancy, during each trimester certain movements and the focus of exercises change.
- ✓ Be guided and supported through your session by one of our amazing Exercise Physiologists, every session is directed by a staff member.
- ✓ Be comforted in our air conditioned private clinic that has all equipment you'll need throughout your training.
- ✓ Nutrition guidance and information in regards to how much you should be eating and when the body might need extra nutrients.
- ✓ Flexibility with times and sessions, we understand life is busy and hence we have large opening hours to cater for this.
- ✓ Each session you are able to claim a private health insurance rebate depending on your level of cover.

Contact Us

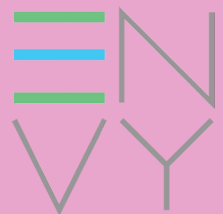
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