

## EXERCISE in pregnancy

***MANY WOMEN ARE UNSURE  
WHETHER TO CONTINUE  
BEING ACTIVE WHEN THEY  
BECOME PREGNANT***



Pregnancy used to signal the end of a woman's sporting career but in recent years many great female athletes have returned to their sport to compete at the highest levels following the birth of a baby. Pregnancy is a natural condition rather than an illness and unless you have complications, it should be possible to enjoy your sport or activity at some level throughout most of your pregnancy.

### **HOW WILL PREGNANCY AFFECT MY BODY AND PHYSICAL ABILITIES?**

There are many anatomical and physiological changes during pregnancy.

### **INCREASE IN BODY WEIGHT (ON AVERAGE 10 -15 KG)**

As pregnancy progresses weight increases and changes occur in weight distribution and body shape. This results in the body's centre of gravity moving forward and the curvature of the spine increasing. This increase in body size can make some activities more uncomfortable (eg. jogging). These changes can also alter balance and co-ordination, particularly in the second half of the pregnancy, and for this reason activities that require a degree of balance or rapid change in direction may not be advisable (eg. roller-blading).

### **LOOSENING OF ALL LIGAMENTS**

During pregnancy, joints will gradually loosen to prepare for birth. This may create an increased risk of injury. Those particularly affected are the pelvic (sacro-iliac and pubic symphysis) joints. Care should be taken with any activity that involves jumping, frequent changes of direction and excessive stretching. Jerky ballistic movements should be avoided.

Strengthening exercises (particularly core strength exercises) may also decrease the potential of injury to these joints.

### **INCREASE IN RESTING HEART RATE**

Due to the increase in resting heart rate and decrease in maximal heart rate during pregnancy, it is not recommended using target heart rate to determine intensity of exercise. In healthy pregnant women the intensity of exercise can be monitored by the mother's rating of perceived exertion (see Borg's Rating of Perceived Exertion Scale).

*TRY TO VIEW THIS PERIOD  
POSITIVELY, BE FLEXIBLE  
AND BE PREPARED TO  
CHANGE TRAINING PROGRAMS  
AND EXPECTATIONS*

## **DECREASE IN BLOOD PRESSURE**

During the second trimester of pregnancy, the development of blood vessels to supply the growing placenta will cause blood pressure to fall. From approximately the fourth month, pregnant women should avoid rapid changes of position, both from lying to standing and vice-versa, so as not to experience dizzy spells. Stopping suddenly should also be avoided as cardiovascular adjustments take longer and may result in dizziness or faintness. If undertaking aerobics, leg exercises done whilst lying on the back should be avoided after the fourth month as the weight of the foetus can slow down the return of blood to the heart. Try to modify these exercises as most can be done lying on the side. Prolonged periods of motionless standing should also be avoided.

## **INCREASE IN BLOOD VOLUME, HAEMOGLOBIN AND VO<sub>2</sub> MAX**

As pregnancy progresses, the body's ability to transport oxygen improves. This adaptation is designed to meet the needs of the growing foetus. This means that oxygen supply to other parts of the body, including working muscles, also improves.

These cardiorespiratory adaptations are potentially advantageous for performance after the baby is born. During pregnancy the advantages are offset by changes in weight, blood pressure and ligaments, and by the need to ensure oxygen supply to the foetus. It is true however, that physiological adjustments

resulting from pregnancy will remain for some weeks following the birth of the baby. There may therefore be improvements in performance for those who manage to return to competition soon after the birth. For most women, managing a new baby, breast-feeding and sleep deprivation, means this potential 'advantage' may go unnoticed.

## **PELVIC FLOOR**

Damage to the pelvic floor muscles occurs during birth (vaginal delivery). The pelvic floor muscles are also weakened during pregnancy, so it is extremely important to begin conditioning the pelvic floor muscles from the start of the pregnancy. These exercises (which can be prescribed by a physiotherapist) should continue throughout the pregnancy and recommence as soon as is comfortable after the birth.

## **ARE THERE ANY DANGERS OF EXERCISING DURING PREGNANCY?**

There are theoretical concerns for the foetus and mother including risk of overheating, impairment of oxygen and nutrient delivery to the foetus and possible risk of premature labour.

## **RISKS TO THE FOETUS**

There are no studies to date that show an association between exercise and adverse outcomes for the foetus. There are however some areas where concerns have been raised;

### **i) Effects on birth weight**

Most studies have not shown any significant difference in babies' birth



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weights for exercising and non-exercising pregnant women. However, one recent study showed women who exercised intensely more than three times per week in their third trimester delivered significantly smaller babies. Although these babies were all healthy at the time of delivery, there are concerns about the long term health effects on low birth weight babies. It is therefore recommended that exercise in the third trimester be limited to three sessions or less and not be as intense as earlier in the pregnancy.

## ii) Contact sports

There has been much theoretical concern about the risks to the foetus whilst participating in 'contact' sports such as netball. There is currently no research to support this concern. The current advice is that each woman should discuss her wishes with her doctor and take into consideration the type of sport, pregnancy status and her history of participation in that sport. For example, it would be most reasonable for a woman who has played netball all her life and is pregnant in her first trimester, with no complications, to continue with this activity. Alternatively, a woman who has never down-hill skied and wants to attempt this for the first time at 30 weeks pregnant would probably be advised not to participate.

## iii) Over-heating

Some animal studies have indicated that over-heating of the mother in the first trimester may cause an increased risk of neural tube defects. Although

humans have different mechanisms of heat dissipation than the animals studied, it is reasonable to suggest that it is not wise to exercise in the heat of the day and to stay well-hydrated when exercising.

## RISKS TO THE MOTHER

Potential risks of increased injury due to changes in body shape and size, as well as ligamentous laxity, have been discussed.

## BENEFITS FOR THE MOTHER

There are numerous potential benefits for women who exercise during pregnancy. These include better weight control, improved mood and maintenance of fitness levels. Exercise also helps prevent the onset of gestational diabetes (GDM) and is certainly an important part of the management plan should GDM occur.

## HOW MUCH EXERCISE IS SAFE?

In general, healthy women who have uncomplicated pregnancies can continue their previous exercise program after consultation with their doctor. It is also now considered safe to START an exercise program during pregnancy.

No studies have determined a safe 'upper' limit of exercise but as pregnancy continues, increased size and fatigue generally cause most women to lessen their participation. As previously stated, by the third trimester no more than three sessions per week of vigorous exercise are recommended.

Moderate exercise (as determined by the perceived exertion scale) is considered safe throughout pregnancy.

## WHEN SHOULD A PREGNANT WOMAN NOT EXERCISE

Exercise should be stopped if any abnormal symptoms occur such as pain, contractions, vaginal bleeding, dizziness or unusual shortness of breath (see box below).

Exercise during pregnancy is not advised in a number of conditions including heart disease (ischaemic or valvular), severe hypertension (high blood pressure), risk of premature labour (incompetent cervix, multiple pregnancy, ruptured membranes), growth retardation or pre-eclampsia. Any illness or complication of the pregnancy should be fully assessed and discussed with your doctor before commencing or continuing an exercise program.

### IF YOU EXPERIENCE ANY OF THE FOLLOWING SYMPTOMS DURING OR AFTER EXERCISE, YOU SHOULD STOP AND CONTACT YOUR PHYSICIAN

- ▶ High heart rate
- ▶ Dizziness
- ▶ Headache
- ▶ Uterine contractions
- ▶ Vaginal bleeding
- ▶ Amniotic fluid leakage
- ▶ Nausea
- ▶ Shortness of breath
- ▶ Faintness
- ▶ Back or pelvic pain
- ▶ Decreased foetal movements
- ▶ Sudden swelling of ankles, hands and face

# EXERCISE

in pregnancy

**YOU WILL BE SURPRISED  
HOW SOON YOU CAN  
RESUME YOUR FULL  
FITNESS AND SKILL LEVEL  
AFTER THE BIRTH**



*This fact sheet is an initiative of the Department of Planning and Community Development (Sport and Recreation Victoria) through Women in Sport funding and has been prepared with the contribution of the Medicine and Science for Women in Sport group of Sports Medicine Australia*

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### WHEN CAN I RESUME EXERCISE AFTER THE BABY IS BORN?

After a normal vaginal delivery, gentle exercise including pelvic floor, abdominal exercises and walking can be commenced when comfortable.

More intense exercise should be delayed for up to six weeks to allow for some resolution of the effects of pregnancy and delivery, particularly on the pelvic floor muscles and pelvic joints.

After caesarean section, six weeks is the recommended time to return to exercise if the wound is well healed.

Exercise has not been shown to adversely affect lactation (breast feeding) as long as fluid and caloric intake are maintained.

Discomfort caused by full breasts and sore nipples may make running and jumping uncomfortable. A supportive bra is recommended. Exercising straight after a feed when breasts are less full can also help prevent these symptoms.

Athletes who are able to return quickly to a high level of training will notice the beneficial physiological effects. You will be surprised how soon you can resume your full fitness and skill level after the birth, but remember that it can take up to six months for joint stability to be re-established.

### SHOULD I DISCUSS MY EXERCISE PROGRAM WITH MY DOCTOR?

Yes! It is essential that all women discuss their exercise plans with their doctor as each pregnancy is different. A healthy uncomplicated pregnancy may have few restrictions placed on

the type and amount of exercise that can be done. Other situations may arise that require exercise to be restricted or completely ceased. Accepting that pregnancy and birth will interrupt sporting aspirations will reduce feelings of frustration and resentment. Try to view this period positively, be flexible and be prepared to change training programs and expectations. Remember the final outcome of a healthy child is the aim for all concerned, whilst allowing the mother as much scope for choice and healthy activity as possible.

### BORG'S RATING OF PERCEIVED EXERTION SCALE

6	
7	Very, very light
8	
9	Very light
10	
11	Fairly light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Very, very hard
20	
12-14	is considered moderate intensity

### Reference

SMA statement on benefits and risks of exercise during pregnancy (see [www.sma.org.au](http://www.sma.org.au))

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