

Family Fit Pregnancy Policy

- Family Fit will obtain a PARQ form prior to exercise and check with pregnant persons at the start of every session to gauge and assess their stage of development and how they are feeling on the day to ensure appropriate modification of exercises occur.
- Regular exercise is now recommended for most pregnant women, but as the physiological changes of a pregnant woman are complex, great care is needed in screening and programming.
- Recent publications from the American College of Obstetricians and Gynaecologists (ACOG) provide new recommendations and guidelines for exercise and the postpartum period, eg recommends exercise for pregnant sedentary women and those with medical or obstetric complications, but only after medical evaluation and clearance. Until recently, we have been advised to only train clients who were previously exercising prior to pregnancy, yet the new directive is that all pregnant women without contraindications should be encouraged to participate in both aerobic and strength training.
- Current ACOG guidelines recommend 30 minutes of exercise on most, if not all days of the week for women with uncomplicated pregnancies. The women should be well hydrated and perceive the exercise to be mild to moderate.
- It is well understood that women who are fit have shorter labours with a significantly lower rate of caesarean sections (C-sections). More evidence is showing that women who begin regular moderate exercise in trimester 1 (T1) and continue throughout their pregnancy will also benefit.

Exercise Contraindications

- Pregnant clients will be appropriately screened with written permission to exercise from their doctor. It is important to confirm that the client is clear from any of the absolute contraindications (see below). The clients that fall into the 'relative' category will need to be cleared and closely monitored by you (trainer) and their specialist medical practitioner.

Table 1. Contraindications to Exercise in Pregnancy - Source: *ACOG Committee Opinion* No. 267

Absolute Contraindications

Haemodynamically significant heart disease
Restrictive lung disease
Incompetent cervix/cerclage
Multiple gestation at risk for premature labour
Persistent second or third trimester bleeding
Placenta praevia after 26 weeks gestation
Premature labour during current pregnancy
Ruptured membranes
Pregnancy induced hypertension

Relative Contraindications

Severe anaemia
Unevaluated maternal cardiac arrhythmia
Chronic bronchitis
Poorly controlled type 1 diabetes
Extreme morbid obesity
Extreme underweight
History of extremely sedentary lifestyle
Intra-uterine growth restriction in current pregnancy
Poorly controlled hypertension/pre-eclampsia
Orthopaedic limitations
Poorly controlled seizure disorder
Poorly controlled thyroid disease
Heavy smoker

Effective Screening

- There are many anatomical and physiological changes during pregnancy that have the potential to affect the musculoskeletal system at rest and during exercise. The most obvious of these is weight gain. The increased weight in pregnancy may significantly increase the forces across joints such as hips and knees by as much as 100 per cent during weight bearing exercise such as running. Such large forces may cause discomfort to normal joints and increase damage to arthritic or previously unstable joints.
- Typically women develop lumbar lordosis, which contributes to the high prevalence (50 per cent) of low back pain. The pelvis often rotates more anteriorly due to the position and weight of the foetus. To compensate, the kyphotic curve may increase as well to counteract the increased lordotic curve. The cervical spine can then be affected as the shoulders become more rounded and the head will shift forward. The weight gain plus increased ligamentous laxity due to the rise in oestrogen and relaxing may result in increased pronation at the foot and ankle. All this combined will affect the mechanics of the kinetic chain.
- Effective postural screening of all pregnant women is essential prior to exercise prescription.

Table 2. Postural Distortion Patterns

	Postural Distortion	Short/Tight Muscles	Long/Weak Muscles
Foot/Ankle	Feet externally rotated	Soleus/gastrocnemius	Anterior/posterior tibialis
	Pronation at ankle	Soleus/gastrocnemius Peroneals	Anterior/posterior tibialis Gluteus medius
Knees	Adducted/internally rotated	Adductors	Gluteus maximus
		IT-band	Hip external rotators
		Iliopsoas	
		Rectus femoris	
Hips	Anterior pelvic tilt	Erector spinae	Gluteus maximus
		Latissimus dorsi	Inner unit
			Scapular retractors: Rhomboids
Shoulders	Protracted shoulder girdle	Pectoralis major/minor	Mid/lower trapezius
		Latissimus dorsi	Rotator cuff
		Sternocleidomastoid	
		Upper trapezius	
		Scalenes	
Head	Cervical extension	Levator scapulae	Deep cervical flexors

Once any postural imbalances are recognised it is recommended that you address these needs in the first trimester (T1) and effectively design a comprehensive training program that focuses on strength, stability, and corrective techniques to overcome imbalances. Addressing these issues in T1 will help strengthen your client for the trimesters to follow.

Exercise Intensity

- Pregnancy induces profound alterations in maternal haemodynamics. Such changes include an increase in blood volume as well as cardiac output, and a decrease in systemic vascular resistance. By mid-pregnancy cardiac outputs are 30 to 50 per cent greater. These changes influence the intensity that can be tolerated.
- Intensities can be measured in three different ways: modified heart rate zone, 'talk test' which indicates the exertion level through conversation; and perceived exertion according to the Borg scale. Your client's stage of pregnancy will indicate which type of scale you use.
- In T1 there is an increase in maternal heart rate at any given workload, but the rate of perceived exertion (RPE) will be decreased due to an underfilling of the cardiovascular system. This is also a protective mechanism, as weeks three to eight hold the greatest risk of foetal malformation due to heat shock on cell development. Therefore, keeping well within the target zone for this period is essential.
- In the third trimester (T3) there is a decrease in maternal heart rate at any given workload; however, the RPE is increased due to returned heart rate reserve (HRR) and increased maternal weight. Most clients will find it difficult to keep up the exercise intensity as the pregnancy progresses.

Table 3. Modified Heart Rate Target Zones for Aerobic Exercise in Pregnancy

Maternal age	Heart rate target zone (bpm)
< 20	140 - 155
20-29	135-150
30-39	130-145
40+	125-140

Source: Canadian Society for Exercise Physiology

Duration and Frequency of Exercise

- The two major concerns of exercise duration is the effect on thermoregulation and energy balance. It is best to limit the duration to 30 minutes maximum depending on intensity. Another option is to accumulate activity to shorter periods such as 15-minute periods. This may prevent concerns of thermoregulation and energy imbalance during exercise. Also look at introducing multi-peak training as opposed to long sessions.

Table 4. F.I.T.T. Principle for Pregnancy

- A mix of cardiovascular and resistance training is recommended as long as the appropriate screening has been conducted. Aerobic exercise can include walking, stationary cycling, swimming, low impact aerobics, aqua fitness and resistance training.
- Avoid activities that could increase risk of falls such as skiing, or result in excessive joint stress, such as jogging, tennis and other organised sports.

Resistance Training

1. Address any specific weakness or instability during T1 since the client can move more easily.
2. Keep aware of imbalances whilst focusing on corrective exercise technique.
3. Strengthen the deep abdominal corset musculature to provide a stable based and help to alleviate musculoskeletal stresses later on.
4. Avoid the supine position after 16 weeks or any position where gravity is pushing down on the vena cava (e.g., shoulder bridge, recumbent cycling, bench incline of 30 per cent or lower).
5. Decrease rectus abdominus and dynamic oblique work after T1, especially if diastasis recti occurs (separation of the rectus, which occurs in more than 30 per cent of women). Focus on strengthening the deep abdominal muscles instead as these have a huge role to play in the birth and post labour recovery.
6. Overhead movements should be avoided especially during T3 due to possible decrease in blood flow to the baby and possible hypertension issues.
7. Be aware of ligamentous laxity due to increased level of oestrogen and relaxing. Design a program based on the initial assessment results. Watch for end range of movement and joint instability. Instability in the pelvis and tightness of the surrounding musculature can lead to such issues as sacroiliac joint pain and pubic symphysis instability. Avoid lower body unilateral work (lunges, one leg squats, high step ups and wide squats. Strengthen the gluteal complex and stabilise the pelvis through lateral tube walking. (Lateral tube walking is done by using band resistance consistent with client's ability. Place the band around the ankles hip width apart, then step sideways keeping tension on the band). Always consult with the client's practitioner and refer if the pain continues or worsens.
8. Keep intensity light, low weights, 12 to 15 repetitions of multiple muscles groups. Focus on corrective exercise techniques that strengthen the deep abdominal muscles. Machine weights are preferable over free weights.
9. Constantly assess the clients changing posture and modify the program accordingly.