

Pregnancy priorities

During pregnancy, women's priorities for movement and exercise change. Director and founder of The Pregnancy Centre, **Dianne Edmonds**, shares her advice for delivery of exercise to pregnant clients.

There are a multitude of factors to consider when training a pregnant client. Some of these considerations include: the safety of the baby; body confidence; alleviating aches and pains of pregnancy; enjoying their levels of activity; minimising excessive weight gain; and maintaining ranges of movement and muscle tone throughout the body.

Particular attention is needed around the abdominal wall, back and the pelvic floor, because these areas surround the growing baby (or babies) inside the expanding uterus. Importance is also placed on maintaining the function of the pelvic floor and abdominal wall, and protecting them from strain is crucial when programming for pregnant women.

It's incredibly important for instructors to look beyond the physical gains. Perinatal mental health problems affect between 10 to 20% of women in the UK during pregnancy and the first year after having a baby¹.

Founder of The Movement Room, Kylianne Farrell, who set up a dedicated fitness community empowering individuals to take on fitness challenges to improve their mental health, told *Fitpro*, "Exercise is such an amazing strategy for improving mental health. Some of the benefits are a sense of belonging, social support, and creating resilience from stressors." Farrell is a big believer in the power of movement as a coping strategy against mental and emotional struggles such as stress and states of overwhelming depression and anxiety.

Existing exercise

In early pregnancy, when women consider the safety of their growing and developing baby, some clients may choose to back off from their existing exercise regime. This is particularly prevalent for individuals who may have had a history of miscarriage or if they experience nausea. Instructors should provide them with guidance and encouragement as they return to regular exercise once they are past the first trimester. Clients must be made aware of the precautions of exercise and make any modifications as required.

The updated 2015 ACOG Guidelines² provide examples of physical activities for women with an uncomplicated pregnancy. These suggestions are safe to initiate or to continue in ongoing consultation with an obstetric care provider. These include: walking; swimming; stationary cycling; low-impact aerobics; weights; and rowing. Modified yoga and Pilates are included, although instructors should avoid positions that result in decreased venous return and hypotension, which includes the supine position from 16 weeks of pregnancy. Hot yoga and Hot Pilates are not recommended. For the disciplines spinning and cycling, symmetry with leg loading is advised.

Exercise precautions include avoiding overheating, for example, by positioning themselves under the fan or air conditioning in a group programme, maintaining hydration, and choosing the right conditions for exercising outdoors. Pregnant women should not exercise if they are feeling unwell or in very humid conditions². If there are no contraindications to exercise, then regular, moderate-intensity exercise is advised, with both aerobic and resistance training being considered safe with no adverse outcomes during pregnancy.^{2,3}

The recommendation for monitoring exercise intensity is to be placed at a 'somewhat hard' level, between 12 to 14, in accordance with the Rating of Perceived Exertion (RPE) 6-20 scale, with maintenance of proper form throughout their training^{2,3,4}.

Sporting considerations

Activities that may be considered safe include: running or jogging; strength training; and racquet sports^{1,5}. Musculoskeletal considerations of any pelvic joint, hip or back pain, or lower abdominal wall or pelvic pain can affect running intensity, frequency and duration, or the need to modify or cease the activity. Any sensations of pressure, vaginal

heaviness or leakage of urine are also signs that running should be modified to protect the pelvic floor. As balance changes, the ability to perform rapid movements in racquet sports may be affected, and there is more risk of falling⁶.

Warning signs to stop exercise during pregnancy and refer for medical advice include shortness of breath, feeling faint or dizziness, headaches, chest pain or palpitations, blurred vision, new or persistent nausea or vomiting, calf pain, swelling or unusual muscle weakness, any kind of pain or numbness, excessive fatigue after exercise, vaginal bleeding, abdominal cramps or pain, intense or new back pain, contractions, leaking of amniotic fluid, or reduced movements of the baby^{2,6}.

Working the weights



During the third trimester, women begin to get tired and their bellies can get in the way of performing resistance exercises. That's according to personal trainer, Sam Kirker, who delivers weight training for pregnant clients in Australia. When it comes to the types of exercises and equipment you can be using, Kirker said, "I would recommend TRX squats and sumo squats to build strength in the legs, to help have an active birth. Elevated work such as push-ups help keep them off the floor, or if we go to the floor we stay there and do all the work at once, no up and down. I just tell them to listen to their bodies and stop training when they feel they need to. Keep walking and keep cool is my advice."

When it comes to upper-body work, Kirker advises that shoulder, biceps and triceps work helps build arm strength to prepare for holding the baby, with seated or TRX bicep curls also a good choice. Chest and pec releases with a ball and seated/standing/kneeling rows with a band for back work also counteract posture changes and help to prepare for breastfeeding and holding the baby. In addition, seated, standing and kneeling Pallof presses are also good.

Thoracic mobility

The changes in posture, as the uterus size increases, results in an increase in each of the lumbar, thoracic and cervical curves^{7,8}. Due to the uterus growth later in pregnancy, thoracic mobility can become restricted and so women benefit from deliberately adding in thoracic stretches, including rotation and side flexion, in addition to the regular 'cat' curl stretches for the lumbar spine.

The postural and hormonal changes mean that back or posterior pelvic pain can be experienced by 47% of women in pregnancy⁹. Hormonal changes cause ligamentous laxity¹⁰, which may increase the risk of injury. Therefore, instructors must protect the back and pelvic joints. Modifying exercises to protect the lumbar spine and pelvic joints include avoiding exercises involving sudden changes of direction or intensity, highly choreographed exercises, and excessive twisting, turning or asymmetrical weight-bearing activities. When clients are swimming, advise them to avoid excess breaststroke kick, and continually pushing off with one leg is not recommended.

Suggested exercises



Rotation: Focus on sitting upright, rotating through the thoracic and lumbar spine, adding in overpressure with no discomfort, and turning the head to look over the shoulder. Option: Sit on ball to perform this stretch.

Side flexion: With open leg position sitting on a ball, ensure there is no symphysis pubis pain. Extend the arm upwards or over the head to feel the stretch through the shoulder, lats, triceps, and to add some side flexion through the thoracic spine. Focus on breathing into the stretch.



Abdominal wall and pelvic floor

In the second and third trimester, as the abdominal wall lengthens, changing the training focus to building the role of supporting the growing uterus, may mean that clients need to 'unlearn' patterns of drawing their whole abdominal wall in as a unit. Regional differentiation in transversus abdominus activity with challenges to postural control and body position^{11, 12} allows the lower- to middle-thirds of the abdominal wall to be trained more specifically during pregnancy. Co-activation with recruitment of the pelvic floor first can facilitate activation of the lower abdominal wall¹³.

Strong activation patterns or breath-holding strategies may cause increased intra-abdominal pressure, placing strain either on the linea alba or the pelvic floor. Checking in with your client on what they are feeling during training is important to protect these changing areas. As they cease sit-ups, curl-ups, full plank and Russian twists; the focus is on training using pregnancy core activation patterns, such as learning to recruit the lower proportion of their transversus abdominus first before contracting the stronger, outer external obliques and rectus abdominus.

One study found that 30% of subjects depressed their pelvic floor when asked to perform a transversus activation, so doing transversus exercises alone are not always protective of the pelvic floor¹⁴. It was also reported that 43% of subjects with incontinence and prolapse depressed their pelvic floor on ultrasound when instructed to lift (using a straining strategy)^{15, 16, 17, 18}, so ensure your client is confident in their pelvic floor technique. Referring for an individual woman's health physiotherapy consult for a check on their patterns of recruitment is advised.

Pelvic floor exercises need to be done regularly during pregnancy to reduce the risk of problems postnatally^{19, 20}, and are more effective when the pelvis is in a neutral position^{21, 22, 23}. Focus on alignment and a neutral spine in sitting.

Pelvic floor and lower abdominal wall activation

Four-point kneeling positions help to take the weight of the baby off the pelvic floor, so in the third trimester, connection to the pelvic floor and lower abdominal wall activation is easier for some women in these positions. Resting forearms on the ball, instruct to breathe to release tension in the abdominal



wall, focus on the pelvic floor, relaxing it first, then lifting the pelvic floor, hold, aim for 5-12 seconds, and release. Check for limited upper rectus activity, breath-holding, or excessive external oblique activity with the onset of fatigue.

Add combined pelvic floor and lower abdominals – repeat as previous and then draw in the lower section of the abdominal wall, like they are gently giving their baby a hug with their lower abdominal muscles; check they are still breathing easily, hold, and slowly release.

Stretches and preparation for birth

In the third trimester of pregnancy, women start to shift their focus to the safe delivery of their baby and preparing for labour and the birth process. Training in this phase can enhance this preparation, enhancing her ability to assume upright positions to benefit from the effect of gravity in labour²⁴.

Stretches to maintain or improve hamstrings, adductor and calf flexibility can enable your clients to have options as they move into positions for second stage such as squatting, supported squatting or sitting, or four-point kneeling. An upright birthing position significantly expands female pelvic bony dimensions, suggesting facilitation of labour and delivery.²⁵

Supported squatting needs calf flexibility so training to include both gastrocnemius and soleus stretches is beneficial. Some women can squat comfortably unsupported and others will be better sitting on a block for support.

Building endurance through regular fitness training equips women to have more energy for their labour, as the length of labour can vary considerably.



Using breathing helps as a focus during the first stage of labour as the uterus contracts to open and dilate the cervix (the opening of the uterus), in preparation for the second stage where the baby moves down the birth canal. Training using breathing through counting of repetitions, breathing through a deeper held squat or training pose, and through stretching positions gives your client physical and mental training opportunities as they prepare for labour and birth.



Personal trainer and yoga instructor, Michelle Scott, advises, "For pregnancy and yoga, I would stress listening to your body and resting when needed. Yoga is a great way to build leg strength to help with birthing positions and it teaches breath practice, which is useful for calming mind and body, and for active labour phases. I would recommend attending specialty pregnancy yoga classes from third tri onwards."

Stretches for flexibility in labour positions

During the third trimester, you can also prepare your clients for their postnatal recovery journey. Educate them about the changes to their body that take time to resolve. Hormonal effects are postulated to take several months to resolve¹⁰.

Abdominal separation should be checked, and studies show that it can take a minimum of eight weeks for pelvic stability and control to return, as the abdominal wall has lengthened during pregnancy^{7, 8}. The 'boat theory' is also an essential education component²⁶ as pelvic floor recovery time varies.

Holistic personal trainer from Hobart, Tasmania, Jo Cordell-Cooper talks about how she trains her postnatal clients, especially those who are very keen to get back to running post-birth.

"Runners love running – they love the peace that comes with it and the flexibility of running when it suits them. Social media has seen a boom in runners connecting, just for the fun of it, to be part of a group, and essentially it's free. Organisations such as parkrun provide free and non-competitive running options for people of all ages and stages. That's why when a client who has just had a baby comes through my door wanting to return to running, I can see why it is important to them. My job is to prepare them for it with the body they now have.

Sometimes that means there is some pelvic floor, pelvis and abdominal rehabilitation that need to be prioritised. I keep talking to them about running, but I actively steer them away from pounding the pavement. We focus on strengthening key running muscles, and the benefits of a run/walk approach to get them started. We start with a minimum of running and set them strengthening homework. I find runners fairly diligent with their rehabilitation and they are happy to pull back in the short term if they can see the benefits of the programme you have designed."



Key points for fit pros

- Exercise and movement during pregnancy should be enjoyable
- Movement patterns help maintain range of movement as the woman's body accommodates a growing baby
- Postural shifts during pregnancy can be paid attention to during programming
- Regular checks with the woman's health and medical practitioners or specialists ensure there are no contraindications to specific exercise during pregnancy
- Supine exercise is not recommended for women after 16 weeks of pregnancy to avoid supine hypotension **fp**

BIOGRAPHY ►

Dianne Edmonds is a physiotherapist with more than 25 years of experience working in pregnancy and postnatal fitness. She is the creator of online fitness education programmes and helped develop resources with The Continence Foundation of Australia, including The Pregnancy Guide and The Pregnancy Pelvic Floor app.

