INFOGRAPHIC

Evidence for resistance training during pregnancy

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The benefits of aerobic training during pregnancy for the mother and foetus are well-recognized, but fears about resistance training (RT) remain widespread (Prevett *et al*. 2023). Unlike aerobic training, RT is a specialized method of conditioning that utilizes different forms and resistive loads to increase musculoskeletal strength, improve cardiometabolic health and enhance physical performance. Limited research, contradictory guidelines, enduring misconceptions and bad advice appear to limit or discourage participation in RT during pregnancy. The present authors' aim is to debunk the mythology surrounding RT during pregnancy, and present updated evidence that supports participation in it during the perinatal period.

Fear of maternal complications

Regular RT reduces the odds of developing common pregnancy-related complications; for example, gestational hypertension, gestational diabetes mellitus and pre-eclampsia (Davenport *et al*. 2018; Duchette *et al.* 2024). Resistance training is sometimes discouraged because of the lack of research on different loads and hypothetical harms (e.g. an excessive rise in exercise blood pressure, an increase in intra-abdominal pressure and repeated strain on the pelvic floor). Women with previous experience of this form of exercise who maintained relatively heavy RT [> 80% of 1 repetition maximum (RM)] during pregnancy until delivery reported significantly fewer reproductive complications than those who stopped it before delivery (Prevett *et al*. 2023).

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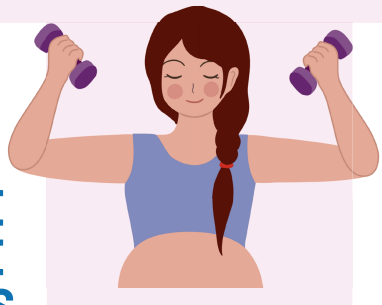
Figure 1. Evidence for resistance training during pregnancy (full-sized version overleaf).

Fear of foetal harm

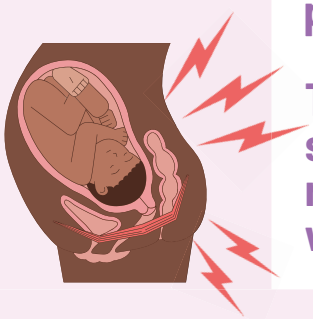
The Valsalva manoeuvre is another common concern that is associated with RT during pregnancy because of increased cardiovascular stress and possible foetal hypoxia (Prevett & Moore 2024). Data indicate that this manoeuvre performed during lower body RT at 40% of a 10-RM leg press has no negative effects on the cardiac and haemodynamic function of pregnant females compared to natural breathing during RT (Meah *et al.* 2021). The acute effects of RT (up to 23 kg) in pregnant recreational athletes did not significantly reduce placental blood flow (Gould *et al.* 2021). A recent review found that RT represents no risk to foetal health and development (Duchette *et al.* 2024).

RESISTANCE TRAINING DURING PREGNANCY

Resistance training is a specialized method of conditioning that utilizes different modes and resistive loads to enhance health and fitness



FEARS	EVIDENCE
RESISTANCE TRAINING WILL CAUSE MATERNAL COMPLICATIONS	Evidence has demonstrated benefits of engaging in exercise programmes that include resistance training
RESISTANCE TRAINING WILL CAUSE FOETAL HARM	No available evidence demonstrates foetal harm with resistance training
ABDOMINAL RESISTANCE TRAINING WILL WORSEN DIASTASIS RECTI	An abdominal resistance training programme does not increase inter-recti distance
RESISTANCE TRAINING WILL WORSEN LOWER BACK AND PELVIC GIRDLE PAIN	There is no evidence that resistance training will increase lower back and pelvic girdle pain
RESISTANCE TRAINING WILL WORSEN PELVIC FLOOR DYSFUNCTION	There is no evidence that starting or continuing a resistance training programme will harm the pelvic floor



An individualized, symptom-free and technique-driven resistance training programme is key

STRONG PUSH FOR HEALTH:

- Support from qualified pelvic health providers
- Adapt based on fitness and comfort levels
- Multidisciplinary team approach
- Closely monitor symptoms
- Stay strong for life

Rial Rebullido T., Giagio S. & Faigenbaum A. (2025)

Fear of pregnancy-related diastasis recti abdominis worsening

Advice against performing abdominal RT exercises during pregnancy is common because of the belief that these will increase the inter-recti distance of pregnancy-related diastasis recti abdominis (DRA). Recent randomized controlled data demonstrate no increase in inter-recti distance pre- and postnatally following a RT programme for the abdominal and pelvic floor muscles (Theodorsen *et al.* 2024).

Fear of pelvic floor dysfunction symptoms worsening

Resistance training is believed to increase the risk of pelvic floor dysfunctions [e.g. urinary incontinence (UI) or pelvic organ prolapse] because of concerns about bearing down the pelvic floor while breath-holding (Prevett & Moore 2024). However, this Valsalva manoeuvre is reserved for high-intensity lifts (> 80% of 1 RM), and is correctly performed by abdominally bracing rather than straining. Health professionals can guide and adapt breathing strategies (i.e. exhaling during effort, natural breathing or abdominal bracing) depending on load, RT experience, and an individual's health and comfort levels (Prevett & Moore 2024). Moreover, there is no experimental data to suggest that starting or continuing RT during pregnancy will negatively impact pelvic floor outcomes. Resistance training programmes for the pelvic floor can be effective in reducing pregnancy-related UI (Santos *et al.* 2024; Theodorsen *et al.* 2024).

Fear of pelvic girdle and low back pain worsening

There is a belief that RT during pregnancy will increase pelvic girdle and low back pain, but there is a lack of evidence to support this claim. Different types of exercise, including RT, can reduce symptom severity. Recent meta-analytic data indicate that multicomponent exercise interventions that include RT may reduce the risk of long-term low back pain in pregnant women (Santos *et al.* 2023). Musculoskeletal pain and DRA are common perinatal conditions. To date, there are no clinical findings to justify dissuading women from doing RT during pregnancy to prevent these conditions from occurring. A cross-sectional study of pregnant runners found that those who continued RT antenatally had significantly lower odds of postnatal stress UI, musculoskeletal pain and perceived DRA compared to those who did not (Blyholder *et al.* 2017).

Overcoming the fear of resistance training

Physiotherapists should carefully screen pregnant females who want to do RT, and work within a multidisciplinary team to overcome fear-avoidance behaviours and address misconceptions about it. The dissemination of evidence-based information, education about safe and effective RT methods, and guidance from qualified pelvic and obstetric clinicians are key pillars to overcoming fears and supporting participation in RT during pregnancy. Excessive sedentariness during pregnancy – not progressive RT during pregnancy – should be a primary concern.

Concerted efforts are needed to push for a change in clinical guidance so that pregnant women can benefit from well-designed RT during their perinatal journey. Although additional research is needed to better understand the dose-response, the time has come to recognize RT as a standard component of an exercise programme for healthy pregnant women without contraindications.

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