# Training During Pregnancy


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**The contents of this presentation are not intended to be used to diagnose or treat any illness or injury and are for educational purposes only. If you choose to use the information provided to inform exercise choices for yourself or your clients, you do so at your own risk. Please consult with your own medical professional and/or sports coach/instructor before starting any new exercises. You are responsible for yourself and your clients.**


- Benefits - Exercise During Pregnancy
- The 3 Trimesters
- Risk Assessment
- Returning to Sport
- References

# Working Whilst Pregnant
# (Legal is NOT my specialism - Refs 1, 2)

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- **paid time off for antenatal care**
- **maternity leave**
- **maternity pay or maternity allowance**
- **protection against unfair treatment, discrimination or dismissal**

"If there's no safe alternative, you employer should suspend you on **FULL PAY** (paide leave) **for as long as necessary** to avoid the risk."

"Suitable alternative work should be offered, if available, on the **same terms and conditions** before suspension from work is considered."

"Employers cannot change a pregnant employee's contract terms and conditions **without agreement."**

Advice from a medical and outdoor professional:

*"It is impossible to give general advice without knowing the person's full medical history and details of any previous pregnancies plus details of exactly what they have in mind in terms of their personal and professional instructor activities. One needs to know if they are instructing on rock routes, winter routes, at altitude etc. One would normally work with the pregnant woman's GP or obstetrician."*

Professionals that hold a Diploma of Mountain Medicine may be able to offer specialist support. A list of whom can be found here: www.medex.org.uk

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# Benefits - Exercise During Pregnancy

- Pilates = shorter labors, reduced C-Section risk, reduced need for epidural & episiotomy - surgical incision of the perineal (Baradwan et al, 2024; Zaman, 2023)

- Moderate - strenuous exercise (50-75%, depending on training history) positive influence on:
  - -fetoplacental growth
  - -placenta volume (good for fetal growth)
  - -baby's % body fat at birth lower (Clapp, 2006)

- Exercise associated with a 31% reduction in gestational diabetes risk. Reduction greatest when **cardio and resistance training combined!** (Sanabria-Matrínez & García Hermoso, 2015)
- High BMI risk factor for pelvic floor dysfunction (Wang et al, 2020)
- Physical activity program before IVF/ICSI associated with **increased levels of clinical pregnancy and live births!** (Rao et al, 2018)
- x1 study suggests exercise reduced C-Section risk (Weng et al, 2024)


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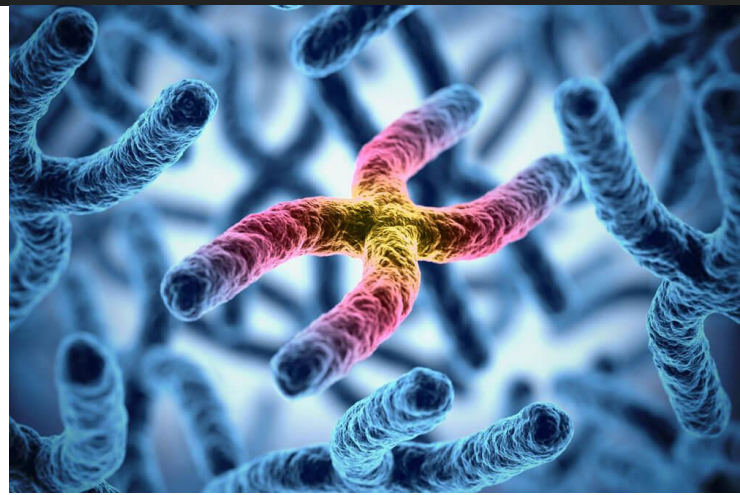
# Miscarriage Myth Busting…!



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- 1/8 pregnancies ends in miscarriage. 50% of 1st trimester miscarriages due to chromosomal; abnormalities (3)
- In **92,671** pregnant women, miscarriage was **NO MORE LIKELY** for exercisers at all intensities (Newton and May, 2017)
- **NO STUDIES** reported a miscarriage due to exercise - exercise is safe and beneficial! (Pauldsen et al, 2023)
- x1 study = risk of miscarriage in fetus with normal chromosomes **DECREASED** in women that exercised (Owe et al, 2016)

# Trimester One


**Expect:** fatigue, nausea (50-80% of women), significant physiological changes. Some women will feel absolutely fine!

**Considerations:**

- nutrition (education & body image awareness)
- emotional support and adaptability
- (master the basics (**breathing and maintaining good form!**).
- PREVENT BEARING DOWN (risk of pelvic floor dysfunction).

**Moderations:**

- reduce volume - maintain strength
- shorter duration, lower intensity, fewer sets/reps, less load, more frequent rests and fewer individual sessions.

# Trimester One


*It's **NOT** true that you should avoid doing exercise if you weren't doing it pre-pregnancy!! You **CAN** safely improve your physical fitness whilst pregnant.*

## GENERAL RECOMMENDATIONS:

- 150 mins of moderate exercise, per week (Evenson & Hesketh, 2021)
- If sedentary pre-pregnancy, start at 50% intensity. 10 min sets, 10 mins rest. Increase to 30-45 minutes and up to 75% intensity after 4 weeks (Newton & May)
- Up to 85-90% of VO2 max for trained athletes (Claiborne et al,

# Trimester Two


**Expect:** increased energy and reduced nausea/fatigue, increased relaxin, growing belly. For most, the 2nd trimester is less challenging

**Considerations:**

- blood pressure (elevation could be a sign of preeclampsia),
- straining/bearing down and doming
- maintain breathing and think posture

**Modifications:**

- start changing expectations
- adapt exercises (prone may become uncomfortable)
- exercise caution with **supine exercises** (look out for dizziness/nausea and/or consult with a GP)

# Trimester Two


**Contact Sports - GREY AREA** (MTB, skiing, etc.) = risk of blunt trauma to the abdomen!

- aerobic capacity can improve by 5-10% (Bø et al, 2016)
- In 679 pregnant women, those who did crossfit or weightlifting @ 80% had **less** reproductive complications (Prevett et al, 2023). Safe lifting technique was essential.
- 16-25% experience pelvic girdle pain (Kanakaris et al, 2011)
- 50% with lower back pain (Bø et al, 1016),
- regular, high-impact exercise (3-5 times) a week = 14% lower risk of pelvic girdle pain than non-exercisers (Bø et al, 2016)

# Trimester Three

**Expect:** loss of rib mobility, impaired breathing, negative postural adaptations, weight gain, pelvis widens


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**Considerations:**

- straining/bearing down/doming/
- adapt the exercise (seated versions, transition to TheraBand work, etc.)
- SI Joint/lower back/ PGP pain
- moderate volume
- hydration/temperature and fuelling/nutrition

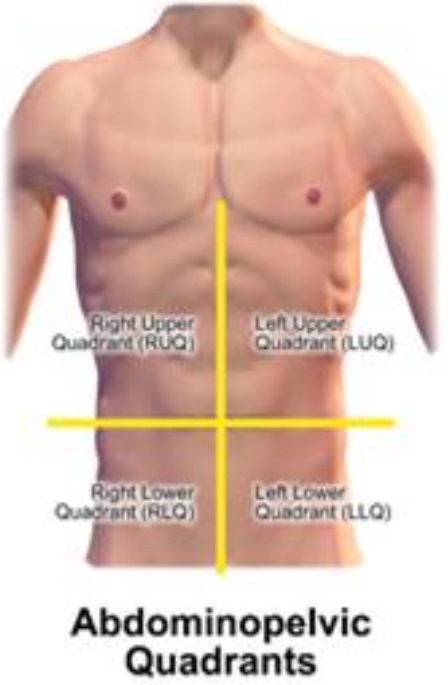
**Modifications:**

- exercise adaptations
- breathing and mid-back mobility
- chest opening
- CHECK IN WITH EXPECTATIONS

**WARNING: Constipation = risk factor for prolapse!**

# Trimester Three


- 60% suffered from at least x1 pelvic floor dysfunction (Baruch et al, 2023)
- 34% reported bladder dysfunction (frequent urination at night), incontinence, vaginal prolapse
- 7% rate of pre-eclampsia diagnosis in 3rd trimester in first time mums (Bø et al, 2016)
- **Symptoms =**
  -increased blood pressure
- **Symptoms whilst exercising =**
  -headaches/-blurred vision
  -pain in right upper quadrant
  -nausea/vomiting



Abdominopelvic Quadrants

# Trimester Three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- Increased body temperature (**39°C+**) can increase the risk of neural tube defects (Newton & May, 2017)
- Prolonged high-intensity exercise (**45 mins +**) = core temperature increase = **increased fetal risk** (Newton & May)
- Exercise at **60-70% for up to 60 mins did not** (Bø et al, 2016)

# Rate of Perceived Exertion (Borg, 1998)

(A useful scale for to monitoring exercise intensity with pregnant participants.)

**1. Very Light Activity** Minimal effort. An exercise intensity just above complete rest.

**2-3. Light Activity** An exercise intensity that you feel you could maintain for hours. It's still easy to breath and talk.

**4-5. Moderate Activity** An exercise intensity that you feel you could maintain for a long duration. Breathing is noticeably more challenging. Talking is limited to shorter conversations.

**6-7. Vigorous Activity** An exercise intensity that is starting to feel uncomfortable. Breaths are short and talking is limited to short sentences.

**8-9. Very Hard Activity** An exercise intensity that is difficult to maintain. Breathing is very challenging and talking is limited to single words.

**10. Maximal Effort** An exercise intensity that is impossible to maintain. Completely out of breath and no longer able to talk.

# Rate of Perceived Exertion

A word of warning…

1. **KNOW YOUR ATHLETE**
   - SEEK MEDICAL CLEARANCE
   - exercise/training history before and during pregnancy
   - pregnancy symptoms thus far?

2. Measuring and monitoring heart rate may be more accurate than RPE for **trained athletes** who may under-report their RPE!


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# Risk Assessment (participants & leaders)

1. **What are the hazards?**
2. **Assess: likelihood vs severity**
3. **Actions and Controls**

You **MUST** mitigate against:

- blunt trauma to the abdomen
- sudden ground falls

Consider what is '**normal' practise**'.

**Controllable Variables**

- access to emergency services
- access to facilities (toilets, shops, etc.)
- location/terrain suitable to the conditions

**Falling = unintentional coming to the ground by loss of balance (Wu et al, 2016).**

**Uncontrollable Variables**

- environment
- unexpected illness/fatigue

**Extreme Sports**

-adaptation not necessarily cessation?

# Contraindications

- consistent Increased blood pressure
- incompetent cervix - unless cleared for gentle exercise by GP (i.e. breathing)
- placenta abruption
- pre-term labor
- persistent bleeding
- failure to thrive

# Potential Contraindications

**NOTE:** Pre-eclapmsia is common (around 10% of pregnancies) and can lead to early labor. **Blood pressure cuff?**

**BE AWARE OF THE FOLLOWING SYMPTOMS:**
(you may need to refer out)

- dizziness/fainting
- shortness of breath
- decreased fetal movement
- extreme fatigue
- pain
- slightly elevated blood pressure

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# Returning to Sport - Strategies?

## 1. 360 Breathing

- pressure management
- connect to deep core
- foundation for strength

## 2. Posture - (Zone of Apposition)

- ribs stacked over pelvis to facilitate breathing

**For most women, it's advised to wait 4-8 weeks.**

## 3. Strength

- necessary for ALL women, especially mums!
- mediate against effects of aging (loss of muscle mass/bone density)

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# Breathing

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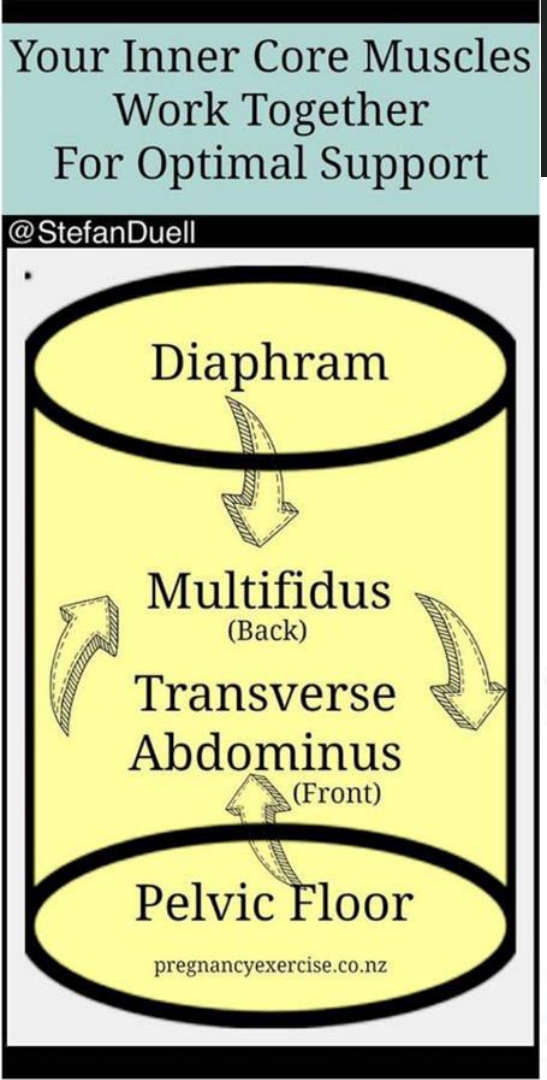
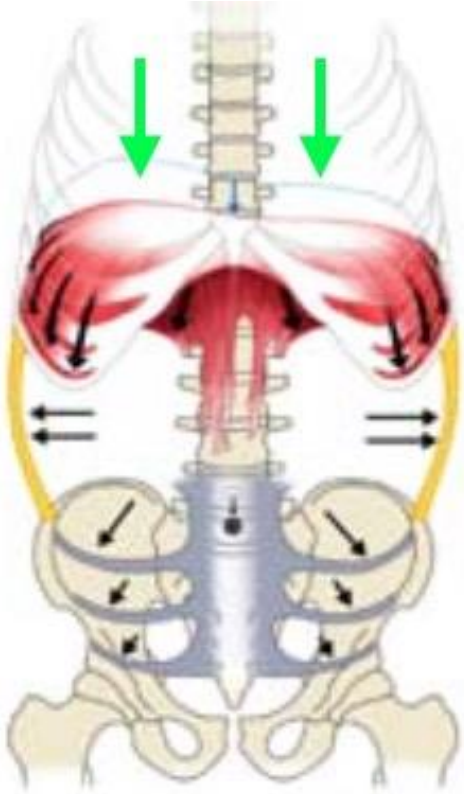
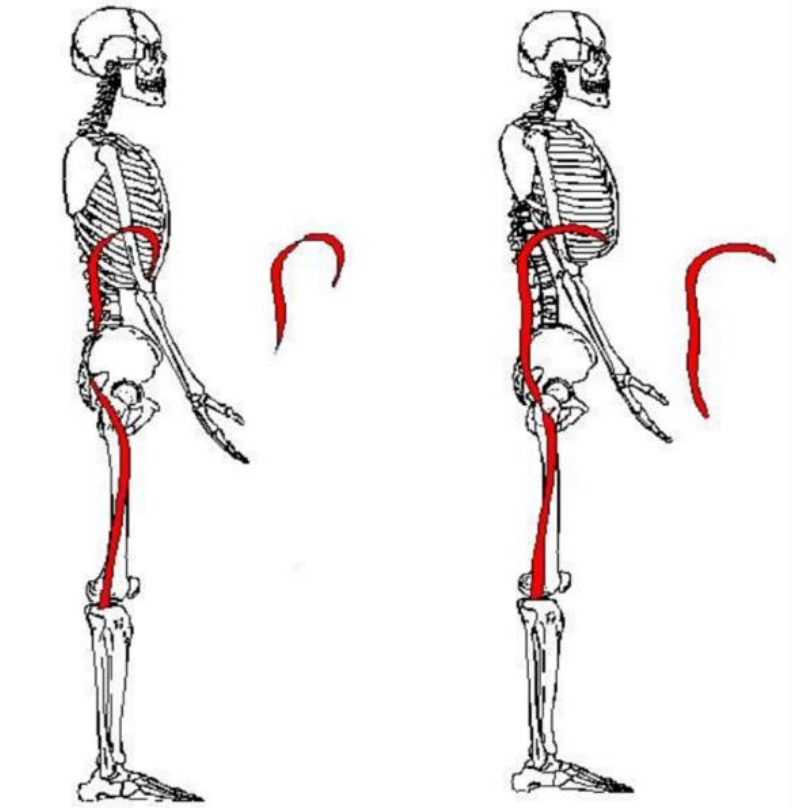
# 360 Breathing




- 360 Breathing



- Child's Pose



Optimal ZOA

Sub-Optimal ZOA

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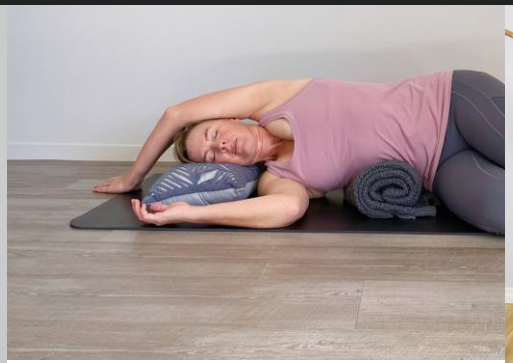
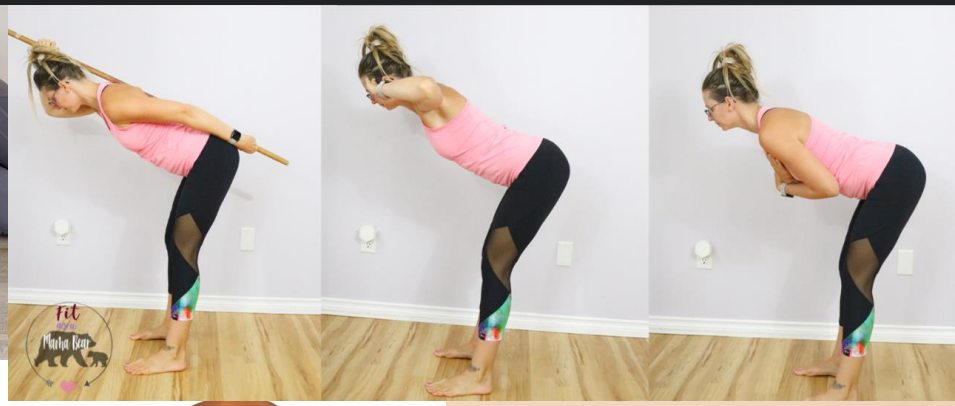
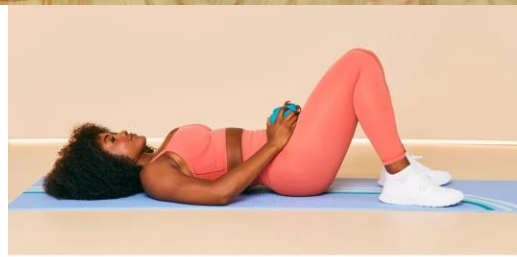
# Posture

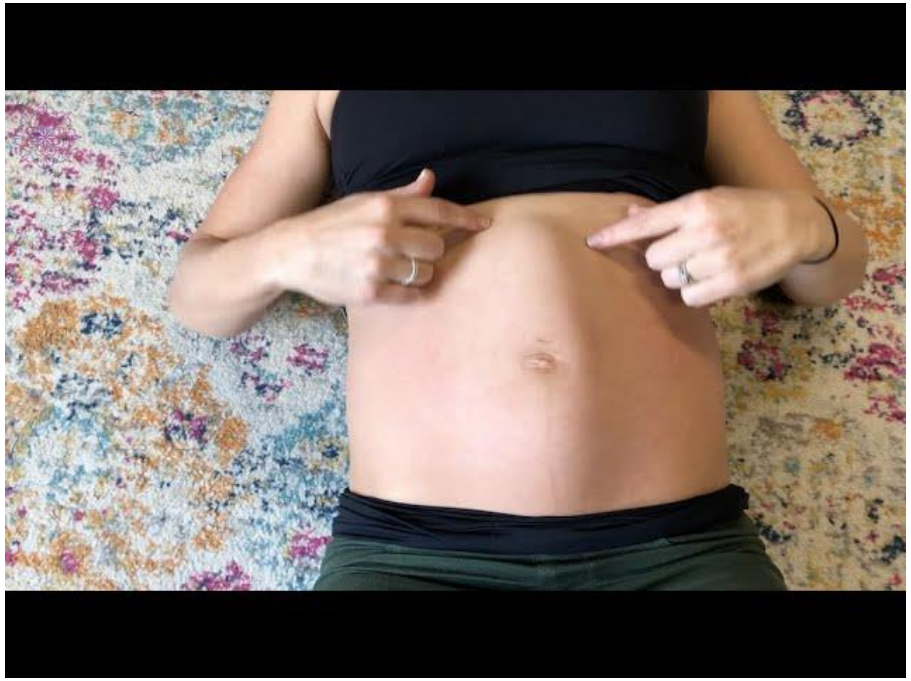
- ZOA - length-tension relationship
- function of diaphragm
- stability of the spine/pelvis

# Posture









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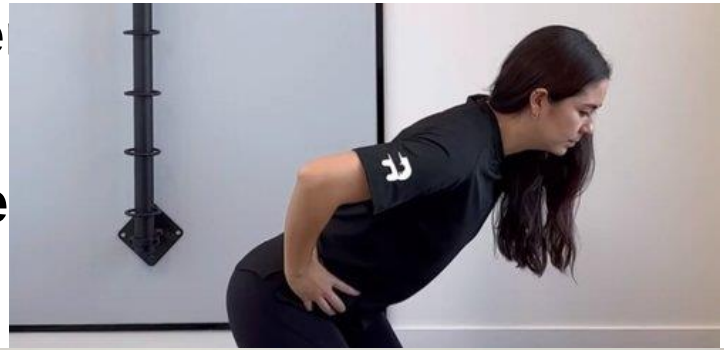
# Strength

**“Just because you CAN do something doesn’t mean you SHOULD!”**

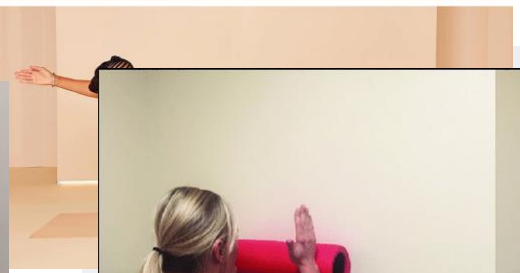
# Strength

**Core**

- Kneeling Ab/Glute Finder



- Bird Dogs



- **6 reps, (per side)**
- **3 sets**
- **3 mins inter set rest**

**Uppe**

**Lowe**

# References


1. https://www.gov.uk/working-when-pregnant-your-rights
2. https://www.nhs.uk/pregnancy/keeping-well/your-health-at-work/
3. https://www.nhs.uk/conditions/miscarriage

Baradwan et al, 2024. The Effect of Pilates Exercise During Pregnancy on Delivery Outcomes: a Systematic Review and Meta-Analysis.

Bø et al, 2016. Exercise and Pregnancy in Recreational and Elite Athletes: 2016 Evidence Summary from the IOC Expert Group Meeting.

Borg G, 1998. Borg's Perceived Exertion and Pain Scales.

Clapp, 2006. Influence of Endurance Exercise and Diet on Human Placental Development and Fetal Growth.

Evenson & Hesketh, 2021. Monitoring Physical Activity Intensity During Pregnancy.

# References


1. Add delivery mode ref

# References


Lotgering and Gilbert, 1984.The Interactions of Exercise and Pregnancy: a Review.

National Maternity and Perinatal Audit Clinical Report, 2022.

Newton & May, 2017. Adaptation of Maternal-Fetal Physiology to Exercise in Pregnancy: The Basis of Guidelines for Physical Activity in Pregnancy.

Owe et al, 2016. Exercise During Pregnancy and Risk of Cesarean Delivery in Nulliparous Women: a Large Population-Based Cohort Study.

Pauldsen et al, 2023. The Effects of Exercise During Pregnancy on Gestational Diabetes Mellitus, Preeclampsia, and Spontaneous Abortion amongst Healthy Women -a Systematic Review and Meta-Analysis.

Rao et al, 2018. Maternal Physical Activity Before IVF/ICSI Cycles Improves Clinical Pregnancy Rate and Live Birth Rate: a Systematic Review and Meta-Analysis.

Sanabria-Matrínez & García Hermoso, 2015. Effectiveness of Physical Activity Intervention of Preventing Gestational Diabetes Mellitus and Excessive Maternal Weight Gain: a Meta-Analysis.

# References


Wang, 2020. Does Diastasis Recti Abdominis Weaken Pelvic Floor Function? A Cross-Sectional Study.

Weng et al, 2024. The Relationship Between Incidence of C-Section and Physical Activity During Pregnancy Among Pregnant Women of Diverse Age Groups. Dose-Response Meta-Analysis.

Wu & Yeoh, 2014. Intrinsic Factors Associated with Pregnancy Falls.

Zaman, 2023. Obstertic Maternal and Neonatal Outcomes After Pilates Exercise During Pregnancy: a Systematic Review and Meta-Analysis

# Mode of Delivery Matters

**Unassisted Vaginal Birth (60%)**
-9.7% had an episiotomy
-4.5% of first time mums had a G3-4 tear
- 1st time mums = higher risk of a tear

**Elective C-Section (12.1%)**
-major abdominal surgery.
-reduced risk as more time available.
-recovery potentially quicker

**Assisted Vaginal Birth (12.3%)**
-88.7% had an episiotomy
-G2 tears = stitches. G3/4 = surgery.
-6.8% first time mums = G3-4 tear
- 1st time mums = higher risk of a tear

**Emergency C-Section (15.5%)**
-major abdominal surgery.
-increased risk due to rapid administration.
-recovery potentially slower

(National Maternity and Perinatal Audit Clinical Report, 2022)