

Exercise recommendations in pregnancy – A literature review

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Introduction

Pregnancy is a 38-40-week period during which to provide for the increasing needs of the rapidly growing foetus and placenta, the pregnant woman's body undergoes numerous metabolic changes. Weight gains is foremost among these¹.

Physical activity (PA) done regularly has been shown to be associated with significant health benefits including physical fitness, mental health improvements, reduction in chronic disease and mortality. Guidelines world-round recommend pregnant women without contraindications engage in prenatal physical activity. However, less than 15% of women are able achieve the minimum recommendation of 150 minutes per week of moderate physical activity during their pregnancy².

The majority of pregnant women gain weight outside of the ranges recommended by the Institute of Medicine and this is associated with a variety of unfavourable outcomes both for the baby and the mother. Past economic research has found causal impact of high pregnancy weight gain on high birth weight/macrosomia/large for gestation age birth and childhood obesity. At the same time, insufficient pregnancy

weight gain leads to an increased risk of delivering a low birth weight baby³.

The purpose of this review is to present an updated view on exercise recommendations for pregnancy and the various aspects of it.

Literature search

A high-level in-depth search was carried out via the British Medical Association systematic review support search service. The search strategy has been reviewed using the PRESS (Peer Review of Electronic Search Strategies) 2015 evidence-based check list.

Medline, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Database of Systematic Reviews (CDSR), Clinicaltrials.gov, WHO International Clinical Trials Registry Platform (ICTRP) were searched and a total of 877 results were identified after de-duplication.

The PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only was used⁴.

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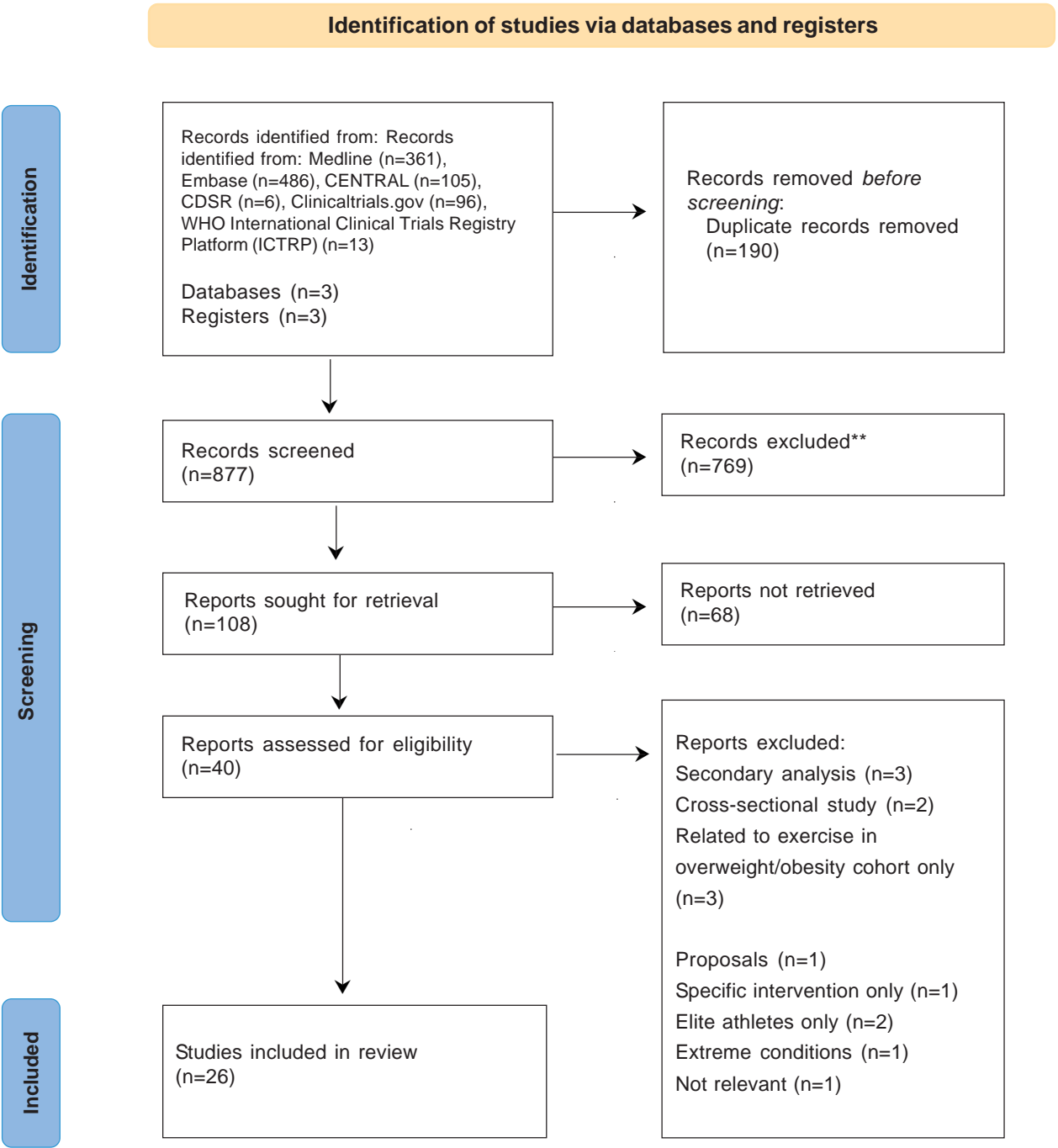
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Benefits of exercise during pregnancy

Physical activity in pregnancy appears to reduce the risk of hyperemesis gravidarum, gestational diabetes mellitus, hypertensive disorders of pregnancy, excessive gestational weight gain, lumbopelvic pain and preterm birth⁵.

It has also been found that physical exercise is as

effective as psychoactive drugs in prevention of perinatal depression⁶.

A regular and supervised exercise program throughout pregnancy does not affect foetal well-being but improves maternal physical condition. It also ensures mood stability. Beyond this, it may increase the success of vaginal birth after previous caesarean section⁷.

Exercise and frequency, intensity, time, and type (FITT):

Aerobic exercise in the prenatal period has shown to reduced maternal lipids, gestational weight gain and fasting plasma glucose.

Resistance training during the prenatal period has shown to lower blood pressure and fasting plasma glucose.

A combination of these during the prenatal period has shown to decrease the risk of gestational diabetes mellitus and decrease blood pressure⁸.

With regards to frequency it is suggested that exercise be undertaken at least 3-4 times per week, with a maximum of 7 days per week. Recommendations suggest exercise intensity below 60-80% of the age-predicted maximum heart rate for a suggested duration of 30-60 minutes.

Most organizations have suggested a variety of prenatal exercises including walking, stationary cycling, aerobic exercises, dancing and resistance exercises, which also include flexibility and yoga exercises⁸.

Previously active women may be encouraged to continue same activity level whereas previously inactive women may be encouraged to gradually increase activity level to reach goal⁹.

Safety considerations and precautions

According to the Canadian Guideline for Physical Activity throughout Pregnancy the following absolute and relative contraindications to physical activity during pregnancy apply².

Absolute contraindications

- Ruptured membranes, premature labour
- Unexplained persistent vaginal bleeding
- Placenta previa after 28 weeks gestation
- Preeclampsia
- Incompetent cervix
- Intrauterine growth restriction
- High-order multiple pregnancy (e.g., triplets)
- Uncontrolled type I diabetes, uncontrolled hypertension, or uncontrolled thyroid disease
- Other serious cardiovascular, respiratory, or systemic disorder

Relative contraindications

- Recurrent pregnancy loss
- History of spontaneous preterm birth
- Gestational hypertension
- Symptomatic anaemia
- Malnutrition
- Eating disorder
- Twin pregnancy after the 28th week
- Mild/moderate cardiovascular or respiratory disease
- Other significant medical conditions

Furthermore, the following safety precautions and reasons to stop physical activity and consult a health care provider are advised²:

Safety precautions for prenatal physical activity

- Avoid physical activity in excessive heat, especially with high humidity.
- Avoid activities that involve physical contact or danger of falling.
- Avoid scuba diving.
- Lowlander women (i.e., living below 2500 m) should avoid physical activity at high altitude (>2500 m). Those considering physical activity above those altitudes should seek supervision by an obstetric care provider with knowledge of the impact of high altitude on maternal and foetal outcomes.
- Those considering athletic competition or exercising significantly above the recommended guideline should seek supervision by an obstetric care provider with knowledge of the impact of high-intensity physical activity on maternal and foetal outcomes.
- Maintain adequate nutrition and hydration – drink water before, during, and after physical activity.
- Know the reasons to stop physical activity, and consult a qualified health care provider immediately if they occur.

Reasons to stop physical activity and consult a health care provider

- Persistent excessive shortness of breath that does not resolve upon rest
- Severe chest pain
- Regular and painful uterine contractions

- Vaginal bleeding
- Persistent loss of fluid from the vagina indicating rupture of the membranes
- Persistent dizziness or faintness that does not resolve upon rest

Conclusion

Physical activity and exercise is safe and beneficial during pregnancy both for the mother and the foetus when done within the recommended limits and may show a dose-dependent effect. 150 minutes of moderate intensity exercise/week is recommended during pregnancy². Further work may be needed to establish a more precise relationship between exercise dose and its effect on the mother and foetus.

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