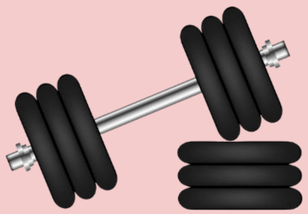


Moving For Two: Understanding the Physiological Effects of Prenatal Exercise

Jasmine Torres

Introduction

- Pregnancy is a complex physiological state requiring significant cardiovascular, metabolic, and hormonal adaptations to support maternal and fetal health (Weissgerber & Wolfe, 2006; Newton & May, 2017).
- Although physical activity is safe and beneficial in uncomplicated pregnancies, majority of pregnant women do not meet recommended exercise guidelines. (Newton & May, 2017)
- Exercise during pregnancy can enhance maternal cardiovascular function, improve glucose regulation, and support healthy weight gain, while also reducing the risk of complications such as gestational diabetes and hypertension.(Mottola & Artal, 2016; Barakat et al., 2011),
- Despite strong evidence supporting these benefits, participation in regular physical activity during pregnancy remains low due to misconceptions, safety concerns, and limited education. (Newton & May, 2017)
- Maternal exercise may serve as a preventative strategy against gestational diabetes, gestational hypertension, excessive gestational weight gain, and poor maternal health perception (Barakat et al., 2011; Barakat et al., 2016)

Benefits

- Pregnancy induces significant cardiovascular, metabolic, and hormonal adaptations that support fetal development (Weissgerber & Wolfe, 2006).
- Creating a unique physiological environment.
- Current literature consistently shows that exercise during pregnancy is safe in uncomplicated cases and does not compromise fetal oxygenation or growth. (Newton & May, 2017; Ueland & MacDonald, 2005)
- Maternal exercise enhances cardiovascular function, improves metabolic regulation, and supports healthy gestational weight gain. (Mottola & Artal, 2016; Barakat et al., 2011).
- Physical activity including appropriately monitored higher-intensity exercise can reduce the risk of gestational diabetes, hypertension, and fetal macrosomia (Barakat et al., 2016; Liu et al., 2025).
- Promoting improved placental efficiency and optimal birth outcomes. (Barakat et al., 2016; Liu et al., 2025)

Methods

- To clearly pick articles regarding this topic, I searched databases including Google Scholar, and used Search terms including:
- “exercise during pregnancy,” “maternal physiological adaptations pregnancy,” “fetal response to maternal exercise,” “gestational diabetes and exercise,” “normotensive pregnant women exercise,” and “high-intensity exercise pregnancy outcomes.”

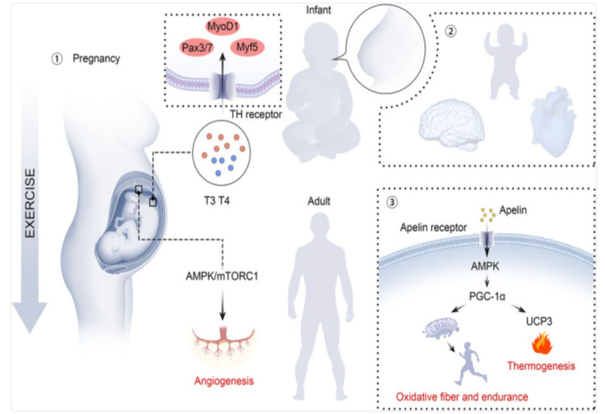
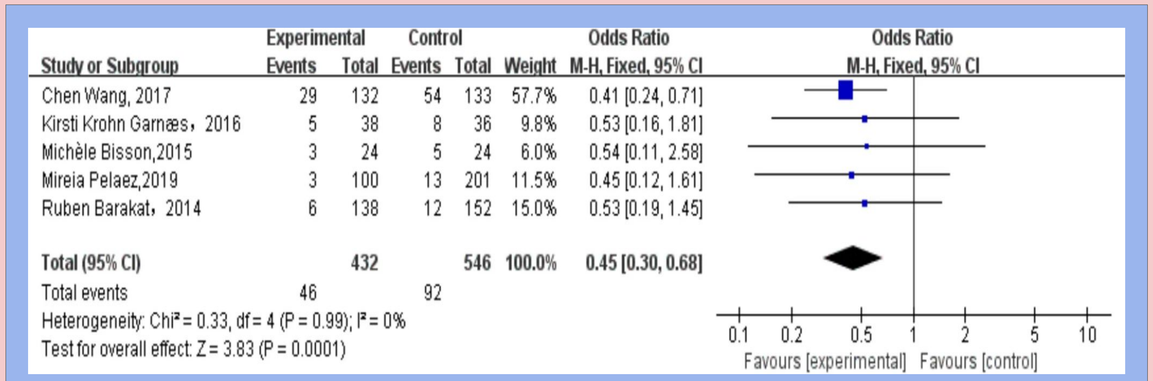


Figure 2.Note. From *The maternal lifestyle in pregnancy: Implications for foetal skeletal muscle development*, by H. Sun et al., 2024, *Journal of Cachexia, Sarcopenia and Muscle*.

Conclusion

- Overall, exercise serves as an effective preventative and health-promoting strategy for both mother and fetus, reinforcing its importance as a standard component of prenatal care.(Newton & May, 2017; Mottola & Artal, 2016).

References



High-intensity physical activity during pregnancy significantly reduces the prevalence of gestational diabetes mellitus (P = 0.0001) (Fig. 11). Lui et Al. 2025