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The Impact of Exercise on Pregnant Women Aged 18-40 and Fetal Development

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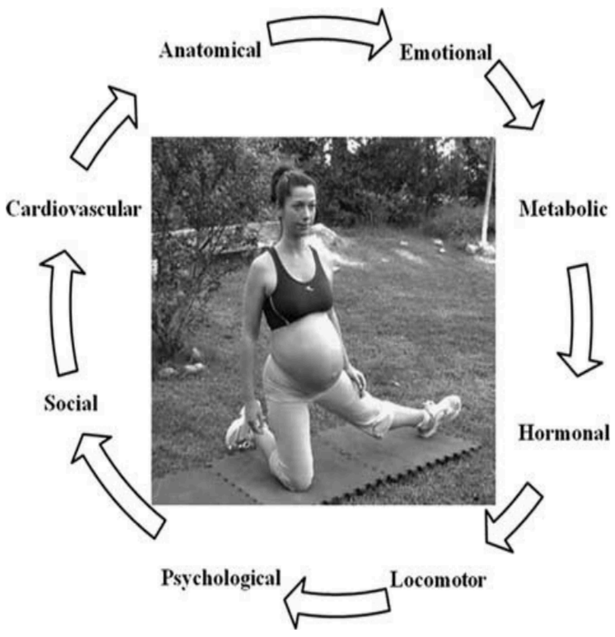
Background

- 68% of those who performed minimum level exercise prior to pregnancy stopped completely during early pregnancy.
- Women stop exercising during pregnancy due to worries about the impact it may have on the development of the fetus.



Materials and Methods

- **Objective:** To understand the impact of physical exercise on maternal and fetal development
- **Databases:** PubMed, Embase, Scopus, Science Direct
- **Search terms:** Pregnancy, exercise, fetal development, maternal development, gestational diabetes mellitus, gestational weight gain

Results

- Starting moderate-intensity, weight bearing exercise early in pregnancy increases placental growth rate and volume.
- Exercise reduces the risks of excess gestational weight gain and high maternal body weight before pregnancy.
- Physical exercise reduces the risk of gestational diabetes mellitus.

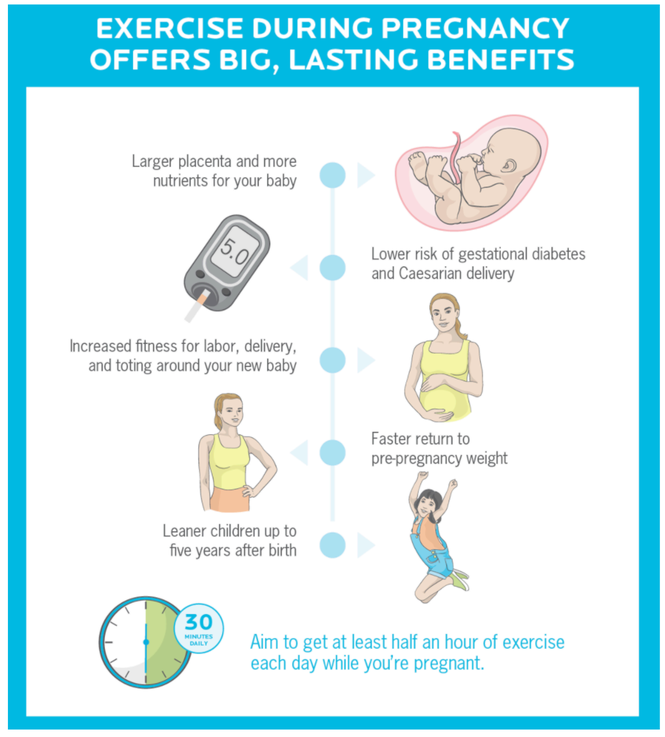
Table II. Placental growth rate and gross volumes

Characteristic	*Control group*	*Exercise group*	*Statistical significance*
Midtrimester placental growth rate (cm^3/wk)	21 ± 1	26 ± 2	*P* = .04
Placental volume (cm^3)			
At 20 wk	181 ± 9	225 ± 15	*P* = .02
At 24 wk	264 ± 13	327 ± 16	*P* = .004
After delivery	414 ± 14	462 ± 18	*P* = .05

	Exercise group	Control group	OR (95% CI)	*P*
GDM, %	29 (22.0), n = 132	54 (40.6), n = 133	0.412 (0.240–0.705)	<.001
75-g OGTT glucose level, mmol/L				
0 h	4.76 ± 0.41[b]	4.96 ± 0.51[c]	/	.001
1 h	7.99 ± 1.67[b]	8.57 ± 1.86[c]	/	.009
2 h	6.57 ± 1.18[b]	7.03 ± 1.62[c]	/	.009
Gestational weight gain, kg				
Study entry to 25^{+6} wk gestation	4.08 ± 3.02[b]	5.92 ± 2.58[c]	/	<.001
26^{+1} to 36^{+6} wk gestation	4.55 ± 2.06[d]	4.59 ± 2.31[e]	/	.9
Total	8.38 ± 3.65[d]	10.47 ± 3.33[e]	/	<.001

Discussion

- Exercise-induced improvements in placental function leads to increases in nutrient delivery and appropriate fetal growth through the course of gestation.
- Implementing exercise early enhances maternal and fetal health during and after pregnancy.



Limitations

- Socioeconomic factors may influence access to exercise programs.
- Small sample size may limit the generalizability of the study to all pregnant women.
- Differences in dietary intake may affect the measurements obtained.

Acknowledgements

I would like to thank Dr. Jillian Baker and the Medical Scholarship department for their guidance.

1. Clapp, J.F., Kim, H., & Lopez, B. (2000). Beginning regular exercise in early pregnancy: Effect on fetoplacental growth. *Am J Obstet Gynecol, 183(6),* 1484-1488.
2. Wang C, et al (2017). A randomized clinical trial of exercise during pregnancy to prevent gestational diabetes mellitus and improve pregnancy outcome in overweight and obese pregnant women. *Am J Obstet Gynecol, 216(4), 340-351*