

Effect of Exercise On Pregnant Women During The Second Trimester

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ
الْحَكِيمُ

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Abstract

Background:

Exercise during pregnancy provides health benefits to mother and baby. Exercise can reduce the mother's risk of developing hypertension, depression, backaches, constipation, bloating and swelling and complications associated with labor and delivery.

Objectives :

This study aims at assessing the effect of exercise on pregnant women during second trimester in improving backache, mood disorder and excess weight gain.

Methods:

A prospective interventional controlled study carried on 100 pregnant women, 50 case group attending private clinic in Maadi and 50 control group attending family center in Ain-shams. The two groups were compared at baseline level regarding backache, depression, weight gain, then they reassessed after 3 months.

Results:

The control group was significantly higher in Backache score at baseline time(6.1 ± 2.2) when compared with case group(3.7 ± 1.6), severity of backache at base line time was significantly higher among the control group than that among case group, the case group showed significant improvement i.e. decline in Backache score after 3 months of performing exercise(1.1 ± 1.5), severity of backache was significantly improved i.e. decline among the case group after 3 months of performing exercise, there was no significant difference among both group as regard Depression score(20.2 ± 6.4) at baseline time, there was no significant difference between both group as regard Depression severity at baseline time, the case group show significant improvement i.e. decline in Depression score (14.8 ± 5.3) after 3 months of performing exercise. severity of depression was significantly improved i.e. decline among the case group after 3 months of performing exercise, although the weight gain in the first 3 months is statically insignificant but after 3 months the case group gain (5.8 ± 0.4 kg) while the control group gain(7.2 ± 0.3 kg).

Conclusions:

Exercise during pregnancy provides health benefits to the pregnant woman as it can improve backache, depression and limit the excess weight gain.

Keywords:

Exercise, Pregnancy, Antenatal depression, Weight gain, Low back pain

List of Abbreviation

ACOG:-	American College of Obstetricians and Gynecologists
BMI:-	Body Mass Index
CES-D:	Center for Epidemiologic Studies Depression scale
DRI:-	Disability Rating Index
EGWG :-	Excessive Gestational Weight Gain
GWG :-	Gestational Weight Gain
MOHP:-	Ministry of Health and Population
PKU:-	Phenyl ketonuria
PMI:	Pregnancy Mobility Index
VAS :-	Visual Analogue Scale
WHO :-	World Health organization

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INTRODUCTION

In Egypt the census for the year 2012 was 90 million people expected to give rise to 2.2 million live birth/year (**kamel,2012 issued in Arabic**).

The care for this group is provided mainly by MOHP through the primary health care centers and family centers. Comprehensive care including preconceptional, antenatal, natal, postnatal and interconceptional is required to have good outcome of pregnancy (**kamel,2012 issued in Arabic**).

Exercise is usually a neglected part of this care (**kamel,2012 issued in Arabic**)

Pregnancy is a time in a woman's life where physical and emotional changes occur; exercise during pregnancy provides health benefits to mother and baby (**Melzer et al, 2010**).

Exercise during pregnancy helps to alleviate many of the common problems of pregnancy. It improves circulation (which helps prevent constipation, hemorrhoids, varicose veins, leg cramps, and swelling of the ankles). It also prevents back pain by strengthening the muscles that support the back. (**Melzer et al, 2010**).

Pregnancy often leaves women feeling less energetic, but regular exercise can give her more energy to make it through the day. The mother's strengthened cardiovascular system will give her



more endurance and stronger muscles will allow her to accomplish tasks with less effort, leaving the mother more energy to continue through the rest of her day (Albert et al,2008)

Exercise also allows mother to sleep better. Most women have some trouble sleeping through the night by the end of their pregnancies (Albert et al,2008)

Exercising on a regular basis (and making sure it's at least three hours before going to bed) will help mother work off excess energy and will tire her enough to lull into a deeper, more restful slumber (Albert et al,2008)

Exercise has been shown to improve mother's mood. Also lessen mood swings, improve mother's self-image, and allow her to feel a sense of control (Melzer et al, 2010).

Exercise helps prepare her for childbirth. Some studies suggest that the fitness level of the mother can result in a shorter labor, fewer medical interventions, and less exhaustion during labor. Being in shape will not decrease the pain, but it definitely will help the mother give the endurance needed to get through labor (Melzer et al, 2010).

Most experts agree that gaining more than the recommended 25 to 35 pounds (for a woman of normal weight) during pregnancy makes it harder to lose the weight after the baby is born. By maintaining woman fitness level during pregnancy, the



mother are less likely to gain excess weight, Exercise also maintains the muscletone and strength (**Melzer et al, 2010**).

Our hypothesis is that exercise improves the backache and mood of pregnant women and limit excess weight gain.

So our **Research Question:** Does exercise improve the mood, decrease the severity of backache and limit the excess weight gain among pregnant women?



AIM OF THE WORK

Goal: to improve woman status during pregnancy by adding some activates which are not commonly conducted

Objectives:

- 1) To study the effect of exercise on pregnant women during the second trimester in improving:
 - ❖ The backache
 - ❖ The mood disorder
 - ❖ The excess weight gain



Maternal Health Status in Egypt

Female in the reproductive age form 25% of Egypt population with a fertility rate 30/1000women by the year 2011(MOHP, 2011).

Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity (**WHO, 2000**).

Spectrum of health

***Ideal health:** confirm to the WHO definition of health.

***Positive health:** a state of dynamic equilibrium between man and his environment.

***Negative health:** the individual is in a state of equilibrium but without the ability to adjust himself to the surrounding.

***Unapparent disease:** a state of departure from normal to the extent that the ordinary physiologic processes of the tissues and organs are not enough to restore the body to its normal functions.

***Apparent disease:** the individual is aware that he is suffering from illness.

***Death:** the end of the spectrum (**Rebecca, 2000**).



Maternal health

I) Maternal morbidity

It is health problems affecting mothers due to pregnancy, labor or puerperium as:

1-Hemorrhage: ante-partum or post partum.

2-Hypertension with pregnancy: condition in which the blood pressure is 140/90 or more or there is a rise of 30 mmHg in the systolic and 15 mmHg in the diastolic blood pressure, in two or

More successive occasions.

3-Puerpal sepsis: infection of the genital tract during or after delivery

4-Maternal malnutrition: about 34% of pregnant and 44% of lactating mothers is anemic (**Egypt 2005**).

33% of the women are overweight and 47% are obese

5-Medical disorders with pregnancy: diabetes mellitus, heart disease and urinary tract infections.

6- Complications of delivery: genital infections, urinary incontinence (**MOHP, 2005**).

II) Maternal mortality

It is death of a woman while pregnant, during labor or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management.



Causes of maternal mortality (in Egypt)

1-Hemorrhage: ante partum and postpartum.

2-Hypertension with pregnancy

3-Puerperal sepsis

4-Thromboembolism

5- Postpartum collapse

Maternal mortality rate has been decreased from 174 in 1993 to 84 in 2000 then decreased again to reach 54 in 2010 (**MOHP, 2010**).

Maternal health care:

Promote mother health, reduce the maternal morbidity and mortality rates and reduce the unfavorable outcome of pregnancy.

Components of Antenatal care

1-Registration and record keeping: start within the period of 6 weeks after the last menstrual cycle to the first 3 months of pregnancy.

2-Antenatal visits and clinical examination: once a month in the first 6 months, twice per month in 7th and 8th month, once a week in last month (the mother should receive a minimum of five antenatal visits) (**Carroli et al., 2001**).

3-Health education:

Component:

I- The health educator who should be motivated, talk using proper language for the recipient, write , present the message clearly and