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بالرسالة صفحات لم ترد بالأصل

Analysis of Gait in the Different Trimesters of Normal Pregnancy

Thesis

Submitted for partial fulfillment for Master Degree in Physical Therapy

By

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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

صدق الله العظيم

(سورة البقرة ،آية ٣٢)

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Dedication

I wish to express my sincere thanks to my father, my mother, my husband, my sister and my brothers for their support and encouragement throughout the study.

Abeer Mohamed El Sayed El Deeb

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Abstract

This study was conducted to measure deviations in the gait of normal pregnant women at their 1st, 2nd and 3rd trimesters. Selected kinematics and kinetics gait parameters were performed including pelvic motion in the transverse, coronal and sagittal planes as well as, GRF in the anterior-posterior and vertical directions. Twenty-three pregnant women at their first trimester were selected from Obstetrics Outpatient Department, at Al Kasr El-Aynee University Hospital. Evaluation of all subjects was done by Qualysis Gait Analysis System at the 1st, 2nd and 3rd trimesters. Results showed statistically highly significant increase ($P<0.001$) in anterior pelvic tilting, downward pelvic drop, vertical acceleration of body's C.O.G and a significant increase ($P<0.05$) in the 2nd peak of vertical GRF as well as, forward propulsion of GRF. Also, results revealed a highly significant decrease ($P<0.001$) in upward pelvic rise as well as, a significant decrease ($P<0.05$) in backward pelvic rotation. While, braking force and the 1st peak of GRF showed non-significant change ($P>0.05$). So, it can be concluded that changes in pelvic motion during pregnancy affect stability of the pelvis and increase stress on the lumbosacral area. The increased forward propulsion of GRF may lead to increase tendency to falling forward. Also, the increased vertical GRF may indicate that the pregnant women had more propulsion to move the increased weight and size of the pregnant uterus.

Key words: Pregnancy, Gait, Pelvis, Ground reaction force(GRF), Motion analysis.

Contents

List of Abbreviations

Interpretation	Abbreviation
ASIS	Anterior superior iliac spine
B.W.	Body weight
Co^2	Carbon dioxide
C.O.G.	Center of gravity
cm	Centimeter
r value	Correlation coefficient
df	Degree of freedom
EMG	Electromyography
FSSA	Foot switch stride analyzer
Fig.	Figure
1^{st}	First trimester
GRF	Ground reaction force
GRFs	Ground reaction forces
Hz	Hertz
Kg	Kilogram
<	Less than
L.B.P.	Low back pain
max.	Maximum
m	Meter
MA	Milliamper
mm	Millimeter
>	More than
MCU	Motion capture unit
No.	Number
O^2	Oxygen
Pc	Personal computer
PCI	Physiological cost index
P-value	Probability value
Sec	Second
STS	Sit to stand
3-D	Three-dimensional
2-D	Two-dimensional
V	Volt
W	Watt
Yrs	Years

List of Tables