Effect of Gender on Thoracic and Lumbar Vertebral Curvatures and Flexibility in Normal Subjects

Thesis

Submitted to Basic Science Department in Partial Fulfillment of Requirements for Master Degree in Physical Therapy

By

ABEER ABD EL-FTTAH ALI KHALEEL

B.Sc., in Physical Therapy (2002)

Supervisors

Ass. Prof. Dr. Ragia Mohamed Kamel
Ragia Mohamed Kamel
Assistant professor of Physical Therapy
Basic Science Department
Faculty of Physical Therapy
Cairo University

Dr. Neveen Abd El-Latif Abd El-Raoof
Lecturer of Physical Therapy
Basic Science Department
Faculty of Physical Therapy
Cairo University

Faculty of Physical Therapy

Cairo University

2009

Abstract

Effect of Gender on Thoracic and Lumbar Vertebral Curvatures and Flexibility in Normal Subjects. Abeer Abd EL-Fttah Ali Khaleel; Supervisors, Ass. Prof. Ragia Mohamed Kamel*, Dr. Neveen Abd El Latif Abd El Raoof*

***Department of Basic Science, Faculty of Physical Therapy, Cairo University. Master Thesis; 2009.**

Background: Sagittal spinal curves and flexibility present a wide range for normal individuals within normal limits. **Purpose:** To investigate the effect of gender on thoracic and lumbar vertebral curvatures and flexibility in normal subjects. **Subjects**: 40 normal subjects from both genders participated in this study and assigned into two groups: Group (A) included 20 normal males with mean age of (21.45±2.15) years, height (177.3±7.56) cm, weight (75.95±7.81) kg, and BMI (23.56±1.038) kg/m² and Group (B) included 20 normal females with mean age of (21.65±2.48) years, height (159.9±6.86) cm, weight (60.22±8.084) kg, , and BMI (23.45±1.308) kg/m². **Methods**: Assessment of thoracic and lumbar curvatures using the Formetric system was used to measure the lordotic angle and kyphotic angle, while the new noninvasive electronic device Spinal mouse was used to measure the thoracic and lumbar spine range of motion. **Results**: There were significant differences in the thoracic and lumbar curvatures between both genders P= 0.0132, 0.0039 respectively, and there was a significant difference in the lumbar flexibility between both genders P= 0.361 while there was no significant difference in thoracic flexibility between both genders P= 0.5352. **Conclusion:** This study concluded that normal females had higher thoracic and lumbar curvatures than normal males, also normal females had higher lumbar spine ROM than normal males while there was no significant difference between normal females had males regarding thoracic spine ROM.

Key words: Thoracic curvature, lumbar curvature, thoracic flexibility, lumbar flexibility, lordotic angle and kyphotic angle.

Acknowledgement

First of all, I would like to kneel thanking our **God** who provided me with essential power and patience for completing this work.

I wish to express my deepest gratitude to **Ass. Prof. Dr. Ragia Mohamed Kamel,** assistant professor of physical therapy, Basic Science Department, Faculty of Physical Therapy, Cairo University for her kind supervision, and continuous generous guidance through the preparation and conduction of this work.

I am deeply grateful to my supervisor **Dr. Neveen Abd El-Latif,** lecturer of physical therapy, Basic Science Department, Faculty of Physical Therapy, Cairo University for the interesting discussion, support, encouragement, useful advices and guidance and essential help in this study.

Special thanks to my **professors** of basic science department for their encouragement and **colleagues** in the Faculty of Physical Therapy who helped me during the practical part of this work.

I owe my sincere thanks to **my family** for their love, continuous help, and their praying for my success.

Contents

List of Tables

List of Figures

List of Abbreviations

BMI: Body Mass Index

Fig: Figure

ROM: Range of Motion

2D: Two dimensions

3D: Three dimensions