

Assessment of Body Composition in Healthy Adult
Egyptian People using Bioelectrical Impedance
Analysis

Thesis

Submitted for Partial Fulfillment of the MD Degree in

Internal Medicine

By

Soraya Mohamed Ahmed Aly

Assistant lecturer Internal Medicine Benisuef University

Under Supervision By

Dr. Rawia Khater

Prof. of Internal Medicine & Endocrinology

Cairo University

Dr. Amin Roshdy

Prof. of Internal Medicine

Cairo University

Dr. Yasser Bakr

Assistant Professor of Internal Medicine

Cairo University

Faculty of Medicine

Cairo University

2010

قياس مكونات المختلفة للجسم للمصريين الأصحاء باستخدام جهاز قياس الدهون المعتمد على الاعاقة للحيوية للتيار الكهربى

رسالة مقدمة من

الطبيبة / ثريا محمد أحمد
توطئة للحصول على درجة الدكتوراه
في
الأمراض الباطنة
تحت إشراف

أ.د/ راوية خاطر
أستاذ الأمراض الباطنة و الكلى
كلية الطب – جامعة القاهرة

أ.د/ أمين رشدى
أستاذ الأمراض الباطنة
كلية الطب – جامعة القاهرة

د/ ياسر بكر
أستاذ مساعد الأمراض الباطنة
كلية الطب – جامعة القاهرة

كلية الطب
جامعة القاهرة

٢٠١٠

Acknowledgement

Thanks to" ALLAH", the most merciful and the most gracious for helping me to complete this study

*I am greatly honored to express my deepest gratitude and special thanks to Prof. Dr. **Rawia Ahmed Khater**, Professor of Internal Medicine, Cairo University, for her scientific and moral support and for guiding me throughout this work for giving me a chance to gain knowledge with wide horizon of experience.*

*I would like to express my deepest appreciation to Prof. **Dr. Ameen Mohamed Roshdy**, professor of Internal Medicine, Cairo University, for his kind advices and valuable effort and time to accomplish this study.*

*I am so grateful to **Dr. Yasser Bakr Mohamed**, Assistant Professor of Internal Medicine, Cairo University, who was been really very helpful, careful and guided me in every step of that work to make it appear in its current image.*

Ultimately I owe profound gratitude to my beloved family, for their understanding, all support throughout my life, God bless them.

I would also like to express my gratitude to everyone who has encouraged me.

Abstract

Evidence is emerging to suggest that obesity is a global epidemic increasing worldwide. Body composition refers to the constituents of body lean mass, fat mass, and water. We studied 1202 subjects 403 male and 799 female between 20-60 yrs; for all subjects weight, height, BP, waist circumference, Waist/Hip ratio skin fold thickness and % body fat with Bioelectrical impedance were done. Obesity is strongly related to age and job state however relation to residency is evident in males but not for females. The prevalence of obesity was higher in females than in males. The mean FBS, TC, and TG were higher in the obese subjects. A new cutoff point of WC is obtained 103 for males and 99.6 for females. BIA is a rapid and portable method for composition analysis.

Key Words :

BMI, BIA, BP, SFT, WC, WHR, Body Composition.

List of Abbreviations

ACTH	Adrenocorticotrophic hormone
ADA	American Diabetes Association
ADP	Air Displacement Plethysmography
AELG	Anthro-ElectroLipoGraphy
AGRP	Agouti-Related Protein
AHO	Albright Hereditary Osteodystrophy
ANOVA	Analysis of Variance Test
AOA	American Obesity Association
ARC	Arcuate Nuclei
ATP	Adenosine Triphosphate
BAT	Brown Adipose Tissue
BBS	Bardet-Biedl syndrome
BIA	Bioimpedance Assessment- Bioelectrical impedance analysis
BIS	Bioimpedance Spectroscopy
BLP	Blood Pressure
BMI	Body Mass Index
BMPs	Bone Morphogenetic Proteins
BMR	Basal Metabolic Rate
cAMP	Cyclic Adenosine Mono Phosphate
CART	Cocaine and Amphetamine-Regulated Transcript
CB1	Cannabenoid Receptor 1
CCK	Cholecystokinin
CGRP	Calcitonin Gene-related peptide
CHD	Coronary Heart Disease
CHF	Congestive Heart Failure
CNS	Central Nervous System
CRH	Corticotropin-Releasing Hormone
CRP	C-reactive protein
CT	Computerized Tomography
CVD	Cardiovascular Disease
DBP	Diastolic Blood Pressure
DEXA	dual-energy x-ray absorptiometry
DHEA	Dihydro-Epiandrosterone

DSM-BIA	Direct-Segmental Bioelectrical Impedance Analysis
DVT	Deep Venous Thrombosis
EC	Endocannabinoid
ECF	Extracellular Fluid
ECW	Extracellular water
ELG	ElectroLipoGraphy
FA1	Fetal Antigen 1
FBS	Fasting Blood Sugar
FDA	Food and Drug Administration
FFM	Fat-Free Mass
FM	Fat Mass
FTO	Fused Toes and Other abnormalities
GABA	Gamma-Amino-Butyric Acid
GERD	Gastro Esophageal Reflux Disease
GI	Glycemic Index
GL	Glycemic Load
GLP-1	Glucagon-like peptide-1
GRP	Gastrin-Releasing Peptide
Hb A1c	Glycated Hemoglobin
HDL	High Density Lipoprotein
IAPP	Islet Amyloid Polypeptide
ICF	Intracellular Fluid
ICW	Intracellular
IDF	International Diabetes Foundation
IL-6	Interleukin-6
IL-I- β	Interleukin -1 beta
kHz.	Kilo Hertz
LDL	Low density lipoprotein
mA,	Mill Ampere
MAOI	Mono Amin Oxidase Inhibitor
MC4R	Melanocortin 4 Receptor
MCH	Melanin-Concentrating Hormone
MFBIA	Multifrequency Bioelectrical Impedance Analysis
MRI	Magnetic resonance imaging
NCEP	National Cholesterol Education Program
NEFA	Nonesterified Fatty Acids

NICU	Neonatal Intensive Care Unit
NIDDM	Non Insulin dependent diabetes
NIH	National Institutes of Health
NPY	Neuropeptide Y
OPA	Obesity Policy Action
P value	Positive Predictive Value
PAI-1	Plasminogen Activator Inhibitor-1
PCOS	Polycystic Ovarian Syndrome
POMC	Pro-Opio-Melanocortin
PPAR	Peroxisome Proliferator-Activated Receptor
SBP	Systolic Blood Pressure
SEE	Standard Errors of The Estimate
SFT	Skin Fold Thickness
SOS trial	Swedish Obese Subjects trial
TBW	Total body water
Tchol	Total Cholesterol
TGs	Triglycerides
TNF- α	Tumour necrosis factor alpha
TZDs	thiazolidinediones
üA	Micri ampere
VLCD	Very-low-calorie diets
VSMCs	Vascular Smooth Muscle Cells
W/H	Waist Hip ratio
WAT	Wight Adipose Tissue
WC	Waist Circumference
WHO	World Health Organization
α -MSH	α -Melanocyte Stimulating Hormone

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