بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

HANAA ALY

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Evaluation of Bone Mineral Density and Body Composition in 13 - 14 Years Old Egyptian Females

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا

سبحانك لا علم لنا

إلا ما علمتنا إنك أنت

العليم الحكيم

صدق الله العظيم

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List of Abbreviations

Abb.	Full term
25OHD	25 hydroxyvitamin D
BMC	Bones mineral content
BMD	Bone mineral density
BMI	Body mass index
BMPs	Bone morphogenetic proteins
CT	Computed tomography
DXA	Dual–energy x-ray absorptiometry
DXR	Digital X-ray radiogrammetry
FGF	Fibroblast growth factor
GDFs	Growth differentiation factors
GH	Growth hormone
IGF-2	Insulin-like growth factor 2
LST	Lean soft tissue
PDGF	Platelet-derived growth factor
PTH	Parathyroid hormone
PTHrP	Parathyroid hormone-related protein
Qct	Quantitative computed tomography
TGF-β	Transforming growth factor beta

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INTRODUCTION

There are 2 main reasons for measuring bones mineral content (BMC) in children: to quantify the deficits in bone minerals associated with the various disorders that cause osteopenia in children and to improve our understanding of the childhood antecedents of osteoporosis, a condition that happens to manifest itself in elderly subjects.

Available data suggest that the genetic susceptibility to osteoporosis may be detectable in early childhood *(Gilsanz and Wren, 2007).*

Measurement of bone mineral density (BMD) by dual–energy x-ray absorptiometry (DXA) is viewed widely as the method for clinical use in children because of its speed, precision, safety and widespread availability *(Binkovitz and Henwood, 2007).*

The radiation exposure is comparable to that received during a round trip transcontinental airplane flight *(Bachrach, 2005).*

Body composition: it is the body fat mass and lean mass *(Fahey et al., 2010).*

DXA can detect body mass by giving two different types of x-ray to do scanning to the body, one detects all tissues fat

and another that doesn't detect fat. Computers can subtract the second picture from the first one, giving only fat detection. The mass of this can be estimated *(Fahey et al., 2010).*

AIM OF THE WORK

The aim of this work is to set a standardized pediatric normative database for bone mineral density and body composition in a representative sample of healthy Egyptian females children aged 13-14 years old by dual energy x-ray absorptiometry scanning (DXA) as a part of large study