

# ***Dedication***

**To my lovely parents .....**

**Whom the first reason of my life and from  
them take the hope scintilaton light for  
contious**

**TO my dear husband.....**

**Who support and encourage me**

**TO MY brothers...**

**My teachers...**

**My colleagues....**

**For all them I dedicate this small effort with  
all hope to be as they excepect me**

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## ***Abstract***

Measurement of bone density is one of important method that use international to decrease the problem of the bone which effect in life activity ,and the common method that use is DEXA which is best one that discover after many stages of development from radiological absorptionmetry (RA) then single energy photon absorptionmetry (SPA)then single energy X-ray absorptionmetry (SXA) .

This study is attempt to measure the bone dense which a lot of us neglected it and never take care to it till after complain or effect by problem in it , therefore I try to give reference guidance to take care in early stage to avoid any complication that can be occur in future.

This study performed in many diagnostic centers of computer tomography in Khartoum state on 58 patients with different ages and variable range from(4-76) years old ,sex (33 are male and 25 from them are female) and complains but all of them under went abdomen investigation. And the study concentrate on measure the average of bone dense of the L2-L3 by using the CT number. And we measure at this Because this area give accurate estimation to any change in

bone in addition to it is one of world method to detect bone dense .

The study show increase of bone dense on male rather than female and that appear clearly in increase the average of compact and spongy bone as is (301.571- 187.55) this reading for compact and spongy respectively but female bone dense average is(267-173.42) this reading for average of compact and spongy respectively ,with(-or+ )68.77 for male and(-or+)49.31 for female and that return to sexual hormone effect.

The relation of average of spongy and compact with sex and age range is weak and opposite propagation.

The relation between average of compact and spongy bone generally not strong but there are positive propagation and that refer to union body nutrition.

The relation ship between the average of spongy and compact with pt have problem means pt with disease is negative propagation when increase the severity of disease the average of bone dense decrease .

# الخلاصة

قياس كثافة العظام هي احد الوسائل العالمية التي تستخدم لتقليل مشاكل كثافة العظام التي تؤثر على نشاط الحياة، واكثر الوسائل إنتشارا هو جهاز قياس إمتصاص طاقة الاشعة المزدوج المعروف بدكسا (DEXA))والذي يعتبر من افضل الاجهزة لقياس كثافة العظام والذي مر بعده مراحل فى تطوره من جهاز قياس الإمتصاص الإشعاعى ومن ثم جهاز قياس إمتصاص طاقة الفوتون المفرد ثم جهاز قياس إمتصاص طاقة الاشعة السينية المفردة .

هذه الدراسة محاولة لقياس كثافة العظام والتي يجهلها الكثيرون ولا يعطونها ادنى اهتمام إلى حين ظهور مشاكل صحية فيه لذا قامت هذه الدراسة كمحاولة لوضع مرجعية لكثافة عظام السودانيين لآخذ الحذر والاحتياطات فى مراحل مبكرة لزياده امكانيه العلاج بواسطه العقاقير والادويه لتفادى الحوادث التي تحدث فى المستقبل .

اجريت هذه الدراسة فى مراكز مختلفه للاشعة المقطعية فى ولاية الخرطوم على مرضى عددهم 58 مريض جميعهم مختلفون فى الاعداد والتي تتراوح من (4-76) سنه والنوع (33 منهم ذكور و 25 إناث) والشكاوى والاعراض وكلهم قد أجرى لهم فحص اشعه مقطعية قطنية ؛ وركزت الدراسة على قياس كثافة العظام عن طريق قياس متوسط كثافة الفقرات القطنية الثانية والثالثة عن طريق الرقم الذرى للاشعة المقطعية واختيرت هذه الفقرات لانهما يعطوا قراءت دقيقة لآى تغير يحدث فى الكثافة كما انها احدى الطرق العالمية لقياس كثافة العظام

أكدت الدراسة بزياده كثافة العظام لدى الذكور اكثر من الاناث ويظهر هذا جليا فى متوسط كثافة العظم الرخو والصلب كالاتى (301.571-187.55) علي التوالي أما فى الإناث (267 - 173.42) علي التوالي +أو - 68 للذكور و+ أو - 49.31 للإناث لذا علاقة كثافة العظم الصلب والرخو بالنسبة للنوع والعمر علاقة ضعيفة وعكسية وهذا يرجع لتاثير الهرمونات الجنسيه .

كما أن علاقة العظم الصلب والرخو فيما بينهم ليست قوية لكنها  
طردية وهذا يرجع الي نوع الغذاء الموحد للجسم .

علاقة العظم الرخو والصلب مع الفئة التي تعاني من مشاكل أي لديها  
مرض عبارة عن علاقة عكسية تقل فيها كثافتهم كلما زادت حدة  
المرض .

## Glossary of abbreviations

ca	Cali sum
SD	Standerdiviation
Ph	Phosphour
WHO	world health organization
BMC	bone mineral content
BMD	bone mineral density
DEXA	dual energy x-ray absorptiometry
CT	computed tomography
QUS	Quantative ultra sound
GIOP- SIOP	steroid or gluco-cortiod induced osteoporosis

QCT	quantative computer tomography.
RT	Right
LT	left
US	united state
GE	general electrical
PT	Patient
CV	Co effeciton variation
<b>SP SS</b>	Static package of social studies

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