بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

ANDROGENS IN THE AGING MALES

Thesis

Submitted for the partial fulfillment of

The MD Degree in Andrology & STDs

By

Tarek Mohamed Ismail Nour

M.B.B.Ch., M.Sc., D.S.

Supervised by

Prof. DR. MOHAMED REFAAT EL-DAKHLY

Professor of Andrology & STDs
Faculty of Medicine
Cairo University

DR. ASMAA ABDEL KADER EL REWENY

Assistant Prof. of Chemical Pathology
Faculty of Medicine
Cairo University

DR. AHMED MAHMOUD SALEM

Assistant Prof. Of Andrology & STDs
Faculty of Medicine
Cairo University

Faculty of Medicine
Cairo University
2001


بسم الله الرحمن الرحيم

To My Wife

&

My Family

ACKNOWLEDGEMENT

*I wish to express my deepest and ultimate gratitude to Prof. Dr **MOHAMED REFAAT EL–DAKHLY**, Professor of Andrology & STDs, Faculty of Medicine, Cairo University, who suggested the subject and helped me to take the first step. His kind supervision and parental attitude could not be denied. Also, his continuous guidance and kind encouragement throughout this work upgraded its quality.*

*I wish to express my thanks and deepest gratitude to Dr. **ASMAA ABDEL KADER EL REWENY**, Assistant Professor of Chemical Pathology, Faculty of Medicine, Cairo University. Her faithful encouragement, continuous guidance, valuable advices gave me the motive to utilize available resources in order to put this thesis in an acceptable form.*

*I'm grateful also to Dr. **AHMED MAHMOUD SALEM**, Ass. Prof. of Andrology & STDs, Faculty of Medicine. Cairo University, who proposed, supervised and revised this thesis. His continuous advice and follow-up especially throughout the practical part of the work, was a stimulus for its completion.*

*In addition, I'm grateful to Prof. Dr. **YOUSRY ABDEL MOHSEN**, Professor of Psychiatry, Cairo University, who supplied and teached me the quality of life questionnaire.*

I'm also thankful to all the staff members of the Andrology Department, Kasr El Aini Hospital for their kind help and supervision throughout this work.

CONTENTS

Errata

Page	line	Incorrect	Correct
1	8	Luteinizing	luteinizing
9	5	insluin	insulin
9	19	results become	results will become
10	11	Within with smooth endoploasmic	Wthin the smooth endoplasmic
11	9	epidiymal	epididymal
14	17	other	others
16	17	Tesosterone	Testosterone
17	17	concentration	production
23	5	epilhelial	epithelial
24	1	of the chromosome	of the Y chromosome
26	5	andorology	andrology
27	28	parameter	parameters
30	18	being level explained	being explained
40	14	(Davidson et al.,1982; Lugg et al.,1995)	(Lugg et al., 1995). Davidson et al., (1982)
41	4	Ostetoporosis	Osteoporosis
50	22	given in gonadotropin	given gonadotropin
58	8	synthese	synthase
62	17	apnoea	apnea
67	3	Andorology	Andrology
70	5-6	Sherins and Howards, (1986)	**Sherins and Howards, (1986)**
74	15	estradiol were	estradiol and prostate specific antigen were
78	2	Andorology	Andrology
104	23	erectiel	erectile
105	12	testosterone improved	testosterone therapy improved
112	6	**Sih et al., (1997)** and reported	**Sih et al., (1997)** reported
114	3	Hematocrit	Haematocrite
114	20	apnoea	apnea
116	9	injection	injections
117	12	Luteinizing	luteinizing

Abbreviations

AIS :	Androgen insensitivity syndromes.
ALT:	Alanine transaminase
AR :	Androgen receptor.
AST:	Aspartate transamirase
17 BHSD :	17 B-hydroxysteroid dehydrogenase
BMI :	Body mass index
BPH :	Benign prostatic hypertrophy.
cAMP :	Cyclic adenosine monophosphate
cDNA :	Complementary DNA
CHD :	Coronary heart disease.
DBD :	DNA binding domain.
DHEA :	Dehydroepiandrosterone
DHT :	Dihydrotestosterone
FSH :	Follicular stimulating hormone.
GTP :	Guanosine triphosphate.
HDL - C :	High density lipoprotein cholesterol.
Hc T :	Haematocrite.
IGF-1	Insulin growth factor - 1
Kb :	Kilobases.
LBD :	Liganed binding domain.
LH :	Lutenizing hormone.
LDL - C :	Low density lipoprotein cholesterol.
Lp(a) :	Lipoprotein "a".
NO S :	Nitric oxide synthase.
NPT :	Nocturnal penile tumescence.
PADAM :	Partial androgen deficiency of the aging male.
PSA :	Prostate specific antigen.
P450scc	Cholesterol side chain cleavage enzyme cytochrome P450.
SHBG :	Sex hormone binding globulin.
SRY	Sex-determining region of the Y chromosome.
StAR :	Steroidogenesis activator protein.
TG:	Triglycerides.

Introduction

&

Aim of the Work

INTRODUCTION

Androgens have many important physiological actions including effects on muscle, bone, central nervous system, prostate, bone marrow and sexual function *(Tenover, 1992)*.

Testosterone is by far the most important and abundant androgen in males blood. Most (about 95%) of plasma testosterone in men is produced by the Leydig cells of the testes and released into the circulation in a pulsatile manner under stimulatory control of Luteinizing hormone. Nearly all testosterone circulates in blood bound to two proteins, albumine and sex hormone – binding globulin. Only about 1-2% of testosterone circulates totally free *(Tenover, 1999)*.

The aging male may experience a decline in sexual function, reduction of muscle mass, aching bones and depression *(Kim, 1999)*.

Males experience a gradual decline in fertility and gonadal function rather than an abrupt decrease, in general, an annual decline of 0.4% of total testosterone level and 1.2% of free testosterone level is seen from the fifth decade, although there is great individual variability. Not all males become hypogonadal as they age, with some remaining perfectly preserved *(Qian et al., 2000)*.

Testosterone therapy has beneficial effects on bone density, muscle mass and strength, body composition, sense of well-being and sexual function ***(Tenover, 1997)***.

Major concerns of testosterone therapy in aging males are the risks of exacerbating cardiovascular disease and the possibility of accelerating malignant prostatic disease. So, it is wise to out-weight between the potential benefits and the possible risks of androgen therapy ***(Kim, 1999)***.

AIM OF THE WORK

The aim of this work is to clarify the biological significance of age–related decline in testosterone levels and to determine the possible risks and benefits of testosterone therapy in the aging males.