

سامية محمد مصطفى



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



سامية محمد مصطفى



شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



سامية محمد مصطفى



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



سامية محمد مصطفى



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



سامية محمد مصطفى



شبكة المعلومات الجامعية



بالرسالة صفحات لم ترد بالأصل



Studying the Effects of Some Drugs and Some Diseases on Handwriting

Thesis

**Submitted For Partial Fulfillment of M.D. Degree of Forensic
Medicine and Toxicology**

By

Manal Abd El-Aziz Abd El -Zaher
M.B.B. CH.- Master Degree of Forensic
Medicine and Toxicology
Faculty of Medicine El-Minia University

Supervised By

Prof. Dr. Aly Hussein Mohamed Omar
Prof. and Head of Department of Forensic
Medicine and Clinical Toxicology
Faculty of Medicine, El - Minia University

Expert Dr. Riad Fatahallah Basalah
General Director of Medicolegal Department,
Ministry of Justice

Dr. Hanaa Sayed Soliman
Assist. Prof. of Psychiatry
Faculty of Medicine, El - Minia University

Dr. Omayma Abou El-Ela Hamed
Assist. Prof. of Forensic
Medicine and Toxicology
Faculty of Medicine, Cairo University

*Faculty of Medicine
El - Minia University
(2002)*

B.

17-77

Acknowledgement

First and foremost I thank Allah the Merciful the Compassionate for enabling me to accomplish this work and all works all over my life.

I would like to express my deepest thanks and sincere gratitude to **Prof. Dr. Aly Hussein Mohamed Omar**, professor and head of Forensic Medicine and Clinical Toxicology Department, Faculty of Medicine, El-Minia University, for his continuous encouragement and guidance and for his stimulating advice from the beginning and throughout the whole work.

I want to express my deepest gratitude to **Dr. Riad Fatahallah Basalah**, General Director of the Medicolegal Department in Ministry of Justice, who very kindly and generously gave much of his precious experience and time. Also his unlimited time spent in continuous guidance is heartily appreciated.

I owe special gratitude to **Dr. Hanaa Sayed Soliman**, Assist. Prof. of Psychiatry, Faculty of Medicine, El-Minia University, for her continuous help, guidance, valuable instructions, and unlimited time spent in the completion of this work.

My great appreciation and thanks to **Dr. Omayma Abou El-Ela Hamed**, Assist. Prof. of Forensic Medicine and Toxicology, Faculty of Medicine, Cairo University, For her kind advice, helpful opinions, generous cooperation, and valuable discussions.

My great appreciation and thanks to **Dr. Mohiey El-Din Abd El Latif El- Desouky**, Lecturer of Clinical Toxicology, Faculty of Medicine, El- Minia University, for his encouragement and guidance.

I would like to thank **Dr. Irene Atif Fawzy**, Lecturer of Forensic Medicine and Toxicology, Faculty of Medicine, El-Minia University, For her generous cooperation.

Contents

<i>Chapter</i>	<i>Page</i>
Acknowledgement	
I-Introduction -----	1
II- Aim of the work -----	3
III- Review of literature-----	4
1) <i>Anatomy and neurophysiology of handwriting</i> -----	4
2) <i>The physiological features of handwriting</i> -----	13
3) <i>Centrally acting drugs</i> -----	23
4) <i>Antipsychotic drugs</i> -----	28
5) <i>Parkinsonism</i> -----	33
6) <i>The relation between dopaminergic drugs and handwriting in Parkinsonian patients</i> -----	37
7) <i>Schizophrenia</i> -----	43
8) <i>Alzheimer's disease</i> -----	45
9) <i>Epilepsy</i> -----	51
IV- Subjects and Methods -----	54
V- Results -----	71
Photographic Specimens -----	131
VI-Discussion -----	142
VII-Summary -----	156
VIII-Conclusion and recommendations -----	158
IX-References -----	161
X-Arabic Summary-----	1

List of tables

Page

Tables no. (1) are the physiological features of handwriting in Chlorpromazine volunteers.

Table (1-a):

Pen pressure, mean speed of handwriting and alignment-----74

Table (1-b):

Word size and shape, inter-word spacings (size and regularity) and pen drags -----75

Table (1-c):

Tremors (degree and site), initial and terminal strokes-----76

Table (1-d):

Angle of slanting, direction of handwriting and inter-letter connections---77

Table (1-e):

Writing errors (retouchings, overwritings and omissions) -----78

Table (1-f):

Time taken for handwriting in Chlorpromazine volunteers (in minutes)---79

Table (1-g):

The coordination tests, before and 2 hours after Chlorpromazine intake --80

Tables no. (2) are the physiological features of handwriting of the Phenobarbitone volunteers.

Table (2-a):

Pen pressure, mean speed of handwriting and alignment-----88

Table (2-b):

Word size and shape, inter-word spacings (size and regularity) and pen drags -----89

Table (2-c):

Tremors (degree and site), initial and terminal strokes-----90

Table (2-d):

Angle of slanting, direction of handwriting and inter-letter connections---91

Table (2-e):

Writing errors (retouchings-overwritings and omissions)-----92

Table (2-F): time taken for handwriting in Phenobarbitone volunteers (in minutes)-----93

Table (2-g): The coordination tests before and 6 hours after intake of Phenobarbitone-----94

Tables no. (3) are the physiological features of handwriting of the Parkinsonian patients.

Table (3-a):

Pen pressure, mean speed of handwriting and alignment-----101

Table (3-b):

Word size and shape, inter-word spacings (size and regularity) and pen drags-----102

Table (3-c): Tremors (degree and site),initial and terminal strokes-----103

Table (3-d):

Angle of slanting,direction of handwriting and inter-letter connections- 104

Table (3-e):

Writing errors (retouchings-overwritings and omissions)-----105

Table (3-f):

Time taken for handwriting in Parkinsonian patients (in minutes)-----106

Table (3-g):

Correlation between the severity of Parkinson's disease and the parameters of handwriting analysis----- 107

Tables no.(4) are the physiological features of handwriting of the Schizophrenic patients.

Table (4-a):

Pen pressure,mean speed of handwriting,alignment,word size and shape,inter-word spacings (size and regularity),and pen drags-----114

Table (4-b):

Tremors (degree and site), angle of slanting,direction of handwriting,inter-letter connections, initial and terminal strokes-----115

Table (4-c):

Writing errors (retouchings-overwritings and omissions)-----116

Tables no. (5) are the physiological features of handwriting of Alzheimer's patients.

Table (5-a):

Pen pressure,mean speed of handwriting, alignment, word (size and shape),
inter-word spacings (size and regularity),and pen drags-----121

Table (5-b):

Tremors (degree and site),angle of slanting,direction of handwriting,inter-
letter connections,initial and terminal strokes-----122

Table (5-c):

Writing errors (retouchings,overwritings and omissions)-----123

**Tables no. (6) are the physiological features of handwriting of the
epileptic patients.**

Tables (6-a):

Pen pressure,mean speed of handwriting,alignment,word (size and
shape),inter-word spacings (size and regularity),and pen drags-----128

Table (6-b):

Tremors (degree and site),angle of slanting,direction of handwriting,inter-
letter connections,initial and terminal strokes-----129

Table (6-c):

Writing errors (retouchings,overwritings and omissions)-----130

List of figures

	Page
Figure (1): Billiard cue position of the hand	5
Figure (2): The cortical motor areas	6
Figure (3): The somatotopic neural map	7
Figure (4): Phenobarbitone chemistry	24
Figure (5): Influence of alcohol on handwriting	26
Figure (6): Chlorpromazine chemistry	28
Figure (7): Changes in patient's signature during the development of Parkinson's disease	33
Figure (9): Chemistry of Levodopa	35
Figure (10): Chemistry of Carbidopa	41
Figure (11): Multiple signatures of an Alzheimer's patient	48
Figure (12): Pen pressure changes before and after intake of Chlorpromazine	81
Figure (13): Mean speed of handwriting before and after intake of Chlorpromazine	81
Figure (14): Word size before and after intake of Chlorpromazine	82
Figure (15): Word shape before and after intake of Chlorpromazine	82
Figure (16): Degree of tremors before and after intake of Chlorpromazine	83

Figure (17): Time taken for handwriting before and after intake of Chlorpromazine	84
Figure (18): Word shape before and after intake of Phenobarbitone.....	95
Figure (19): Direction of handwriting before and after intake of Phenobarbitone.....	96
Figure (20): Omissions before and after intake of Phenobarbitone	97
Figure (21): Time taken for handwriting before and after intake of Phenobarbitone.....	97
Figure (22): Word size in Parkinson's disease.....	108
Figure (23): Word shape in Parkinson's disease.....	109
Figure (24): Regularity of the inter-word spacings in Parkinson's disease.....	109
Figure (25): Tremors degree in Parkinson's disease.....	110
Figure (26): Inter-letter connections in Parkinson's disease.....	111
Figure (27): Time taken for handwriting in Parkinsonian patients before and after drug intake.....	111
Figure (28): Mean speed of handwriting in Schizophrenic patients.....	117
Figure (29): Word size before onset of Schizophrenia.....	118
Figure (30): Word size after onset of Schizophrenia.....	118
Figure (31): Word shape before onset of Schizophrenia.....	118
Figure (32): Word shape after onset of Schizophrenia.....	118
Figure (33): Tremors degree before onset of Schizophrenia.....	119
Figure (34): Tremors degree after onset of Schizophrenia.....	119

Figure (35): Word size in Alzheimer's disease-----	124
Figure (36): Word shape in Alzheimer's disease-----	124
Figure (37): Tremors degree in Parkinson's disease after drug withdrawal-- -----	125
Figure (38): Tremors degree in Alzheimer's disease-----	125
Figure (39): Site of tremors in Parkinson's disease after drug withdrawal--- -----	125
Figure (40): Site of tremors in Alzheimer's disease-----	125
Figure (41): Inter-letter connections in Alzheimer's disease -----	126