

ملاحظات:



Effect of Mobile Devices Usage on Central Auditory Processing in Children

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَأَنْزَلَ اللَّهُ عَلَيْكَ
الْكِتَابَ وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ تَكُنْ
تَعْلَمُ وَكَانَ فَضْلُ
اللَّهِ عَلَيْكَ عَظِيمًا

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Dedication

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List of Contents

Title	Page No.
List of Abbreviations.....	i
List of Tables	iv
List of Figures	vii
Introduction and Rationale	1
Aim of the Work.....	3
Review of Literature	
Effects of Exposure to Radiofrequency Electromagnetic Field on Human.....	4
Mobile Phone (EMF) and Audio-vestibular system	27
Materials and Methods	47
Results	59
Discussion	87
Conclusions	102
Recommendations	103
Summary	104
References	107
Appendices	144
Arabic Summary	—

List of Abbreviations

Abb.	Full term
AAA	American Academy of Audiology
ABR	Auditory brainstem responses
ACPT	Auditory Continuous Performance Test
ADHD	Attention Deficit Hyperactivity Disorder
AFT-R.....	Auditory Fusion Test- Revised
APD	Auditory Processing Disorder
ASHA	American Speech-Language-Hearing Association
AVG	Action video game
AVGPs	Action video game players
BBB	Blood brain barrier
BERA.....	Brainstem Evoked Response Audiometry
CANS.....	Central auditory nervous system
CAP.....	Central Auditory processing
CAPD.....	Central Auditory Processing Disorder
CNS	Central nervous system
CVS-Q.....	Computer Vision Syndrome Questionnaire
DDT	Arabic Dichotic Digit Test
DNA.....	Deoxyribonucleic acid
DS	Discrimination score
DSM-5.....	The Diagnostic and Statistical Manual of Mental Disorders
EEG	Electroencephalogram
ELF-EMF	Extremely Low Frequency Electromagnetic fields
EMF.....	Electromagnetic Field
ERPs.....	Event-related potentials
GHZ	Gigahertz
GPA	Grade point average
GSM.....	Global system for mobile communications

List of Abbreviations Cont...

Abb.	Full term
ICD-11	International Classification of Diseases (11th Revision)
IGD	Internet gaming disorders
IHTT	Interhemispheric transfer time
IPI	Interpulse interval
IQ	Intelligence quotient
MLRs	Middle latency responses
MMORPG	Massive Multiplayer Online Role-Playing Games
MP	Mobile phone
MP-EMF	Mobile phone Electromagnetic Field
MSD	Musculoskeletal disorders
NAVGP	Non-Action Video Game Player
PB-KG	Arabic Kindergarten Phonetically Balanced
PTA	Pure tone audiometry
PVL	Peripheral vestibular lesion
RF	Radiofrequency
RF-EMF	Radiofrequency Electromagnetic fields
RF-EMFR	Radiofrequency Electromagnetic Field Radiation
S/N	Signal to noise ratio
SAA	Selective auditory attention ability
SAR	Specific absorption rate
SAT	Scholastic assessment test
SB5	Stanford-Binet Intelligence Scale fifth edition
SD	Standard Deviation
SL	Sensation level
SOT	Sensory organization tests
SPIN	Speech Intelligibility In Noise
SRT	Speech reception threshold

List of Abbreviations Cont...

Abb.	Full term
STM	Short term memory
TEOAE	Transiently evoked otoacoustic emissions
UFOV	Useful field of view
VG.....	Video game
VGPs.....	Video game players
VNG.....	Video nystagmography
VSA.....	Visual selective attention
WHO	World Health Organization
WM	Working memory

List of Tables

Table No.	Title	Page No.
Table (1):	Mean, Standard Deviation (SD) & range of age (years) and gender of children in the study group.....	59
Table (2):	Distribution of children according to “Mobile phone and video game history”	60
Table (3):	Distribution of children according to "(C)AP questionnaire"	62
Table (4):	Number & percentage of normal & abnormal test scores in Speech In Noise test.....	64
Table (5):	Comparison between Study groups & Norms of Speech In Noise test.....	64
Table (6):	Number & percentage of normal & abnormal test scores in Dichotic Digits Tests	65
Table (7):	Comparison between Study groups & Norms in Dichotic Digits Tests	66
Table (8):	Number & percentage of normal & abnormal test scores in Memory tests	67
Table (9):	Comparison between Study groups & Norms of Memory tests	68
Table (10):	Number & percentage of normal & abnormal test scores in Auditory Fusion Test-Revised Subtest II	69
Table (11):	Comparison between Study groups & Norms in Auditory Fusion Test-Revised Subtest II	69
Table (12):	Number & percentage of normal & abnormal test scores in Auditory Continuous Performance Test (ACPT)	70
Table (13):	Comparison between Study groups & Norms in Auditory continuous performance Test (ACPT)	70

List of Tables Cont...

Table No.	Title	Page No.
Table (14):	Mean Standard Deviation (SD) & range of age (years) and gender of children in the control group of the auditory vigilance test	71
Table (15):	Comparison between (control & study) groups regarding Age & Gender	72
Table (16):	Number & percentage of normal & abnormal test scores in Auditory Vigilance test.....	73
Table (17):	Comparison between study & control groups of the auditory vigilance test.....	73
Table (18):	Association between score of Identification and localization of (C)AP questionnaire and mobile phone and video game history	74
Table (19):	Association between score of Sustained and selective attention of (C)AP questionnaire and mobile phone and video game history	75
Table (20):	Association between score of Audio - Visual integration of (C)AP questionnaire and mobile phone and video game history	76
Table (21):	Association between score of Memory of (C)AP questionnaire and mobile phone and video game history	77
Table (22):	Association between score of Scholastic achievement of (C)AP questionnaire and mobile phone and video game history	78
Table (23):	Association between score of Language of (C)AP questionnaire and mobile phone and video game history	79
Table (24):	Association between score of Behavior of (C)AP questionnaire and mobile phone and video game history	80

List of Tables Cont...

Table No.	Title	Page No.
Table (25):	Association between Result of SPIN test in the right & left ears and mobile phone and video game history	81
Table (26):	Association between Result of Dichotic Digits Test (version I) in the right & left ears with mobile phone and video game history	82
Table (27):	Association between Result of Dichotic Digits test version (2) in the right & left ears and mobile phone and video game history	83
Table (28):	Association between Result of Memory for Recognition & Content & Sequence and mobile phone and video game history	85
Table (29):	Association between Result of Auditory Vigilance test and mobile phone and video game history	86

List of Figures

Fig. No.	Title	Page No.
Figure (1):	Schematic illustration of spectrum of electromagnetic field in our environment	5

INTRODUCTION AND RATIONALE

The use of mobile phones is becoming increasingly popular all over the world among all age groups. Mobile phones have made our daily life easier; however, their long-term effects on human health are not yet completely known and still a matter of discussion. This subject is one of the primary fields of research of the World Health Organization (WHO) (*Roosli, 2010; van Deventer et al., 2011*).

Nowadays, children are exposed to mobile phone radiation at a very early age. Parents feel that mobile devices as smart phones and tablets are alluring educational tools, easily and intuitively used by very young children and provide an instant interactive element that appeals to both children and parents (*Radesky et al., 2015*).

There is a link between prolonged mobile phone use and serious health problems (*Edelstyn and Oldershaw, 2002*). In 2011, World Health Organization's scientific panel classified mobile phone radiation as 'possibly carcinogenic' (*Baan et al., 2011*). Also, excessive use of mobile phones is known to cause headache, deleterious effects on concentration and attention, memory loss and depression (*Khurancce et al., 2009; Hepworth et al., 2006*).

Video game playing has become one of the main leisure activities for children and adolescents. Mobile phones represent

one of the tools for video games, besides PlayStations, x box, etc. The effect of video games playing was variable in literature. On one hand it leads to boosting brain function in response speed, concentration, attention and spatial cognition, on the other hand, exciting, stressful and scary games have negative effects on the cognition and proper processing of the central nervous system (*Aliyari et al., 2015*).

Also, Excessive videogame playing was reported to be associated with Attention Deficit Hyperactivity Disorder (ADHD) (*Bioulac et al., 2008*), school performance underachievement, violence, family disruption, lies, and illegal acts, etc.

As central auditory pathway is responsible for the processing the auditory information, examining central auditory processing abilities is considered as an integral part of the detection of difficulties listening in background noise, following oral instructions, and understanding rapid or degraded speech in the presence of normal peripheral hearing, etc (*ASHA, 2005; AAA, 2010*).

The best of authors knowledge, there is no study investigated effects of mobile devices usage and video games playing on central auditory processing in school-aged children so the objective of this work is to study the effect of mobile phone usage on central auditory processing abilities in school-aged children.