بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / هناء محمد علي

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: ....

Effect of Mobile Devices Usage on Central Auditory Processing in Children

Thesis

Submitted for Partial Fulfillment of Master Degree in Audiology

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بسم الله الرحمن الرحيم
وَأَنْزَلَ اللهُ عَلَيْكَ
الْكِتَابَ وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ تَكُنْ
تَعْلَمُ وَكَانَ فَضْلُ
اللهِ عَلَيْكَ عَظِيمًا
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Dedication

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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

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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 ***(Khurance 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.