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INTERNET AND COMPUTER GAME ADDICTION - A REVIEW OF CURRENT
NEUROSCIENTIFIC RESEARCH

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Introduction: A significant part computer game players and internet users show clinical
features of abuse and addiction (loss of control, withdrawal symptoms, tolerance,
continuation of game play even with increasing negative consequence in social and
academic life). Similar mechanisms are suggested to underlie the pathogenesis and
maintenance of internet and computer game addiction and substance-related addictions.

Objectives: Neuroscientific research on internet and computer game addiction is sparse, yet
emerging. To review previous studies is the objective of the present project.

Aims: We aim to identify common findings regarding the neurophysiological processes
underlying internet and computer game addiction. This could be helpful for establishing a
sound model for these emerging disorders.

Methods: Neuroscientific studies on internet and computer game addiction were
systematically searched in "Pubmed", "Google scholar" and "PsychInfo". Titles were
examined first to screen potential articles, followed by abstracts, and then manuscripts were
downloaded. The reference sections of downloaded manuscripts were examined for
additional references not located in the searches.

Results: Neuroscientific research on internet and computer game addiction is mainly located
in the Asian area, probably due to a higher regional prevalence. Methodologies range from
ERP, resting state EEG, resting state fMRI, VBM to PET, investigating very different
concepts of addiction, including impulsivity, craving, reward processing and cue-reactivity.

Conclusions: Addicted internet and computer game users are overall suggested to have
altered brain mechanisms similar to individuals with substance addictions. However, a sound
model on the neurophysiologic alterations has not been established yet.