

Abstract

Basis: Ecstasy is often seen as a non-addictive substance, which can cause dehydration and dangerous overheating of the human body. Despite the fact that these side effects are often described in literature, ecstasy remains one of the most popular illegal drugs used in the dance scene.

Objective: The main aim of the research was to prove the effect of ecstasy (MDMA) on human thermoregulation and on the subsequent overheating of the organism. Meanwhile we demonstrate that thermal imaging can be used to measure statistically significant differences in temperature in respondents currently under the influence of ecstasy versus sober respondents. The secondary aim was to assess the effect of the amount of used ecstasy on the resulting temperature of the organism.

Methodology: Thermal quantitative data were obtained as physical measurements by thermal imager. Next to that, additional information was collected in the form of a brief structured interview with respondents. The research cohort consisted of 14 respondents of the control group who had not used any addictive substance before the measurement and 25 respondents of the study group who were currently under the influence of ecstasy (MDMA). Body temperature was measured in the face area, while a methodologically appropriate area of the inner corner of the eye was selected for statistical processing. The results were then processed using Excel and the R programming language, allowing for statistical processing and subsequent graphical representation.

Findings: The collected data demonstrates statistically significant difference between the temperature measured in the inner corner of the eye of the control group and the study group, with a probability of 91%. On the contrary, no evidence was found that the measured body temperature increases with a higher dose of ecstasy.

Conclusion: Given the obtained results, the hypothesis that ecstasy has influence on human thermoregulation was confirmed. The research further highlights the utility of thermal imager as a novel tool to study the effect of addictive substances on human thermoregulation, and hence bringing new research opportunities.

Key words: Ecstasy, MDMA, Thermal imaging, Overheating, Hyperthermia