Comparing the Response to Acute and Chronic Exposure to Short Wavelength Lighting Emitted from Computer Screens

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Introduction: The use of increased exponentially in emitting screens has-electronic devices with light the last decade. As a result, humans are continuously exposed to unintentional artificial light. We explored the effects of acute and chronic exposure to nartificial light at night (ALAN) via screen illumination on sleep, circadia rhythms, and related functional outcomes.

Methods: Nineteen night study-participants (11F and 8M, mean age 28.1 ±7.2 years) underwent a six with three measures design: baseline-experimental conditions using a repeated (first night, no light exposure), acute ALAN exposure (second night), and chronic ALAN exposure (third to sixth nights). Each light exposure lasted for 2 Participants underwent an overnight polysomnography at the .(23:00-hours (21:00 end of each condition nights 1, 2, and 6). We collected urine samples (for) melatonin metabolite analysis), while body (oral) temperatures were measured before and after exposure. Each morning, the participants filled out questionnaires tand conducted a computerized attention tes.

Results: Acute and chronic ALAN illumination significantly disrupted sleep continuity and architecture parameters: TST: $F_{(2,36)}$=5.92,p.05; SE: $F_{(2,36)}$=16.75,p.001; SL: $F_{(2,36)}$=3.94,p.05 and led to greater daytime sleepiness $F_{(2,36)}$=4.40,p.05 e emotion Fand negativ$_{(2,36)}$=4.57,p.05. Both acute and chronic ALAN also altered biological rhythms, disrupting the normal nocturnal decline in body temperature F(2,90)=4.16,p.05 and dampening nocturnal melatonin secretion $F_{(4,72)}$=3.16,gatively affectedp.05. Acute and chronic ALAN ne morning attention abilities $F_{(2,36)}$= 3.72,p.05.

Conclusions: This is the first study comparing acute and chronic effects of ALAN emerging from electronic screen devices on sleep, biological regulation, and daily functions. rom electronic screens has ALAN exposure f an immediate, detrimental, yet stable day functional outcomes. -effect on sleep, circadian regulation, and next Given the widespread use of electronic devices today, our findings suggest that even one night of screen light e may be sufficient to cause adverse effectsexposur on health and performance.