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PHYSIOLOGICAL CORRELATES TO VARIATIONS IN ULTRA-WEAK PHOTON EMISSION MEASUREMENTS DURING PERIODS OF FOCUSED INTENT

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Background: All organic matter, including people, produce Ultraweak Photon Emissions (UPE). There are indications that UPE increase during moments of intentional focus, and physiological measurements may provide insight into the mechanisms behind UPE increases.

Aims: The first hypothesis (H1) is a confirmation of previous studies indicating that UPE can be intentionally produced during moments of focus. We also explored correlations between physiological factors and increased expression of UPE (H2) and whether these factors indicated a state of arousal (H3).

Method: Fifty 20-minute sessions were completed by five participants. UPE were measured using a photomultiplier tube in a double dark room. Each session included a control condition for each participant with a resting period (10 minutes; no focus) and an active period of intense focus (10 minutes). Resting state UPE counts were compared to counts during the period of focus to address H1. See BIAL 151/06 for details. Electrocardiogram (ECG), respiration (RES), electrodermal activity (EDA), skin temperature (TEMP), and blood flow (FLOW) were continuously measured for each session, and heart rate variance (HRV) and heart rate per minute (HR) were calculated. Analyses across all participants explored correlations between increasing UPE and each physiological factor to address H2.

Results: H1 was strongly supported across all participants ($p < 2.2e-16$). In addition, there were 103 events where UPE counts during the focus period exceeded the mean UPE count by more than six-sigma. Independent of UPE counts, periods of focus resulted in increased HR, more consistent HRV, decreasing FLOW (each $p < 2.2e-16$), and increased TEMP ($p = 1.46e-14$). Only increased HR and more consistent HRV were significantly correlated with increased UPE values ($r = 0.230$) supporting H2 across all participants. Mixed physiological correlations make it difficult to determine whether arousal was the dominant state during increased UPE (H3), but individual analyses per participant may provide great insight.

Conclusions: Experienced participants are able to intentionally express UPE during periods of focus, and a faster and more consistent HR appears to be correlated with greater expressions of UPE. Additional analysis is necessary to determine whether arousal is associated with the increase in UPE.

Keywords: Ultra-weak photon emissions, Physiology, Biophotons, UPE, HRV, Arousal

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