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Studying Implicit Social Exclusion Using Pupillometric Analysis

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Studying Implicit Social Exclusion Using Pupillometric Analysis

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The desire to avoid social exclusion is a fundamental human trait. Previous research suggests people show physiological reactions, such as an increase in pupil dilation, when they are explicitly rejected by others compared to when they are accepted. However, to our knowledge, no research has investigated pupil dilation in response to more subtle and implicit forms of social exclusion. To address this gap, we obtained pupil dilation values from 11 participants using a *Cyberball* paradigm, in which participants were either included or indirectly excluded in the course of playing online ball games. Participants were told before each game that they would be playing with either human players (i.e., other undergraduate participants in the study) or pre-programmed computer players; in reality, all players were computerized. We then calculated the difference in maximum pupil dilation on each trial by subtracting the maximum pupil size collected before the game from the maximum pupil size collected after the game, and found that the difference in pupil dilation with human players was significantly larger after exclusion trials ($M = 63.96$, $SD = 107.01$) than after inclusion trials ($M = -35.08$, $SD = 123.73$), $t(10) = 2.947$, $p = .015$. However, difference in pupil dilation with computer players did not differ between exclusion ($M = -10.04$, $SD = 116.04$) and inclusion trials ($M = -6.93$, $SD = 114.77$), $t(9) = -.087$, $p = .933$. Consistent with the extant literature, participants also reported lower self-ratings of mood, control, belonging, existence, and self-esteem following exclusive games compared to inclusive games. These findings suggest that pupillometry is a sensitive and useful measure for investigating responses to social exclusion. We plan to further analyze the data obtained from this pilot study, and to continue testing participants.