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Measuring Stress Response to Daily Self-weighing

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PURPOSE: Daily self-weighing is a highly-debated topic; evidence has supported daily self-weighing for weight control, but concern exists regarding potential negative psychological consequences. To date, no studies have measured biological proxies for mental states in response to daily self-weighing. The purpose of this study was to assess college women's biological stress/anxiety responses to daily self-weighing as compared to an active control condition using biomarkers cortisol and salivary alpha-amylase. **METHODS:** As part of a larger randomized controlled trial, 6 University of Delaware college-aged (18-26yo) women participated in a sub-study. 4 had been randomized to daily self-weighing and 2 to the active control group. Saliva samples were collected seven times/day on each of 4 days: the day prior to starting the intervention behavior (day 0), and days 1, 3 and 7 of the intervention. Each day, the passive drool method was used to collect saliva immediately after waking (AW), 15 minutes AW, 45 minutes AW, 60 minutes AW, at 12:00pm, 2:00pm, and 6:00 pm. **RESULTS:** 5 participants returned usable samples. Results showed diurnal cortisol and alpha amylase curves that were indicative of poorly collected samples. In all participants, the graphed cortisol data lacked the distinct morning peak seen in normal diurnal cortisol awakening responses. Participant's cortisol levels started highest in the morning, and declined throughout the day, indicating that samples were taken post-waking. Of the 2 participants who reported exact collection times, a slightly higher area under the curve was visible on the graphed alpha amylase results for the self-weighing participant as compared to the temperature taking participant. **CONCLUSION:** Although it appears that there may be a larger AUC in the self-weighing participant as compared to active control for alpha-amylase, which would indicate that the self-weighing participant was under more stress than the control participant, lack of appropriately collected data prohibit conclusions. Process information collected has informed protocols such that future participants will be reminded more frequently of the necessity of following directions, such as taking the samples on time, filling the vials to the desired testing volume, and recording the exact time of sample collection.

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