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While many studies have been done on what affects cognition, research on the role of the locus coeruleus still remains fairly novel. The locus coeruleus is a nucleus inside the brainstem that is the major producer of the neurotransmitter norepinephrine, and has been linked to various cognitive functions. This study examined the relationship between baseline pupil diameter, which is a non-invasive measure of locus coeruleus function, and various cognitive functions that include fluid intelligence, crystallized intelligence, and attentional control. As one ages, fluid intelligence and attentional control tends to decline and crystallized intelligence tends to increase or stay the same. Since pupil diameter and locus coeruleus function decrease as one ages, it was hypothesized that pupil diameter is positively correlated with fluid intelligence (Gf), not correlated with crystallized intelligence (Gc), and negatively correlated with two attentional control variables: the Stroop and Simon effects. While this study was intended for 60 participants, only 30 participants could be tested in time. While the correlation with Gf was in the right direction, there was not enough power to make a decisive conclusion. The same was observed for the attentional control variables, as there was not enough power to detect a statistical effect, and fatigue may have influenced the data. Interestingly, Gc was the only statistically significant positive correlation. These findings showed promise, but ultimately more data and specific research, such as focusing on one specific variable at a time (i.e., Gc), are needed in order to come to a more reliable conclusion.