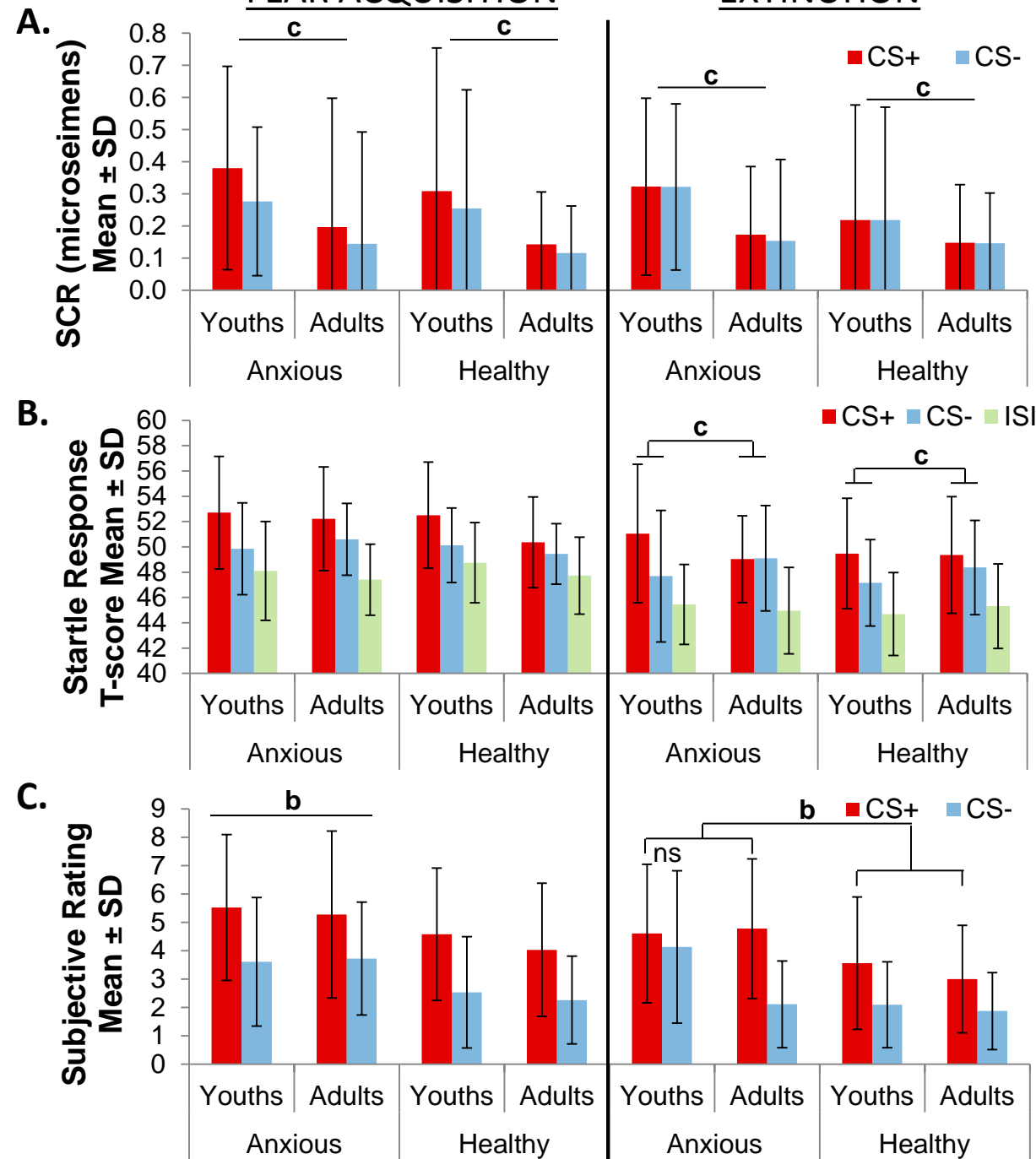


FEAR ACQUISITION

EXTINCTION



Supplementary Figure 1: Subjective and psychophysiological measures of fear acquisition and extinction.^a

^a A) Normalized (square-root transform) skin conductance response (SCR) B) Standardized fear potentiated startle measured through electromyography (EMG) of the eyeblink reflex C) Subjective ratings of anxiety. CS+=conditioned stimulus paired with unconditioned stimulus (UCS), CS-=conditioned stimulus never paired with UCS, ISI=Inter-stimulus interval. Data from 23 anxious youths, 18 anxious adults, 42 healthy youths and 31 healthy adults are summarized. Significance is defined as $\alpha=0.05$.

^b Anxiety-related difference.

^c Age-group difference.

Overall, SCR was greater in youths than adults [all $F(1,96)>12.7$, $p<0.02$] and the reported fear was greater in anxious than healthy individuals [$F(1,109)=19.3$, $p<0.001$]. During fear acquisition, fear conditioning (CS+>CS-) was demonstrated in all measures [SCR: mean difference between CS+ and CS-= 0.1, $t(99)=4.8$, $p<0.001$, EMG: mean difference between CS+ and CS-=2.0, $t(113)=4.3$, $p<0.001$, subjective fear: mean difference between CS+ and CS-=1.9, $t(113)=7.9$, $p<0.001$; all group effects $p>0.1$]. During extinction, the EMG response to CS+ and CS- were more similar in adults than in youths [age-group \times CS-type interaction: $F(2,220)=4.2$, $p<0.02$] and the subjective ratings of fear were similar to those in extinction for both anxious adults and anxious youths [$F(2,218)=4.5$, $p<0.02$]. In addition, only anxious youths showed similar responses to the CS+ and CS-, reflecting elevated fear to the CS- [ns, $p>0.2$].

Supplementary Figure 2: Threat appraisal and explicit memory elicit different patterns of behavioral response.^a

^a Averaged behavioral data demonstrate differences based on cognitive state. Data from 14 anxious youths, 15 anxious adults, 25 healthy youths, and 28 healthy adults are summarized. Significance is defined as $\alpha=0.05$.
^b Significant quadratic response across groups.

The quadratic pattern in the responses and reaction times to morphed images continuously varying in similarity from the CS- (0%) to CS+ (100%) is less dramatic during threat appraisal (Panels A and B, respectively) than explicit memory (Panels C, D). Subjective response: instruction×Morph²-Level interaction: $F(2,1931)=4.2$, $p<0.01$; threat appraisal: $\beta=0.003$, $SE=0.001$, $t(899)=2.6$, $p<0.001$; explicit memory: $\beta=0.008$, $SE=0.001$, $t(899)=7.5$, $p<0.001$. Reaction time: instruction×Morph²-Level interaction: $F(2,1960)=19.3$, $p<0.01$; threat appraisal: $p>0.1$, explicit memory: $\beta=-7.9$, $SE=1.2$, $t(899)=6.5$, $p<0.001$. No group differences in quadratic patterns across morphed images were noted [all $p>0.2$].

