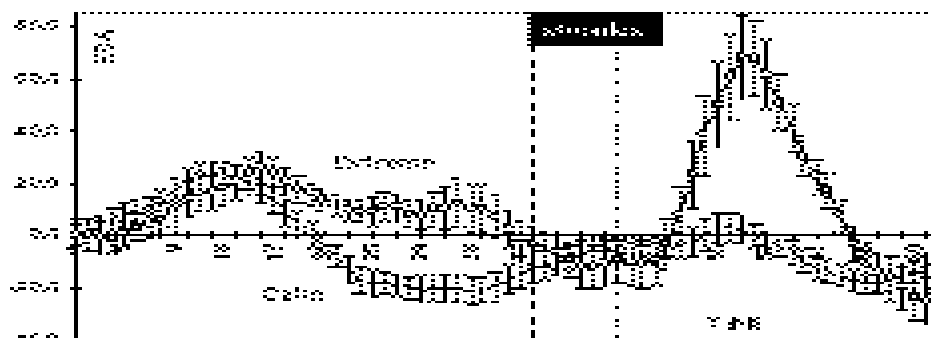


ANOMALOUS ANTICIPATORY RESPONSE ON RANDOMIZED FUTURE CONDITIONS.

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Summary: - Physiological baseline conditions preceding stimulus presentation are shown to depend on emotionality of stimulus content.

In 5 studies, involving two independent laboratories, using different software and apparatus, a total of 46 subjects were presented with a randomized sequence of emotional and calm pictures. Before, during and after stimulation electrodermal activity (EDA) was measured. A typical plot of the average EDA for the two types of stimuli is shown in the figure.



The two mean responses after the stimulus differ for the two conditions as expected. As can be seen however, the mean EDA preceding the exposure of an extreme picture also significantly differs from the mean EDA preceding a calm picture.

Several hypotheses for this anomaly have been explored. For example, the composition of a sequence of calm and extreme pictures preceding a particular stimulus may have an effect on the EDA preceding that particular stimulus. Such effects cannot be avoided when the relative frequencies of extreme and calm pictures differ. This explanation is reinforced by the finding in study 5 that the anomalous effect seems to disappear with an increase of the relative frequency of extreme pictures.

However, this latter explanation cannot account for the internal effects in the data. Most notably in study 5 the strongest effects are found for short stimuli exposure times (with the probability for short and long exposure each being 50% and the conditions adequately randomized). This finding is reminiscent of other findings in the psychology of cognition and emotion (1). Also different types of material like erotic versus violent, do elicit a different anticipatory response-pattern, i.e. the erotic material peaking just before the exposure starts while the EDA preceding violent material peaks 3 seconds earlier. These internal effects hold also in the condition where equal extreme and calm targets are used although then they are mostly confined to the first 10 trials.

Exploratory analyses were done in which for each extreme picture a calm picture was selected that matched this extreme picture with regard to sequential position. The results were similar to those obtained without this correction. This finding argues against the effect being due to a first order difference in compositions of stimulus sequences.

Whatever the cause for this anomalous effect, the effect is clearly relevant for paradigms that use measurements preceding the stimulus as a proper (stimulus-condition independent) baseline. If eventually the explanation of this effect turns out to be in terms of (very) subtle differences in sequences leading up to the critical stimulus, it seems that at minimum, standard randomization considerations do not adequately preclude sequential effects.

REFERENCES

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