

Ergonomie: Mensch - Produkt - Arbeit - Systeme

Band 9

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**Respiratory Responses to Visual and Acoustic
Stimuli From a Dimensional Perspective of Emotion**

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Gomez 3-8322-4143-4: Zusammenfassung für Werbemassnahmen

That respiration is profoundly connected with emotions is suggested by every day observation and speech. Panting in fear or sighing in melancholy are common occurrences, and expressions like "to be breathless with surprise" or "to heave a sigh of relief" clearly associate breathing with emotional states. Yet, contemporary research on the relation between emotions and respiration remains sparse, and knowledge concerning the types of patterns that may be observed under different emotional conditions is still lacking. In this book, I present three studies in which I investigated the relationships between subjective and respiratory responses to affective stimuli. To this end, I adopted a dimensional view of emotion, which assumes that the emotion experience is primarily organized around the affective dimensions of valence and arousal. Static pictures, environmental noises, musical passages, and film clips were chosen as emotion elicitors because of their significance in our daily life. Respiration was measured with a volume calibrated inductive plethysmograph. A detailed breathing analysis was conducted that included time, volume, and flow parameters, as well as a measure of the thoracic-abdominal balance. Skin conductance level, heart rate, and activity of the corrugator supercillii were also registered.

The breathing parameters significantly correlated with self-rated arousal much more often than with self-rated valence. When the relationship between a breathing parameter and arousal was obtained for two or more stimulus categories, the direction of the covariation was the same, whereas for valence, there were several relationships in opposite directions (e.g., mean inspiratory flow increased with increasing pleasantness while listening to music but decreased during picture viewing). In particular, minute ventilation increased across all four stimulus categories with arousal. This relationship was mainly achieved by a progressive shortening of the time parameters rather than an increase in inspiratory volume. No exclusively valence-dependent or arousal-dependent respiratory measure across the four stimulus categories was found. The findings, thus, indicate a central role of arousal in the respiratory response to affective stimuli and a more consistent and thus less stimulus-dependent variation of breathing along arousal than valence. They do not support the existence of a specific respiratory index of valence and arousal.

This research contributes to fill a gap in the emotion and psychophysiology literature by exploring how breathing reacts to affective stimuli. We think that there is some adaptive benefit conferred by the breath adjusting the way it does. Future research should establish the functional significance of the observed breathing patterns. By showing that respiratory responses to affective visual and acoustic stimuli are organized to a certain degree along the fundamental affective dimensions of valence and arousal, this book underscores the importance of including respiration in emotion research in order to better understand the connection between the subjective realm of the emotions and their neurophysiological substrate.