Preface

This interdisciplinary master thesis combines biological and psychological research. The study was implemented at the University of Würzburg in the Department of Psychology I (Biological Psychology, Clinical Psychology, and Psychotherapy).

Our department includes research groups focusing on experimental clinical psychology, affective neuroscience, clinical psychophysiology, imitation behavior, eating behavior, cardiopsychology and fMRI, associative learning and virtual reality research.

Our research tracks are two-fold: The biopsychological and experimental research addresses basic as well as application-oriented questions. The latter refers mainly to the field of clinical psychology.

One focus is directed towards emotional and motivational phenomena such as anxiety, pain, substance abuse, and addiction. Here, we examine the underlying behavioral and psychophysiological mechanisms in healthy and clinical samples using various study designs and methods. Furthermore, we investigate the physiological basis of social perception, verbal communication and interaction (Social Cognitive Neuroscience).

A very special methodological feature at our department is the research in virtual environments (computer simulations) in order to induce and measure affective states in humans. Within the applied research, we investigate the efficacy of exposure in virtual environments for the therapy of different phobias (flight phobia, tunnel phobia, spider phobia, height phobia, social phobia) as well as the essential components for treatment efficacy. In basic research we examine the psychophysiological and neuropsychological correlates of stress, fear and nausea. Dependent measures include beside subjective data physiological measures such as heart rate, skin conductance, facial muscle activity (EMG), blood pressure, respiration, and startle response. To measure brain activity we apply EEG and fMRI technology.

The study presented in this book combines the advantages of virtual reality and the research on neurophysiological and behavioral mechanisms of experimentally induced fear and anxiety. Eventually, the research will help to understand basic mechanisms in the development of fear and anxiety disorders.

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