

# The Relevance of Cardiac Interoceptive Awareness in Cognitive and Affective Facets of Body Experience

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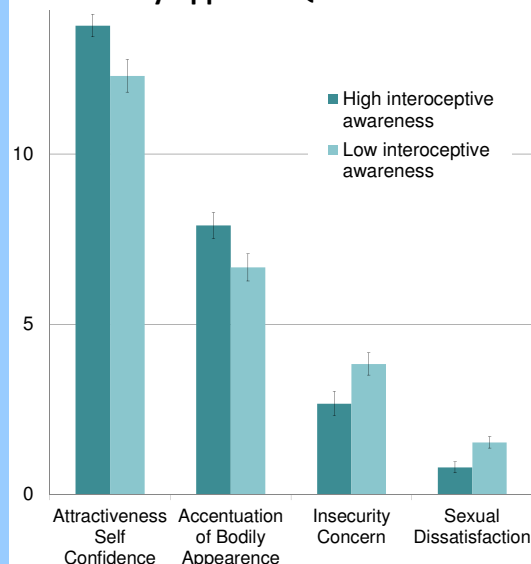
## Introduction

The perception of one's own body is an essential source of self-awareness and personal identity, and substantially contributes to the regulation of human behavior and maintenance of physical and mental health (Craig, 2010). The way we experience our body relies on signals arising within the body, as well as on exteroceptive information and their cognitive and affective appraisal (Tsakiris et al., 2011). The present study explores the impact of sensitivity to internal signals, i.e., interoceptive awareness, on interindividual differences in body image and body consciousness. Body image is defined as a multidimensional construct comprising sensations, cognitions, emotions and behavior related to one's own body and its functions. While private body consciousness involves subjective sensitivity to internal sensations, public body consciousness refers to observable aspects of the body, i.e., habitual focus on exterior physical appearance.

## Methods

Thirty subjects with accurate and 30 subjects with poor interoceptive awareness were classified via a heart-beat perception task (Schandry, 1981). During three intervals participants counted their perceived heartbeats ( $N_p$ ), while their actual heartbeats were recorded by ECG ( $N_a$ ). A heartbeat perception (HP) score was computed according to the formula  $HP = 1 - 1/3 (\sum |N_a - N_p| / N_a)$ , where high values indicate good accordance between subjectively perceived and actual heart-beats, i.e. high interoceptive awareness. Body experience was quantified using the Body Appraisal Inventory (Brähler et al., 2000) and the Body Consciousness Questionnaire (Miller et al., 1981).

## Body Appraisal Questionnaire



## Results

Study groups were compared using a MANOVA procedure, with the questionnaire scales as dependent variables. As can be seen in the figure, subjects with accurate interoceptive awareness scored higher on the Attractiveness Self Confidence and Accentuation of Bodily Appearance scales and lower on the Insecurity Concern and Sexual Dissatisfaction scales of the Body Appraisal Inventory. Furthermore, this group exhibited higher values on the Private Body Consciousness and Body Competence scales of the Body Consciousness Questionnaire (all  $p < .05$ ). The group difference did not reach significance for the Public Body Consciousness scale of the Body Consciousness Questionnaire.

## Discussion

Individuals with accurate cardiac interoceptive awareness exhibited higher subjective sensitivity to bodily sensations and a more positive body image, characterized by stronger body-related self-confidence, greater satisfaction with physical appearance, greater perceived bodily self-control, as well as reduced hypochondriacal concerns, sexual discontent and shame. The findings extend earlier research on the importance of perception of physical cues for emotion, cognition and behavior regulation (e.g., Pollatos et al., 2005, Werner et al., 2009). It has been claimed that neural representations of physiological conditions (somatic markers) evoke feeling states which in turn support cognition, decision-making and behavioral adjustment (Damasio, 2000). Individual differences in the accessibility of somatic markers (i.e., interoceptive awareness) may result in differential utilization of internal information thereby modulating human behavior. The present results suggest that central nervous feedback pertaining to bodily states may also affect cognitive and affective facets of body experience as a function of the accessibility of this information.

## References

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