

# [Body ownership](https://assignbuster.com/body-ownership/)

### Body Ownership

The sense of one’s own body has been a subject of debate among researchers for many years. It is argued to be a very specific type of knowledge, illustrated as being a non-conceptual and somatic (e. g., Kant, 1781/2003; Bermu´ dezas cited in Lango, et al., 2007). It has been argued that this type of knowledge, often referred to as ‘‘ embodiment” (Arzy, Overney, Landis, & Blanke, 2006), ‘‘ bodily self-consciousness” (Bermu´dez, 1998; Legrand, 2006), or ‘‘ corporeal awareness” (Berlucchi & Aglioti, 1997; Critchley, 1979) is compulsory, to experience various types of sensory information (Kant, 1781/2003; Johnson, 1987; Lakoff, 1987; Merleau-Ponty, 1945/1962; Piaget, 1937/1954 as cited in Lango, et al., 2007). In other words, one has to have some sort of knowledge of one’s own body in order to experience emotions and sensations. It has been argued that gaining this type of knowledge is crucial for formation of personal psychological identity (Cassam, 1997; Edelman, 2004).

Rubber hand illusion allows for the manipulating the brain into perceiving an external object- the rubber hand, as being a representation of the body (Tsakiris &Haggard, 2005).

Self awareness has been argued to be mostly represented by the sense of the body ownership. Moseley( et al., 2008) provoked the rubber hand illusion and demonstrated one of rubber hand illusion’s effects- taking ownership of an artificial counterpart- which leads to decrease in the temperature in the real hand. They found that this phenomenon was limb-specific, in other words similar effect have not been found to occur in the not stimulated hand. They argued that this is phenomenon is demonstrating that physical self and the physiological regulation of self are closely linked in the top down manner to an individual’s body awareness. It also seems likely that if body awareness is disrupted by cognitive processes, that might lead to changes in the body temperature regulations, in the rubber hand illusion case, making it decrease. This therefore leads to conclusion that if an individual’s starts perceiving and artificial body part it will have an effect on the rest of the body (Moseley, 2008).

Body ownership has been argued to be a sort of knowledge that that your body belongs to you, and is constantly there, is a basis for the aspect of self-awareness. Individuals suffering from for example schizophrenia, autism, epilepsy, neuropathic pain, anorexia nervosa, and bulimia have been found to have a disturbance in their body ownership. These disorders have also been found to have a connection to the disruption of the body temperature regulations (Moseley, 2008).

Moseley (et al., 2008) has demonstrated that such disruption in the body ownership can be a consequence of a Rubber Hand Illusion. RHI consequences in participant’s perception that the touch they are experiencing is actually an effect of the stimulation given to the rubber hand. That consequence in participant’s taking an ownership of the rubber hand. Additionally, Moseley (et al., 2008) found that there was a positive correlation between the vividness of the rubber hand illusion experience and the decrease in the skin temperature in the adequate hand. This suggests that the more an individual experiences the RHI the more will the temperature in their hand decrease.

The Rubber Hand Illusion has been argued to involve interaction between tactile, visual, and proprioceptive inputs to the brain. In this type of illusion, the tactile sensations are admitted to the rubber hand (Botvinick& Cohen, 1998)

Interception is a notion involving two different types of perception: the prioprioception, that is a perception sensitive to the signals gained from the skin as well as musculoskeletal apparatus; and the visceroceptoon, which mains focus are the signals originating from the inner organs (Vaitl, 1996). Interoception in therefore not only as study of heart and gastrointestinal regions and actions, but also respiratory, genitourinary and endocrine systems, as well as changes in chemical, osmotic and volume of tissue. It provides information about the state of the body that could have an influence on individuals on the psychological level, as they are related to the emotional experience , conscious awareness, and higher behaviour (Cameron, 2001). Awareness , on the other hand, can be described as knowledge of the fact of one’s existence(Craig, 2009). Interoceptive awareness can therefore be defined as an ability to experience and distinguish between individual sensations a person experiences (Critcheley et al.,, 1999). The concnept of interoception has been known for houndreds of years, In 1896, a physiologist, Sherrington, described the sensory nerve receptoprs responding to the stimuli from the body as “ interoceptors”.

These days, one of the most well known theories of the interoceptive processes, is the James-Lange theory of emotions. William James was one of the first psychologists and philosophers to argue that the viscer-afferent information, that is, the information gained from the central inner body organs, had a close realation to emotion experienced at that time (Pollatos, Herbert, Matthias& Schandry, 2006). Lange on the other hand, was a physiologist who studied the impact of the emotions on the changes occurring in vasomotor system, such as for example constricting and dilating of blood vessels (Cameron, 2001). Lange focused his theory on the idea that emotions are reactions to changes in vasomotor system per se ( Cameron, 2001). In their book, The Emotions (1922) they argue that an individual needs to be aware of the changes in their bodily signals to experience the emotions as sycg. In other words, the subject provoking emotions, is a direct reason for those changes and emotions are therefore simply our reaction to those changes. This theory became now one of the most influential theories on the way human perceive emotions(Benner& Hacker, 2005)

The other theory related to interoception is the one proposed by Damasio. In his perspective the more accurate individual is in perceiving their bodily signals, the more extreme emotions they expon, however some argue that this might erience (Pollatos et al., 2005)

There are some significant differences in the ability to perceive the interoceptive awareness. Research has established that women are worse at perceiving their heartbeat than men (Kollenbaum, 1990, Katkin et al., 1981 as cited in Vaitl, 1996). The same is true about other interoceptive activity awareness- women perform worse than men on tasks gastic motility, finger temperature, blood pressure, blood sugar level (Vaitl, 1996).

Additionally, research has suggested that younger people are better at perceiving their interoception, however some argue that this might be related to the fact that younger people usually have lower fat levels that people in the older age (Cameron, 2001).

Another, interpersonal difference in performance on the interoceptive tasks is defined by possible presence of any type of personality or mental disorder. It hs been found that individuals suffering from anxiety disorders and panic attacks are more likely to score superiorly high on the tasks testing sensitivity to interoceptive awareness (Critchley, WIens, Rotshtein, Ohman & Dolan, 2004; Ehlers et al., 2000). Opposite was found to hold true for individuals struggling with depression and somatoform (Mussgay et al., 1999). Other clinical issues have been shown to also affect the performance on the interoceptive awareness. Individuals suffering from different types of cardio-related disorders, such as for example, arrhytmias and benign palpitations (Ehlers et al., 2000 as cited in Pollatos at al., 2006) have been shown to performe worse than healthy controls on interoceptive awareness tasks (as measured by heartbeat count performance). The same is true for patients suffering from diabetic neuropathy (Leopold& Schandry, 2001).

Another important thing affecting the performance on the interoceptive task, is the position individual is in- the most inaccurate scores are obtained when an individual is stanind, and the most accurate when they are lying down. Suggested explanations for this phenomenon are the cardiodynamic changes occurring as a result of gravity (Cameron, 2001).

Additionally it has been suggested that the percentage of the fat in the body was also correlated to the performance on the heart beat tasks- the less fat content an individual had, the better he scored on the cardiac activity task (Jones, 1987 as cited in Vaitl, 1996).

One of the most extensively used methods for checking the ability individual to thed have to perceive their own interoception is related to the cardiac action. This includes the ability to detect single heart beats as well as changes in their heart beat per se. Methods allowing studying of cardiac action include the discrimination tasks, created to measure the ability to detect individual heart beats, as well as tracking techniques which were set to assess the ability to sense heart rate, by counting the by counting the heart beats during a certain period of time (Cameron, 2001).

Positive correlation between changes n the strength of emotions and the ability to detect changes occurring within the body has been found by Wiens et al. (2000). In the study, Wiens (et al., 2000) used visual stimuli to manipulate the motions a person was experiencing and assessed the interoceptive awareness by asking individuals to count their heart beats.

Similar study was conducted and reported by Pollatos, Gramman and Schandry (2006), where positive correlation was found between interoceptive awareness and the intensity of emotions experienced.