

On the continuity of our consciousness

A new concept based on recent scientific research
on near-death experiences in survivors of cardiac arrest.

Pim van Lommel, cardiologist

During the period of unconsciousness due to a life-threatening crisis like cardiac arrest patients may report the paradoxical occurrence of enhanced consciousness experienced in a dimension without our conventional concept of time and space, with cognitive functions, with emotions, with self-identity, with memories from early childhood and sometimes with (non-sensory) perception out and above their lifeless body. In three prospective studies with a total of 523 survivors of cardiac arrest between 11% and 18% of the patients reported a near-death experience (NDE), and in these studies it could not be shown that physiological, psychological, pharmacological or demographic factors could explain the cause and content of these experiences. Through many studies with induced cardiac arrest in both human and animal models cerebral function has been shown to be severely compromised during cardiac arrest, with complete cessation of cerebral flow, and electrical activity in both cerebral cortex and the deeper structures of the brain has been shown to be absent after a very short period of time (10-20 seconds). So we have to conclude that in cardiac arrest NDE is experienced during a transient loss of all functions of the cortex and of the brainstem. How could a clear consciousness outside one's body be experienced at the moment that the brain no longer functions during a period of clinical death, with a flat EEG? How is consciousness related to the integrity of brain function? And is there a start or an end to consciousness? Scientific study of NDE pushes us to the limits of our medical and neurophysiologic ideas about the range of human consciousness and mind-brain relation, because we have to admit that it is not possible to reduce consciousness to neural processes as conceived by contemporary neuroscience. It is still an unproven assumption that consciousness and memories "emerge" from brain function and are exclusively "localized" in the brain. Direct evidence of how neurons or neuronal networks could possibly produce the subjective essence of the mind and thoughts is currently lacking.

I will discuss new hypotheses that could explain the several universally reported elements of an NDE with non-local interconnected fields of consciousness. According to this concept we can conclude that our consciousness could be based on fields of information, consisting of waves, and that it originates in a higher dimensional phase-space. During life we can receive aspects of our consciousness into our body as our waking consciousness. During cardiac arrest the function of the brain stops and the interface between consciousness and the physical body is interrupted. As a result enhanced conscious experiences are reported independently of brain function. So a functioning brain could be compared with a computer which does not produce the internet, but only receives it. This concept is a complementary theory, like both the wave and particle aspects of light, and not a dualistic theory. The particle aspect, the physical aspect of consciousness in the material world, originates from the wave aspect of our consciousness from the phase-space by collapse of the wave function into particles ("objective reduction"), and can be measured by means of EEG, MRI, and PET scan. These fields of consciousness (waves) could be compared with gravitational fields, where only the physical effects can be measured, but the fields themselves are not directly demonstrable.

- Van Lommel P, Van Wees R, Meyers V, Elfferich I. Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *The Lancet* 2001; 358: 2039-2045.

- Van Lommel, P. About the Continuity of our Consciousness, *Adv Exp Med Biol*. 2004; 550: 115-132. [*Brain Death and Disorders of Consciousness*. Machado, C. and Shewmon, D.A., Eds. New York, Boston, Dordrecht, London, Moscow: Kluwer Academic/ Plenum Publishers]

- Van Lommel, P. Near-Death Experience, Consciousness and the Brain: A new concept about the continuity of our consciousness based on recent scientific research on near-death experience in survivors of cardiac arrest. *World Futures, The Journal of General Evolution*, 2006; 62: 134-151.