

# Neuroethics: Addressing the Ethical, Legal, Social, and Cultural Implications of Neurotechnology

## Wellness Preamble

Wellness is a modern word with ancient and wide-spread roots. The key tenets of wellness, as both preventive and holistic, draw from ancient civilizations from the East (India, China) to the West (Greece, Rome). In 19th-century Europe and the United States, a variety of intellectual, religious, and medical movements developed in parallel with conventional medicine. Wellness-focused and holistic modalities have gained more visibility since the 1960s and 1970s, and as these have evolved, proliferated, and gone mainstream, they have informed the healthy-living, self-help, self-care, fitness, nutrition, diet, and spiritual practices that have become a flourishing wellness movement in the 21st century.

Wellness can be thought of as an optimal state of physiological, social, and psychological existence. If health is considered a minimal state of warding off disease, wellness improves upon this concept by aiming to help people thrive as individuals and members of society. Wellness includes both emotional well-being (i.e., coping effectively with life and creating satisfying relationships) as well as physical well-being (i.e., recognizing the need for physical activity, healthy foods, and sleep).

Neurotechnologies in the wellness field are used to monitor, stimulate, and otherwise adjust the human brain and nervous system in order to help individuals achieve wellness goals, including relaxation, mindfulness, stress reduction, attention enhancement, and sleep, among others. In this document, we highlight a wide range of wellness neurotechnologies, with a focus on neurotechnologies which, from a regulatory point of view, do not make medically-recognized diagnostic or therapeutic claims, and as such are not regulated by the same mechanism used to manage medical neurotechnologies. Wellness neurotechnologies are generally available to individuals without a prescription, and are not necessarily monitored as part of clinician treatment practices. However, in some instances, there exists overlap between wellness and medical technologies, especially when wellness neurotechnologies exist as repurposed medical technologies; this document will focus only on the particular wellness application of such technologies.

The primary goal here is to consider the ethical, legal, social, and cultural implications (ELSCI) of neurotechnologies when used for wellness applications.