In 2014, researchers discovered that human beings can consciously control their autonomic nervous system and immune system by using a breathing technique (Kox et al., 2014). Prior to this study, the scientific community had believed it impossible to voluntarily control the nervous system (Kox et al., 2014). This study has successfully shattered that paradigm of thought and proved humans can in fact alter their biology at will. The applications of these findings can empower society in taking care of their health and promote a healthcare system that supports the autonomy of the population’s wellbeing. This paper will explore one of the pillars utilized in the study – breathing – and the role of design in facilitating the emergence of an autonomous healthcare system.

Respiration and the Chronic Disease Epidemic

Today, 45% of the American population suffer from at least one chronic disease – that is approximately 133 million people (Raghupathi & Raghupathi, 2018). Chronic disease can be defined as “a physical or mental health condition lasting longer than one year that causes functional restrictions or requires ongoing monitoring or treatment” (Raghupathi & Raghupathi, 2018, p. 1). It is estimated that a single US citizen spends $5,300 each year on their chronic condition, accounting for about 75% of total healthcare spending in the US (Raghupathi & Raghupathi, 2018).

The negligence of proper breathing mechanics has proved detrimental to the health of society as death rates from disease seem to increase each year – two of the leading causes being cardiovascular disease and respiratory disease (Ritchie & Roser, 2018). The first step in reversing the ill health of society is right under our noses. One must break the habit of poor breathing patterns and develop proper breathing mechanics if one wishes to prevent or reverse diseased states.

Konstantin Buteyko, a doctor in the World War 2 era, observed the breathing rate of his patients in relation to the severity of their illnesses. He later made a correlation between breathing rate and the severity of his patient’s conditions – the more frequent their respiratory rate, the more severe their illness tended to be (Buteyko Breathing Association). To counter the negative effects of over-breathing, Dr. Buteyko began studying many esoteric eastern texts, and derived a method called the Buteyko Breathing Technique (Buteyko Breathing Association). The main principles behind this technique is to breathe strictly using the nose and to use the diaphragm to reduce the depth and frequency of respiration – less is more.

Science Behind Respiration

A study conducted by Kox et al. (2014) observed two groups of healthy male volunteers in which the intervention group underwent 10 days of prior training in breathwork, meditation and cold exposure, while the control group received no training. Both groups were administered the Escherichia coli endotoxin, however only the intervention group were permitted to use breathing techniques, while the control group were not (Kox et al., 2014). Results showed that the intervention group were able to mitigate the flu-like symptoms resulting from the endotoxin, whereas the control group did not. According to the authors, the methods used in this study may prove an effective treatment for autoimmune disease (Kox et al., 2014) and chronic disease, due to their association with inflammation (Paccione & Jacobsen, 2019). Patrick McKeown (2015) describes the many benefits of nasal breathing and its applications in The Oxygen Advantage.
Nasal breathing protects the lungs from harmful pathogens and increases arterial oxygen uptake to help regulate pulmonary function (McKeown, 2015). These principles benefit not only diseased persons but can also aid healthy individuals. Individuals can mimic high altitude training and prepare for ascent to high altitudes by using breathing techniques outlined in The Oxygen Advantage (McKeown, 2015). Proper breathing mechanics will not only reduce the risk for disease, but also enhance mental and physical capabilities for its practitioners.

Dialogue Precedes Design
Social innovation can be defined as new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act. (The Young Foundation, 2012, p. 18).

Considering the significance of breathing principles discussed in this paper, individuals inherently possess the tools required to enhance their capacities to both heal and perform optimally. However, the lack of awareness and willingness to practise these breathing principles prevents society from improving their wellbeing. Therefore, introducing publics to proper breathing principles and facilitating environments that promote the practice of these principles are necessary to engage the inner healing capability of human beings. To combat the chronic disease epidemic of today, design concepts may play a crucial role in accelerating the population's rate of adoption of breathing principles. To make a scalable impact, designers must promote strategic dialogue, which is known as "a constant factor in the design process in which designers align with different actors for new ways of interacting and producing value within a community and its context" (Huybrechts et al., 2016, p. 101). This framework will allow designers to create value for given actors by tailoring breathing techniques to certain needs and interests. This will incentivize the population to adopt breathing principles willingly, thus at a more rapid rate.

XPT (a high-performance training organization) engages in a strategic dialogue between the athletic community and the scientific community to innovate novel training methods to optimize performance and longevity. By exploring various training modalities and the latest scientific research (potential interaction for actors), XPT can incorporate this knowledge into practices and workshops that educate clients in enhancing their performance, supporting recovery and increasing longevity (value produced). Through this process, XPT has created Performance Breathing™ exercises to improve cognitive and physical capacity, stress resilience and recovery to aid in overall performance (Hamilton, 2019). Due to the necessity of breathing, the principles naturally transfer over to breathing practice in the everyday life of its clients and can be used to regulate one's own physiology and health autonomously outside of training purposes.

In a world of technological abundance and the chronic disease epidemic, modern science is beginning to understand the powerful effects that a mundane activity – breathing – has on the human body. This wisdom remains esoteric however, which denies mainstream society of the knowledge and awareness required to reap its tremendous benefits to counter the detriments of the current healthcare system. Strategic dialogue is critical in curating and spreading awareness of this subject because the disparity in knowledge between experts and the average person regarding breathing principles is vast. However, even with the awareness of this knowledge, the population is generally reluctant to adopt new behaviours unless there is a clear incentive to do so. By aligning with various actors, designers will be able to produce value for their community by tailoring specialized breathing methods to their respective needs. Designing infrastructures that facilitate and incentivize the adoption of breathing principles will accelerate the rate at which society can autonomously govern its wellbeing by regulating one's breath.

References included at the end of the document
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References

Social Innovation of the Breath


