The Nutrition Academy

FUNDAMENTALS OF FUNCTIONAL NUTRITION COURSE

HISTORY OF NUTRITION
TRENDS

Module
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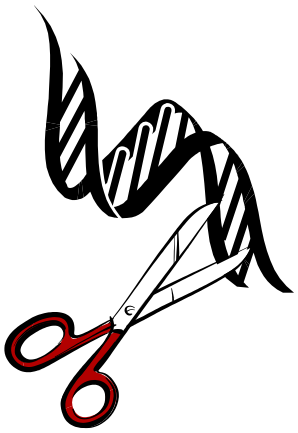


Vitalism

Scientists recently made a revolutionary breakthrough in being able to edit DNA. The ground-breaking technique enables scientists to snip out faulty DNA and replace it with the corrected DNA sequence in mice with a rare liver disorder. This recent study published in the prestigious *Nature Biotechnology* [1] offers the first evidence of being able to successfully reverse disease symptoms in animals.

Professor Daniel Anderson, the senior author of the paper commented:

"What's exciting about this approach is that we can actually correct a defective gene in a living adult animal."

What makes this discovery remarkable is the potential for this technique to treat a wide range of genetic disorders in humans. Since this discovery, researchers around the world are using this technique to create their own genetically modified cell lines. IVF doctors believe this technique can be used to prevent inherited disease in families.

Advances like this and others in the 21st century are dominated by understanding the mysteries of life. New scientific disciplines have emerged such as nanotechnology, bioinformatics, and molecular evolution that accept that the key to the "secrets of life" are characteristic to the chromosomes and the genetic material, DNA.

Reductionism: an approach to understanding the nature of complex things by reducing them to the interactions of their parts, or to simpler or more fundamental things

Indeed, the history of Western science has preoccupied itself with reducing nature to simpler components in order to understand them. This **reductionist** view in the biological sciences has made it possible to discover amazing insights into the vital processes of cells and organisms and has had a major influence on our health and wellbeing. Alongside this reductionist approach is a philosophy that has emerged based on living organisms as dynamic and complex systems that are essentially in flux with the environment on a scale that ranges from cellular to physiological, biographical, social, and cultural. This philosophy is **vitalism**.

Vitalism respects the complexity of living things while also recognising that there is an "**innate intelligence**" that is responsible for the organisation of the human body that keeps it functional [2].

Vitalism: a brief historical perspective

Numerous primitive and more developed societies have for centuries believed in a vital force or energy permeating the universe. It was thought that this vital life force was essential for all living things for health and life. To the Hindus it is called *prana*, to the Chinese *qi*, to the Japanese *ki*, and to the Hawaiians, *Mana*. Hippocrates referred to it as *Vis Medicatrix Naturae*, and Galen called it Pneuma [3]. Galen suggested that blood vessels carried air to the heart where it was then converted to "vital spirits" or *Pneuma* that was sent to the rest of the body. Aristotle (384 – 322 BC) is often credited with the first formal expression of vitalism and established four principles of vitalistic tradition [3]:

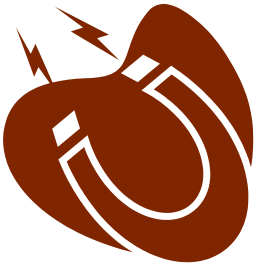
1) That the life of an organism and its psyche are intertwined.
2) The organism has purposive activity.
3) There is organic unity (the idea that a specific thing is made up of independent parts, for example, a body is made up of its constituent organs).
4) Embryological development (where the brain is the very first organ to develop and sends creative power to every cell in the body, and therefore controls all healing processes).

Aristotle thought that there was a hierarchy of self-organisation where inorganic matter was at the lowest level of self-organisation, organic matter in plants has higher levels of self-organisation, animals still higher, human beings still higher, and immortals the highest [4].

The Catholic theologian, St. Thomas Aquinas (1224-1274), provided the first amendment to Aristotle's ideas on vitalism [3]. Aquinas recognised the importance of the five senses and that "A human being is an animated body in which the psychic principle (anima) is distinctive of the species and determines that the material is human; man's soul in his substantial form."

Centuries following Aristotle saw the emergence of the shaman, a village leader who served as a healer, priest, and a wise man. The shaman would treat a patient's illness using supernatural methods and rituals. The success of the shaman depended on suggested therapy and the fact that many of the

illnesses healed naturally in an environment that was supportive and closely monitored [3].



In 1766, F.A. Mesmer proposed that a fluid or force existed that filled the whole universe but was concentrated in magnets and in an animal's nervous system [3]. He thought that the planets and stars produced fluctuations in cosmic body fluid that led to disease. Moreover, a therapist's hand, or a magnet passing over the affected area would calm these cosmic fluctuations and heal the patient. Various forms of magnetism and healing fluctuated throughout much of the 19th century and components of this practice branched out into hypnotism.

The 19th century also saw the emergence of dowsing (water witching). This relied on the use of a pendulum to find water or to diagnose and treat disease. It was thought that all matter radiated at specific wavelengths and living things in particular emitted energy at wavelengths and intensities that were indicative of their state of health [3,5].

Thus, by the early 19th century, views on the nature of living things were divided into two categories: **chemical** and **vitalist**. The chemical view held that life was a consequence of complex, but ultimately comprehensible physicochemical processes. In contrast, the vitalist view hypothesised that some unnatural, conceivably unknowable properties of living systems existed that could not be explained by conventional science.

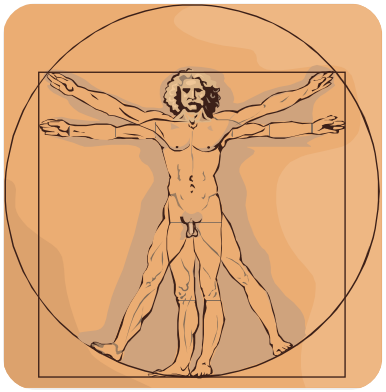
By the turn of the 20th century the properties and biological mechanisms of living systems were more evident than ever and vitalism was no longer suggested to explain them. At the end of the 20th century genetics was a major theme in critical thought among biologists who explained the role for DNA as the "blueprint" for life [6].

This might be a good time to pause and evaluate where we are.

The historical account of vitalism is covered only briefly here. However, it is important to note that vitalism and reductionism overlapped for many years before advances in technology allowed scientists to test ideas and theories. To further your knowledge on vitalism some suggested readings are given: **Bruce Lipton**: the biology of belief, ISBN: 0-9759914-7-7 and **Sarah Farrant**: the vital truth, ISBN: 978-0-9803185-0-0.

The biological age and human sciences

The history of the biological sciences has been profoundly shaped by the dispute between vitalism and reductionism [7]. While the life sciences reductionist practices analyse individual components of an organism to understand the whole system, vitalism supports the hypothesis that an organism is an emergent, dynamic, and complex system that has an innate ability to self-regulate and self-heal itself. Thus, the focus of vitality of the living human organism emphasises life and human vitality. That is, human rights to life, the equality of all humans as specific kinds of living creatures, the value of life, the future of life, and what can be done to help the lives of others.



These characteristics of life and human vitality have therefore provided a sense of direction and purpose of our role in society. Rose (2013)[6] suggests that this is because in the face of ecological and environmental uncertainty, our sense of precariousness as a species is being threatened and challenged. Rose also notes that in this biological age, contemporary biology does offer the opportunity for a new relationship between the human sciences (e.g. vitality) and the life sciences. For example, in the life sciences, the advances in genetics and our understanding of the cell, and the use of animal models to understand disease pathologies and evolution processes reveals multiple affinities between humans and other organisms. Yet alongside this reductionism the emergence of the vitalistic properties of living organisms has taken place where organisms exist in an environment that ranges in scales from intracellular to the psychological, biographical, social, and cultural [6].

Accordingly, these thought processes of vitalism find themselves wedged into novel **biopolitics** (politics of biology) of which needs to address a common problem associated with the biological sciences, that is, to deem something biological is not to assert all events of biology to fatalism, but provide an opportunity to understand life [6]. On one hand, vitalistic proponents must recognise how the philosophies of biology operate and to engage with the sciences to help address local, national, and global inequities. On the other hand, reductionists must move beyond description and develop a positive affiliation to the new ways of understanding the dynamic relationships between the vital and the environment [6].

Summary

We as humans have lost some of our connections to the vitalistic world. We understand ourselves in the language of biopharmaceuticals; we perceive ourselves based on what the experts' suggest is normal; we utilise expensive drugs to regulate our body and mind based on the beliefs of experts; we replace our worn out hips and knees; we use the internet to self-diagnose disease, and we have personalised genomic testing to test for disease susceptibility genes, etc. [2,6]. Undeniably, there is an enormous volume of books in popular science speculating about how to control everything from aging, disease, and death. This is fictional of course, the more we think we know, the less we do know. In the context of human vitality, the idea that all living things can be understood as biological beings (that their nature is not a matter of mystery, but of biological mechanism) remains part of our contemporary biology and current ideologies.

References

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