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Editorial

THE LIFE STORY OF KONRAD LORENZ (1903–1989) — PHYSICIAN, ZOOLOGIST, FOUNDER OF ETHOLOGY, UNCONVENTIONAL SCIENTIST AND PHILOSOPHER, AND NOBEL PRIZE WINNER

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Konrad Lorenz is considered the founder of ethology, the biological science that deals with animal behaviour, noting ontogenetic and phylogenetic development, innate and acquired behaviour, behavioural patterns, and the importance of specific behavioural patterns for the survival of a given species. Lorenz's research on the behaviour of wild geese, wolves, and fish influenced not only the natural sciences but also the humanities – especially sociology and ethics.

Konrad Lorenz's importance for medicine and paediatrics lies primarily in the fact that he was the first to describe "imprinting". He demonstrated this phenomenon in experiments with animals, initially with geese. In doing so, he discovered that in specific early periods of an individual's development, a significant stimulus, even if limited in time, can lead to significant behavioural changes in the individual's further development. This imprinting can program behavioural patterns and physiological functions in the individual's brain, extending into adulthood. Lorenz experimented with geese, and in domestic breeding he found that the first contact of a gosling with a subject immediately after hatching is imprinted in its brain and can have a long-term impact until adulthood. For example, if the first subject after hatching was Lorenz himself, the goslings considered him their "mother goose". When Lorenz was asked why he experimented with birds and not dogs, he replied that a dog is too complex an animal. In contrast, a bird does not learn any new movements, but only uses instinctive, innate patterns of behaviour.

Another area of Konrad Lorenz's research was domestication; the objects of study were the hybrids of wild and domestic geese. Differences were found between the social and sexual behaviour of domesticated and wild geese. The conclusions of these studies showed that wild birds instinctively have more pronounced and advantageous social and sexual behaviour. The explanation is that they must be constantly active when seeking food for their young and themselves. Another important fact is that they have better opportunities to mate. Domestication leads not only to changes in behaviour but also to changes in the central nervous system, which may be accompanied by the risk of degeneration. Lorenz based his reasoning on the fact that the domestication of animals profoundly affects not only their morphological body structure, but also their behaviour. In domesticated (or even briefly captive) animals, the brain volume decreases by up to 20%, and food intake and fat deposition increase uncontrollably, causing circulatory diseases and high blood pressure. Domesticated animals lose many important manifestations for maintaining fitness in wild animals. In sexual life, the so-called courtship, in which the female assesses the fitness of her partner, has completely disappeared. Ultimately, this can lead to gradual degeneration. Lorenz tried in vain to explain his reasoning to sociologists and psychologists. At the end of his life, he published the book

The Dying of Humanity (1983), in which he provided many other examples and evidence for his claims, i.e., if food intake and thus fat deposition increase, circulatory diseases and high blood pressure appear.

In 1973, he received the Nobel Prize in Physiology and Medicine. The prize was shared between three researchers in animal behaviour, i.e., ethology. These three are considered the founders of this field. The most famous was Konrad Lorenz, with whom Karl von Frisch received the prize (he described in detail the communication in bees, especially the so-called "bee dance", by which worker bees communicate information to each other about the location of a food source relative to the hive, according to which they can find food). The Dutch biologist, ethologist, and ornithologist Nikolaas Tinbergen experimented with imitations with seagulls. He described so-called supranormal stimuli, which provoke a stronger reaction than normal stimuli. He also conducted experiments with sticklebacks, popular aquarium fish.

Although the conclusions of these three researchers concerned birds, fish, and insects, many of their ideas later found application in the study of human behaviour.

The importance of imprinting and programming for medicine was later demonstrated by two doctors in their research:

David Barker (1938–2013) was a British epidemiologist. He examined large cohorts of individuals with low birth weight for many decades from birth to adulthood. It turned out that low birth weight was significantly associated with an increased incidence of cardiovascular diseases and their complications in adulthood. The later incidence of metabolic syndrome with obesity, hyperlipidaemia, and diabetes increases. It was also shown that imprinting and programming are manifested postnatally. An example can be that children with low birth weight who are fed a high-calorie diet with an ample supply of protein in the first months of life suffer from rapid weight gain and the risk of programming later obesity and hypertension. From a practical point of view, efforts to quickly "catch up" on weight, especially in children with very low birth weight, may be counterproductive (Barker, 1995; Lind et al., 2017).

Barry Brenner (1937–2024) was a world-renowned American nephrologist who significantly influenced research into the anatomy and function of the kidneys, specifically regarding glomerular filtration and the tubular system. He showed that a decrease in kidney volume is accompanied by increased glomerular filtration. He demonstrated imprinting and programming in premature babies, especially those with low birth weights (≤ 1,000 grams). Such premature babies are born with a smaller kidney volume and a significantly lower number of nephrons/glomeruli. After birth, with a few exceptions, additional nephrons and glomeruli are not formed. As a result, at normal blood pressure, hyperfiltration occurs at the level of the glomeruli, accompanied by proteinuria, hypertension, and later an increased risk of glomerulosclerosis with reduced glomerular filtration and subsequent renal dysfunction, up to their failure (Litwin, 2024; Remuzzi, 2025).

Konrad Lorenz's most famous publication is certainly 'The Eight Deadly Sins of Civilisation', published in 1973. The author considers the eight deadly sins that modern man commits (and which may become the cause of his future downfall) to be: overpopulation of the earth, destruction of the environment, man's race with himself, loss of the ability to experience emotions, genetic decline, breaking with tradition, the growing tendency of humanity to believe in various doctrines, and continued armament with the risk of the real use of nuclear weapons. Lorenz warns against overpopulation (at the time of the first publication of the work, the world population was approximately 4 billion; recently, it has doubled). The author points out that people are increasingly trying to avoid situations that are unpleasant to them, which gradually leads to softening. He warns against the devastation of the environment, the extinction of emotions and other dangerous trends. "Humanity is racing against itself and is also facing the threat of nuclear weapons." We can say today that the ideas in his work were visionary. We face the consequences every day, and these are situations that can result in an immediate threat to the existence of humanity. Although the book was published in 1973, it is clear that the sins of civilisation are still relevant. All tech-

nological and scientific advances should make human life easier, but they seem to be preparing us for a very complicated future. Lorenz states that "the greater the overpopulation, the easier it is for individuals to lose emotional involvement, and so today, in cities, there are robberies, murders and rapes in broad daylight on busy streets, without passers-by intervening. Cramming many people into a space leads to dehumanisation, the loss of typically human qualities, but also to aggression, a worse climate, a greater incidence of bullying, truancy, and other risky phenomena". In addition, he could not yet have guessed what life on social networks would mean, not to mention the risks associated with the development of artificial intelligence. For now, long-term ongoing military conflicts with the risk of nuclear weapons are sufficient.

Konrad Lorenz was born in 1903 in Altenberg, near Vienna, into a family with a medical tradition. He showed an interest in biology and animal behaviour from an early age, which later led him to study medicine and biology. He received his doctorate in medicine in 1928 and subsequently began to devote himself more to the study of ethology. His early work focused on bird behaviour and a phenomenon called "imprinting".

In 1940, Lorenz joined the German army and, within two months, was captured by the Russians, where he spent several years in prison camps. After the war, he returned to Austria and continued his scientific career, focusing mainly on the behaviour of fish, birds, and mammals. In the 1950s and 1960s, he broadened his scope and began to focus more on human behaviour and psychology, which brought him wide recognition and criticism.

Konrad Lorenz was not only a scientist but also a passionate writer and populariser of science. His books have been translated into many languages and have influenced scientific and broad public circles. His works often touch on ethical and philosophical themes, reflecting on the relationship between man and nature. Lorenz died in 1989, but his legacy and influence on the scientific community remain strong.

REFERENCES

1. Barker DJ (1995). Fetal origins of coronary heart disease. BMJ 311(6998): 171–174. DOI: 10.1136/bmj.311.6998.171.
2. Lind MV, Larnkjær A, Mølgaard C, Michaelsen KF (2017). Dietary protein intake and quality in early life: Impact on growth and obesity. Curr Opin Clin Nutr Metab Care 20(1): 71–76. DOI: 10.1097/MCO.0000000000000338.
3. Litwin M (2024). Pathophysiology of primary hypertension in children and adolescents. Pediatr Nephrol 39(6): 1725–1737. DOI: 10.1007/s00467-023-06142-2.
4. Remuzzi G (2025). Celebrating the life and scientific contributions of Barry Brenner in nephrology. Nephrol Dial Transplant 3(40): 409–411. DOI: 10.1093/ndt/gfae206.

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