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Human development XXII: Holistic therapy induces Antonovsky salutogenesis and spontaneous healing and recovery. Human genes for metamorphosis might control salutogenesis. If the expression of such genes are controlled by our (sub)consciousness this explains the placebo effect and possibly also spontaneous remission from cancer

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Abstract

The spontaneous healing and recovery (salutogenesis) of patients have been observed by many physicians and medical researchers. Often the patients spontaneous healing from metastatic cancer, schizophrenia and other "incurable" diseases was induced by loving care combined with the patient's deep, existential self-exploration. In this article we present our final contribution to a psychobiological theory we hope can explain the power of salutogenesis: the (sub)conscious control of master genes (and protein transcription) related to metamorphosis. We document the evolutionary connection between genes and proteins involved in insect and amphibian metamorphosis and human embryonic development (ontogenesis), and hypothesize that these may be responsible also for spontaneous self-healing in humans. Some of these genes and proteins imply a genetic master control that is similar in most organisms. We believe that a link between such genes and self-recovery exists in all organisms from bacteria to humans. Aaron Antonovsky (1923-1994) discovered that salutogenesis could be induced by recovering the patient's sense of coherence (SOC) and we have seen several clinical examples of how SOC is followed by spontaneous recovery from physical and mental disease i.e. spontaneous remission of cancer. Philosophy of life, personality, character, purpose of life, self-esteem, quality of life, self-evaluated mental and physical health and ability to express and use personal talents seems to be radically improved, and soon after this we see the objective recovery. One such case with spontaneous healing from cancer after clinical holistic therapy documented through PET-scan and CT-scan is presented. Salutogenesis might be controlled by the human genes for metamorphosis; if such genes are controlled by our (sub)consciousness this could explain the often-dramatic placebo effect used for cure in clinical holistic medicine and CAM.

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Introduction

Spontaneous remission from cancer and other health conditions often happens, when quality of life is radically improved (1) and spontaneous recovery from schizophrenia can some time happen, when the patient for example meets a partner, finds love and improvement in quality of life (QOL) (2). Such phenomena are only a few examples of what is now called spontaneous healing (salutogenesis) and spontaneous remission and it has to this day defied scientific explanation. During the last decade our research team has studied quality of life and its relation to health and ability and recently we concluded an analysis of several large population studies conducted at the Quality of Life Research Center in Copenhagen, that consciousness - more specifically our positive or negative attitudes towards life, self and the world - seems to determine a person's level of health, QOL and ability (3). Using this understanding we have supported a number of patients in developing their consciousness and it seems that we have been able to induce spontaneous healing and even spontaneous recovery of cancer (4,5), mental illness (6,7), including schizophrenia (8).

Spontaneous self-recovery and human metamorphosis

In our research we have been using a combination of the most efficient therapeutic techniques known today from bodywork, psychotherapy, scientific CAM, and life-philosophical intervention strategies (9-31). The purpose has been to recover the patient's sense of coherence (SOC) according to the idea of Aaron Antonovsky (1923-1994), who found SOC crucial for inducing salutogenesis (32-37). Surprisingly some of our patients, using such techniques, have been able to go into such deep personal transformations that not only their minds, but also their bodies have started to change, reshape and heal (38).

The new matter of personal transformation we have observed is so radical that we have named it "adult human metamorphosis", because this is exactly what it looks like (see figure 1) (39-41). The typical patient has often been arrested in psychosexual development, and presents him- or more often herself in an immature, irresponsible and often physically unappealing and even repelling way. Not only the body is sick or disproportioned in these patients, but also their feelings, mind, spirit, sexuality, and their ability to love themselves and others.

Many aspects of their human nature are still in a juvenile state in spite of their adult age, very much like a butterfly's larva that does not change shape, but stays in its early juvenile form, until the day it finally transforms into a pupa, and all the organs and characteristics of the larva melts down to allow the adult animal to appear. In a similar fashion the patient melts down in the therapeutic healing crisis we call "metamorphosis" (39-41) and the person let go of all mental and behavioural patterns and turns completely introvert. During the next days or weeks the patient enter what looks somewhat like a psychosis, with very little verbal capacity, disorganised thinking and very little ability; the patient is keeping control of reality so technically he/she is not psychotic in spite of the symbolic and often strange content of the consciousness (the "reality check" is preserved). Some patients are only a little disintegrated, while others are completely absorbed in the human transition from their old version of themselves to the new and improved one.

In the middle of the treatment process a new purpose of life appears (42-46) and the patients normally experience extreme hope for the future and joy. After this important event the patien starts to reorganise his/her mind and a series of new thoughts and behavioural patterns seem to be recruited from a purely internal source, as in a dreamlike state. When the patient's consciousness and whole existence is finally reorganised and solid, he or she again turns outwards, re-appearing in the world as a complete new person.

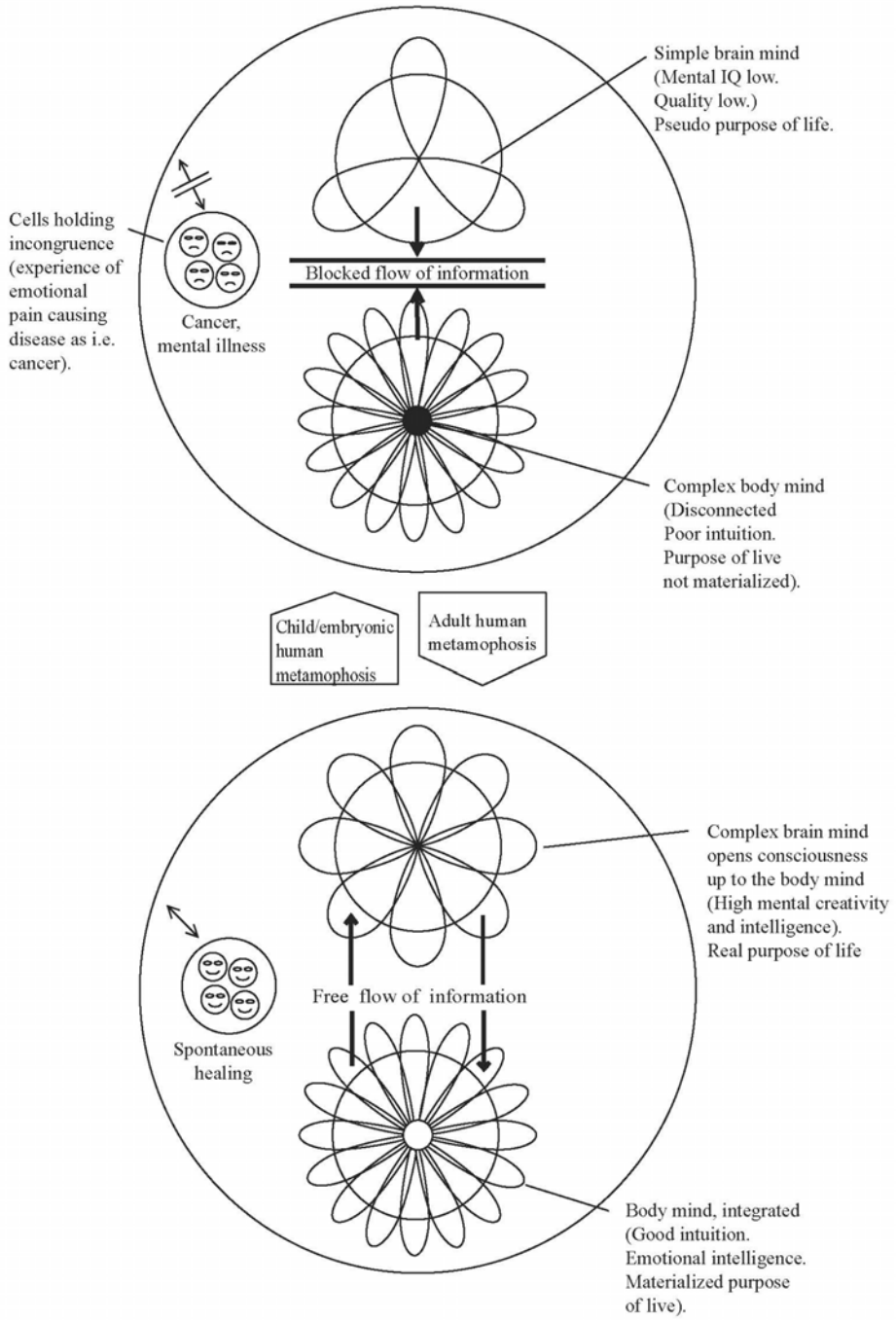

Figure 1.

Philosophy of life, personality, character (45), purpose of life, self-esteem, quality of life (47), self-evaluated mental and physical health and ability to express and use personal talents (43) seem to be radically improved. What really happened seems to be the patient regaining coherence between life inside and the world outside - what we normally call existential coherence. In a process similar to a butterfly's metamorphosis from larva to adult individual, the patient goes from an arrested, immature state of being to an adult, mature state. In the most radical of processes, which seem to actually show the essence of the process of spontaneous healing, the process reveals itself as exactly that: adult human metamorphosis.

We believe that humans, like many other vertebrates, have kept the ability to go though metamorphosis. In fact we think that metamorphosis is an evolutionary event (48) and that human metamorphosis is controlled by our (sub)consciousness. We believe the process to be not only similar, but biologically identical to the metamorphosis we see in so many other animal species. A proof of that seems to be that not only mind and experience of life, but also often the physical body and its whole "energy" is being transformed. We have seen a number of times that female breasts, which stopped their growth early in puberty started to grow again, the labia minora of the female vulva have reshaped and grown smaller much to the patients surprise and satisfaction. We have seen female hips, thighs, and abdomens having reshaped into much more adult and sexually mature forms in this process. We have even seen a jaw reshape correcting very bad teeth during intensive healing sessions. Many therapists working with clinical holistic medicine have seen these shifts in body shape, and what we have witnessed is very surprising to us as we normally consider the body as a highly stable and conservative structure. Much more research with video documentation is needed to establish the biological limits of human body-reshaping during the process of salutogenesis.

So it seems that the pattern of adult human metamorphosis we have found might be a key to understanding the biology of spontaneous healing (salutogenesis). In this deepest and most radical of the processes the patient abandons completely the backbone of the mind in order to find the purpose of life (42-46). When we in early childhood are deeply traumatised i.e. by violence or sexual abuse we sometimes give up on our primary purpose of life and reorganise our existence and consciousness around a second less difficult and more manageable purpose of life (42). This transformation might even correspond to a different evolutionary strategy than Darwin's "bottom-up" theory of natural selection that could be called "metamorphous top down" evolution using consciousness as a vehicle for evolution (49).

A case story

The patient was a 45-year-old male Caucasian. He started in clinical holistic therapy (5) the very same day he was diagnosed with non-Hodgkin B-Lymphoma. His Ultrasound and CT-scan showed retroperitoneal tumors and his needle biopsy showed highly pathological cells (T06002 (marrow from crista,) M96003 (malignant lymphoma), M96103 (B-Lymphoma), P30990 (needle biopsy) P3A070 (enzyme histochemical examination) P3B000 (immune histochemical examination). He was in a very poor condition clinically, unable to work, unable to sleep due to constant fever, his self-assessed quality of life was low, his self-assessed mental health was low and he had severe problems with his partner including sexual problems. He was completely caught in the dark side and was tormented by the most evil obsessive fantasies about cutting a woman into pieces with a sharp knife. Every relation he has to other people seemed to be bad and he had big problems relating to self and to the surrounding world. He was most definitely low in his *sense of coherence*. The therapy focused on helping him back into contact with his self and other people. It took three month of intensive therapy to make this happen. He entered a huge personal crisis, where he mentally returned to childhood, cried constantly for a period of time as he re-experienced how he as a child was treated badly by both his father and mother. During the therapy he confronted his childhood reality and learned how he took all his parent's problems in (called "introjections" in the therapy) and since then lived from that crippled existential position, spoiling his life for so many years. This process is called "spontaneous regression" in clinical holistic medicine and it happens when a patient who intents to heal finally gets the resources necessary for the healing process. After the healing crisis (metamorphosis) he felt better, not feeling sick anymore and started quite suddenly to work again.

In the meantime the medical center established his exact diagnosis and had the chemotherapeutic treatment ready and he just needed a final check up to establish the tumor burden and exact health status before initiating the treatment. But the scan now was normal and the patient told us that the hospital doctor made a big cry out of surprise and could not believe

that the patient's cancer had suddenly gone. The PET scan showed normal conditions of the metabolism and no area suspected for cancer. The conclusion from the diagnostic consultant reads: "Compared with the earlier CT scan (three month earlier) there is significant remission of earlier seen pathologically enlarged retro peritoneal lymphatic glands. No sign of changes due to malignancy. The CT-Scan shows complete remission of the retroperitoneal tumors found before".

The patient continued follow-up at the medical center, but the cancer did not reappear. Most interestingly the patient told the holistic therapist (SV) at that point that he now had gotten a completely new life – "as if he was part of a completely new movie". Now he was able to love and be close and intimate to other people. He was happy with his girlfriend – whom he hated before and wanted to separate from. He felt good about himself and at home in the world.

Self-healing as evolutionary basis for metamorphosis

The ability for self-healing (spontaneous salutogenesis) has presumably been necessary for survival all the way back to the bacteria; the eucariote cell has a well-known, quite extreme capacity for self-healing. During mitosis, if one of the microtubules that fixate the chromosomes is cut with a laser beam, the mitosis is completely arrested, and the cell enters a phase of spontaneous self-healing, identifying and repairing the destroyed molecule. First when the fibre is regenerated the mitosis will continue as reported by Henrik Flyvbjerg and co-workers (50). This ability to heal and recruit the biological information necessary for re-establishing the cell is also known in sponges, where the disorganisation of cells leads to a healing phase and the biological information of the form of the sponge is recruited. If the ability to self-heal presumably is a genetically programmed faculty originating from some of the most primitive organisms, the bacteria, it is easy to imagine the ability to recruit more complex packages of biological information allowing complete reorganisation and metamorphosis built on these early genes. Interestingly it seems that there are some genes that might be responsible for such functions even in the cyanobacteria (51). The transcriptional feedback loop's main-regulatory clock proteins of circadian rhythms are identified through evolution from cyanobacteria to humans. This implies a main-genetic control, similar in most organisms from bacteria to humans (51).

Genes and proteins possibly involved in human metamorphosis

We propose that genes involved in metamorphosis of animals (such as the butterfly caterpillar transformation to butterfly and the amphibian *Xenopus laevis* transformation from tadpole to toad) are also involved in human metamorphosis. This could be the master genes, such as the huge amounts of homeobox master genes known to participate in development and metamorphosis in insects and animals throughout the evolution (52), which are also involved in human development (53). The homeobox transcription factors are essential for the embryogenesis and thought to manage the regenerative cell differentiation in organisms (54).

The *Drosophila* homeobox genes are essential for metamorphosis in *Drosophila* and they are conserved through the animal evolution (55). We think that the homeobox genes and other master genes could be important candidates for mastering the development of human morphogenesis. For instance the *MyoD* family of genes include master regulatory E-box binding proteins able to convert a fibroblast to a myoblast (56). When the *MyoD1* is expressed in high concentrations in fibroblasts, these are able to subvert the gene control and convert to a muscle cell (57). MyoD transcription factors play a main role in human myoblast differentiation (56). In *Drosophila* a member of the *myoD* family, *Nautilus*, is involved in muscle differentiation of embryos (58). Proteins such as E-box and related master regulatory proteins are involved in the control of regulatory feed back loops of circadian rhythms through evolution, from cyanobacteria to humans (51). Haudin concluded: "Sequence comparisons reveal that oscillator components are not well conserved between animals, plants, fungi, and bacteria. Nevertheless, the mechanism underlying circadian oscillator functions has been conserved throughout phylogeny as one or

more molecular feedback loops in gene expression". Other regulatory master genes as the *Drosophila eyeless* gene (a *Pax6* gene), that today make a model system in defining the multistage roles of the *Pax6* gene in eye and olfactory development throughout evolution (59) has a human pendant, *Aniridia* (60). We think that such master regulatory genes and master regulatory proteins could play an important role in human metamorphosis (48).

Also Amphibians have master regulatory genes and proteins evolutionarily related to human equivalents. The thyroid hormone receptors (TRs) functions as master control factors in amphibians and humans (61). The amphibian metamorphosis depends on thyroid hormones (THs) and TRs. The TRs are able to repress or activate gene activation when ligands bind (62). This regulation is dependent on the presence of co-repressors and co-activators – as e.g. the steroid receptor co-activator family (SRCs). E.g. SRC3 is shown to be involved in a gene/tissue specific development interacting with TR during tadpole metamorphosis (63) – in the presence or absence of THs. The TRs are also expressed during human development (64).

In amphibians the TH family T1-4 induces gene expression during transformation and metamorphosis (63,65). In humans T1-3 are active, T1 in various tissues and T3 in liver and HeLa cells. The human thyroid hormones are present through endogenous development of the human fetus (64).

The SRC family SRC1/SRC2/SRC3 is traditionally co-activating hormones involved in development. In amphibians their genes function as adaptors to recruit other co-activators such as e.g. p300/CPB (64). The *SRC3* gene is expressed in all analysed tadpole organs that undergo extensive transformation through amphibian metamorphosis (63,65). In humans the *SRC1-3* genes function as a co-activator for nuclear receptor mediated transcriptional activation involved in gene regulation see (66,67).

Another family of mastering genes involved in human development and amphibian metamorphosis are the genes coding for the aryl hydrocarbon receptor nuclear translocators ARNT1 and ARNT2, transcription factors mediating the cellular response to various developmental signals in humans and amphibians (68,69).

In humans, master genes as *T-bet*, *GATA-3* and *Foxp3* control the immune response. These genes are master regulators of the T cells (70,71). Such regulatory master genes could be activated during human metamorphosis through spontaneous self-healing. In this way the immune system could be triggered to attack aggressive cancer cells resulting in spontaneous healing. In the same way, master genes that control the brain development as the *Hox* genes, and others, could gain the recovery from schizophrenia. *Hox* genes are homeobox genes preserved through animal evolution and found in most animals controlling development of body and central nervous system (72-74).

The participation of such master genes and proteins in development and morphogenesis through the evolution makes the hypothesis of human metamorphosis very likely, because these could be linked to direction of subconscious spontaneous self-healing in human beings through regulation of all genes needed for spontaneous self-recovery in any cases such as hormone genes, hormone receptor genes, and all other genes needed for development and metamorphosis.

To gain control over master genes and proteins, and the process of cell division, it is necessary to be able to control the DNA and other cell structures important for cell segregation through the cell division in order to unwind and supercoil areas of the DNA for the accessibility of single stranded DNA and DNA replication. These processes are directed by the helicases that unwind stable duplex DNA (75) and the topoisomereses that supercoil the DNA to gain stable duplex DNA (76). Furthermore the main proteins for chromosome segregation SMC-containing cohesin, condensin, APC/C ubiquitin ligase, securin-separase complex, kinetochore microtubule destabilizers or regulators (77) are important for gaining control over the process of cell segregation, and thereby metamorphosis. These main proteins, and others, of cell control play a very important role in most aspects of nucleic acid metabolism and cell division (75-77). Thus, it is easy to recognize that metamorphosis is a very complicated process that includes a lot of coordination through regeneration and self-recovery all necessary to be able to gain control over the process of metamorphosis.

Of course all the regulatory master genes and proteins presented in this paper are only examples of genes and proteins possibly involved in human metamorphosis. Lots of other genes and proteins could likewise be candidates, but we have chosen only to give some examples in this paper, in order to illustrate the possibility of this hypothesis and to explain these phenomena. We believe that a human metamorphosis can take place corresponding to the metamorphosis of a tadpole to a toad, a metamorphosis involving spontaneous self-healing of human beings through (sub)conscious control of master genes.

Conclusions

We have observed a new pattern of intense spontaneous, existential healing (salutogenesis) in humans with so many similarities to the metamorphosis of animals, that we expect that we have observed adult human metamorphosis. The global transformation of body and mind is so radical that it seems to be able to explain even spontaneous remission of cancer and recovery in schizophrenia. We suggest that the phenomenon has a genetic basis in the many master genes and genes coding for proteins controlling cell segregation, all necessary for metamorphosis, preserved in the human genome. We have suggested some of the most likely master regulatory genes and proteins of human spontaneous self-healing and think there is a possible link between master genes and human metamorphosis as a plausible hypothesis. Many animals enter metamorphosis when it is beneficial for survival and self-healing obviously is. Human transformation might be very useful for survival if it allows the patient to draw on genetic potentials to recover from disease or allows the child to adapt to a rough childhood to come-back into living fully as an adult when the danger is over. Such processes are exactly what can be observed through the clinical sessions, where most of the patients entering physical changes (metamorphosis) have been either extremely sick or sexually or violently abused as children.

Could the spontaneous self-healing in humans, possibly related to animal metamorphosis, be an evolutionary trait that stems from the self-healing systems of unicellular organisms? We think so. We hope that future research should concentrate on finding a link between genes and metamorphosis causing spontaneous self-healing, in all organisms from bacteria to humans. This connection indicates that genetic control of all cases of self-recovery described in this paper and all other cases could be mastered during the action of master genes and genes necessary to gain cell control, controlled through the human (sub)consciousness.

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