Psychology Research, May-June 2026, Vol. 16, No. 3, 144-149
doi:10.17265/2159-5542/2026.03.004

The Human Body Changes Throughout Life

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The human body undergoes transformations throughout an individual's life. Alongside these physical alterations, there are shifts in human behavior, capabilities, and talents. The body is in a state of constant change. Some of these changes are significant, yet individuals often do not realize them. It's evident that certain physical transformations are intrinsically linked to the overall health of a person. Negative influences can sometimes steer a person's development in an undesirable direction. The repercussions can be severe, particularly concerning mental health.

Keywords: human body, human behavior, traumatic events, brain, mental health

Introduction

The strong connection between the brain and body clearly shows that mental health can be seen through physical aspects (Agler, 2026). For instance, there is a two-way communication system between the nerve cells in the nervous system and the skin cells using neuropeptides. The relationship between the skin and the nervous system is deeply connected. Itching is an example of how these two systems interact. Likewise, there is communication between the brain and the stomach, especially concerning how stress affects the gut microbiome. More broadly, signs of depression may manifest as feelings of heaviness, tired muscles, and decreased appetite, while anxiety can show up as an increased heart rate, tense muscles, or trouble breathing. These instances highlight just a few typical ways the body reflects the mental state.

Every individual experiences psychomotor-perceptive feedback continuously, even during subtle body or eye movements (Reischies, 2025). This includes sensory feedback coming from the outer parts of the body as well as from the surrounding environment, such as when handling a book. Eye and head movements alter the image perceived by the retina. The Central Nervous System (CNS) initiates motor activities, which provide sensory feedback that the CNS can use to regulate actions. This feedback confirms that everything is functioning as it should. When using a long stick to feel something, we experience touch at the end of the stick—"we feel at the stick's end". These feedback mechanisms are crucial for our self-awareness as actors in our environment.

Apart from the sensorimotor feedback loops, shifts in attention also create feedback that alters perception. This alteration can happen through movements of the eyes, head, and torso, but it can also occur without eye movement, such as focusing on a peripheral area of the visual field or sounds in the environment.

Interactivity

Defining interactivity as a rich coordination that aids human actions highlights three key aspects of the relevant phenomena (Steffensen, 2017). Initially, coordination involves a mutual exchange of tiny, minute bodily

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movements that connect and bind individuals within self-organized systems. This fundamental understanding aligns with concepts from studies involving distributed cognitive systems, situated activity systems, and dialogical systems. Secondly, this coordination is rich in meaning; it is infused with our unique ability to make sense of experiences. We participate in sense-making as our bodies link current situations with personal memories and cultural backgrounds: Through sense-making, what is absent in space and time influences our current interactions. Lastly, this meaningful coordination limits our actions and methods. For example, if you have grown up greeting people with cheek kisses, you intuitively know which cheek to start with and how many kisses to exchange. However, if you are not familiar with this custom but encounter someone who is, you can still partake in the cheek-kissing greeting, yet you will largely rely on observing the other person's body language. This scenario demonstrates the influence of interbodily dynamics, highlighting our ability to interpret and expect each other's movements while also showing how sociocultural factors can restrict and enable behavior. As interactivity is filled with meaning, our actions and experiences are both rooted in context and transcendent, leading us to challenge the rigid separation between the aspect of sense-making, such as language, and the aspect of behavior. Therefore, what we typically understand as "human language" is simply a pattern within interactivity, characterized by both dynamics and symbolism.

The relationship between interbodily dynamics and sociocultural influences on behavior leads to a perspective that emphasizes a systemic view of outcomes, seeing them as "not just as a straightforward effect or result of behavior but [as] a new form of action emerging during the transition from one act to another". By concentrating on outcomes, the ever-changing nature of interactivity stops being merely a series of unrelated stimuli and reactions or a constant stream of indistinct, unstructured "pure existence".

Symptoms of Traumatic Events

Long after a traumatic event has passed, our bodies may still show some signs of its impact (Agler, 2026). Some of these signs stem from ongoing effects, representing how the event has impacted the body's overall system. Other signs are directly connected to a physical reliving of the event. There is a time gap related to unresolved trauma, which prevents the brain and body from fully distinguishing between what is past and what is present. The body might be physically in one location but may respond physiologically to a different time and place.

The body is more than merely the area where these symptoms arise, as many might too easily think. It serves as a strong basis that allows us to go beyond our existing mental condition, regardless of whether that condition is due to trauma. The body can store information and affect our mental state. It plays an ongoing and vital role in linking our mind to how we experience life.

Traumatic Experiences

An increasing amount of research has improved our knowledge about how traumatic events relate to attachment bonds (Curran & Mehdikhani, 2018). The connection between these elements is probably continuous and evolves throughout a child's development. Results from the Adverse Childhood Experiences study indicate that there are important long-term effects resulting from such experiences.

A strong attachment may offer protection, foster greater resilience, and possibly lessen the consequences of trauma exposure. Experiencing such trauma could also raise the risk of facing psychological challenges in the future.

Some researchers examining the cumulative impact of childhood hardships have looked at ideas like allostasis and the "allostatic load model" as helpful ways to explain responses to early trauma. Allostasis helps us understand how our bodies cope with stress and manage both physiological and psychological damage. This model sees the human body as adaptable, but if it goes through too much allostatic load, it can affect brain biology, neuroendocrine functions, and brain growth. Therefore, high levels of childhood adversity might interact with other elements, like attachment, to shape the emergence of mental health issues later on.

Limitations

However, many of our bodies are often hurt, unwell, or under stress (Agler, 2026). For numerous individuals, perhaps most, there are significant and sometimes crippling barriers in physical health. It's accurate that some people will seem to have more resources available from their physical state than others. One consideration regarding this: first, you might consider focusing on what you have rather than what you lack. A little investment can yield good results. Even a small strength counts as strength. Use whatever resources you have, as they could be more beneficial than you realize. Second, many people have discovered that concentrating for a while on the areas of pain, limitation, or disability can become a source of additional strength, although this approach may not be suitable for everyone.

By viewing the entire body—both its strengths and weaknesses—as a resource for mental well-being, we can turn something that seemed like a drawback into a driving force for meaningful, lasting change.

Our physical bodies serve as the foundation allowing us to have control over significant parts of even involuntary systems. Think of any fully functioning community: There are ways to communicate, paths for walking or driving, and routes for transporting food. All of this relies on infrastructure. The physical body, even with its limitations, contains common ways for us to influence various organs and systems. The body sends intuitive, interactive signals that can be used to enhance mental wellness.

Movements

To maintain mental health, our body interacts with the brain in a way that can align with our core beliefs and promote positive mental well-being (Agler, 2026). We engage with our body by nurturing an awareness of it and making small movements that contribute to mental health. These adjustments can be subtle rather than extreme targets. Being in tune with the signals from within and acting with movements that can be maintained is key to embracing a truly holistic approach to mental well-being.

These movement practices can be accessible to all individuals. Even if someone is unable to perform these movements on their own, they can still receive bilateral stimulation or cross-lateral activities from others. Caregivers, parents, partners, and friends can all play a role in helping someone else with these movements. Some alternative options for the practices mentioned are provided; however, due to the unique nature of each individual body, not all modifications can be extensively detailed. The suggested options can help you think of how to adapt them to fit your needs. Thinking outside conventional methods may enhance the effectiveness of these practices.

Brain

Neuropsychology examines how different parts and systems of the brain relate to thoughts, feelings, and actions (Miller, 2012). Both clinical and research approaches include interviews, subject observations, and various assessments; specialized tests; and the use of tools like brain imaging. Different impairments arise from

diseases or injuries to specific brain areas or pathways. In simpler terms, issues with the brainstem may lead to changes in consciousness and awareness. Damage to the pathways related to sensing and movement may affect vision, hearing, bodily awareness, or mobility. Illnesses or injuries to the limbic system often result in emotional and motivational issues. In humans, the cerebral cortex is the largest part of the brain, divided into two sides and four lobes. Damage to the occipital lobe can lead to vision problems. Issues with the parietal lobe may cause difficulties with body sensation, mathematics, spatial reasoning, and direction. Harm to the temporal lobe can affect hearing, memory, language, and emotional responses. Damage to the frontal lobe is often linked to problems with complex movements and directed activities, as well as difficulties with abstract thinking, impulse control, goal persistence, and self-regulation. Generally, dysfunction in the left side of the cerebral cortex mainly impacts verbal abilities, while damage to the right side tends to affect visual and spatial skills. Three primary systems have been identified as relevant to understanding criminal behavior.

fMRI

Forensic psychologists are intrigued by the detection of lies (Gomberg, 2018). A topic that has yet to be explored but is likely to emerge soon is functional magnetic resonance imaging, commonly known as fMRI. This imaging not only displays the condition of an active brain but also reveals how it processes information. Over the past 30 years, advancements in fMRI and other brain imaging techniques have allowed for early identification of brain injuries, led to the identification of specific patterns and locations related to schizophrenia and other mental disorders, and introduced both novel theories and validation of existing theories concerning certain brain functions. A recent proposition suggests that because neuroimaging, especially fMRI, has greatly influenced cognitive neuroscience, it can differentiate truth from lie by revealing brain activity and could ultimately be utilized in legal settings for this objective. Businesses that employ fMRI technology assert a 90% success rate in recognizing deception when used in hiring and other non-judicial contexts.

If neuroimaging can truly offer such capabilities, it could significantly influence psychological research within the justice system. Current lie detection devices merely measure physical stress, and there's no agreement that such stress equates to honesty or deceit. Moreover, some people do not show signs of stress when lying. In contrast, fMRI provides insights into brain functions, with some claiming to interpret these readings accurately. However, a challenge for fMRI lies in whether its underlying theory can hold up against rigorous examination and gain approval within legal frameworks through court acceptance. To date, no one has successfully reproduced the claims made by the one company that seems to remain operational. Concerns regarding the use of this technology in court relate to the admissibility of its results under the Federal Rules of Evidence, particularly whether any potential prejudicial effects outweigh its beneficial value, the constitutionality of the evidence concerning the right against self-incrimination and due process, and the lack of reproducibility of the claimed accuracy. Additional issues include infringing on a defendant's privacy rights and the uncertainty about what exactly the fMRI is measuring. In the meantime, this technology has created an exciting area for forensic research and may enhance expert psychological testimony in the future.

Neurological Disorders

Disorders that arise during the development of the nervous system can be categorized into various groups (Cairns, 2004). Malformations happen when there is a structural defect in an organ or a part of it due to an internal cellular issue. Abnormalities in the formation, growth, and closure of both ends of the neural tube characterize

neural tube defects. Spina bifida, which results from the failure of the posterior neural tube to close, is a well-known neural tube defect, whereas anencephaly occurs when the anterior tube does not close properly. Migration disorders involve issues like heterotopias, where neurons do not move to their correct locations in the cortex, potentially leading to epilepsy. In cases like lissencephaly, where there are no sulci, the standard layering of the cortex is disrupted, resulting in only four layers instead of the normal six. Agenesis of the corpus callosum is another migrational disorder that can arise in both sporadic and hereditary forms. Infections that occur during pregnancy can block the cerebral aqueduct, leading to congenital hydrocephalus. A malformation known as the Arnold-Chiari malformation happens when the brainstem shifts to override the spinal cord, which can increase pressure inside the skull.

Contact with specific chemicals during crucial stages of development might result in malformations and developmental delays. Substances that negatively impact development are known as teratogens. When pregnant women are exposed to tobacco smoke, it can lead to a rise in neural tube defects like spina bifida and anencephaly, as well as higher mortality rates. Children of mothers who consume significant amounts of alcohol during pregnancy show signs of fetal alcohol syndrome. This exposure can lead to various issues, such as growth delays, facial and skull deformities, small head size, problems with neuron migration, learning difficulties, and neural tube defects. Other body systems can also be affected, although to a lesser extent.

Two prevalent chromosomal abnormalities that lead to learning challenges are Down syndrome and fragile X syndrome. The occurrence of Down syndrome is about 1 in 600 to 1,000 live births. Over 90% of cases involve trisomy 21, and as maternal age increases beyond 35, the likelihood of having a child with Down syndrome also rises. Several issues in the central nervous system may occur, such as a flattened occipital lobe, reduced brain weight, a narrow superior temporal gyrus, fewer neurons, and irregularities in neuronal processes. Many people over 30 who have Alzheimer's disease also show similar neuropathology. There are multiple issues in other organ systems as well. The most common genetic learning disability is fragile X syndrome, a chromosomal disorder. Although a fragile area on the long arm of chromosome X has been found, the genetic processes leading to the associated clinical symptoms remain unclear. Affected males often have small brains, irregularities in dendrites and synapses, mild facial features, large testes, and learning challenges. Approximately one-third of affected females might experience some level of intellectual disability.

Injury resulting from mechanical harm, metabolic issues (like lack of oxygen) and harmful substances can take place during or shortly after birth. Brain injuries around this time may consist of bleeding and dead tissue. During an autopsy, both outside and inside the skull bleeding can be found. Among the internal bleeding types, subdural, subarachnoid, intracerebellar, and intraventricular hemorrhages can have serious medical consequences and may be life-threatening in severe situations. While approximately 80% of individuals with a subdural hemorrhage heal, the others may experience specific neurological deficits and fluid buildup in the brain. Asphyxia in the womb can lead to heart and blood flow problems, which in turn can decrease oxygen availability to the brain (ischemia) or lower blood transport (hypoxemia). These types of injuries around birth can cause lasting neurological damage in some cases, but not in all.

Forensic Population

The insights gained from forensic psychiatry are useful in clinical treatments that go beyond just the specific forensic population, and bringing this knowledge into standard psychiatric practice has its benefits (Kapoor & Baranoski, 2017). Forensic skills can help refine treatment approaches, making them more relevant to patients

and enhancing risk evaluation and management. More precisely, training in forensics improves a clinician's ability to gather patient histories, utilize additional data, understand community resources and the factors influencing behavior, focus on mental health laws and medical ethics, and become familiar with studies on risk analysis and management. Additionally, forensic training fosters a deeper understanding of the complex realities clients face beyond just diagnoses and symptoms. Cases in forensic psychiatry illustrate that various circumstances, rather than just diagnoses, significantly influence behavior, functioning, and the risk of violence.

Integrating forensic knowledge into regular psychiatric practices can happen through consultation with general treatment teams or through forensic psychiatrists directly treating patients. In community mental health settings, forensic psychiatrists commonly join treatment teams, often tasked with providing care for high-risk patients with challenging symptoms and backgrounds. Both the teams and patients gain from this expertise, and the forensic psychiatrists enhance their credibility in forensic matters. Additionally, forensic psychiatrists can offer consultation through a variety of programs.

Conclusion

Increasingly, experts are cautioning that stress, trauma, and tension manifest not only mentally but also physically. Somatic practice refers to various techniques that involve movement, breathing, and mindful awareness aimed at relieving the body from ongoing stress and emotional barriers. Unlike traditional methods that solely target thoughts, the somatic technique is based on the belief that the body and mind function as one, and that changing physical conditions can lead to shifts in mental states. Neuroscience supports this notion, indicating that the body and brain are in constant communication via the nervous system, hormones, and connective tissues. Prolonged stress triggers the sympathetic nervous system, while somatic methods activate the parasympathetic system, which is responsible for relaxation, digestion, and recovery.

References

Agler, K. (2026). *Keep in mind—Mental wellness resources for everyone and how to use them.* New York, USA: Routledge, Taylor & Francis Group, Informa Business.

Cairns, N. J. (2004). Neuroanatomy and neuropathology. In L. H. Goldstein and J. E. McNeil (Eds.), *Clinical neuropsychology* (pp. 36-37). Chichester, UK: John Wiley & Sons Ltd.

Curran, D., & Mehdikhani, M. (2018). An attachment-informed approach to working with addiction. In P. Davis, R. Patton, S. Jackson (Eds.), *Addiction—Psychology and treatment* (pp. 20-41). Hoboken, USA: John Wiley & Sons Ltd.

Gomberg, L. (2018). *Forensic psychology 101*. New York, USA: Springer Publishing Company, LLC.

Kapoor, R., & Baranoski, M. V. (2017). Community forensic services as an integrated treatment model. In E. E. H. Griffith, M. A. Norko, A. Buchanan, M. V. Baranoski, and H. V. Zonana (Eds.), *Bearing witness to change—Forensic psychiatry and psychology practice* (Chapter 18). Boca Raton, USA: CRC Press, Taylor & Francis Group, Informa Business.

Miller, L. (2012). *Criminal psychology—Nature, nurture, culture*. Springfield, USA: Charles S. Thomas Publisher, Ltd.

Reischies, F. M. (2025). *Psychopathology—Characteristics of mental disorders and clinical neuroscience*. Berlin, Germany: Springer-Verlag GmbH.

Steffensen, S. V. (2017). Human interactivity: Problem-finding, problem-solving, and verbal patterns in the wild. In S. J. Cowley and F. Vallée-Tourangeau (Eds.), *Cognition beyond the brain—Computation, interactivity and human artifice* (2nd ed.) (pp. 87-88). Cham, Switzerland: Springer International Publishing AG.