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Thinking Bodies
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The Body as a Discordant Mirror: Reflections of Stress and Trauma in Physiology

I never thought much of dancers' finicky relationships with the mirror. We both despise having to face our own reflection for so many hours, yet love the opportunity to stare at every flaw and try to remedy it in real time. It never occurred to me what an impact mirrors have on our relationships with ourselves, or conversely, the way they reflect our damaged perceptions of ourselves, until a relatively minor class occurrence forced me to re-evaluate my entire thought pattern. My first semester, the largest of Barnard's dance studios had no mirrors – a peculiar omission for any dance studio. When they were eventually installed, our class was ecstatic: we excitedly watched as our teacher drew back the heavy black curtains to reveal the mirrors, and started class. But soon she became distraught – she watched all of us grow frustrated and disappointed; the entire affect of the room shift. She quickly realized that our reflections were initiating the self-criticism that washed over the room, and she never had us face those mirrors again.

I think that at the time, we were not just perceiving the reflections of our outward physical forms, but of everything simultaneously being reflected by our bodies. We often think of dissociation and dysmorphia strictly in terms of their mental effect; strictly as terms that encapsulate our disposition, affect or behavior. But what if our histories of stress and trauma are written into our bodies, like physical canvases displaying our inner incongruities to the world in an obscure manner?

In Aleksandr Hemon's "A Coin," the narrator writes "And then I realize – it's the language. I'm confined within the wrong language." (Hemon, 167). I've often felt similarly – like language has failed me, or I have failed it; it's as if the words to express what I feel get lost

somewhere between thought and vocalization. Yet, my body seems to know what I want to say; I can express myself through movement in a way that I consistently fail to do with words. Even more, I get to dull the sharpness of language – I can throw all of my unsavory thoughts into the void through my movement and transfigure it into something palatable, perhaps even something pleasant. Perhaps no meaning comes through to others, but I like to think that something understands, even if it's just the empty space listening to my silent speech.

Although I may be alone in comprehending the feelings flowing out of my movement, I am not alone in struggling to connect words to emotions. A more intense form of this is alexithymia: an inability to attach words to feelings. (Van Der Kolk, 191) More specifically, it is described as an inability to recognize physical signs of an emotion, and thus to translate that feeling to words. (Van Der Kolk, 192). Interestingly, this also highlights the mind-body connection, and the embodied experience of emotion. "*I used to believe that words can convey and contain everything, but not anymore, not anymore,"* (Hemon, 169) and once more I have to agree with the narrator, because of how arduous it is to encapsulate the psychosomatic experience of emotion in a word.

This passage, which resonates through our own bodies, illustrates the palpable physicality of emotion, specifically fear:

> *"Pain in your stomach, as if a big steel ball is grinding your bowels. Blood throbbing in your neck veins. Wet heat inside your eyeballs. Numbness of your limbs, increasing as you're running. Sweat trickling down your cheeks, like a miniature avalanche of dread." (Hemon, 175)*

The experience of intense emotion is driven out of the psychological realm alone and assisted on its journey through our physical bodies by the vagus nerve – which connects our brain stem to other organs – and enables us to feel the palpability of emotions through our physical selves. (Van Der Kolk, 153). However, it's thought to be this intensity of emotion that explains why chronic stress and trauma causes dissociation (Van Der Kolk, 133), and our histories of stress and trauma can actually be imprinted on our bodies in the form of

physiological changes and the presence of biomarkers, researchers have found. (Payne, et al.) (Juster et al.)

Dr. Bessel Van Der Kolk describes dissociation as "overwhelming experience" that has been "split off and fragmented," (Van Der Kolk, 133) which highlights the way the body, seemingly out of necessity, manages burdensome memories by fragmenting them, constructing and internal discordance that operates as self-preservation. Even though Gogol's "The Nose" is a work of absurdist fiction, I was entranced by the way the character of Kovalyov seems to mimic – alongside other relevant psychosomatic experiences – some classical manifestations of dissociation.

In an extreme or even silly way, I find the moment Kovalyov encounters his nose – no longer attached to his body – in its own enlarged and embodied state, to be an interesting illustration of detachment from one's own body or part(s) of one's body. "Indeed, how could it be that a nose that just yesterday was on his face and could neither ride nor walk – was in a uniform!" (Gogol, 204) Kovalyov - reminiscent of an out-of-body experience - encounters his nose, separate from his own body, out-ranking him in stature, and the size of a fully-formed man. An oft-noted and hallmark symptom of dissociative states - feeling like you are separated from or out-of-control of your own body, or even feeling as if you are watching your body from the outside - Kovalyov, in an absurd way, almost seems to be replicating such a state.

Similarly, it is noted that in relation to dissociation and trauma, "the threat-perception system of the brain has changed, and people's physical reactions are dictated by the imprint of the past." (Van Der Kolk, 136) Like a mirror into our personal pasts, the way we interact with the world around us is altered by the imprint of the past. Furthermore, Kovalyov's reaction to encountering his nose is intensified by the fact that his nose has obtained a higher rank than him – something we see through the story is deeply affronting to him, because of the importance placed on rank and social class. Just like in Dr. Van Der Kolk's theory of dissociation, Kovalyov's way of reacting to the nose is affected by the imprint of his past (and present); concerned with his appearance to society. Beyond witnessing part of his own body separate from him, he is unsettled by the nose's ability to obtain something he couldn't; the nose has become more successful and garnered a higher social standing on its own.

Similarly, Kovalyov repeatedly finds it necessary to touch the empty space where his nose once was, and later, when the nose is returned, to continue checking the mirror to ensure it remains in place, illustrating another facet of dissociative states. Ignoring, once again, that this is a work of absurdist fiction, I find it fascinatingly reminiscent of the internal discord of recognizing the limits of one's physical body, whether it be a result of dissociation or body dysmorphia.

It similarly reminds me of the experiences of myself and other dancers, when it comes to recognizing the boundaries of our own physical form. A paradox, because as dancers, we are innately attuned to the location of our bodies in space, but seem to struggle with actually recognizing the size and shape of our own bodies, often perceiving them as both inherently flawed, and significantly larger than we actually are. Perhaps, as a result of our complex relationship with the mirror, or vice versa, we develop a constant desire to alter the ways in which our bodies move through and take up space. Ultimately, this is what the presence of the mirror in the classroom is intended for; we utilize the mirror to remedy mistakes in the "lines" our body creates while dancing, and to monitor the aesthetic appeal of our movement, but eventually, through the conditioning of instructors, peers, and eventually, ourselves, we all too often desire to change the very size and shape of the body we see reflected back at us.

But dissociation is just one of the ways that the intensity of emotion can alter our experiences of embodiment. Researchers have discovered that trauma and chronic stress can, in some cases, be detected in the body, through physiological changes and the presence of biomarkers.

Disregarding temporarily, the prolonged physiological alterations that occur, research shows that hostility in relationship conflict actually slows down the body's ability to heal wounds. (Kiecolt-Glaser, et al.) Moreover, couples who reported continual hostilities outside the experiment demonstrated a further prolonged healing period, from which researchers concluded that basic physiological functions of our bodies – such as wound healing – respond to the stresses of our day-to-day lives. (Kiecolt-Glaser, et al.)

Reaching beyond the immediate stage, stress and trauma can be detected in our bodies in other ways. For instance, the noted susceptibility of traumatized individuals to chronic diseases

is potentially attributed to the energy the body is expending to manage the effects of trauma and stress, at the expense of the normal function of physiological mechanisms. (Van Der Kolk, 110) Similarly, a study found that experiences of hyperarousal and depressive symptoms following exposure to a traumatic event was correlated with an increase in physical health symptoms. (Perez, et al.) It would seem that the body is working overtime to accommodate the management of trauma, and to compensate, the regulation of other physiological processes sometimes falls by the wayside.

Expanding upon Dr. Van Der Kolk's previously mentioned model of trauma subsequently leading to chronic diseases, the public health field is paying increasing attention to the theory of allostatic load, particularly its consequences vis-à-vis the "social determinants of health". Research supporting the allostatic load model demonstrates that repeated exposure to stress and trauma exposes an individual to chronic secretion of stress hormones, which subsequently creates a maladaptive stress response, and overtime predisposes individuals to metabolic dysfunction, hence why traumatized individuals and those experiencing chronic stress are more likely to develop diabetes, immunological dysfunction, which predisposes individuals to autoimmune disorders, and cardiovascular disorders. (Juster, et al.) This theory is also used to explain why individuals facing chronic stress live shorter lives on average. (Juster, et al.)

The presence of physical symptoms and markers of histories of stress and trauma both affect our embodied experiences and the way we interact with the world, but also provide a physical mirror of psychological imprints for the world to notice. Circling back to the psychological, trauma also affects the physiological structure of the brain, altering, in some cases, the function of memory.

The hippocampus, which plays a crucial role in the formation and embedding of explicit memory, is also uniquely sensitive to the effects of chronic stress and trauma. (Payne, et al.) Containing a considerable amount of stress hormone receptors, the physiological structure of the hippocampus is attuned to the fluctuations in hormones that occurs with exposure to chronic stress and trauma. (Payne, et al.) These shifts in hormone levels can inhibit the formation of new hippocampal neurons and even cause the atrophy and death of existing neurons, thus leading to the decreased hippocampal volume that has been observed in chronically stressed animals and

humans alike. (Payne, et al.) Similarly, neuronal dendrite growth, and subsequently the full capabilities of neuroplasticity, can be inhibited by exposure to chronic stress. (Payne, et al.). These structural changes that can occur as a result of chronic stress and trauma can thus affect the brain's ability to encode explicit memory.

The fragmentation and fallibility of memory, oft-noted in relation to PTSD (Payne, et al.) and thought to be related to the occurrence of dissociative states (Van Der Kolk) is richly and intriguingly portrayed in both Hemon's "A Coin," and Gogol's "The Nose". In "The Nose," both in regards to Kovalyov and Yakovlevich's recollections of events, they are illustrated as being covered by a fog – remarkably reminiscent of how we often describe our attempts to recall stressful or traumatic events. Interestingly, while it is hard to study the effects of chronic exposure to stress and its effects on memory due to obvious ethical quandaries, even acute stress has been shown to temporarily – but reversibly – alter the physiological structure of the hippocampus and thus interfere with the encoding of memory. (Payne, et al.) Therefore, not only does the depiction of memory in Gogol's "The Nose" remind us anecdotally of our own experiences with memory, it is quite probably a biologically accurate depiction as well.

In Hemon's "A Coin," the narrator describes the disposition of the photographer, "He feels natural with his camera, because 'with the camera I see nothing alone.' There's always another pair of eyes, he says." (Hemon, 174) I was struck by this passage because it seems to suggest an unbearable burden of witnessing war, of witnessing death, alone. Given the psychological effects, paired with the physiological alterations that stress and trauma unleash on the body, it seems immediately understandable why one shouldn't want to carry such a weight alone.

In contrast to the memory of external or interpersonal occurrences, we encounter the peculiar act of Kovalyov remembering the (former) existence of a part of his own body, of his disappeared nose. This relates quite interestingly to the concept of body memory and the body matrix, a neuroscientific theory proposed by Giuseppe Riva, that seems to build off of psychological and sociological theories of the development of the self, and attribute certain psychological disturbances to a failure to integrate multiple forms of body memory into a cohesive, singular sense of self. (Riva)

Dancers' complex understanding of ourselves – of our inability to recognize the boundaries of our physical body despite exacting knowledge of the location of our body in space – seems to be illuminated by Riva's theories. Riva suggests a difference between the "personal body," the "objectified body," the "active body," and the "spatial body," which would suggest that perhaps many dancers struggle to integrate those and other senses of self because we fail to integrate proprioceptive knowledge with interoceptive knowledge, as well as other signals. (Riva)

Similarly, as Dr. Neelam Vashi describes body dysmorphia as "a disorder of self-perception," it seems to, in that sense, be explained by Riva's theories of the body matrix and body memory. (Vashi) This, along with the characterization of body dysmorphia as a preoccupation with altering minor or nonexistent flaws in physical appearance (Vashi), seems to explain why dancers, having spent extensive time examining our flaws in the mirror as a necessary facet of the study of our art, develop body dysmorphia at such staggering rates.

The physical body, by virtue of the psychosomatic interplay that causes psychological imprints to initiate physiological alterations, presents us with a unique mirror into the personal histories of stress and trauma that have been written on the body. Literature, like "A Coin" and "The Nose," which offer us a legible window into the psychosomatic relationship, afford us an opportunity to examine the literary depictions of the physiological response to stress and trauma. Similarly, dancers, who have often adjusted more readily to the vocabulary of movement than to the expression of ideas through language, often find that our bodies have the ability to express that which we are unable to vocalize. My favorite ballet teacher, who similarly left behind an abusive household that she still seems to struggle to speak of, likes to say that the language she speaks best is dance. Despite the obvious stressors inherent in dance training and the infamous toxicity of the dance world, so many of us came from dysfunctional or broken homes and find our catharsis in the vocabulary of dance, regardless of the toll it may take. Our ability to express through movement what we are unable to say seems to suggest that it is simpler for us to let our bodies speak for us, and that they present a discordant mirror of our internal discontents to the observer; that the psychological artifacts and physiological alterations reflect themselves through the very movements of our physical bodies in space.

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