

Engaging the body changes the brain

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People come to therapy hoping for change, yet if the therapist tries to change them, they resist. “The only person in the world who wants to change is a baby with a wet nappy”, as one of my trainers memorably said. If change happened simply by the therapist suggesting the client do X or Y, the client would probably have done it for themselves already. So the therapist listens and feels and wonders, knowing full well that any change will unfold from within the client in its own unpredictable way.

The conundrum is at the heart of the ‘paradoxical theory of change’, often associated with gestalt theory, and nicely summarised as:

“Change occurs by being more what we fundamentally are, not by aiming at becoming who we are not. It involves feeling and living the truth of our existence, rather than trying to fix and meddle with things.” (*Reynolds 2009*)

But if I tell my client they must feel and live the truth of their existence, what are they going to make of that? What does this mean in practice?

I propose that change in therapy comes about by integrating the emotional life of the client’s body with the mental life of their conscious mind, and that neuroscience offers us a fresh view of this process. Change involves the integration of the two cerebral hemispheres, and this unfolds from emotional, relational and imaginal experiences that involve the body.

We know that *merely* talking about a problem may not change anything. For the client to *really* change, they must feel their feelings – or live the truth of their existence. Feelings involve emotion and emotion happens in the body. Allan Schore, who has gone further than most into neuroscience, emphasises that “the more therapists facilitate the affective experience/expression of patients in psychotherapy, the more patients exhibit positive changes” (*Schore 2009*).

So I want to give a simple picture of what happens in the brain when we address feelings and the body in therapy. And then ask: how does the brain change? how does the body change? how can we address felt experience in the body? and are there limits to how much someone can change?

The brain in the body and the body in the brain

I may say that I ‘want to get out of my head and into my body’, but if I ‘lose my head’ I may live to regret it. Understanding the differences between the right and left cerebral hemispheres and how they interact with the body can help us make sense of this dilemma.

First, the right and left hemispheres mean we have two minds in one. The separation of the two hemispheres is fundamental to neural anatomy. Evolution has split the brain in two, and only 2% of the brain cells on either side are connected via the *corpus callosum* that links the hemispheres. This arrangement, called *lateralisation*, allows nature to keep different functions apart from one another, and has led Tim Crow, an Oxford neuroscientist, to conclude that “except in the light of lateralisation nothing in human psychology/psychiatry makes any sense” (*Crow 2006*).

Second, the right hemisphere is more connected with the body than is the left hemisphere. More neural pathways connect the *viscera* (the internal organs) to the right hemisphere than to the left, with the result that the right hemisphere is specialised for mapping what’s happening within the body. To become aware of what is happening in my body, I need to fire up this side of my brain. Interestingly, many more nerves lead from the body to the brain than in the other direction – the neuroscientist Antonio Damasio describes the brain as ‘body-oriented’.

The horizontal division of right and left hemispheres links with the vertical division of *cortex* (the familiar wrinkly stuff) and *subcortex* (everything below the cortex, including the well-known *amygdala* in the *limbic system*, and the *brainstem* that leads into the spinal cord). More pathways link subcortical areas to the right hemisphere than to the left, and as these areas generate emotion, the right hemisphere specialises in emotion as well as the body. It seems the right hemisphere belongs naturally with everything below, whereas the left hemisphere occupies an ivory castle, which allows it to ignore emotion and the body. One hemisphere can inhibit the other, and the left inhibits the right more than vice versa.

Third, we tend to speak from our persona in the left hemisphere. The left hemisphere is the home of my conscious persona, whereas the right houses my emotional self – the difference between who I think I am and who I feel myself to be. The left is also specialised for language abilities – constructing sentences and grammar – whereas the right is specialised for prosody – tone of voice. So my left hemisphere presents my social self, while my right hemisphere manages my inner self. This allows me to lie, but my nonverbal communication and body language may give me away.

Fourth, the functions of the right hemisphere are more interlinked than those of the left. The left hemisphere has more vertical connections within itself, enabling the more specialised functions of abstraction. The right hemisphere has more horizontal connections within itself, so it sees wholes rather than parts. This is why paying attention to the body often leads to emotion, and why inviting images can also lead to emotion and to more connectedness with the body.

Fifth, the right hemisphere is the basis of what we call ‘the unconscious’. The left hemisphere does conscious, focused attention on what is foreground, while the right does broad attention to what is background - environment and body. Thinking about my problems exercises my left hemisphere, but sensing what’s happening in my body fires up my right. It is the latter that notices what is implicit, the quality of a relationship, and felt experiencing in the body – aspects of experience that may come into consciousness if we turn attention towards them.

Putting all this together, we can see how someone comes to therapy experiencing feelings they don’t like, yet not knowing what to do about them. If the therapist points their attention towards their bodily experience of these feelings, they may not like it or understand why the therapist does this. But if they can bear it, they may feel something shift, a little relief, and start to value therapy.

Change in the brain

The nature of *neuroplasticity* is such that *synapses* (neural pathways) are always changing, so that we can learn and remember things. And the brain changes as we age, for the worse as our cognitive abilities decline and we become more forgetful, but also for the better: our minds slow down because they have more experience to draw on, which may make us wiser. And emotional reactivity reduces as we get older, so we become less neurotic. The message for therapists is – keep your client coming for longer so that nature does the work for you!

But what sort of neural change leads to a better balance of body and mind? One dimension of neural change is for the two cerebral hemispheres to become better integrated. This means that the left hemisphere inhibits the emotional messages of the right less, and the right hemisphere becomes less prone to disabling the left with overwhelming emotional storms. The client becomes more balanced between feeling and thinking, and avoids, suppresses and denies their real feelings less.

The second dimension is for cortex and subcortex to become better integrated. Schore says that the overwhelming emotional impact of trauma leads to dissociation, which is effectively the ‘dis-integration’ of the right brain. The right hemisphere and subcortex are unable to integrate what’s

happening in the body with what's happening in the environment so, for example, the client experiences somatic reactions that make no sense, or over-reacts emotionally in ways that damage relationships.

The integration of previously dissociated aspects of experience leads to better *affect regulation* – the capacity to manage feelings within tolerable limits, feeling enough to feel alive, without feeling so much that the client overwhelms themselves and others. They have greater control of their emotional responses, and are capable of more empathy.

How can we know if the brain is becoming better integrated? Until the day comes when our clients put their heads into brain scanners at the beginning and end of therapy to measure changes, which may be never, we are reliant on observation. We have to assume that the outward signs of a more integrated personality signify a more integrated brain. And that a client who feels more stable, has more satisfying relationships and finds life more meaningful has undergone worthwhile neural change. If this assumption is wrong... well, we need to know!

Change in the body

If emotional and bodily experience become better integrated with the client's mental life, no doubt the body changes too. Better affect regulation via the *autonomic* (not conscious) *nervous system* is good for the heart, lungs and intestines.

Heart rate variability means that the heart rate is in constant flux to adapt to bodily needs. Chaotic patterns of variability correlate with anger and frustration, while coherent patterns have been shown to correlate with positive feelings of love and gratitude. Coherence and cardiovascular health go together.

Closely related is breathing – if we need more energy, the heart beats faster and we breath more quickly. The easiest way to suppress emotion is to keep the diaphragm muscle (that controls the lungs) tense, to reduce the oxygen supply to other muscles. The more the client can tolerate their emotional life, the freer their diaphragm and the greater their ability to breathe their way through emotional ups and downs.

Many psychosomatic problems stem from 'holding' emotion in the gut. Better affect regulation means less need to do this, better autonomic control of digestion, and more good 'gut' feelings.

Because of the signalling from body to brain, such bodily changes will have a positive effect on the client's mood and the cognitive state of their brain – their capacity for attention and concentration. A virtuous circle replaces a vicious circle of a stressed brain triggering a stressed body which creates an even more stressed brain.

Working to integrate the brain in therapy

The more integrated the brain, the more effective are the psychotherapeutic methods we use. The challenge for therapists, however, is to work with less integrated brains.

One way we work to integrate clients' brains is to get the two hemispheres talking to each other. This is the relatively simple part of therapy - addressing feelings, exploring and articulating them. And addressing what's happening in the body, and linking sensations to feelings, or inviting an image to come and exploring the feelings and body connectedness that come with it.

The other way we work is to re-claim the dis-integrated and dissociated aspects of experience in the right hemisphere, the remnants of trauma, often early relational trauma. This is much the harder part of therapy. Searching for dissociated aspects risks not finding them or re-traumatising if we do. So we have to let them re-emerge in their own time, which they may do if the therapeutic relationship provides adequate safety and containment.

Both levels require engaging with feeling, and are helped by engaging with the body. Let's consider some ways to do this.

Working with the body in therapy

The only reason it's not obvious that we must work with the body is probably our cultural bias towards the left hemisphere - there's no shortage of psychotherapy theories! We can work directly with the body through movement and massage, but we can also work indirectly with it without leaving the chair. The therapist points the client's attention towards the body as they feel it from within. Social conversation generally avoids the details of physical sensation, but therapeutic dialogue can put heavy chests and tight stomachs centre stage. Body sensation is real, and it is hard to claim that it is meaningless.

Talking therapy can include the body, but the talking may need to slow down or be put on pause for the body to be heard. The client can notice their posture and body language, and how these connect to their feelings. They can notice their breathing, and doing so tends to slow and deepen it, leading to fewer anxious thoughts in the mind thanks to the body feeding back to the brain.

Encouraging the client to notice what is happening in their body engages their *interoceptive* sense of the viscera within. This is a right hemisphere specialisation, and it recruits two areas of *paleocortex* (paleo for old) that lie in between neocortex (neo for new) and subcortex – the insula and the cingulate. So turning attention to the body fires up lower brain regions and the right hemisphere. Many approaches to therapy encourage this body connectedness, including Focusing and mindfulness techniques.

The therapist can avoid merely 'talking about' a problem by speaking directly to the client's felt experience in the body. They can slowly reflect the client's description of their feelings, respond from their own bodily felt experience, and point to what is happening in the client's experiencing – for example, "now you're really feeling it" (the client having spoken about it but now there are tears coming).

Eugene Gendlin, who developed Focusing, points out that as well as our emotions (that we express or get overwhelmed by) and our feelings (that we can think about and talk about), we have our ongoing, bodily felt experiencing. This may be unclear, for example, "I'm feeling something, um, er..." – he calls this a 'felt sense'. The therapist can point the client's attention to their felt sense – "you're feeling it right there, in your chest" (when the client has their hand on their chest). Attending inside means reflecting, and allows fresh feelings and thoughts to arise that will change the client's conscious landscape.

The biological limits to change

A neuroscience perspective suggests we should not get over-optimistic about change, which requires new synapses to grow, old ones to wither away, and others to change their behaviour. A brain that's working hard can change around one hundred thousand synapses an hour, which sounds a lot until you consider that there are some one thousand trillion synapses in a human brain! You don't need to do the maths to appreciate that the experience of a good therapeutic hour is a drop in the ocean of a person's life experience.

Added to such daunting numbers is the fact that the earliest forming synapses are the most durable. Those that formed in infancy to enable us to survive the experience of dependency on our parents are rooted in subcortical areas and subject to what's called *long-term potentiation*. So it's hard to get rid of them, but we can learn new patterns at a higher level in the cortex that will, for example, mean that we need to fire up our survival synapses less often. A small change can have a catalytic effect. Stress, however, may re-ignite the original synapses.

A good example is that of the frontal lobes that can develop the capacity (at a higher, cortical level) to inhibit the tendency of the amygdala to fire up (at a lower, subcortical level) with the slightest provocation to make us stressed and anxious. There is good evidence that this can happen in the adult brain, and that mindfulness helps it to happen.

It also has to be the case that dissociated emotions can be brought into the field of normal awareness where they can be regulated by the frontal lobes. This may involve a modest amount of synaptic change between subcortex and cortex (so that what's happening inside can be linked to what's happening outside), and between right and left hemisphere (so that what is felt can be thought about and articulated).

The scale of synaptic change in the brain points to the value of long term therapy. Deep and lasting change is unlikely to happen in a few sessions, but the repeated experience of going to the edge of what is tolerable in the therapeutic relationship must lead to synaptic change that is significant. Our personality may not change greatly, but our capacity to withstand our emotions and to feel less shamed in relationships enables us to experience more of what life has to offer.

Conclusion

There are probably many ways in which emotional and bodily experiencing based in the right hemisphere can be integrated with conceptual representation based in the left. Working with the body is one way that is frequently effective, and it has the advantage of giving both client and therapist a reference point to guide the journey in a way that maintains a sense of safety. The body doesn't lie, and it can be trusted. It becomes an inner space for bringing back together the previously split apart and dissociated aspects of experiencing, made possible by the outer space of a human relationship that feels safe enough to allow this to happen.

References and bibliography

Alun Reynolds (2009) in *Contemporary Body Psychotherapy*, edited by Linda Hartley, Routledge UK

Tim Crow (2006) cited in *The Master and his Emissary* (see below)

Allan Schore (2009) in *The Healing Power of Emotion*, edited by Diana Fosha et al, Norton, New York

Antonio Damasio, (2000), *The Feeling of What Happens*, Heinemann, London

Eugene Gendlin (1996), *Focusing-Oriented Psychotherapy*, Guilford Press, New York

Iain McGilchrist (2009), *The Master and His Emissary*, Yale University Press, London

Allan Schore (2003), *Affect Dysregulation and Disorders of the Self*, Norton, New York

Daniel Siegel (2007), *The Mindful Brain*, Norton, New York

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