

No 7 MORE TOUCH and PRESSURE

Gerald Foley

CTC

26 June 2012

1. Last time I was looking at the physiology of touch and pressure.
2. The sense of touch is numbered among the five senses and is mainly associated with fairly delicate sensations detected by the skin. The sense of pressure is a wider concept and includes touch as a subset.
3. The body is remarkably well equipped to detect pressure in a variety of ways and uses a significant amount of the capacity of the nervous system in doing so. It is a complex subject if we were to go into in depth. ¹
4. But for our purposes today we do not need to go too far into the details. We will stick with the four types of pressure sensors we looked at last time:
 - Meissner corpuscles which are mainly found close to the surface in areas of hairless skin especially the finger tips. These are sensitive and quick to respond;
 - Merkel discs which are slightly deeper in the skin and respond to firmer and more sustained pressure;
 - Ruffini corpuscles which are responsive to sustained pressure and are particularly common in the soles of the feet, otherwise referred to as the plantar areas;
 - Pacinian corpuscles which are distributed around the body especially near the joints, tendons and muscles;
 - And we also saw that each hair on the body has a tiny muscle in its follicle which is sensitive to the hair being moved.
5. Each one of these sensors has its own nerve fibre which connects it into the central nervous system and up through the spinal cord into the somato-sensory cortex in the brain.
6. Clearly, this very complex system would not have evolved unless it was important to the way we function. In the long perspective of evolution, attributes and capacities which consume such a significant proportion of the body's working resources do not survive unless they fulfil an important role.

¹ I was looking at a *New Scientist* news story recently about a study which showed that sensitivity to touch is linked to hearing.¹

7. So what is that role? A lot of sensors in the skin do the obviously important job of alerting us to the presence of objects impinging on us in various ways. The Pacinian corpuscles are part of our proprioceptive equipment; they tell us about the state of the various bits of the body in relation to each other and the totality.
8. But there are a couple of functions which particularly strike us as AT people. Balance is one. Balance is extremely important to our survival as individuals; falling down can be damaging. The Ruffini corpuscles in the soles of our feet tell us quite a bit about the distribution of pressure on our feet which in turn tells us quite a lot about our vertical orientation, whether we are leaning forward, backward or sideways.
9. There is also the more general question of our manner of use of ourselves. In the first chapter of *The use of the self* Alexander points out that the body is a more integrated mechanism than we generally realise.
10. He says:

*It is important to remember that the use of any specific part in any activity is closely associated with the use of other parts of the organism, and that the influence exerted by the various parts one upon another is continuously changing in accordance with the manner of use of these parts.*²
11. So if we are misusing any part of ourselves, we will be misusing other parts as well. We would expect that the various pressure sensors round our body would help us recognise these generalised effects.
12. The Pacinian corpuscles, for example, should be telling us something about the effects of pulling our head back and down and the excess pressure we are putting on our joints. But if that is true, people do not seem to be paying very much attention.
13. We look around and everywhere we see people misusing themselves in various ways. They twist themselves into odd shapes, they clench their fists, they lean forward when they are walking, and so on. One of the features of learning the AT is the way we begin to notice the extent and variation of people's misuse of themselves.

² Alexander (1932) p34

14. So why do people behave in such self-damaging ways given their pressure-sensing endowment which should be making them aware of what they are doing to themselves?
15. One reason is that the messages from our pressure sensors to our somato-sensory cortex have to compete for the brain's attention with all the body's other sensory systems.
16. We have signals coming into the nervous system from our eyes, ears, and nose; we have a sense of taste; we have sensors which register temperature and pain; and we have minds which keep calling our attention to all the pleasant, unpleasant and potentially or actually dangerous things around us.
17. Because of the enormous amount of activity in the nervous system the brain has to be very selective about the signals to which it pays conscious attention. As long as things are going along familiar paths, consciousness tends more or less to ignore them. It is when things change or when the stimulus is particularly strong that consciousness is alerted.
18. As a result, most of the time we only have a flickering awareness, if any, of the various pressures to which we are being subjected.
19. And if we have developed bad habits in the way we use ourselves they no longer register in our consciousness. The brain has other newer and more important things to occupy it.
20. The result is that most of the time the signals the pressure sensors are diligently sending to the central nervous system do not make it into consciousness. Unless we happen to be misusing ourselves in a fairly unusual or painful way, we will not notice it.
21. But at an unconscious or reflex level, the body will tend to respond to the alarms it is getting. One of the things it tends to do when something potentially damaging or dangerous is happening is to put a stop to it by stiffening.
22. If, for example, the plantar receptors are signalling that we are putting our weight too far forward, the muscles in the torso and elsewhere will tend to tighten to prevent things getting worse. We easily check this just by leaning forward when we are standing.
23. In addition, we are perfectly capable of ignoring or misinterpreting the signals that do get through. If my tendency

to lean stiffly forward is causing me an ache in my knees or my neck or my back, rather than wondering about what is causing the pain I can train myself not to pay attention to it. If it gets particularly bad I can take an analgesic.

24. As I persist in my misuse, it becomes more deeply habitual and the body adapts to what is happening. It no longer consumes nervous energy sending signals about it to the brain. The person stops being aware of the damage they are doing to ourselves. They have developed a faulty sensory awareness.
25. The result is that the vast majority of people continue doing the same damaging things in the same way. They have no awareness that they are building up habits of misuse which make them less effective in the present and are storing up problems for them in the long term.
26. Looked from the point of view of an AT teacher, this gives us a general idea about the sort of person we are likely to encounter as a pupil. They are more or less completely unaware of their habits of misuse. Or if they think about them they say that that is the way they are. Or they may say "It runs in the family" little realising how early habits of misusing oneself are picked up.
27. But nevertheless they realise something is wrong and have decided or been persuaded to try the AT. So now let us look at how the body's pressure sensing systems fit into the picture when such a person comes to us.
28. I must emphasise that this is not about how to give a lesson. It is give you a sense of how some of the procedures we use when we are giving a lesson relate to the pressure sensors we have been talking about.
29. The first thing we do with the pupil is to calm them down. They may be anxious. They may be worried we are going to hurt them or hoping desperately that we can fix them. They may be trying to help us by putting themselves in what they feel is their best posture. Perhaps they are very conscientious and their jaw is tight with determination to do what they should.
30. In such a state of tension, the pupil's whole neuromuscular system is over-active. There is no hope of subtle messages from any of the body's pressure sensory systems getting through to consciousness.
31. So we start the lesson by using our powers of gentle persuasion to calm our pupil down. We suggest they stop trying

to make things happen and just allow standing to happen. One of the things we often have to deal with is a pupil's scepticism about the importance and superiority of not-doing over doing or having things done to them.

32. After a while, the pupil does begin to calm down. They may not be clenching their jaw so much and they may have let their shoulders come down from around their ears. They may have unclenched their fists or stopped sticking out their thumbs. It is beginning to dawn on them that we really are not asking them to do anything.
33. Because of this calming there is a reduction in the overall level of neuromuscular activity. This gives the various pressure sensors in their body a chance to register in their consciousness.
34. The pupil has, for example, a long-standing habit of leaning forward on their toes. But now, as a result of the reduced noise in the neuromuscular system, the pupil can begin to sense this. The messages from the Ruffini corpuscles in the soles of the feet are beginning to get through.
35. The body can move out of its emergency stiffening mode. The joints can ease.
36. Perhaps they now begin to notice the way they are pulling in their chest and how they are keeping their shoulders up around their ears. They let their shoulders release and they unclench their fists.
37. The details are not important here because every lesson is different. But in the imaginary case we are looking at, because of the various ways the muscles are releasing, the pressure sensors around the body are not being activated as much as they were. The alarm messages they have been sending are reduced.
38. This means that various muscle groups around the body can release. Instead of being tensed and shortened, they are able to lengthen. The joints can move more freely. The pupil has a sense of opening and releasing. This is why having an Alexander lesson can be such a dynamic experience.
39. I am certainly not saying that in any given lesson we can make that kind of progress. We may make none at all. But with any luck we will have taken a step on the way.

40. But there is more. You remember I said touch is a two-way process. While we are working on our pupil, putting our hands on them and guiding them gently, the various sensors in our hands and feet and joints are firing off signals to our own nervous systems. If we ourselves are leaning forward, tightening our neck or pulling ourselves down in the front, we are stimulating our own pressure sensors into action.
41. One way of describing this is to say we are introducing a lot of noise into our own sensory nervous system. We are giving it lots of unnecessary stuff to deal with inside ourselves instead of being calm and open to what we can learn about the state of our pupil through our own senses and especially the delicate sense of touch of our hands upon them.
42. If there is too much going on inside ourselves, we will not be aware of how heavily we are clamping our hands upon the pupil, making them more rather than less tense. We will not be able to notice how and where they are tightening their muscles. We will not be a very good guide to better use in our pupil.
43. This is why there is so much attention paid to looking after ourselves when we are giving an AT lesson. Unless we can get ourselves into a proper state of balance and awareness, we have little chance of being able to guide our pupil effectively in their own journey.

REFERENCES

F. M. ALEXANDER (1932) *The use of the self* - Gollancz, London, (1985 edition)