

The body parts¹

A few years ago, I was diagnosed with early-stage glaucoma (and also cataract), and was prescribed daily eye-drops to relieve the pressure in the eye-fluid. In 2013, the cataract in my right eye was removed, and the lens replaced. In 2014, my left eye was operated on, so that now I had both my eye lenses replaced with intraocular implants or plastic lenses. I could now see the computer screen well enough, even without glasses.

In 2011, Dato Dr How Kim Chuan (whom I first met when our family moved to Singapore), after learning that I had lost a few teeth due to decay, proposed that I came over to his clinic in KL for treatment. He made three tooth implants to replace the missing ones so that I can now properly chew my food – all for free. So that's three more artificial parts replacing the diseased ones in my body.

In my years as a Theravada monk, I had my left molar removed in one piece in Thailand in the early 1970s, and the other one, broken into pieces, for easier extraction in the Netherlands in the late 1970s. I also had my inflamed appendix removed in Thailand in the monks' hospital.

There is an urban myth that within 7 or 10 years all our body cells, between 50 and 75 trillion of them, are totally replaced so that we are physically new persons!² No doctor or scientist would endorse this myth. It's more likely that our skin replaces itself in 7 days (remember when we had a cut?), and that every cell in our skeleton is replaced every 7 years.³

It's also true (as far as scientists tell us) that a human hair lasts from 3 to 7 years, but by itself is virtually indestructible. Red blood cells live for only about 4 months, while white blood cells live generally more than a year. Skin cells, however, live for only about 2 or 3 weeks. Colon cells suffer more wear and tear, and die off after about 4 days. Sperm cells live for only about 3 days.

Fat cells are replaced at the rate of about 10% per year in adults. So here we can say that generally, humans replace all their fat cells about every 10 years. Heart muscle cells (cardiomyocytes) are replaced at a progressively slower rate as we age. At 25, about 1% of our cells are replaced every year. Replacement slows down to about 0.5% at age 70. Even in people who have lived a very long life, less than half of the cardiomyocyte cells have been replaced. The tooth, however, is the only one of two body-parts that cannot replace themselves.

The other irreplaceable body-part is the brain cells. However, they typically last an entire lifetime. We now know that neurons⁴ continue to grow throughout our lives. However, neurons in the cerebral cortex (the gray matter on the brain surface) are not replaced when they die. That is one reason why, as we age, our memory fails more significantly, and it worsens if we make no effort to recall them, or fail to keep our minds active. Mind scientists now speak of neuroplasticity – this refers to our ability to “repair” our brain connections (synapses) by keeping our minds active, such as through meditation.⁵

So, the fact is that our body replaces its cells at different rates, but some cells are never replaced. This means that it is wrong to say that we replace **all** the cells in the body every 7 or 10 years. Having said

¹ Partly based on Piya Tan, “Self and selves” @ [SD 26.9](#) (1.6.1.1 & 1.7.2).

² See eg the New York Public Library's Science Desk Reference, Stone Press, 1995. See also <http://www.livescience.com/33179-does-human-body-replace-cells-seven-years.html>,

³ Stanford School of Medicine: Institute for Stem Cell Biology and Regenerative Medicine: <http://stemcell.stanford.edu/research/>.

⁴ A neuron is a brain cell that communicates information (such as sense-data) through synapses (think of them as neural spark-plugs in action).

⁵ See Reflection, “Your mind: use it or lose it,” [R125](#), 2010.

that, the point remains that our body does undergo changes, and is never the same for even a single moment.

The problem now is that since a *body* changes without the *person* changing,⁶ that is, we see ourselves and others as individuals,⁷ people may have difficulty recognizing each other. This is why disguise works effectively, and it is also why our national identity (ID) card photos are re-taken periodically.

This is an ancient problem that goes back to the times of the Greek mythology, as reported by the Greek historian, **Plutarch** (c46-c127), in what is known as “the ship of Theseus” or “Theseus’ paradox,” translated into English by John Dryden, thus:

“The ship wherein Theseus and the youth of Athens returned [from Crete] had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus, for they took away the old planks as they decayed, putting in new and stronger timber in their place, insomuch that this ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same.” (Plutarch’s *Theseus*, tr John Dryden)⁸

Plutarch thus questions whether the ship would remain the same since it has been entirely replaced, piece by piece, or is it still the same ship? As a corollary, we can question what happens if the old replaced parts were used to build another ship. Which of the two is the original “ship of Theseus”?⁹

We might here deny that the second ship is *not* the original, since the original no longer exists. Similarly, if we say that A dies and is reborn as another human B, he is clearly not A, since A is dead. Of course, we could say that it is A’s *consciousness* that becomes B. In this case, B would very likely inherit some, if not all, of A’s characteristics.¹⁰

Suffice it to say here that the early Buddhists would not agree with the English philosopher John Locke when he argues that since *a person is his consciousness*, if the consciousness (“person”) of a criminal (say, a thief) were to move into the body of a butcher, we should punish the butcher, since he is now the thief! Suppose the thief/butcher were punished, it is the butcher’s physical body that would suffer from the punishment, and should the butcher later return to his old body, he would find it unjustly punished.

One problem still remains unanswered: if there is no self, no abiding entity, *who* then does the action? If there is no self, does that mean I am not responsible for my actions? For example, a clever thief, when caught, could argue that when he stole the fruits yesterday, he was not the same person he is today, that is, the one who is caught. The simple answer is that *he is still the same person* on account of his memory and continuity.¹¹

The question “*who* does the action” is a loaded one, one that is wrongly put. By using the word *who*, we assume that it is a *person* or *entity* who does the action, that there is a *doer*. The point is that the questioner does not know this; so the question is better rephrased as: “*How* does an action occur?”

We know that we are the same person in at least two important ways: personal continuity and memory. Firstly, we are each a “**personal continuity**” (or continuum) that gives us as a sense of selfhood, that we

⁶ This is an idea expressed by the English philosopher, **John Locke** (1632-1704): see [SD 26.9](#) (1.6.2).

⁷ See **The person in Buddhism**, [SD 29.6b](#).

⁸ <http://classics.mit.edu/Plutarch/theseus.html>.

⁹ For other examples, see http://en.wikipedia.org/wiki/Ship_of_Theseus.

¹⁰ For a discussion on continuity, see [SD 26.9](#) (1.7.2).

¹¹ See [SD 26.9](#) (1.6).

are the same person through time. We exist in *a causal connectedness*, a series of causes and effects of the interaction of our body and mind. We are alive because our consciousness is capable of interacting with our physical senses, and our mind is capable of interfacing with such experiences.¹² Secondly, we have **memories** of our past selves and events that can be recalled, often in some chronological order.

Since we have this sense of personal continuity and memory, we are responsible for our actions, past and present, that is, insofar as they are *intentionally* done.¹³ This responsibility is real because they are done by the connected series of selves of which we remember or are capable of recalling. Indeed, we are our actions.

On the other hand, if we are made up of some eternal stuff or abiding entity (such as a soul or *ātman*), especially if we claim it to be a pure *ātman* (as in Brahmanism or Hinduism), it would be very difficult to explain how we can commit bad deeds or suffer their consequences. As a permanent soul, we have to be either good or bad, but never only good or only bad (or sinful). If we were all good, we do not need salvation; if we were all bad, we would not be able to win salvation anyway! But being both good *and* bad, the soul, as such, is necessarily *impermanent*, and capable of spiritual evolution. As such, we do not mind accepting the notion of an *impermanent* soul: we call it consciousness.¹⁴

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[an occasional re-look at the Buddha's Example and Teachings]

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¹² See [SD 26.9](#) (1.6.4).

¹³ See [SD 26.9](#) (3.1).

¹⁴ For a detailed study, see *Viññāṇa*, [SD 17.8a](#), esp (6.1.2.2) on “Existential consciousness.”