

Brains trust

Shima Gyoh on man's inhumanity to self... by not taking sensible precautions like wearing crash helmets on motorbikes (and we make it NINE on the motorbike pictured!)



The human brain is the most important organ in the body. It is also the most complex. Weighing about 1.4 kilograms, it has over 10 billion neurons. Each neuron makes about 10 000 connections with other nerve cells through special junctions, the synapse. Synapses keep changing, about 1 million are made or changed every second we're alive.

The brain is the organ that keeps the vital processes of the body functioning: the heartbeat, breathing, adjusting the blood pressure, keeping the body from harm when we are awake and asleep. The brain is responsible for every action we carry out, whether deliberate, involuntary, or in our subconscious.

Human spirituality, personality, and sense of good and bad are properties of the brain consistently accredited to other parts of the body in most cultures, particularly the heart and the stomach. For example, committing things to memory is called 'learning by heart.' The heart is also wrongly thought to be the centre for kindness, character, personality and emotion, and the symbol for love. Even at this age of information technology, is still the shape of the heart!

Yet, this all important tissue is soft, almost semi-fluid and very delicate. It is easily damaged, and, unlike other parts of the body like skin, bone and muscle, has almost negligible powers of healing to restore pre-damage anatomy and function. Damaged neurons are replaced by fibrous tissue and their functions are lost forever. Recovery is a slow process whereby undamaged parts gradually learn to do the jobs of the damaged ones.

Perhaps it is for these crucial facts that the brain has evolved a hard protective bony case, the skull. It is suspended in the middle of fluid, held in place by delicate membranes. This cushions it from the jolts and damaging friction that would result during normal activity like walking, running and farming. It is adequate for protection in 'normal activity' and minor accidents like falling and fighting - without firearms. The occasional blow from a cudgel or a hand-flung stone will knock you out, but, by and large you would soon be up and about. Boxing remains the most paradoxical 'game' of



intelligent humanity.

Human civilisation has made us subject ourselves on a daily basis to forces that pose serious danger to the brain. Motor vehicles make us travel at speeds far in excess of our natural running ability, and accidents at these speeds subject our heads to forces far beyond the body's provisions for safety. The skull was not evolved to hit a hard tarmac surface at speeds of 50 kilometres per hour.

The same human ingenuity has also provided solutions to ameliorate, if not counteract the risks except in flying. Aeroplanes, being heavy, have to travel very fast in order to remain airborne. When they crash, the aphorism that speed kills becomes literally true. We are in better control of speed in motor vehicles, and the slower we go, the safer they are. In the car, seat belts are provided for us to tie ourselves to the vehicle and so avoid becoming free-flying missiles when the car tumbles or crashes. On the motorcycle, we are supposed to wear safety helmets to protect the head.

It is heartbreaking (there I go again) dealing with severe head injuries. While the patients are unconscious, we have to nourish the body and protect it from further injury; a job the brain normally does without the person being conscious of it.

The severity of brain damage is often proportional to the duration coma, which is itself proportional to the force that caused the damage. In the mildest case, loss of consciousness is transient and recovery is full, but in the most severe case, the patient may never wake up. Most cases fall in-between, and recovery is accompanied by various degrees of temporary or permanent damage. It may involve personality changes, alteration in mood, depression, anxiety, aggression, epilepsy, amotivation, attention deficit or even psychosis.

If we really appreciated the serious consequences of brain damage, we would not gamble with its safety, no matter how tempting, as in speeding, or inconveniencing, like wearing safety helmets. Speeding motor vehicle drivers and motorcycle riders that do not wear protective helmets presently have the highest rate of brain damage in developing countries where traffic regulations or their enforcement hardly exist. Protecting our brain is protecting our humanity.

Prof Shima Gyoh has held many posts ranging from village doctor to DG of Nigeria's Federal Ministry of Health and Chair of the Medical and Dental Council of Nigeria.

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