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The great brain barrier

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The brain is the most precious organ in our body and an organ that is irreplaceable. It is the CPU of our body and pretty much the most well protected and safeguarded organ. Along the process of evolution, the human brain has evolved gradually with multilayers of protection. It consists of three-tier protection; first comes the skull, which is 7 mm thick, next is the cerebrospinal fluid and third is the protective sheath called meninges. These three components offer protection against any sort of physical damage or injury to the brain. But there is another component called the blood-brain-barrier which offers effective protection in case of other dangers encountered within the body. This barrier is very selectively permeable and protects the brain against any disease-causing organisms. As the name suggests, this is a barrier between the blood vessels present in the brain and the neurons and other cellular matter that makes up the brain tissue. This brain barrier was discovered by a German physicist named Paul Ehrlich in the late 19th century. This layer only allows very small molecules, some fat-soluble molecules and certain gases to pass through it. The only time that this incredible protection system causes an inconvenience is when treating any mental ailments or disorders. Scientists have been working tirelessly to find new approaches to cross this barrier to transport the necessary drugs. Some of the latest technologies are loading the drug into a molecule capable of crossing over this barrier. Another prospective approach is the use of ultrasound in the treatment of Alzheimer’s disease. Of course, this is just a possible option worth looking into and this is just a small price to pay for the excellent benefits this structure offers by strictly regulating the chemical environment in and around the central nervous system.

Keywords: Blood-brain-barrier, Protection, Central nervous system, Semipermeable, Brain tissue

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