We know we have two of them. They are linked together across the mid-line of the brain. They are shaped more or less like a seahorse, which translates to *hippocampus* in Latin, and where they get the name. Their function, however, has been explored for more than a hundred years, and we are still learning more with each new study.

It is currently believed that they have three core functions for human beings. Hippocampi help us learn and remember, find our way, and keep up with the passage of time. They are crucial to embedding new learning in our system. They work better when there is strong emotional value in the learning. They also help us find our way from place to place and back again, as well as, recognize where we are and what happens in that space or place. In newer research, it has been discovered that they have a significant role to play in helping us keep up with the passage of time and how long it has been since something happened, we met a human need, we had a certain experience, or we did something we didn’t like doing.

The hippocampal areas are a core part of our limbic (automatic) system, as well as being hard-wired into the cortical (thinking) system. Therefore, they have important roles in transitioning information inward and outward. They perform a critical function in helping us take our working memory of an event or task, or the recall of finding your favorite cereal at a specific location, and turn it into a long-term memory that will be stored in cortical locations for future use. The storage process involves building a pathway that allows us to re-access the information or memory when we think about wanting to repeat it, share it out, or when we experience something similar. In other words, the hippocampal areas are critical when we want to learn and remember information about people, places, situations, events, objects, stories, images, sounds, textures, tasks, relationships, language, and more.

Our hippocampal areas are also key actors in helping us to get around, find what we like, avoid what we dislike, and realize where we are by recognizing landmarks. When places offer comfort and personal connections, they are more deeply embedded in our memory tracks. One challenge can be, finding our way back to that location if we make a wrong turn or lack the ability to remember how things look from the opposite direction. Additionally, it turns out, each time we move through a doorway or opening into a new space our hippocampal areas have to reorient us to the space and place. As they engage in this activity, they tend to struggle with recalling what it is we wanted to do in that space. Typically, we may have to take a look around, ask ourselves what it is we came into the room for, or actually have to retrace our steps to figure out what we are seeking or planning on doing.
A more recent finding related to the hippocampal areas, is their role in keeping track of time. Being aware of how much time has passed is important when we are responsible for caring for ourselves. Noticing how long it has been since we ate, slept, went to the bathroom, or bathed is considered part of living independently. There are other brain areas that also play a part in keeping up with time. It is very likely that having your hippocampi working well is essential to determining whether the shower you thought you took was this morning and not just a routine of showers every morning for many years of your life. It could also make it difficult to sort out the length of time that has passed since you worked a particular job, had a certain relationship, or celebrated a specific birthday.

In combination, the various hippocampal regions and wiring structures are largely responsible for our overall orientation or dis-orientation to person, place, time, and situation. They are also essential in appreciating and holding onto huge numbers of details that make life flow smoothly and effectively when we have complex schedules, multiple locations, and current as well as past relationships.

The onset of dementia, alters the function of the hippocampal areas. Which function is damaged early or first varies with various forms of the condition. Some dementias are not kind to building new memories, while others seem to attack the way-finding system instead. Frontal-temporal dementias are fairly well known for impacting time awareness and way-finding rather than the formation of new memories. A better appreciation for what is working and what is not could improve our ability to provide more beneficial support and use cues that provide guidance that aids the person, rather than becoming part of the problem. Using shared opportunities to determine the abilities and missing functions for our partner could help both of us as we determine what we should do to help and where we should promote the person’s continued use of those skills.

Resources of interest:

Report of a study done by the University of Hong Kong – [Click here](#)

Article from the Scientific American – [Click here](#)

TEDEd Session that reviews the story of HR, who had his hippocampus removed to relieve severe seizures caused by a head injury, earlier in life. [Click here](#)