

The Importance of Navigation for our Brains

The following piece by orienteer Jackson Codd is a summary of the book "From Here to There: The Art and Science of Finding One's Way" by Michael Bond, as well as additional research. Bond's book is a fantastic exploration of human navigation, and suggests that activities like orienteering could be beneficial for our modern brains.

Humans evolved as social creatures, which necessitated our evolution as navigators. According to fossil evidence, early humans would travel upwards of 150 miles to trade and socialize. It was using this amazing navigational ability that, over the course of 200,000 years, humans managed to settle nearly every continent and island on the planet. However, over the past century, people have had fewer and fewer opportunities to develop their navigational skills. This effect is most notable among children, as the "home range", where they can freely roam, has fallen dramatically, largely thanks to busy streets children cannot cross without supervision. These effective barriers limiting the range within which a child can explore leads to a disjointed view of the world, where there are discrete places with no clear spatial connection to each other.

While navigation may seem like an unimportant skill to lose in the age of GPS, strong navigational ability has been shown to benefit mental functions such as memory. Spatial awareness and navigation are based in the brain's **hippocampus**, a region vital to memory. In fact, many researchers believe that memory and navigation evolved together in the hippocampus to allow us to explore and memorize our environment, increasing survival chances. The connection between navigation and memory may explain phenomena such as why people forget why they entered a room as soon as we cross the threshold and why perhaps the most effective memory technique is to build a mind palace, where memories have physical representations within an imagined space. Just like with a muscle, constant use of certain areas of the brain encourages growth and increases neuron density. Thus, the development of navigational skills strengthens the hippocampus and is expected to improve memory.

Strong navigation skills can also have positive impacts on mental health, both directly and indirectly. A common piece of advice for mental health is to take a different route to work. While the change of scenery can indeed be helpful, many people struggle to do it. One of the most stressful situations a person can experience is being truly lost, so most adults tend to stick to known routes rather than face that prospect. Thankfully, a spatial approach to navigation gives more freedom in this regard. When you actively navigate, rather than follow a pre-planned route, you use general directional cues and landmarks to find your way around. You are happy to wander down streets you have never explored and focus your attention on the world around you because you can trust your mental map to get you where you want to go. The development of spatial navigation skills gives children the confidence to explore and experience the world in new ways, and those skills persist and have further benefits later in life. In contrast, many mental illnesses, such as depression and PTSD, have links to hippocampal decay, though it is unclear whether this is a cause or a symptom. Similarly to how navigation practice is shown to slow hippocampal decay in people with Alzheimer's, it makes sense that exercising this region of the brain will help with other sources of decay, potentially counteracting these diseases.

Finally, developing navigation skills through orienteering is just fun! Any parent can tell you that kids love to wander. In fact, studies have shown that, when left to their own devices, they tend to explore significantly farther than their parents expect, traveling sporadically from one point of interest to another. Unfortunately, as streets have become busier, unstructured exploration has become more dangerous, and most parents keep their children close at all times. Orienteering encourages this sort of point-of-interest based exploration while staying within safe boundaries. In order to orienteer well, you can't simply rely on an egocentric approach, following a list of directions, that many adults fall back on. Instead, you must pay attention to the world around you and connect interesting locations to their map representations. By reinforcing this method of navigation, kids will not only have fun exploring in their own way, but will also develop skills that will be helpful throughout their lives.