PSYCHOLOGON

HYPERTHYMESIA

Alena Špániková
Psychologický ústav FFMU, Brno
info@psychologon.cz

Do you remember what you had for lunch yesterday? I guess that you do. Do you remember what you wore? Yes, I think so. But can you recall, what did you do for example on the 23rd of January this year? And what day of the week this date fell on? You may start counting it, it would take you some time and finally, you could be able to tell me what happened that day in the case that it was important for you. Even if it sounds unbelievable, there exist a few people that are able to do it in one second and without any struggling.

These people have hyperthymesia or newly called Highly Superior Autobiographical Memory (HSAM). They are able to remember even the most unimportant details about their own lives. They can tell you also when big worldwide events happened. Furthermore, they do it like a common thing, nothing special.

This unusual autobiographical memory condition was discovered in 2006 and since then psychologists, neuroscientists and other interested people are trying to get to know it further. One cannot read about it in any psychological textbook because it is so new. This articleis divided into two parts, the first one seeks to answerquestions like what is hyperthymesia, how we can define it and tells us about the totally first case of it. The second one is going to be about how it works and how it is even possible, that something like this can exist. It mightseem great to remember everything, but sometimes it is really hard to live with it, so it is also focused on hyperthymestic people's lives.

What is hyperthymesia?

Hyperthymesia, from Ancient Greek: *hyper* = excessive and *thymesis* = remembering, or hyperthymestic syndrome, or newly called *Highly Superior Autobiographical Memory* is a special condition of autobiographical memory when people remember abnormally huge amounts of their own life experiences. Specifically, it is defined by two characteristics: Hy-

perthymesiacs display an extraordinary ability to remember and recall events from their own lives and what is really important is that they spend a lot of time thinking about their past (Parker, Cahill & McGaugh, 2006). It is as if they live one life in present while in their minds is running another one in past.

The first case: AJ – Jill Price

In 2000, AJ, an American school administrator, found herself in a circle of recalling every single detail of her own life. She was really desperate that nobody could have understand her condition so she contacted James McGaugh, a researcher from the University of California Irvine. He decided to take this case and started with solving this mystery of her memory together with his colleagues Elizabeth Parker and Larry Cahill. AJ herself called her condition as "non-stop, uncontrollable and totally exhausting" and as "a burden" of which she was both warden and victim (Marshall, 2008). So they started to test her about her memory.

If they gave a date to her, she was able to recall which day of the week it was and what was going on without any mnemonic system. She went through five year long examination of every type of her memory. It is a lot known about impaired memory or amnestic syndrome but really little about superior memory. There exist people who are able to remember relatively meaningless information with strategies acquired through practice, for example street maps of entire cities, pi out to 22,514 decimal places and so on.

In the contrary, AJ did not use any strategies to remember better. As one could expect that her memory helped her in school he would be wrong. She was not able to use it there and she was really bad in memorization. How she told to researchers repeatedly, her memory was not strategic but automatic (Parker, Cahill & McGaugh, 2006).

McGaugh's team focused deeply on everything not only on her superior memory ability. They got to know that it all started when she was eight and her family moved from the east coast to the west. From that moment she was trying to organize her memories to not forget about her old life. She said she was traumatized by the moving away. In the age of 10 she began keeping a diary until she was 34. The diaries were used for verifying information in testing her memory. She said that writing things down helped her not to have everything still in mind and then she felt better. The detailed memory made her firstly aware of when she was 12. From the age of 12 to 14 she remembers a lot but not everything (Parker, Cahill & McGaugh, 2006). Afterwards, she stated: **"Starting on February 5th, 1980, I remember everything. That was a Tuesday."** (Shafy, 2008).

Really interesting is that when she recalls her memories they are coming back with the same emotional charge and vividness that were there when they happened like she actually relived the same situation. Furthermore, she remembers, of course, the negative memories, too. The worst memory for her is when her husband died and she still recalls it with the same strong sadness and helplessness. Thelooking for memories is not conscious. One memory triggers another, then another. They work for each other automatically like cues. (Parker, Cahill & McGaugh, 2006).

AJ was tested for dates always without pre-warning so she could not have tried to remember. Unbelievably, when she was examined for the dates of Easter in the last 24 years, she was able to recall every of them correctly and to tell what she had been doing (Marshall, 2008). She also has great memory for public events - to recall an event when given adate, and a date when given an event.

Even if it looks like AJ remembers everything, her memory is still somehow selective, because she does not remember specific events from aninterview the month before (e.g. colour of clothes that the researcher wore). Furthermore, in the standard memory tests she was in range from perfect to below average. Her IQ is in average and she has deficits in executive functions involving abstraction, self-generated organization and mental control (Parker, Cahill & McGaugh, 2006), which in itself may be responsible for her hyperthymesia.

Because AJ was the really first case of her condition, some of the other researchers showed a scepticism, that it is only well-practised skill and so on, but nowadays when is more and more known about hyperthymesia, the awareness of it is getting better. AJ sees every present stimuli as a cue, normally it is called episodic retrieval mode and it is common but in AJ's case it works nonstop – it happens when regions in the right and left prefrontal cortex and anterior cingulate gyrus are activated – however, AJ cannot turn it off as normal individuals.

AJ might have a variant of a neurodevelopmental, frontostriatal disorder causing her at a risk of hyperthymesia.It can include autism, OCD, ADHD, Tourette's syndrome and schizophrenia. AJ has any of these disorders but shows some of their symptoms, especially obsessive-compulsive acts (Parker, Cahill & McGaugh, 2006).

Would you like to know more, how it is possible and how does it work? How it can be to live with the memory condition like this? Read in the second part of this article, which is going to be published next week.

List of references:

Marshall, J. (2008). Unforgettable. (Cover story). *New Scientist, 197*(2643), 30-33.

Parker, E. S., Cahill, L. &McGaugh, J. L. (2006). A case of unusual autobiographical remembering. *Neurocase, 12*, 35-49. DOI: 10.1080/13554790500473680

Shafy, S. (2008). An infinite loop in the brain. The Science of Memory. Spiegel Online. Retrieved 3March 2015. Available from: http://www.spiegel.de/international/world/the-science-of-memory-an-infinite-loop-in-the-brain-a-591972.html