These are the top five things you should know about the Neuralink brain implánt. If you're watching this you probably know something about the brain implánt already. But there was a lot of information in Neuralinks livestream and the **related scientific paper**(соответствующий научный документ) entitled an integrated brain machine interface platform with thousands of channels. I'm going to give you the top five things you should know about Neuralinks tech.

How do we rank such things by **logical order**(логическая последовательность)? Each item will build upon the other to give you a better idea of what Neuralink is trying to do.

**And number five** why bother with a brain implant at all. The implant is **trying to track spikes**(пытаясь отследить шипы) also known as **action potentials**(потенциалы действия). Essentially an action potential is an electrical impulse. A spike happens when the neuron sends information. Neurallinks brain machine interface or BMI can track the spikes in real time. There is no wearable that can track the spikes because you need to be under 60 microns away from the neuron for tracking. Implánts are not a new thing. Neuralink also showed a history of implants dating back to 1957. So, why does Neuralink want to implant tech in a brain to get real-time data from neurons as they fire?

**number four**. How does one implánt something in a brain to read spikes anyway. Take a look at these other implants’ technologies. One is called the Utah array, the other is the deep brain stimulator. They are very invasive. A take a look at Neurallinks N1 sensor. It's tiny. Here it is on a finger and here it is next to a penny. Back to our question- how does one implant something so tiny? Build a robot. This is a surgical robot. It deals with the complexity of the surgery such as the subject moving due to breathing. The robot is under the supervision of a surgeon as electrode threads are implanted. In tests Neuralink demonstrated an average of 87.1 plus or minus 12.6 percent **insertion success rates**(коэффициенты успешности вставки) over 19 surgeries.

**Number three**. Does this thing work? Take a look at this cute little **critter**(существо). It's

called a Long-Evans rat. Two colors. oh well you can buy them for experiments starting at around too twenty-three dollars per rat. So, neuro-link tested its systems in mail Long-Evans rats. Recordings were made as the rats freely explored an arena. Paper says **quote digitize broadband signals**(цитировать оцифровку широкополосных сигналов) were processed in real time to identify action potentials spikes using an online detection algorithm. With the robot assisted surgery Neuralink says it implanted this tech while minimizing bleeding and reducing the risk of **harming cortical vessels**(повреждение корковых сосудов). So, the implant is definitely capable of reading neural signals.

**number two**. how would this work on a human? it's thinking hey wait a minute I'm not a long-Evans rat. How does this work on humans? give me the details on what happens to a person? Now normally here's how traditional brain surgery goes. Your head may **be clamped in place**(может быть закреплён на месте), plus your head may be shaved with scarring being a possibility. Neurallink says they want to arrive to something different. They likened it to LASIK. no big scars, no hospital stays. it would be a short procedure and you get to keep all your hair. Neuralink also says for its first clinical **trials**(испытания) the traditional method or something close to it will likely be used. Here's how the procedure would go after all the trials. You get a local anesthetic, a small opening is made in the skin a painless opening. Is then made in the skull below. After that there's a quick placement of the implant. Then the hole in the skull is filled with the sensor, the scalp is finally closed up. Then behind the ear a **small incision is made for a coil**(сделан небольшой разрез для катушки). The surgeons will tunnel tiny wires to connect the coil to the sensors in tests. Total **insertion time**(время вставки) averaged 45 minutes.

**the number one**. Thing you should know about the Neuralink brain implant is what the heck will this do? The first product is focused on control. Patients wanted the ability to control a mobile device, no caretaker necessary. Once that control is possible through the implant the phone output could also be redirected to a computer, as mouse and keyboard inputs. To learn how to use the Neuralink implant in **conjunction with other devices**(совместно с другими устройствами) neuro-link has an app to teach patience. In an example Neuralink says- imagine if you never had arms and you had to pick something off a table, you will use the app to connect the brain activity to the movement you want **to accomplish**(для достижения). Neuralink says it's a long process preparing it to learning how to touch type or play piano. The paper went on to say quote in the future. This approach **could conceivably restore motor function**(возможно, восстановит моторную функцию). That's amazing. Neuralink set 2020 has an aspirational date for the first in human clinical study. What do you think about this whole brain implant thing? Do you think Neuralink can make its vision come true? Let us know in the comments. Oh my, as that time I'll see you online