

So moving into a totally different area—neuroimaging—and this is a slide which shows the increase of studies on neuroimaging on acupuncture. And as you can see in 2009, we nearly had 30 publications and more than half of them came from China mainland. And as you can see here that's a setting, that's Vitaly Napadov from Harvard University preparing a patient for the scan.

So we thought it a good idea to do a systematic review on fMRI studies. After we started this, and it took us two and a half years, we were not anymore sure if this was a really good idea, because it got so complicated. We found nearly 150 studies in English, many of them in Chinese, some of them in Japanese, some of them in Korean, and you see from all other groups that this was really covered by the group. And this work was mainly done by my Chinese Ph.D. student Wenjing Huang. And these are long tables, this is just published in April, but these tables give you nice information about all these studies and which areas you see anything happening in the brain. And these are the main areas here from the systematic review.

Then we sent the whole thing to Plus One, and one of the reviewers came back to us and said, "Oh, there is this new way of doing meta-analysis on fMRI studies. Please do a meta-analysis." So we said "Oh my gosh, now we still have also to do a meta-analysis." We did a meta-analysis, we had the cooperation partners at the Max Planck Institute in Leipzig and they had done one before. And we found 34 of the publications had the data we needed to do a real meta-analysis on fMRI studies. And we even had to do two of them because the data was different. We had data which was on the group level, and we had data which was only the differences between the groups, so that we had to do two different meta-analyses here.

And these are the results of the meta-analysis and it was quite heterogeneous what came up there in the different ways of doing the meta-analysis. There was one thing which was clear and homogenous, that acupuncture had a greater response than sham acupuncture in the middle cingulate. We always saw a difference between acupuncture and sham acupuncture but it depended on the type of meta-analysis, and you see here different other areas. So the data is very heterogeneous, which is out at the moment. The data is not so much high quality. And here I really can say we need more high quality studies. And for example the group in Harvard is also standing for high quality studies, but we also need the data in the publications that is presented in a way that you can really use it for meta-analysis, so that updates of this kind of meta-analysis are possible in the future.

But we see differences between acupuncture and sham acupuncture. A totally different question which I always had is the influence of manual stimulation. You have seen when George Lewis in the film did acupuncture on the patient he turned the needle. This kind of manual stimulation is usually always done in the acupuncture group. It's usually nearly never done in the sham group when you do a study.

So how does stimulation alone affect some of the data. And we have used here a model of gastric slow waves. And the idea behind is that motoric activity is regulated by the autonomic nervous system and with electrical pacemaker you can measure these gastric slow waves. And the primary outcome here was a percentage of regular gastric slow waves, the so-called normogastrica.

And we did it with healthy volunteers, we used stomach 36 and pericard 6 as acupuncture points. We had a sham point here on the upper arm and we had a stimulated acupuncture group. We had acupuncture group without stimulation and we had a sham acupuncture group without stimulation.

And these are the results. So we saw no difference between acupuncture and sham acupuncture in our model. But we found here significant difference and relevant difference between stimulated and non-stimulated acupuncture. So at least in this setting stimulation matters, and that might be something we have to dig in a little bit deeper in future research.