

## **International Neurotoxicology Association 2015 Jacob Hooisma Lecture:**



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### **The objective measurement of drug and environmental influences on brain function**

There are two types of cognitive processes: cold cognitive processes, such as working memory and planning, and hot cognitive processes, such as risky decision-making. In healthy people, these cold and hot processes are well-balanced. An example of cold planning and decision-making might be formulating a business plan, where you decide in a non-emotional way how much of the product you plan to produce, what it will cost and who you plan to sell it to. Hot cognitive decision making might be when an investor has to 'emotionally read' business people pitching their business plans. The investor has a lot to gain financially if they make the correct decision and choose the best plan, but has a lot to lose if they do not. Often, these hot emotional decisions are time-limited and have to be made relatively rapidly.

In this lecture, I will discuss the objective measurement of forms of cold and hot cognition using CANTAB and EMOTICOM, including attention, learning and planning I will also discuss the assessment of environmental influences, such as drugs, on cognition. Finally, I will give examples of the importance of considering neurodevelopment and pharmacogenomics when determining the impact of drugs on the brain.