Drugs and Learning

Don: Yaël, when you experience something new, do you know what happens to your brain?

Yaël: Some of the neurons in your brain build new connections. My brain is rewired, as scientists often put it. Our brains are always changing, in response to new experiences or as a result of learning new information. That’s how we’re able to learn and remember new experiences and information.

D: You got it! But you know what happens to your brain when you experience new things after you done psychol similar drugs, such as amphetamine or cocaine?

Y: The same thing? Right? Or no?

D: The answer is, no! Evidence indicates that prior use of some drugs impairs the brain’s ability to forge new connections between neurons in response to new experiences. Scientists took a bunch of rats and gave some of them either amphetamine or cocaine for twenty days, while giving the others a saline solution for twenty days.

When the twenty days were up, half of the rats were moved from ordinary laboratory cages to fancy new cages equipped with all kinds of bridges, ramps, tunnels, and other toys. After three and half months the scientists examined all of the rats brains.

They discovered that the saline solution rats that were moved to the
new cages had a greater number of neuronal connections than all the other rats, including the drugged rats in the new cages. These findings may aid in explaining some of the behavioral and cognitive impairments viewed in people who are addicted to drugs.

药物与学习能力

Don: Yaël, 你知道当你碰到新的东西的时候，你的大脑会发生什么吗？

Yaël: 大脑中的神经元会建立起新的连接。就像科学家们经常做的，这个时候的大脑在重新装入信息。由于我们接触到了新的东西或是获得了新的信息，我们的大脑一直都在不停的变化——我们就是以这样的方式来学习和记忆新的东西。新的信息。

D: 就是这样的。但是你知道在服用了安非他命或是可卡因这一类药物这样的情况下，接触到新事物时你的大脑又会发生什么吗？

Y: 没什么不同的，吧？对吗？

D: 答案当然是“No”。有科学依据称，在接触新事物之前服用某些药物会破坏大脑神经元之间的建立连接的能力。科学家们用大量的老鼠来做了试验。他们将老鼠分成两组，给第一组老鼠喂食 20 天的安非他命或是可卡因，给第二组老鼠喂食 20 天的盐水。

20 天过后，他们将一半的老鼠从普通的实验笼子转移到“超豪华”的新笼子里，里面有桥梁，有坡道，有隧道，还有其他的玩具。三个半月后，科学家们对老鼠的大脑进行了仔细的研究。

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他们发现，搬入新“家”的喂食盐水的老鼠比其他的老鼠（包括搬入新笼子的喂食了药物的老鼠在内）建立了更多的神经元连接。这些研究发现可能有助于解释为什么那些吸毒成瘾的人会有一定的行为和认知障碍。