TED

更年期如何影响大脑

题目：How menopause affects the brain

作者：Lisa mosconi

Women are works of art. On the outside as on the inside. I am a neuroscientist, and I focus on the inside, especially on women's brains.
女性是艺术品。 外表上是，内里亦是。 我是一名神经科学家， 我的研究领域是内在， 尤其是女性的大脑。

neuroscientist
n.神经科学家

There are many theories on how women's brains differ from men's brains, and I've been looking at brains for 20 years and can guarantee that there is no such thing as a gendered brain. Pink and blue, Barbie and Lego, those are all inventions that have nothing to do with the way our brains are built.
有很多关于 男女大脑差异的学说， 我研究大脑有 20 年了， 我可以向大家保证， 大脑根本不存在 性别之分。 粉色与蓝色，芭比娃娃和乐高积木， 这些发明都与我们大脑的 工作方式无关。

guarantee
v.保证

invention
n.发明

That said, women's brains differ from men's brains in some respects. And I'm here to talk about these differences, because they actually matter for our health. For example, women are more likely than men to be diagnosed with an anxiety disorder or depression, not to mention headaches and migraines. But also, at the core of my research, women are more likely than men to have Alzheimer's disease.
但是，女性大脑 在某些方面与男性的大脑 的确存在差异。 在这里，我会跟大家 聊一聊这些差异， 因为这些差异 对我们的健康至关重要。 比如， 女性比男性更易患上焦虑症 或者抑郁症， 除此之外，还有头痛与偏头痛。 但同时，我在一些 主要的研究工作中也发现， 女性比起男性更易患上 阿尔兹海默症。

anxiety disorder
焦虑症

depression
n.抑郁症

Alzheimer's disease
阿尔兹海默症

Alzheimer's disease is the most common cause of dementia on the planet, affecting close to six million people in the United States alone. But almost two thirds of all those people are actually women. So for every man suffering from Alzheimer's there are two women. So why is that overall? Is it age? Is it lifespan? What else could it be?
阿尔兹海默症是世界上 造成痴呆症状的 最常见因素， 光是在美国就有近六百万人 受到该病症的困扰。 但是，接近三分之二的患者都是女性。 也就是说，每一位 阿尔兹海默症男性患者， 都对应着两位女性患者。 那么总的来说，为什么 会出现这种情况？ 是年龄造成的吗？ 还是与寿命有关？ 还是其他的因素？

A few years ago, I launched the Women's Brain Initiative at Weill Cornell Medicine in New York City, exactly to answer those questions. And tonight, I'm here with some answers.
几年前， 我在纽约市的威尔·康奈尔医学院 发起了“妇女大脑倡议”， 旨在回答这些问题。 所以今晚，我为大家 带来了一些答案。

So it turns out our brains age differently, and menopause plays a key role here for women. Now most people think of the brain as a kind of black box, isolated from the rest of the body. But in reality, our brains are in constant interaction with the rest of us. And perhaps surprisingly, the interactions with the reproductive system are crucial for brain aging in women. These interactions are mediated by our hormones. And we know that hormones differ between the genders.
研究表明，我们的大脑 衰老的方式不同， 对于女性而言，更年期在其中 扮演了一个非常重要的角色。 很多人把大脑想象成一个黑匣子， 把它从人体分离出来。 但是事实上，我们的大脑 每时每刻都在 与身体的其他部分互动。 也许你们会感到惊讶， 它与生殖系统的互动 对于女性大脑的衰老 也起着至关重要的作用。 这些互动都是由我们的 激素来调节的。 我们知道两性的激素水平 是不同的。

lifespan
n.寿命

menopause
n.更年期

interaction
n.合作；相互作用

reproductive system
生殖系统

hormones
n.荷尔蒙

Men have more testosterone, women have more estrogens. But what really matters here is that these hormones differ in their longevity. Men's testosterone doesn't run out until late in life, which is a slow and pretty much symptom-free process, of course.
男性有更多的睾酮素， 女性有更多的雌激素。 但是重点在于， 这些激素持续的时间不同。 男性的睾酮在晚年时期 才会逐渐消失，当然，这整个过程 都非常缓慢且没有症状。

testosterone
n.睾酮素

estrogens
n.雌性激素

Women's estrogens, on the other hand, start fading in midlife, during menopause, which is anything but symptom-free. We associate menopause with the ovaries, but when women say that they're having hot flashes, night sweats, insomnia, memory lapses, depression, anxiety, those symptoms don't start in the ovaries. They start in the brain. Those are neurological symptoms. We're just not used to thinking about them as such. So why is that? Why are our brains impacted by menopause?
而另一方面，女性的雌激素 在中年时期，尤其是 更年期时就开始衰减， 这个过程也伴随着明显的相关症状。 我们把卵巢与更年期建立起了联系， 但是当女性说她们出现了潮热、 盗汗、失眠、 记忆衰退、抑郁、焦虑， 其实这些症状并不是 由卵巢衰老引起的。 它们开始于大脑。 这些都是与神经相关的症状。 我们只是从来没有 从这个角度考虑过这个问题。 那么为什么这么说呢？ 为什么我们的大脑 会受到更年期的影响？

hot flashes
潮热

insomnia
n.失眠

memory lapse
记忆差错

neurological symptoms
神经相关症状

Well, first of all, our brains and ovaries are part of the neuroendocrine system. As part of the system, the brain talks to the ovaries and the ovaries talk back to the brain, every day of our lives as women. So the health of the ovaries is linked to the health of the brain. And the other way around.
首先， 我们的大脑和卵巢都属于 神经内分泌系统。 作为这个系统的一部分， 大脑会与卵巢互动， 同时，卵巢也会把相关信息 反馈回大脑， 这样的过程女性每天都会经历。 所以卵巢的健康 与大脑的健康息息相关。 反之亦然。

neuroendocrine system
神经内分泌系统

At the same time, hormones like estrogen are not only involved in reproduction, but also in brain function. And estrogen in particular, or estradiol, is really key for energy production in the brain.
同时， 雌激素之类的激素并不仅仅 在生殖过程中发挥作用， 同时也在大脑功能中发挥作用。 尤其是雌激素，或者说雌二醇， 在大脑的产能过程中 发挥着非常重要的作用。

At the cellular level, estrogen literally pushes neurons to burn glucose to make energy. If your estrogen is high, your brain energy is high. When your estrogen declines though, your neurons start slowing down and age faster. And studies have shown that this process can even lead to the formation of amyloid plaques, or Alzheimer's plaques, which are a hallmark of Alzheimer's disease.
在细胞层面上， 雌激素确实能够让神经元 消耗葡萄糖以产生能量。 如果你的雌激素水平很高， 那么你大脑的能量就很高。 而当你的雌激素水平降低时， 你的神经系统运转会变慢， 也会衰老得更快。 相关研究表明，这个过程 甚至能够导致淀粉样斑块的形成， 即阿尔兹海默斑块， 它是阿尔兹海默症的 标志性特征。

These effects are stronger in specific brain regions, starting with the hypothalamus, which is in charge of regulating body temperature. When estrogen doesn't activate the hypothalamus correctly, the brain cannot regulate body temperature correctly. So those hot flashes that women get, that's the hypothalamus.
这些作用在大脑中的 特定区域会更强， 首先是在下丘脑区， 这个区域负责体温的调节。 当雌激素无法正常地 激活下丘脑区时， 大脑就不能准确地调控体温。 所以这些女性所体会的潮热症状， 就是下丘脑区失常造成的。

estrogen
n.雌激素

amyloid plaques
淀粉样斑块

hallmark
n.特点；品质
证明

hypothalamus
n.丘脑下部

Then there's the brain stem, in charge of sleep and wake. When estrogen doesn't activate the brain stem correctly, we have trouble sleeping. Or it's the amygdala, the emotional center of the brain, close to the hippocampus, the memory center of the brain.
接着是脑干，这个区域 负责入眠与苏醒。 当雌激素不能正常地 在脑干发挥作用时， 我们就会产生睡眠问题。 还有杏仁核， 它是大脑中的情感中心， 挨着海马体， 海马体是大脑的记忆中心。

amygdala
n.杏仁核

When estrogen levels ebb in these regions, we start getting mood swings perhaps and forget things. So this is the brain anatomy of menopause, if you will.
当雌激素水平在这些区域衰退时， 我们很可能会开始出现情绪的起伏， 记忆力降低。 所以你们可以把这当作 更年期阶段对大脑的解析。

anatomy
n.解剖

menopause
n.更年期

But let me show you what an actual woman's brain can look like. So this is a kind of brain scan called positron emission tomography or PET. It looks at brain energy levels. And this is what you want your brain to look like when you're in your 40s. Really nice and bright. Now this brain belongs to a woman who was 43 years old when she was first scanned, before menopause. And this is the same brain just eight years later, after menopause. If we put them side by side, I think you can easily see how the bright yellow turned orange, almost purple. That's a 30 percent drop in brain energy levels.
下面我们来看看 一个真正的女性大脑 是什么样子。 这是一种脑部扫描技术， 叫做正电子发射断层成像， 简称 PET。 它能够显示大脑能量水平。 这是你在四十岁时 希望自己的大脑所呈现的样子。 看上去非常好，色调很明亮。 这个大脑属于一位 43 岁的女性， 这是她在更年期前做的 第一次脑部扫描。 这是八年后， 同一颗大脑的样子， 这个时候她已经过了更年期了。 如果我们把它们并排放在一起， 我觉得你可以很轻易地看到 这个明亮的黄色 开始变成橘色，越来越接近紫色。 这表示大脑的能量水平 下降了百分之三十。

positron emission tomography
正电子成像技术

Now in general, this just doesn't seem to happen to a man of the same age. In our studies with hundreds of people, we show that middle-aged men usually have high brain energy levels. For women, brain energy is usually fine before menopause, but then it gradually declines during the transition. And this was found independent of age. It didn't matter if the women were 40, 50 or 60. What mattered most was that they were in menopause.
一般来说， 这种改变似乎并不会发生在 同年龄的男性身上。 通过对上百人的大脑进行研究， 我们发现中年男性的 大脑能量值通常很高。 而对于女性，大脑的能量水平 在更年期前一般是正常的， 但是在更年期过程中， 其能量水平会逐渐降低。 这个过程跟年龄无关。 无论女性是在四十岁、五十岁 或者六十岁，这都不重要。 真正重要的是她们 是否处于更年期。

So of course we need more research to confirm this, but it looks like women's brains in midlife are more sensitiver to hormonal aging than just straight up chronological aging. And this is important information to have, because so many women can feel these changes. So many of our patients have said to me that they feel like their minds are playing tricks on them, to put it mildly. So I really want to validate this, because it's real. And so just to clarify, if this is you, you are not crazy.
当然我们需要做更多的研究 来证明这一点， 但是看起来，相比单纯的年龄衰老， 中年女性的大脑对随着年龄改变的 激素衰变会更加敏感。 这一点非常重要， 因为很多女性可以 感受到这些变化。 很多患者都对我说， 她们觉得大脑在跟她们闹别扭， 这还是一种美化了的说法。 所以我真的想要证实这一点， 因为这是真实发生的。 所以在这里澄清一下， 如果你也是其中一员， 你并没有疯掉。

midlife
n.中年

sensitiver
更敏感

It's important. So many women have worried that they might be losing their minds. But the truth is that your brain might be going through a transition, or is going through a transition and needs time and support to adjust. Also, if anyone is concerned that middle-aged women might be underperformers, I'll just quickly add that we looked at cognitive performance, God forbid, right?
这真的非常重要。 很多女性开始忧虑她们 是不是正在失去理智。 但真相是，你的大脑可能 正要经历一场转变， 或者说正在转变中， 你的大脑需要时间和支持去适应。 另外，如果有的人忧虑 中年女性也许会能力表现不佳， 我必须快速地补充一下，我们 也关注了她们的认知表现， 但愿不会真的这样，是吧?

transition
n.过渡；变迁

underperformers
表现不佳者

Let's not do that. But we looked at cognitive performance, and we found absolutely no differences between men and women before and after menopause. And other studies confirm this. So basically, we may be tired, but we are just as sharp.
我们还是不要这么做。 但是当我们聚焦到认知表现时， 我们没有在男性和女性之中 发现明显的差异， 无论是更年期前还是更年期后。 其他的研究也支持了这一点。 所以基本上来说，我们也许疲倦了，但是我们依旧很精明。

That all said, there is something else more serious that deserves our attention. If you remember, I mentioned that estrogen declines could potentially promote the formation of amyloid plaques, or Alzheimer's plaques. But there's another kind of brain scan that looks exactly at those plaques. And we used it to show that middle-aged men hardly have any, which is great. But for women, there's quite a bit of an increase during the transition to menopause.
所以不必杞人忧天。我们的研究表明， 有一些更加严重的问题 值得我们关注。 如果你们还记得， 我提到过雌激素的衰退 可能会促进 淀粉样斑块的形成，或者说 阿尔兹海默斑块。 然而还有另外一种脑部扫描， 是专门用来显示这些斑块的。 我们用它扫描了中年男性的大脑， 基本上没有发现斑块， 这是一件好事。 但是在女性的大脑里，我们发现在进入更年期时， 斑块出现了明显的增加。

Alzheimer's plaques
阿尔兹海默症斑块

And I want to be really, really clear here that not all women develop the plaques, and not all women with the plaques develop dementia. Having the plaques is a risk factor, it is not in any way a diagnosis, especially at this stage.
我要明确的一点是， 并不是所有的女性都会产生这些斑块， 并不是所有有了这些斑块的女性 都会得痴呆。 只能说这些斑块是一个危险因素， 无论如何它都不能作为一种诊断， 尤其是在这个阶段。

But still, it's quite an insight to associate Alzheimer's with menopause. We think of menopause as belonging to middle age and Alzheimer's as belonging to old age. But in reality, many studies, including my own work, had shown that Alzheimer's disease starts with negative changes in the brain years, if not decades, prior to clinical symptoms. So for women, it looks like this process starts in midlife, during menopause. Which is important information to have, because it gives us a time line to start looking for those changes.
但是，这是把阿尔兹海默症 与更年期联系起来的 一个很好的切入点。 我们把更年期归为中年时期的疾病， 而将阿尔兹海默归为老年病。 但是事实上， 很多研究，包括我自己的研究， 都表明阿尔兹海默症初始于 临床症状出现的几年前，甚至几十年前 大脑中就已经出现的那些负面改变。 所以对于女性而言， 这一过程似乎在中年时期， 在更年期阶段就开始了， 这是非常重要的信息， 因为它向我们提供了一条 寻找这些改变的时间线。

So in terms of a time line, most women go through menopause in their early 50s. But it can be earlier, often because of medical interventions. And the common example is a hysterectomy and/or an oophorectomy, which is the surgical removal of the uterus and/or the ovaries.
说到时间线， 绝大多数女性在她们 50 多岁 初期开始经历更年期。 但更年期可以提前， 这常常是因为医疗的干预。 比较常见的就是子宫切除术患者 和/或卵巢切除术患者， 也就是手术切除了子宫 和/或卵巢。

dementia
n.痴呆

diagnosis
n.诊断

clinical symptom
临床表现

hysterectomy
n.子宫切除术

oophorectomy
n.卵巢切除术

And unfortunately, there is evidence that having the uterus and, more so, the ovaries removed prior to menopause correlates with the higher risk of dementia in women. And I know that this is upsetting news, and it's definitely depressing news, but we need to talk about it because most women are not aware of this correlation, and it seems very important information to have.
不幸的是，有证据表明 在更年期以前， 子宫，尤其是卵巢就被摘除和女性患痴呆的风险增加存在相关性。 我知道这是一个坏消息， 令人无法接受， 但我们需要直面这一发现， 因为大多数女性并没有意识到这其中的关联， 而这又是不容忽视的重要信息。

dementia
n.痴呆

Also, no one is suggesting that women decline these procedures if they need them. The point here is that we really need to better understand what happens to our brains as we go through menopause, natural or medical, and how to protect our brains in the process.
而且，如果女性需要做这些手术， 没人建议她们拒绝。 重点就在于，我们真的 需要更好地理解 当我们处于更年期时， 大脑发生了什么，不管是自然的 还是医疗干预造成的， 以及在这个过程中 我们如何保护自己的大脑。

So how do we do that? How do we protect our brains? Should we take hormones? That's a fair question, it's a good question. And the shortest possible answer right now is that hormonal therapy can be helpful to alleviate a number of symptoms, like hot flashes, but it's not currently recommended for dementia prevention. And many of us are working on testing different formulations and different dosages and different time lines, and hopefully, all this work will lead to a change in recommendations in the future.
那么我们应该怎么做呢？ 我们怎样来保护自己的大脑？ 我们应该补充激素吗？ 这是一个很好的问题。 目前最简洁的答案是， 激素治疗可以有助于 缓解如潮热等一系列症状， 但是现在并不推荐 用这一疗法预防痴呆。 我们的研究团队中有很多人 致力于测试不同的配方， 不同的剂量和不同的时间线， 我们期望所有的努力在未来能引导 一系列建议上的改变。

hormonal therapy
激素治疗

dementia
n.痴呆

recommendation
n.推荐；劝告

Meanwhile, there are other things that we can do today to support our hormones and their effects on the brain that do not require medications but do require taking a good look at our lifestyle. That's because the foods we eat, how much exercise we get, how much sleep we get or don't get, how much stress we have in our lives, those are all things that can actually impact our hormones -- for better and for worse.
同时，我们目前也可以 采取其他的行动 来支持我们的激素 以及它们对大脑的作用， 不需要治疗， 但是确实需要我们好好 审视自己的生活方式。 这是因为我们所吃的食物， 我们的锻炼量， 我们的睡眠时长， 我们生活中的压力， 这些都能够影响 我们的激素水平—— 正面和负面都有。

Food, for example. There are many diets out there, but studies have shown that the Mediterranean diet in particular is supportive of women's health. Women on this diet have a much lower risk of cognitive decline, of depression, of heart disease, of stroke and of cancer, and they also have fewer hot flashes. What's interesting about this diet is that it's quite rich in foods that contain estrogens in the form of phytoestrogens or estrogens from plants that act like mild estrogens in our bodies. Some phytoestrogens have been linked to a possible risk of cancer, but not the ones in this diet, which are safe. Especially from flax seeds, sesame seeds, dried apricots, legumes and a number of fruits. And for some good news, dark chocolate contains phytoestrogens, too.
比如，食物。 世面上有多种食物， 研究表明，地中海饮食尤其能够对女性的健康起到积极的作用。 处于这种饮食下的女性更不容易 出现认知降低，抑郁， 心脏疾病，中风和癌症， 并且她们出现潮热症状的频率更低。 而且这种饮食有趣的地方在于， 这些食物富含 来源于植物的雌激素， 就像我们体内温和的 雌激素一样产生作用。 一些植物雌激素被认为 有致癌风险， 但这类饮食中的 植物雌激素则相对安全， 尤其是来源于亚麻籽、 芝麻、杏干、 豆类以及一些水果中的雌激素。 还有更好的消息， 黑巧克力也含有植物雌激素。

heart disease
心脏病

estrogens
n.雌激素

phytoestrogen
n.植物雌激素

So diet is one way to gain estrogens, but it's just as important to avoid things that suppress our estrogens instead, especially stress. Stress can literally steal your estrogens, and that's because cortisol, which is the main stress hormone, works in balance with our estrogens. So if cortisol goes up, your estrogens go down. If cortisol goes down, your estrogens go back up. So reducing stress is really important. It doesn't just help your day, it also helps your brain.

所以饮食是一种获取雌激素的途径， 但是避开那些会压抑 雌激素水平的东西也同样重要， 特别是压力。 压力真的能“偷走”我们的雌激素， 这是因为皮质醇， 一种主要的压力激素， 与我们的雌激素相平衡。 所以，如果皮质醇水平上升， 雌激素水平就会下降。 如果皮质醇水平降低， 雌激素水平就会恢复。 所以减少压力非常重要。 它并不仅会让你的生活变得更好， 还有助于保持大脑健康。

So these are just a few things that we can do to support our brains and there are more. But the important thing here is that changing the way we understand the female brain really changes the way that we care for it, and the way that we frame women's health. And the more women demand this information, the sooner we'll be able to break the taboos around menopause, and also come up with solutions that actually work, not just for Alzheimer's disease, but for women's brain health as a whole. Brain health is women's health.

Alzheimer's disease
阿尔兹海默症

我提到的只是少数几种 可以用来支持我们大脑的方法， 还有很多其他方法值得尝试。 但是重点在于， 转变我们对于女性大脑的认识 真的会改变我们保养大脑的方式， 以及转变我们表述女性 健康的方式。 女性对这种信息的需求越多， 我们就能越早打破关于 更年期的禁忌， 并且找出真正有效的应对方法， 不仅是针对阿尔兹海默症，而是为了女性大脑的整体健康。 大脑的健康就意味着女性的健康。