

身体上的疾病问题, 会导致一些事实上的大脑疾病问题

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1. Many mental-health conditions have bodily triggers 许多心理健康状况都有身体触发因素

Evidence is accumulating 积累 /that an array of 大堆 ; 大群 ; 大量;阵列 infections can, in some cases, trigger (v.) conditions such as obsessive-compulsive (a.)强迫观念与行为的 disorder, tics 抽动, anxiety, depression and even psychosis 精神病. And infections are one small piece of the puzzle. It is increasingly clear /that *inflammatory disorders* and *metabolic 新陈代谢的 conditions* can also have sizeable 相当大的 effects on mental health, though psychiatrists 精神病学家 rarely look for them. All this 系 is symptomatic of large problems in psychiatry 精神病学家.

越来越多的证据表明, 在某些情况下, 一系列感染, 可能引发强迫症、抽动、焦虑、抑郁, 甚至精神病等病症。感染只是这个难题的一小部分。越来越清楚的是, "炎症性疾病"和"代谢状况", 也会对心理健康产生相当大的影响, 尽管精神科医生很少寻找它们。所有这些都是精神病学中重大问题的症状。

Example 1. 案例

tic, tics

是一种突发、重复的不随意运动 (motor movement) 或发声 (vocalization), 其无节律性且涉及某范围独立的肌肉群。抽动通常快速且短暂, 且可能类似于正常的行为特征或手势。

医学术语 "抽动" 大多分为 "运动性抽动" 和 "发声性抽动"。

→ 前者是头面部、颈、肩、躯干、四肢肌肉不自主、突发、快速收缩运动 ;

→ 后者是口鼻、咽喉及呼吸肌群的收缩, 其造成的气流而发声。

然而, 有时二者不易分清, 甚至有 "感觉性抽动" (sensory tics), 即在前二者发作之前, 有身体局部不适感, 或被认为是先兆症状 (前驱症状)。

inflammatory disorders

炎症性疾病: 一类由于机体免疫系统异常反应, 或感染等原因, 引起的疾病, 通常表现为组织或器官的炎症反应。

A revised (a.)修正过的, 经过修改的 *understanding* could have profound (影响) 深刻的, 极大的 consequences /for the millions of people with mental-health conditions /that are currently poorly treated. For example, over 90% of patients with *bipolar (a.)双相型障碍的 ; 躁狂抑郁性精神病的 disorder* will have recurrent (a.)反复出现的 ; 重复发生的 illness during their lives; and in children with obsessive-compulsive 强迫观念与行为的 disorder (OCD) over 46% /do not achieve remission (重病的) 缓解期, 减轻期. Some 50-60% of patients with

depression /eventually respond (v.)有改进；见起色；显出效果 /after trying many different drugs.

修改后的理解, 可能会对目前治疗不佳的数百万患有精神健康问题的人, 产生深远的影响。例如, 超过90%的"双相情感障碍"患者, 在其一生中, 会出现病情反复发作的情况; 在患有"强迫症" (OCD) 的儿童中, 超过46% 的儿童未获得缓解。大约 50-60% 的抑郁症患者, 在尝试多种不同的药物后, 最终得到缓解。

The field of psychiatry /has historically been **focused around** the description and classification 分类; 归类; 分级 of symptoms, rather than **on** underlying causes. The Diagnostic 诊断的; 判断的 and Statistical Manual of Mental Disorders (DSM), sometimes known as the bible of psychiatry, emerged in 1952 /and contains descriptions, symptoms and diagnostic criteria (评判或做决定的) 标准, 准则, 尺度. **On the one hand**, it has brought helpful consistency (n.)一致性; 连贯性 to diagnosis. **But on the other**, it has grouped patients into cohorts (有共同特点或举止类同的) 一群人, 一批人 /without any sense of **the underlying mechanisms** behind their conditions.

There is **so** much overlap (范围方面的) 重叠部分 between the symptoms of depression and anxiety, for example, **that** some wonder (v.) /if these are actually even separate (a.) categories of illness. At the same time, depression and anxiety come in many different subtypes 子类型 — panic disorder 恐慌症 with and without agoraphobia 公共场所恐惧, for example, are distinct 截然不同的; 有区别的; 不同种类的 diagnoses 诊断; (问题原因的) 判断 — not all of which may be meaningfully distinct.

This can lead to **patient groups in drug trials** being **so** diverse (a.)不同的; 相异的; 多种多样的; 形形色色的 **that** drugs and therapies fail (v.) /simply because 主 the cohort being studied 谓 has too little in common.

精神病学领域, 历来关注症状的描述和分类, 而不是根本原因。精神疾病诊断和统计手册 (DSM), 有时被称为精神病学圣经, 于 1952 年问世, 包含描述、症状, 和诊断标准。一方面, 它为诊断带来了有益的一致性。但另一方面, 它将患者分组, 却对其病情背后的潜在机制没有任何了解。例如, "抑郁症"和"焦虑症"的症状, 有很多重叠之处, 以至于有些人怀疑它们实际上是否是不同的疾病类别。与此同时, 抑郁症和焦虑症, 有许多不同的亚型——例如, "伴有"或"不伴有"广场恐惧症的恐慌症, 是不同的诊断——并非所有亚型, 都具有有意义的区别。这可能导致药物试验中的患者群体如此多样化, 以至于药物和疗法, 仅仅因为所研究的群体没有太多共同点而失败。

Example 2. 案例 diagnosis

(n.)

~ (of sth) : the act of discovering or identifying the exact cause of an illness or a problem 诊断; (问题原因的) 判断

- diagnosis (n.) of lung cancer 肺癌的诊断

- They are waiting for the doctor's diagnosis. 他们正在等待医生的诊断结论。

agoraphobia

→ 希腊词根-phobia表...恐怖症, 而agora ['æɡɒrə] n.市场; 集会, 则尤指雅典的阿格拉广场 (类似于古罗马的forum), 词根本意是聚集, 与日耳曼词源的crowd同源。这个德国人看来很会玩。

主 Previous attempts to find **causal (a.)**因果关系的; 前因后果的; 原因的 **mechanisms** for mental-health conditions /谓 have run into difficulty. In 2013 the National Institute of Mental Health, an American government agency, made a heroic gamble /to move away 远

离 from research based on the DSM' s symptom-based categories. Money was funnelled (v) (使) 流经狭窄空间, 经过漏斗形口子 into basic research on disease processes of the brain, hoping to directly **connect** genes **to** behaviours. Some \$20bn of new research was funded /but the idea failed (v.) spectacularly 壮观地; 引人注目地; 令人印象深刻地, 非常 — most of the genes uncovered 揭开盖子;发现; 揭露; 揭发 /had tiny effects.

此前寻找心理健康状况“因果机制”的尝试遇到了困难。2013 年, 美国政府机构国家心理健康研究所, 进行了一场英勇的赌博, 放弃了基于 DSM 症状分类的研究。资金被投入到大脑疾病过程的基础研究中, 希望将“基因”与“行为”直接联系起来。大约 200 亿美元的新研究得到了资助, 但这个想法却彻底失败了——大多数被发现的基因, 都只产生微小的影响。

Example 3. 案例

bn

(BrE) (in writing) billion (书写形式) 十亿

A key moment came in 2007, when work at the University of Pennsylvania showed that /主 100 patients with rapidly progressing 迅速进展 psychiatric symptoms or cognitive impairments (身体或智力方面的) 缺陷, 障碍, 损伤; 某种缺陷 /谓 actually had an autoimmune 自体免疫的; 自身免疫的 disease. Their bodies were creating antibodies **against** key receptors 受体; 接受器 in nerve cells known as NMDA receptors. These lead to brain swelling 膨胀; 肿胀 /and can trigger a range of symptoms including paranoia (对别人的) 无端恐惧, 多疑;妄想症; 偏执狂, hallucinations and aggression. The disease was dubbed “anti-NMDA-receptor encephalitis” . Most important of all, in many cases it was treatable by removing the antibodies, or using immunotherapy drugs or steroids. Studies of patients having a first episode of psychosis have found that between 5% and 10% also have brain-attacking antibodies.

2007 年是一个关键时刻, 宾夕法尼亚大学的研究表明, 100 名“精神症状”或“认知障碍”快速进展的患者, 实际上患有“自身免疫性疾病”。他们的身体正在产生针对“神经细胞中关键受体 (称为 NMDA 受体) ”的抗体。这些会导致大脑肿胀, 并引发一系列症状, 包括偏执、幻觉, 和攻击性。这种疾病被称为 “抗 NMDA 受体脑炎” 。 最重要的是, 在许多情况下, 可以通过去除抗体, 或使用免疫治疗药物, 或类固醇, 来治疗。对首次出现精神病的患者进行的研究发现, 5% 至 10% 的患者, 也存在攻击大脑的抗体。

Example 4. 案例

paranoia

→ para-, 在旁, 在周围, -noia, 思想, 想法, 词源同 nous, matanoia. 即胡思乱想, 引申词义妄想症, 偏执狂。

Paranoia is an instinct (n.) 本能; 天性 or *thought process* 思维过程 that is believed to be heavily influenced by anxiety, suspicion, or fear, often to the point of delusion 错觉; 谬见; 妄想 and irrationality 不合理, 无理性. *Paranoid thinking* typically includes *persecutory (a.)* 迫害的 *beliefs*, or *beliefs of conspiracy* 密谋策划; 阴谋 concerning 关于, 涉及 a *perceived* 感知到的; 感观的 *threat* towards oneself (i.e., "Everyone is out to get me"). Paranoia is distinct from phobias 恐惧症, which also involve irrational 不合逻辑的; 没有道理的 fear, but usually no blame.

偏执是一种本能或思维过程, 被认为受到焦虑、怀疑或恐惧的严重影响, 常常达到妄想和非理性的程度。偏执思维通常包括迫害信念, 或关于对自己的感知威胁的阴谋信念 (即 “每个人都想抓我”) 。偏执狂与恐惧症不同, 恐惧症也涉及非理性的恐惧, 但通常没有责备。

主 Making *false accusations* 指控, 指责 and the general distrust (n.) 不信任; 怀疑 of other people /谓 also frequently accompany (v.) paranoia. For example, a paranoid person might believe an incident was intentional (a.) 故意的; 有意的; 存心的 /when most people would view

it as an accident or coincidence. Paranoia is a central 最重要的；首要的；主要的 symptom of psychosis.

妄想症也经常伴随着“虚假指控”，和“对他人的普遍不信任”。例如，偏执的人可能会认为某个事件是故意的，而大多数人将其视为意外或巧合。偏执狂是精神病的主要症状。

It seems likely that, in rare cases, OCD can be caused by the immune system, too. One 64-year-old man reported spending an extraordinary 不平常的；不一般的 amount of time **obsessively 过分地；着迷地，着魔似地 trimming** (v.) his lawn /only to look back on this behaviour the next day with feelings of regret and guilt. Researchers found (v.) these symptoms were being caused by antibodies 后定 attacking the neurons in his brain.

在极少数情况下，“强迫症”似乎也可能是由免疫系统引起的。一名 64 岁的男子表示，他花费了大量时间痴迷于修剪草坪，但第二天回想起这一行为时，却感到后悔和内疚。研究人员发现这些症状是由抗体攻击他大脑中的神经元引起的。

More recently, Belinda Lennox, head of psychiatry at the University of Oxford, has conducted (v.) tests on thousands of patients with psychosis 精神病. She has found *increased rates of antibodies* in the blood samples of about 6% of patients, mostly targeting the NMDA receptors. She says /it remains unknown /how a single set of antibodies is capable of producing *clinical presentations* 临床表现 **ranging from** seizures 癫痫，痉挛 to psychosis and encephalitis 脑炎. **Nor is it known** why these antibodies are made, or if they can cross the blood-brain barrier, a membrane (身体内的) 膜 that controls access to the brain. She **assumes**, though, **that** they do — preferentially 优先地；优惠地 sticking to the hippocampus 海马体, which would explain /how they affect memory /and lead to delusions and hallucinations 幻觉，幻视，幻听 (尤指生病或毒品所致) .

最近，牛津大学精神病学系主任贝琳达·伦诺克斯 (Belinda Lennox)，对数千名精神病患者进行了测试。她发现约 6% 患者的血液样本中，抗体含量增加，主要是针对 NMDA 受体。她说，目前尚不清楚，一组抗体如何能够产生从“癫痫发作”到“精神病”和“脑炎”的临床表现。也不知道为什么会产生这些抗体，也不知道它们是否可以穿过“血脑屏障”（一种控制进入大脑的膜）。不过，她认为，它们确实如此——优先附着在海马体上，这可以解释它们如何影响记忆，并导致妄想和幻觉。

Example 5. 案例

seizure

→ seize, 夺取，占领，-ure, 名词后缀。引申词义疾病突然发作。

encephalitis

→ en-, 进入，使。-cephal, 头，脑。-itis, 炎症。

Dr Lennox says /主 a shift in medical thinking 系 is needed /to appreciate (v.)理解；意识到；领会 the damage 后定 the immune system can do to the brain. The “million dollar question”, she says, is whether these conditions are treatable (病或伤) 可医治的. Work on patients with *immune-driven psychosis* suggests that /主 a range of strategies including *removing antibodies* and *taking immunotherapy drugs or steroids* /谓 can be effective treatments.

伦诺克斯博士表示，医学思维需要转变，以认识到免疫系统对大脑造成的损害。她说，“百万美元的问题”是这些病症是否可以治疗。对“免疫驱动性精神病患者”的研究表明，包括“去除抗体”和“服用免疫治疗药物”，或“类固醇”在内的一系列策略，可以是有效的治疗方法。

Another important discovery is that /metabolic (a.)新陈代谢的 disturbances can also affect (v.) mental health. The brain is an energy-hungry organ, and 主 *metabolic alterations* 代谢改变 后定 related to energy pathways /谓 have been **implicated (v.)**牵涉, 涉及 (某人) in a diverse range of conditions, including schizophrenia 精神分裂症, bipolar disorder, psychosis, eating disorders and major depressive disorder.

另一个重要发现是: "代谢紊乱"也会影响心理健康。大脑是一个耗能器官, 与能量途径相关的代谢改变, 与多种疾病有关, 包括精神分裂症、双相情感障碍、精神病、饮食失调, 和重度抑郁症。

Example 6. 案例
schizophrenia

→ schizo-, 分开, 分裂, -phren, 大脑, 脑部, 词源同 phrenetic, frantic, frenetic. -ia, 表疾病。引申词义精神分裂症。

...One active area of research at the clinic /is the potential benefits of the ketogenic (a.)生酮的; 能转化为酮的 diet, in which *carbohydrate* 碳水化合物, 糖类 *intake* (n.) (食物、饮料等的) 摄取量, 吸入量 is limited. This diet forces (v.) the body to burn (v.) fat for energy, thereby creating chemicals known as ketones 酮类 which can act as a fuel source for the brain /when glucose 葡萄糖; 右旋糖 is in limited supply.

...该诊所的一个活跃研究领域是生酮饮食的潜在好处, 其中碳水化合物的摄入量受到限制。这种饮食迫使身体燃烧脂肪获取能量, 从而产生称为酮的化学物质, 当葡萄糖供应有限时, 酮可以充当大脑的燃料来源。

13 trials are under way worldwide /looking at the effects of metabolic therapies 代谢疗法 on serious mental illness. Preliminary 预备性的; 初步的; 开始的 results (n.) have shown a "large group of people responding in an incredibly meaningful way. These are people that have failed (v.) drugs, talk therapy, trans-cranial (颅的, 与颅骨有关的)经颅的 stimulation /and maybe electroconvulsive-shock 电休克 therapy." He says that /he keeps meeting psychiatrists who have come to the metabolic 新陈代谢的 field /**because of** patients whose *low-carb* 低碳水化合物 *diets* were followed by huge improvements in mood. Results from *randomised controlled trials* 随机对照试验 are expected in the next year or so.

全球范围内正在进行 13 项试验, 研究"代谢疗法"对严重精神疾病的影响。初步结果显示, "一大群人以极其有意义的方式做出了回应。这些人在药物、谈话治疗、经颅刺激, 以及可能的电休克治疗中, 都失败了。" 他说, 他不断会见精神科医生, 他们来到"代谢领域", 因为患者在"低碳水化合物"饮食后, 情绪得到了巨大改善。随机对照试验的结果, 预计将在明年左右公布。

Example 7. 案例
trans-cranial

ADJ. across or through the skull 经颅的

electroconvulsive

adj.电休克的; 电惊厥的

It is not only understanding of the immune and metabolic systems that is improving. *Vast quantities of data* are now being parsed (v.)对 (句子) 作语法分析; 仔细研究, 分析 with unprecedented 前所未有的; 空前的; 没有先例的 speed, sometimes with the help of artificial

intelligence (AI), to uncover (v.) connections 后定 previously hidden *in plain* 清楚的；明显的；浅白的 *sight*.

改善的不仅仅是对免疫和代谢系统的了解。现在，大量数据正在以前所未有的速度被解析，有时还借助人工智能 (AI)，以揭示以前隐藏在视线中的联系。

Example 8. 案例
in plain sight

在容易被看到的地方

This could **at long last** 终于；经过很多苦恼（或麻烦）之后 **bring** biology **more centrally** 在中心 **into** the diagnosis of mental health, potentially leading to more individualised 针对个人的，个性化的 treatments, as well as 和，以及，还有 better ones. In early October 2023, UK Biobank, a biomedical database, published data /revealing that 主 people with depressive episodes （人生的）一段经历；（小说的）片段，插曲 谓 had significantly higher levels of *inflammatory proteins* 炎性蛋白, such as cytokines 细胞因子, in the blood. A study last year also found /about a quarter of depressed patients had evidence of low-grade inflammation. This could be useful to know /as other work suggests (v.) /主 patients with inflammation 谓 respond (v.) poorly to antidepressants.

这最终可能使生物学更加集中地参与心理健康的诊断，从而有可能带来更个性化的治疗以及更好的治疗。2023 年 10 月上旬，生物医学数据库“英国生物银行” (UK Biobank) 发布的数据显示，患有抑郁症的人血液中，“细胞因子”等“炎症蛋白”的水平显着升高。去年的一项研究还发现，大约四分之一的抑郁症患者，有轻度炎症的证据。了解这一点可能很有用，因为其他研究表明，炎症患者对抗抑郁药物反应不佳。

All such developments are promising. But many of the field' s problems could be resolved /by relaxing (v.)放宽（限制等） the distinctions that exist today between neurology 神经学；神经病学, which studies (v.) and treats (v.)医疗；医治；治疗 *physical* 身体的；肉体的；躯体的, *structural and functional disorders* of the brain, and psychiatry, which **deals with** mental, emotional and behavioural disorders.

Dr Lennox finds it extraordinary (a.)意想不到的；令人惊奇的；奇怪的 /that the treatment options **differ (v.) so completely** 完全地，彻底地 /if a patient **ends up** on a neurology 神经病学 ward 病房；病室 **or** a psychiatric ward. She wants *antibody testing* to be more routine in Britain /when someone **presents (v.)**使发生；使经历 **with a sudden post-viral (a.)**病毒感染后的 *mental illness* 后定 that(就是指前面的病毒后精神疾病) does not get better with standard treatments.

所有这些发展都充满希望。但该领域的许多问题，可以通过放宽“神经病学”和“精神病学”之间的区别来解决。“神经病学研究”和治疗大脑的身体、结构和功能障碍；而“精神病学”则处理精神、情绪和行为障碍。Lennox 博士发现，如果患者最终住进“神经科病房”或“精神科病房”，治疗方案会如此完全不同，这是很不寻常的。她希望在英国，当有人突然出现病毒后精神疾病，并且标准治疗无法改善时，抗体检测能够更加常规化。

Example 9. 案例
present

(v.) **sb with sth | ~ sth** : to cause sth to happen or be experienced使发生；使经历
- Your request shouldn' t present (v.) us with any problems.你的请求应该不会给我们造成任何问

题。

- Use of these chemicals may present (v.) a fire risk. 使用这些化学品可能有失火的危险。

主 **Those** with ME/CFS, *a post-infectious 感染后的 condition* which comes with a series of *cognitive problems* such as *attention and concentration deficits* 赤字；逆差；亏损, 系 **were** once **dismissed (v.)** 不予考虑；摒弃；对...不屑一提 as *malingerer* 装病 or diagnosed with “yuppie flu” 雅痞型流感，慢性疲劳综合征. New work suggests (v.) /it is associated with both immune and metabolic dysfunction (关系或行为的) 异常；机能障碍；功能不良.

ME/CFS 是一种感染后病症，伴有“注意力”和“集中力”缺陷等一系列认知问题，患有 ME/CFS 的人，曾被视为装病，或被诊断为“雅皮士流感”。新的研究表明，它与免疫和代谢功能障碍有关。

2. (pure) Many mental-health conditions have bodily triggers

Evidence is accumulating that an array of infections can, in some cases, trigger conditions such as obsessive-compulsive disorder, tics, anxiety, depression and even psychosis. And infections are one small piece of the puzzle. It is increasingly clear that inflammatory disorders and metabolic conditions can also have sizeable effects on mental health, though psychiatrists rarely look for them. All this is symptomatic of large problems in psychiatry.

A revised understanding could have profound consequences for the millions of people with mental-health conditions that are currently poorly treated. For example, over 90% of patients with bipolar disorder will have recurrent illness during their lives; and in children with obsessive-compulsive disorder (OCD) over 46% do not achieve remission. Some 50-60% of patients with depression eventually respond after trying many different drugs.

The field of psychiatry has historically been focused around the description and classification of symptoms, rather than on underlying causes. The Diagnostic and Statistical Manual of Mental Disorders (DSM), sometimes known as the bible of psychiatry, emerged in 1952 and contains descriptions, symptoms and diagnostic criteria. On the one hand, it has brought helpful consistency to diagnosis. But on the other, it has grouped patients into cohorts without any sense of the underlying mechanisms behind their conditions. There is so much overlap between the symptoms of depression and anxiety, for example, that some wonder if these are actually even separate categories of illness. At the same time, depression and anxiety come in many different subtypes—panic disorder with and without agoraphobia, for example, are distinct diagnoses—not all of which may be meaningfully distinct. This can lead to patient groups in drug trials being so diverse that drugs and therapies fail simply because the cohort being studied has too little in common.

Previous attempts to find causal mechanisms for mental-health conditions have run into difficulty. In 2013 the National Institute of Mental Health, an American government agency, made a heroic gamble to move away from research based on the DSM’s symptom-based categories. Money was funnelled into basic research on disease processes of the brain,

hoping to directly connect genes to behaviours. Some \$20bn of new research was funded but the idea failed spectacularly—most of the genes uncovered had tiny effects.

A key moment came in 2007, when work at the University of Pennsylvania showed that 100 patients with rapidly progressing psychiatric symptoms or cognitive impairments actually had an autoimmune disease. Their bodies were creating antibodies against key receptors in nerve cells known as NMDA receptors. These lead to brain swelling and can trigger a range of symptoms including paranoia, hallucinations and aggression. The disease was dubbed “anti-NMDA-receptor encephalitis” . Most important of all, in many cases it was treatable by removing the antibodies, or using immunotherapy drugs or steroids. Studies of patients having a first episode of psychosis have found that between 5% and 10% also have brain-attacking antibodies.

It seems likely that, in rare cases, OCD can be caused by the immune system, too. One 64-year-old man reported spending an extraordinary amount of time obsessively trimming his lawn only to look back on this behaviour the next day with feelings of regret and guilt. Researchers found these symptoms were being caused by antibodies attacking the neurons in his brain.

More recently, Belinda Lennox, head of psychiatry at the University of Oxford, has conducted tests on thousands of patients with psychosis. She has found increased rates of antibodies in the blood samples of about 6% of patients, mostly targeting the NMDA receptors. She says it remains unknown how a single set of antibodies is capable of producing clinical presentations ranging from seizures to psychosis and encephalitis. Nor is it known why these antibodies are made, or if they can cross the blood-brain barrier, a membrane that controls access to the brain. She assumes, though, that they do—preferentially sticking to the hippocampus, which would explain how they affect memory and lead to delusions and hallucinations.

Dr Lennox says a shift in medical thinking is needed to appreciate the damage the immune system can do to the brain. The “million dollar question” , she says, is whether these conditions are treatable. Work on patients with immune-driven psychosis suggests that a range of strategies including removing antibodies and taking immunotherapy drugs or steroids can be effective treatments.

Another important discovery is that metabolic disturbances can also affect mental health. The brain is an energy-hungry organ, and metabolic alterations related to energy pathways have been implicated in a diverse range of conditions, including schizophrenia, bipolar disorder, psychosis, eating disorders and major depressive disorder.

...One active area of research at the clinic is the potential benefits of the ketogenic diet, in which carbohydrate intake is limited. This diet forces the body to burn fat for energy, thereby creating chemicals known as ketones which can act as a fuel source for the brain when glucose is in limited supply.

13 trials are under way worldwide looking at the effects of metabolic therapies on serious mental illness. Preliminary results have shown a “large group of people responding in an incredibly meaningful way. These are people that have failed drugs, talk therapy, transcranial stimulation and maybe electroconvulsive-shock therapy.” He says that he keeps meeting psychiatrists who have come to the metabolic field because of patients whose low-carb diets were followed by huge improvements in mood. Results from randomised controlled trials are expected in the next year or so.

It is not only understanding of the immune and metabolic systems that is improving. Vast quantities of data are now being parsed with unprecedented speed, sometimes with the help of artificial intelligence (AI), to uncover connections previously hidden in plain sight.

This could at long last bring biology more centrally into the diagnosis of mental health, potentially leading to more individualised treatments, as well as better ones. In early October 2023, UK Biobank, a biomedical database, published data revealing that people with depressive episodes had significantly higher levels of inflammatory proteins, such as cytokines, in the blood. A study last year also found about a quarter of depressed patients had evidence of low-grade inflammation. This could be useful to know as other work suggests patients with inflammation respond poorly to antidepressants.

All such developments are promising. But many of the field’s problems could be resolved by relaxing the distinctions that exist today between neurology, which studies and treats physical, structural and functional disorders of the brain, and psychiatry, which deals with mental, emotional and behavioural disorders. Dr Lennox finds it extraordinary that the treatment options differ so completely if a patient ends up on a neurology ward or a psychiatric ward. She wants antibody testing to be more routine in Britain when someone presents with a sudden post-viral mental illness that does not get better with standard treatments.

Those with ME/CFS, a post-infectious condition which comes with a series of cognitive problems such as attention and concentration deficits, were once dismissed as malingering or diagnosed with “yuppie flu”. New work suggests it is associated with both immune and metabolic dysfunction.
