Beating a Retreat

A CONNECTION BETWEEN INFLAMMATION AND ISOLATION

“GOING BACK TO the cave” is how psychiatrist Andrew Miller describes one’s retreat into solitude and darkness when injured or ill. Mounting evidence shows how ingrained the energy-preserving survival mechanism is: Inflammation, the body’s response to injury, actually alters levels of serotonin and other brain chemicals, causing behaviors matching those of clinical depression. This pathway could explain why depression evolved, and it’s catalyzing a revolution in drugs to treat the disease.

More than a decade ago, researchers in France noticed “sickness behavior” in mice when they induced an immune reaction by injecting cytokines, substances involved in inflammation. The mice became uninterested in the running wheel, sugar water, and sex. More recently, in humans, doctors noticed well-adjusted cancer and hepatitis C patients falling to pieces after treatment with immunity-boosting drugs. The drugs increased cytokine levels, caused inflammation and other changes, breeding more cytokines in the brain and affecting mood regulation.

Inflammation may also mediate the link between stress and depression. Stress, which evolved in part to keep you alert under threat of attack, triggers the immune system in preparation for healing wounds. The immune response then leads to sickness behaviors like fatigue and social withdrawal.

“The wave of the future is in developing treatments that block cytokines to prevent inflammation and treat depression,” Miller predicts. Unfortunately, common anti-inflammatories such as ibuprofen appear to act too late in the signaling pathway to do the job. They target bodily inflammation after the inflammation message has already been sent to the brain. In the meantime, Miller, director of the Mind-Body Program at Emory University, suggests hitting the gym to reduce stress before the cave beckons.

—Amy Maxmen