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Feature

The link between food and mental health

New research connects nutrition and mental illness, though more rigorous research is needed

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Can nutrition affect your mental health? A growing research literature suggests the answer could be yes.

Western-style dietary habits, in particular, come under special scrutiny in much of this research. A meta-analysis including studies from 10 countries, conducted by researchers at Linyi People's Hospital in Shandong, China, suggests that dietary patterns may contribute to depression (*Psychiatry Research*, Vol. 253, 2017), for example. Dietary patterns are also related to hippocampal volume in older adults, according to a study led by Felice Jacka, PhD, director of the Food and Mood Centre at Deakin University in Australia (*BMC Medicine*, Vol. 13, No. 215, 2015).

And in a new study of 120 children and adolescents, consuming fast food, sugar and soft drinks was associated with a higher prevalence of diagnosed attention-deficit/hyperactivity disorder (ADHD) (*Pediatrics*, Vol. 139, No. 2, 2017). Led by Maria Izquierdo-Pulido, PharmD, PhD, of the University of Barcelona's department of nutrition, food science and gastronomy, the study also found that children who ate fewer vegetables, fruit, fatty fish and other foods associated with the Mediterranean diet were more likely to have ADHD symptoms, even after accounting for potential confounders. While these associations don't prove causality, the authors note, they suggest that diet

could play a role in ADHD's development through as yet unknown mechanisms.

And small dietary changes can make a big difference. In another study led by Jacka, 67 depressed adults were randomly assigned to seven individual nutritional consulting sessions with a dietician or seven social support sessions over 12 weeks. The dietician helped participants make adjustments to their diets, such as eating less junk food and more nutrient-rich foods such as produce, fish and legumes. While just 8 percent of the control group achieved remission, almost a third of the dietary intervention group did (*BMC Medicine*, Vol. 15, No. 23, 2017).

Such studies are part of the growing evidence base within nutritional psychology, the study of the role that nutrition—whether dietary patterns, broad-based multinutrient supplements or specific vitamins, minerals or other nutrients—plays in the etiology of mental health problems as well as their treatment. Although much of the research is still limited to single-case studies and observational studies—with researchers themselves calling for more rigorous, more expansive research designs and larger, more diverse research samples—it offers tantalizing hints at the potential for new prevention strategies and treatments for people with a wide range of psychological problems.

A growing body of research

In the 1990s, when experimental psychologist Bonnie J. Kaplan, PhD, first heard people claiming they could treat ADHD with a multinutrient compound, she was dismissive. Then she saw preliminary data showing improvements in children with ADHD who had received the supplement. She changed her mind and her research focus, becoming a pioneer in the emerging field of nutritional psychology.

One of the broad-based formulas that Kaplan—now a professor emerita at the University of Calgary's Cumming School of Medicine—and many others study was originally developed by a father seeking to cure his family's mental health problems without the side effects of psychotropic medications. A mix of vitamins, minerals and amino acids, the supplement aims to address deficiencies in the nutrients required for optimal brain functioning.

The family's story and that early research convinced Kaplan to open her mind and subject the compound to scientific inquiry. Since then, in several small studies, she has found promising evidence for its use in such diverse areas as improving emotional control after a traumatic brain injury (*Annals of Psychiatry and Mental Health*, Vol. 4, No. 5, 2016), treating emotional and behavioral problems in children (*Journal of Medical Case Reports*, Vol. 9, No. 240, 2015) and minimizing distress after a natural disaster (*Psychiatry Research*, Vol. 228, No. 3, 2015).

According to Kaplan, one overall finding in studies on the impact of broad-spectrum micronutrients is that people improve their functioning across the board, not just in target areas such as ADHD symptoms.

In one randomized controlled trial, for instance, Julia J. Rucklidge, PhD, a professor of clinical psychology at the University of Canterbury in New Zealand, and colleagues assigned 80 adults with ADHD to receive either a broad-based micronutrient formula or a placebo.

After eight weeks, participants in the intervention group and their spouses rated their ADHD symptoms as having decreased more than the placebo group, although clinicians saw no significant group difference in ADHD symptoms (*British Journal of Psychiatry*, Vol. 204, No. 4, 2014).

However, on ratings of global functioning, the clinicians indicated that about half of the intervention group had improved, as compared with only a quarter of the placebo group. And those in the intervention arm who were

moderately or severely depressed at baseline had a bigger change in mood than those in the placebo arm. "As disappointing as it is not to get significant group differences across the board on all the ADHD measures, what's relevant at the end of the day is that your impairment is reduced and you're functioning better," says Rucklidge.

A look at omega-3

Other psychologists are exploring the role of omega-3 fatty acids. Thanks to its anti-inflammatory properties and effects on dopamine and serotonin transmission, omega-3 has a role in brain development and functioning, with deficiencies linked to mental health problems, says Mary A. Fristad, PhD, of the Ohio State University Wexner Medical Center.

Fristad is studying the use of omega-3 in conjunction with an evidence-based intervention she developed, called psychoeducational psychotherapy. In a pilot randomized controlled trial funded by the National Institute of Mental Health, Fristad and colleagues assigned 72 depressed 7- to 14-year-olds to receive 12 weeks of omega-3 alone, omega-3 plus psychotherapy, psychotherapy plus placebo or just a placebo.

Seventy-seven percent of those who received psychotherapy and omega-3 achieved remission, compared with 56 percent of those who received a placebo. While children in all four groups showed improvement during the study, children whose mothers had histories of depression and children who had become depressed with fewer social stressors fared better with any of the active treatments than with the placebo (*Journal of Clinical Child & Adolescent Psychology*, Online, 2016).

"What we demonstrated was that children with what appears to be endogenous, versus situational, depression required an active treatment," says Fristad. "Psychotherapy worked; omega-3 worked; their combination worked

the best."

In another NIMH-funded examination of the same sample, Fristad and colleagues looked at the intervention's effect on co-occurring behavioral problems. The children who received omega-3, whether on its own or in conjunction with psychotherapy, saw significant improvements in hyperactivity and impulsivity compared with those who received placebos on their own or with psychotherapy, as well as smaller improvements in inattention, disruptive behavior and overall behavior problems (*Journal of Abnormal Child Psychology*, Vol. 45, No. 5, 2016).

Now, Fristad hopes to continue the research with larger sample sizes. "We really need more science wrapped around this," she says.

To watch a TEDx talk on the role of nutrition and mental health given by clinical psychologist Julia Rucklidge, PhD, go to YouTube (https://www.youtube.com/) and search for "Julia Rucklidge."

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