In their article on fish consumption and depression, Smith et al. (1) presented interesting and important results. The authors speculated, quite reasonably, that ω-3 fatty acids in fish might be causative in depression. However, the amino acid tyrosine is present in high concentrations—approximately 1%—in many fish (2). For example, the tyrosine content of tuna is approximately 160% that of chicken. Tyrosine is a biological precursor of dopamine, norepinephrine, and epinephrine. A deficiency in dietary tyrosine has been implicated in depression (3).

Tyrosine is also a component of thyroxine and triiodothyronine, and reduced thyroid function has been linked to depression (4). Is it possible that an enhanced dietary intake of piscine tyrosine could explain the observations of their study? I think Smith et al. need to cast a wider net so as to consider other dietary components that might have caused their findings.

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REFERENCES


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FIVE AUTHORS REPLY

Mr. Evans raises an interesting point. It is possible that components of fish other than ω-3 fatty acids may be beneficial for mental health or may be synergistic, as we stated in our introduction (1).

There has been a lot of interest in identifying the key nutrient in fish that is beneficial for mental health. The majority of that research has focused on ω-3 fatty acids. Although the evidence from randomized controlled trials is inconsistent,
there is some evidence that ω-3 fatty acids may be beneficial for mental health (2), particularly among older adults (3–7). In contrast, only a small number of studies have examined associations between tyrosine and depression. To our knowledge, there has been only 1 randomized double-blind trial that examined the effect of tyrosine supplementation on depression (8). In that study, 65 participants were randomized to receive either 100 mg/kg/day of tyrosine, 2.5 mg/kg/day of imipramine, or a placebo for 4 weeks. At the end of the trial, the mean scores on the Hamilton Depression Rating Scale did not differ between the participants who received the tyrosine supplement and those who received the placebo (8). A recent review in which the associations of tryptophan and tyrosine with mood were examined found no clear evidence to suggest that tyrosine deficiency contributed to depression and even less evidence to suggest that tyrosine supplementation would be a promising treatment for depression (9).

Although the effects of specific nutrients on the risk of developing diseases have been the focus of a large volume of research, there is an increasing interest in food-based approaches. This is because people consume whole foods, not single nutrients. By consuming fish, rather than a single nutrient, individuals have the potential to not only improve their mental health but also to consume high-quality protein and a range of vitamins and minerals. Substitution of fish for red meat has also been shown to decrease the risk of colon cancer (10) and cardiovascular disease (11).

Our research showed that women who ate fish at least twice per week at baseline had a lower risk of developing depression during the 5-year follow-up than did women who ate fish less than once per week. Regardless of which components of fish are beneficial for mental health, our conclusion remains the same, namely that “fish consumption may be beneficial for women’s mental health” (1, p. 1228).

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