

## **MOSH Bars for Brain Health**

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MOSH brain bar, a product of the Huel company started by two non-scientists, Maria Shriver and Patrick Schwarzenegger, is one of the newer attempts to relieve you of your money with promises of eradicating cognitive decline in aging. It joins a large club of products, with benefits not yet proven, which mash together nutrients and foods.

A major assumption behind most of their (and other similar companies') products is that people don't eat their own healthy food, instead eating fast, nutrient-deficient foods. That may be true to some extent, but how hard is it to make a peanut butter sandwich or a bowl of enriched, whole-grain cereal? These brain-claim companies make a bar or shake, purporting to be meal alternatives, by adding micronutrients that you can obtain from regular food to some plant protein. They provide insufficient calories to supply enough energy for life. They don't contain enough sugar or carbs for nerve and brain health. They also don't supply sufficient non-protein calories to support life without breaking down our organs' and muscles' protein. (Normal metabolism switches to 'burning' protein's amino acids for energy if there isn't enough fat and carbohydrate to supply the energy requirements of the major organs. An analogous situation is a body builder who eats massive amounts of meat, instead of carbs, to build muscle. The extra protein is just broken down (stressing the kidneys with protein break-down products) to provide **energy** to maintain upright posture, movement and organ function.

As far as the "special" micronutrients go, I'm not convinced that we need their expensive bar to consume adequate nutrition. Here's a list of what they say they add to pea protein in Mosh bars:

**B12:** B12 deficiency can cause memory loss, but taking extra in a supplement doesn't make memory limitless or stop normal aging.

**B1, thiamine;** The same is true for thiamine (B1), which is an essential vitamin obtained in many foods, including whole grains. Adequate intake prevents neurologic symptoms of deficiency but won't magnify feats of intellectual prowess.

**Collagen & vitamin D3:** Neither of these has ever been proven to improve memory or reverse senility. Collagen is made in the body, adds structural integrity to tissues and forms the bulk of scar tissue. Vitamin D3 is important for bone and immune, not brain, health and is made in our skin from sunlight and a by-product of cholesterol.

**Omega3 fatty acids** are normal components of the brain nervous system, but extra consumption does not ward off senile memory loss. Large doses act like a kind of "blood thinner", making bleeding into the brain or elsewhere more likely.

Mosh bars also contain **MCT (medium chain triglycerides)** from coconut oil, a readily absorbed type of fat. It may be used for energy in the absence of carbohydrate or sugar, but dying brain cells can't be rehabilitated by MCTs and we don't need them for life. One could just eat an energy food, like bread, potato or avocado, to achieve the same goal. If used as meal and snack replacements, there are not enough protein and calories to sustain life in normal-sized people.

Product claims include **unidentified 'bioflavonoids'**. There are myriads of bioflavonoids in plants, some of which are antioxidant and/or anti-inflammatory, but no single plant's bioflavonoids improve brain function. People eating a variety of fruits, berries and vegetables every day are less likely to have cognitive problems.

**Ashwagandha** can be calming, anxiety-reducing and immune stimulating, but isn't a memory aid.

**Lion's mane** mushrooms supposedly reduce anxiety and stimulate nerve growth factor, but there is no scientific evidence for any health or memory benefits.

**Citicoline**: is a brand name for cytidine 5'-diphosphocholine (CDP-choline). Huel promises, without proof, that the addition of this proprietary form of choline works better than the natural choline in foods like dried fruit, animal products (especially liver and eggs), cruciferous vegetables and legumes (peanuts), or the small amount made in our livers from amino acids (methionine and serine) found in meat and poultry. Choline is necessary for cellular integrity and normal brain signaling. Deficiency of it causes fatigue and cognitive impairment but taking it as a supplement does not make one super smart or reverse senility in someone who is not deficient.

In summary: MOSH bars aren't cheap (about \$40 for twelve bars) and the company makes unjustified claims for their use. They lack data or even logic to justify buying them instead of food. It's not hard or expensive to eat sufficient food to prevent nutrient deficiencies requiring this or any bar. If in doubt, it's cheaper to go for a long walk daily, which improves blood circulation to the brain, take a multivitamin, and eat turkey, dried fruit & nut trail mix, eggs and broccoli. ¶