

Are Neurodegenerative Disorders and Psychotic Manifestations Avoidable Brain Dysfunctions With Adequate Dietary Omega-3?

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FROM ABSTRACT:

The present mismatch between what our brain needs, and the modern diet neglects our marine heritage.

Last century, the priority in nutrition and food production was to achieve a high protein diet and somatic growth and function.

The dietary content of omega-3s required by the brain was neglected although evidence for the essentiality of certain fatty acids was published in 1929 and specifically re-affirmed for omega-3s in the brain in the 1970s. Cognitive decline with age and neurodegenerative disorder with dementia are now rising.

This review describes signs of omega-3 deficit in Alzheimer's and Parkinson's disease, where maximum change involves the primary sites: olfactory cortex and the hippocampus.

The olfactory agnosia observed in schizophrenia supports an omega-3 deficit as does a reduction of key oligodendrocyte- and myelin-related genes in this disorder and affective disorder, where a rise in dementia accords with a deficit of omega-3s also in this disorder.

Omega-3s normalizes cerebral excitability at all levels. **[Key Point]**

An adequate omega-3 diet will probably prevent most psychotic episodes and prove that neurodegenerative disorder with dementia is also to a large extent not only preventable but avoidable. **[Key Point]**

THIS AUTHOR ALSO NOTES:

In studying disease, "science continually concentrates on single genes and rare diseases at the expense of more complex mechanisms."

A 2004 study shows that DHA (docosahexaenoic acid) omega-3 protects dendrites against neuronal deficit and prevents the development of Alzheimer's disease.

Another 2004 article indicates that the amyloid plaques of Alzheimer's disease "is not the cause but rather a product of Alzheimer's disease."

The evidence is that chronic oxidative stress [free radical damage] causes Alzheimer's disease.

"DHA in the brain is most concentrated in the signaling membranes. Being the most unsaturated fatty acid it is the component most susceptible to oxidative stress which would have much more serious consequences in a state of relative omega-3 deficiency." **[Very Important]**

It has been known since the 1970s that DHA "is a determinant of brain growth, function and integrity."

There is a growing omega-3 dietary deficiency and an increasing imbalance between omega-6 and omega-3 fatty acids in the diet.

Reduced levels of omega-3s in the 3rd trimester of pregnancy may:

- 1) Delay brainstem myelination which is when the greatest myelination occurs, increasing the risk of Sudden Infant Death Syndrome.
- 2) Depress birth weight, which increases mortality.

After birth, increased omega-3s:

- 1) Improve visual development.
- 2) Reduce dyslexia.
- 3) Reduce ADHD.

"Omega-3s have been given as a sole medication or an adjunctive to anti-psychotics, to schizophrenics and manic-depressives with marked effect on psychotic symptoms."

This author notes that during the past century, as a consequence of improved living conditions and increased protein in the diet, that:

- 1) There has been an increase in mean adult height of more than 5 inches.
- 2) Life-expectancy increased by about 30 years.
- 3) "Cause of death changed from predominately infection to life-style disease (cardiovascular disease and cancer).
- 4) The age of puberty has declined by about 4 years.
- 5) Earlier puberty adversely affects brain development because there is less pruning of excitatory brain synapses, resulting in "higher cerebral excitability." Greater cerebral excitability requires greater levels of omega-3s to "secure optimal brain function." **[Very Important]**

Increased body growth requires increased protein and therefore increased amino acids.

Increased brain growth requires increased lipids (the brain is 60% lipid), and increased essential fatty acids.

Today, dietary intakes of omega-3s in the UK are only one-sixth of the amount consumed in 1850.

There is a "dramatic beneficial effect on reading ability, memory and behavior of giving fish-oil supplements to seven-year-olds."

Current high protein diets are from the consumption of land animals, which has reduced the omega-3 content of our diets.

During World War II, reduced meat consumption and increased fish consumption reduced cardiovascular disease and "hospital admissions for acute psychosis declined significantly."

"Omega-3s reduce risk of Central Nervous System pathology by normalizing excitability." **[Important]**

"DHA is anti-epileptogenic, an effect which must not be underestimated as the major mental disorders, schizophrenia and manic-depressive psychosis are localized at the extremes of excitability."

"Psychotic manifestations are probably to a large extent avoidable with sufficient omega-3 dietary intake." **[Important]**

The human brain has a special great need for omega-3s to secure neurogenesis in the olfactory bulb and hippocampus, and provide the oligodendrocytes with a sufficient amount of myelin. **[Important]**

Reduced oligodendrocyte myelin predisposes individuals to schizophrenia and manic-depressive psychosis. **[Important]**

Mad cow disease is associated with a diet that depleted cows of omega-3 fatty acids making their brains susceptible to the disorder.

In 1973 it was noted that primates with omega-3 deficiency suffered from hair loss and engaged in self-harm.

Reduced levels of dietary omega-3s cause "loss of high-level function such as information processing for memory and learning."

In humans and in all species so far studied, a deficiency of omega-3s cause problems with olfaction, cognition and vision.

"This dependence of the brain and its sensory system on omega-3 fatty acids is hardly surprising as the brain first evolved in the seas, giving us our common marine heritage."

Olfactory neurons undergo continuous neurogenesis and therefore are especially susceptible to deficiencies in omega-3 intake. 50% of schizophrenics suffer from olfactory agnosia. Myelin degeneration is documented in schizophrenia, which indicates a "dietary omega-3 deficiency." "Marine fat is crucial in myelination."

"The development of Alzheimer's disease is associated with deficient intake of omega-3s, and the olfactory bulb is a prime site of pathology." The Olfactory pathway is the site of initial involvement in Alzheimer's disease. Clinical impairment of the sense of smell has become recognized in Alzheimer's disease.

The present rise in Parkinson's disease with a deteriorating clinical course and dementia might well be associated with omega-3 intake deficiency. Omega-3s enhance the production of the basal ganglionic dendritic spine growth factors.

"The High Saturated FAT Refined Sugar Diet is not only harmful, but could possibly be causative" in development of Parkinson's disease.

"Given a decisive role of omega-3 deficiency in the development of the neurodegenerative disorder Alzheimer's disease and its probable increasing contribution in Parkinson's disease, another neurodegenerative disorder, the rising prevalence of cognitive decline with age – vascular dementia, in the Western societies, could similarly be attributable to dietary omega-3 deficiency in combination with vascular morbidity." Therefore, it is important to test olfaction in these syndromes. **[Important]**

Affective disorders, mental illness, schizophrenia, and dementia are all related to deficiencies in omega-3s. Recent studies indicate that after 10 weeks of taking neuroleptic drugs for these disorders, fat and insulin metabolism are altered, accelerating a reduction of clinical status.

"Present mismatch between what our brain needs, omega-3s – marine fat and the common high protein diet, is a massive neglect of our marine heritage." Our neocortex is 3 times the size expected from our height, therefore omega-3 brain food is required to "to preserve optimal development and function of this main human characteristic."

"However, accelerated somatic growth is persistently a favored subject in animals and man." Given the impressive 5+ inch increased height in 100 years, the "desirability of a high protein diet continues to dominate nutrition policy, in pregnancy, infancy and later life. Enhanced growth, excellent somatic function – sports are favored."

It took an “unusual abundance and availability of seafood to evolve our great brain.” **[Very Important]**

“I like to stress the necessity of a sufficient amount of food for the brain in pregnancy and throughout life to secure optimal brain function, avoid mortality in infancy (SIDS), and reduce a frequency of learning/behavior problems in childhood.”

“In Infantile Autism, omega-3 deficit delays myelination and arrests frontal development.”

The main neuropathology change in Alzheimer’s and Parkinson’s disease is in the olfactory cortex, which signifies omega-3 deficiency. These “two mental disorders are probably avoidable with adequate food for the brain.” [Omega-3s]

“There is now good mitochondrial DNA evidence that the migration out of Africa was around the coastlines, testifying to a long prior acquaintance with marine coastal habitat.”

The necessity of abundant seafood availability is crucial for the evolution of our great brain.

“Superior brain function has been replaced by brain dysfunction with our high protein diet of last century, neglecting food for the brain.”

“Hopefully, human diet will change to a daily amount of marine fat omega-3s, particularly DHA, the long-chain polyunsaturated fatty acid with a fascinating brain history over 600 million years.”

“We need to reduce other man-made adversity affecting our sources of marine fat – the important unecological resource use and increasing aquatic pollution. We need to learn to husband and manage the marine food chain in a better way than we did for the utilization of the products of the land.”

KEY POINTS FROM DAN MURPHY

- 1) Cognitive decline with age and neurodegenerative disorder with dementia are now rising because of a deficiency of omega-3 essential fatty acids in the diet.
- 2) There is a deficiency in omega-3s in Alzheimer’s and Parkinson’s disease, and in schizophrenia.
- 3) “Omega-3 normalizes cerebral excitability at all levels.” **[Key Point]**
- 4) “An adequate omega-3 diet will probably prevent most psychotic episodes and prove that neurodegenerative disorder with dementia is also to a large extent not only preventable but avoidable.” **[Key Point]**

- 5) Chronic oxidative stress [free radical damage] causes Alzheimer's disease, and omega-3 DHA plus antioxidants protects against Alzheimer's disease.
- 6) "DHA in the brain is most concentrated in the signaling membranes. Being the most unsaturated fatty acid it is the component most susceptible to oxidative stress which would have much more serious consequences in a state of relative omega-3 deficiency." **[Very Important]**
- 7) It has been known since the 1970s that DHA "is a determinant of brain growth, function and integrity."
- 8) There is a growing omega-3 dietary deficiency and an increasing imbalance between omega-6 and omega-3 fatty acids in the diet.
- 9) Maternal omega-3s reduce the risk of Sudden Infant Death Syndrome, low birth weight and increased infant mortality.
- 10) After birth, increased omega-3s improve visual development, reduce dyslexia and reduce ADHD.
- 11) "Omega-3s have been given as a sole medication or an adjunctive to anti-psychotics, to schizophrenics and manic-depressives with marked effect on psychotic symptoms."
- 12) In the past century, increased protein in the diet has increased adult height by more than 5 inches and lowered the age of puberty by about 4 years.
- 13) Earlier puberty adversely affects brain development because there is less pruning of excitatory brain synapses, resulting in "higher cerebral excitability." Greater cerebral excitability requires greater levels of omega-3s to "secure optimal brain function." **[Very Important]**
- 14) Increased body growth requires increased protein and therefore increased amino acids.
- 15) Increased brain growth requires increased lipids (the brain is 60% lipid), and increased essential fatty acids.
- 16) Today, dietary intakes of omega-3s in the UK are only one-sixth of the amount consumed in 1850.
- 17) There is a "dramatic beneficial effect on reading ability, memory and behavior from giving fish-oil supplements to seven-year-olds."
- 18) The current high protein diets are from the consumption of land animals, which has reduced the omega-3 content of our diets.

- 19) "Omega-3s reduce risk of Central Nervous System pathology by normalizing excitability." **[Important]**
- 20) The major mental disorders, schizophrenia and manic-depressive psychosis occur at the extremes of excitability, which is reduced by the omega-3 DHA.
- 21) "Psychotic manifestations are probably to a large extent avoidable with sufficient omega-3 dietary intake." **[Important]**
- 22) Reduced levels of dietary omega-3s cause "loss of high-level functions such as information processing for memory and learning."
- 23) Affective disorders, mental illness, schizophrenia, and dementia are all related to deficiencies in omega-3s.
- 24) The evolution of our great brain required an abundance and availability of seafood.