

# An Information System for Analyzing and Discovering Suicide Research Literature



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# MILITARY SUICIDE RESEARCH CONSORTIUM



**Denver VA**

**FSU Dept of  
Psychology**

**FSU College of  
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# MSRC Core B will have the responsibility to...

"...Disseminate MSRC knowledge, information, and findings through a variety of methods appropriate for decision makers, practitioners, and others who are accountable for ensuring the mental health of military personnel.

This will include a rapid response function so that queries from decision makers and others to the MSRC will be answered with speed and efficiency. ..."

## Is Low Dietary Intake of Omega-3 Fatty Acids Associated With Depression?

Reeta Hakkarainen, M.B.

Timo Partonen, M.D.

Jari Haukka, Ph.D.

Jarmo Virtamo, M.D.

Demetrius Albanes, M.D.

Jouko Lönnqvist, M.D., Ph.D.

**Objective:** This study examined the association between the dietary intake of omega-3 fatty acids and low mood, major depression, and suicide.

**Method:** A total of 29,133 men ages 50 to 69 years participated in a population-based trial in Finland. The intake of fatty acids and fish consumption were calculated from a diet history questionnaire. Self-reported depressed mood was recorded three times annually, data on hospital treatments due to a major depressive disorder were derived from the National Hospital Discharge Register, and suicides were identified from death certificates.

**Results:** There were no associations between the dietary intake of omega-3 fatty acids or fish consumption and depressed mood, major depressive episodes, or suicide.

**Conclusions:** Dietary intake of omega-3 fatty acids showed no association with low mood level.

*(Am J Psychiatry 2004; 161:567-569)*

**O**mega-3 fatty acids are essential long-chain polyunsaturated fatty acids that are concentrated in the CNS, retina, and testes in humans. Alpha-linolenic acid is present in plants and is needed for the synthesis of eicosapentaenoic and docosahexaenoic acids that are received directly from marine sources.

There is some evidence that omega-3 fatty acids are linked to depression (1). Studies have reported reduced levels of omega-3 fatty acids in plasma and cell membranes from depressed patients (2-4). One double-blind, placebo-controlled trial (5) has shown that omega-3 sup-

visit (three times annually) during the trial, ranging from 5 to 8 years in duration (median=6). Data on hospital treatment due to depressive disorder were derived from the National Hospital Discharge Register, which covers inpatient admissions to all medical and psychiatric hospitals in Finland. The follow-up of survival extended to Dec. 31, 1994. Data regarding deaths were derived from the Central Population Register, and the cause of death was reviewed from death certificates. Details of the assessment have been described elsewhere (8).

Both placebo and intervention groups were included in the analysis. Cox's proportional hazards regression models were used to estimate the relationships between baseline dietary intake of omega-3 fatty acids, categorized in tertiles, and the first

Use of Omega-3 for Suicide Prevention  
Peter M. Gutierrez, Ph.D. for the Military Suicide Research Consortium  
September 13, 2011

Is there adequate evidence to support the use of Omega-3 supplements for treatment of depression or suicide risk? There are currently two studies in support of a positive effect on depression and suicide risk. Logan (2004) concluded there is enough epidemiological, laboratory and clinical evidence to suggest that omega-3 fatty acids may play a role in certain cases of depression. Hallahan et al. (2007) conducted a study with two groups (placebo and Omega 3). They found statistically significant differences in suicidal ideation when compared categorically, but the proportion of self-harm episodes was higher in the placebo group, although the difference was not statistically significant.

Conversely, other studies have failed to find an effect of omega-3 supplements. Hakkarainen et al. found no associations between the dietary intake of omega-3 fatty acids or fish consumption and depressed mood, major depressive episodes, or suicide. The authors concluded that dietary intake of omega-3 fatty acids showed no association with low mood level. A double-blind, placebo-controlled study of the omega-3 fatty acid docosahexaenoic acid in the treatment of major depression failed to show a significant effect of DHA monotherapy in subjects with major depression.

In terms of safety of taking these supplements, Emsley et al. (2008) looked at the safety of the omega-3 fatty acid, eicosapentaenoic acid (EPA) in psychiatric patients. The authors found that adverse event reporting was similar for the two groups (EPA vs. placebo). While there were no significant between-group differences, in the blinded phase the EPA group showed a significant increase in body mass index (BMI) and bleeding time. In the open-label extension, there was again a modest increase in BMI. Total cholesterol and HDL levels were significantly decreased. EPA 2 g/day is generally well tolerated. Clinicians should be aware of possible increases in bleeding time, as well as changes in weight and lipid metabolism.

In conclusion, there is minimal concern regarding the side effects of these supplements or patient's inability to tolerate them. Use of these supplements may improve certain symptoms or lower risk of suicide, but they are certainly not a "magic bullet" to cure suicide.



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#### Abstract

Omega-3 fatty acids play a critical role in the development and function of the central nervous system. Emerging research is establishing an association between omega-3 fatty acids (alpha-linolenic, eicosapentaenoic, docosahexaenoic) and major depressive disorder. Evidence from epidemiological, laboratory and clinical studies suggest that dietary lipids and other associated nutritional factors may influence vulnerability and outcome in depressive disorders. Research in this area is growing at a rapid pace. The goal of this report is to integrate various branches of research in order to update mental health professionals.

Safety of the omega-3 fatty acid, eicosapentaenoic acid (EPA) in psychiatric patients: Results from a randomized, placebo-controlled trial

Robin Emsley<sup>1</sup>, Dana J.H. Niehaus<sup>2</sup>, Petrus P. Oosthuizen<sup>1</sup>, Lezi Koen<sup>1</sup>, Rhynne Acoff-Evans<sup>1</sup>, Renobhosi Chiliza<sup>1</sup>, Susan J. van Rensburg<sup>1</sup>, Berth M. Sim<sup>1</sup>

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Abstract Full Text PDF References

#### Abstract

Omega-3 fatty acids, particularly eicosapentaenoic acid (EPA), are increasingly being used by psychiatric patients. Most studies have concentrated on efficacy aspects, while little is known about their safety and tolerability in psychiatric populations. This study aimed to assess the effects of EPA treatment on body mass, glucose metabolism, lipid profiles, prolactin secretion, bleeding time, haematology and liver functions. Eighty-four subjects with schizophrenia were treated with either EPA 2 g/day or placebo in addition to their antipsychotic medication for 12 weeks, in a randomized, controlled trial. Forty-seven entered a 40-week open-label extension phase of EPA 2 g/day. Seventy-four patients were included in the analysis. Six patients discontinued from the EPA group and 14 in the placebo group. Adverse event reporting was similar for the two groups. While there were no significant between-group differences, in the blinded phase the EPA group showed a significant increase in body mass index (BMI) and bleeding time. In the open-label extension, there was again a modest increase in BMI. Total cholesterol and HDL levels were significantly decreased. EPA 2 g/day is generally well tolerated. Clinicians should be aware of possible increases in bleeding time, as well as changes in weight and lipid metabolism.

Keywords: Omega-3; Eicosapentaenoic acid; Fatty-acid; Lipids; Glucose; Bleeding time; Schizophrenia

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orms and imbues the Kokuyo Group's CSR activities is the  
to society through the provision of superior products." This philo-  
sophy is reflected in the Kokuyo Group's CSR Charter with  
the concept of "Credo", which codifies the concept of "Credo"  
by Kokuyo founder Zentaro Kuroda.

relationships with our various stakeholders as a good corporate  
citizen, business activities, and human  
resources in relationships with stakeholders, a  
code of conduct for employees with the aim of  
improving the quality of work within and beyond  
the company.





$f_x$  | This theory proposes that three necessary factors are needed to complete suicide: feelings that one does not belong with other people, feeling

	A	B	C
1	This theory proposes that three necessary factors are needed to complete suicide: feelings that one does not belong with other people, feelings that one is a burden on others or society, and an acquired capability to overcome the fear and pain associated with suicide.	reference	IPTS; Joiner, 2005
2	Suicide is a significant cause of death in the general population, with approximately one million deaths by suicide each year worldwide	report	National Institute of Mental Health, 2008
3	In the United States, the suicide rate is approximately 11 deaths by suicide for every 100,000 people	report	Benda, 2005
4	Suicide is also the second most common cause of death in the United States Armed Forces, with rates of between 9 and 15 deaths by suicide per 100,000 people	report	Ritchie, Keppler, & Rothberg, 2003; U.S. Department of Defense, 2007
5	the military suicide rate during times of peace is generally lower than the civilian rate	report	Kang & Bullman, 2008
6	previous studies have indicated that military service may be a risk factor for suicidal behavior	report	Kaplan, Huguet, McFarland & Newsom, 2007
7	and that the most common type of traumatic death suffered during armed forces training was suicide	report	Scoville, Gardner, & Potter, 2004
8	In recent years the suicide rate of military personnel and veterans appears to be rising	report	(Kang & Bullman, 2008; Lorge, 2008),
9	which has sparked a pressing interest in better ways to identify suicidal ideation and treat those military personnel who are affected. Since the start of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), the suicide rate for military personnel who have seen combat has increased to that of the general population	claim	Kang & Bullman, 2008
10	military service appears to have some qualities that lower suicide risk in times of peace, with deaths by suicide during basic training being as low as 5 deaths for every 100,000 military recruits	report	Scoville et al., 2004
11	Interpersonal– Psychological Theory of Suicide	reference	IPTS; Joiner, 2005
12	delineates a theory of suicidal behavior that focuses on three necessary, jointly sufficient variables that must be present for an individual to make a lethal suicide attempt: thwarted belongingness, perceived burdensomeness, and the acquired capability to enact lethal self-injury	claim	IPTS; Joiner, 2005
13	15% of the U.S. population seriously considers suicide at some point in the course of their life	report	(Nock, Borges, Bromet, Alonso et al., 2008
14	only 1.4% of the population actually dies by suicide	report	(Nock, Borges, Bromet, Cha et al., 2008
15	suicide attempt to completion ratio is estimated to be 25 to 1, further indicating that a substantial number of people try to die by suicide, but only a few do, many of whom do so only after multiple previous attempts	report	McIntosh, 2009

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## Impulsivity and Suicide 3

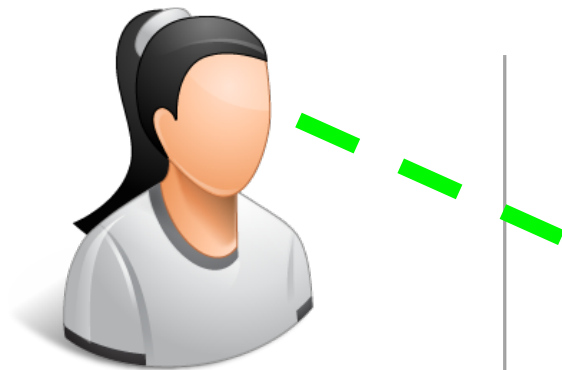
## Impulsivity and suicidal behavior: Re-examining a complicated relationship

Suicide is a significant global concern, resulting in the death of approximately one million individuals worldwide each year (National Institute for Mental Health, 2008). In response to this, researchers have devoted a substantial level of attention to understanding suicidal behavior, defined as intentionally self-inflicted bodily harm (Gutierrez, 2007). This work has yielded a growing list of variables linked to increased risk, including hopelessness (Abramson, Me...ck & Pankratz, 2000), substance use (e.g., Bagge & Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006), thwarted belongingness, and perceived burdensomeness (Joiner, 2005). Imp... risk factors also typically involves a discussion of mechanisms through which... For example, the interpersonal-psychological theory of suicidal behavior (IPT, Joiner, 2005) proposes the association between suicidal behavior and NSSI is due in large part to decreases in the fear of death

On the point of substance abuse, [report](#) there is another paper (<http://goo.gl/abw0d>) that may describe this better.  
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Note that we describe this condition in greater detail in our 2003 study (<http://goo.gl/bab09d>)  
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→ It may be worth noting that Mink and Strauss (1982) have research...  
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Refer to <http://gooq.q/asdfte> for a discussion of this.  
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## Brief Report

### Is Low Dietary Intake of Omega-3 Fatty Acids Associated With Depression?

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**Objective:** This study examined the association between the dietary intake of omega-3 fatty acids and low mood, major depression, and suicide.

**Method:** A total of 29,133 men ages 50 to 69 years participated in a population-based trial in Finland. The intake of fatty acids and fish consumption were calculated from a diet history questionnaire. Self-reported depressed mood was recorded three times annually, data on hospital treatments due to a major depressive disorder were derived from the National Hospital Discharge Register, and suicides were identified from death certificates.

**Results:** There were no associations between the dietary intake of omega-3 fatty acids or fish consumption and depressed mood, major depressive episodes, or suicide.

**Conclusions:** Dietary intake of omega-3 fatty acids showed no association with low mood level.

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There is some evidence that omega-3 fatty acids are linked to depression (1). Studies have reported reduced levels of omega-3 fatty acids in plasma and cell membranes from depressed patients (2-4). One double-blind, placebo-controlled trial (5) has shown that omega-3 supplements improve the short-term clinical course of patients with bipolar disorder.

Our aim was to study the association between the dietary intake of omega-3 fatty acids and low mood, depression, and suicide. Consumption of fish rich in long-chain omega-3 fatty acids, specifically, was assessed.

#### Method

This study was based on a cohort (N=29,133) from a randomized, double-blind, placebo-controlled primary prevention trial—the ATBC study (6). The study participants were recruited from the total male population of 50 to 69 years of age that was residing in southwestern Finland in 1985 (N=290,406). The review boards of the participating institutions approved the study. All subjects gave written informed consent before random assignment.

Diet and alcohol consumption were assessed through a validated food-use questionnaire to measure the habitual dietary intake over the previous year. The reproducibility of this method was 0.6 to 0.7, and the validity was 0.6 to 0.7 for most nutrients (7). The dietary intake of omega-3 fatty acids at baseline was calculated. The study endpoints were self-reported depressed mood, hospital treatment for a major depressive disorder, and death from suicide. The subjects reported feelings of anxiety and depression experienced in the 4 months since their previous study

visit (three times annually) during the trial, ranging from 5 to 8 years in duration (median=6). Data on hospital treatment due to depressive disorder were derived from the National Hospital Discharge Register, which covers inpatient admissions to all medical and psychiatric hospitals in Finland. The follow-up of survival extended to Dec. 31, 1994. Data regarding deaths were derived from the Central Population Register, and the cause of death was reviewed from death certificates. Details of the assessment have been described elsewhere (8).

Both placebo and intervention groups were included in the analysis. Cox's proportional hazards regression models were used to estimate the relationships between baseline dietary intake of omega-3 fatty acids, categorized in tertiles, and the first measures of low mood level. Potential risk factors for both major depressive disorder and suicide (age, body mass index, energy intake, serum total cholesterol level, high-density lipoprotein cholesterol level, consumption of alcohol, education, marriage, self-reported depression, self-reported anxiety, and smoking) were entered into the models as covariates. Dietary factors were adjusted for energy intake in the models (9). A test for trend was calculated.

#### Results

There was no significant association of fish consumption or intake of omega-3 fatty acids with any of the study endpoints (Table 1). A small, marginally elevated risk of self-reported depression was suggested in the highest tertile of fish consumption compared to the lowest tertile. A trend test showed the significance of fish consumption for self-reported depressed mood ( $z=2.09$ ,  $df=1$ ,  $p<0.04$ ).

#### Discussion

Dietary intake of omega-3 fatty acids showed no association to low mood level and related outcomes. We linked the dietary intake of omega-3 fatty acids to the





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Our aim was to study the association between the dietary intake of omega-3 fatty acids and low mood, depression, and suicide. Consumption of fish rich in long-chain omega-3 fatty acids, specifically, was assessed.

#### Method

This study was based on a cohort (N=29,133) from a randomized, double-blind, placebo-controlled primary prevention trial—the ATBC study (6). The study participants were recruited from the total male population of 50 to 69 years of age that was residing in southwestern Finland in 1985 (N=290,406). The review boards of the participating institutions approved the study. All subjects gave written informed consent before random assignment.

Diet and alcohol consumption were assessed through a validated food-use questionnaire to measure the habitual dietary intake over the previous year. The reproducibility of this method was 0.6 to 0.7, and the validity was 0.6 to 0.7 for most nutrients (7). The dietary intake of omega-3 fatty acids at baseline was calculated. The study endpoints were self-reported depressed mood, hospital treatment for a major depressive disorder, and death from suicide. The subjects reported feelings of anxiety and depression experienced in the 4 months since their previous study

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Thompson (2008) refutes this claim.

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L Brenner



Further evidence of this in Lau (1998)

## Is Low Dietary Intake of Omega-3 Fatty Acids Associated With Depression?

Reeta Hakkarainen, M.B.

Timo Partonen, M.D.

Jari Haukka, Ph.D.

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Jouko Lönnqvist, M.D., Ph.D.

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**Results:** There were no associations between the dietary intake of omega-3 fatty acids or fish consumption and depressed mood, major depressive episodes, or suicide.

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*(Am J Psychiatry 2004; 161:567-569)*

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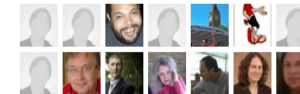


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The Department of Defense, Assistant Secretary of Defense (Health Affairs) from the Defense Health Program Enhancement (DHPe) awarded a \$17 million federal grant to Florida State University and the Denver Veterans Affairs Medical Center to establish the Department of Defense Military Suicide Research Consortium (MSRC). The consortium is the first of its kind to integrate DOD and civilian efforts in implementing a multidisciplinary research approach to suicide prevention.

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**Results:** There were no associations between the dietary intake of omega-3 fatty acids or fish consumption and depressed mood, major depressive episodes, or suicide.

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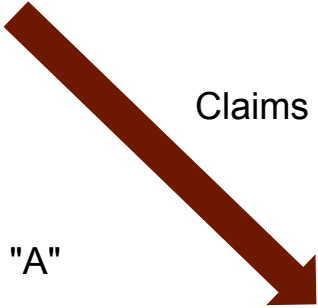
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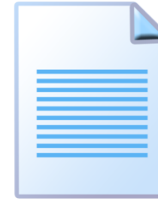


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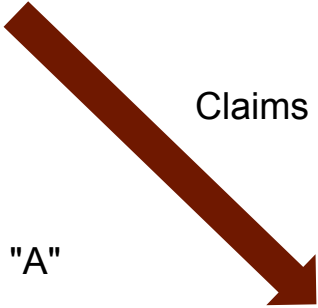
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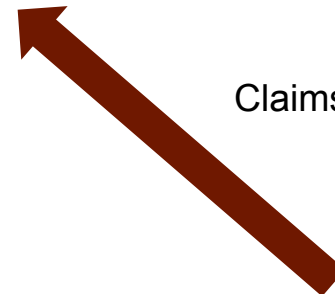


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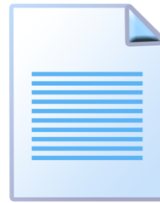




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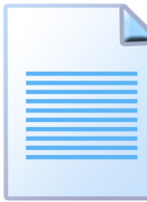
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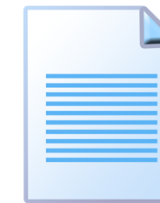
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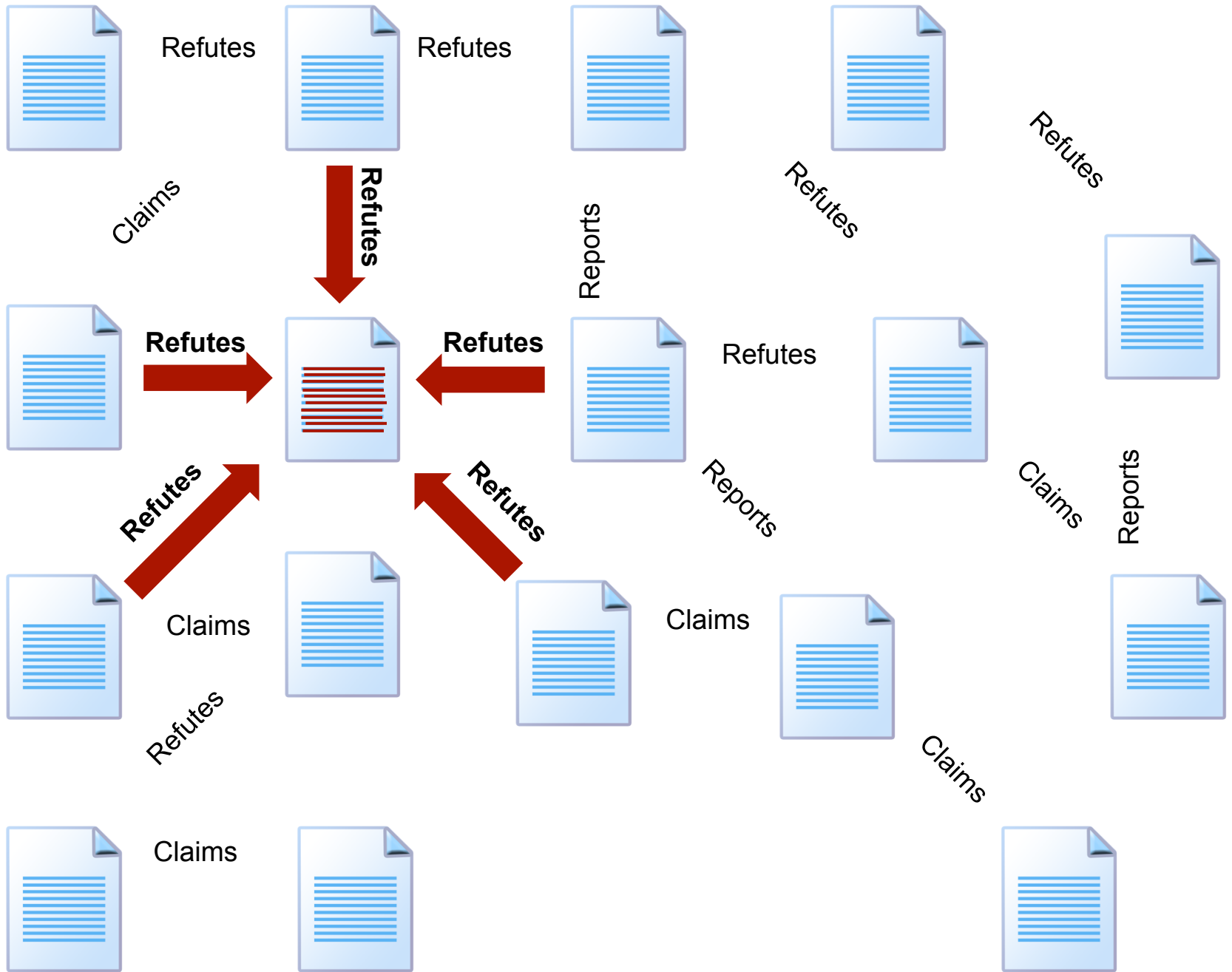
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The NCVAS develops statistical analyses and reports on a broad range of topics to disseminate Veteran data and statistics, and develop estimates and projections on Veteran populations. Visit the NCVAS website for information on population, utilization, expenditures and more.

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MSRC responds to requests from MOMRP and others to report findings and conclusions about specific military-related issues. Our work is collected in a series of white papers.

# We Are...

## Providing collaborative tools for creating and exposing assessments and discussions

### Brief Report

#### Is Low Dietary Intake of Omega-3 Fatty Acids Associated With Depression?

Reeta Hakkarainen, M.B.  
Timo Partonen, M.D.  
Jari Haukka, Ph.D.  
Jarmo Virtamo, M.D.  
Demetrios Albanes, M.D.  
Jouko Lönnqvist, M.D., Ph.D.

**Objective:** This study examined the association between the dietary intake of omega-3 fatty acids and low mood, major depression, and suicide.

**Method:** A total of 29,133 men ages 50 to 69 years participated in a population-based trial in Finland. The intake of fatty acids and fish consumption were calculated from a diet history questionnaire. Self-reported depressed mood was recorded three times annually, data on hospital treatments due to a major depressive disorder were derived from the National Hospital Discharge Register, and suicides were identified from death certificates.

**Results:** There were no associations between the dietary intake of omega-3 fatty acids or fish consumption and depressed mood, major depressive episodes, or suicide.

**Conclusions:** Dietary intake of omega-3 fatty acids showed no association with low mood level.

*Am J Psychiatry* 2004; 161:567-569

Omega-3 fatty acids are essential long-chain polyunsaturated fatty acids that are concentrated in the CNS, retina, and testes in humans. Alpha-linolenic acid is present in plants and is needed for the synthesis of eicosapentaenoic and docosahexaenoic acids that are received directly from marine sources.

There is some evidence that omega-3 fatty acids are linked to depression (1). Studies have reported reduced levels of omega-3 fatty acids in plasma and cell membranes from depressed patients (2-4). One double-blind, placebo-controlled trial (5) has shown that omega-3 supplements improve the short-term clinical course of patients with bipolar depression.

Our aim was to study the association between the dietary intake of omega-3 fatty acids and low mood, depression, and suicide. Consumption of fish rich in long-chain omega-3 fatty acids, specifically, was assessed.

#### Method

This study was based on a cohort (N=29,133) from a randomized, double-blind, placebo-controlled primary prevention trial—the ARIEL study (6). The study participants were recruited from the total male population of 50 to 69 years of age that was residing in southwestern Finland in 1985 (N=290,000). The review boards of the participating institutions approved the study. All subjects gave written informed consent before random assignment.

Diet and alcohol consumption were assessed through a validated food-use questionnaire to measure the habitual dietary intake over the previous year. The reproducibility of this method was 0.6 to 0.7, and the validity was 0.6 to 0.7 for most nutrients (7). The dietary intake of omega-3 fatty acids at baseline was calculated. The study endpoints were self-reported depressed mood, hospital treatment for a major depressive disorder, and death from suicide. The subjects reported feelings of anxiety and depression experienced in the 4 months since their previous study

*Am J Psychiatry* 161:3, March 2004

<http://ajpp.psychiatryonline.org>

567

T Joiner



Thompson (2008) refutes this claim.



L Brenner

Further evidence of this in Lau (1998)

# We Are...

Building vocabularies that allow us to be more specific about discovery of documents.

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# We Are...

Using review papers to create annotations and a web of documents.



# We Are...

- Providing collaborative tools for creating and exposing assessments and discussions
- Building vocabularies that allow us to be more specific about discovery of documents.
- Using a review paper to create annotations and a web of documents.





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