Pengaruh Asam Lemak

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PENGARUH ASAM LEMAK PADA PENDUDUK TERKAIT INDEKS MASSA TUBUH

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Abstrak

Indeks massa tubuh (IMT) normal berkaitan dengan kondisi kesehatan seseorang. Konsumsi asam lemak digunakan untuk menjaga beberapa masalah kelainan IMT. Penelitian ini bertujuan untuk menilai hubungan antara asam lemak dengan perubahan IMT. Tinjauan sistematis untuk menilai artikel yang terkait dengan asam lemak dan perubahan BMI. Pencarian basis data dilakukan melalui PubMed. Peneliti mencari Omega 3, EPA, DHA, Omega 6, AA, sebagai asam lemak. Hanya artikel pada manusia yang dimasukkan dalam penelitian ini. Artikel yang tidak ditulis dalam bahasa Inggris dan tanpa teks lengkap tidak disertakan. Enam artikel dimasukkan dalam penelitian ini. Uji klinis digunakan dalam semua studi yang disertakan. Sebagian besar penelitian menggambarkan hubungan asam lemak dengan kenaikan berat badan kehamilan pada wanita hamil. Jenis asam lemak yang berperan penting adalah: Omega 3, EPA, DHA, ALA, omega 6. Tidak semua asam lemak memberikan dampak positif bagi manusia. Ada gejala negatif yang perlu ditanggulangi terutama di luar IMT.

Kata kunci: Omega-3, EPA,DHA, omega-6, AA

THE EFFECTS OF FATTY ACID IN POPULATION RELATED TO BODY MASS INDEX

Abstract

Normal body mass index (BMI) is related to a person's health condition. Consumption of fatty acids is used to keep some problems of BMI abnormalities. The study aimed to assess the relationship between fatty acids and changes in BMI. A systematic review to assess articles related to fatty acids and bmi changes. Database searches are conducted through PubMed. Researchers looked for Omega 3, EPA, DHA, Omega 6, AA as fatty acids. Only articles on humans were included in the study. Articles that are not written in English and without full text are not included. Six articles were included in the study. Clinical trials are used in all included studies. Most studies describe the relationship of fatty acids to pregnancy weight gain in pregnant women. Types of fatty acids that play an essential role are Omega 3, EPA, DHA, ALA, omega 6.Not all fatty acids have a positive impact on humans. There are negative symptoms that need to be addressed, especially outside of BMI.

Keywords: Omega-3, EPA,DHA, omega-6, AA

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Introduction

Riskesdas 2018 data shows Indonesia is experiencing multiple nutritional problems, namely more nutrition (obesity) and less. The proportion of chronic lack of energy in adolescents aged 15-19 years experienced a tendency to rise in 2007 by (30.9%), in 2013 it rose to (46.6%) and in 2018, it fell. (36.3%). The proportion of obesity central in adolescents of age ≥15 years in Indonesia in 2007 amounted to (18.8%), in 2013 rose to (26.6%), and in 2018 continued to rise to (31%). The spread of obesity was the most in north Sulawesi (30.2%) and the least in East Nusa Tenggara (10.3%) [1].

The causes of obesity in adolescents are multifactor. Changes in eating habits are one of them that occurs due to widespread globalization. Adolescents are one of the target groups that may risk a poor lifestyle. The adolescent's lifestyle such as increased consumption of fast food, low physical activity, genetic factors, advertising influences, psychological factors, socioeconomic status, diet program, age, and gender contribute to changes in energy balance and lead to the incidence of obesity [2]. Factors that affect more nutritional status (obesity) or less directly are consumption and infection [3]. Adolescents aged 10-18 years is a period that is prone to dietary problems (more / less) due to various causal factors, among others: adolescents need higher nutrition because experiencing increased physical growth, lifestyle changes, and eating habits, and adolescents have nutritional needs such as the needs of athletes [4].

Another factor that is also influential is the influence of peers (peers) is very strong during adolescence in food selection, such as junk food (Brown, 2013). The adolescent's nutritional status influenced by eating habits, body image perception, and physical activity will affect the amount of food consumption and nutrients, which will later affect the amount of food consumption and nutrients that will impact lifestyle nutrition status (lifestyle) [5].

Adolescent development is characterized by rapid growth and change from childhood to young adulthood. Biological changes that occur during adolescent puberty include sexual maturation, increased height and weight, accumulation of bone mass, and changes in body composition. During adolescence, there is the development of personal identity, moral and ethical value systems, self-esteem, perception of body image, and awareness of sexuality psychosocial problems. Dramatic changes in body shape and body size cause a lot among adolescents, leading to poor body image and eating disorders. It affects nutritional status [6].

Poor lifestyle and adolescent lack of awareness of health cause many adolescents to overheat and result in obesity [7]. Obesity can occur due to energy intake that is not accompanied by sufficient activity. Lack of burning the energy, thus causing a pile of fat in the body and causing a person to become obese. Obesity is more common in adolescent girls who can have a less good impact on social and psychosocial development. The adolescent is more alone, stressed, depressed, and reduced passion for life. These thoughts and feelings of inferiority can affect the negative image, which encourages a person to restrict eating and spit out intentionally. The conditions can affect adolescent cognitive growth and development [5] Nutrients that play a role in the growth and cognitive development are carbohydrates, proteins, fats, fatty acids (omega-3, EPA DHA, omega-6, AA), Fe, and Zinc [8]. Omega-3s play a role in mental growth and development [9]. Therefore, it is necessary to research the relationship of omega-3 consumption with adolescent BMI.

Method

This research is based on literature studies. The literature study data is processed and analyzed with systematic review and meta-analysis. OR uses database search to search for synonyms and merge PICO (Fitria 2020). The data used in PubMed data from each variable: nutrients (omega-3, EPA, DHA, Omega-6, AA, Zn, Fe), physical activity, stress, body image with growth, and growth. Adolescent development.

Result

The study looked at the effects of fatty acids on populations related to body mass index. From the results of the literature systemically, the influence of fatty acids on the people related to body mass index (BMI) obtained the following results in table 1.

Table 1. Pubmed base data search using Boolean logic

MeSH (Medical Subhect Heading)	Total
"Fatty Acids, Omega-6"[Mesh]	16153
"Fatty Acids, Omega-3"[Mesh]	24896
"Eicosapentaenoic Acid"[Mesh]	6213
"Docosahexaenoic Acids"[Mesh]	8893
"Arachidonic Acid"[Mesh]	18629
Search: ((("Fatty Acids, Omega-6"[Mesh]) AND ("Fatty Acids, Omega-3"[Mesh])) AND ("Eicosapentaenoic Acid"[Mesh])) AND ("Docosahexaenoic Acids"[Mesh])) AND ("ArachidonicAcid"[Mesh])	131
"Body Mass Index"[Mesh]	128531
((("Fatty Acids, Omega-6"[Mesh]) AND ("Fatty Acids, Omega-3"[Mesh])) AND ("Eicosapentaenoic Acid"[Mesh])) AND ("Docosahexaenoic Acids"[Mesh])) AND ("ArachidonicAcid"[Mesh])	6

The result of database table 1 obtained six articles. Of the six articles found, three described the study as a study. As we can see from table 1, fatty acids (omega-3, EPA, DHA, omega 6, AA) are used to overcome BMI abnormality that occurs a lot at the age of 14 years and above. Especially obese adults and pregnant women. We have conducted on pregnant women, two articles on adult subjects and one article on menopausal women that can be seen in table 2.

Discussion

From the article obtained, research using fatty acids is still very developed. The fatty acid source can be synthetic in capsules modified or by providing food and the specified levels. This provision of discussed nutrients is sourced from chia seeds and sea fish. The fatty acids used in the study were omega 3, omega 6, AA, DHA, ALA, EPA. The fatty acids studied did not all provide positive results for its users. Positive results can be seen from an increase in DHA in infants that occurred in the third trimester of pregnancy. However, there is no meaningful relationship between increased fatty acids to increase weight. Two articles state this result (10,11)

When compared per age category, be it teenagers, pregnant women, or even adults (men and women), there is no association between consuming fatty acids per day and weight gain. And body mass index. In other subjects with postmenopausal age who experienced changes in breast function. This study found that fatty acids, especially Omega 3 and Omega 6, were not associated with postmenopausal breast density.

Exciting results from the Cnklin et al. (2007) study showed significant results against changes in fatty acid concentrations. The increase in AA and AA: EPA ratios were associated with an increase in the risk symptoms of depression. Decreased AA, increased AA: DHA ratio is related to an increase in NEO-PI-R disorder. (12)

However, this research is widely conducted in developed countries with a rapid economy and knowledge development level, for the trial

Table 2. Results obtained from inclusion articles

Type of research	Length of study	Writers (year of publication)	Country	subject	Fatty acids	outcomes
Trial	2001 -2005	Conklin, Sarah M. PhD; Manuck, Stephen B. PhD; Yao, Jeffrey K. PhD; Flory, Janine D. PhD; Hibbeln, Joseph R. MD; Muldoon, Matthew F. MD (2007)	US	Adult, 116 people aged 33 - 55	OMEGA 3, EPA, DHA, OMEGA 6,AA	An increase in AA and AA: EPA ratios is associated with an increase in depressive symptoms. Decrease in AA, increased AA:DHA ratio associated with increased NEO-PI-R disorder
Case-control study	3 months	Hudson et al	US	248 Post menopause	Omega 3, omega 6	Omega 3 and omega 6 were not associated with person density breast area

Trial	1992 - 1996	Miura et al. (2016)	Australia	1008 adults age 20- 69	Omega 3, Omega 6, EPA, DHA, Omega 6, AA	Decrease mortality people abnormal BMI
Trial	2013 – 2015	Cinelli et al. (2016)	Italy	445 pregnant women, 14 -45 years old	ALA, DHA	The weight gain of pregnant women is not related to fatty acid levels in the baby. DHA is for fetal development in the last trimester. The amount of ALA converted to DHA is a tiny percentage.
Trial	2012 -2013	Valenzuela et al. (2015)	Chile	40 pregnant women	ALA, DHA	ALA, DHA Increases erythrocyte ALA, EPA during last trimester of pregnancy
Trial	2006 -2007	Labayen et al (2011)	9 EU countries	772 school-age teenagers	AA, DHA, EPA	Weight is not related to serum AA

study was all carried out following the procedure of the Helsinki agreement. All research subjects have given consent information about AA and the research protocols.

Conclusion

Types of fatty acids that are widely used to see their effect on changes in body mass index are omega 3, omega 6, ALA, DHA, EPA, and AA. Prove that fatty acids positively affect the body, especially for fetal development. Unfortunately, fatty acids have negative consequences, such as symptoms of depression in adults. This systematic study is the first step to determining the next research direction. Hopefully, the next researcher can also use the dominant type of fatty acid in the future.

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