

**HUBUNGAN ANTARA ASUPAN ENERGI, LEMAK, DAN SERAT,
AKTIVITAS FISIK, SERTA KEBIASAAN MEROKOK DENGAN KADAR
LDL KOLESTEROL**

Artikel Penelitian

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THE ASSOCIATIONS BETWEEN ENERGI, FAT, AND FIBER INTAKE, PHYSICAL ACTIVITY, AND SMOKING HABIT WITH LDL CHOLESTEROL LEVEL

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Abstrack

Background: Excessive of level LDL cholesterol will trigger atherosclerosis. Healthy life pattern can help to reduce level of LDL cholesterol. Some indicators of healthy life pattern which are energy, fat, and fiber intake, physical activity, and smoking habit were examined for their associations with the level of LDL cholesterol.

Methods : A cross sectional study was carried out in Graha Mukti and Banpres Tlogomulyo dwelling Semarang with samples of 45 men aged 40 – 50 years that were taken randomly. Data collected consisted of LDL cholesterol assessed by LDL direct, and energy, fat, cholesterol, fiber intake from food recall, physical activity measured using 24 hours in 3 days record activities and smoking habit assessed using questionnaire. Data were analyzed using Kolmogorov-Smirnove test, Pearson, Spearman and Linear Regression.

Result The study revealed that average age of the samples were $46,6 \pm 3,58$ years, energy sufficiency $86,5\% \pm 15,08$, energy intake $2107\text{kcal} \pm 357,9$, total fat intake $54,7\text{gr} \pm 20,87$, saturated fatty acids intake $27,5\text{mg} \pm 11,55$, polyunsaturated fatty acids intake $11,0\text{mg} \pm 5,03$, monounsaturated fatty acids intake $11,1\text{mg} \pm 5,10$, cholesterol intake $163,7\text{mg} \pm 187,13$, fiber intake $10,9\text{g} \pm 2,84$. Energy used for physical activity were $3128\text{kcal} \pm 588,8$. Samples that smoke were 57,8%. Mean LDL cholesterol was $102,2\text{mg/dl} \pm 30,94$. There were associations between energy, total fat, saturated fatty acids, and cholesterol intake, and physical activity with level of LDL cholesterol ($r_1=0,503$; $p_1=0,00$, $r_2=0,424$; $p_2=0,004$, $r_3=0,444$; $p_3=0,002$, $r_4=0,340$; $p_4=0,022$, $r_5=-0,468$; $p_5=0,001$), however there were no associations between energy sufficiency, polyunsaturated fatty acid, monounsaturated fatty acid, and fiber intake and smoking habit ($r_1=0,073$; $p_1=0,635$, $r_2=0,277$; $p_2=0,065$, $r_3=0,239$; $p_3=0,113$, $r_4=0,264$; $p_4=0,080$, $r_5=0,006$; $p_5=0,967$). Multivariat test revealed only energy intake and physical activity were associated with level of LDL cholesterol ($R^2\text{adj}=0,40$).

Conclusions : Energy intake and physical activity are determinant of LDL cholesterol level

Key words : LDL cholesterol, energy, physical activity, fiber

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Abstrak

Latar Belakang : Kolesterol dalam bentuk LDL yang berlebih merupakan pemicu terjadinya aterosklerosis. Pola hidup yang sehat dapat membantu menurunkan kadar LDL kolesterol. Beberapa indikator pola hidup sehat seperti asupan energi, lemak, serat, aktivitas fisik, dan kebiasaan merokok diteliti hubungannya dengan kadar LDL kolesterol.

Metode : Penelitian *cross sectional* dilakukan di Perumahan Graha Mukti dan Perumahan Banpres Tlogomulyo Semarang dengan jumlah sampel 45 orang laki-laki (40-50 tahun). Sampel dipilih dengan *proportional random sampling*. Data yang dikumpulkan meliputi kadar LDL kolesterol melalui *LDL direct*, asupan energi, lemak, kolesterol dan serat melalui *recall* makanan, aktivitas fisik melalui pencatatan aktivitas fisik 24 jam selama 3 hari, serta kebiasaan merokok melalui kuesioner. Analisis yang digunakan adalah *Kolmogorov-Smirnov test*, *Pearson*, *Spearman* dan Regresi linier ganda dengan kemaknaan 0,05.

Hasil : Penelitian menunjukkan bahwa rerata usia sampel 46 tahun $\pm 3,5$, tingkat kecukupan energi (TKE) $86,5\% \pm 15,08$, asupan energi 2107 Kal $\pm 357,9$, lemak total 54,7gr $\pm 20,87$, asam lemak jenuh 27,5mg $\pm 11,55$, asam lemak tak jenuh tunggal 11,0mg $\pm 5,03$, asam lemak tak jenuh ganda 11,1mg $\pm 5,10$, asupan kolesterol 163,7mg $\pm 187,13$, asupan serat 10,9gr $\pm 2,84$. Energi yang dikeluarkan untuk aktivitas fisik 3128 kkal $\pm 588,8$. Sampel yang merokok 57,8%. Rerata kadar LDL kolesterol 102,2mg/dl $\pm 30,94$. Ada hubungan antara asupan energi, lemak total, asam lemak jenuh, asupan kolesterol, dan aktivitas fisik dengan kadar LDL kolesterol ($r_1 = 0,503$; $p_1 = 0,00$, $r_2 = 0,424$; $p_2 = 0,004$, $r_3 = 0,444$; $p_3 = 0,002$, $r_4 = 0,340$; $p_4 = 0,022$, $r_5 = -0,468$; $p_5 = 0,001$), namun tidak berhubungan dengan TKE, asam lemak tak jenuh tunggal, asam lemak tak jenuh ganda, serat, dan kebiasaan merokok ($r_1 = 0,073$; $p_1 = 0,635$, $r_2 = 0,277$; $p_2 = 0,065$, $r_3 = 0,239$; $p_3 = 0,113$, $r_4 = 0,264$; $p_4 = 0,080$, $r_5 = 0,006$; $p_5 = 0,967$). Uji multivariat mendapatkan hanya asupan energi total dan aktivitas fisik yang berhubungan dengan kadar LDL kolesterol ($R^2_{adj} = 0,40$)

Kesimpulan : Asupan energi dan aktivitas fisik merupakan determinan kadar LDL kolesterol.

Kata kunci : LDL kolesterol, energi, aktivitas fisik, serat

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