

**HUBUNGAN KONSUMSI KARBOHIDRAT, TOTAL ENERGI, SERAT, BEBAN  
GLIKEMIK DAN LATIHAN JASMANI DENGAN KADAR GLUKOSA DARAH PADA  
PASIEN DIABETES MELLITUS TIPE 2**

**ARTIKEL PENELITIAN**

**Diajukan untuk:**

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## Association Between Carbohydrate intake, Total Energy Intake, Fiber Intake, Glycemic Load And Exercise With Blood Glucose Levels In Patients With Type 2 Diabetes Mellitus

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### Abstracts

**Backgrounds:** The Worldwide prevalence of type 2 diabetes mellitus is increasing at epidemic proportion. Dietary patterns and sedentary lifestyle are risk factors of type 2 diabetes mellitus.

**Objective:** The objective was to examine the association between carbohydrate intake, total energy intake, fiber intake, glycemic load, frequency of exercise and duration of exercise with fasting blood glucose levels and with 2-h postprandial blood glucose levels.

**Methods:** In this observational study with cross-sectional approach, 46 adults with type 2 diabetes mellitus. The subjects consisted of 17 male and 29 female. This study was performed at Dr. Kariadi Hospital during February – Maret 2008. Data on food consumption was obtained using Semi Quantitative Food Frequency Questionnaire (FFQ) and recall. Data on exercise was obtained using questionnaire. Data on blood glucose level was obtained using questionnaire from medical records. Data analysis used Pearson Product Moment and Multiple Regression to test these associations.

**Result:** Most (76,1%) subjects were have high fasting blood glucose levels. Most (78,3%) subjects were have high 2 h blood glucose levels. In bivariate analysis, a significant association with fasting blood glucose level was observed for carbohydrate intake (r: 0,638, p: 0,000), total energy intake (r: 0,539, p:0,000), fiber intake (r: -0,670, p:0,000), glycemic load (r: 0,345, p:0,019), frequency of exercise (r: -0,561, p:0,000), and duration of exercise (r: -0,393, p:0,007). a significant association with 2h postprandial blood glucose level was observed for total energy intake (r: 0,673, p:0,000), fiber intake (r: -0,638, p:0,000), glycemic load (r: 0,775, p:0,000), frequency of exercise (r: -0,482, p:0,001), and duration of exercise (r: -0,393, p:0,007).

**Conclusion:** Carbohydrate intake was positively associated with fasting blood glucose levels. Total energy intake and glycemic load were positively associated with fasting blood glucose levels and with 2h postprandial blood glucose levels. Fiber intake, frequency of exercise and duration of exercise were negatively associated with fasting blood glucose levels and with 2h postprandial blood glucose levels. Carbohydrate intake, total energy intake, fiber intake, glycaemic load, frequency of exercise and duration of exercise influenced 69,7%. fasting blood glucose levels. Total energy intake, fiber intake, glycaemic load, frequency of exercise and duration of exercise influenced 71,3% 2h blood glucose levels.

**Keywords:** carbohydrate intake, total energy, fiber, glycaemic load, exercise, blood glucose levels, type 2 diabetes mellitus

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## Hubungan Konsumsi Karbohidrat, Konsumsi Total Energi, Konsumsi Serat, Beban Glikemik dan Latihan Jasmani Dengan Kadar Glukosa Darah Pada Pasien Diabetes Mellitus Tipe 2

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### Abstrak

**Latar Belakang :** Prevalensi Diabetes Mellitus Tipe 2 meningkat secara epidemiologis di seluruh dunia. Pola makan dan pola hidup santai merupakan faktor resiko Diabetes Mellitus Tipe 2.

**Tujuan:** Menjelaskan hubungan konsumsi karbohidrat, konsumsi total energi, konsumsi serat, beban glikemik, frekuensi latihan jasmani dan durasi latihan jasmani dengan kadar glukosa darah puasa dan kadar glukosa darah 2 jam *postprandial*.

**Metode:** Jenis penelitian observasional dengan pendekatan belah lintang dengan 46 pasien Diabetes Mellitus sebagai subyek penelitian. Subyek penelitian ini terdiri atas 17 orang laki – laki dan 29 orang perempuan. Penelitian ini dilaksanakan di rumah sakit DR. Kariadi Semarang selama bulan Februari – Maret 2008. Data konsumsi makanan diperoleh dengan formulir frekuensi makan semi kuantitatif dan recall. Data latihan jasmani diperoleh dengan kuesioner. Data kadar glukosa darah diperoleh dengan kuesioner identitas yang tercatat pada buku rekam medik. Analisis data menggunakan korelasi Pearson Product Moment dan Regresi Linear Berganda.

**Hasil:** Sebagian besar (76,1%) subyek mempunyai kadar glukosa darah puasa termasuk kategori tinggi. Sebagian besar (78,3%) subyek mempunyai kadar glukosa darah 2 jam *postprandial* termasuk kategori tinggi. Terdapat hubungan bermakna dengan kadar glukosa darah puasa pada konsumsi karbohidrat (r: 0,638, p: 0,000), konsumsi total energi (r: 0,539, p:0,000), konsumsi serat (r: -0,670, p:0,000), beban glikemik (r: 0,345, p:0,019) , frekuensi latihan jasmani (r: -0,561, p:0,000) dan durasi latihan jasmani (r: -0,393, p:0,007). Terdapat hubungan bermakna dengan kadar glukosa darah 2 jam *postprandial* pada konsumsi total energi (r: 0,673, p:0,000), konsumsi serat (r: -0,638, p:0,000), beban glikemik (r: 0,775, p:0,000) , frekuensi latihan jasmani (r: -0,482, p:0,001) dan durasi latihan jasmani (r: -0,393, p:0,007).

**Kesimpulan:** Konsumsi karbohidrat berhubungan positif dengan kadar glukosa darah puasa. Konsumsi total energi dan beban glikemik berhubungan positif dengan kadar glukosa darah puasa dan kadar glukosa darah 2 jam *postprandial*. Konsumsi serat, frekuensi latihan jasmani dan durasi latihan jasmani dengan kadar glukosa darah puasa dan kadar glukosa darah 2 jam *postprandial*. Konsumsi karbohidrat, konsumsi total energi, konsumsi serat, beban glikemik, frekuensi latihan jasmani dan durasi latihan jasmani secara bersama – sama mempengaruhi 69,7% kadar glukosa darah puasa. Konsumsi total energi, konsumsi serat, beban glikemik, frekuensi latihan jasmani dan durasi latihan jasmani secara bersama – sama mempengaruhi 71,3% kadar glukosa darah 2 jam *postprandial*.

**Kata Kunci:** Konsumsi karbohidrat, total energi, serat, beban glikemik, latihan jasmani, kadar glukosa darah, Diabetes Mellitus Tipe 2.

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