

**PENGARUH SUPLEMENTASI VITAMIN C DAN  
VITAMIN E TERHADAP GLUKOSA DARAH PUASA  
DAN PROFIL LIPID PENDERITA  
DIABETES MELLITUS TIPE 2**

**Studi pada Pasien Rawat Jalan Puskesmas Makkasau Makassar**

***VITAMIN C AND VITAMIN E SUPPLEMENTATION EFFECTS  
ON FASTING BLOOD GLUCOSE AND LIPID PROFILE  
OF TYPE 2 DIABETES MELLITUS PATIENTS  
Study on Patients in Makkasau Primary Healthcare Centre Makassar***



**Tesis  
Untuk memenuhi sebagian persyaratan  
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**Magister Ilmu Gizi**

**Nur Ayu Ruhmayanti  
22030112410024**

**FAKULTAS KEDOKTERAN  
UNIVERSITAS DIPONEGORO  
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## ABSTRAK

### PENGARUH SUPLEMENTASI VITAMIN C DAN VITAMIN E TERHADAP GLUKOSA DARAH DAN PROFIL LIPID PENDERITA DIABETES MELLITUS TIPE 2

Nur Ayu Ruhmayanti, Darmono SS, Martha I. Kartasurya

**Latar Belakang:** Kombinasi vitamin C dan E berperan dalam mengatur sensitivitas insulin pada jalur autooksidasi glukosa dan metabolisme lipid melalui peroksidasi asam lemak bebas. Penelitian bertujuan menganalisis pengaruh suplementasi vitamin C dan E terhadap kadar Glukosa Darah Puasa (GDP) dan profil lipid penderita diabetes mellitus tipe 2 (DMT2).

**Metode:** Penelitian eksperimen ini dilaksanakan pada 18 subjek pada kelompok perlakuan dan 17 subjek pada kelompok yang memenuhi kriteria inklusi. Suplementasi berupa kapsul vitamin C 250 mg dan vitamin E 400 IU 1x1 hari selama 6 minggu. Plasebo berupa bubuk rumput laut 250 mg dengan bentuk dan ukuran yang sama. Asupan gizi dan aktivitas diperoleh melalui *recall* 2x24jam. GDP dan profil lipid diukur sebelum dan setelah suplementasi. Data dianalisis dengan *uji T*, *Mann whitney*, *chi-square*, *Kolmogorov-smirnov* dan *Wilcoxon*.

**Hasil:** Kadar GDP kelompok perlakuan sebelum dan setelah suplementasi: 200,3±67,38mg/dl dan 210,2±67,29mg/dl ( $p=0,299$ ), kelompok kontrol: 205,9±66,64mg/dl dan 214,6±78,42mg/dl ( $p=0,539$ ). Kadar kolesterol total kelompok perlakuan sebelum dan setelah suplementasi: 162,2±48,62mg/dl dan 160,0±41,28mg/dl ( $p=0,930$ ), kelompok kontrol: 149,4±35,35mg/dl dan 154,6±44,34mg/dl ( $p=0,658$ ). Kadar trigliserid kelompok perlakuan sebelum dan setelah suplementasi: 105,3±48,06mg/dl dan 103,4±41,17mg/dl ( $p=0,964$ ), kelompok kontrol: 92,6±34,15mg/dl dan 97,3±44,65mg/dl ( $p=0,935$ ). Kadar HDL kelompok perlakuan sebelum dan setelah suplementasi: 78,2±19,30mg/dl dan 79,0±15,31mg/dl ( $p=0,813$ ), kelompok kontrol: 84,9±14,04mg/dl dan 81,3±16,01mg/dl ( $p=0,831$ ). Kadar LDL kelompok perlakuan sebelum dan setelah suplementasi: 111,2±45,09mg/dl dan 112,3±40,32mg/dl ( $p=0,838$ ), kelompok kontrol: 99,4±32,35mg/dl dan 104,7±40,56mg/dl ( $p=0,622$ ).

**Simpulan:** Suplementasi vitamin C 250 mg dan vitamin E 400 IU selama 6 minggu tidak berpengaruh terhadap kadar GDP dan profil lipid pasien DMT2.

**Kata kunci:** vitamin C, vitamin E, GDP, profil lipid, diabetes

## ABSTRACT

### VITAMIN C AND VITAMIN E SUPPLEMENTATION EFFECTS ON FASTING BLOOD GLUCOSE AND LIPID PROFILE OF TYPE 2 DIABETES MELLITUS PATIENTS

Nur Ayu Ruhmayanti, Darmono SS, Martha I. Kartasurya

**Background:** Vitamin C and E have an important role of lipid and insulin sensitivity. This study investigated the effects of vitamin C and E on Fasting Blood Glucose (FBG) and lipid profile in Type 2 Diabetes Mellitus (T2DM) patients.

**Method:** This experimental study was conducted on 18 subjects in supplementation group and 17 subjects in the control group. The supplements were 250mg vitamin C and 400IU vitamin E given once daily for 6 weeks. The placebo was 250mg seaweed powder in the same forms of capsules to the supplements. Nutrition intake and physical activity level data were collected by interviews using recall methods. FBG and lipid profile were measured before and after supplementation. Data were analyzed with *T Test*, *Mann whitney*, *chi-square*, *Kolmogorov-smirnov* and *Wilcoxon test*.

**Result:** FBG levels before and after on treatment group: 200.3±67.38mg/dl and 210.2±67.29mg/dl ( $p=0,299$ ), control group: 205.9±66.64mg/dl and 214.6±78.42mg/dl ( $p=0.539$ ). Cholesterol total before and after on treatment group: 162.2±48.62mg/dl and 160.0±41.28mg/dl ( $p=0.930$ ), control group: 149.4±35.35mg/dl and 154.6±44.34mg/dl ( $p=0.658$ ). Triglyceride before and after on treatment group: 105.3±48.06mg/dl and 103.4±41.17mg/dl ( $p=0.964$ ), control group: 92.6±34.15mg/dl and 97.3±44.65mg/dl ( $p=0.935$ ). HDL before and after on treatment group: 78.2±19.30mg/dl and 79.0±15.31mg/dl ( $p=0.813$ ), control group: 84.9±14.04mg/dl and 81.3±16.01mg/dl ( $p=0.831$ ). LDL before and after on treatment group: 111.2±45.09 mg/dl and 112.3±40.32 mg/dl ( $p=0.838$ ), control group: 99.4±32.35mg/dl and 104.7±40.56mg/dl ( $p=0.622$ ).

**Conclusion:** Supplementation of 250mg vitamin C and 400IU vitamin E for 6 weeks has no effects on FBG levels and lipid profile of T2DM patients.

**Keyword:** vitamin C, vitamin E, FBG, lipid profile, diabetes