

# DIFFERENCE IN BLOOD GLUCOSE LEVELS IN BLOOD SAMPLE TRANSFER TREATMENT WITH AND WITHOUT REMOVING THE SYRINGE NEEDLE

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## ABSTRACT

**Background :** Blood specimens from a syringe to a vacutainer with direct puncture are at risk of causing red blood cell lysis. This condition occurs because blood flows through a small-diameter needle, which can damage the red blood cell membrane. Hemolyzed serum impacts the accuracy of blood glucose measurements.

**Research Objective:** To determine the difference in blood glucose levels between blood sampling procedures with needle removal and without needle removal.

**Research Objective :** This observational analytical study with a cross-sectional design involved 30 participants from whom venous blood samples were taken. The participants were divided into two groups; the first group performed blood sample collection after removing the needle, and the second group performed sample collection without removing the needle. Data analysis was conducted using the Paired Sample T-Test with SPSS 25.0 for Windows.

**Results:** Descriptive analysis results show that the mean difference in blood glucose levels between the two treatments is 12.69 mg/dL. Blood glucose levels in sample transfers without removing the needle showed an average increase of 16.58%. The Paired Sample T-Test statistical test produced a p-value (0.000) smaller than 0.05, indicating a significant difference in blood glucose levels in the treatment without removing the needle.

**Conclusion:** A significant difference of 16.58% in blood glucose levels was observed in samples subjected to transfer treatment without syringe needle removal.

**Keyword :** *Blood sample transfer, Blood Glucose, Hemolysis.*

PERBEDAAN KADAR GLUKOSA DARAH PADA PERLAKUAN  
PEMINDAHAN SAMPEL DARAH DENGAN DAN TANPA MELEPAS  
JARUM SPUIT

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**ABSTRAK**

**Latar Belakang :** Spesimen darah dari jarum suntik ke *vacutainer* dengan penusukan langsung berisiko menyebabkan lisis sel darah merah. Kondisi ini terjadi karena darah mengalir melalui jarum berdiameter kecil, yang dapat merusak membran sel darah merah. Serum hemolisis berdampak pada ketepatan pengukuran kadar glukosa dalam darah.

**Tujuan Penelitian :** Mengetahui perbedaan tingkat glukosa darah antara prosedur pengambilan sampel darah dengan melepas jarum dan tanpa melepasnya.

**Metode Penelitian :** Jenis analitik observasional dengan rancangan *cross sectional* ini melibatkan 30 probandus yang diambil sampel darah venanya. Partisipan dibagi menjadi dua kelompok, kelompok pertama melakukan pemindahan sampel darah setelah jarum dilepas dan kelompok kedua melakukan pemindahan sampel tanpa melepas jarum. Analisis data dilakukan menggunakan uji *Paired Sample T-Test* dengan SPSS 25.0 for Windows.

**Hasil Pemeriksaan :** Hasil analisis deskriptif menunjukkan selisih rata-rata tingkat glukosa darah antara kedua perlakuan adalah 12,69 mg/dL. Kadar glukosa darah pada pemindahan sampel tanpa melepas jarum menunjukkan peningkatan rata-rata sebesar 16,58%. Uji statistik *Paired Sample T-Test* menghasilkan nilai p (0,000) yang lebih kecil dari 0,05, mengindikasikan adanya perbedaan yang bermakna pada tingkat glukosa darah dalam perlakuan tanpa melepas jarum.

**Kesimpulan :** Ada perbedaan signifikan sekitar 16,58% pada tingkat glukosa darah sampel yang menjalani prosedur pemindahan tanpa melepas jarum dari spuit.

**Kata Kunci :** *Pemindahan sampel darah, Glukosa Darah, Hemolisis.*