

ABSTRAK

THE INFLUENCE OF THE GIVING OF COMBINATION OF GLUCOSE 5% WITH SODIUM CHLORIDE SEVERAL CONCENTRATION (HYPOTONIC, ISOTONIC, HYPERTONIC) BEFORE RUNNING PHYSICAL ACTIVITY 800 METERS ON BLOOD LACTIC ACID AND GLUCOSE LEVELS

AMIR CHAMDANI

Physical activity requires energy resources. Distribution of energy sources in the two; anaerobic and aerobic both using glucose. Running 800 meters requires speed and aerobic energy sources 34% and 66% anaerobic. Glucose absorption in the digestive tract using the transporter SGLT by means of active transport.

Research design is "The pre-post test control group design". This research uses human beings as subject. The subjects are students of Surabaya State University of sport faculty major of physical education. Samples of this research are eight students of 21-23 years old. Each group of the same person but different execution time is 3 days interval for physical recovery. Number of research groups have 4 groups. Administration of combination of glucose solution 5% with sodium chloride solution conducted. The first (1st) the provision of 5% glucose without sodium chloride, the second (2nd) 5% glucose solution with sodium chloride 0,4%, the third (3rd) with 0,9% sodium chloride, and the fourth (4th) with sodium chloride 1,4%. The blood glucose and lactic acid levels measurements performed before administration and after solution administration divided 4 time (fasting state, 1 hour after drinking the solution, 5 minutes and 30 minutes after the running).

Research finding is analyzed by descriptive analysis, test of normality, paired t test and Anova in significance 0,05 by IBM SPSS 21. Result of test of normality shows that all data distribute normally by $p > 0,05$. The result of paired t test shows that variable of blood glucose level and variable of lactic acid level H_0 is rejected. It means that there is a relationship between the results of the test levels of blood glucose and lactic acid both before and after physical activity, shows $p < 0,05$ means that there is significant difference. The result of Anova shows $p > 0,05$, blood glucose level in delta glucose 1 of glucose 5% without sodium chloride.

Keywords: combination solution of glucose 5% with sodium chloride, blood glucose levels, blood lactic acid level

DAFTAR ISI

Halaman Judul	i
Halaman Sampul Dalam	ii
Halaman Pengesahan	iv
Halaman Panitia Penguji	v
Ucapan Terima Kasih	vi
Ringkasan	ix
Summary	x
Abstrak	xii
Daftar Isi	xiii
Daftar Tabel.....	xvi
Daftar Gambar	xvii
Daftar Lampiran.....	xviii
Daftar Singkatan	xix

BAB 1 PENDAHULUAN

1.1 Latar Belakang	1
1.2 Rumusan Masalah	3
1.3 Tujuan Penelitian.....	3
1.3.1 Tujuan umum	3
1.3.2 Tujuan khusus	3
1.4 Manfaat Penelitian.....	4
1.4.1 Manfaat untuk subjek penelitian	4
1.4.2 Manfaat untuk masyarakat.....	4
1.4.3 Manfaat untuk ilmu pengetahuan	4
1.5 Resiko Penelitian.....	5

BAB 2 TINJAUAN PUSTAKA

2.1 Karbohidrat	6
2.1.1 Klasifikasi karbohidrat	6
2.1.2 Pencernaan karbohidrat	7
2.1.3 Fungsi karbohidrat.....	8
2.1.4 Metabolisme karbohidrat	8
2.2 Glukosa.....	9
2.2.1 Absorpsi glukosa.....	10
2.2.2 Metabolisme Glukosa	12
2.2.3 Homeostasis glukosa darah.....	13
2.3 Sistem Energi.....	14
2.3.1 Sistem ATP-PC.....	14
2.3.2 Sistem asam laktat.....	15
2.3.3 Sistem aerobik.....	17
2.4 Respon Hormon Pada Saat Aktivitas	17
2.4.1 Hormon insulin	17
2.4.2 Hormon glukagon.....	18
2.4.3 Hormon kortisol	18
2.4.4 Hormon pertumbuhan.....	18

2.4.5	Hormon simpatoadrenal	19
2.5	Pengaruh Intensitas Aktivitas Fisik Terhadap Glukosa	19
2.5.1	Pengaruh aktivitas fisik intensitas rendah terhadap glukosa darah	19
2.5.2	Pengaruh aktivitas fisik intensitas sedang terhadap glukosa darah	20
2.5.3	Pengaruh aktivitas fisik intensitas tinggi terhadap glukosa darah	21
2.6	Pengaruh Pemberian Glukosa terhadap Glukosa Darah.....	23
2.7	Produksi Asam Laktat	24
2.7.1	Eliminasi asam laktat.....	25
2.7.2	Efek penumpukan asam laktat	26
2.7.3	Eliminasi asam laktat di otot dan darah.....	27
2.7.4	Aktivitas fisik dan asam laktat	28

BAB 3 KERANGKA KONSEPTUAL DAN HIPOTESIS PENELITIAN

3.1	Kerangka Konseptual	30
3.2	Penjelasan Kerangka Konsep.....	31
3.3	Hipotesis Penelitian.....	32

BAB 4 METODELOGI PENELITIAN

4.1	Jenis dan Rancangan Penelitian	33
4.2	Populasi, Sampel, Besar Sampel, Teknik Sampling	34
4.2.1	Populasi.....	34
4.2.2	Besar sampel	34
4.2.3	Tehnik sampling	36
4.3	Variabel Penelitian	36
4.3.1	Variabel bebas	36
4.3.2	Variabel tergantung	36
4.3.3	Variabel moderator	36
4.3.4	Kendali.....	36
4.4	Defenisi Operasional Variabel	37
4.4.1	Larutan glukosa 5% dan NaCl	37
4.4.2	Kadar glukosa darah	37
4.4.3	Kadar asam laktat	37
4.4.4	Lari 800 meter	38
4.4.5	Jenis kelamin	38
4.4.6	Umur	38
4.4.7	Status kesehatan	38
4.5	Lokasi Dan Waktu Penelitian	38
4.5.1	Lokasi Penelitian	38
4.5.2	Waktu Penelitian	39
4.6	Instrumen Penelitian.....	39
4.7	Prosedur Penelitian.....	40
4.7.1	Persiapan penelitian	40

4.8	Kerangka Operasional Penelitian	41
4.9	Analisa Data	43
4.10	Persyaratan Etik	43
BAB 5 ANALISIS HASIL PENELITIAN		
5.1	Hasil Statistik Deskriptif.....	48
5.1.1	Variabel tinggi badan, berat badan dan indeks massa tubuh	48
5.1.2	Variabel larutan.....	48
5.2	Uji Normalitas.....	48
5.3	Uji t-Berpasangan.....	52
5.4	Uji Anova.....	54
BAB 6 PEMBAHASAN		
6.1	Metodologi Penelitian	68
6.2	Pengaruh Pemberian Larutan kombinasi sebelum Aktivitas Fisik Lari 800 Meter Terhadap Kadar Glukosa Darah	69
6.2.1	Pengaruh Pemberian Larutan kombinasi sebelum Aktivitas Fisik Lari 800 Meter Terhadap Kadar Asam Laktat.....	71
BAB 7 PENUTUP		
7.1	Kesimpulan	73
7.2	Saran	75
DAFTAR PUSTAKA		76
LAMPIRAN		81