

Table 1. Muscle function indices at pre exercise, immediately post exercise, 48 h and 120 h post exercise in the first and second bout of eccentric exercise for the control and the statin group (mean \pm SEM)

	Bout 1				Bout 2				Main effects and interactions						
	Pre	Post	48 h	120 h	Pre	Post	48 h	120 h	G	B	T	G×T	G×B	B×T	G×B×T
<i>Eccentric torque (Nm)</i>															
Control	130.9 \pm 2.9	77.4 \pm 2.4*	88.3 \pm 1.7*	124.9 \pm 2.9*	131.9 \pm 3.0	80.5 \pm 1.9*	112.9 \pm 2.1*#	130.9 \pm 2.5	NS	.028	<.001	.002	NS	<.001	.009
Statin	155.4 \pm 4.5	76.1 \pm 2.6*	89.3 \pm 3.9*	119.8 \pm 4.9*	124.1 \pm 4.6	80.6 \pm 4.1*	103.6 \pm 3.6*#	124.7 \pm 4.5							
<i>Concentric torque (Nm)</i>															
Control	106.5 \pm 2.7	68.6 \pm 1.4*	81.3 \pm 2.0*	102.2 \pm 2.6	110.0 \pm 2.5 [¶]	71.3 \pm 1.8*	90.2 \pm 2.0*#	107.7 \pm 2.7	NS	.040	<.001	NS	NS	<.001	NS
Statin	101.9 \pm 4.2	67.0 \pm 3.3*	75.1 \pm 3.1*	99.1 \pm 4.6	102.5 \pm 3.1 [¶]	70.1 \pm 3.3*	92.0 \pm 2.9*#	103.1 \pm 3.7							
<i>Isometric torque (Nm)</i>															
Control	116.1 \pm 3.2	70.6 \pm 1.7*	88.3 \pm 3.3*	112.5 \pm 3.0	117.0 \pm 3.1	73.0 \pm 2.2*	100.8 \pm 2.6*#	115.1 \pm 2.9	NS	NS	<.001	NS	NS	<.001	NS
Statin	112.2 \pm 5.0	67.7 \pm 3.3*	83.9 \pm 2.7*	108.9 \pm 4.7	111.2 \pm 3.9	71.8 \pm 3.4*	96.2 \pm 2.7*#	109.3 \pm 3.7							
<i>Range of movement (°)</i>															
Control	118.3 \pm 0.6	108.7 \pm 0.6*	96.9 \pm 0.9*	118.1 \pm 0.5	118.6 \pm 0.6	109.4 \pm 1.4*	110.4 \pm 1.1*#	118.2 \pm 0.6	NS	<.001	<.001	NS	NS	<.001	.012
Statin	120.2 \pm 0.9	107.9 \pm 0.9*	99.3 \pm 1.0*	119.5 \pm 1.0	119.7 \pm 0.8	110.3 \pm 1.3*	108.6 \pm 0.7*#	120.2 \pm 0.6							
<i>DOMS squat (1-10)</i>															
Control	1.00 \pm 0.00	1.60 \pm 0.17*	4.80 \pm 0.39*	1.50 \pm 0.14*	1.00 \pm 0.00	1.90 \pm 0.18*	2.30 \pm 0.22*#	1.20 \pm 0.11	NS	<.001	<.001	NS	NS	<.001	NS
Statin	1.00 \pm 0.00	1.90 \pm 0.22*	4.60 \pm 0.23*	1.40 \pm 0.14*	1.00 \pm 0.00	1.80 \pm 0.21*	2.60 \pm 0.11*#	1.30 \pm 0.13							
<i>DOMS walking (1-10)</i>															
Control	1.00 \pm 0.00	1.80 \pm 0.21*	3.70 \pm 0.19*	1.50 \pm 0.14*	1.00 \pm 0.00	1.60 \pm 0.14*	2.20 \pm 0.15*#	1.10 \pm 0.10	NS	<.001	<.001	NS	NS	<.001	NS
Statin	1.00 \pm 0.00	1.70 \pm 0.16*	3.40 \pm 0.34*	1.60 \pm 0.14*	1.00 \pm 0.00	1.50 \pm 0.14*	2.40 \pm 0.13*#	1.10 \pm 0.10#							
<i>Creatine kinase (U/L)</i>															
Control	122.1 \pm 23.0	NM	2285 \pm 254*	268.6 \pm 48.4*	124.9 \pm 11.0	NM	1389 \pm 185*#	248.4 \pm 21.9*	NS	<.001	<.001	NS	NS	<.001	NS
Statin	113.9 \pm 9.7	NM	2130 \pm 214*	216.6 \pm 18.5*	129.1 \pm 16.3	NM	1085 \pm 98.9*#	190.9 \pm 20.7*							

DOMS: Delayed onset muscle soreness; NM: Not measured; NS: Non-significant ($P>.05$).

G: Main effect of training group; B: Main effect of bout; T: Main effect of time; G×T: 2-way interaction for group and time; G×B: 2-way interaction for group and bout; B×T: 2-way interaction for bout and time; G×B×T: 3-way interaction for group, bout and time.

*significantly different from the pre-exercise value.

#significantly different between the two bouts at the same time point for the same group.

Table 2. Analysis of daily energy intake of control and statins group before and for five days after both bouts of eccentric exercise. (mean \pm SEM).

	Bout 1		Bout 2	
	Control	Statins	Control	Statins
Energy (kcal)	2651 \pm 139	2712 \pm 131	2691 \pm 139	2676 \pm 131
Carbohydrate (% energy)	54.6 \pm 3.5	55.2 \pm 3.4	55.1 \pm 3.3	56.4 \pm 3.3
Fat (% energy)	28.1 \pm 3.3	28.3 \pm 2.8	28.7 \pm 3.7	27.8 \pm 3.2
Protein (% energy)	17.3 \pm 1.1	16.5 \pm 1.6	16.2 \pm 1.3	15.8 \pm 1.8
Vitamin A (mg, RE)	1.04 \pm 0.19	1.09 \pm 0.17	1.04 \pm 0.22	1.09 \pm 0.17
Vitamin C (mg)	125 \pm 14	135 \pm 17	125 \pm 13	131 \pm 16
Vitamin E (mg, α -TE [†])	7.7 \pm 0.8	8.3 \pm 1.1	7.4 \pm 0.8	8.3 \pm 1.3
Selenium (μ g)	40.5 \pm 3.6	43.1 \pm 3.4	42.6 \pm 3.1	42.5 \pm 3.7

Table 3. The differences (deg) at joint angles of the pelvis, hip, knee and ankle during walking for control and statin therapy individuals. The average of 10 cycles per subject was used. Data are means \pm SEM.

	Control individuals				Statin therapy individuals			
	Walking (bout 1)		Walking (bout 2)		Walking (bout 1)		Walking (bout 2)	
	Pre-exercise	48 hours	Pre-exercise	48 hours	Pre-exercise	48 hours	Pre-exercise	48 hours
Pelvic tilt (ROMPT1)	2 \pm 1	2 \pm 1	2 \pm 2	3 \pm 2	3 \pm 2	2 \pm 1	2 \pm 2	3 \pm 1
Hip (ROMH)	-41 \pm 2	-41 \pm 3	-41 \pm 5	-42 \pm 5	-41 \pm 2	-40 \pm 3	-40 \pm 5	-41 \pm 5
Knee (ROMS1)	10 \pm 4	6 \pm 3 *	11 \pm 4	10 \pm 9	11 \pm 4	6 \pm 3 *	10 \pm 4	9 \pm 9
Ankle (ROMA1)	12 \pm 3	11 \pm 4	12 \pm 2	13 \pm 3	12 \pm 3	11 \pm 4	12 \pm 2	13 \pm 3

* significant different compared to pre-exercise data ($P < 0.05$)

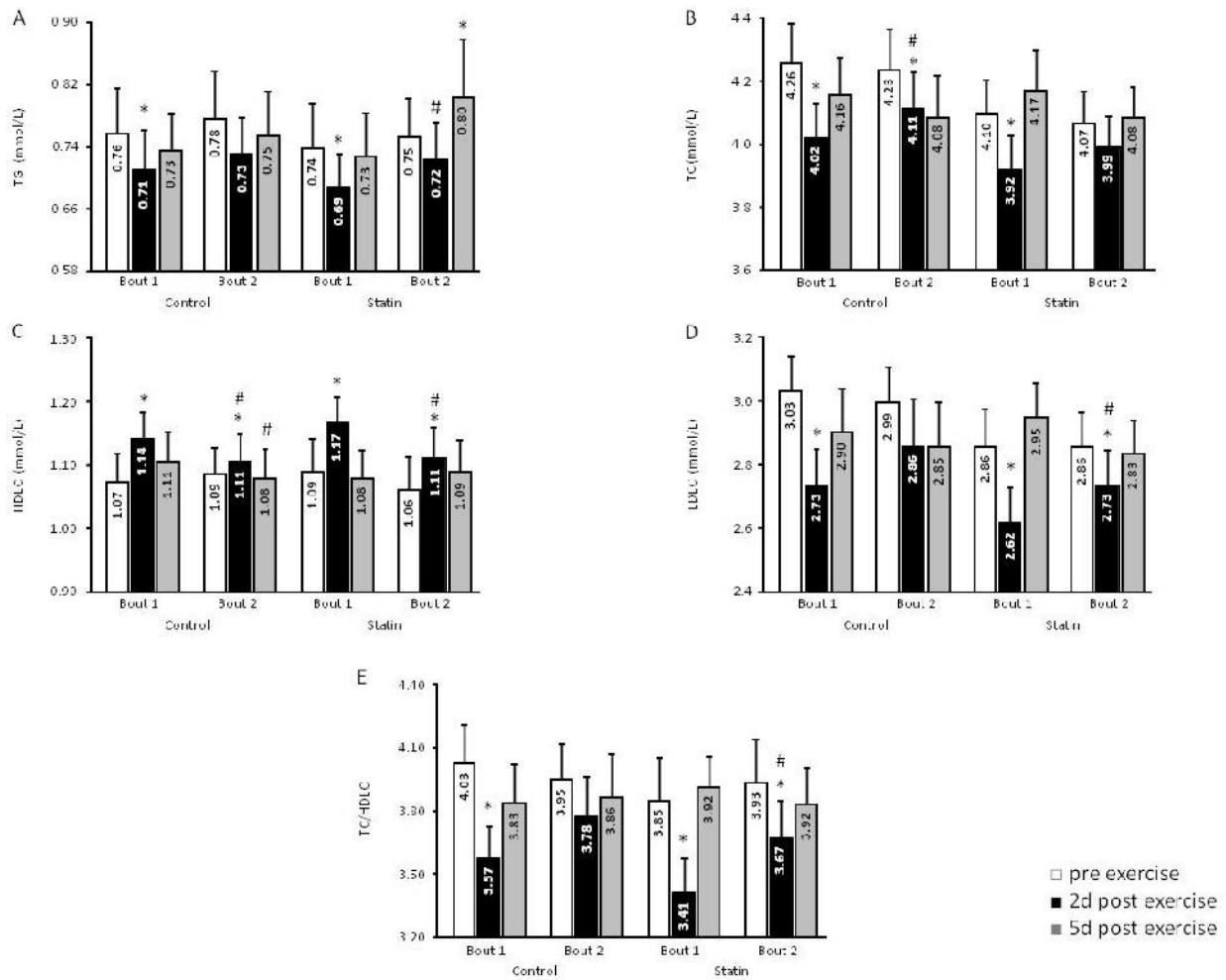


Fig. 1 Blood lipid profile (TG, A; TC, B; HDLC, C; LDLC, D; TC/HDLC, E) in the first and in the second eccentric exercise bout for control and statin group.

TG: Triacylglycerols; TC: Total cholesterol; HDLC: High density lipoprotein cholesterol; LDLC: Low density lipoprotein cholesterol.

* significantly different from the pre-exercise value.

significantly different between the two bouts for the same group at the same time point.

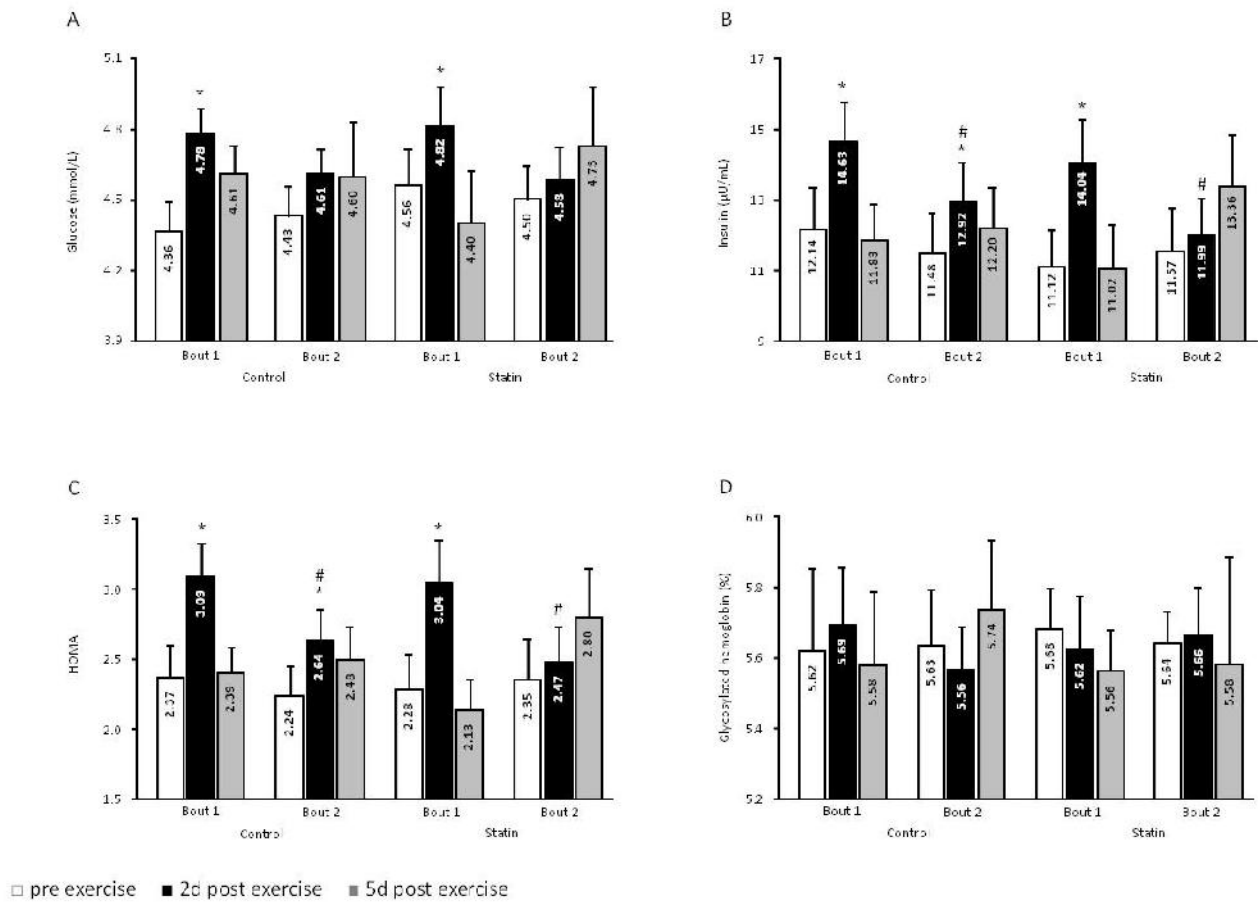


Fig. 2 Blood insulin resistance indices (Glucose, A; Insulin, B; HOMA, C; Glycosylated hemoglobin, D) in the first and in the second eccentric exercise bout for control and statin group.

HOMA: homeostasis model assessment.

* significantly different from the pre-exercise value.

significantly different between the two bouts for the same group at the same time point.

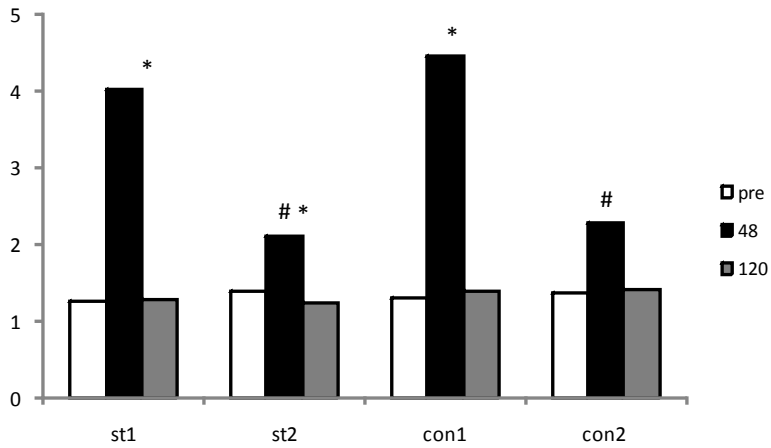


Fig. 3 C-reactive protein in the first and in the second eccentric exercise bout for control and statin group. * significantly different from the pre-exercise value. # significantly different between the two bouts for the same group at the same time point.

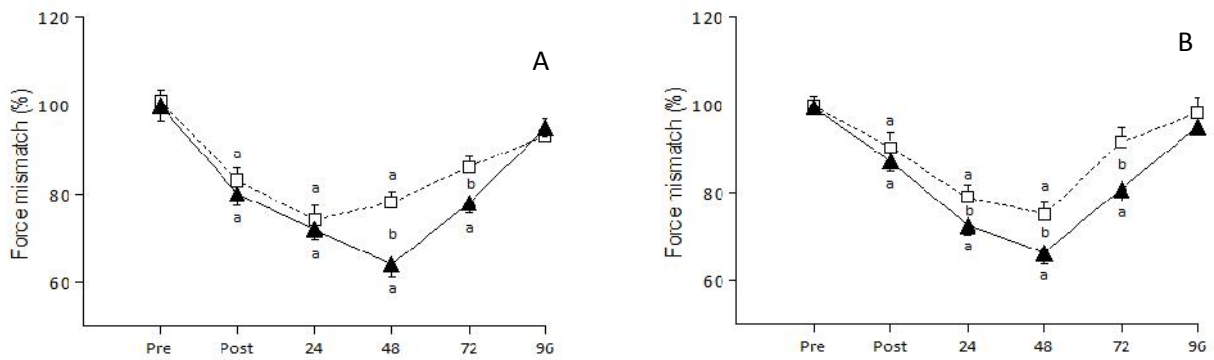


Fig. 4 Force mismatch of the knee extensors at 50% of MVC in the control (A), and in the statin therapy (B) group, after the bout 1 () and after the bout 2 (□) of eccentric exercise (mean ± SEM). a Significantly different from the pre-exercise value ($P < 0.05$). b Significantly different between the bout 1 and the bout 2 at the same time point ($P < 0.05$).

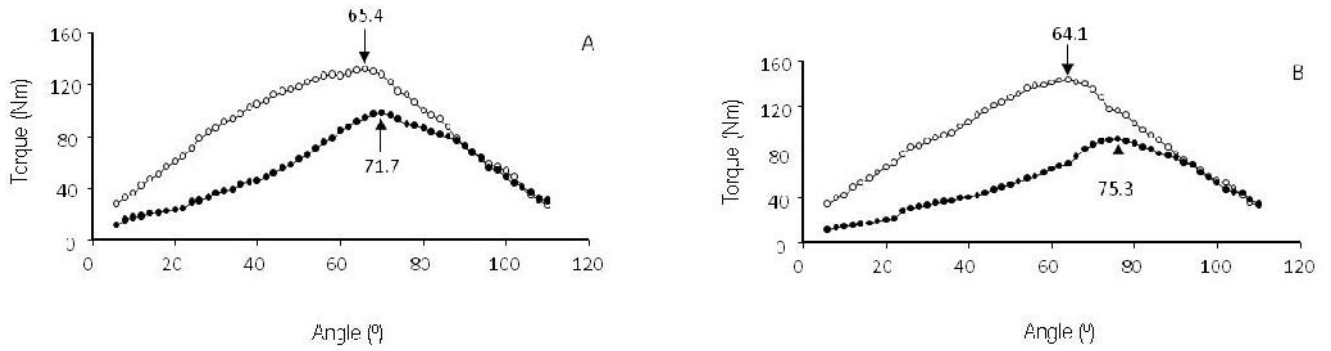


Fig. 5 Optimum muscle angle during maximal concentric contractions at rest (o) and 2 days post eccentric exercise (●) in the control (A), and in the statin therapy (B) individuals. The arrow indicates the angle at which the maximal torque was achieved.

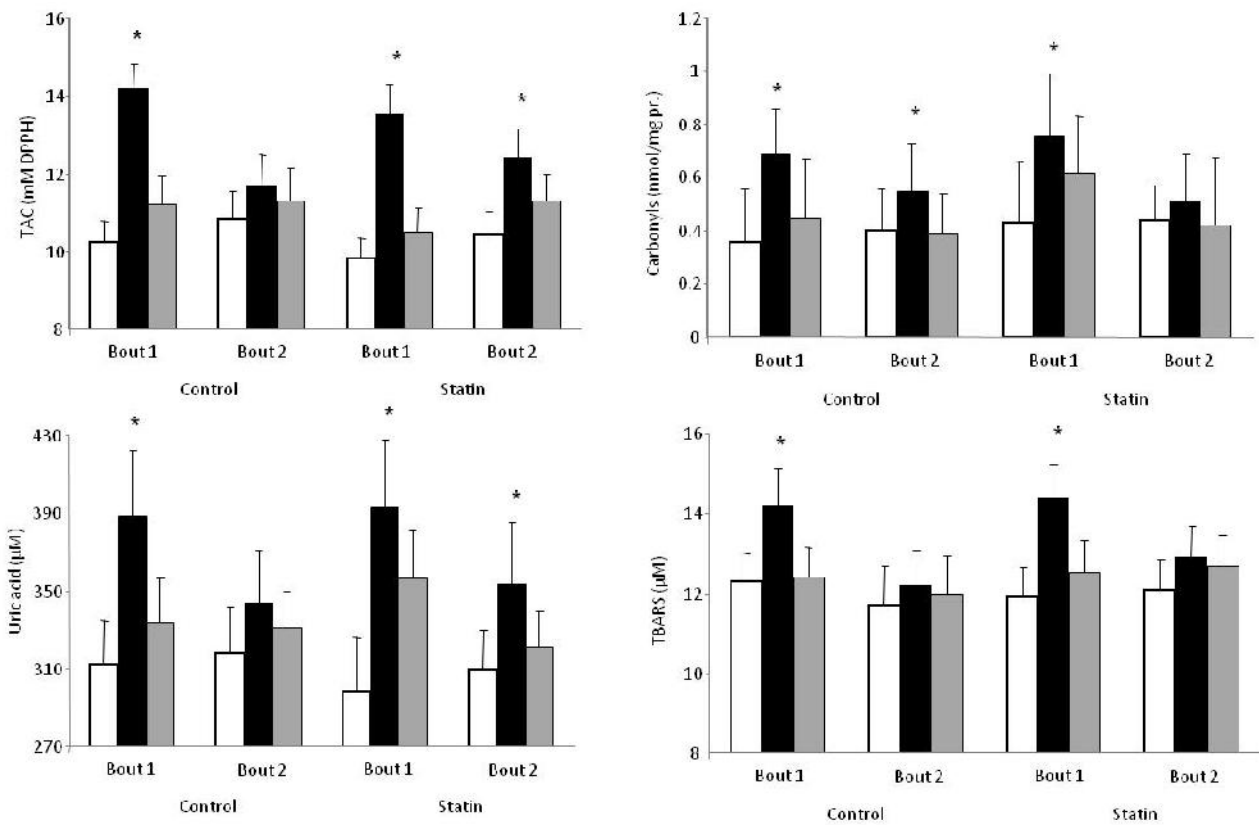


Fig. 6 TAC, uric acid, carbonyls and TBARS in the first and in the second eccentric exercise bout for control and statin group. TAC: Total antioxidant; TBARS: Thiobarbituric acid–reactive substances.

* significantly different from the pre-exercise value.

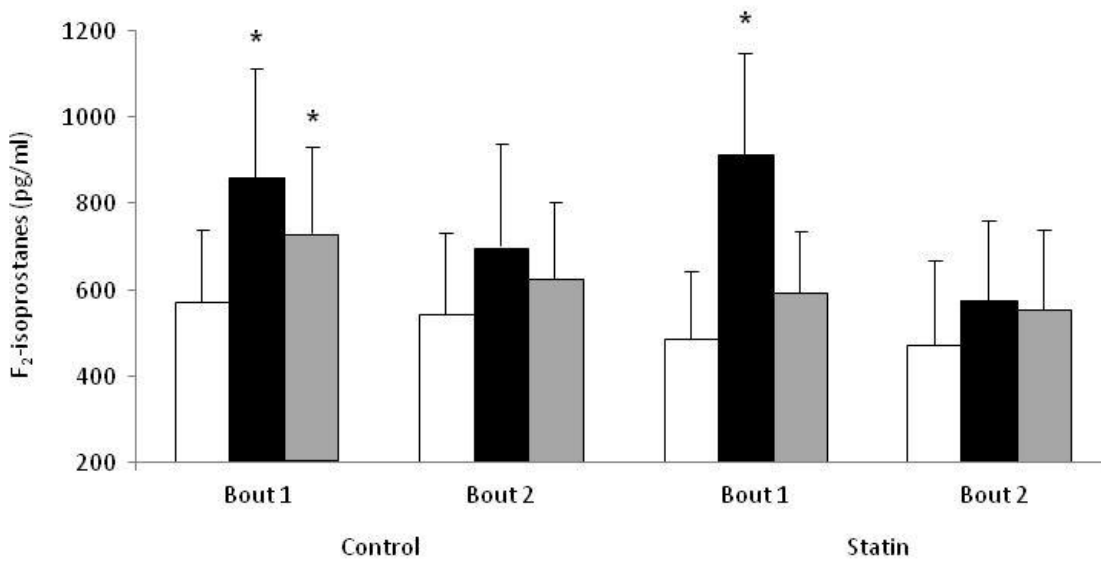


Fig. 7 F₂-isoprostanes in the first and in the second eccentric exercise bout for control and statin group. * significantly different from the pre-exercise value.

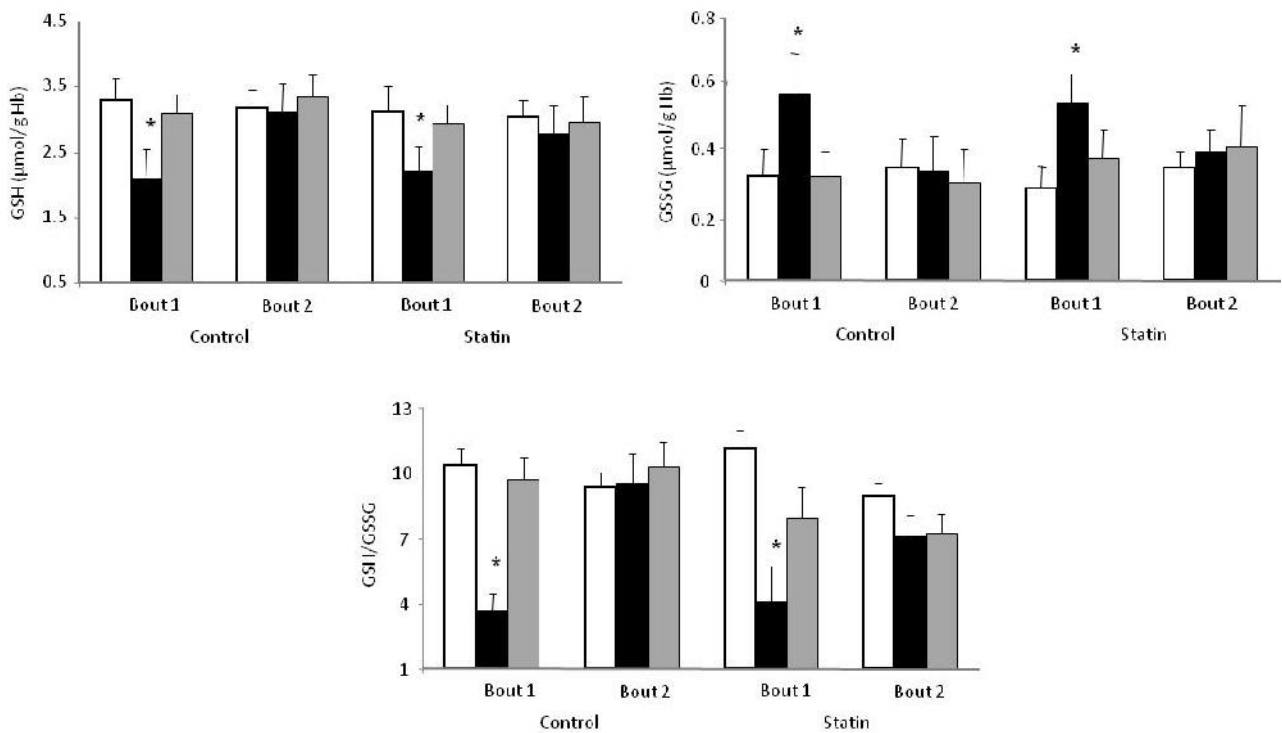


Fig. 8 GSH, GSSG and GSH/GSSG in the first and in the second eccentric exercise bout for control and statin group. GSH: Reduced glutathione; GSSG: Oxidized glutathione. * significantly different from the pre-exercise value.

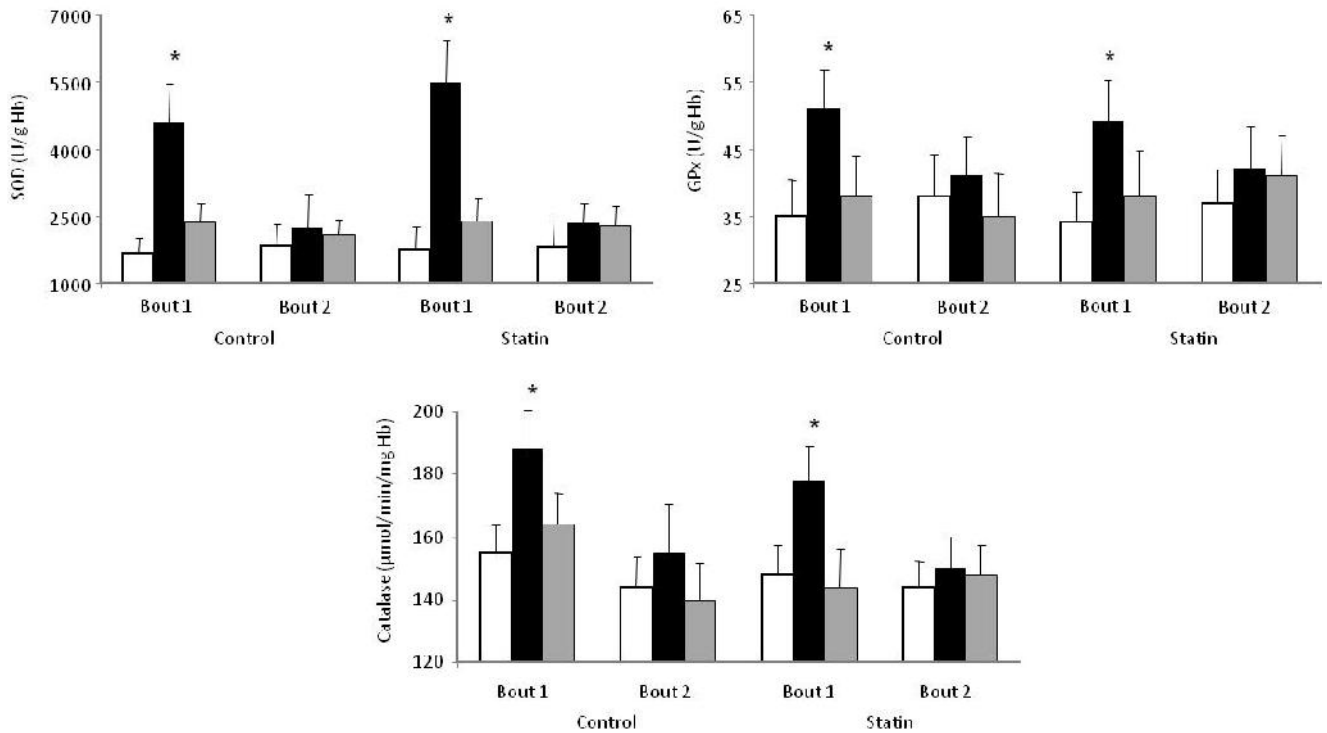


Fig. 9 SOD, GPx and catalase in the first and in the second eccentric exercise bout for control and statin group. SOD: Superoxide dismutase; GPx: Glutathione peroxidase. * significantly different from the pre-exercise value.

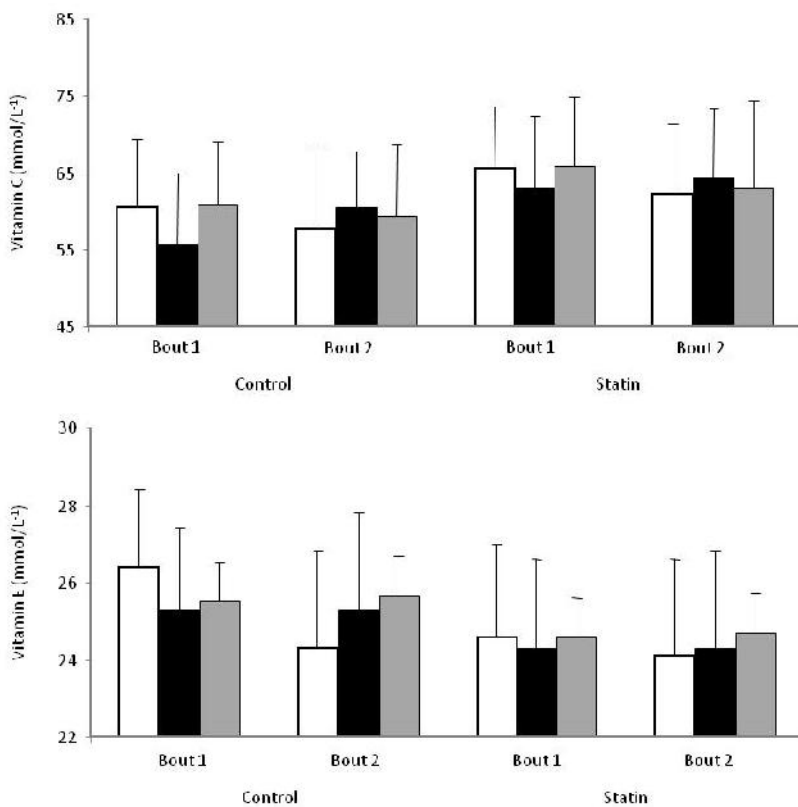


Fig. 10 Vitamin C and vitamin E in the first and in the second eccentric exercise bout for control and statin group. * significantly different from the pre-exercise value.