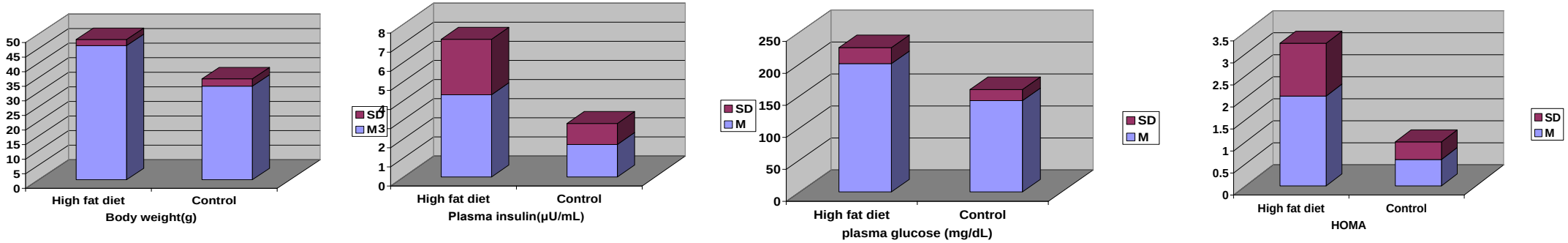
Table (1) & Figure (1): Effect of consumption of high fat diet (60% of total caloric requirement) for 16 weeks on body weight(g), plasma insulin(µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the control group(received balanced diet).

	Body weight(g)		Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	Control	High fat diet	Control	High fat diet	Control	High fat diet	Control	High fat diet
M	32.1	46	1.7	4.3	142.6	200.4	0.6	2.04
SD	2.5	2.1	1.1	2.9	17.3	25.1	0.4	1.2
t	12.1		2.4		5.3		3.2	
p	*<0.001		*<0.05		*<0.001		*<0.05	

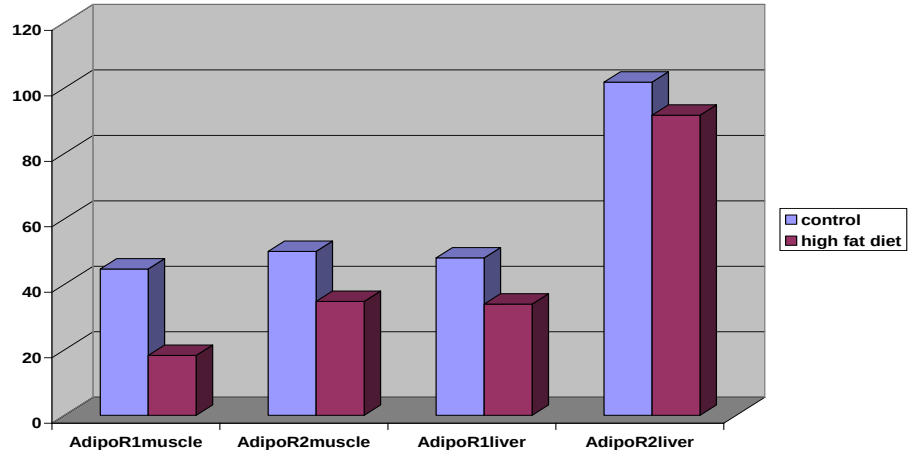
Significant change compared with corresponding group (p<0.05 and p<0.001)



-This table and figure show a significant increase in body weight, plasma insulin, plasma glucose and HOMA.

Table (2) &Figure (2): Effect of consumption of high fat diet (60% of total caloric requirement) for 16 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the control group (received balanced diet).

	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	Control	**High fat diet**	**Control**	**High fat diet**	**Control**	**High fat diet**	**Control**	**High fat diet**
M	44.7	18.3	50.1	34.8	48.1	34	101.8	91.7
SD	4.1	1.2	2.1	1.1	3.2	2.5	2.1	3.1
t	17.5		18.3		3.9		7.6	
p	<0.001		<0.001		<0.001		<0.001	

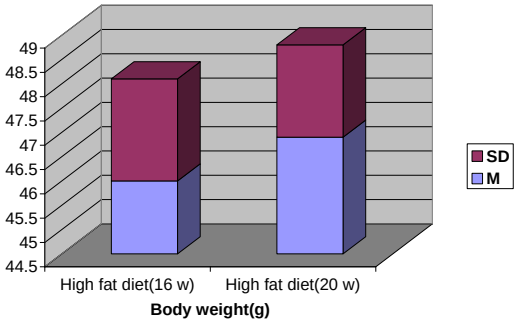


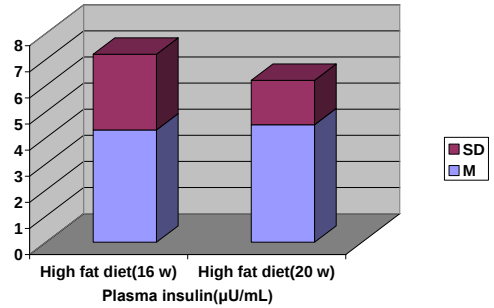
-This table and figure show a significant decrease in the expression of AdipoR1/R2 in muscle and liver.

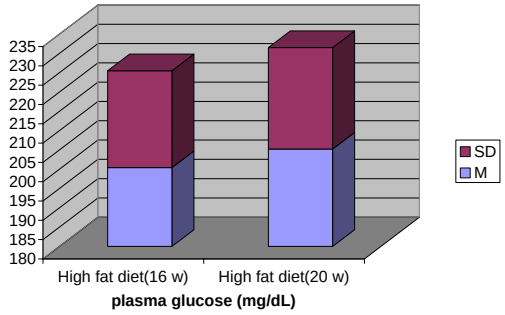
Table (3)& Figure (3): Effect of increasing consumption of high fat diet (60% of total caloric requirement) for 20 week body weight (g), plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the consumption of high fat diet for 16 weeks.

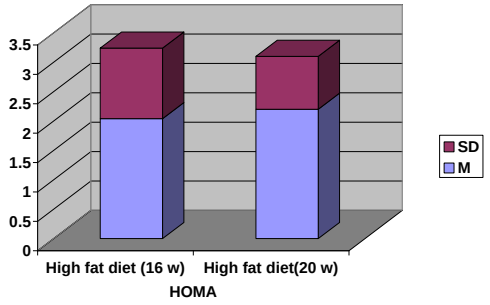
	Body weight(g)		Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	High fat diet(16w)	High fat diet(20w)	High fat diet(16w)	High fat diet(20w)	High fat diet(16 w)	High fat diet(20 w)	High fat diet(16w)	High fat diet (20 w)
M	46	46.9	4.3	4.5	200.4	205.2	2.04	2.2
SD	2.1	1.9	2.9	1.7	25.1	26.3	1.2	0.9
t	0.9		0.2		0.3		0.3	
p	*>0.05		*>0.05		*>0.05		*>0.05	

Non- Significant change compared with corresponding group (p>0.05)





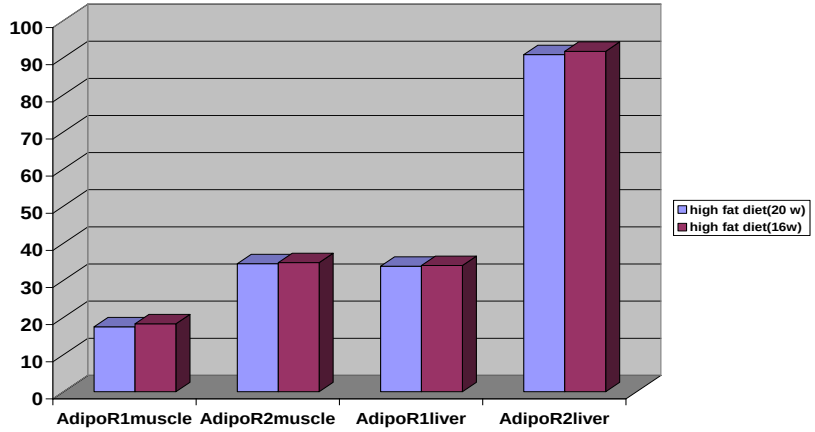




-This table and figure show non- significant increase in body weight, plasma insulin, plasma glucose and HOMA.

Table (4) & Figure (4): Effect of increasing consumption of high fat diet (60% of total caloric requirement) for 20 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the consumption of high fat diet for 16 weeks.

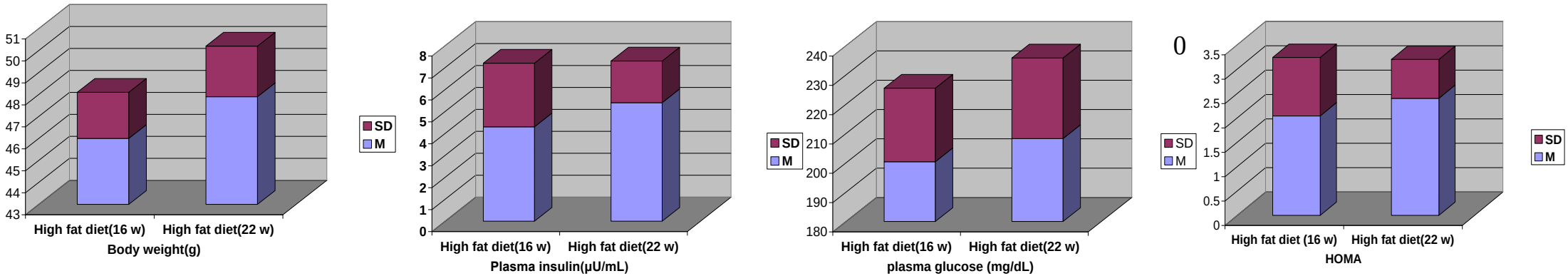
	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	High fat diet(16w)	High fat diet(20 w)	High fat diet(16 w)	High fat diet(20 w)	High fat diet(16w)	High fat diet(20 w)	High fat diet(16 w)	High fat diet (20w)
M	18.3	17.5	34.8	34.5	34	33.8	91.7	90.8
SD	1.2	1.1	1.1	0.9	2.5	2.3	3.1	2.8
t	1.4		0.6		0.2		0.6	
p	>0.05		>0.05		>0.05		>0.05	



-This table and figure show non-significant decrease in the expression of AdipoR1/R2 in muscle and liver.

Table (5)& Figure(5): Effect of increasing consumption of high fat diet (60% of total caloric requirement) for 22 weeks body weight (g), plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the consumption of high fat diet for 16 weeks.

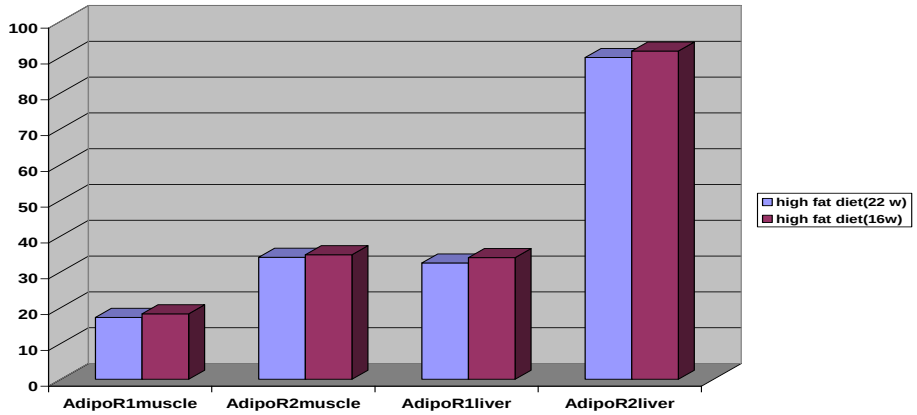
	Body weight(g)		Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	High fat diet(16 w)	High fat diet(22 w)	High fat diet(16 w)	High fat diet(22 w)	High fat diet(16 w)	High fat diet(22 w)	High fat diet(16 w)	High fat diet (22 w)
M	46	47.9	4.3	5.4	200.4	208.3	2.04	2.4
SD	2.1	2.3	2.9	1.9	25.1	27.5	1.2	0.8
t	1.7		0.9		0.6		0.7	
p	>0.05		>0.05		>0.05		>0.05	



-This table and figure show non- significant increase in body weight, plasma insulin, plasma glucose and HOMA.

Table (6) & Figure(6): Effect of increasing consumption of high fat diet (60% of total caloric requirement) for 22 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the consumption of high fat diet for 16 weeks.

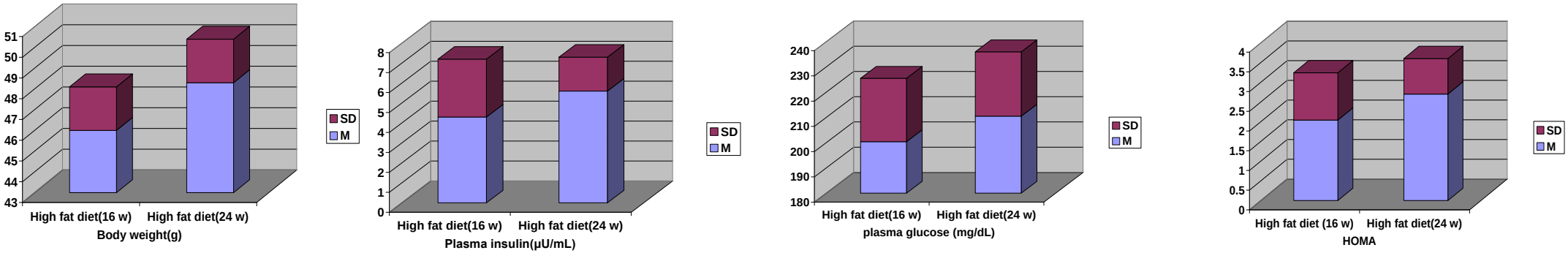
	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	High fat diet(16 w)	High fat diet(22 w)	High fat diet(16w)	High fat diet(22w)	High fat diet(16 w)	High fat diet(22 w)	High fat diet(16w)	High fat diet (22w)
M	18.3	17.3	34.8	34.1	34	32.5	91.7	89.9
SD	1.2	0.9	1.1	0.8	2.5	2.1	3.1	2.6
t	1.9		1.5		1.2		1.3	
p	>0.05		>0.05		>0.05		>0.05	



-This table and figure show non-significant decrease in the expression of AdipoR1/R2 in muscle and liver.

Table (7)& Figure (7): Effect of increasing consumption of high fat diet (60% of total caloric requirement) for 24 weeks on body weight (g), plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the consumption of high fat diet for 16 weeks.

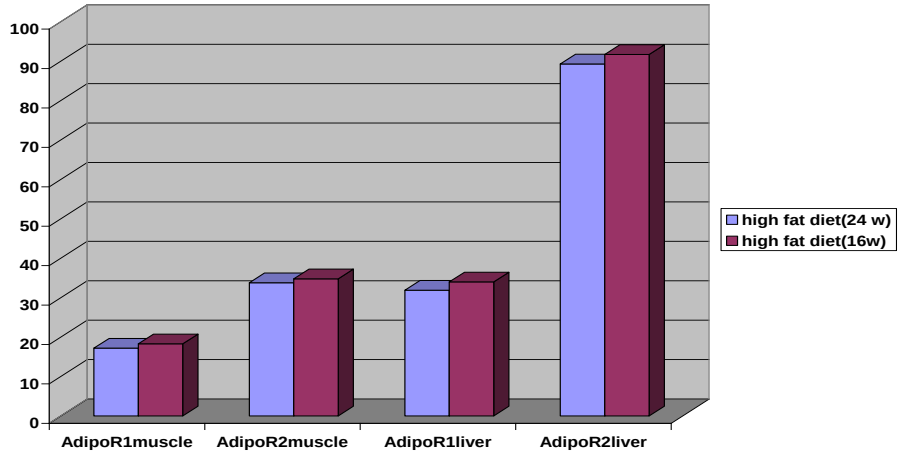
	Body weight(g)		Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	High fat diet(16 w)	High fat diet(24 w)	High fat diet(16 w)	High fat diet(24 w)	High fat diet(16w)	High fat diet(24w)	High fat diet(16 w)	High fat diet (24 w)
M	46	48.3	4.3	5.6	200.4	210.5	2.04	2.7
SD	2.1	2.1	2.9	1.7	25.1	25.5	1.2	0.9
t	2.1		1.1		0.7		1.2	
p	>0.05		>0.05		>0.05		>0.05	



-This table and figure show non- significant increase in body weight, plasma insulin, plasma glucose and HOMA

Table (8)&Figure (8): Effect of increasing consumption of high fat diet (60% of total caloric requirement) for 24 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the consumption of high fat diet for 16 weeks.

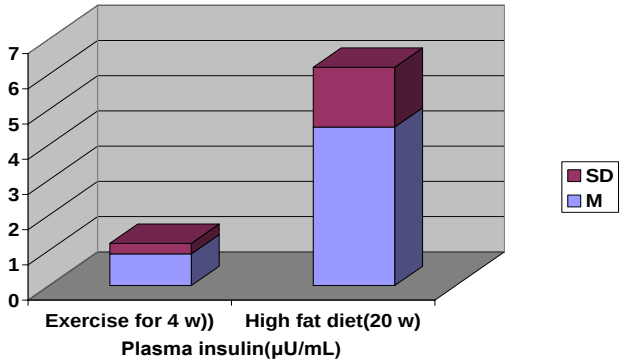
	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	High fat diet(16w)	High fat diet(24w)	High fat diet(16w)	High fat diet(24w)	High fat diet(16w)	High fat diet(24w)	High fat diet(16w)	High fat diet (24 w)
M	18.3	17.2	34.8	33.8	34	31.9	91.7	89.3
SD	1.2	0.9	1.1	0.9	2.5	1.8	3.1	2.7
t	2.1		1.9		1.9		1.7	
p	>0.05		>0.05		>0.05		>0.05	

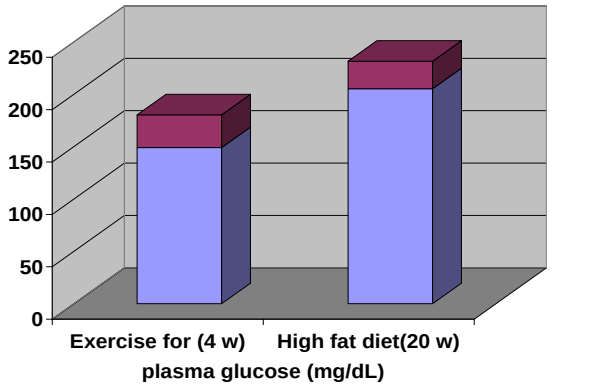


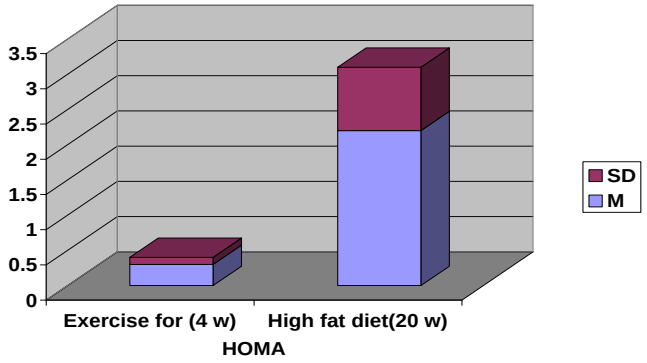
-This table and figure show non-significant decrease in the expression of AdipoR1/R2 in muscle and liver

Table (9)& Figure(9): Effect of exercise training for 4 weeks on plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the same aged group received only high fat diet

	Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	High fat diet(20 w)	Exercise for (4 w)	High fat diet(20 w)	Exercise for (4 w)	High fat diet(20 w)	Exercise for (4 w)
M	4.5	0.9	205.2	149	2.2	0.3
SD	1.7	0.3	26.3	31.3	0.9	0.1
t	5.9		3.9		5.9	
p	<0.05		<0.05		<0.05	



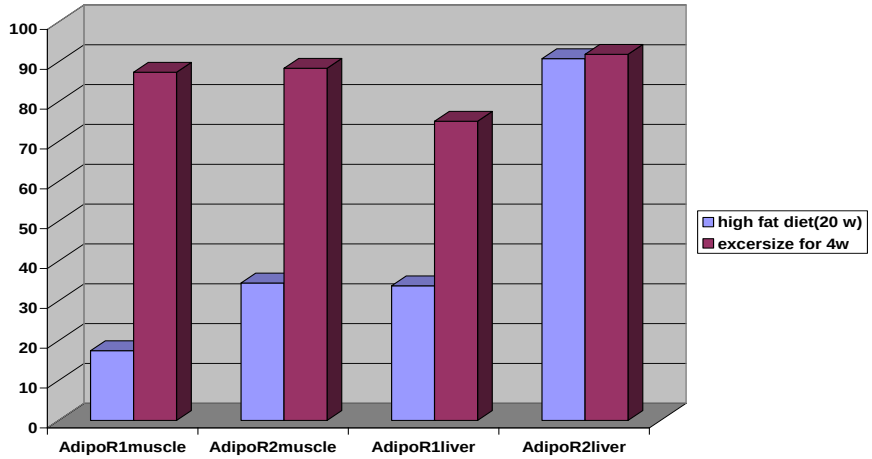




-This table and figure show a significant decrease in plasma insulin, plasma glucose and HOMA.

Table (10) &Figure (10): Effect of exercise training for 4 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the same aged group received only high fat diet.

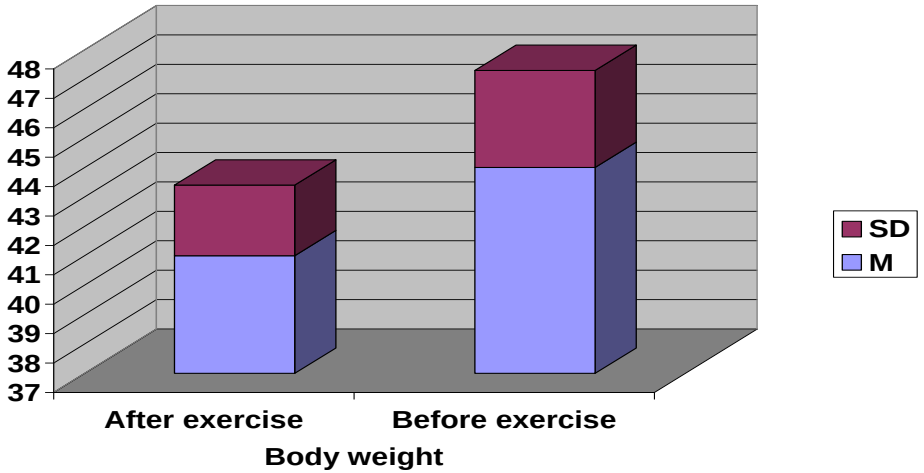
	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	High fat diet(20w)	Exercise for (4 w)	High fat diet(20w)	Exercise for (4 w)	High fat diet(20w)	Exercise for (4 w)	High fat diet(20w)	Exercise for (4 w)
M	17.5	87.4	34.5	88.4	33.8	75.1	90.8	92.1
SD	1.1	3.1	0.9	2.5	2.3	2.4	2.8	2.8
t	60.1		57.4		35.1		7.8	
p	<0.001		<0.001		<0.001		<0.05	



-This table and figure show a significant increase in the expression of AdipoR1/R2 in muscle and liver

Table (11) & Figure (11): Effect of exercise training for 4 weeks on the body weight of the exercised group

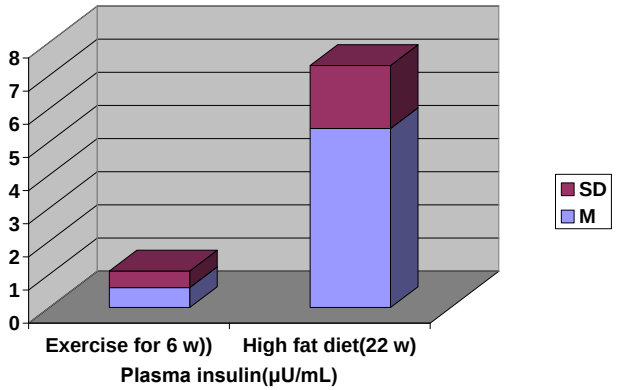
	Body weight	
	Before exercise	**After exercise**
M	44	41
SD	3.3	2.4
t	2.1	
p	>0.05	

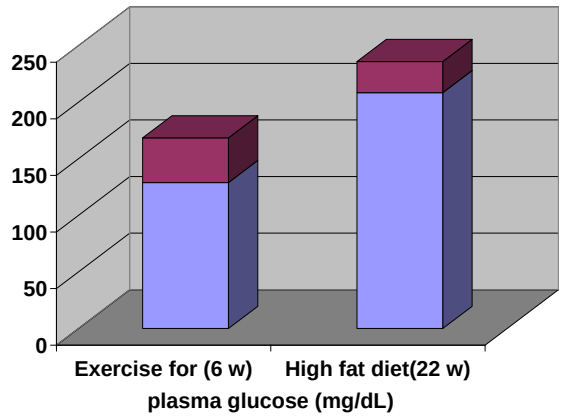


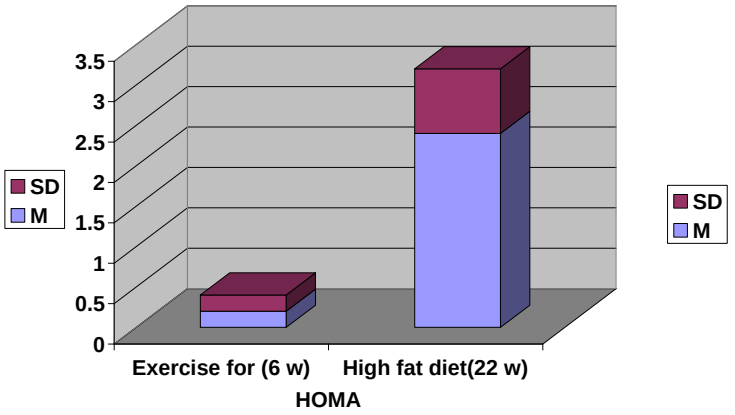
-This table and figure show non-significant weight loss after exercise.

Table (12) &Figure (12): Effect of exercise training for 6 weeks on plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the same aged group received only high fat diet

	Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	High fat diet(22 w)	Exercise for (6 w)	High fat diet(22 w)	Exercise for (6 w)	High fat diet(22 w)	Exercise for (6 w)
M	5.4	0.6	208.3	128.9	2.4	0.2
SD	1.9	0.5	27.5	39.5	0.8	0.2
t	6.9		4.7		7.5	
p	<0.05		<0.001		<0.05	



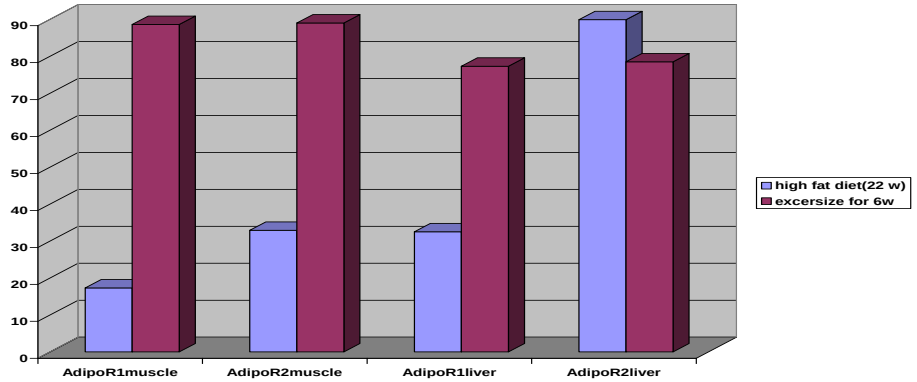




-This table and figure show a significant decrease in plasma insulin, plasma glucose and HOMA.

Table (13)& Figure(13): Effect of exercise training for 6 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the same aged group received only high fat diet.

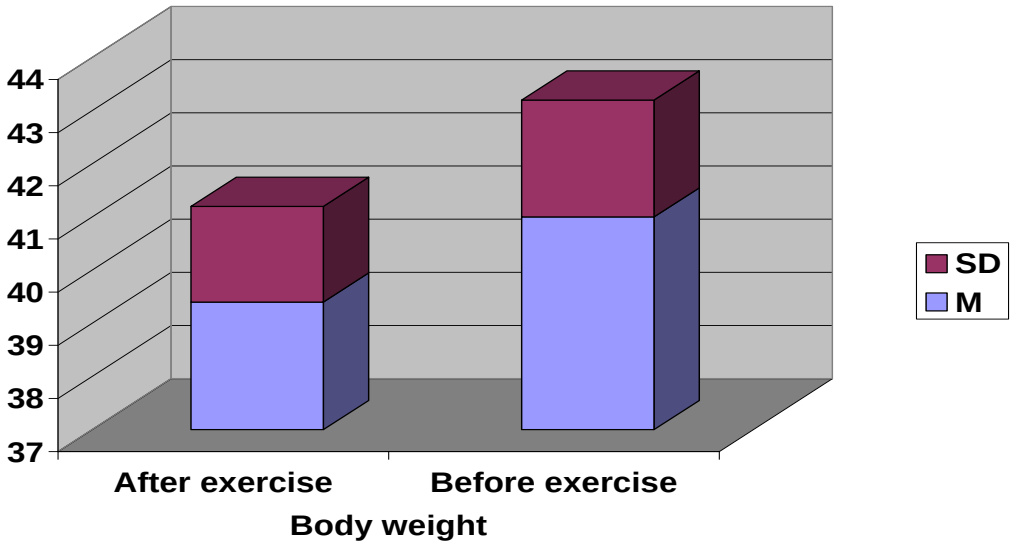
	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	High fat diet(22 w)	Exercise for (6 w)	High fat diet(22 w)	Exercise for (6 w)	High fat diet(22 w)	Exercise for (6 w)	High fat diet(22 w)	Exercise for (6 w)
M	17.3	88.6	32.9	89	32.5	77.3	89.9	78.5
SD	0.9	3.9	0.8	3.9	2.1	2.6	2.6	3.6
t	54.3		39		37.9		7.2	
p	<0.001		<0.001		<0.001		<0.001	



-This table and figure show a significant increase in the expression of AdipoR1/R2 in muscle and AdipoR1in liver, however there is a significant decrease in AdipoR2 in liver.

Table (14)& Figure(14): Effect of exercise training for 6 weeks on the body weight of the exercised group

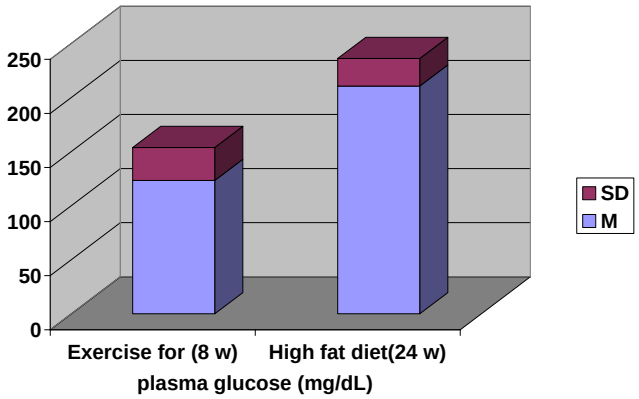
	Body weight	
	Before exercise	**After exercise**
M	41	39.4
SD	2.2	1.8
t	1.6	
p	>0.05	

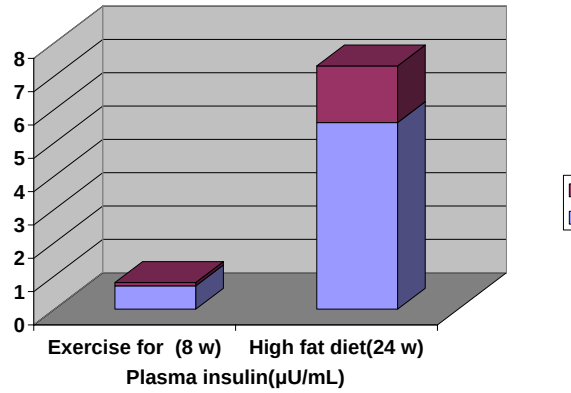


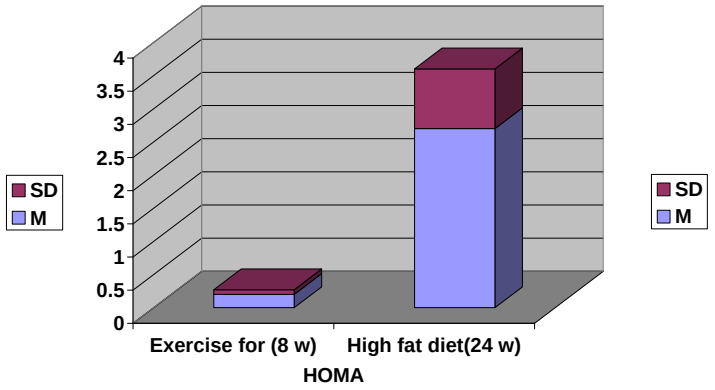
-This table and figure show non-significant weight loss after exercise.

Table (15) &Figure (15): Effect of exercise training for 8 weeks on plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA in comparison with the same aged group received only high fat diet

	Plasma insulin(µU/mL)		plasma glucose (mg/dL)		HOMA	
	High fat diet(24 w)	Exercise for (8 w)	High fat diet(24 w)	Exercise for (8 w)	High fat diet(24 w)	Exercise for (8 w)
M	5.6	0.7	210.5	123.3	2.7	0.2
SD	1.7	0.1	25.5	30.4	0.9	0.07
T	8.1		6.3		7.8	
P	<0.001		<0.001		<0.001	



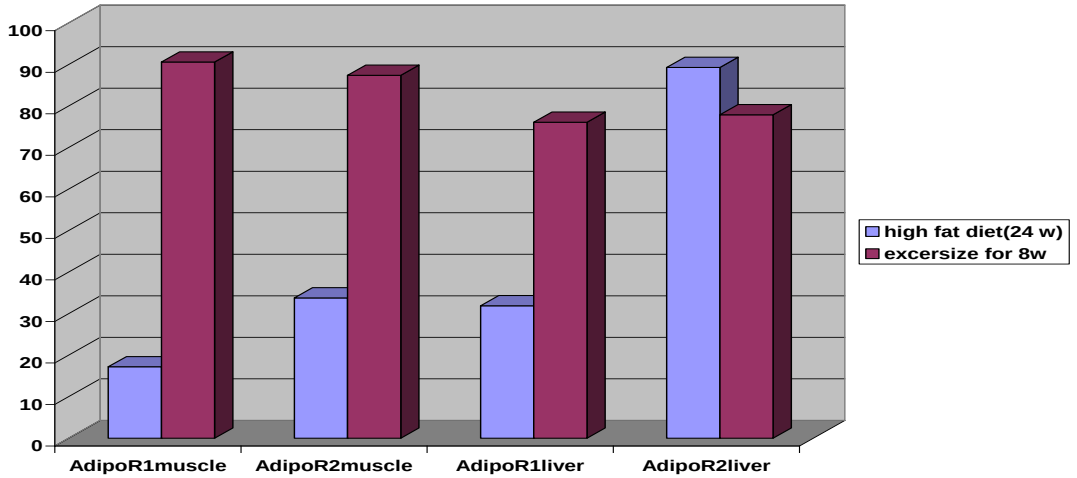




-This table and figure show a significant decrease in plasma insulin, plasma glucose and HOMA.

Table (16) &Figure (16): Effect of exercise training for 8 weeks on AdipoR1/R2 in muscle and AdipoR1/R2 in liver in comparison with the same aged group received only high fat diet.

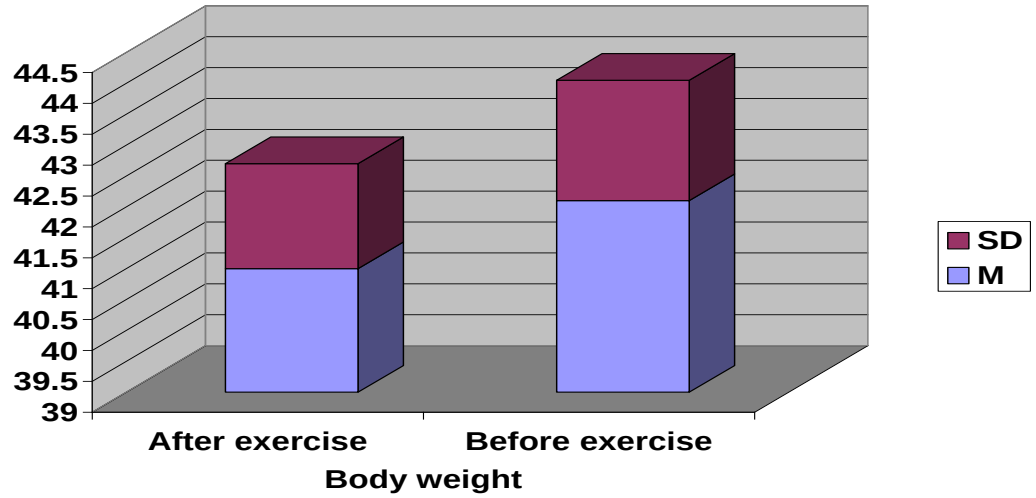
	AdipoR1 Muscle		AdipoR2 Muscle		AdipoR1 liver		AdipoR2 liver	
	High fat diet(24 w)	Exercise for (8 w)	High fat diet(24 w)	Exercise for (8 w)	High fat diet(24 w)	Exercise for (8 w)	High fat diet(24 w)	Exercise for (8 w)
M	17.2	90.6	33.8	87.4	31.9	76.1	89.3	77.9
SD	0.9	3.2	0.9	3.4	1.8	2.5	2.7	2.9
t	62.4		43.1		40.6		8.1	
p	<0.001		<0.001		<0.001		<0.001	



-This table and figure show a significant increase in the expression of AdipoR1/R2 in muscle and AdipoR1in liver, however there is a significant decrease in AdipoR2 in liver.

Table (17) & Figure (17): Effect of exercise training for 8 weeks on the body weight of the exercised group

	Body weight	
	Before exercise	**After exercise**
M	42.1	41
SD	1.95	1.7
t	1.2	
p	>0.05	



-This table and figure show non-significant weight loss after exercise.

Table (18): Comparing effect of three different durations 4W, 6W and 8W of exercise on plasma insulin (µU/mL), plasma glucose (mg/dL) and HOMA

	Plasma insulin (µU/mL)			Plasma glucose (mg /dl)			HOMA		
	Exercise (4W)	Exercise (6W)	Exercise (8W)	Exercise (4W)	Exercise (6W)	Exercise (8W)	Exercise (4W)	Exercise (6W)	Exercise (8W)
M	0.9	0.6	0.7	149	128.9	123.3	0.3	0.2	0.2
S.D	0.3	0.5	0.1	31.3	39.5	30.4	0.1	0.2	0.07
T_1	1.5	……..	.....	1.1	.....	.....	1.3	.....	.....
T_2	…..…	0.6	.....	.....	0.3	.....	.....	0	.....
T_3	.....	.....	1.8	.....	.....	1.7	.....	.....	2.3
P_1	>0.05	.....	.....	>0.05	.....	.....	>0.05	.....	.....
P_2	.....	>0.05	.....	.....	>0.05	.....	.....	>0.05	.....
P_3	.....	.....	>0.05	.....	.....	>0.05	.....	.....	>0.05

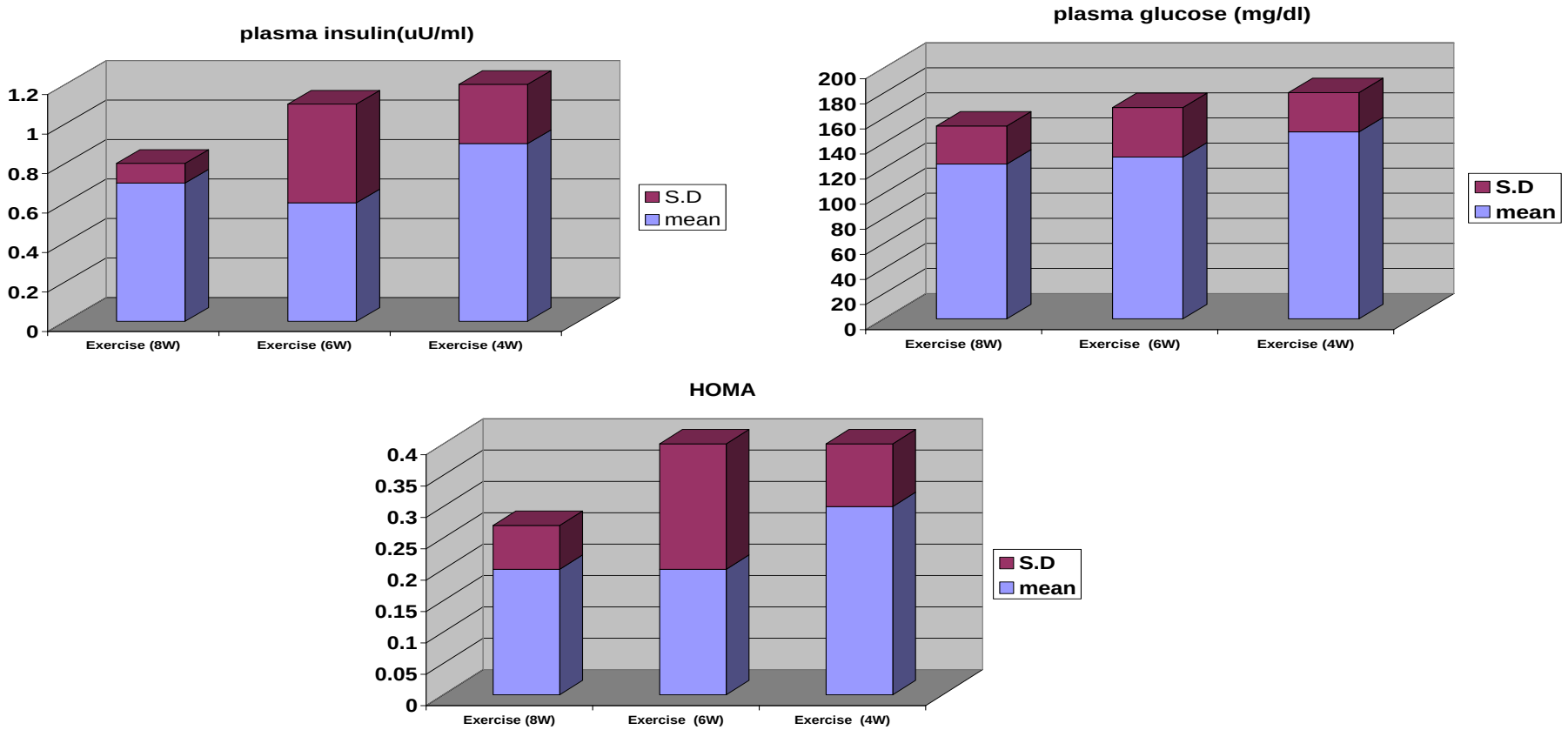
T_1 and P_1: Comparison between exercise training for 4 weeks and exercise training for 6 weeks.

$T_2$and P_2: Comparison between exercise training for 6 weeks and exercise training for 8 weeks.

T_3 and P_3: Comparison between exercise training for 4 weeks and exercise training for 8 weeks.

-This table show non-significant decrease in plasma insulin, plasma glucose and HOMA over these three different durations.

Figure (18): comparing effect of three different durations of exercise (4W, 6W and 8W) on plasma insulin (μU/mL), plasma glucose (mg/dL) and HOMA



-This figure show non-significant decrease in plasma insulin, plasma glucose and HOMA over these three different durations

Table (19): Comparing effect of three different durations 4W, 6W and 8W of exercise on AdipoR1/R2 in muscle and AdipoR1/R2 in liver.

	AdipoR1 Muscle			AdipoR2 Muscle			AdipoR1 liver			AdipoR2 liver		
	Exercise (4W)	Exercise (6W)	Exercise (8W)	Exercise (4W)	Exercise (6W)	Exercise (8W)	Exercise (4W)	Exercise (6W)	Exercise (8W)	Exercise (4W)	Exercise (6W)	Exercise (8W)
M	87.4	88.6	90.6	88.4	89	87.4	75.1	77.3	76.1	92.1	78.5	77.9
S.D	3.1	3.9	3.2	2.5	3.9	3.4	2.4	2.6	2.5	2.8	3.6	2.9
T_1	0.7	……	…….	0.4	……	…….	1.8	…….	…….	0.8	……	…….
T_2	…….	1.2	…….	……	0.8	…….	…….	0.9	…….	…….	0.3	…….
T_3	……..	…….	2.03	……	…….	0.7	…….	…….	0.8	…….	…….	1.3
P_1	>0.05	…….	…….	>0.05	……	…….	>0.05	…….	…….	>0.05	…….	…….
P_2	…….	>0.05	…….	…….	>0.05	……	…….	>0.05	…….	…….	>0.05	…….
P_3	…….	…….	>0.05	……	…….	>0.05	…….	…….	>0.05	……	……	>0.05

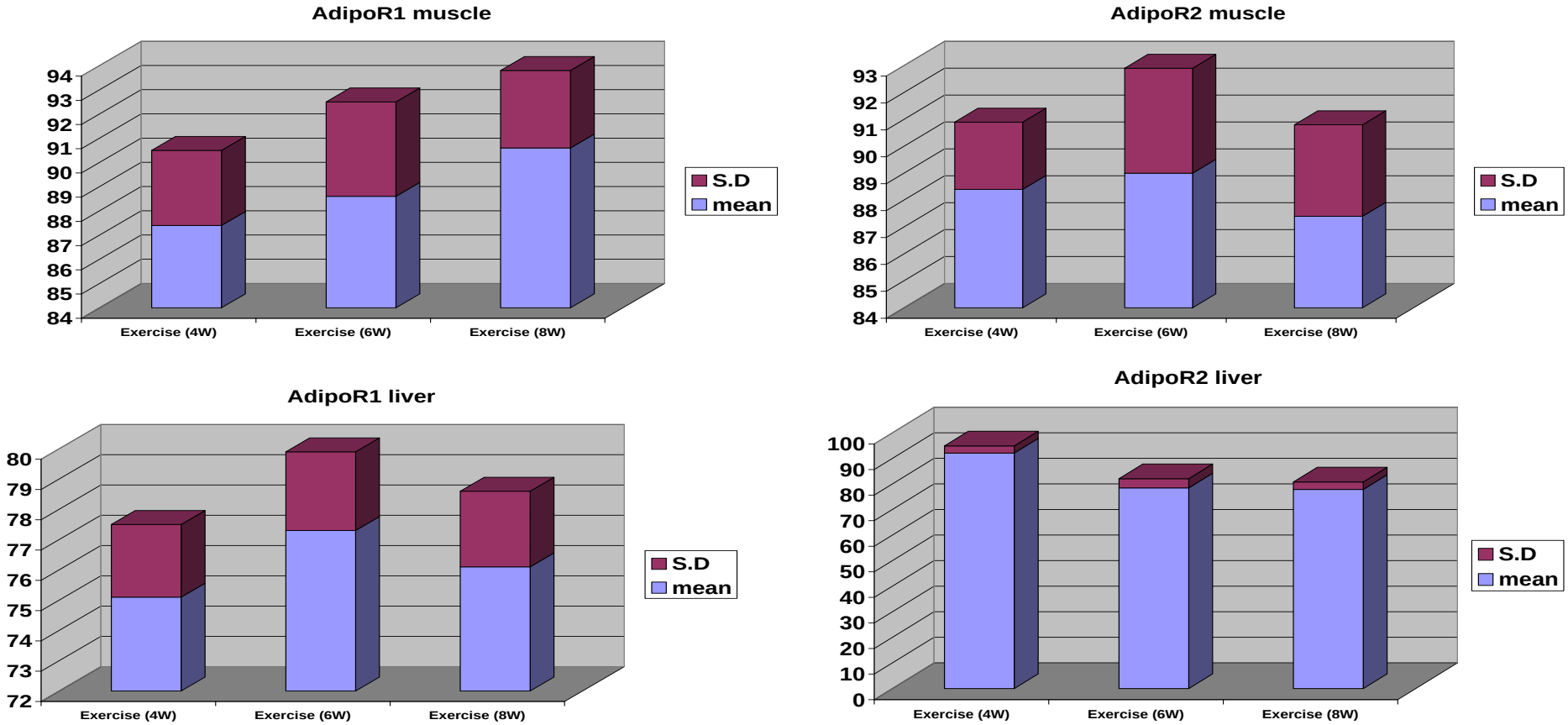
T_1 and P_1: Comparison between exercise training for 4 weeks and exercise training for 6 weeks.

$T_2$and P_2: Comparison between exercise training for 6 weeks and exercise training for 8 weeks.

T_3 and P_3: Comparison between exercise training for 4 weeks and exercise training for 8 weeks.

-This table show non- significant increase in expression of AdipoR1/R2 in muscle and AdipoR1 in liver and non-significant decrease in AdipoR2 in liver.

Figure (19): Comparing effect of three different durations 4W, 6W and 8W of exercise on AdipoR1/R2 in muscle and AdipoR1/R2 in liver



-This figure show non- significant increase in expression of AdipoR1/R2 in muscle and AdipoR1 in liver and non- significant decrease in AdipoR2 inliver.