RESULTS

Data included in this study are the amplitude and the tone of muscle contractions of different parts of small intestine (duodenum, jejunum and ileum).The obtained data of this study were compared with each other and the following results obtained are presented as follow.

Effects of L- Name (10^{-4} M/L) on basal duodenal motility.

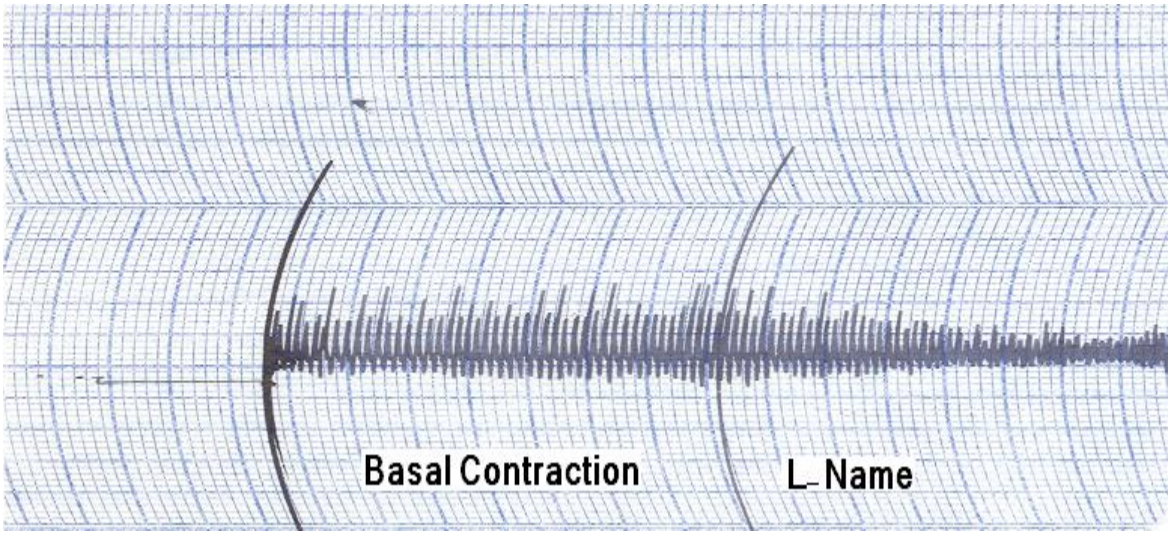


Fig (1)

As shown in Fig (1), table (1) and chart (1):

L-Name in a concentrations of (10^{-4} M) causes:

a- significant decrease in the amplitude of the duodenal contractions from 7.14 ± 1.46 mm to 5.64 ±1.01 mm ($p < 0.05$), this represent about -21%.

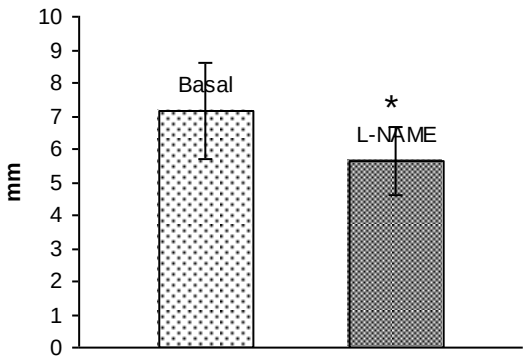
b- Significant increase in tone of the duodenal segment from -1.71 ± 0.61 mm to 1.21 ± 0.58 mm ($p< 0.05$

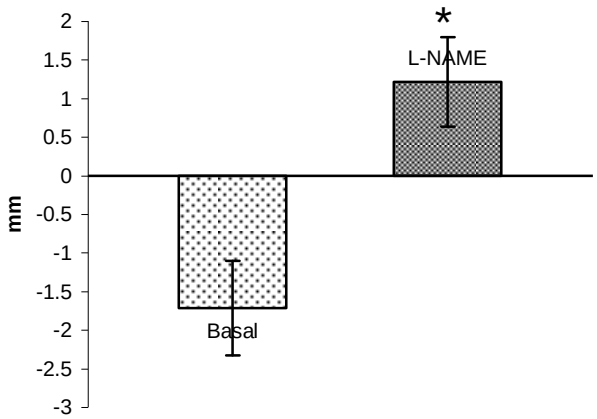
Table (1) Effects of L-Name(10^{-4} M /L) on basal duodenal motility.

n	Amplitude(mm)		Tone (mm)	
	Basal	L-NAME	Basal	L-NAME
1	8	6	-1	1
2	6	6	-2	0
3	7	7	-2	1
4	4	5	-1	1
5	8	6	-2	1
6	8	7	-3	1
7	10	4	-2	1
8	7	4	-1	1
9	5	5	-2	1
10	7	5	-1	2
11	7	6	-2	2
12	8	7	-2	1
13	8	6	-2	2
14	7	5	-1	2
Mean	7.14	5.64	-1.71	1.21
±SD	1.46	1.01	0.61	0.58
%	—	-21%	—	—
P	—	0.006	—	0.001

n : number of experiments (14).
SD : standard deviation.
% : percent change as compared with the basal contractions.
P : values as compared with the basal contractions

Chart (1) :





Amplitude **Tone**

* = Significant as compared with the basal contractions.

Effects of L.Name(10^{-4} M /L) on basal jejunal motility.

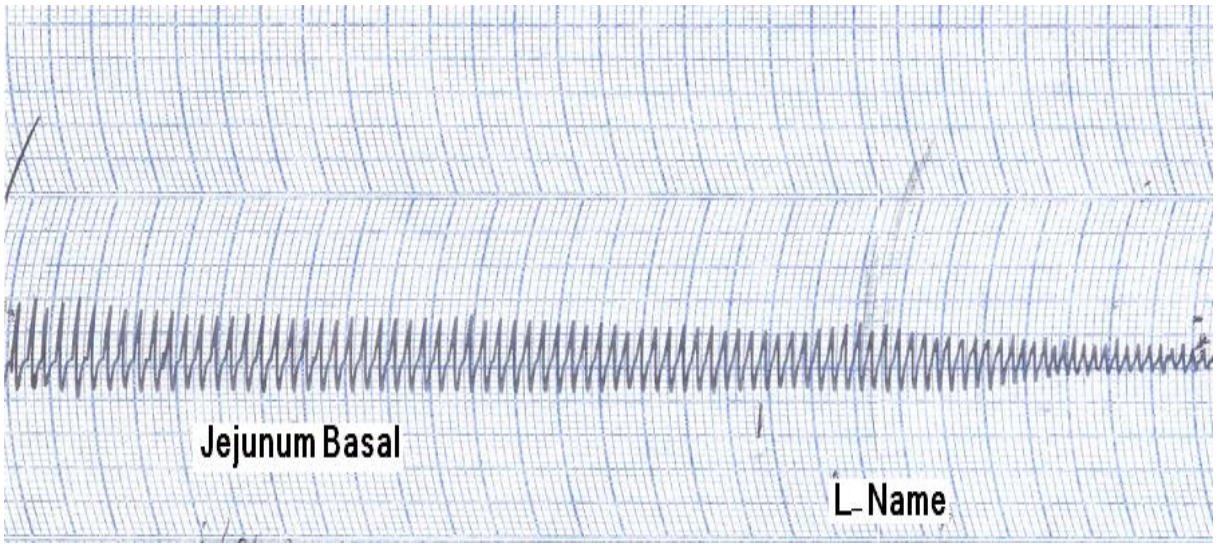


Fig (2)

As shown in Fig (2), table (2) and chart (2):
L-Name in a concentrations of (10^{-4} M) causes:

a- significant decrease in the amplitude of the duodenal contractions from 11.21 ± 3.58 mm to 7.73 ±1.74 mm ($p < 0.05$), this represent about -34%.

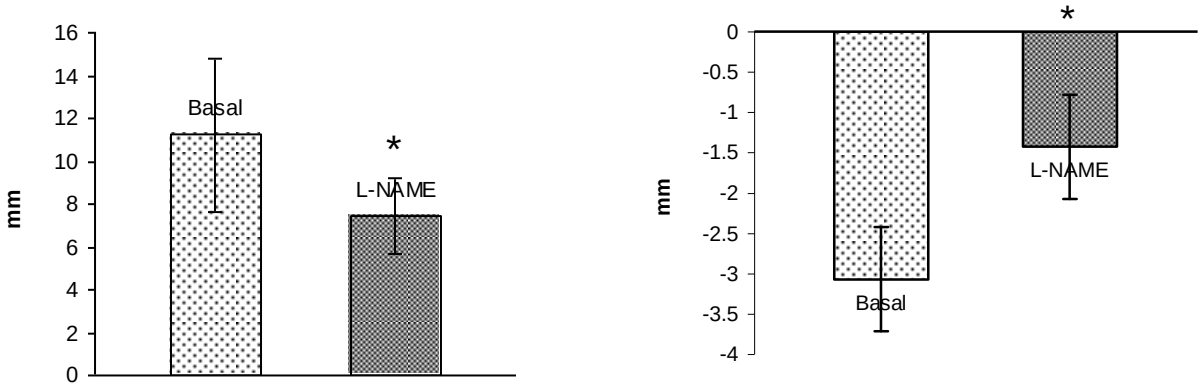
b- Significant increase in tone of the duodenal segment from -3.07 ± 1.21 mm to -1.43 ± 0.65 mm ($p< 0.05$)

Table (2) Effects of L-Name(10^{-4} M /L) on basal jejunal motility.

n	Amplitude(mm)		Tone(mm)	
	Basal	L-NAME	Basal	L-NAME
1	14	8	-3	-1
2	8	7	-3	-1
3	12	8	-5	-1
4	14	9	-4	-2
5	7	6	-2	-1
6	10	8	-2	-1
7	7	5	-1	-1
8	14	9	-4	-2
9	16	9	-3	-1
10	4	3	-2	-2
11	14	9	-3	-1
12	14	8	-4	-2
13	13	8	-5	-3
14	10	7	-2	-1
Mean	11.21	7.43	-3.07	-1.43
±SD	3.58	1.74	1.21	0.65
%	—	-34%	—	—
P	—	0.001	—	0

n : number of experiments (14).
SD : standard deviation.
% : percent change as compared with the basal contractions.
P : values as compared with the basal contractions

Chart (2) :



Amplitude **Tone**

* = Significant as compared with the basal contraction

Effects of L.Name(10^{-4} M /L) on basal ileal motility.

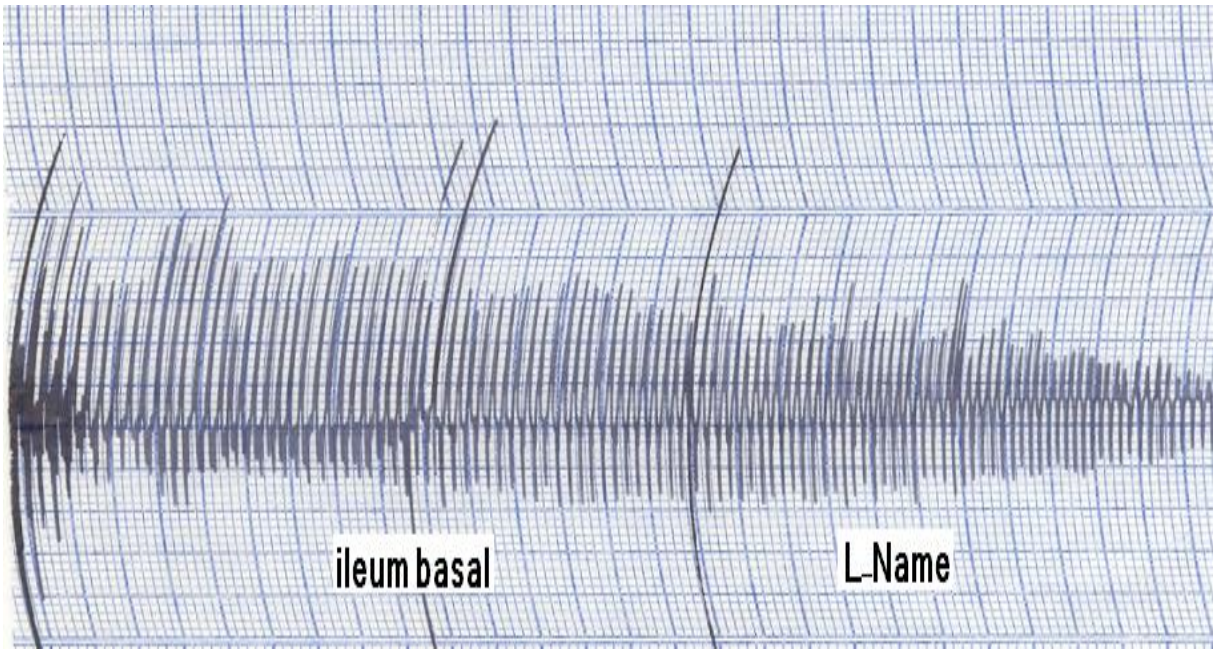


Fig (3)

As shown in Fig (3), table (3) and chart (3):

L-Name in a concentrations of (10^{-4} M) causes:

a- significant decrease in the amplitude of the ileal contractions from 13.5 ± 2.74 mm to 9.36 ±3.52 mm ($p < 0.05$), this represent about -31%.

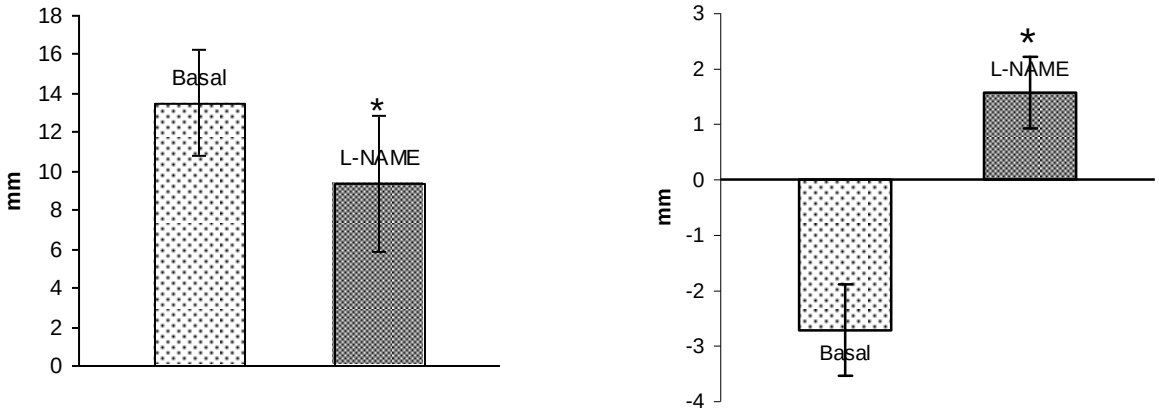
b- Significant increase in tone of the ileal segment from -2.71 ± 0.83 mm to -1.57 ±0.65 mm ($p< 0.05$)

Table (3) Effects of L-Name (10^{-4} M /L) on basal ileal motility.

n	Amplitude(mm)		Tone(mm)	
	Basal	L-NAME	Basal	L-NAME
1	11	9	-2	1
2	13	9	-4	2
3	13	6	-3	2
4	10	7	-4	1
5	13	7	-2	1
6	15	12	-2	2
7	9	7	-3	3
8	17	3	-3	2
9	15	12	-3	2
10	16	15	-3	1
11	10	8	-3	1
12	18	16	-3	1
13	15	10	-2	1
14	14	10	-1	2
Mean	13.50	9.36	-2.71	1.57
±SD	2.74	3.52	0.83	0.65
%	—	-31%	—	—
P	—	0	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
P : values as compared with the basal contractions

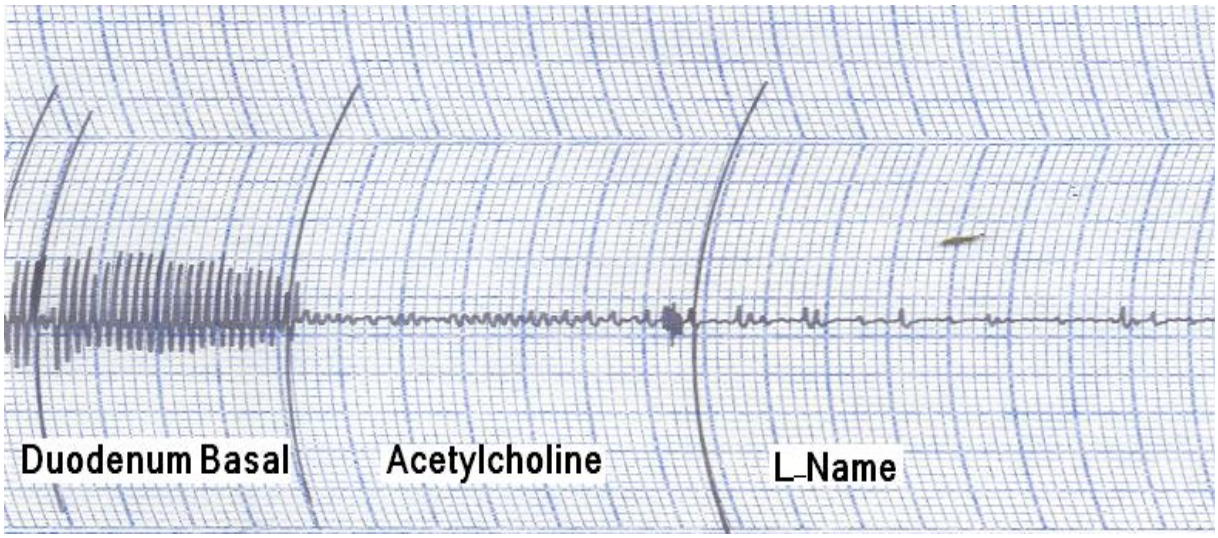
Chart (3) :



Amplitude **Tone**

* = Significant as compared with the basal contractions

Effects of L.Name(10^{-4} M /L) on duodenal motility after adding ACH. (1µg %)



Fig(4)

As shown in Fig (4), table (4) and chart (4):

Acetylcholine (1µg %) causes significant ($p<0.05$) decrease in the amplitude of the duodenal contractions from 8.5±1.4 mm to 4.5± 0.94 mm this represent about -47% but it increases the tone of the duodenal segment from -1.71±0.47 mm to 1.36 ±0.5 mm ($p<0.05$)

L-Name (10^{-4}M) after adding Ach (1µg %) causes:

a- Significant decrease in the amplitude of the duodenal contractions from 8.5±1.4 mm to 3.14±0.86 mm ($p<0.05$) this represent about -63 % as compared with the basal contractions and it causes also a significant decrease in the amplitude from 4.5±0.94 mm to 3.14±0.86 mm ($p<0.05$) this represent about -30% as compared with the contractions after adding Ach.

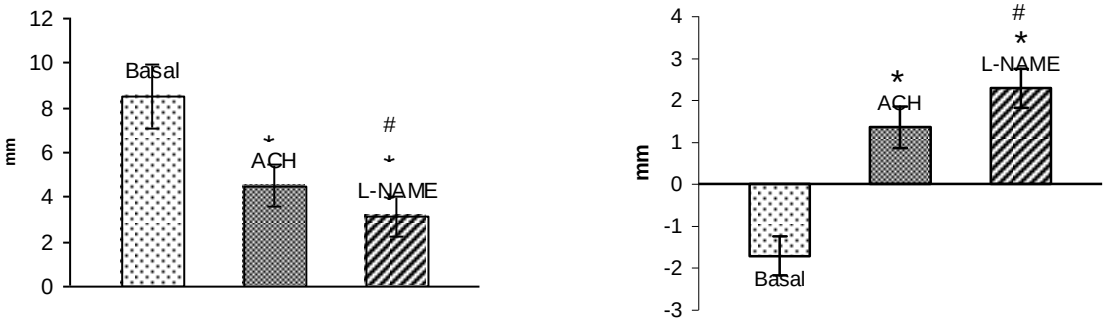
b- Significant increase in the tone of the duodenal from 1.36±0.5 mm to 2.29±0.47 mm ($p<0.05$) as compared with contractions after adding Ach and it also causes a significant ($p <0.05$) increase in the tone from -1.71 ±0.47 mm to 2.29±0.47 mm as compared with the basal contractions.

Table (4) Effects of L-Name(10^{-4} M /L) on duodenal motility after adding ACH. (1µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	ACH	L-NAME	Basal	ACH	L-NAME
1	8	5	3	-2	1	2
2	9	4	3	-2	1	2
3	8	3	2	-2	2	3
4	7	6	5	-2	2	3
5	8	4	2	-2	1	2
6	9	3	2	-1	1	2
7	10	5	3	-2	1	2
8	8	5	3	-1	1	2
9	5	4	4	-2	2	2
10	10	5	4	-1	1	3
11	10	6	4	-1	2	3
12	10	4	3	-2	1	2
13	9	4	3	-2	1	2
14	8	5	3	-2	2	2
Mean	8.50	4.50	3.14	-1.71	1.36	2.29
±SD	1.40	0.94	0.86	0.47	0.50	0.47
%	—	-47%	-63%	—	—	—
%1	—	—	-30%	—	—	—
P	—	0	0	—	0	0
P2	—	—	0	—	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding ACH.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding ACH.

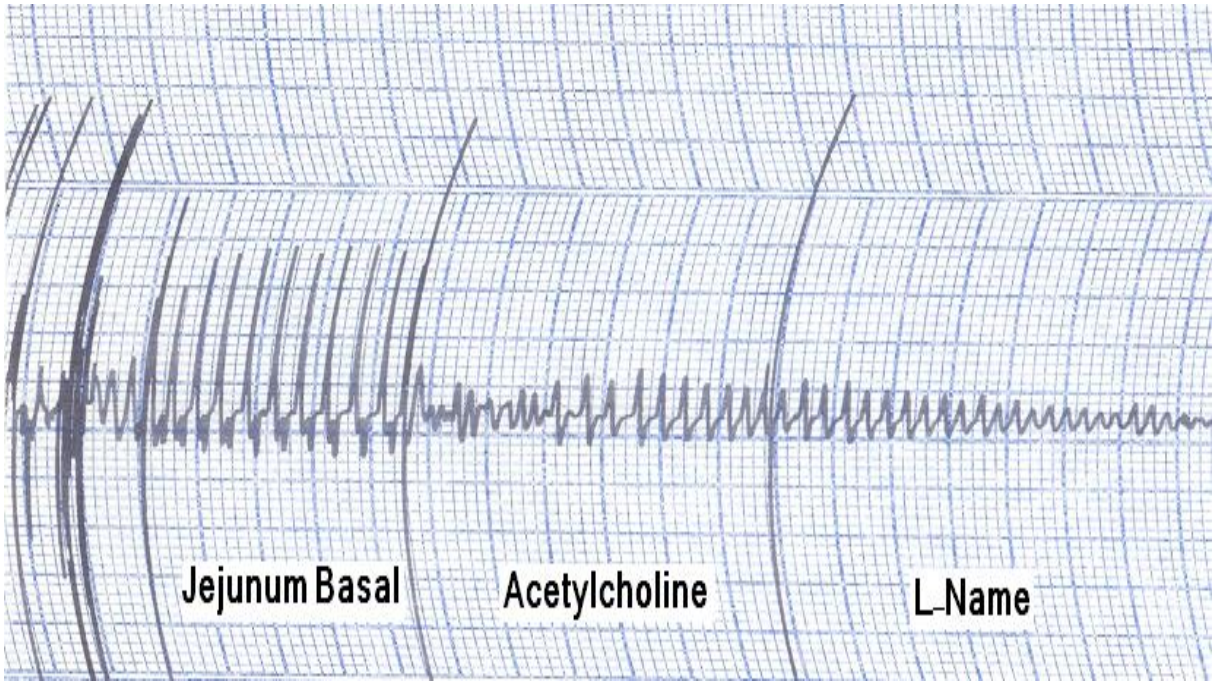
Chart (4):



Amplitude **Tone**

* = Significant as compared with the basal contractions
# = Significant as compared with contractions after adding ACH.

Effects of L.Name(10^{-4} M /L) on jejunal motility after adding ACH. (1µg%)



Fig(5)

As shown in Fig (5), table (5) and chart (5):

Acetylcholine (1µg %) causes significant ($p<0.05$) decrease in the amplitude of the jejunal contractions from 13.86±1.7 mm to 10.07± 1.44 mm this represent about -27 % but it increases the tone of the jejunal segment from -2.14 ±0.66 mm to 1.57 ±0.51 mm ($p<0.05$)

L-Name (10^{-4}M) after adding Ach (1µg %) causes:

a-Significant decrease in the amplitude of the jejunal contractions from 13.86±1.7 mm to 7.79 ±1.19 mm ($p<0.05$) this represent about -44 % as compared with the basal contractions and it causes also a significant ($p<0.05$) decrease in the amplitude from 10.07±1.44 mm to 7.79±1.19 mm this represent about -23% as compared with the contractions after adding Ach.

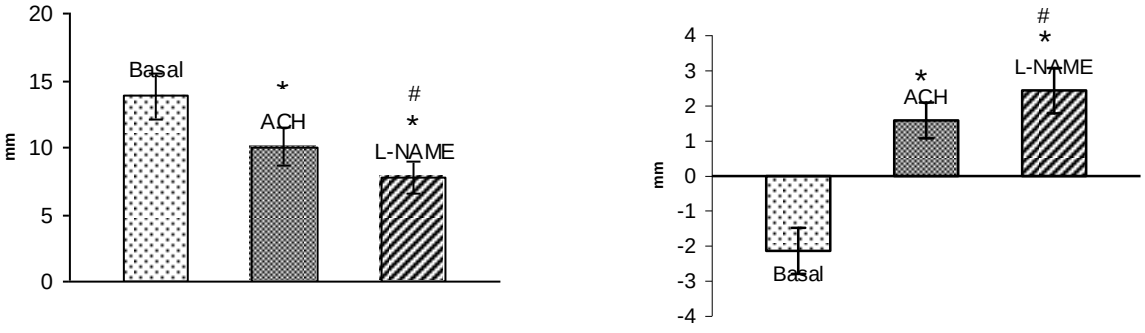
b-Significant increase in the tone of the jejunal from 1.57±0.51 mm to 2.43±0.65 mm ($p<0.05$) as compared with contractions after adding Ach and it also causes a significant ($p <0.05$) increase in the tone from -2.14 ±0.66 mm to 2.43±0.65 mm as compared with the basal contractions.

Table (5) Effects of L-Name (10^{-4} M /L) on jejunal motility after adding ACH. (1µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	ACH	L-NAME	Basal	ACH	L-NAME
1	15	12	10	-2	1	3
2	12	11	9	-2	1	3
3	14	10	8	-2	2	2
4	15	9	7	-3	2	2
5	13	9	6	-2	1	3
6	14	11	8	-1	2	3
7	12	10	7	-2	2	2
8	12	11	9	-2	1	2
9	14	9	7	-3	2	2
10	13	8	6	-1	1	1
11	14	12	8	-2	2	2
12	17	12	9	-3	1	3
13	20	7	4	-2	2	3
14	12	9	7	-3	2	3
Mean	13.86	10.07	7.79	-2.14	1.57	2.43
±SD	1.70	1.44	1.19	0.66	0.51	0.65
%	—	-27%	-44%	—	—	—
%1	—	—	-23%	—	—	—
P	—	0	0	—	0	0
P2	—	—	0.007	—	—	0.003

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding ACH.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding ACH.

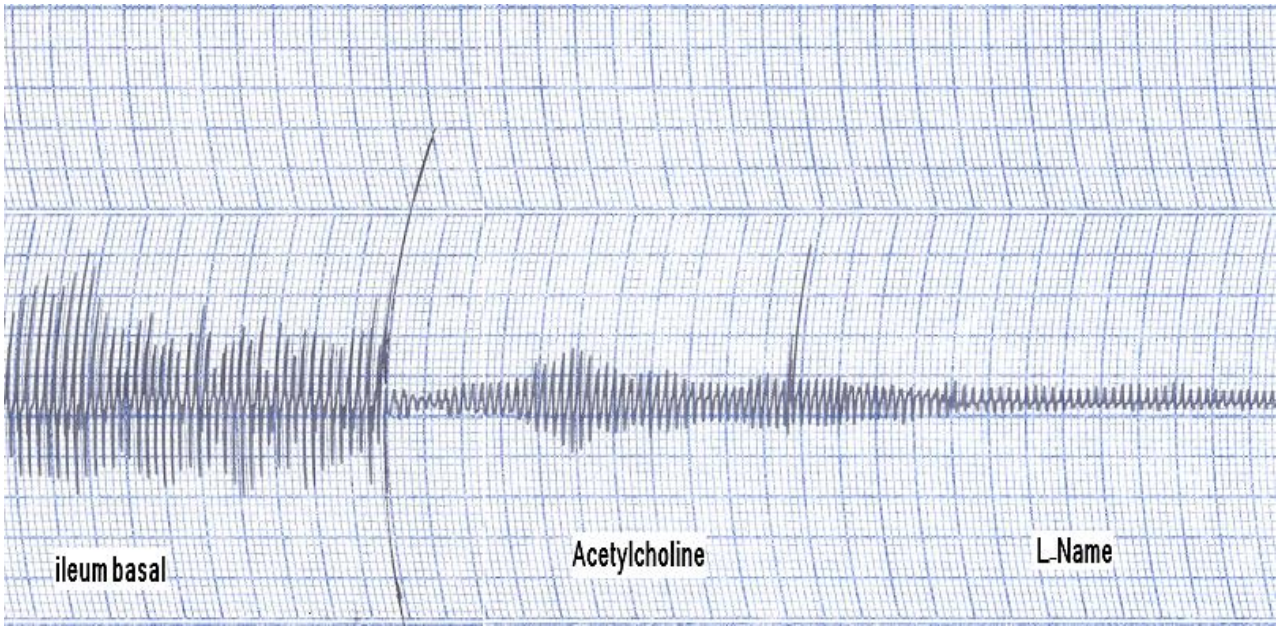
Chart (5):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding ACH.

Effects of L.Name (10^{-4} M /L) on ileal motility after adding ACH. (1µg %).



Fig(6)

As shown in Fig (6), table (6) and chart (6):

Acetylcholine (1µg %) causes significant ($p<0.05$) decrease in the amplitude of the ileal contractions from 15.43±1.65 mm to 11.57± 1.02 mm this represent about -25% but it increases the tone of the ileal segment from -4.07±0.73 mm to 1.64±0.63 mm ($p<0.05$)

L-Name (10^{-4}M) after adding Ach (1µg %) causes:

a- Significant decrease in the amplitude of the ileal contractions from 15.43±1.65 mm to 7.57±1.28 mm ($p<0.05$) this represent about -51 % as compared with the basal contractions and it causes also a significant ($p<0.05$) decrease in the amplitude from 11.57 ±1.02 mm to 7.57±1.28 mm this represent about -35% as compared with the contractions after adding Ach.

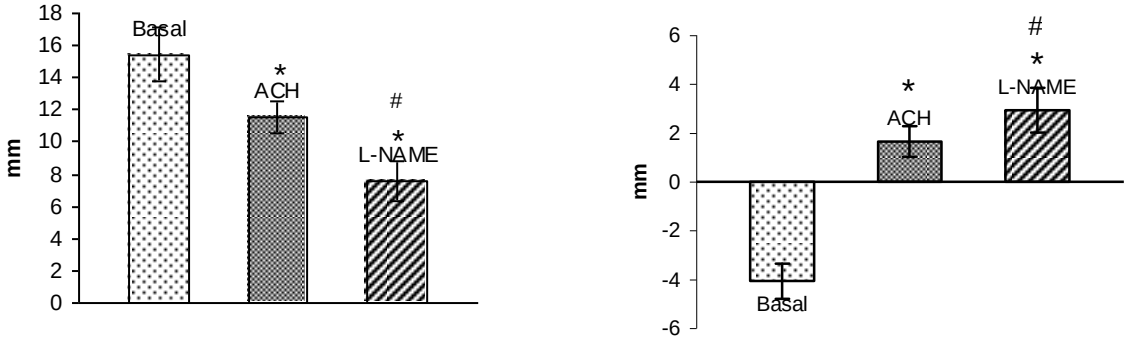
b- Significant increase in the tone of the ileal from 1.64±0.63 mm to 2.93±0.92 mm ($p<0.05$) as compared with contractions after adding Ach and it also causes a significant ($p <0.05$) increase in the tone from -4.07 ±0.73 mm to 2.93±0.92 mm as compared with the basal contractions.

Table (6) Effects of L-Name(10^{-4} M /L) on ileal motility after adding ACH. (1µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	ACH	L-NAME	Basal	ACH	L-NAME
1	13	10	6	-4	1	3
2	14	11	7	-4	1	3
3	15	12	8	-3	2	3
4	13	13	8	-5	2	2
5	14	10	6	-4	1	2
6	15	12	6	-5	1	2
7	16	12	7	-5	2	3
8	15	13	9	-4	2	3
9	18	12	9	-5	1	1
10	17	11	7	-4	2	3
11	16	11	6	-3	2	4
12	18	13	9	-4	1	4
13	15	7	4	-5	-1	1
14	17	11	9	-4	3	4
Mean	15.43	11.57	7.57	-4.07	1.64	2.93
±SD	1.65	1.02	1.28	0.73	0.63	0.92
%	—	-25%	-51%	—	—	—
%1	—	—	-35%	—	—	—
P	—	0	0.001	—	0	0.003
P2	—	—	0.001	—	—	0.001

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding ACH.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding ACH.

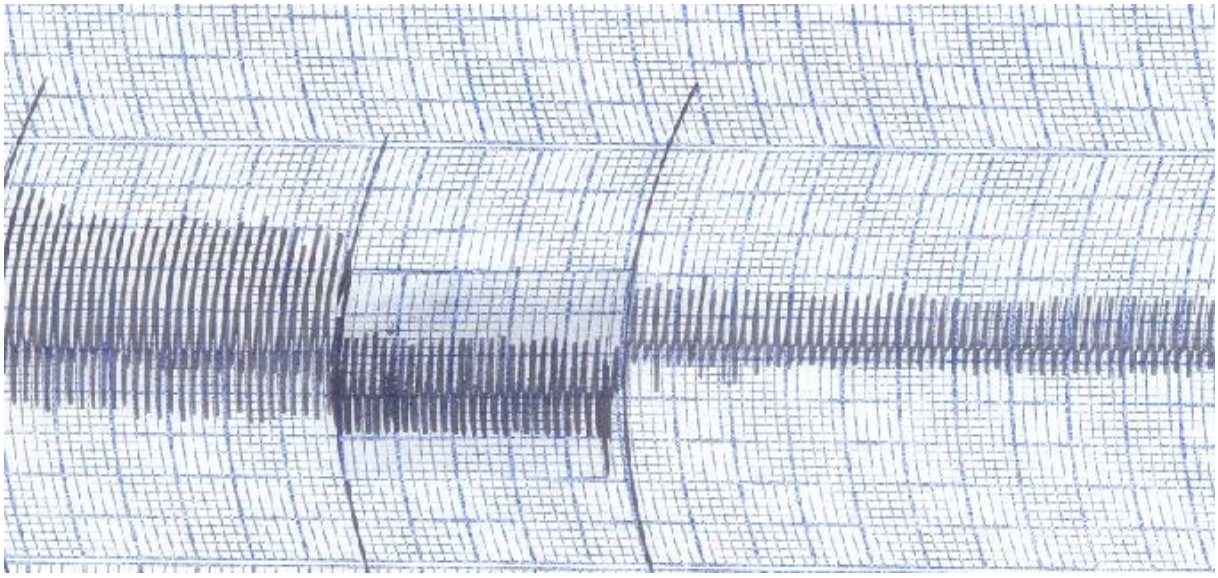
Chart (6):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding ACH

Effects of L.Name(10^{-4} M /L)on duodenal motility after adding adrenaline (20µg %)



Fig(7)

As shown in Fig (7), table (7) and chart (7):

adrenaline (20µg %)causes significant ($p<0.05$) decrease in the amplitude of the duodenal contractions from 12.15±1.5 mm to 6.23 ± 1.73 mm this represent about -48 % but it decreases the tone of the duodenal segment from -3.5±1.76 mm to -6.23±1.70 mm ($p<0.05$)

L-Name (10^{-4}M) after adding adrenaline (20µg %) causes:

a- Significant decrease in the amplitude of the duodenal contractions from 12.15±1.5 mm to 7.54±0.76 mm ($p<0.05$) this represent about -26 % as compared with the basal contractions and it causes also an significant ($p<0.05$) increase in the amplitude from 6.23±1.73 mm to 7.54±0.76 mm this represent about 44% as compared with the contractions after adding adrenaline (20µg %).

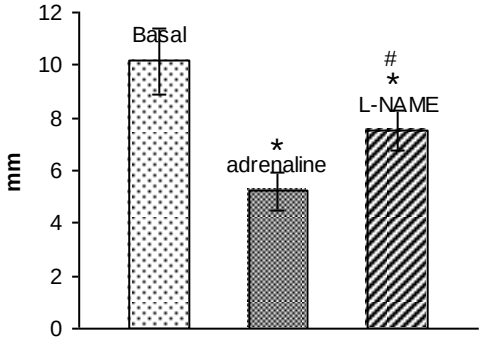
b- Significant increase in the tone of the duodenal from -6.23±1.7 mm to -2.15±0.77 mm ($p>0.05$) as compared with contractions after adding adrenaline (20µg %) and it also causes a significant ($p <0.05$) increase in the tone from -3.5±1.76 mm to -2.15±0.77 mm as compared with the basal contractions.

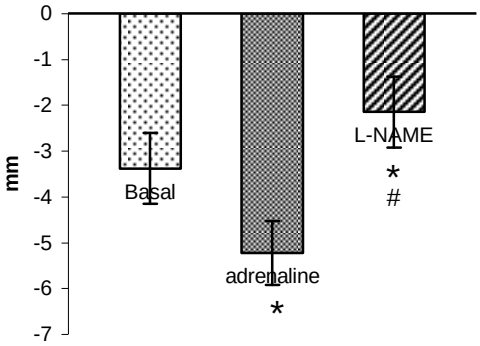
Table (7) Effects of L-Name(10^{-4} M /L) on duodenal motility after adding adrenaline (20µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	adrenaline	L-NAME	Basal	adrenaline	L-NAME
1	9	6	8	-3	-5	-2
2	10	5	8	-4	-6	-3
3	10	6	7	-3	-5	-1
4	8	5	8	-4	-4	-2
5	11	6	7	-4	-5	-2
6	13	5	8	-2	-5	-1
7	9	4	7	-4	-6	-3
8	10	5	7	-3	-4	-2
9	10	5	6	-2	-5	-1
10	9	4	7	-4	-5	-3
11	22	11	9	-7	-9	-2
12	11	6	9	-3	-6	-3
13	11	5	8	-4	-6	-3
14	9	6	8	-4	-5	-2
Mean	12.15	6.23	7.54	-3.5	-6.23	-2.15
±SD	1.5	1.73	0.76	1.76	1.70	0.77
%	—	-48%	-26%	—	—	—
%1	—	—	44%	—	—	—
P	—	0.007	0.021	—	0	0.001
P2	—	—	0.001	—	—	0.001

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding adrenaline.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding adrenaline.

Chart (7):

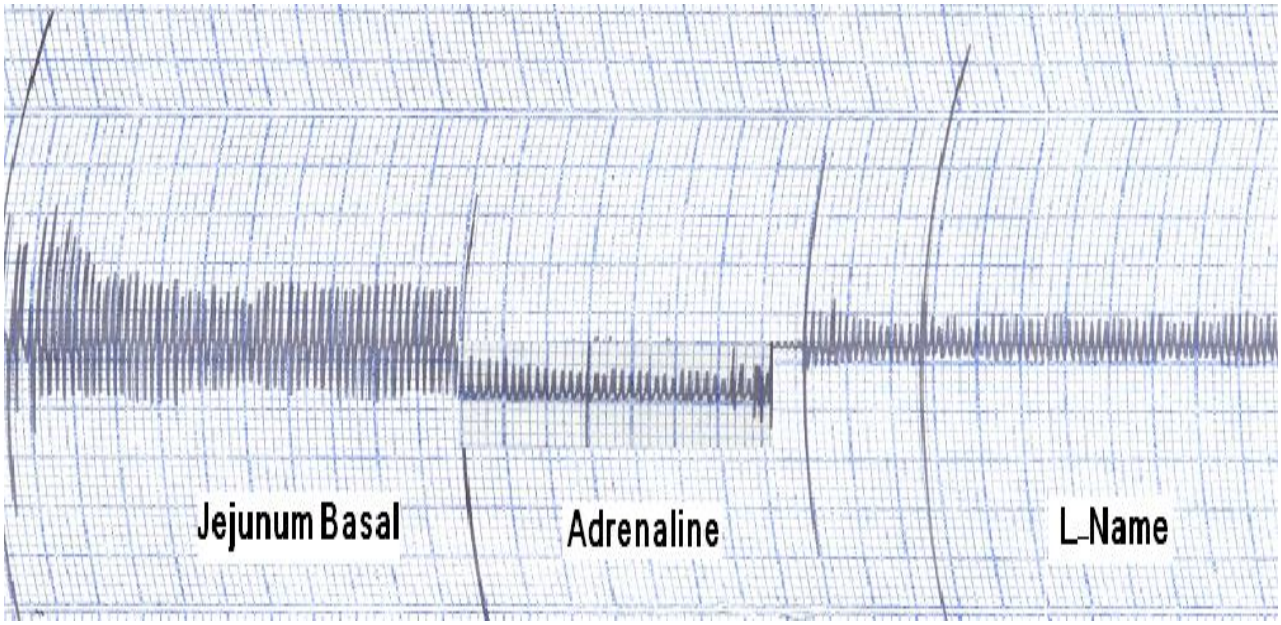




Amplitude **Tone**

* = Significant as compared with the basal contractions.
\# = Significant as compared with contractions after adding adrenaline

Effects of L.Name(10^{-4} M /L) on jejunal motility after adding adrenaline (20µg %)



Fig(8)

As shown in Fig (8), table (8) and chart (8):

adrenaline (20µg %)causes significant ($p<0.05$) decrease in the amplitude of the jejunal contractions from 13.43± 2.28 mm to7.5± 2.09 mm this represent about -37% but it decreases the tone of the jejunal segment from -4±0.96 mm to -5.71±0.99 mm ($p<0.05$)

L-Name (10^{-4}M) after adding adrenaline (20µg %) causes:

a-Significant decrease in the amplitude of the jejunal contractions from 13.43± 2.28 mm to 10.93±2.7 mm ($p<0.05$) this represent about -11 % as compared with the basal contractions and it causes also a significant ($p<0.05$) increase in the amplitude from 7.5± 2.09 mm to 10.93±2.7 mm this represent about 40% as compared with the contractions after adding adrenaline (20µg %).

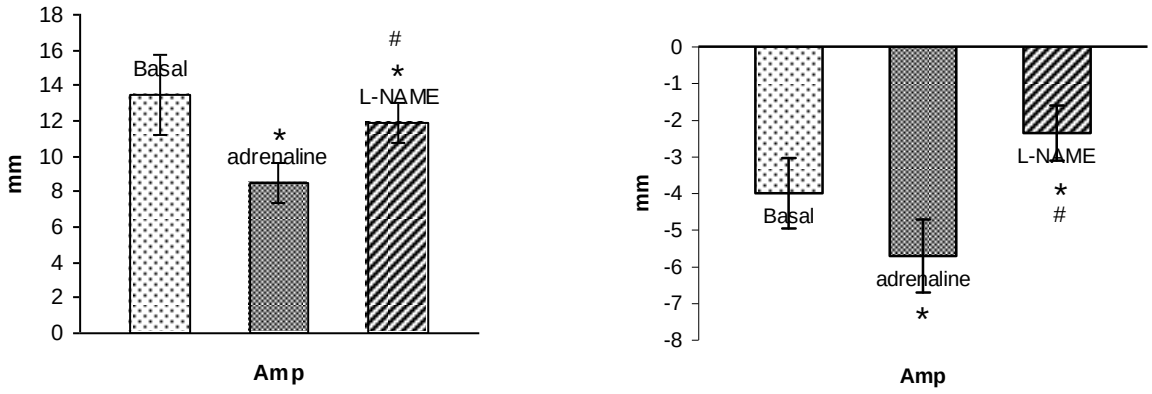
b- Significant increase in the tone of the jejunal from-5.71±0.99 mm to -1.36±0.74 mm ($p <0.05$) as compared with contractions after adding adrenaline (20µg %) and it also causes an significant ($p< 0.05$) increase in the tone from -4±0.96 mm to -1.36±0.74 mm as compared with the basal contractions.

Table (8) Effects of L-Name(10^{-4} M /L) on jejunal motility after adding adrenaline (20µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	adrenaline	L-NAME	Basal	adrenaline	L-NAME
1	13	11	13	-5	-5	-2
2	11	9	12	-4	-7	-3
3	13	9	14	-5	-6	-3
4	14	8	13	-3	-4	-1
5	13	8	12	-4	-7	-2
6	12	7	10	-5	-6	-3
7	9	7	10	-5	-7	-3
8	18	9	12	-3	-5	-2
9	11	4	5	-3	-5	-3
10	15	7	11	-2	-5	0
11	14	8	11	-4	-6	-1
12	16	9	12	-5	-7	-3
13	15	9	12	-4	-5	-2
14	14	9	13	-4	-5	-2
Mean	13.43	7.50	10.93	-4.00	-5.71	-1.36
±SD	2.28	2.09	2.7	0.96	0.99	0.74
%	—	-37%	-11%	—	—	—
%1	—	—	40%	—	—	—
P	—	0	0.027	—	0.001	0
P2	—	—	0	—	—	0

n : number of experiments(14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding adrenaline.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding adrenaline.

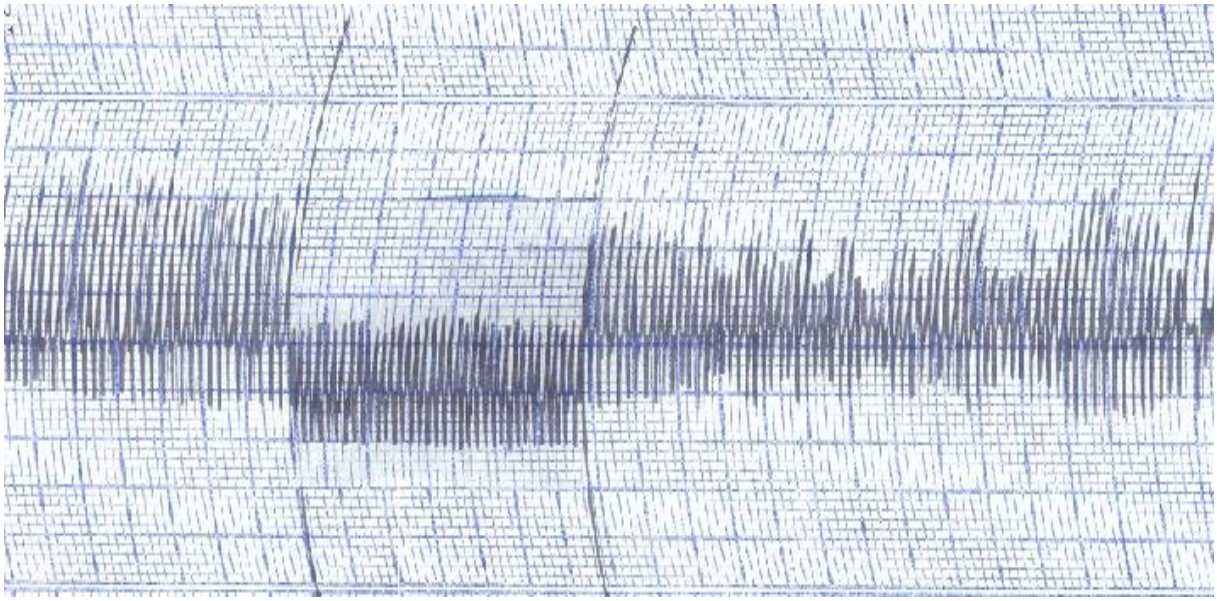
Chart (8):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding adrenaline.

Effects of L-Name (10^{-4} M /L) on ileal motility after adding adrenaline (20µg %).



Fig(9)

As shown in Fig (9), table (9) and chart (9):

adrenaline (20µg %)causes significant ($p<0.05$) decrease in the amplitude of the ileal contractions from 16.86±2.98 mm to 5.86± 1.89 mm this represent about -71% but it also causes significant decreases the tone of the ileal segment from -2.94±1.39 mm to -5.93±1.95 mm ($p<0.05$)

L-Name (10^{-4}M) after adding adrenaline (20µg %) causes:

a- Significant decrease in the amplitude of the ileal contractions from 16.86±2.98 mm to 9.93±2.7 mm ($p<0.05$) this represent about -41 % as compared with the basal contractions and it causes also a significant ($p<0.05$) increase in the amplitude from 5.86± 1.89 mm to 9.93±2.7 mm this represent about 104% as compared with the contractions after adding adrenaline (20µg %).

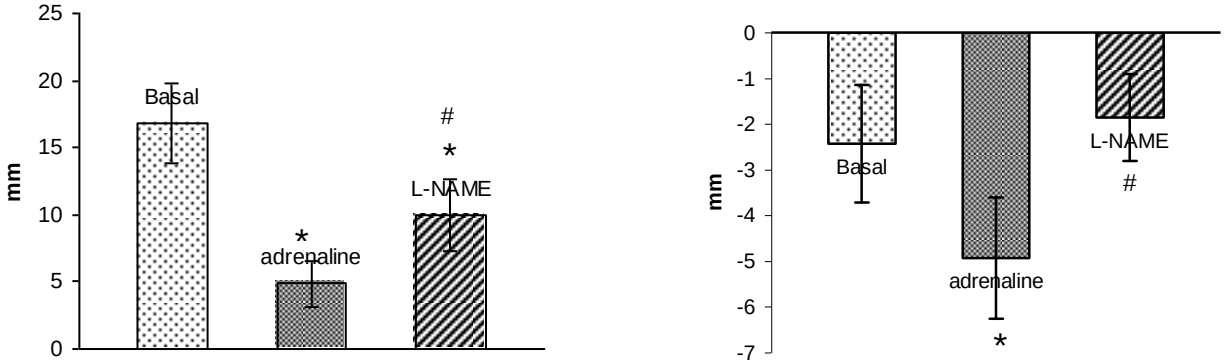
b-Significant increase in the tone of the ileal from -5.93±1.95 mm to -1.86±1.01 mm ($p<0.05$) as compared with contractions after adding adrenaline (20µg %) and it also causes a insignificant ($p> 0.05$) increase in the tone from -2.94±1.39 mm to -1.86±1.01 mm as compared with the basal contractions.

Table (9) Effects of L-Name(10^{-4} M /L) on ileal motility after adding adrenaline (20µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	adrenaline	L-NAME	Basal	adrenaline	L-NAME
1	10	5	11	-3	-5	-4
2	15	8	11	-1	-6	-2
3	15	5	12	-1	-2	-1
4	16	4	7	-1	-3	-2
5	12	4	9	-1	-4	-1
6	19	3	5	-4	-5	-2
7	19	4	8	-2	-5	-2
8	18	2	7	-3	-5	-1
9	18	3	12	-4	-5	-2
10	19	6	13	-2	-6	-3
11	17	7	11	-3	-4	-1
12	20	13	15	-5	-10	-4
13	20	5	9	-4	-7	-1
14	18	5	9	-1	-6	-1
Mean	16.86	5.86	9.93	-2.94	-5.93	-1.86
±SD	2.98	1.89	2.70	1.39	1.95	1.01
%	—	-71%	-41%	—	—	—
%1	—	—	104%	—	—	—
P	—	0	0	—	0	NS
P2	—	—	0	—	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding adrenaline.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding adrenaline.

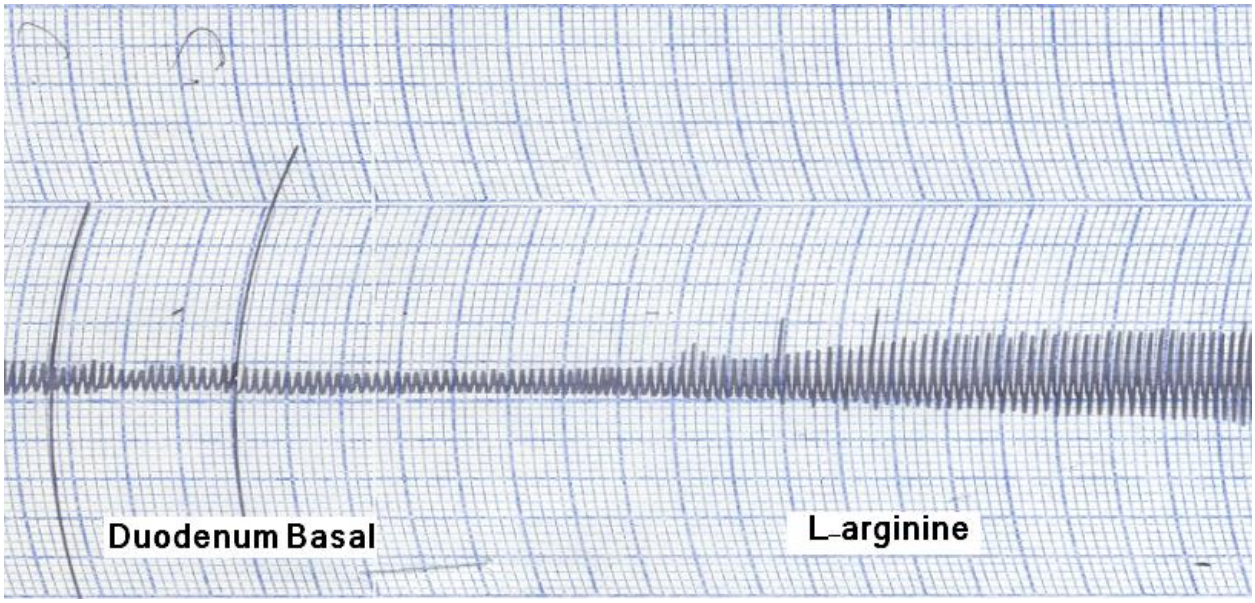
Chart (9):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding adrenaline

Effects of L.arginine (10^{-3} M/L) on basal duodenal motility



Fig(10)

As shown in Fig (10), table (10) and chart (10):

L-arginine in a concentrations of (10^{-3} M) causes:

a- significant increase in the amplitude of the duodenal contractions from 8.29 ± 1.38 mm to 12.14 ±2.07 mm ($p < 0.05$), this represent about 47%.

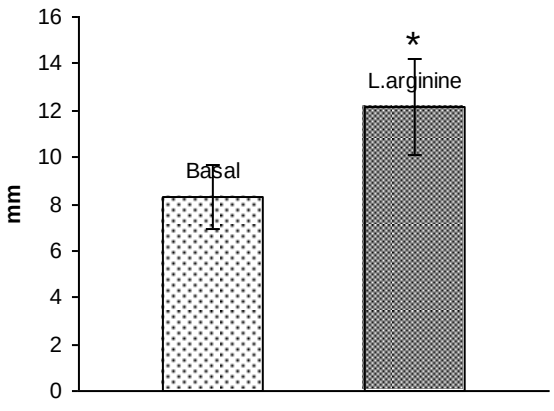
b- Significant decrease in tone of the duodenal segment from -1.14 ± 1.1 mm to -3.71 ±1.27 mm ($p< 0.05$)

Table (10) Effects of L-arginine(10^{-3} M/L) on basal duodenal motility .

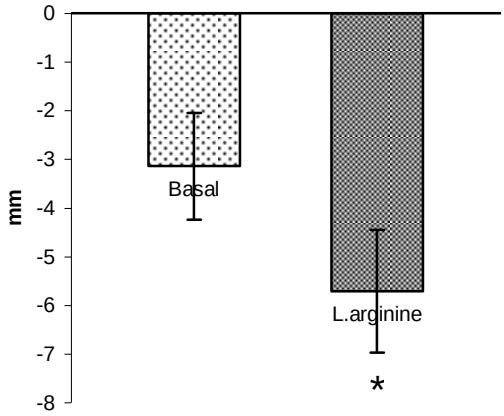
n	Amplitude(mm)		Tone(mm)	
	Basal	L.arginine	Basal	L.arginine
1	8	10	-2	-4
2	9	11	-3	-6
3	8	11	-3	-5
4	12	13	-4	-6
5	8	15	-2	-7
6	8	16	-5	-7
7	7	12	-4	-8
8	6	9	-2	-4
9	8	12	-2	-5
10	9	14	-2	-4
11	9	13	-3	-7
12	7	9	-1	-3
13	8	12	-5	-6
14	9	13	-3	-5
Mean	8.29	12.14	-2.14	-4.71
±SD	1.38	2.07	1.10	1.27
%	—	47%	—	—
P	—	0	—	0

n : number of experiments(14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
P : values as compared with the basal contractions

Chart (10):



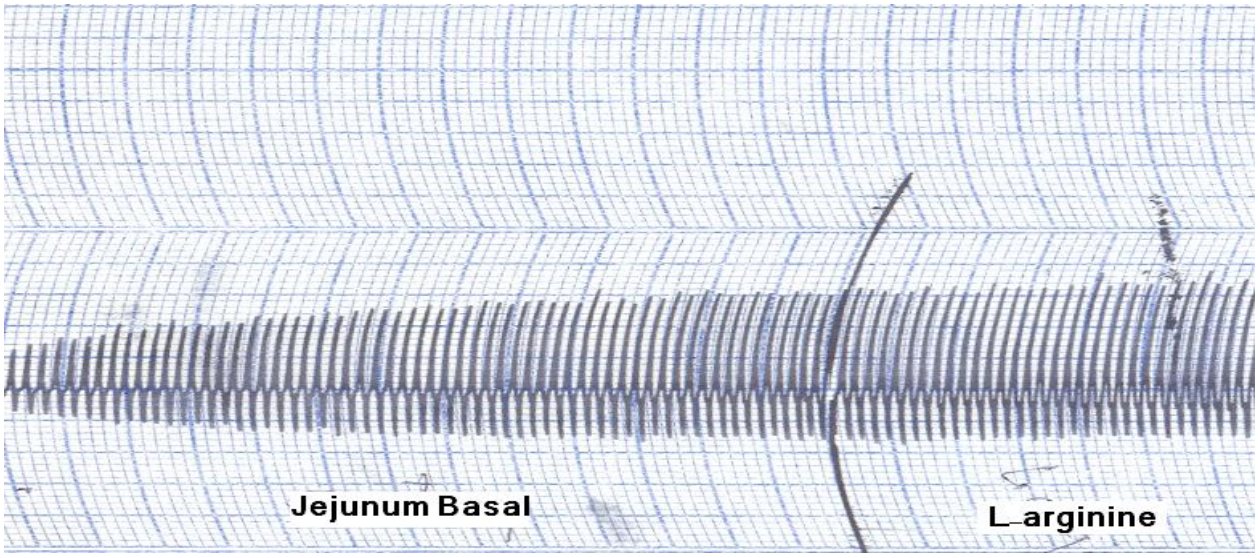
Amplitude



Tone

* = Significant as compared with the basal contractions

Effects of L.arginine (10^{-3} M/L) on basal jejunal motility



Fig(11)

As shown in Fig (11), table (11) and chart (11):

L-arginine in a concentrations of (10^{-3} M) causes:

a- significant increase in the amplitude of the jejunal contractions from 9.87 ± 2.44 mm to 13.53 ±2.96 mm ($p < 0.05$), this represent about 51%.

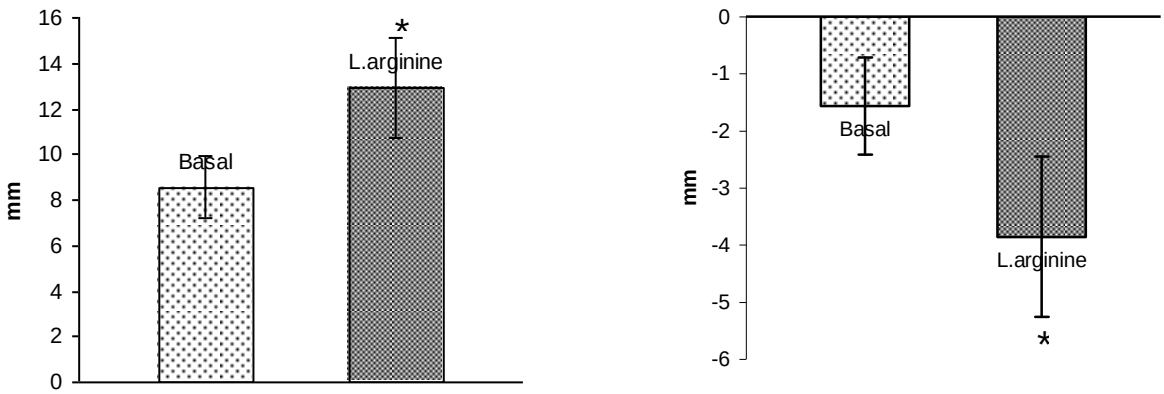
b- Significant decrease in tone of the jejunal segment from -1.57 ± 0.85 mm to -3.96 ±1.31 mm ($p< 0.05$)

Table (11) Effects of L-arginine(10^{-3} M/L) on basal jejunal motility.

n	Amplitude(mm)		Tone(mm)	
	Basal	L.arginine	Basal	L.arginine
1	17	22	-2	-4
2	7	11	-1	-4
3	8	12	-1	-3
4	10	15	-3	-7
5	8	14	-1	-3
6	8	12	0	-2
7	6	11	-2	-4
8	9	13	-2	-4
9	10	14	-3	-5
10	8	11	-1	-3
11	8	11	-2	-4
12	9	12	-1	-3
13	10	14	-2	-4
14	8	12	-1	-2
Mean	9.87	13.53	-1.57	-3.96
±SD	2.44	2.96	0.85	1.31
%	—	51%	—	—
P	—	0	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
P : values as compared with the basal contractions

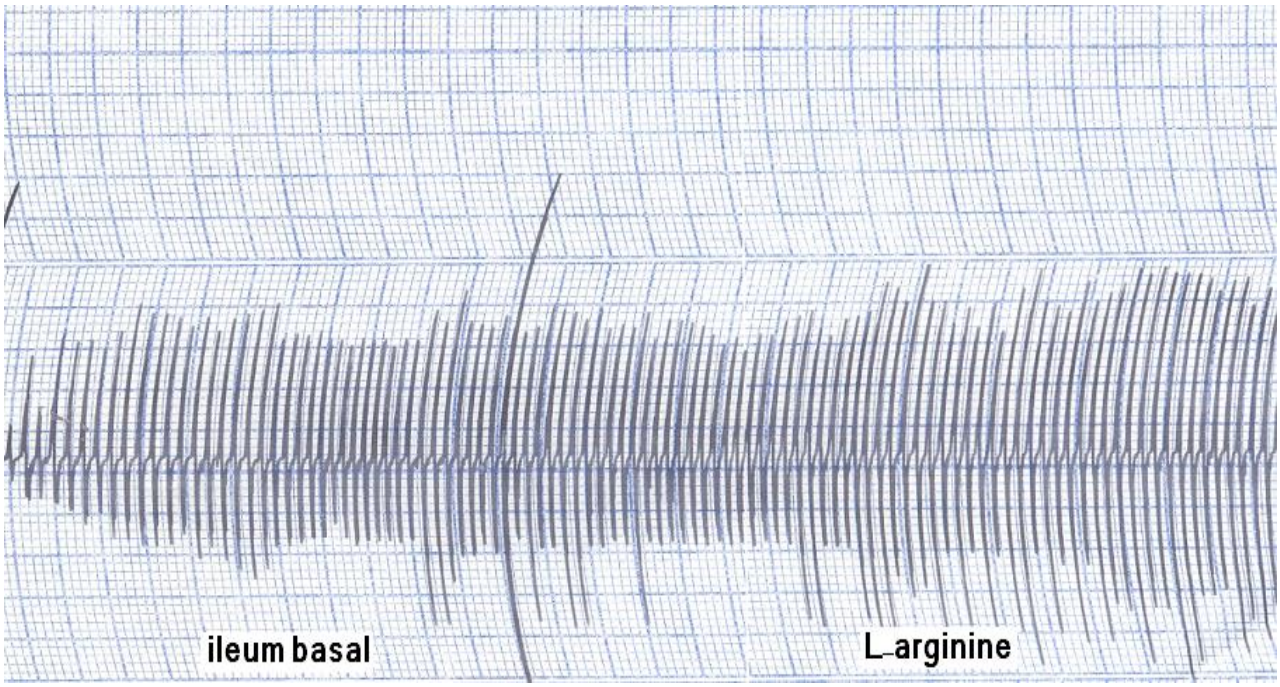
Chart (11):



Amplitude **Tone**

* = Significant as compared with the basal contractions

Effects of L.arginine(10^{-3} M/L) on basal ileal motility



Fig(12)

As shown in Fig (12), table (12) and chart (12):

L-arginine in a concentrations of (10^{-3} M) causes:

a- significant increase in the amplitude of the ileal contractions from 16.79 ± 3.90 mm to 22.36 ±4.96 mm ($p < 0.05$), this represent about 29%.

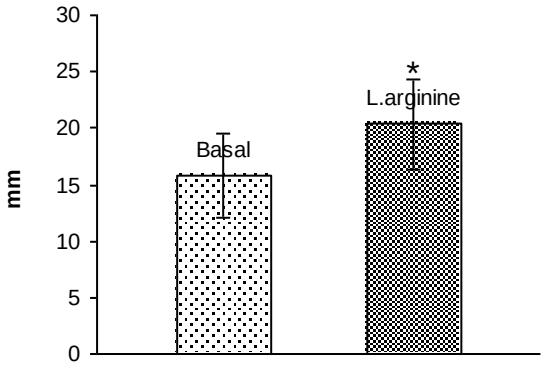
b- Significant decrease in tone of the ileal segment from -3.64 ± 1.22 mm to -6.91 ±1.90 mm ($p< 0.05$)

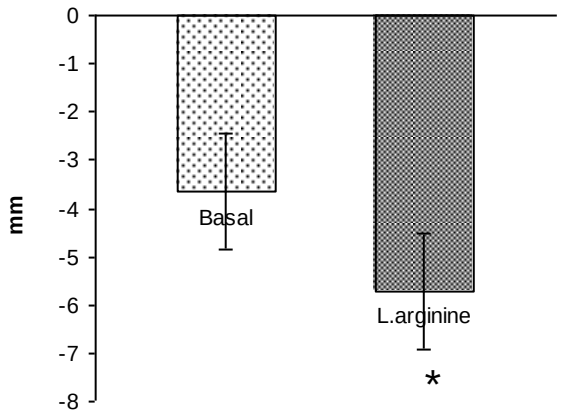
Table (12) Effects of L-arginine (10^{-3} M/L) on basal ileal motility.

n		Amplitude(mm)	Tone(mm)	
	Basal	L.arginine	Basal	L.arginine
1	12	18	-2	-5
2	13	15	-3	-6
3	12	17	-5	-7
4	14	19	-2	-4
5	11	16	-2	-5
6	14	19	-5	-7
7	17	20	-3	-6
8	17	20	-5	-7
9	14	20	-4	-5
10	22	27	-3	-7
11	24	35	-5	-10
12	21	26	-3	-4
13	17	20	-5	-4
14	15	20	-4	-7
Mean	16.79	22.36	-3.64	-6.91
±SD	3.90	4.96	1.22	1.90
%	—	29%	—	—
P	—	0	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
P : values as compared with the basal contractions

Chart (12):

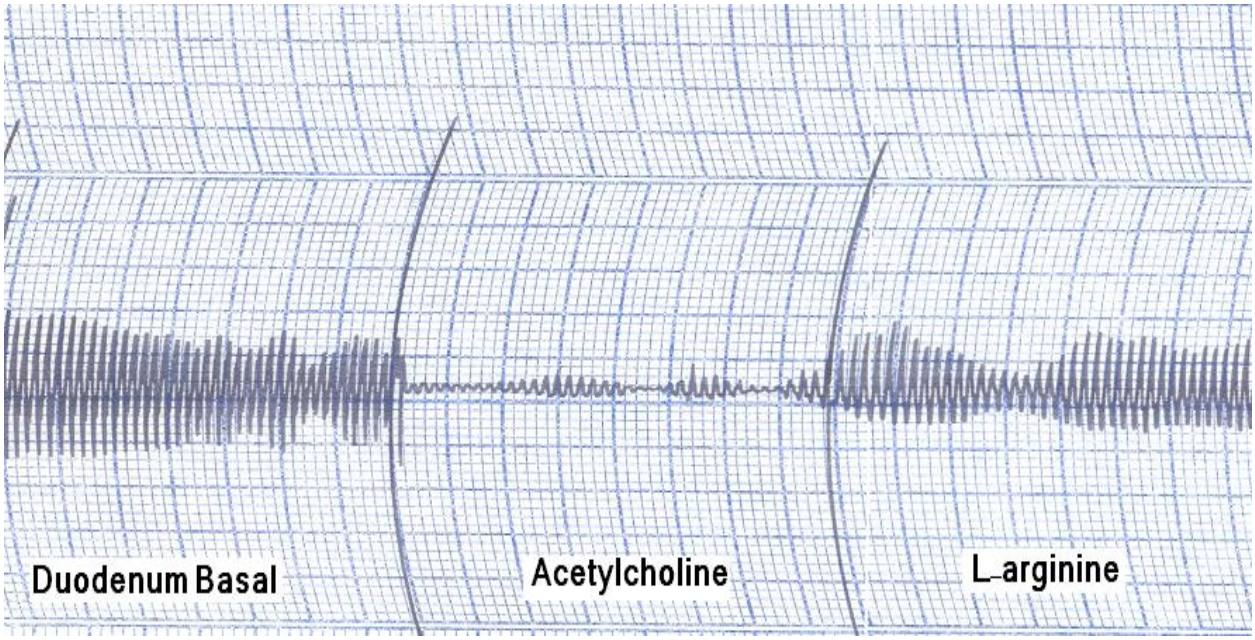




Amplitude **Tone**

* = Significant as compared with the basal contractions

Effects of L.arginine(10^{-3} M/L) on duodenal motility after adding ACH (1µg %)



Fig(13)

As shown in Fig (13), table (13) and chart (13):

Acetylcholine (1µg %) causes significant ($p<0.05$) decrease in the amplitude of the duodenal contractions from 10.36±1.5 mm to 4.64 ± 0.84 mm this represent about -55% but it increases the tone of the duodenal segment from -2.79 ±1.31 mm to 1.14 ±0.53 mm ($p<0.05$)

L.arginine (10^{-3}M) after adding Ach (1µg %) causes:

a- significant decrease in the amplitude of the duodenal contractions from 10.36±1.5 mm to 7.71 ± 1.2 mm ($p<0.05$) this represent about -26 % as compared with the basal contractions and it causes also a significant increase in the amplitude from 4.64 ± 0.84 mm to 7.71 ± 1.2 mm ($p<0.05$) this represent about 66% as compared with the contractions after adding Ach.

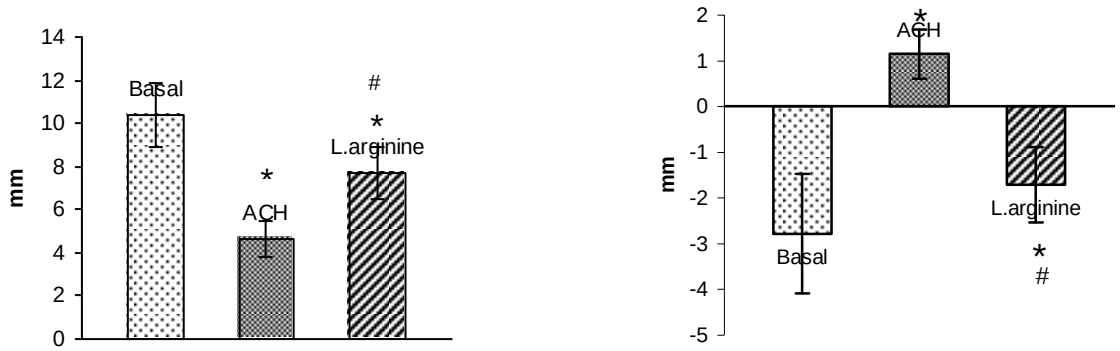
b- Significant decrease in the tone of the duodenal from 1.14 ±0.53 mm to -1.71±0.83 mm ($p<0.05$) as compared with contractions after adding Ach and it also causes a significant ($p<0.05$) increase in the tone from -2.79 ±1.31 mm to-1.71±0.83 mm as compared with the basal contractions.

Table (13) Effects of L-arginine (10^{-3} M/L) on duodenal motility after adding ACH (1µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	ACH	L.arginine	Basal	ACH	L.arginine
1	8	4	7	-2	1	-1
2	10	5	7	-3	1	-2
3	9	3	6	-4	1	-3
4	11	4	6	-3	2	-1
5	9	4	7	-2	1	-1
6	12	5	10	-5	1	-2
7	12	5	9	-4	1	-2
8	9	4	8	-1	1	-1
9	11	4	9	-2	1	-3
10	8	5	7	-1	2	-1
11	11	5	8	-3	2	-1
12	12	6	8	-2	1	-1
13	12	6	9	-5	1	-3
14	11	5	7	-2	0	-2
Mean	10.36	4.64	7.71	-2.79	1.14	-1.71
±SD	1.50	0.84	1.20	1.31	0.53	0.83
%	—	-55%	-26%	—	—	—
%1	—	—	66%	—	—	—
P	—	0.003	0	—	0	0.002
P2	—	—	0	—	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding ACH.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding ACH.

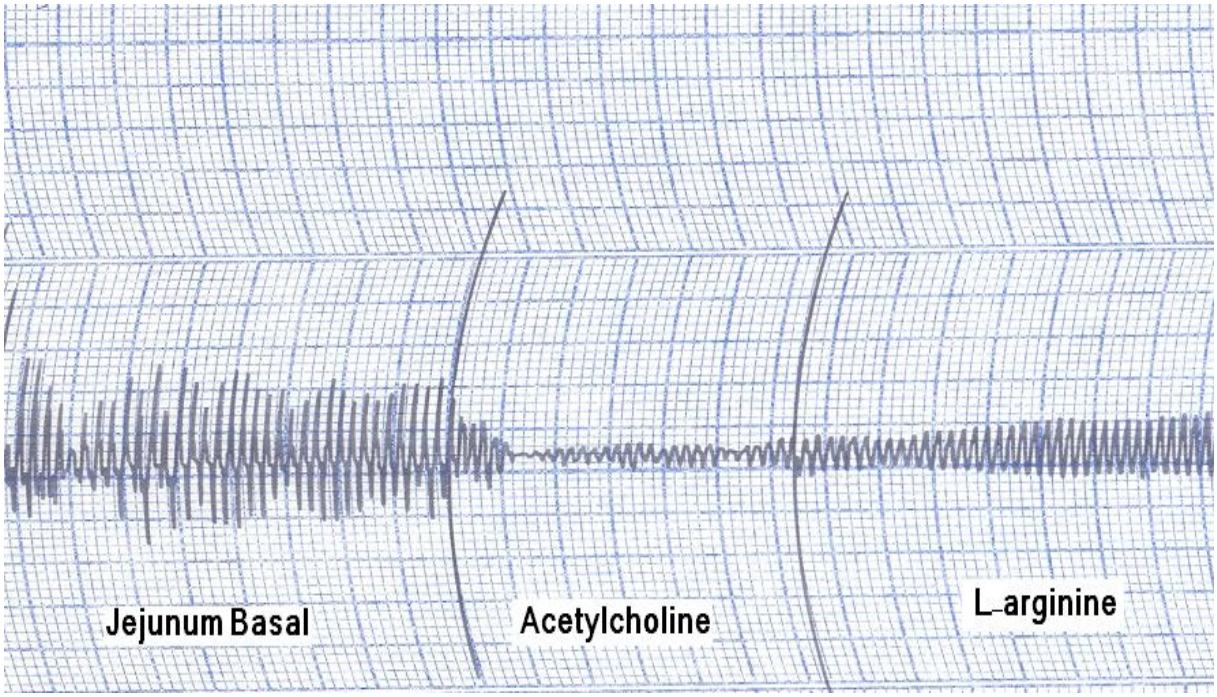
Chart (13):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding ACH.

Effects of L.arginine (10^{-3} M/L) on jejunal motility after adding ACH (1µg %)



Fig(14)

As shown in Fig (14), table (14) and chart (14):

Acetylcholine (1µg %) causes significant ($p<0.05$) decrease in the amplitude of the jejunal contractions from 14.43±2.85 mm to 4± 1.24 mm this represent about -72% but it increases the tone of the jejunal segment from -3.79±1.22 mm to 1±0.55 mm ($p<0.05$)

L.arginine (10^{-3}M) after adding Ach (1µg %) causes:

a- significant decrease in the amplitude of the jejunal contractions from 14.43±2.85 mm to 7.64±1.82 mm ($p<0.05$) this represent about -47 % as compared with the basal contractions and it causes also a significant increase in the amplitude from 4± 1.24 mm to 7.64±1.82 mm ($p<0.05$) this represent about 91% as compared with the contractions after adding Ach.

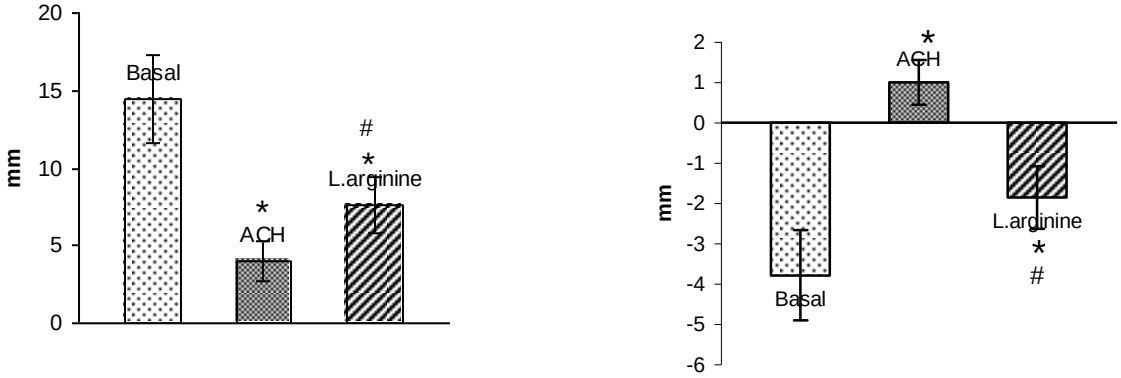
b- Significant decrease in the tone of the jejunal segments from 1±0.55 mm to -1.86 ± 0.77 mm ($p<0.05$) as compared with contractions after adding Ach and it also causes a significant ($p< 0.05$) increase in the tone from -3.79 ±1.12 mm to -1.86 ± 0.77 mm as compared with the basal contractions.

Table (14) Effects of L-arginine (10^{-3} M/L) on jejunal motility after adding ACH (1µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	ACH	L.arginine	Basal	ACH	L.arginine
1	14	5	8	-3	1	-1
2	15	5	9	-4	0	-2
3	15	3	10	-4	1	-2
4	12	2	5	-3	1	-1
5	15	3	6	-5	1	-1
6	14	4	6	-2	0	-1
7	8	4	6	-3	2	-2
8	19	4	5	-3	2	-2
9	14	5	8	-5	1	-3
10	15	3	10	-4	1	-3
11	13	4	9	-5	1	-1
12	20	7	10	-6	1	-3
13	13	3	7	-3	1	-2
14	15	4	8	-3	1	-2
Mean	14.43	4.00	7.64	-3.79	1.00	-1.86
±SD	2.85	1.24	1.82	1.12	0.55	0.77
%	—	-72%	-47%	—	—	—
%1	—	—	91%	—	—	—
P	—	0.003	0	—	0	0
P2	—	—	0.001	—	—	0.001

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding ACH.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding ACH.

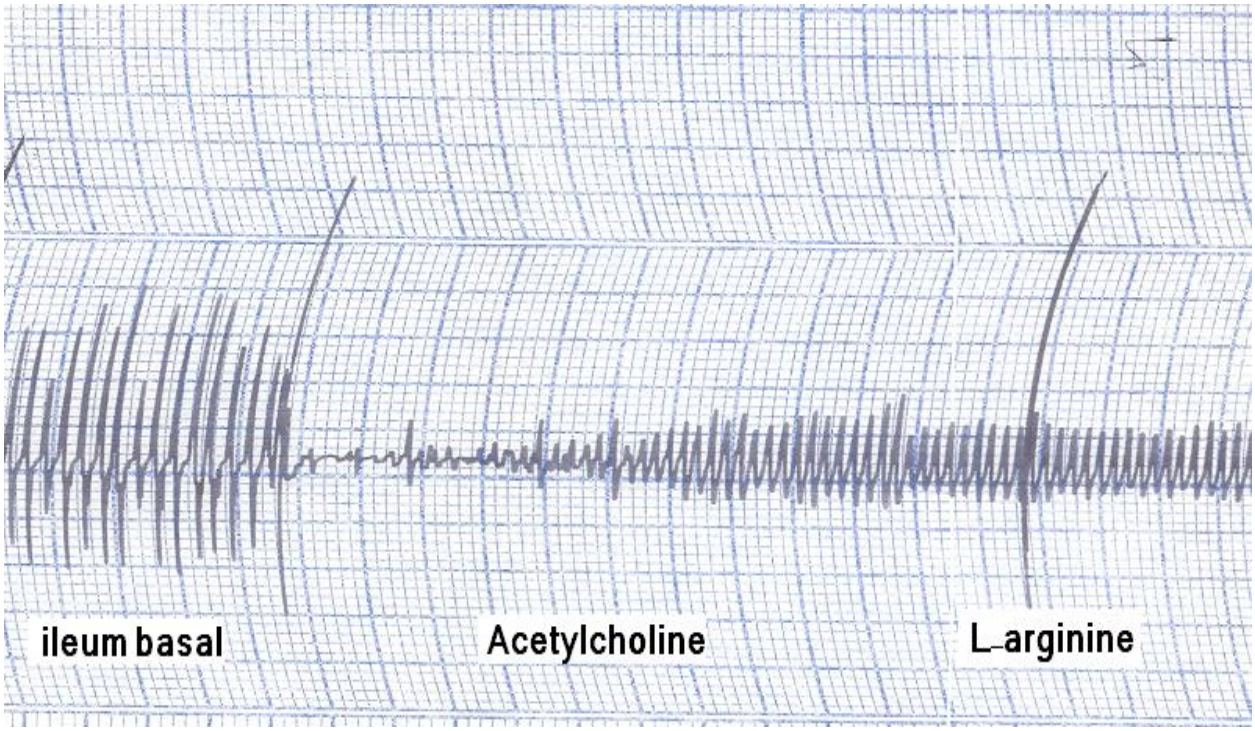
Chart (14):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding ACH.

Effects of L.arginine(10^{-3} M/L) on ileal motility after adding ACH (1µg %)



Fig(15)

As shown in Fig (15), table (15) and chart (15):

Acetylcholine (1µg %) causes significant ($p<0.05$) decrease in the amplitude of the ileal contractions from 17.36±4.99 mm to 4.21± 1.48 mm this represent about -76 % but it increases the tone of the ileal segment with significance from -3.5±1.45 mm to 1.14±0.77 mm ($p<0.05$)

L.arginine (10^{-3}M) after adding Ach (1µg %) causes:

a- Significant decrease in the amplitude of the ileal contractions from 17.36±4.99 to 9.36±2.37 mm ($p<0.05$) this represent about -46 % as compared with the basal contractions and it causes also a significant increase in the amplitude from 4.21± 1.48 mm to 9.36±2.37 mm ($p<0.05$) this represent about 122% as compared with the contractions after adding Ach.

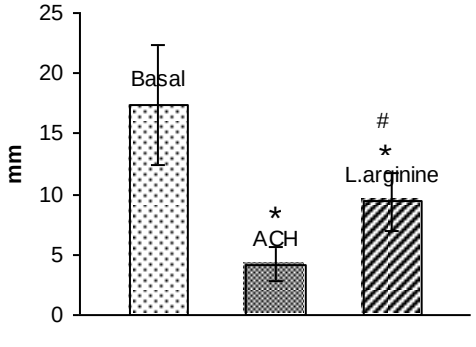
b- Significant decrease in the tone of the ileal from 1.14±0.77 mm to -2.5±0.94 mm ($p<0.05$) as compared with contractions after adding Ach and it also causes a significant ($p< 0.05$) increase in the tone from -3.5±1.45 mm to-2.5±0.94 mm as compared with the basal contractions.

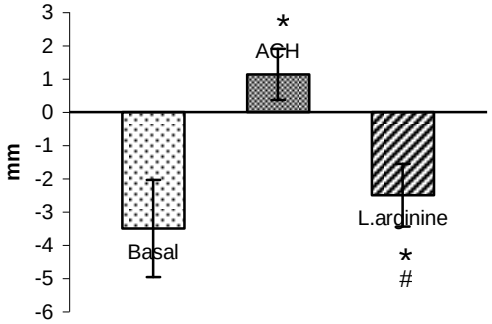
Table (15) Effects of L-arginine(10^{-3} M/L) on ileal motility after adding ACH (1µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	ACH	L.arginine	Basal	ACH	L.arginine
1	12	5	10	-2	1	-2
2	15	5	14	-3	1	-4
3	11	3	9	-5	2	-2
4	12	3	10	-2	1	-2
5	12	2	8	-2	2	-1
6	23	3	8	-6	1	-1
7	16	5	5	-6	0	-3
8	23	3	14	-2	1	-4
9	22	4	10	-4	0	-2
10	22	5	9	-3	2	-2
11	23	8	9	-5	0	-3
12	22	4	7	-5	1	-3
13	12	5	9	-5	2	-3
14	18	4	9	-3	2	-3
Mean	17.36	4.21	9.36	-3.50	1.14	-2.50
±SD	4.99	1.48	2.37	1.45	0.77	0.94
%	—	-76%	-46%	—	—	—
%1	—	—	122%	—	—	—
P	—	0	0	—	0	0.024
P2	—	—	0.001	—	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding ACH.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding ACH.

Chart (15):

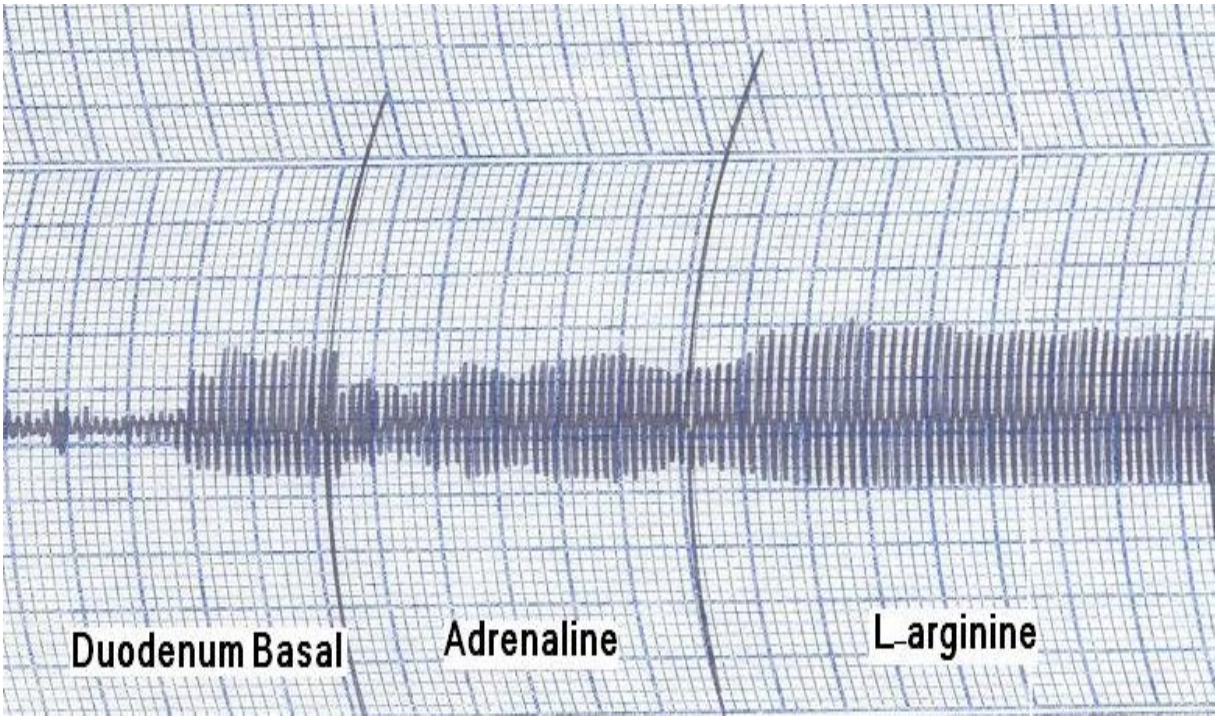




Amplitude **Tone**

* = Significant as compared with the basal contractions
\# = Significant as compared with contractions after adding ACH.

Effects of L.arginine (10^{-3} M/L) on duodenal motility after adding adrenaline (20µg %)



Fig(16)

As shown in Fig (16), table (16) and chart (16):

adrenaline (20µg %)causes significant ($p<0.05$) decrease in the amplitude of the duodenal contractions from 8.29 ±2.16 mm to 4.86± 1.53 mm this represent about -53% but it causes significant decreases the tone of the duodenal segment from -3.07±1 mm to -4.09±1.05 mm ($p<0.05$)

L-arginine (10^{-3}M) after adding adrenaline (20µg %) causes:

a- Significant decrease in the amplitude of the duodenal contractions from 8.29 ±2.16 mm to7.96 ± 1.5 mm ($p<0.05$) this represent about -23 % as compared with the basal contractions and it causes also a significant ($p< 0.05$) increase in the amplitude from 4.86± 1.53 mm to 7.96 ± 1.5 mm this represent about 65% as compared with the contractions after adding adrenaline (20µg %).

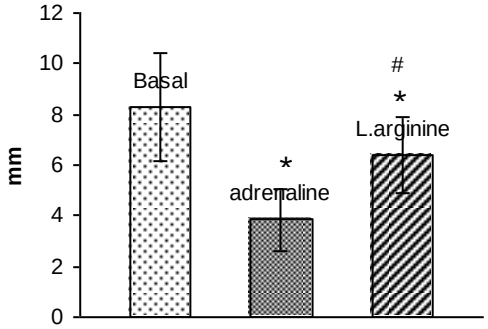
b- Significant decrease in the tone of the duodenal from -4.09±1.05 mm to -5.43 ±1.02 mm ($p<0.05$) as compared with contractions after adding adrenaline (20µg %) and it also causes a significant ($p <0.05$) decrease in the tone from -3.07±1 mm to -5.43 ±1.02 mm as compared with the basal contractions.

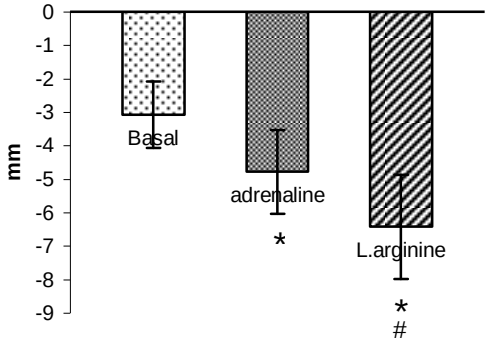
Table (16) Effects of L-arginine(10^{-3} M/L) on duodenal motility after adding adrenaline (20µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	adrenaline	L.arginine	Basal	adrenaline	L.arginine
1	8	3	6	-2	-3	-4
2	9	4	5	-3	-4	-6
3	10	2	7	-4	-5	-4
4	11	5	9	-3	-5	-6
5	5	2	6	-2	-3	-5
6	13	5	9	-4	-6	-7
7	9	4	7	-2	-4	-6
8	7	3	4	-4	-5	-7
9	5	5	6	-2	-3	-5
10	7	5	6	-3	-6	-8
11	7	8	13	-2	-4	-5
12	8	3	5	-2	-5	-8
13	9	3	6	-5	-6	-8
14	8	4	5	-3	-5	-7
Mean	8.29	4.86	7.96	-3.07	-4.09	-5.43
±SD	2.16	1.53	1.50	1.00	1.05	1.02
%	—	-53%	-23%	—	—	—
%1	—	—	65%	—	—	—
P	—	0	0.001	—	0	0
P2	—	—	0	—	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding adrenaline.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding adrenaline.

Chart (16):

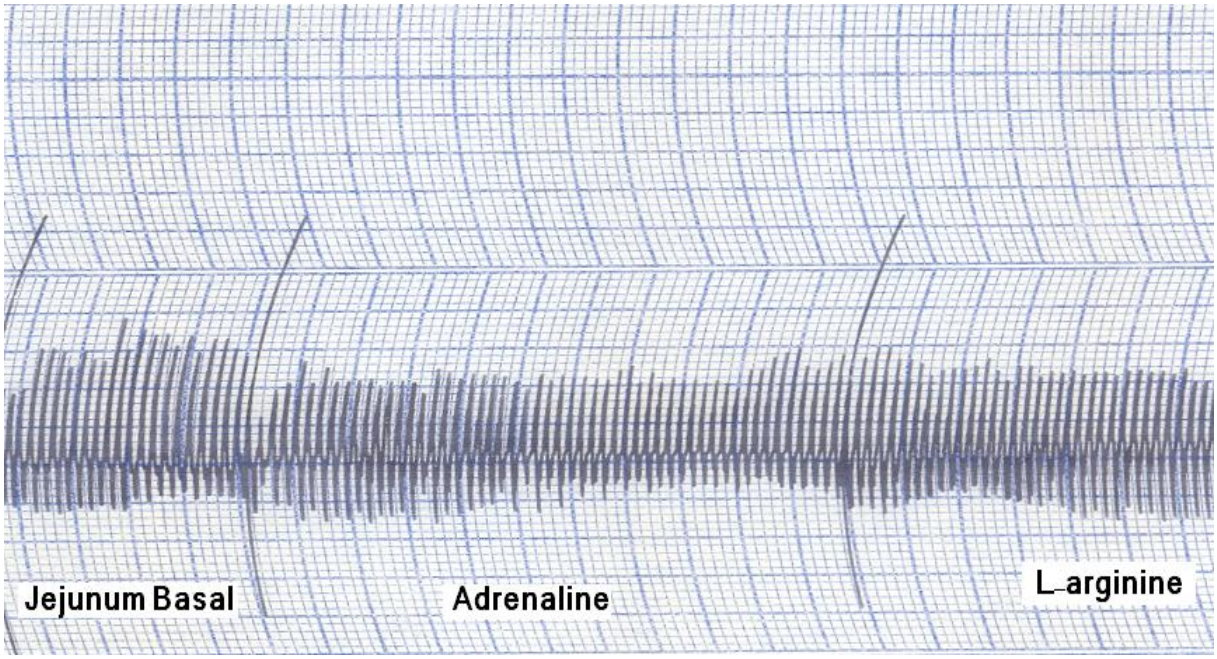




Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding adrenaline

Effects of L.arginine (10^{-3} M/L) on jejunal motility after adding adrenaline (20µg %)



Fig(17)

As shown in Fig (17), table (17) and chart (17):

adrenaline (20µg %)causes significant ($p<0.05$) decrease in the amplitude of the duodenal contractions from 11.86 ±3.7 mm to 6.86±1.95 mm this represent about -51% but it causes significant decreases the tone of the duodenal segment from -1.49 ±0.95 mm to -3.14±1.17 mm ($p<0.05$)

L-arginine (10^{-3}M) after adding adrenaline (20µg %) causes:

a- Significant decrease in the amplitude of the duodenal contractions from 11.86 ±3.7 mm to 8.29 ±2.14 mm ($p<0.05$) this represent about -26 % as compared with the basal contractions and it causes also a significant ($p<0.05$) increase in the amplitude from 6.86± 1.95 mm to 8.29 ±2.14 mm this represent about 50% as compared with the contractions after adding adrenaline (20µg %).

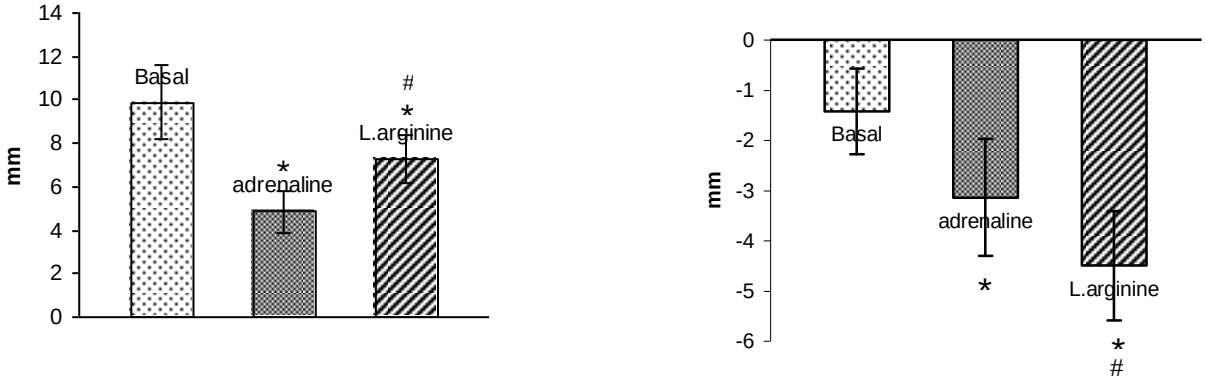
b- Significant decrease in the tone of the duodenal from -3.14±1.17 mm to -4.58±1.29 mm ($p<0.05$) as compared with contractions after adding adrenaline (20µg %) and it also causes a significant ($p <0.05$) decrease in the tone from -1.49 ±0.95 mm to -4.58±1.29 mm as compared with the basal contractions.

Table (17) Effects of L-arginine (10^{-3} M/L) on jejunal motility after adding adrenaline (20µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	adrenaline	L.arginine	Basal	adrenaline	L.arginine
1	10	5	8	-2	-4	-4
2	12	5	8	-3	-5	-5
3	10	4	9	-1	-2	-3
4	11	6	8	-2	-3	-4
5	11	6	8	-1	-3	-4
6	20	13	18	-4	-4	-7
7	12	4	5	-1	-4	-6
8	10	3	6	-1	-4	-4
9	7	5	6	-2	-3	-5
10	10	4	7	-2	-4	-6
11	9	5	7	0	-1	-3
12	9	6	8	-1	-3	-5
13	8	6	8	-2	-4	-6
14	7	4	6	0	-1	-3
Mean	11.86	6.86	8.29	-1.49	-3.14	-4.58
±SD	3.70	1.95	2.14	0.95	1.17	1.29
%	—	-51%	-26%	—	—	—
%1		—	50%	—	—	—
P	—	0	0.003	—	0.001	0
P2	—	—	0	—	—	0

n : number of experiments (14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding adrenaline.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding adrenaline.

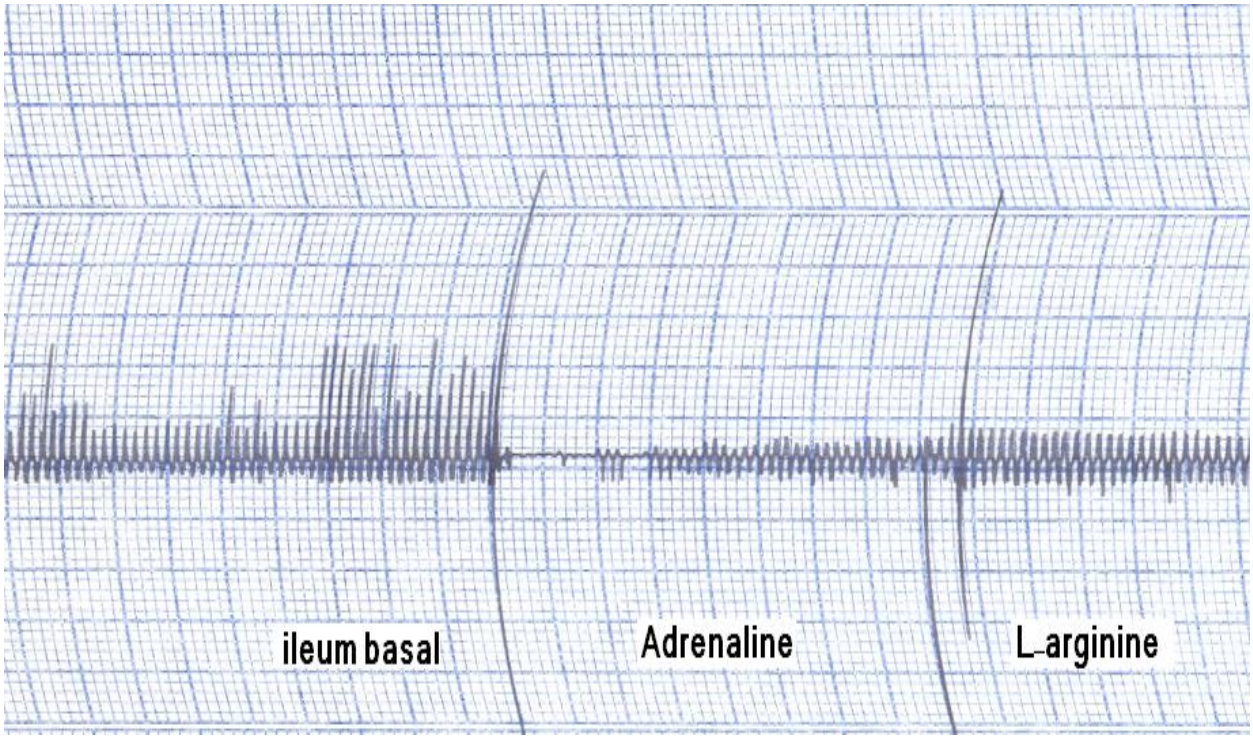
Chart (17):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding adrenaline

Effects of L.arginine(10^{-3} M/L)on ileal motility after adding adrenaline (20µg %)



Fig(18)

As shown in Fig (18), table (18) and chart (18):

adrenaline (20µg %)causes significant ($p<0.05$) decrease in the amplitude of the duodenal contractions from 13.93±5.54 mm to 4.21± 2.01 mm this represent about -70% but it causes significant decreases the tone of the duodenal segment from -1.71±0.73 mm to -3.43 ±0.93 mm ($p<0.05$)

L-arginine (10^{-3}M) after adding adrenaline (20µg %) causes:

a- Significant decrease in the amplitude of the duodenal contractions from 13.93±5.54 mm to 8.14±1.99 mm ($p<0.05$) this represent about -42 % as compared with the basal contractions and it causes also a significant ($p<0.05$) increase in the amplitude from 4.21± 2.01 mm to 8.14±1.99 mm this represent about 93% as compared with the contractions after adding adrenaline (20µg %).

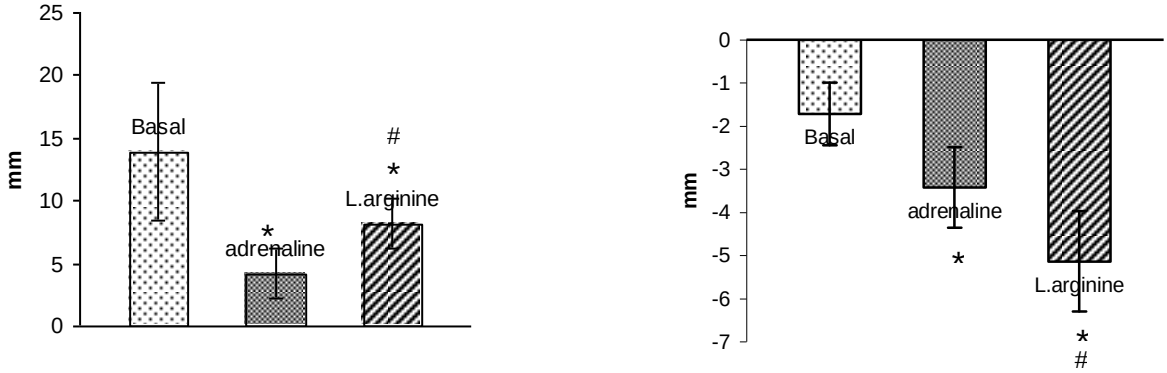
b- Significant decrease in the tone of the duodenal from -3.43±0.93 mm to -5.14±1.17 mm ($p<0.05$) as compared with contractions after adding adrenaline (20µg %) and it also causes a significant ($p <0.05$) decrease in the tone from-1.71±0.73 mm to -5.14±1.17 mm as compared with the basal contractions.

Table (18) Effects of L-arginine(10^{-3} M/L) on ileal motility after adding adrenaline (20µg %).

n	Amplitude(mm)			Tone(mm)		
	Basal	adrenaline	L.arginine	Basal	adrenaline	L.arginine
1	12	3	5	-2	-2	-2
2	10	5	8	-1	-3	-5
3	11	2	6	-2	-4	-5
4	12	3	8	-2	-4	-6
5	11	2	7	-3	-5	-7
6	13	3	6	-3	-5	-6
7	8	3	7	-2	-3	-5
8	20	5	9	-1	-3	-6
9	7	2	11	-1	-3	-5
10	22	9	11	-1	-2	-4
11	23	6	11	-1	-4	-3
12	22	5	10	-1	-2	-4
13	15	5	8	-2	-3	-5
14	9	6	7	-2	-4	-7
Mean	13.93	4.21	8.14	-1.71	-3.43	-5.14
±SD	5.54	2.01	1.99	0.73	0.94	1.17
%	—	-70%	-42%	—	—	—
%1	—	—	93%	—	—	—
P	—	0	0.001	—	0	0.002
P2	—	—	0	—	—	0.001

n : number of experiments(14)
SD : standard deviation.
% : percent change as compared with the basal contractions.
%1 : percent change as compared with the contractions after adding adrenaline.
P : values as compared with the basal contractions
P2 : values as compared with the contractions after adding adrenaline.

Chart (18):



Amplitude **Tone**

* = Significant as compared with the basal contractions.
# = Significant as compared with contractions after adding adrenaline.