

Results

RESULTS

The present study comprised 40 patients attending the out patient clinic of Banha and Kasr EL-Eini university hospitals. They were 27 females (67.5%) and 13 males (32.5%), with a female to male ratio ~~equal to~~ 2:1. Their ages ranged between three years and one month to eighteen years (with a mean age 11.85 ± 4.38 years). They were suffering from JRA and classified according to the American Rheumatism Association Criteria (Brewer et al., 1986) into 15 patients (37.5%) with systemic onset, 8 patients (20%) with pauciarticular onset, and 17 patients (42.5%) with polyarticular onset. The duration of the disease varied between 2 months and 10 years. Twenty - six patients (76%) were receiving NSAID's and or steroid therapy ≤ 4 months, and 14 patients (35%) were receiving steroid therapy > 4 months.

Thirty healthy individuals were also included as a control group, they were 19 females (63.3%) and 11 males (36.7%) with female to male ratio nearly equal to 2:1, whose ages, ranged between three years and one month to eighteen years.

On studying the control group (Table 2 and 3), we observed the following :

1- The mean weight was 36.52 ± 14.62 , with a range between

17 and 65 kg. Also the weight was within the normal limits ($> 5^{th}$ - $< 95^{th}$ centile) when compared with the standard tables except 3 cases (10%) was above the 95^{th} centile.

2- The mean height was $138,57 \pm 17.89$, with a range between 96.5 ^{and} 166 cm. Also, the height was within the normal limits when compared with the standard tables except 3 cases (10%) was above the 95^{th} centile and 3 cases (10%) was below the 5^{th} centile.

On the other side, studying the diseased group shows the following :

1- The mean weight was 29.01 ± 9.71 and there was statistical significance of difference between it and that of the control group, the weight ranged between 11-52 kg. Also the weight was below the 5^{th} centile in 24 patients (60%).

2- The mean height was 131.0 ± 20.54 , with a range between 79.5 - 160 cm. Also, the height was below the 5^{th} centile in 23 patients (57.5%).

3- The growth of the female patients more affected than male especially the weight and span where the difference was statistically significance for female but not for male patients (table 4,5 and 6).

4- When we classified the patients according to their mode of onset we observed that.

[a] The mean age was 8.41 ± 3.59 , 12.63 ± 3.51 and 14.5 ± 3.33 years for systemic , pauciarticular and polyarticular onset respectively, also, the mean of weight was 21.13 ± 6.05 , 32.65 ± 9.81 and 34.17 kg and the mean of height was 116.9 ± 18.79 , 131.81 ± 19.755 and 143.05 ± 14.36 cm. and all the above differences were highly statistical significance (table, 7).

[b] In patients with systemic onset (15 patients), both weight and height were below the 5th centile in 7 cases (46.67%) for each of them (table 8).

[c] In patients with pauciarticular onset (8 patients) both weight and height were below the 5th centile in 5 patients (62.5 %) for each of them (table 8).

[d] In patients with polyarticular onset (17 patients) the weight was below the 5th centile in 12 patients (70.59) and the height was below the 5th centile in 11 patients (64.71%) (table 8)

5- As regard to the duration of the disease, we noticed that :

[a] The span, hand and foot measurements were affected by duration above 5 years, but the difference was not statistically significant (Table 9).

[b] In patients with disease duration < 3 years (15 patients) the weight was below the 5th centile in 8 cases (53.3 %) and the height was below the 5th centile in 7 cases (46.7%) (table 9).

[c] While in patients with disease duration ≥ 3 years (25 patients) both weight and height were below the 5th centile in 16 cases (64 %) for each of them (Table 10).

6- When we compared the patients that received corticosteroids therapy (16 patients) and those that not received corticosteroids therapy (24 patients), we found that, all anthropometric measurements of the patients received corticosteroids were lower than that of not received corticosteroids, but this difference was not statistically significance (Table 11).

- In patients receiving NSAID's or steroid ≤ 4 months (26 patients) the weight was below the 5th centile in 15 cases (57.7 %), while the height was below the 5h centile in 14 cases (53.8%) (Table 12).

- While in patients who had received steroid therapy more than 4 months (Table 12) , we observed that, both weight and height were below the 5th centile in 9 cases (64.3 %) for each of them.

Table {2} : Anthropometric Measurements for patients with
JRA and control.

Measurements	Cases		Control		T	P
	Mean	S.D.	Mean	S.D.		
1)Age	11.85	4.38	10.97	4.08	0.86	>0.05
2)Duration	3.82	2.23	-	-	-	-
3)Weight	29.01	9.71	36.52	14.62	2.44	<0.05
4)Height	131.05	20.54	138.57	17.89	1.63	>0.05
5)Sitting ht.	69.89	10.95	73.90	10.19	1.58	>0.05
6)Span.	127.60	27.77	142.53	20.89	2.57	<0.05
7)Upper Limb:						

a)Total Leng.	56.04	10.03	59.46	9.01	1.49	>0.05
b)Arm Leng.	24.84	7.32	25.60	3.63	0.57	>0.05
c)Forearm Leng.	20.18	4.09	21.13	3.21	1.09	>0.05
d)Rt.Hand Leng.	16.38	2.21	16.85	2.60	0.79	>0.05
e)Lt.Hand Leng.	16.12	2.40	16.86	2.51	1.25	>0.05
f)Rt.Hand Br.	7.06	0.93	7.61	0.95	2.43	<0.05
j)Lt.Hand Br.	7.05	0.90	7.4	0.92	1.87	>0.05
8)Lower Limb:						

a)Total Leng.	75.21	13.84	80.67	11.84	1.77	>0.05
b)Leg Leng.	35.66	6.05	37.68	5.66	1.43	>0.05
c)Tibial Leng.	31.00	5.52	32.35	5.05	1.07	>0.05
d)Rt.Foot Leng.	20.71	3.28	21.83	2.66	1.56	>0.05
e)Lt.Foot Leng.	20.57	3.13	22.02	2.59	2.11	>0.05
f)Rt.Foot Br.	8.23	1.29	9.09	2.51	1.72	>0.05
j)Lt.Foot Br.	8.21	1.225	8.75	1.16	1.87	>0.05

P > 0.05 = Not significant

P < 0.05 = significant

This table shows that all the anthropometric measurements of the patients are below that of the control and these differences are statistically significant for weight, span and breadth of the right hand.

Table (3): Centiles of the weight and height of the patients with JRA and control groups.

groups	Weight						Height					
	<5 th		>5 th -<95 th		>95 th		<5 th		5 th -<95 th		>95 th	
	No	%	No	%	No	%	No	%	No	%	No	%
Patients No=40	24	60%	16	40%	0	0%	23	57.5%	17	42.50%	0	0
control No=30	0	0%	27	90%	3	10%	3	10 %	24	40%	3	10%

This table shows that the weight . is below the 5th centile in 60% of the patients. compared to 0% of the control. Also the height was below the 5th centile in 37.5% of the patients compared to 10 % of the control.

Table {4 } : Anthropometric Measurements for male patients
and control

Measurements	Cases		Control		T	P
	Mean	S.D	Mean	S.D.		
1)Age	11.3	4.00	10.41	4.42	0.59	>0.05
2)Duration	4.21	2.34	----	----	--	--
2)Weight	28.31	6.81	34.86	15.31	0.31	>0.05
4)Height	132.23	17.44	136.5	17.82	0.59	>0.05
3)Sitting ht.	69.92	31.12	71.73	11.11	0.36	>0.05
6)Span.	133.35	18.50	139.55	20.60	0.77	>0.05
7)Upper Limb:						

a)Total Leng.	56.5	9.17	58.52	9.66	0.52	>0.05
b)Arm Leng.	24.17	3.99	24.69	3.63	0.34	>0.05
c)Forearm Leng.	20.67	4.10	20.85	3.38	0.12	>0.05
d)Rt.Hand Leng.	16.49	1.49	17.05	2.67	0.57	>0.05
e)Lt.Hand Leng.	16.53	2.03	16.97	2.68	0.45	>0.05
f)Rt.Hand Br.	7.19	0.64	7.66	1.02	1.32	>0.05
j)Lt.Hand Br.	7.06	0.60	7.52	0.99	1.33	>0.05
8)Lower Limb:						

a)Total Leng.	74.9	14.36	78.86	10.69	0.81	>0.05
b)Leg Leng.	35.15	5.51	36.77	5.96	0.69	>0.05
c)Tibial Leng.	30.31	4.77	31.45	5.49	0.54	>0.05
d)Rt.Foot Leng.	21.05	2.67	22.04	2.81	0.87	>0.05
e)Lt.Foot Leng.	20.85	2.55	21.97	2.77	1.03	>0.05
f)Rt.Foot Br.	8.40	1.02	8.52	1.45	0.4	>0.05
j)Lt.Foot Br.	8.22	1.15	8.67	1.36	0.86	>0.05

P > 0.05 = Not significant

P < 0.05 = significant

This table shows that the anth. parameters of the male patients are below that of the control one, but there is no statistical significant of difference.

HEIGHT AND WEIGHT FOR MALE PATIENT , CONTROL AND STANDARD

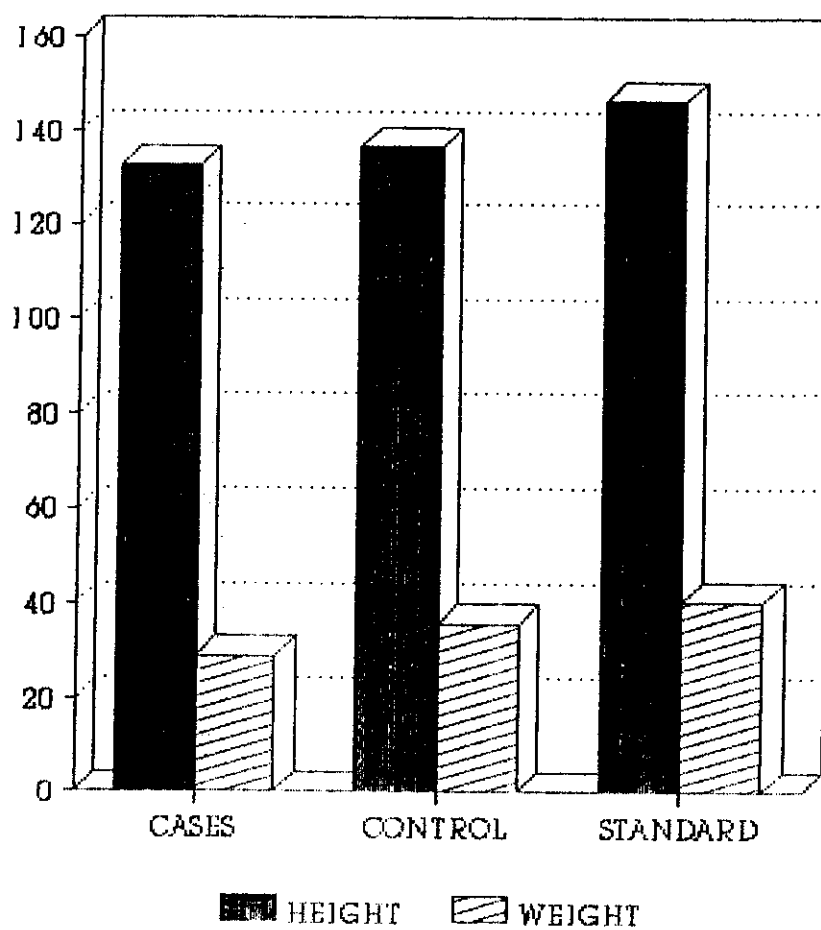


Fig. (1)

Table {5 } : Anthropometric Measurements for female patients and control

Measurements	Cases		Control		T	P
	Mean	S.D.	Mean	S.D.		
1)Age	12.11		11.29	4.48	0.61	> .05
2)Duration	3.68	4.60	-	-		
3)Weight	29.35	10.94	37.47	14.54	0.46	< .05
4)Height	130.48	22.17	139.76	18.97	0.48	> .05
5)Sitting ht.	69.87	31.21	75.16	9.71	0.85	>0.05
6)Span.	124.83	4.15	144.23	21.41	0.59	<0.05
7)Upper Limb:						

a)Total Leng.	55.82	2.20	60.00	8.87	0.42	>0.05
b)Arm Leng.	25.17	10.59	26.13	4.61	1.05	>0.05
c)Forearm Leng.	19.95	8.52	21.3	3.20	0.366	>0.05
d)Rt.Hand Leng.	16.33	2.37	16.73	2.62	0.53	>0.05
e)Lt.Hand Leng.	15.92	2.57	16.80	2.48	1.17	>0.05
f)Rt.Hand Br.	6.99	1.04	7.58	0.93	0.23	>0.05
j)Lt.Hand Br.	7.04	1.03	7.43	0.90	0.25	>0.05
8)Lower Limb:						

a)Total Leng.	75.46	10.01	81.71	12.77	0.65	>0.05
b)Leg Leng.	35.91	13.85	38.21	5.57	0.65	>0.05
c)Tibial Leng.	31.33	6.38	32.87	4.86	0.71	>0.05
d)Rt.Foot Leng.	20.54	3.58	21.71	2.64	1.27	>0.05
e)Lt.Foot Leng.	20.44	3.42	22.05	2.56	1.82	>0.05
f)Rt.Foot Br.	0.19	1.42	9.42	2.94	1.69	>0.05
j)Lt.Foot Br.	8.20	1.31	8.79	1.06	1.69	>0.05

P > 0.05 = Not significant
P < 0.05 = significant

This table shows that the anth. parameters of the female patients are below that of the control and these differences are statistically significant for weight and span.

Table {6} : Anthropometric Measurements for male and female patients

Measurements	Male		Female		T	P
	Mean	S.D.	Mean	S.D.		
1)Age	11.30	4.00	12.11	4.60	0.57	>0.05
2)Duration	4.12	2.34	3.68	2.20	0.56	>0.05
3)Weight	28.85	6.81	28.63	10.94	0.37	>0.05
4)Height	132.46	17.44	129.81	22.17	0.27	>0.05
5)Sitting ht.	69.92	3.12	69.87	10.01	0.01	>0.05
6)Span.	133.35	18.50	124.83	31.21	1.08	>0.05
7)Upper Limb:						

a}Total Leng.	56.4	9.17	55.82	10.59	0.21	>0.05
b}Arm Leng.	24.17	3.99	25.17	8.52	0.50	>0.05
c}Forearm Leng.	20.67	4.10	19.95	4.15	0.52	>0.05
d}Rt.Hand Leng.	16.49	1.93	16.33	2.37	0.23	>0.05
e}Lt.Hand Leng.	16.53	2.03	15.92	2.57	0.82	>0.05
f}Rt.Hand Br.	7.19	0.64	6.99	1.04	0.74	>0.05
j}Lt.Hand Br.	7.06	0.60	7.04	1.03	0.07	>0.05
8)Lower Limb:						

a}Total Leng.	74.69	14.36	75.46	13.85	0.16	>0.05
b}Leg Leng.	35.15	5.51	35.91	6.38	0.38	>0.05
c}Tibial Leng.	30.31	4.77	31.33	5.91	0.59	>0.05
d}Rt.Foot Leng.	21.05	2.67	20.54	3.58	0.51	>0.05
e}Lt.Foot Leng.	20.85	2.55	20.44	3.42	0.42	>0.05
f}Rt.Foot Br.	8.30	1.02	8.19	1.49	0.29	>0.05
j}Lt.Foot Br.	0.22	1.15	8.20	1.31	0.07	>0.05

P > 0.05 = Not significant

P < 0.05 = significant

This table shows that the anth. parameters of the female patients are below that of the males ^{Some} except the lower limb measurements, but these differences not reach any statistical significance.

Table {7} : Anthropometric Measurements for all patients with JRA according to the type of onset

Measurements	Systemic No. = 15		Pauc. No.=8		pol. No.=17		F	P
	Mean	S.D.	Mean	S.D.	Mean	S.D.		
1)Age	8.41	3.59	12.63	3.51	14.50	3.33	12.52	<0.001
2)Duration	3.66	2.12	4.25	2.76	3.76	2.15	0.19	>0.05
3)Weight	21.13	6.05	32.56	9.81	34.17	8.01	12.43	<0.001
4)Height	116.90	18.79	131.81	19.75	143.05	14.36	9.20	<0.001
5)Sitting ht.	63.63	8.24	66.68	14.01	76.79	7.33	8.59	<0.001
6)Span.	114.76	19.54	120.56	42.63	142.11	18.64	5.05	<0.001
7)Upper Limb:								
a)Total Leng.	48.32	8.26	59.68	8.25	61.11	8.13	10.68	<0.001
b)Arm Leng.	20.80	3.32	22.62	13.54	26.15	3.46	5.19	<0.001
c)Forearm Leng.	17.12	2.75	22.18	5.75	21.90	2.42	9.54	<0.001
d)Rt.Hand Leng.	14.46	2.04	17.06	1.36	17.72	1.36	16.39	<0.001
e)Lt.Hand Leng.	14.50	2.04	16.92	1.90	17.11	2.22	6.92	<0.001
f)Rt.Hand Br.	6.37	0.92	7.42	0.75	7.47	.67	8.79	<0.001
j)Lt.Hand Br.	6.51	0.94	7.3	0.65	7.44	0.75	5.65	<0.001
8)Lower Limb:								
a)Total Leng.	64.1	12.37	80.18	12.11	82.58	9.05	12.28	<0.001
b)Leg Leng.	31.06	55.43	37.37	5.18	38.85	4.37	10.46	<0.001
c)Tibial Leng.	26.73	4.33	31.68	4.66	34.08	4.32	11.34	<0.001
d)Rt.Foot Leng.	17.97	2.95	22.01	2.39	22.46	2.23	13.60	<0.001
e)Lt.Foot Leng.	18.15	2.63	21.72	2.54	22.14	2.18	10.70	<0.001
f)Rt.Foot Br.	7.28	1.23	8.28	1.07	9.01	0.90	10.63	<0.001
j)Lt.Foot Br.	7.30	1.20	8.35	1.22	8.92	0.75	9.78	<0.001

P > 0.05 = Not significant
P < 0.05 = significant
P < 0.001 = highly significant.

This table shows that the mean age and all anth. measurements for patients with systemic onset are below that of Pauc., below that of pol. except for arm and forearm length where that for pol. are below that of Pauc. and these differences are highly statistical significant.

HEIGHT AND WEIGHT FOR CASES ACCORDING TO ONSET OF DISEASE

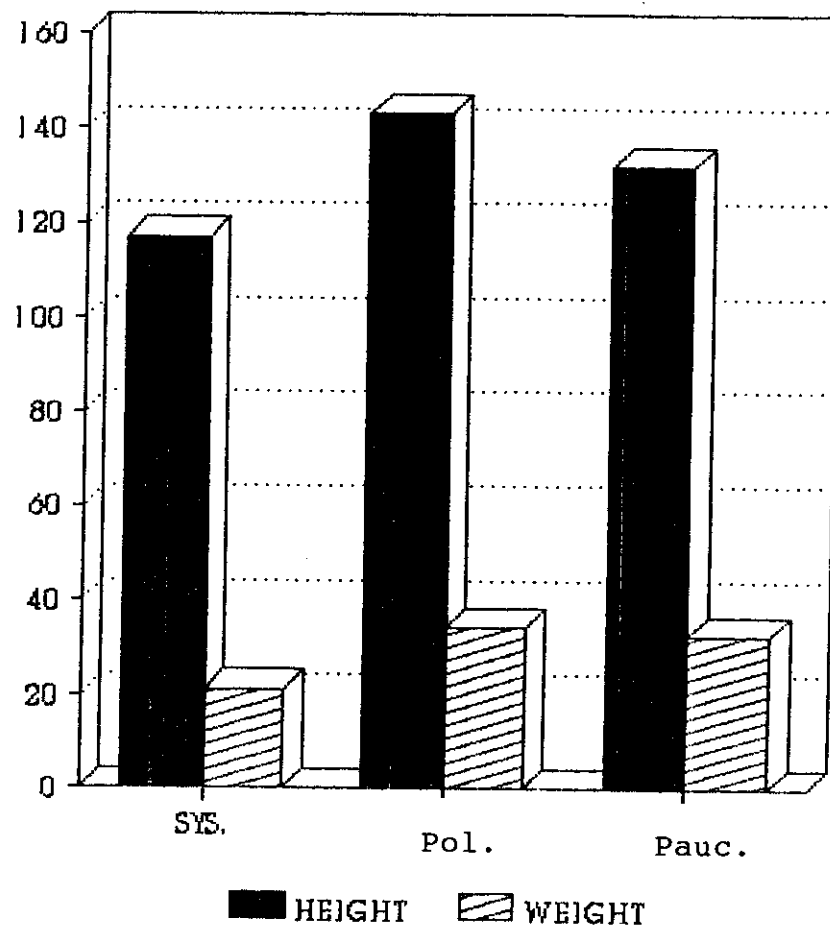


Fig. (3)

Table (8): Centiles of the weight and height of patients according to mode of onset.

Type of onset	weight				Height			
	<5 th		>5 th -<95 th		<5 th		>5 th -<95 th	
	No	%	No	%	No	%	No	%
1-Systemic onset No= 15	7	46.67%	8	53.33%	7	46.67	8	53.33%
2-Pauciarticular Onset No=8	5	62.5%	3	37.5	5	62.5%	3	37.5%
3-Polyarticular onset No=17	12	70.59%	5	29.41	11	64.71	6	35.29

This table shows that the percentage of weight and height which are below 5th centile are larger in polyarticular onset than other 2 types.

Table {9 } : Anthropometric Measurements for patients with JRA according to the duration of the disease.

Measurements	<3		3-5		>5		F	P
	Mean	S.D.	Mean	S.D.	Mean	S.D.		
1)Age	10.68	4.58	11.37	4.19	13.90	4.05	1.85	>0.05
2)Duration	1.8	0.56	3.37	0.53	6.86	1.64	83.2	<0.05
3)Weight	26.76	10.68	28.34	10.01	32.45	7.77	1.06	>0.05
4)Height	129.69	23.79	130.15	22.19	133.63	14.63	0.12	>0.05
5)Sitting ht.	67.11	13.98	70.87	9.81	71.54	8.54	0.59	>0.05
6)Span.	128.84	27.07	131.68	21.15	120	36.95	0.58	>0.05
7)Upper Limb:								
a)Total Leng.	55.28	11.41	56.25	10.80	56.60	7.76	7.76	>0.05
b)Arm Leng.	23.69	5.54	23.98	4.07	27.45	11.68	0.97	>0.05
c)Forearm Leng.	19.34	3.98	20.1	4.04	21.24	4.44	0.63	>0.05
d)Rt.Hand Leng.	15.96	2.63	16.62	2.24	16.46	1.70	0.32	>0.05
e)Lt.Hand Leng.	15.92	2.74	16.25	2.52	16.08	1.93	0.07	>0.05
f)Rt.Hand Br.	6.85	1.13	7.16	0.96	7.10	0.63	0.42	>0.05
j)Lt.Hand Br.	6.90	1.10	7.23	0.91	7.00	0.79	0.49	>0.05
8)Lower Limb:								
a)Total Leng.	73.80	16.40	74.12	15.54	78.31	6.73	0.38	>0.05
b)Leg Leng.	34.88	7.61	35.37	6.28	36.90	3.27	0.35	>0.05
c)Tibial Leng.	30	7	30.71	5.59	32.04	2.65	0.42	>0.05
d)Rt.Foot Leng.	20.19	3.78	20.9	3.35	20.97	2.75	0.21	>0.05
e)Lt.Foot Leng.	19.97	3.97	20.95	3.44	20.68	2.47	0.35	>0.05
f)Rt.Foot Br.	7.82	1.51	8.43	1.36	8.36	0.84	0.9	>0.05
j)Lt.Foot Br.	7.82	1.38	8.7	1.34	8.4	0.87	0.88	>0.05

P > 0.05 = Not significant
P < 0.05 = significant

This table shows that the anthropometric measurements are affected by duration above 5 years for span, hand and foot measurements and not for other anthropometric measurements, and these differences not reach statistical significance.

*age of onset is late is those duration > 5 years
(= 12—*

HEIGHT AND WEIGHT FOR CASES ACCORDING TO DISEAS DURATION

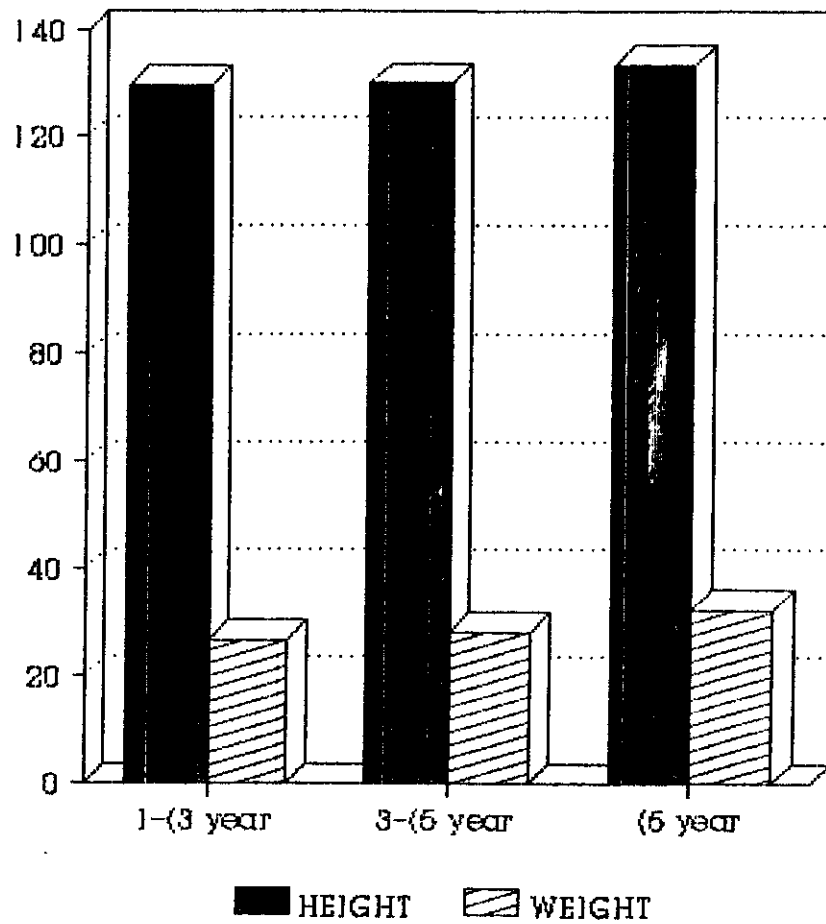


Fig. (4)

Table (10) : Centiles of weight and height of patients with JRA according to the duration of the disease.

Type of onset	weight				Height			
	<5th		>5th-<95th		<5th.		>5th-<95th	
	No	%	No	%	No	%	No	%
< 3 1 years No = 15	8	53.3	7	46.7	7	46.7	8	53.3
≥ 3 1 No - 25	16	64%	9	36	16	64%	9	36 %

This table shows that, the percentage of weight and height which are below 5th centile increases with the duration of the disease.

Table {11} : Anthropometric Measurements for patients that received steroid and that not received steroid therapy.

Measurements	Steroid		Non steroid		T	P
	n.=16		N= 24			
	Mean	S.D.	Mean	S.D.		
1)Age	11.24	4.30	12.25	4.48	0.72	<0.05
2)Duration	5.03	2.60	3.02	1.52	0.80	>0.05
3)Weight	27.16	7.94	30.25	10.72	1.05	>0.05
4)Height	125.44	19.61	134.79	20.69	1.45	>0.05
5)Sitting ht.	68.38	9.57	70.70	11.87	0.74	>0.05
6)Span.	118.13	33.53	133.92	21.69	1.67	>0.05
7)Upper Limb:						

a)Total Leng.	52.94	9.86	58.10	9.81	1.62	>0.05
b)Arm Leng.	24.44	10.45	24.78	4.42	0.06	>0.05
c)Forearm Leng.	19.48	4.74	20.65	3.64	0.84	>0.05
d)Rt.Hand Leng.	15.7	2.00	16.84	2.27	1.7	>0.05
e)Lt.Hand Leng.	15.46	2.43	16.55	2.32	1.42	>0.05
f)Rt.Hand Br.	6.73	0.89	7.28	0.90	1.88	>0.05
j)Lt.Hand Br.	6.83	0.83	7.20	0.93	1.29	>0.05
8)Lower Limb:						

a)Total Leng.	70.56	14.14	78.31	13.01	1.75	>0.05
b)Leg Leng.	34.25	6.14	36.60	5.94	1.20	>0.05
c)Tibial Leng.	29.78	5.41	31.81	5.56	1.15	>0.05
d)Rt.Foot Leng.	19.49	3.37	21.51	3.03	1.93	>0.05
e)Lt.Foot Leng.	19.54	3.21	21.26	2.95	1.72	>0.05
f)Rt.Foot Br.	7.78	1.25	8.53	1.26	1.85	>0.05
j)Lt.Foot Br.	7.87	1.17	8.43	1.27	1.43	>0.05

P > 0.05 = Not significant
P < 0.05 = significant

This table shows that the anthropometric measurements of patients that received corticosteroids therapy are lower than that not received corticosteroids therapy, but this difference not reach statistical significance.

**HIGHT & WEIGHT FOR MALE PATIENTS
WITH & WITHOUT STEROID THERAPY**

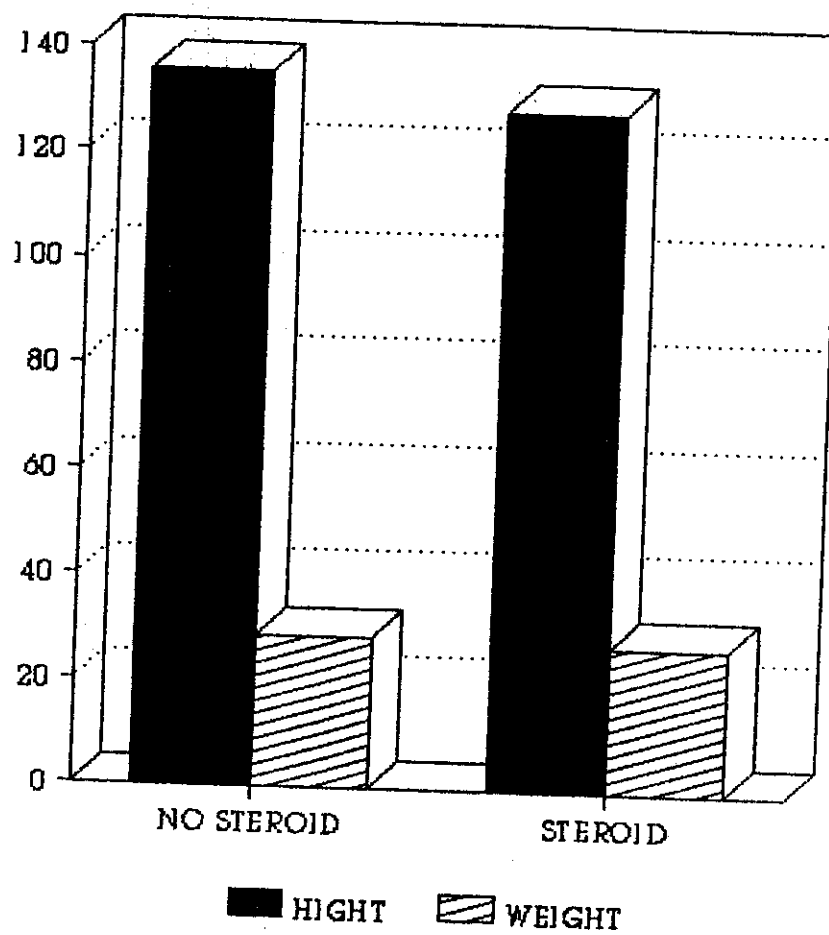


Fig. (5)

HIGHT & WEIGHT FOR FEMALE PATIENTS WITH & WITHOUT STEROID THERAPY

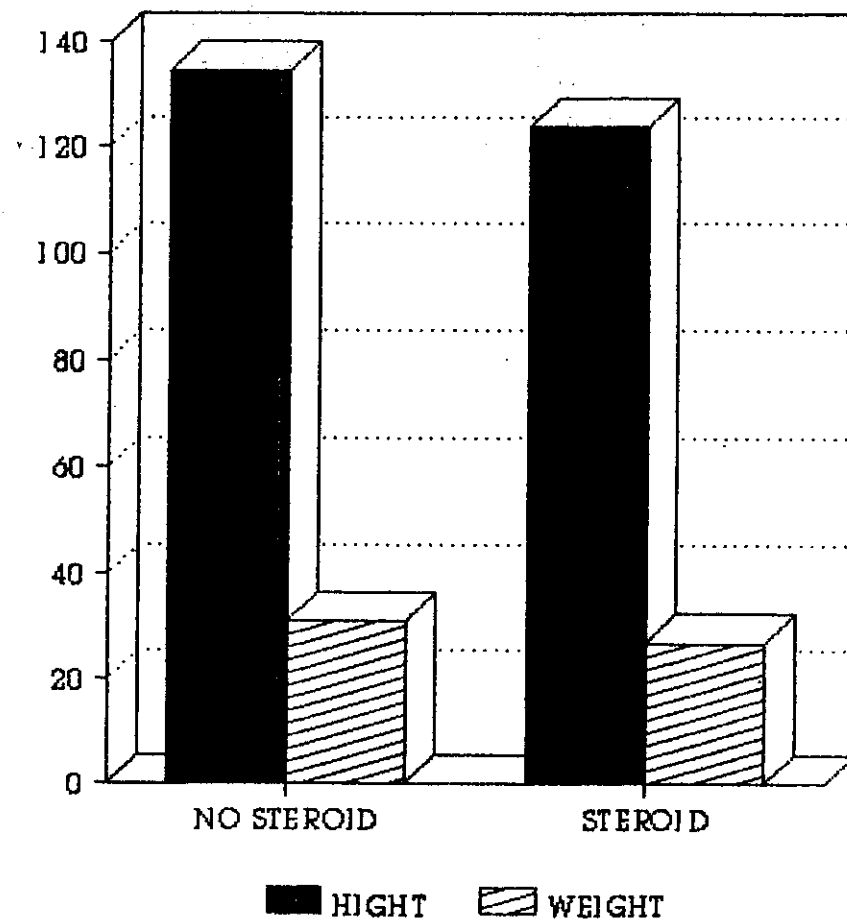


Fig. (6)

Table (12): Centiles of weight and height of the patients according to the mode of therapy.

Type of onset	weight				Height			
	<5 th		>5 th -<95 th		<5 th		>5 th -<95 th	
	No	%	No	%	No	%	No	%
NSAID's or steroid <4 Mo.	15	57.7	11	42.3	14	53.8	12	46.2
No =26								
Steroid ≥4 months	9	64.3	5	35.7	9	64.3	5	35.7
No=14.								

This table shows that , the percentile of weight and height that are below the 5th centile are larger in patients with steroid therapy ≥ 4 months more than that received NSAID'S or steroid < 4 months.