

Physical Growth Pattern among Korku & Gond Tribal Girls of Betul District, Madhya Pradesh, India

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ABSTRACT: Growth is the fundamental and universal process of life of any living organism. Human growth always has remarkable attention for the physical anthropologists as well as the health scientists. On basis of growth we can assess the health status of children which is the need of any country under national health policy. Therefore, such study is important for the policy makers for the formulation of various health plans and policies. Tribals constitute 8.6% of the total Indian population and for providing better health care facility, such study is very important. Keeping this in view, the present study has been carried out among 383 Korku & 338 Gond girls (aged 6-18 years) of Bhimpur block of Betul district of Madhya Pradesh, India. The included measurements are height, weight, sitting height, circumferences such as head, arm, chest and calf; biceps, triceps and calf skin folds. Similar type of growth trends has been observed among both the tribal girls as they reside in same type of ecological condition and socio-economic & nutritional status. Such study may be helpful for betterment of their health status.

KEYWORDS: Growth, Korku, Gond, Growth pattern.

INTRODUCTION

Growth is a primary, regular and important property of life. According to Garn (1952), growth mainly refers to the changes in magnitude, increment in the size of organs, increases in the thickness of the tissues or changes in the size of an individual or a whole. It is assumed that children can attain their full genetic growth potential in optimal environmental and nutritional conditions (Wilde et al., 2014). We can prevent risk to future disease by giving the importance of growth in early life and childhood (Banjade et al., 2015). The assessment of normal growth has been widely used as a screening tool for detecting health problems as well as nutritional status (World Health Organization, 1995). Longitudinal growth of an individual child is a dynamic statement of the general health of that child (Mandal et al., 2015). For young girls in India, poor nutrition, early childbearing and reproductive health complications compound the difficulties of adolescent physical development (Sharma et al., 2009). There is an important role of nutrition in the life of any individual (Dhanjal & Sharma, 2015). India is the second most populous country for tribal population in the world. There are many tribes residing in the country that face several physical, social, economical, educational and especially health problems. Tribals form an important segment of Indian population structure and children being the future citizens of any nation are the core of population dynamics. Healthy nutrition of children is an indispensable component of healthy life. A very inadequate study has been conducted in this field especially among Korku and Gond tribal girls of Betul district, Madhya Pradesh. Thus, keeping above things in mind, the present study has been conducted among Korku and Gond tribal girls of Betul district of Madhya Pradesh, India.

India has second largest population of tribals after Africa. The tribals constitute about 8.6% of the total population of the entire country (Census 2011). Tribe is being defined as the people who are dependent on land for their livelihood, have a common geographical area or territory, are endogamous and speak a common dialect. The central regions of the country

especially Madhya Pradesh, Chhattisgarh, Jharkhand, Orissa, etc. are also dominated by tribal people. As far as Madhya Pradesh is concerned, this state also has dense tribal population who are enlisted in the Indian Constitution. Some of them are Gond, Bhil, Bhariya, Korku, Halba, Kaul, Maria, Sahariya, Saur, Pradhan, Oraon, Meena, Mawasi, etc. In Madhya Pradesh, the most populous tribe is Bhil followed by Gond, Kol, Korku, Sahariya and Baiga which constitute 92.2% of the total ST population of the state (Census, 2011).

THE KORKU

Korku is belong to scheduled tribe (ST) community mainly found in the East Nimar (Khandwa and Burhanpur), Betul and Chhindwara district of Madhya Pradesh and adjacent areas in Melghat region of Maharashtra in India. The Korkus are a branch of the great Mundas tribe and are placed here in the locality of the great tribe- the Gonds (Deogaonkar et al., 1990). Korkus are believed to be a hunting gathering community dwelling in the forests of Satpura ranges of Madhya Pradesh. Korku is considered the most "westward Munda speaking tribes", which is a member of the Austro-asiatic language family. Korkus have derived their name from the combination of the word 'koru' means man and 'ku' which makes it plural meaning tribal men (Russell and Hiralal, 1916). The total population of Korku in Madhya Pradesh is 5,59,344 out of which 1,38,798 is in Betul district of Madhya Pradesh, India (Tribal Research Institute, Bhopal, 2001).

THE GOND

The word Gond is considered an altered type of Kond, which is one of the largest tribal groups of India. Etymologically, the roots of term Gond are 'Go' & 'And' where 'Go' means forest and 'And' means place of origin, hence 'Gond' meaning forest dwellers and also known as green mountains in the Dravidian idiom. In ancient times a large area was called Gondwana. Their myths mention various Gond forts and kings (Deogaonkar, 2007). Speaking Gondi as "Koiture" the universal equivalent of that name in Gondi dialects, their arrival from the south is confirmed. Gondi is part of Dravidian language group. Through their songs, the Gonds expressed their anguish. Through their festivals and rituals, songs and dances, they remained rooted in their culture. The total population of Gond in Madhya Pradesh 4,357,918 out of which 4,11,209 is in Betul district of Madhya Pradesh, India (Census, 2011).

MATERIAL & METHODS

The present cross-sectional study is conducted on 721 Korku and Gond tribal girls (383 Korku girls and 338 Gond girls) from the age of 6 to 18 years, studying in different school of Bhimpur Block in Betul district, Madhya Pradesh. Bhimpur Tehsil in Betul District of Madhya Pradesh State, India. It belongs to Narmadapuram Division. It is a Tehsil head quarter. Hindi is the Local Language here. It is located 43 KM towards west from District head quarters Betul. The subjects were selected purposively. For the convenience of study, the age of girls was categorized into thirteenth groups vs. ; 6 years, 7 years, 8 years, 9 years, 10 years, 11 years, 12 years, 13 years, 14 years, 15 years, 16 years, 17 years and 18 years. Each student has been measured for height, sitting height, weight, head circumference, arm circumference, chest circumference, calf circumference, biceps, triceps, and calf skin fold. Measurements have been taken by standard methods. The nutritional profile has been assessed with the help of Mean value, standard deviation, standard error, absolute growth and rate of growth. Instrument used for taking measurement are anthropometer rod, digital and manual weighing machine, measuring tape, and skin fold caliper (Holtain).

DISTRIBUTION OF DATA

Age (in years)	Girls	
	Korku	Gond
6	30	30
7	30	30
8	30	30
9	30	30
10	30	30
11	30	27
12	30	25
13	30	24
14	30	27
15	30	22
16	27	21
17	28	21
18	28	21
TOTAL	383	338

RESULTS & DISCUSSIONS

The cross sectional growth data is taken on the Korku and Gond girl in the age of 6 to 18 years in the terms of mean value, standard deviation, standard errors and annual increments. The mean values of these measurements have been plotted in form of a graph against their respective age groups to obtain the pattern of growth in the form of distance curves. Similarly, velocity curves have also been plotted for each of the anthropometric measurements in the form of annual increments and annual growth against their respective age group.

After taking measurements of Gond and Korku girls we made a Table and Graph 1(a) which indicates that the height of Korku girls from 6 to 18 years is 109.20 cm to 157.48 cm which increase as per age and Korku girls standard deviation is 4.26 cm to 6.23 cm. In Gond girls 109.48 cm to 156.01 cm which increase as per age and standard deviation 4.39 cm to 4.31 cm. Sitting height of Korku girls 59.64 cm to 79.33 cm. and standard deviation minimum of 0.03 cm in 17 years to maximum of 4.29 cm in 7 years. The mean value of Gond girls 59.41 cm to 78.37 cm. and the Gond girls standard deviation minimum of 1.88 cm in 7 years to maximum of 4.33 cm in 10 years. The mean value of weight in Korku girls 15.76 kg to 44.18 kg and standard deviation in Korku girls maximum of 6.06 kg and minimum of 1.65 kg. Mean value of Gond girls 15.1 kg to 43.61 kg and standard deviation in girls maximum of 5.30 kg and minimum of 0.92 kg. Head circumference of Korku girls 48.56 cm to 53.39 cm and standard deviation of Head circumference in Korku girls maximum of 6.06 cm and minimum of 1.65 cm. Mean value from 6 to 18 years in the Gond girls 48.67 cm to 53.63 cm and standard deviation in Gond girls maximum of 2.05 kg and minimum of 0.76 kg. Arm circumference of Korku girls 14.69 cm to 23.22 cm and standard deviation value of girls maximum of 5.97 cm (in 18 years) and minimum of 0.58 cm (in 7 years). The mean value of upper arm circumference of Gond girls increase as per age. In Gond girls mean value 14.98 cm to 23.94 cm and standard deviation 1.17 cm to 7.19 cm.

The absolute growth of height (Table 1b & Graph 1b, 2b, 3b, 4 & 5b) of Korku girls is 5.68 to 2.74 percent in age group of 6 to 18 years by year and same for Gond girls from 1.49 to 1.50 percent between ages 6 to 18 year by year. The absolute growth highly increase between 11 to 12 years for Korku girls (8.02 percent) and lowest 0.37 percent between age 15 to 16 years and Gond girls maximum of 6.78 percent and lowest 0.56 percent. In the same table 3(a) we measured growth rate which is highly for Korku girls between the age group 6 to 7 years (5.20 percent) and lowest between the age group 15 to 16 years (0.24 percent) and Gond girls for highly growth rate measured between the age group 7 to 8 years (5.74 percent) and lowest between 16 to 17 years (0.36 percent). Absolute growth of sitting height of Korku girls highly increase between 11 to 12 years (11.80 percent) and lowest between 10 to 11 years (0.09 percent). In Gond girls highly absolute growth between 9 to 10 years (63.86 percent) and lowest between the age of 15 to 16 years (0.17 percent). In the same table indicate that highest growth rate for Korku girls between the age group 11 to 12 years (18.58 percent) and lowest in the age group 10 to 11 years (0.15 percent) and Gond girls highest growth rate at the age group 7 to 8 years (6.04 percent) and lowest in the age group 15 to 16 years (0.23 percent). Absolute growth of weight of Korku girls 9.26 percent to 4.84 percent. The maximum growth of girls is 31.64 percent occurred between 11 to 12 years age group and the minimum growth 0.51 percent between 14 to 15 years age group. In the Gond girls maximum absolute growth is 18.42 percent between 12 to 13 years and the minimum is 0.60 percent between 15 to 16 years. In the same table shows Korku girls absolute growth rate maximum of

58.78 percent between 6 to 7 years and a minimum of 1.35 percent between 14 to 15 years and in Gond girls maximum absolute growth is 64.0 percent 11 to 12 years and a minimum 1.52 percent 15 to 16 years. The maximum absolute growth of head circumference in the Korku girls 3.43 percent at the age of 11 to 12 years and the minimum of 0.20 percent at the age of 7 to 8 years. In the case of Gond girl's maximum absolute growth 2.23 percent at the age of 8 to 9 years and the minimum is 0.14 percent at the age of 9 to 10 years. In the same table 3(b) growth rate of Korku girls is maximum of 6.95 percent in the age of 11 to 12 years and the minimum of 0.41 percent in the age of 7 to 8 years. In Gond girls maximum growth rate of 4.53 percent in the age of 8 to 9 years and the minimum of 0.28 percent in the age of 9 to 10 years. The absolute growth of arm circumference of Korku girls maximum of 21.35 percent between the age group 11 to 12 years and the minimum value of 0.15 percent between the age of 17 to 18 years. In the Gond girls maximum absolute growth of 11.46 percent between the age 11 to 12 years and the minimum value of 0.25 percent between the age of 15 to 16 years. In the same table 3(a) indicate that Korku girl's maximum growth rate of 49.33 percent in the age of 7 to 8 years and the minimum value of 0.65 percent in the age of 17 to 18 years. In Gond girls maximum growth rate of 65.43 percent between the age of 11 to 12 years and the minimum of 2.28 percent between the age of 15 to 16 years.

Table & Graph 2(a) indicate that Chest circumference of Korku girls 55.09 cm to 77.20 cm and standard deviation in Korku girls maximum of 75.47 cm and minimum of 55.09 cm. The mean value of Chest circumference of Gond girls 52.74 cm to 76.67 cm and standard deviation 1.17 cm to 4.7 cm. The mean value of calf circumference of Korku girls 18.82 cm to 27.45 cm from the age of 6 to 18 years and maximum value of standard deviation 2.86 cm at the age of 13 years and a minimum of 1.10 cm in the age of 10 years. In Gond girls the mean value of calf circumference 17.82 cm to 28.22 cm and maximum value of standard deviation 3 cm at the age of 14 years and a minimum of 0.94 cm in the age of 6 years. The mean value of biceps skinfold of Korku girls from the age of 6 to 18 years is 3.95 cm to 7.19 cm and the Gond girls of 3.90 cm to 6.80 cm. standard deviation value maximum of Korku Girls 2.76 cm at the age of 16 years and a minimum of 0.81 cm at the age of 7 years and standard deviation value maximum of Gond girls 3.76 cm at the age of 16 years and a minimum of 0.71 cm at the age of 6 years. The mean value of triceps skinfold of Korku girls 6.82 cm to 14.36 from the age of 6 to 18 years and the Gond girls 6.94 to 13.06 cm. standard deviation value maximum in Korku girls of 5.05 cm at the age of 15 years and a minimum of 1.30 cm at the age of 7 years and in Gond girls maximum standard deviation value of 5.02 cm at the age of 14 years and a minimum of 0.96 cm at the age of 9 years. The mean value of calf skinfold of Korku girls is 6.39 cm to 13.45 cm from the age of 6 to 18 years and the Gond girls 8.21 cm to 13.78 cm at the same age. Standard deviation value maximum in Korku girls of 5.17 cm at the age of 17 years and a minimum of 2.27 cm at the age of 6 years. In Gond girls standard deviation value maximum of 4.41 cm at the age of 11 years and a minimum of 1.38 cm at the age of 8 years.

Table 2b & Graph 6b, 7b, 8b, 9b & 10b) show that absolute growth of chest circumference in Korku girls a maximum of 10.32 percent between the age of 12 to 13 years and a minimum of 0.13 percent between the ages of 17 to 18 years. In Gond girls maximum absolute growth 11.61 percent between the age of 11 to 12 years and a minimum of 0.71 percent between the age of 15 to 16 years. In the same table 6(b) shows growth rate of Korku girl's maximum of 15.96 percent between the age of 12 to 13 years and a minimum of 0.53 percent between the ages of 8 to 9 years. In Gond girls maximum growth rate 19.25 percent between the age of 11 to 12 years and a minimum of 0.96 percent between the ages of 15 to 16 years. Annual growth of calf circumference of Korku girls a maximum of 17.85 percent between the age of 11 to 12 years and a minimum of 0.86 percent between the age of 6 to 7 years. In Gond girls maximum annual growth of 16.26 percent between the age of 7 to 8 years and a minimum of 1.91 percent between the age of 17 to 18 years. Table 3(b) also shows growth rate of Korku girls and girls. In of Korku girls a maximum growth rate of 85.30 percent between the age of 11 to 12 years and minimum of 4.60 percent between the ages of 6 to 7 years. In the Gond girls maximum of 59.52 percent between the age of 6 to 7 years and a minimum of 3.96 percent between the age of 15 to 16 years. Annual growth of biceps skinfold in Korku girls a maximum of 17.75 percent between the age of 17 to 18 years and a minimum of 0.97 percent between the age of 15 to 16 years. In Gond girls maximum annual growth of 28.64 percent between the age of 9 to 10 years and a minimum of 1.60 percent between the age of 14 to 15 years. Growth rate of Korku girls is maximum of 46.11 percent between the ages of 13 to 14 years and minimum of 2.35 percent between the ages of 9 to 10 years. In Gond girls maximum growth rate of 50.74 percent between the age of 11 to 12 years and a minimum of 6.83 percent between the age of 9 to 10 years. Annual growth of triceps skinfold in Korku girls is maximum of 28.06 percent between the age of 12 to 13 years and a minimum of 0.36 percent between the ages of 10 to 11 years. Gond girl's annual growth is maximum of 29.05 percent between the age of 11 to 12 years and a minimum of 0.16 percent between the age of 16 to 17 years. Growth rate of Korku girls is maximum of 32.63 percent between the age of 12 to 13 years and a minimum of 1.64 percent between the ages of 15 to 16 years. In Gond girls maximum value of growth rate 64.58 percent between the age of 13 to 14 years and a minimum of 1.33 percent the age of 16 to 17 years. The maximum annual growth of calf skinfold in Korku girls is 32.69 percent between the age of 13 to 14 years and minimum of 0.24 percent between the ages of 14 to 15 years. In Gond girls maximum value of 43.55 percent between the age of 10 to 11 years and a minimum of 0.89 percent between the age of 16 to 17 years. Growth rate of Korku girls is maximum of 36.58 percent between the age of 13 to 14 years and a minimum of 1.02 percent between the ages of 7 to 8

years. In Gond girls maximum value of growth rate 89.20 percent between the age of 12 to 13 years and a minimum of 8.20 percent between the age of 7 to 8 years.

Table 3 is shows that the 6 years Korku and Gond girls not significant for t-test. In the age of 7 years t-test value significant for chest circumference, calf circumference and biceps skinfold. In 8 years no one significant for t-test. In 9 years Korku and Gond girls t-test value significant for only biceps skinfold. In 10 years no one significant for t-test. In 11 years its significant only for sitting height. In 12 years t-test value was only significant for biceps skinfold. In 13 to 18 years age group t-test value not significant any measurements.

Table 1 (a): Mean and standard deviation (S.D.) of height, sitting height, body weight, head & arm circumference among Korku and Gond girls

Age (In year)	Height (in cm)				Sitting Height (in cm)				Body Weight (in kg)				Head Circumference (in cm)				Arm Circumference (in cm)			
	Korku		Gond		Korku		Gond		Korku		Gond		Korku		Gond		Korku		Gond	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
6	109.20	4.26	109.48	4.39	59.64	3.67	59.41	3.07	15.76	1.66	15.10	1.85	48.56	1.02	48.67	1.38	14.69	1.09	14.58	1.17
7	115.56	5.58	111.11	2.92	59.84	4.29	60.37	1.88	17.22	2.08	16.48	0.92	49.24	6.56	49.21	0.76	15.40	0.58	15.28	0.70
8	118.57	5.56	118.19	4.31	60.59	3.50	62.57	2.13	19.84	2.22	17.56	2.29	49.33	1.22	49.27	1.93	15.96	1.20	15.95	1.35
9	122.30	3.65	123.73	5.87	63.46	2.47	63.86	2.94	20.54	2.70	20.63	2.89	49.43	1.50	50.18	1.43	16.57	1.36	16.28	1.28
10	128.07	5.03	128.33	6.43	63.52	3.75	67.01	4.33	22.38	1.65	21.89	4.12	49.45	1.37	50.30	1.48	16.86	6.23	16.56	1.93
11	129.70	5.12	135.28	4.28	66.46	3.66	69.59	2.80	22.90	2.62	26.27	2.62	50.71	3.04	50.55	2.05	17.28	1.51	17.51	1.20
12	140.10	5.11	144.45	4.43	71.01	2.64	71.62	3.73	29.46	2.44	30.70	2.58	51.09	2.05	51.58	1.16	19.36	1.91	19.51	1.72
13	146.83	3.34	148.32	3.39	73.72	2.48	74.00	2.37	34.85	3.72	36.35	5.30	51.54	1.33	52.10	1.49	20.90	2.16	21.65	2.14
14	149.13	4.37	151.31	4.66	75.44	3.54	75.37	3.44	37.54	6.06	38.89	4.71	52.08	1.59	52.58	1.79	22.21	2.09	22.07	2.17
15	151.24	4.96	152.86	4.38	75.57	2.86	76.04	2.87	37.73	5.74	38.95	4.79	52.68	1.66	53.00	1.68	22.24	2.31	22.37	1.87
16	151.80	4.27	153.71	6.08	76.39	2.44	77.62	2.11	39.51	5.58	42.52	5.52	52.86	1.37	53.10	1.57	22.54	1.99	22.18	1.78
17	153.27	5.19	154.22	6.55	77.45	0.03	77.91	2.10	42.15	5.00	42.61	4.16	53.02	1.68	53.22	1.90	22.81	2.15	22.89	1.92
18	157.48	6.23	156.01	4.31	79.33	3.10	78.37	2.31	42.18	5.68	43.61	4.36	53.39	1.36	53.63	1.93	23.22	5.97	23.94	7.19

Table 1 (b): Absolute growth and rate of growth of height, sitting height, body weight, head & arm circumference among Korku and Gond girls

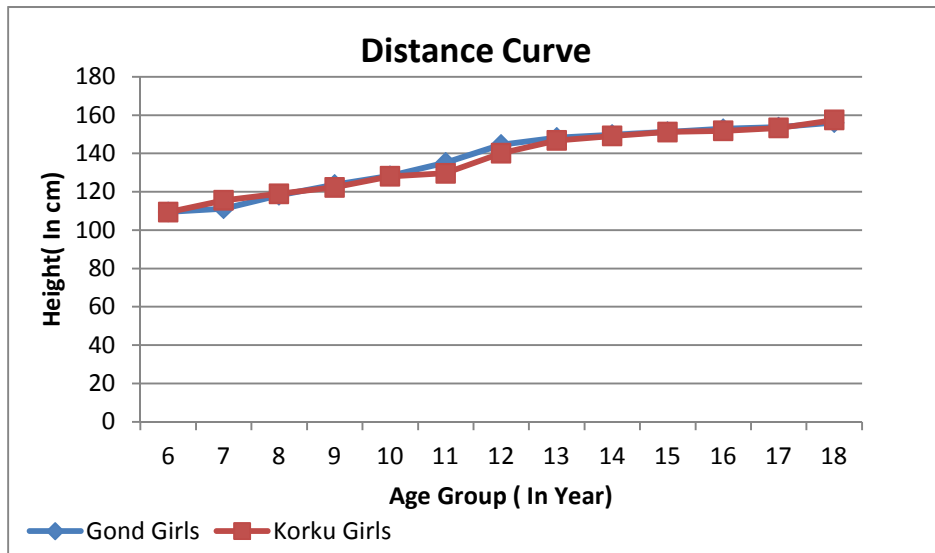
Age (In years)	Height (in cm)				Sitting Height (in cm)				Body Weight (in kg)				Head Circumference (in cm)				Arm Circumference (in cm)			
	Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth	
	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond
6-7	5.68	1.49	5.20	1.36	1.37	1.62	2.32	2.72	9.26	6.28	58.78	46.46	2.56	1.23	3.22	1.53	4.86	1.93	33.0	12.9
7-8	2.95	6.38	2.55	5.74	1.60	3.64	2.69	6.04	19.28	6.59	20.96	40.01	0.20	1.19	0.41	1.39	7.60	4.41	49.3	28.8
8-9	2.80	4.69	2.36	3.97	4.73	2.07	7.80	3.30	1.55	17.44	7.94	29.23	1.36	2.23	2.74	4.53	1.75	1.92	10.5	12.0
9-10	4.70	3.72	2.84	3.00	4.73	63.86	7.45	4.93	11.96	6.11	58.23	29.61	1.22	0.14	2.43	0.28	2.49	1.66	14.7	10.1
10-11	1.29	5.42	1.01	4.22	0.09	3.85	0.15	5.75	1.74	20.04	7.92	51.57	1.42	0.74	2.92	1.48	4.45	5.74	29.1	34.6
11-12	8.02	6.78	6.19	5.01	11.80	2.92	18.58	4.19	31.64	16.82	41.36	64.00	3.43	2.04	6.95	4.03	21.3	11.4	33.7	65.4
12-13	4.80	2.68	3.43	1.85	3.81	3.33	5.36	4.65	18.32	18.42	62.18	59.99	0.87	1.02	1.71	1.97	7.72	10.9	40.8	56.1
13-14	1.56	0.61	1.06	0.41	2.33	1.86	3.16	2.52	7.70	6.99	22.08	19.24	2.86	1.46	5.54	2.80	6.28	3.30	30.0	15.2
14-15	1.41	1.39	0.95	0.93	0.72	0.72	0.96	0.95	0.51	2.11	1.35	5.42	1.25	0.26	2.40	0.50	4.56	2.59	20.5	11.5
15-16	0.37	1.03	0.24	0.68	1.90	0.17	2.53	0.23	4.74	0.60	12.56	1.52	0.25	0.21	1.82	0.39	4.85	0.25	22.8	2.28
16-17	0.97	0.56	0.64	0.36	2.39	2.06	1.82	2.71	6.66	6.46	16.86	16.17	0.96	0.21	1.83	0.39	2.54	3.55	11.4	15.4
17-18	2.74	1.50	1.79	0.97	2.44	0.97	3.15	1.25	4.84	2.55	41.48	5.99	1.36	0.78	2.58	1.46	0.15	4.32	0.65	18.8

Table 2 (a): Mean and standard deviation (S.D.) of chest circumference, calf circumference, biceps, triceps & calf skinfold among Korku and Gond girls

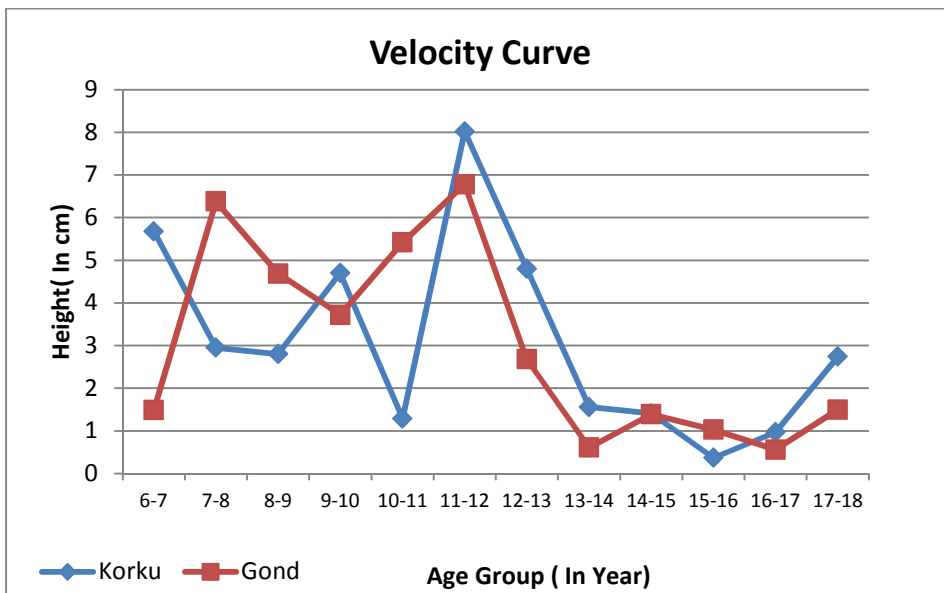
Age (In years)	Chest Circumference (in cm)				Calf Circumference (in cm)				Biceps Skin fold (in cm)				Triceps Skin fold (in cm)				Calf Skin fold (in cm)			
	Korku		Gond		Korku		Gond		Korku		Gond		Korku		Gond		Korku		Gond	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
6	55.09	2.34	52.74	1.12	18.82	2.11	17.82	0.94	3.95	1.59	3.90	0.71	6.82	2.36	6.94	1.41	6.39	2.27	8.21	2.95
7	56.79	3.19	54.41	2.29	18.99	1.24	19.71	1.42	4.06	0.81	4.04	0.87	7.34	1.30	7.14	1.60	7.28	2.89	8.97	3.05
8	58.03	1.87	54.59	2.40	20.23	1.29	20.71	1.02	4.26	0.84	4.18	1.66	7.57	2.15	7.61	2.30	8.65	3.61	9.00	1.38
9	58.86	2.56	57.97	2.84	20.91	1.61	21.46	1.84	4.29	0.96	4.44	0.87	7.62	2.14	7.72	0.96	8.68	2.95	9.70	3.60
10	59.79	2.18	58.56	4.15	21.46	1.10	22.45	1.79	4.33	1.25	4.50	1.14	7.71	3.13	8.08	2.52	8.68	2.97	10.02	3.90
11	60.35	3.71	60.28	3.30	22.26	1.75	23.4	1.31	4.56	1.56	5.36	2.36	8.31	2.33	8.95	2.91	8.90	2.50	10.05	4.41
12	64.66	5.28	67.28	4.97	24.65	2.41	24.96	1.30	5.19	1.75	5.39	2.07	8.33	2.08	8.96	2.90	8.98	3.60	10.15	3.44
13	71.34	4.45	71.41	5.24	25.98	2.86	25	2.50	5.39	1.35	5.68	2.72	11.01	4.15	10.64	4.63	9.04	3.26	10.91	2.64
14	74.41	5.79	73.05	6.82	26.1	2.16	26.16	3.00	6.11	2.31	5.8	1.55	12.28	4.26	11.81	3.22	11.19	3.10	11.02	1.99
15	75.47	5.11	73.98	4.73	26.34	2.07	27.04	2.45	6.36	2.39	5.89	2.10	12.40	5.05	12.10	5.02	11.62	3.55	11.28	2.05
16	76.13	4.16	74.46	3.73	26.98	2.49	27.35	1.73	6.40	2.76	6.35	3.76	12.56	4.11	12.23	3.31	12.31	3.36	12.54	3.71
17	77.1	4.23	75.79	3.92	27.16	2.48	27.70	1.31	6.86	2.11	6.54	2.44	13.08	4.16	12.26	4.00	12.32	5.17	13.20	3.65
18	77.20	4.30	76.67	3.27	27.45	2.06	28.22	1.89	7.19	5.71	6.8	3.01	14.36	3.37	13.06	3.99	13.45	4.69	13.78	4.19

Table 2 (b): Absolute growth and rate of growth of chest circumference, calf circumference, biceps, triceps & calf skinfold among Korku and Gond girls

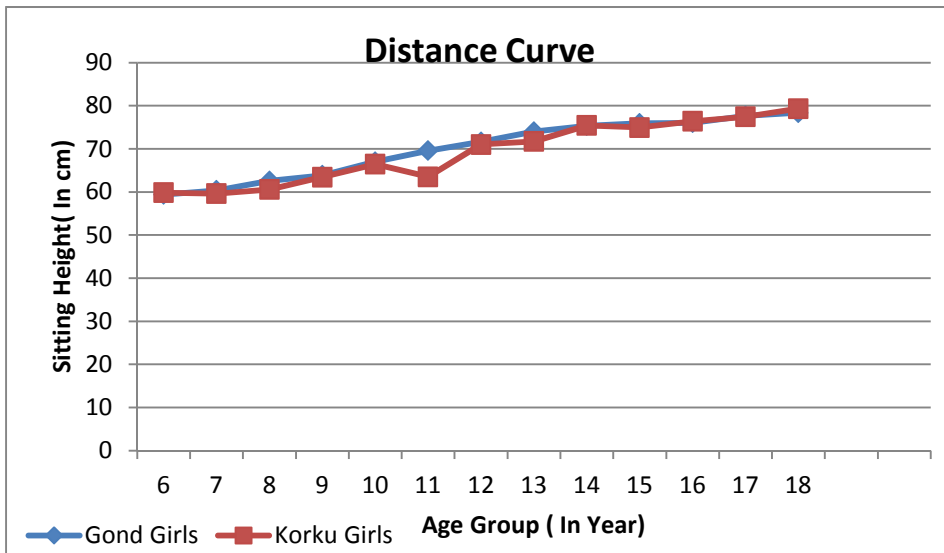
Age (In years)	Chest Circumference (in cm)				Calf Circumference (in cm)				Biceps Skin fold (in cm)				Triceps Skin fold (in cm)				Calf Skin fold (in cm)			
	Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth	
	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond	Korku	Gond
6-7	3.18	3.17	5.78	12.91	0.86	10.61	4.60	59.52	7.13	13.81	22.64	35.32	11.44	4.66	16.77	6.04	19.87	16.17	31.10	17.20
7-8	3.65	3.51	6.43	6.66	7.51	16.26	39.90	91.22	3.42	14.35	10.06	28.87	1.58	8.40	2.07	11.76	0.78	8.17	1.02	8.20
8-9	0.31	6.20	0.53	11.35	6.11	3.57	30.22	17.24	3.13	5.57	7.5	10.32	4.92	25.54	6.37	35.76	7.64	0.91	9.90	9.13
9-10	3.99	1.02	6.88	1.76	3.68	4.63	17.14	21.57	1.01	28.64	2.35	6.83	2.47	17.74	3.48	23.31	0.24	6.12	2.90	54.99
10-11	0.72	2.95	1.22	5.03	3.24	4.23	16.00	18.85	1.11	4.75	26.20	11.32	0.36	9.66	4.35	13.91	4.28	43.55	5.14	52.98
11-12	8.16	11.61	13.64	19.25	17.85	2.97	85.30	12.71	1.58	22.28	39.58	50.74	3.24	29.05	3.89	41.85	2.45	26.55	2.82	29.76
12-13	10.32	6.13	15.96	9.10	5.88	3.73	23.86	15.50	7.18	26.63	19.00	49.58	28.06	10.48	32.63	59.60	25.73	11.09	28.91	89.20
13-14	4.31	2.31	6.04	2.23	3.53	4.67	14.07	18.67	2.85	13.18	46.11	19.38	17.97	7.87	18.20	64.98	32.69	5.32	36.58	42.44
14-15	2.31	8.76	3.11	11.99	1.36	3.36	5.23	12.85	7.69	1.60	12.07	23.17	9.81	10.80	7.50	11.01	0.24	3.08	1.99	26.30
15-16	0.46	0.71	0.61	0.96	3.14	1.07	11.92	3.96	0.97	7.81	15.93	13.26	1.32	3.73	1.64	31.06	7.56	3.71	9.31	38.26
16-17	2.30	2.45	3.04	3.31	1.04	2.51	3.34	9.10	4.69	3.15	7.66	49.60	0.38	0.16	3.09	1.33	1.42	0.89	1.72	8.89
17-18	0.13	1.15	0.17	1.52	2.01	1.91	7.61	6.91	17.75	12.93	40.35	22.29	1.45	10.93	1.98	12.65	2.32	35.76	2.64	37.35



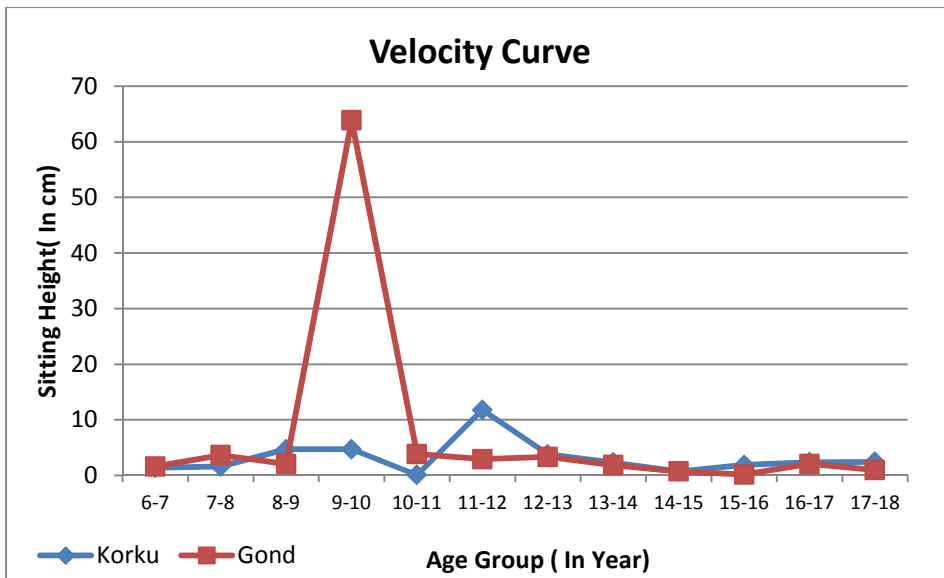
Graph 1 (a): Comparison of mean height between Korku and Gond Girls



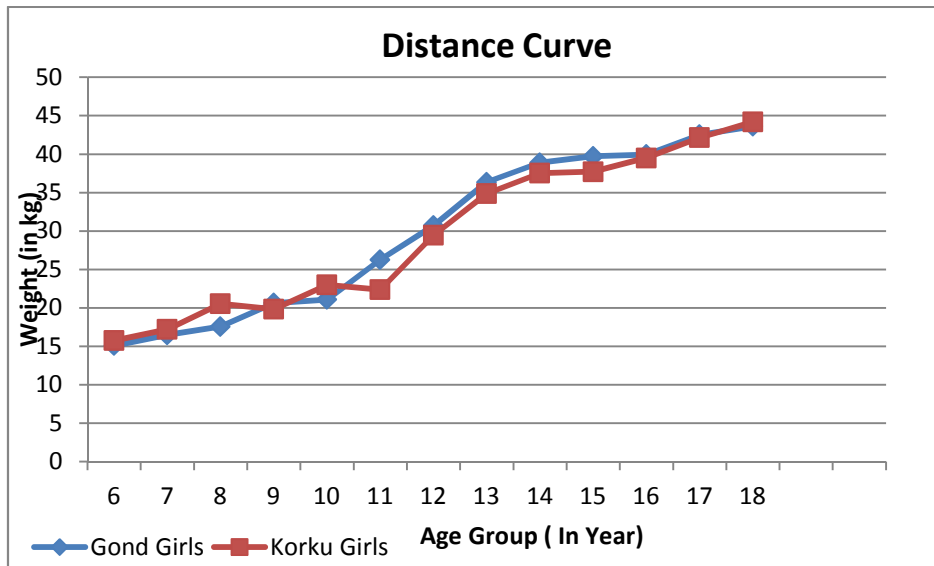
Graph 1(b): Comparison of absolute & annual growth of height between Korku and Gond Girls



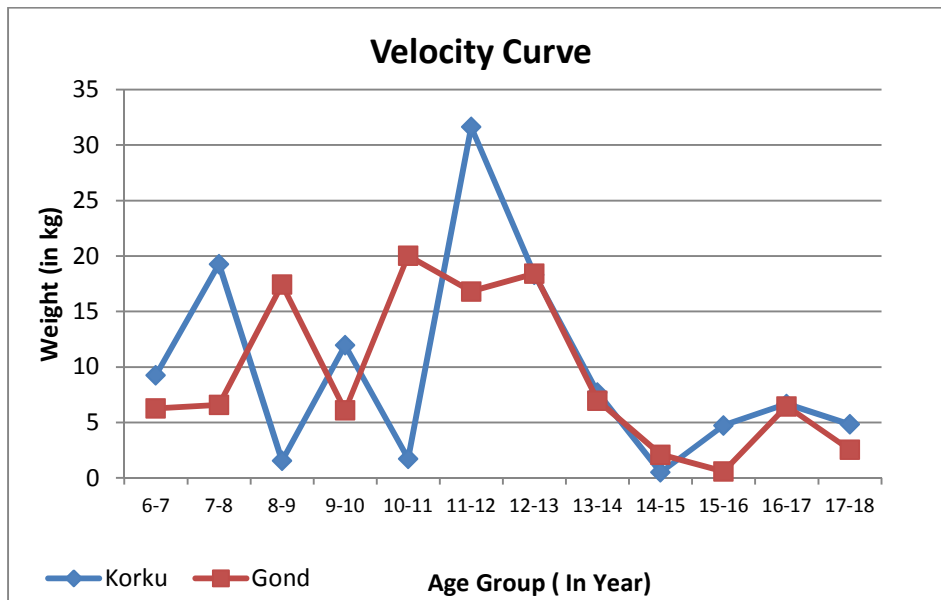
Graph 2(a): Comparison of mean sitting height between Korku and Gond Girls



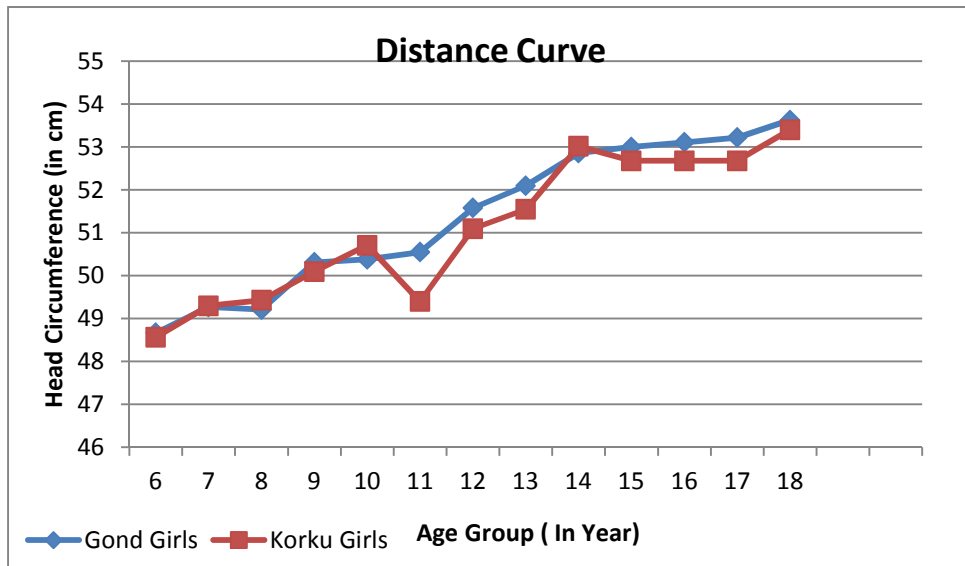
Graph 2(b): Comparison of absolute & annual growth of sitting height between Korku and Gond Girls



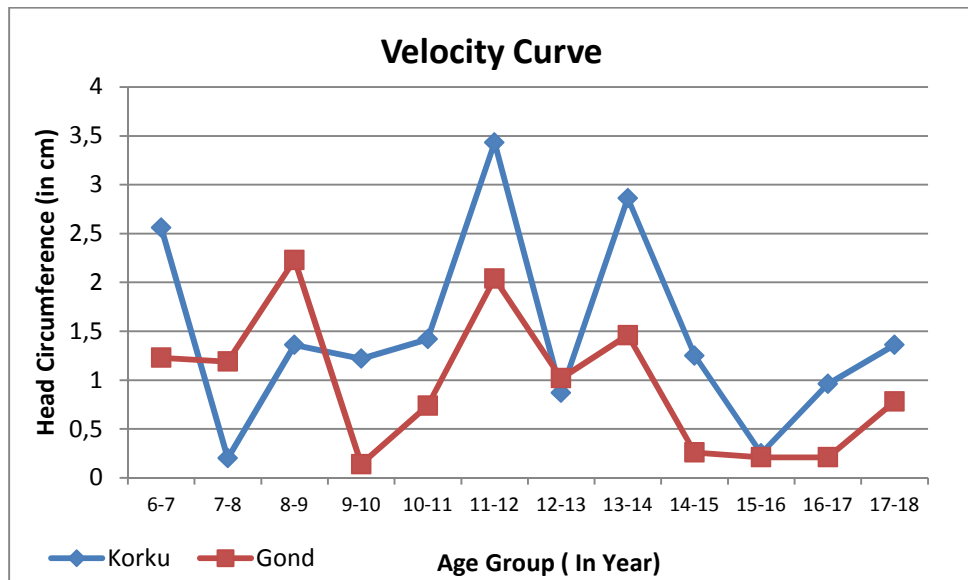
Graph 3(a): Comparison of mean weight between Korku and Gond Girls



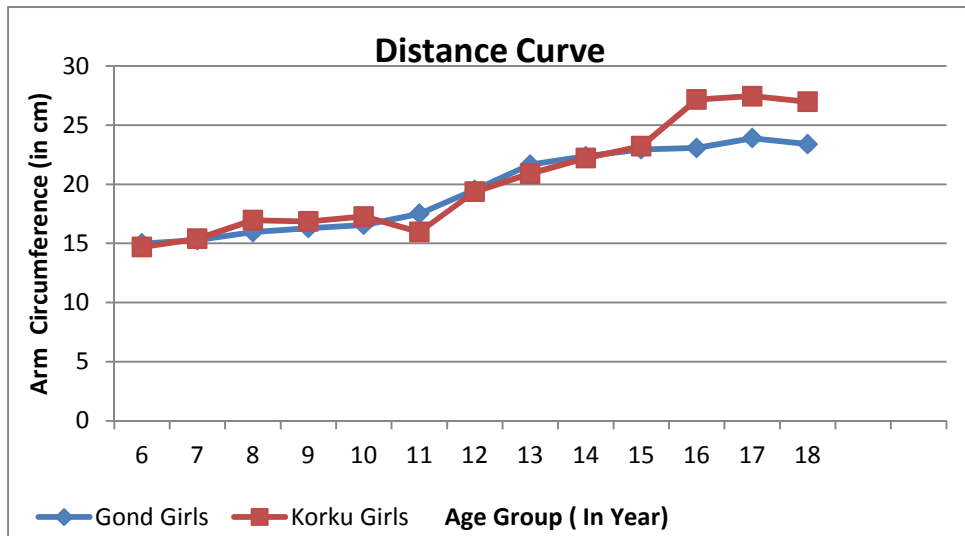
Graph 3(b): Comparison of absolute & annual growth of weight between Korku and Gond Girls



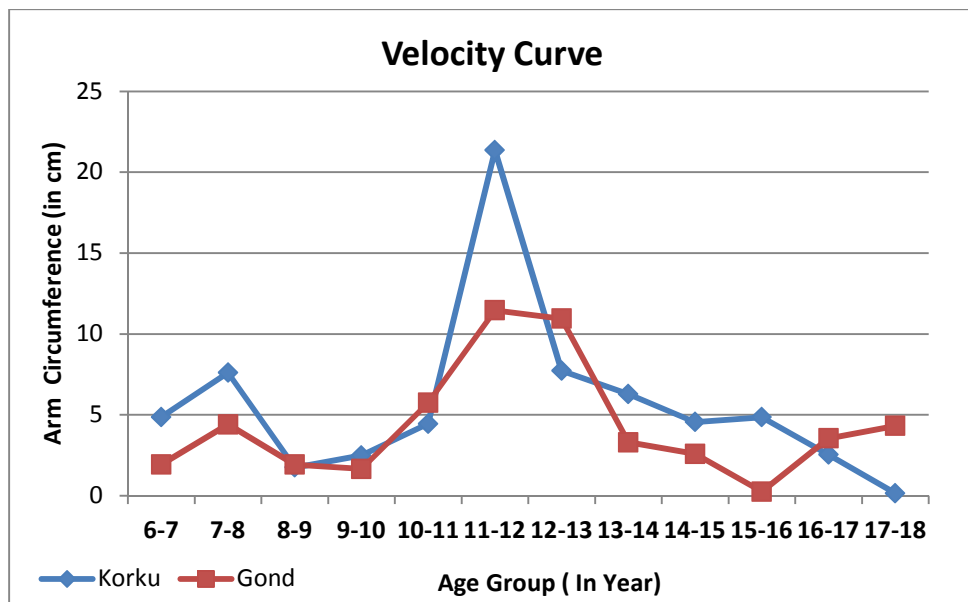
Graph 4(a): Comparison of mean head circumference between Korku and Gond Girls



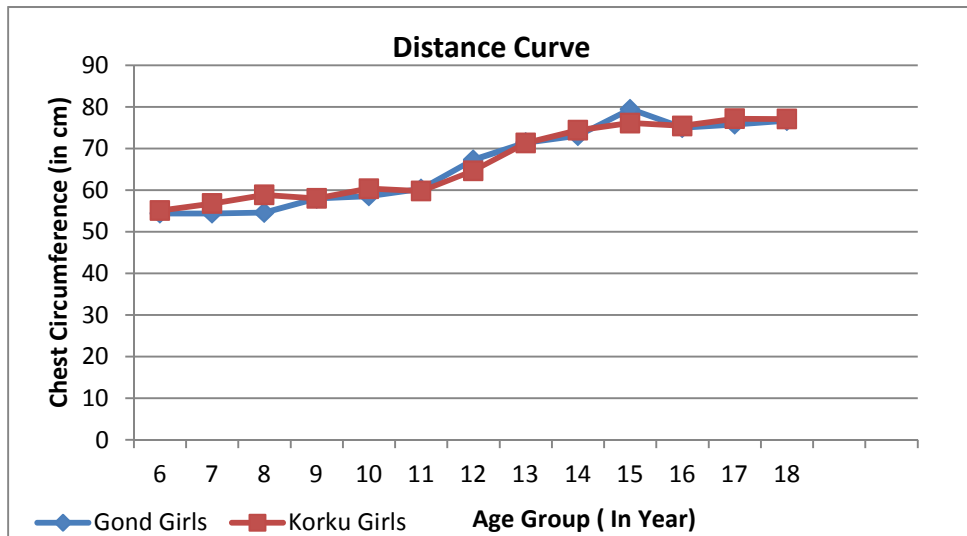
Graph 4(b): Comparison of absolute & annual growth of head circumference between Korku and Gond Girls



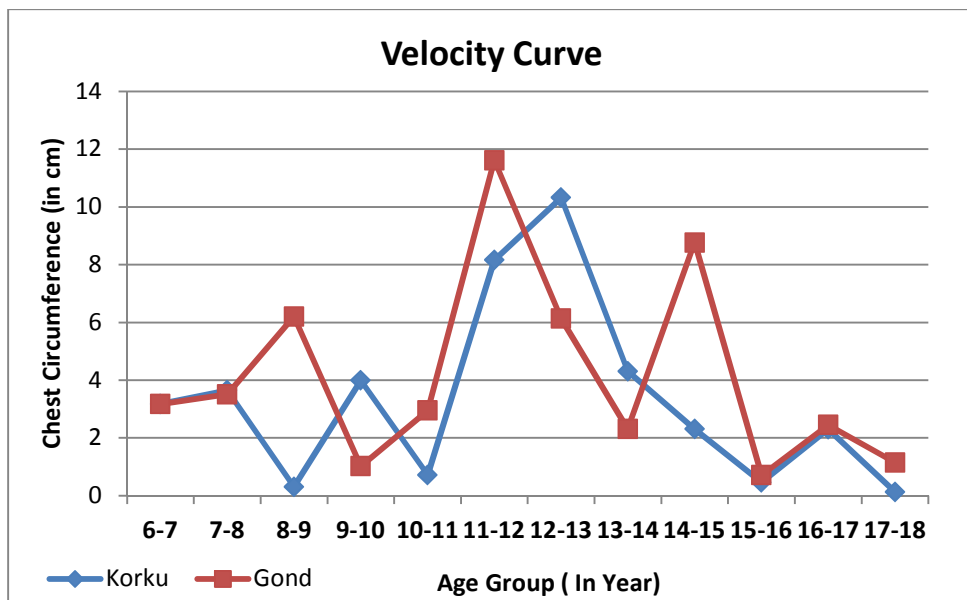
Graph 5(a): Comparison of mean upper arm circumference between Korku and Gond Girls



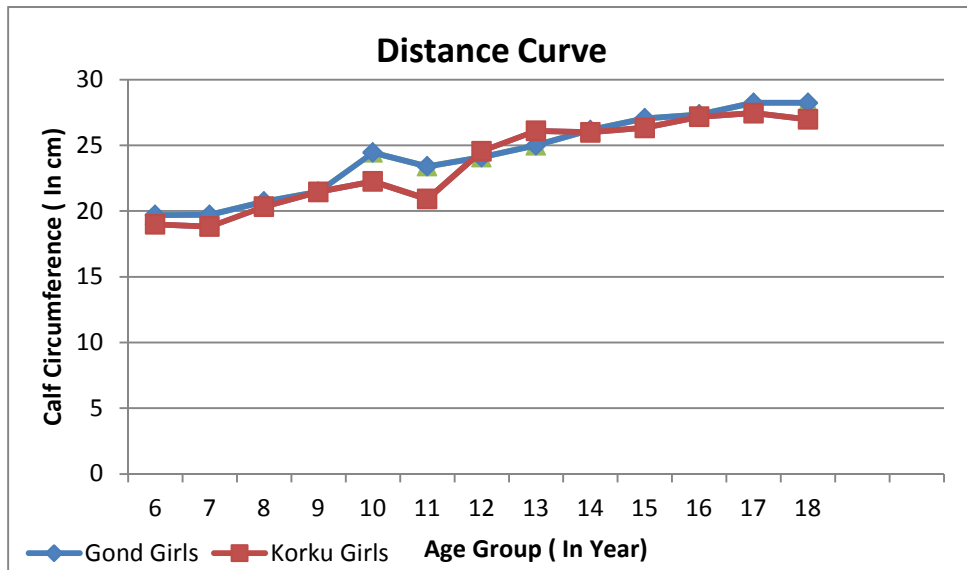
Graph 5(b): Comparison of absolute & annual growth of arm circumference between Korku and Gond Girls



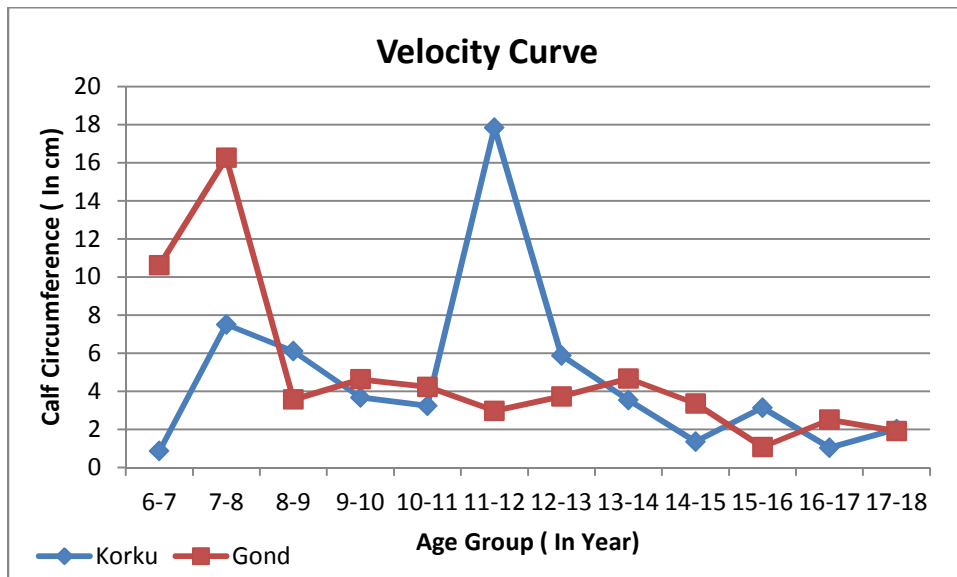
Graph 6(a): Comparison of mean chest circumference between Korku and Gond Girls



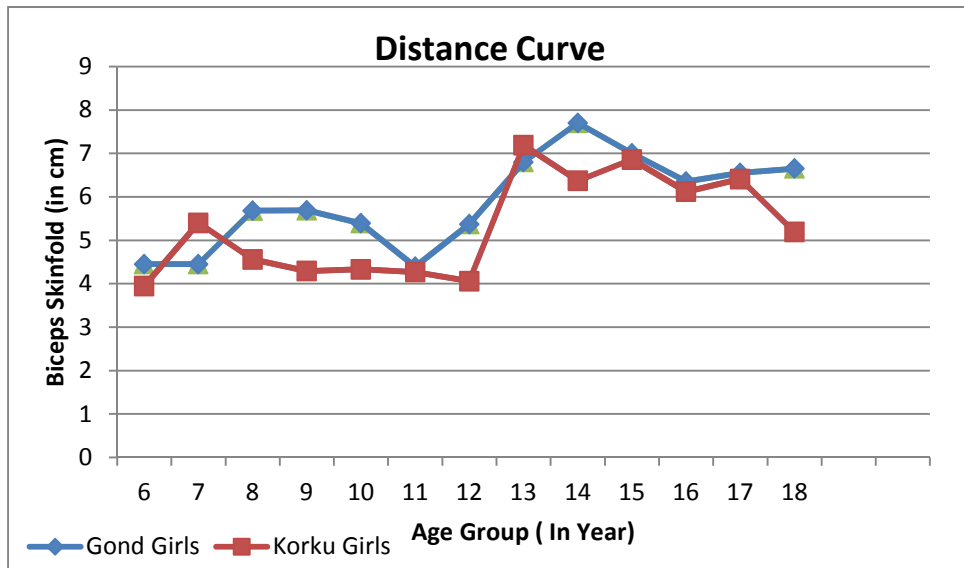
Graph 6(b): Comparison of absolute & annual growth of chest circumference between Korku and Gond Girls



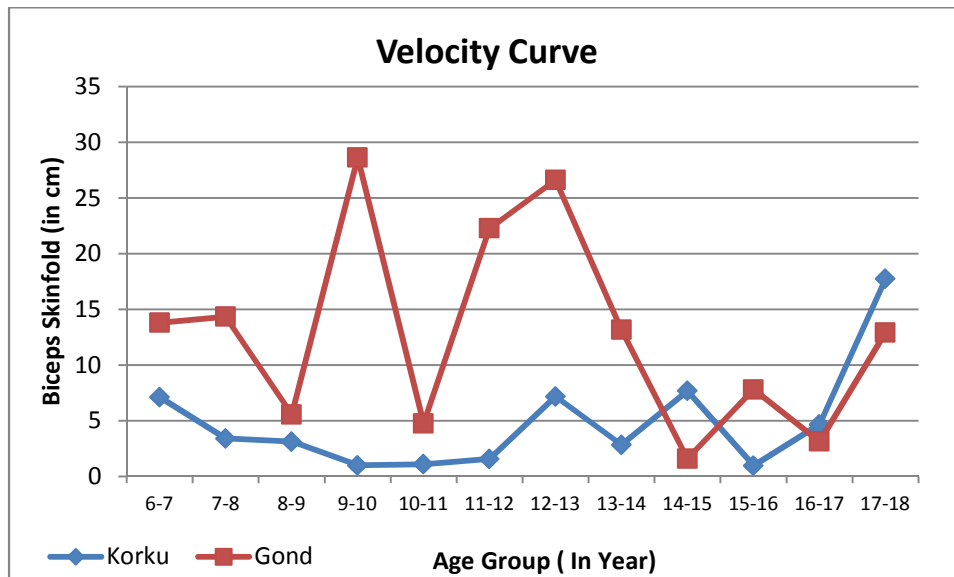
Graph 7(a): Comparison of mean calf circumference between Korku and Gond Girls



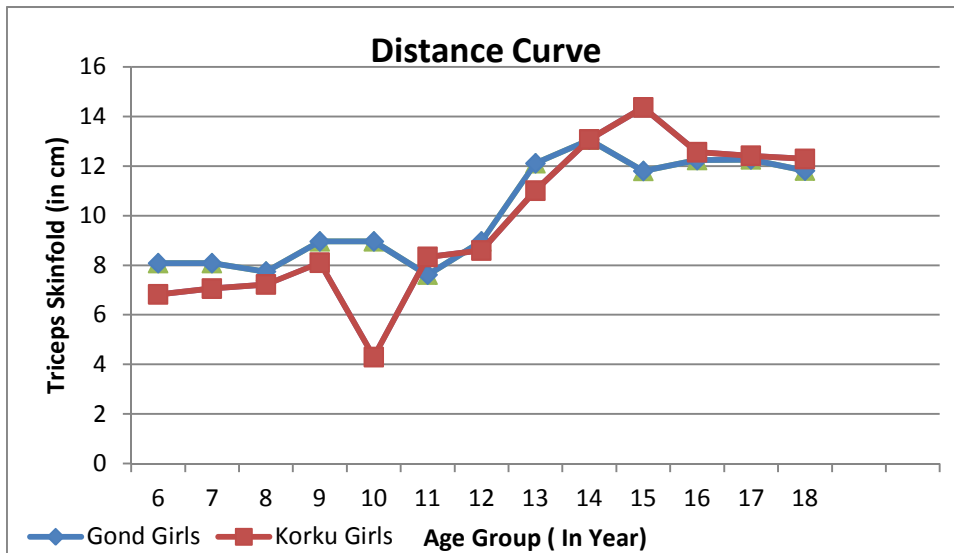
Graph 7(b): Comparison of absolute & annual growth of calf circumference between Korku and Gond Girls



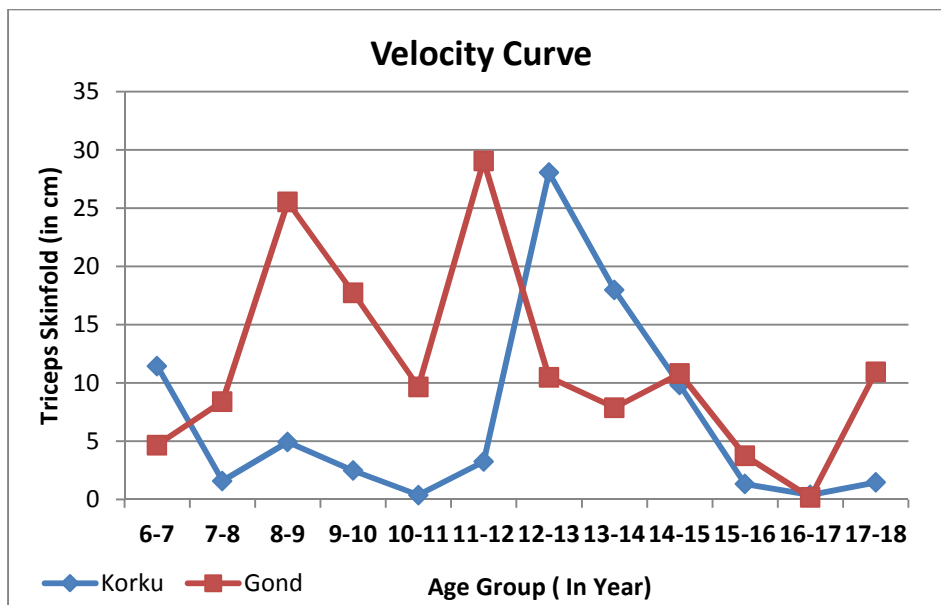
Graph 8(a): Comparison of mean biceps skin fold between Korku and Gond Girls



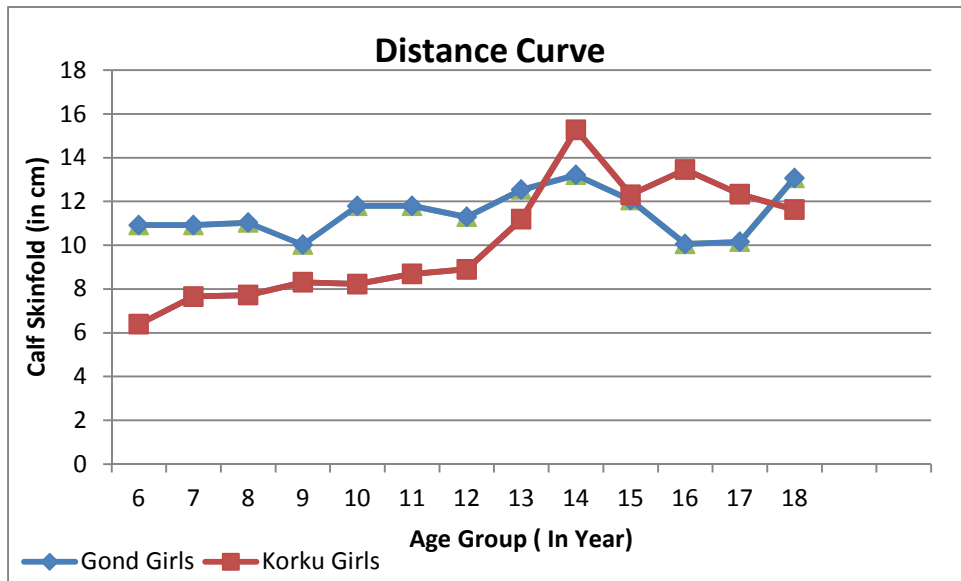
Graph 8(b): Comparison of absolute & annual growth of biceps skin fold between Korku and Gond Girls



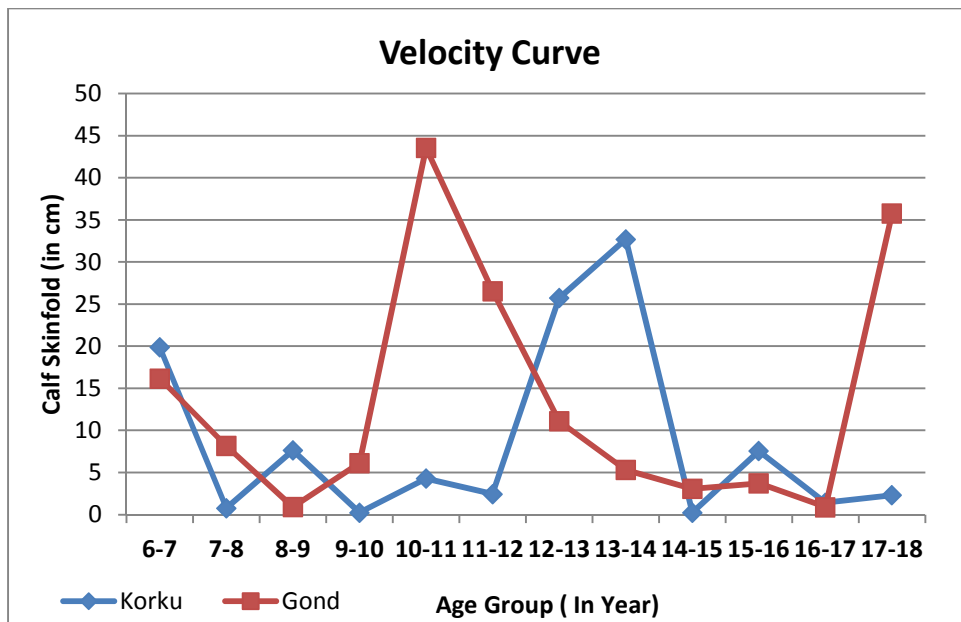
Graph 9(a): Comparison of mean triceps skin fold between Korku and Gond Girls



Graph 9(b): Comparison of absolute & annual growth of triceps skin fold between Korku and Gond Girls



Graph 10(a): Comparison of mean calf fold between Korku and Gond Girls



Graph 10(b): Comparison of absolute & annual growth of calf skin fold between Korku and Gond Girls

Table 3: Values of T-test of somatometric measurements between Korku & Gond girls

Age (in years)	Measurements									
	Height	Sitting Height	Weight	Head Circumference	Arm Circumference	Chest Circumference	Calf Circumference	Biceps	Triceps	Calf Fold
6	Not Significant (0.14)	Not Significant (0.61)	Not Significant (0.23)	Not Significant (0.26)	Not Significant (0.34)	Not Significant (0.11)	Not Significant (0.23)	Not Significant (0.38)	Not Significant (0.34)	Not Significant (0.21)
7	Not Significant (0.21)	Not Significant (0.66)	Not Significant (0.32)	Not Significant (0.29)	Not Significant (0.51)	Significant (0.04*)	Significant (0.00*)	Significant (0.01*)	Not Significant (0.58)	Not Significant (0.88)
8	Not Significant (0.34)	Not Significant (0.46)	Not Significant (0.11)	Not Significant (0.32)	Not Significant (0.56)	Not Significant (0.84)	Not Significant (0.56)	Not Significant (0.65)	Not Significant (0.39)	Not Significant (0.34)
9	Not Significant (0.36)	Not Significant (0.08)	Not Significant (0.07)	Not Significant (0.42)	Not Significant (0.52)	Not Significant (0.80)	Not Significant (0.82)	Significant (0.00*)	Not Significant (0.28)	Not Significant (0.78)
10	Not Significant (0.56)	Not Significant (0.32)	Not Significant (0.12)	Not Significant (0.55)	Not Significant (0.61)	Not Significant (0.28)	Not Significant (0.58)	Not Significant (0.56)	Not Significant (0.65)	Not Significant (0.33)
11	Not Significant (0.58)	Significant (0.01*)	Not Significant (0.21)	Not Significant (0.46)	Not Significant (0.90)	Not Significant (0.17)	Not Significant (0.71)	Not Significant (0.19)	Not Significant (0.90)	Not Significant (0.46)
12	Not Significant (0.72)	Not Significant (0.09)	Not Significant (0.89)	Not Significant (0.61)	Not Significant (0.57)	Not Significant (0.06)	Not Significant (0.72)	Significant (0.03*)	Not Significant (0.26)	Not Significant (0.73)
13	Not Significant (0.54)	Not Significant (0.55)	Not Significant (0.83)	Not Significant (0.58)	Not Significant (0.88)	Not Significant (0.96)	Not Significant (0.86)	Not Significant (0.37)	Not Significant (0.67)	Not Significant (0.07)
14	Not Significant (0.33)	Not Significant (0.72)	Not Significant (0.23)	Not Significant (0.94)	Not Significant (0.23)	Not Significant (0.71)	Not Significant (0.65)	Not Significant (0.60)	Not Significant (0.09)	Not Significant (0.81)
15	Not Significant (0.41)	Not Significant (0.67)	Not Significant (0.17)	Not Significant (0.75)	Not Significant (0.11)	Not Significant (0.51)	Not Significant (0.71)	Not Significant (0.14)	Not Significant (0.61)	Not Significant (0.61)
16	Not Significant (0.31)	Not Significant (0.93)	Not Significant (0.31)	Not Significant (0.72)	Not Significant (0.89)	Not Significant (0.16)	Not Significant (0.92)	Not Significant (0.32)	Not Significant (0.42)	Not Significant (0.32)
17	Not Significant (0.12)	Not Significant (0.24)	Not Significant (0.84)	Not Significant (0.12)	Not Significant (0.91)	Not Significant (0.41)	Not Significant (0.46)	Not Significant (0.88)	Not Significant (0.46)	Not Significant (0.55)
18	Not Significant (0.23)	Not Significant (0.98)	Not Significant (0.87)	Not Significant (0.52)	Not Significant (0.83)	Not Significant (0.10)	Not Significant (0.52)	Not Significant (0.56)	Not Significant (0.53)	Not Significant (0.28)
Total	0	1	0	0	0	1	1	3	0	0

CONCLUSION

The absolute or annual increment and growth rate of Gond girls are mostly increase at the age group of 7 to 8 years while the Korku girls it was found at the age group of 12 to 13 years. It is also observed that the apparent differences in height are more pronounced at ages of 8 to 14 years. While in case of body weight, a reverse trend is witnessed as the girls are large heavier from 11 to 18 years while at 14 the differences are highly pronounced. The highest growth measured for both tribal girls at the age group of 8 to 10 years, 13 to 16 years and 17 to 18 years (approx). For the study on Gond and Korku girls it was found not many variations in all measurements with respect to their age increase from 6 to 18 years. Similar type of growth trends has been observed among both the tribal groups as they reside in same type of ecological condition and similar socio-economic and nutritional status. Such study may be helpful for their betterment of health status.

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