Prediction of height from percutaneous tibial length amongst Oriya population

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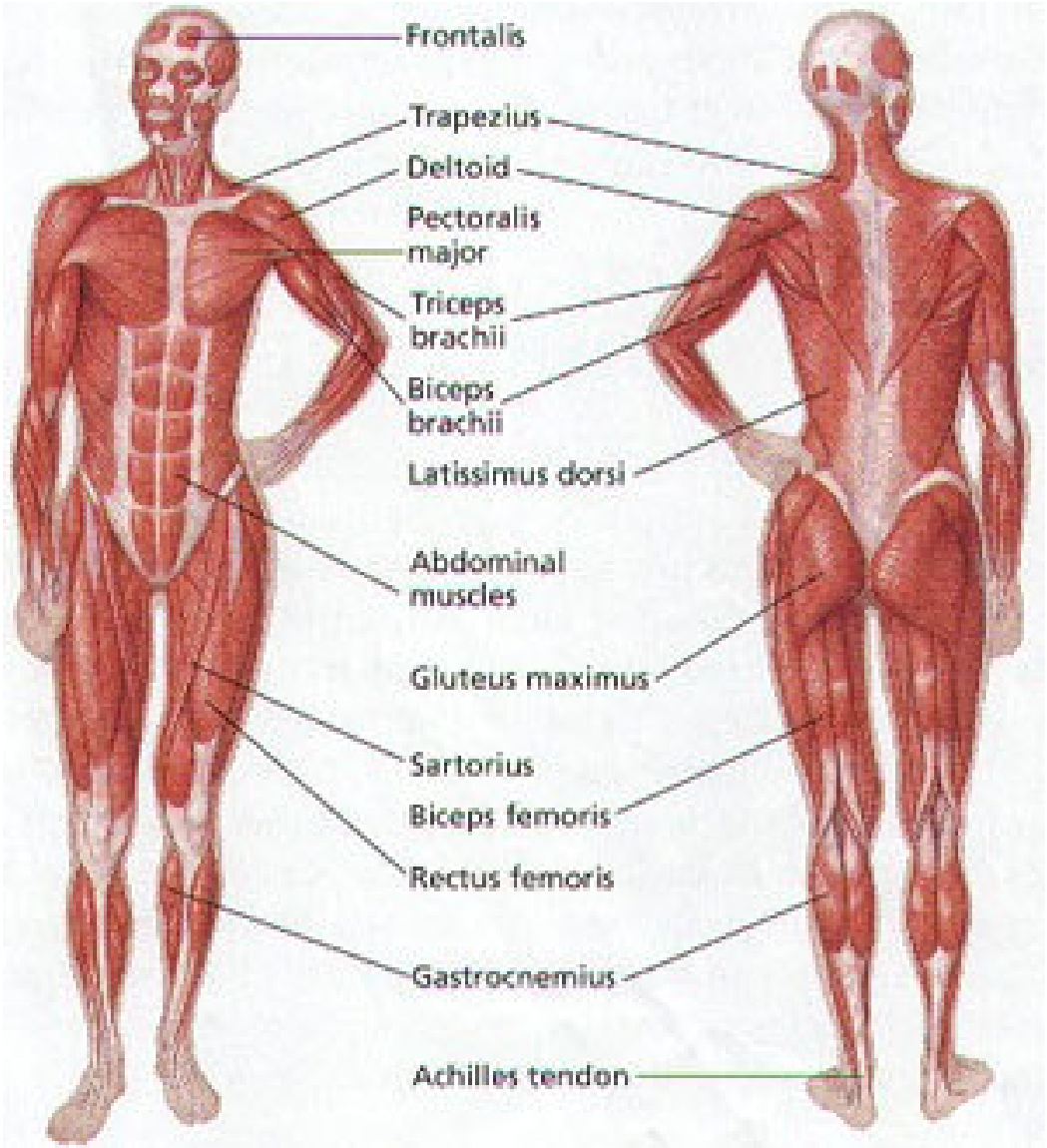

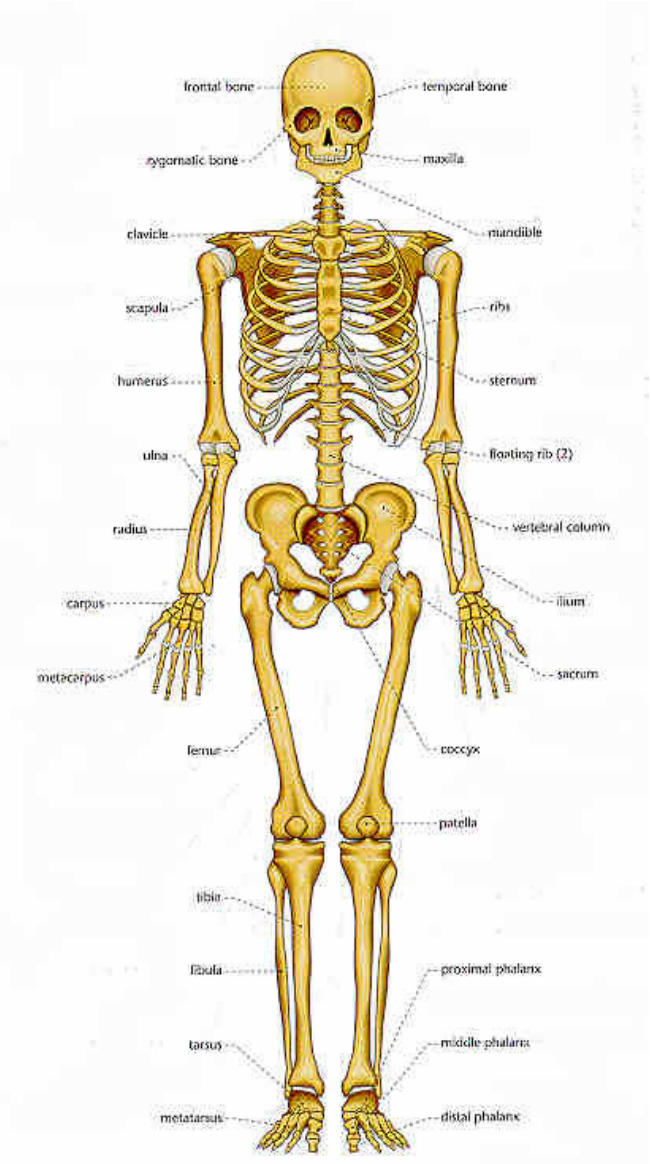

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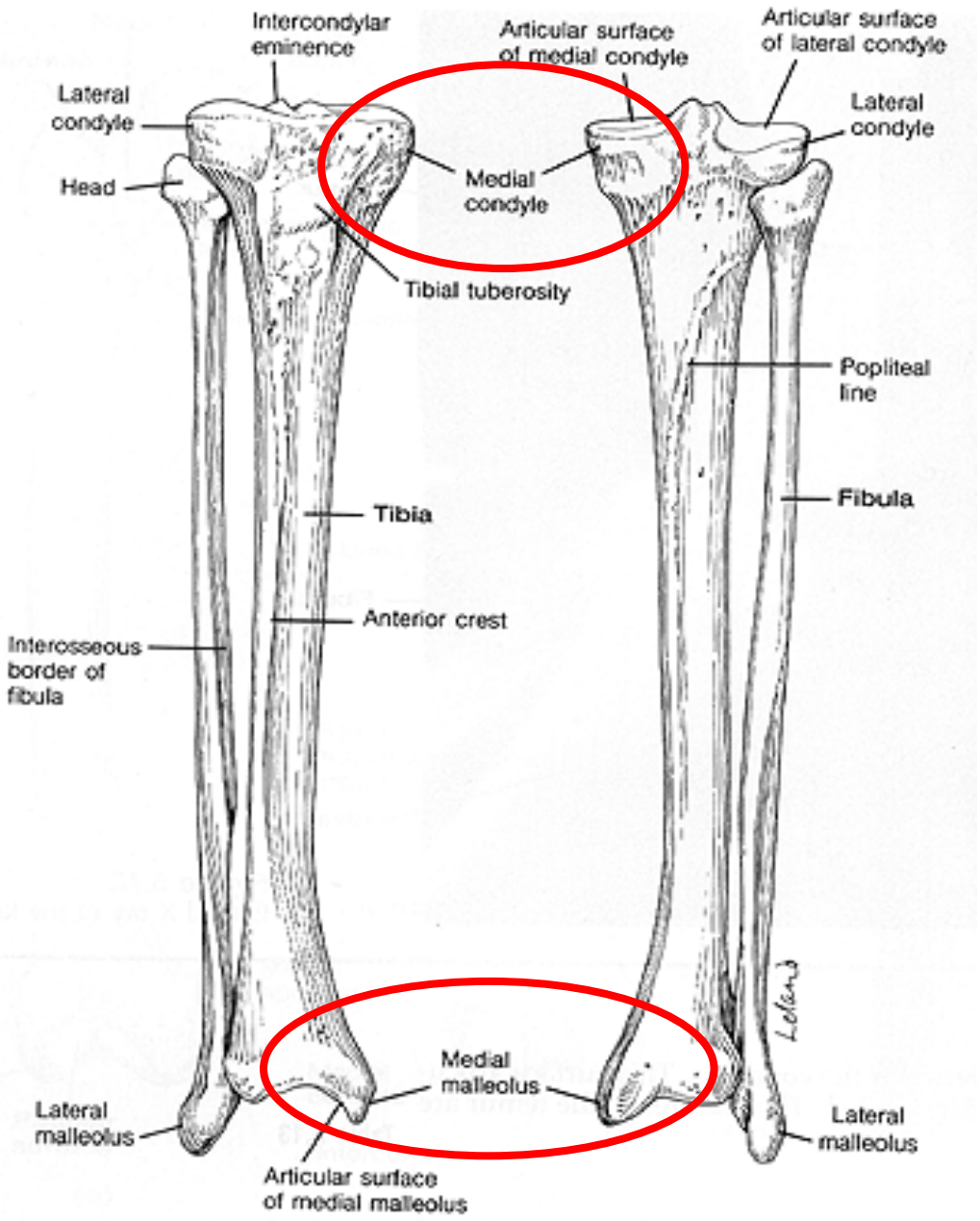

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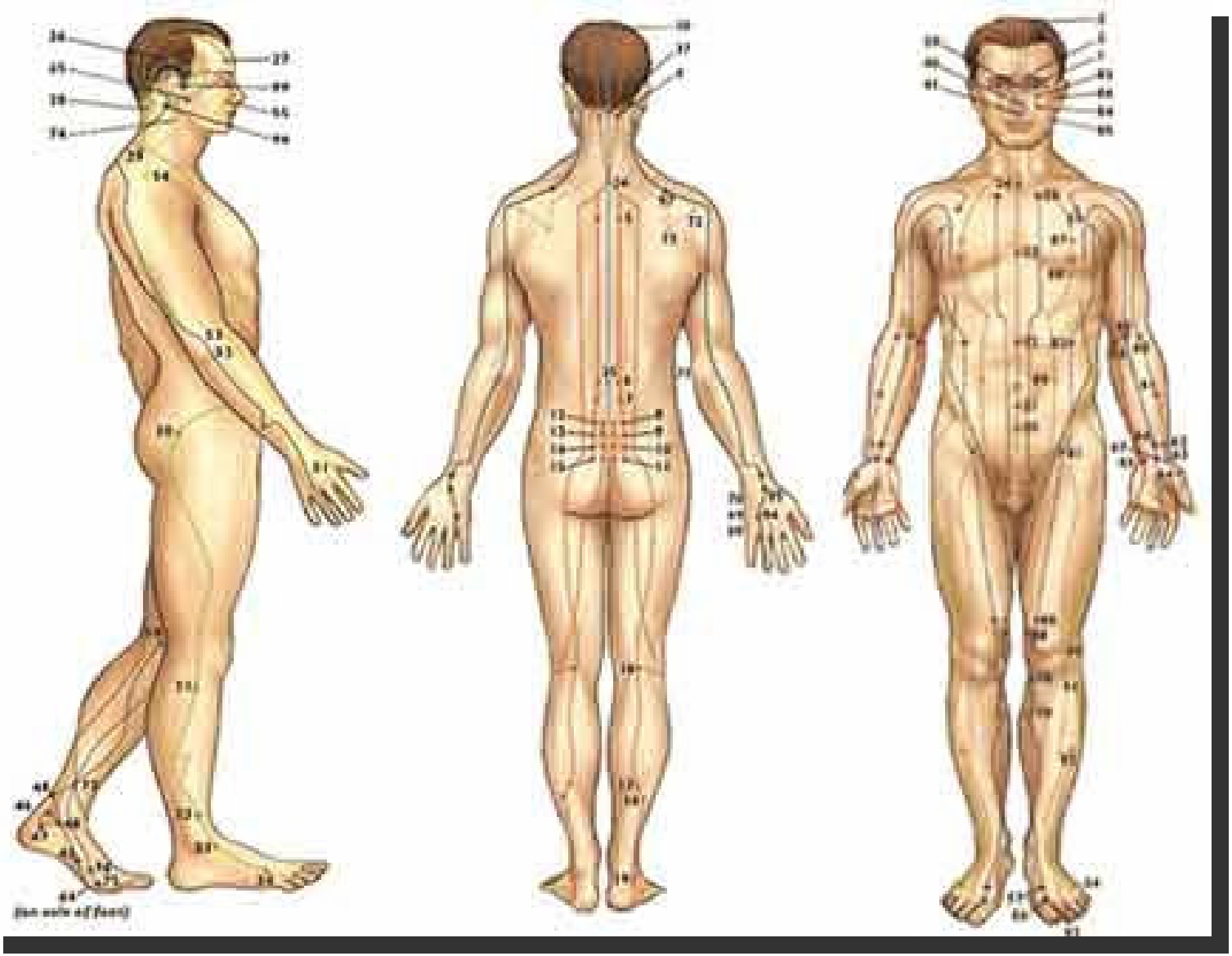


http://somaticreflections.wordpress.com/2008/09/29/a-model-for-somatic-bodywork/

Introduction

- Identification of unknown dead body is important
- Race ,Gender ,Age ,Height
- Long limb bones correlate to the height
  - Lower limb > upper limb

Introduction

- Indirectly
- Surface anatomical landmarks
- Regression analysis.
- Simple linear regression equation
- Sexes separately

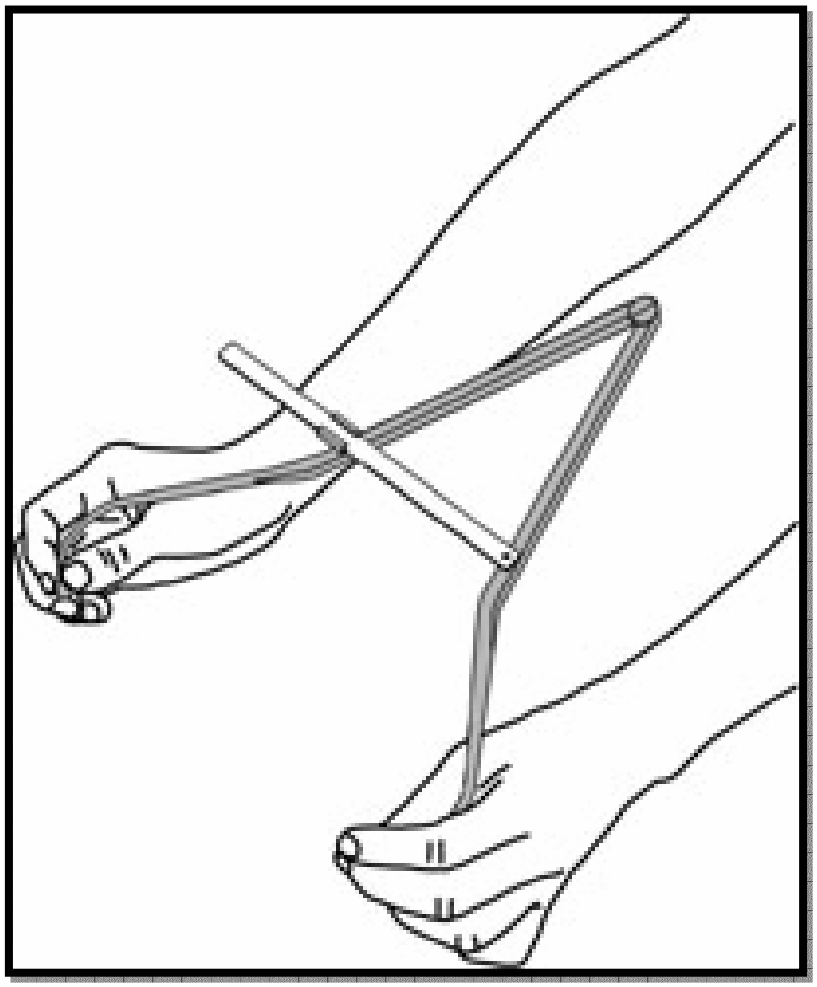
Materials and methods

- 1000 living adult
  - **500** males (20 to 77 y.)
  - **500** Females (20 to 80 y.)

- Standing height
  - standard anatomic position
  - standard metric height measuring stand.

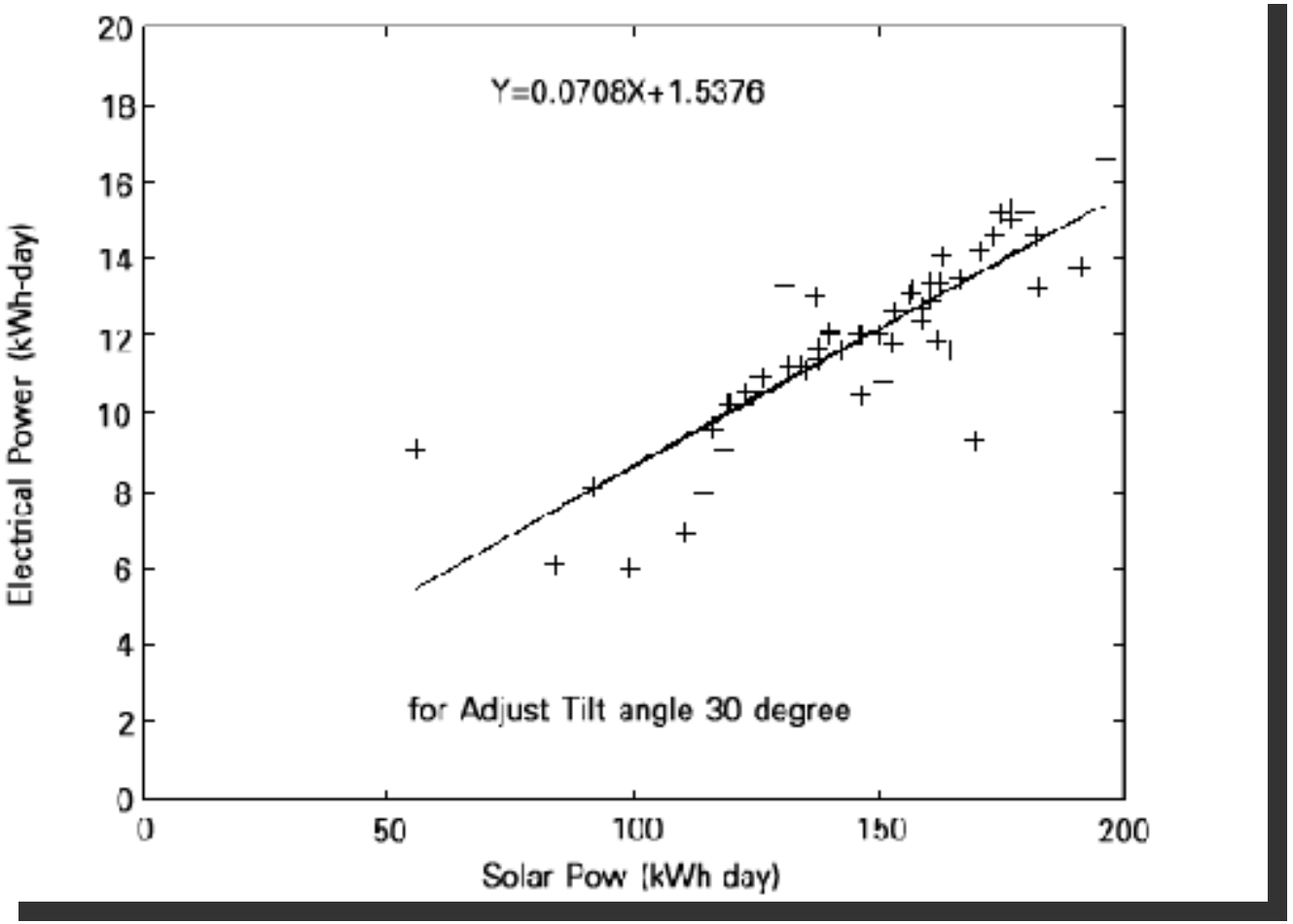
Materials and methods

- Right tibial length
  - Spreading calliper



http://www.dh.aist.go.jp/bodyDB/s/s-kaisetu-e.html

Materials and methods



http://teenet.chiangmai.ac.th/emac/journal/2002/14/02.php

Results

- Same height but PCTL differed
- Biological variation
- Range, mean, SD, % of coefficient of variation,standard error

Results

Table 1
Descriptive statistics, coefficient of variation, standard error, and correlation between stature and PCTL

	Stature		PCTL	
	Male	Female	Male	Female
Range	145–178	135–169	32–42.25	31–41.6
Mean	161.92	152	37.08	35.03
SD	9.21	9.87	2.34	2.60
% of C.V.	5.7	6.5	6.3	7.4
Standard Error	–	–	0.41	0.45

Results

Table 2
Correlation coefficient (r), slope (b), standard error of estimate (SEE), intercept (a) and regression equation

Statistics	Male	Female
Correlation (r)[a]	0.9518	0.9392
Slope (b)	3.7500	3.5587
Standard error of slope (b)	0.2205	0.2335
Intercept (a)	22.8325	27.3032
SEE	±2.8735	±34423
Simple regression equation:		
Males:	$Y=22.8325+3.7500\times PCTL\pm 2.8735$	
Females:	$Y=27.3032+3.5587\times PCTL\pm 3.4423$	

[a], Both significant at $P<0.01$.

Discussion

- Problematic
  - Proportional relationship , long limb bone to the height is variable from individual to individual
  - **10 = 5+5,6+4,7+3,8+2,1+9**

- “mean height” “mean bone length”

Discussion

- Age factor
  - Indians stop growing height
    - Completion of union of epiphysis,diaphysis
    - 20 years.
- Formula can never be accepted as the exact value
- Standard error of estimate has also been calculated.

Conclusion

Male height $= 22.8325 + 3.7500 * \text{PCTL} \pm 2.87$

Female height $= 27.3032 + 3.5587 * \text{PCTL} \pm 3.44$

Conclusion

- Formula of present study fairly accurately within a standard error of estimate
- biological consideration
- Cross-section of population.

End