



“Summary”

p. 53-54

*El Índice Cnémico en tibias prehispánicas y modernas del valle de México*

Juan Comas

México

Universidad Nacional Autónoma de México  
Instituto de Historia

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## SUMMARY

Doctor Comas reviews the various techniques employed by different investigators for evaluating lateral flattening of the diaphysis of the tibia (platicnemia). He rejects the method introduced by Koganei (1894), and later used by others, of measuring the antero-posterior and transverse diameters at the middle of the diaphysis, because with Koganei's method two completely different indices are confused: the diaphysal middle index and the cnemic index. Lateral flattening is more apparent in the upper third of the diaphysis than in the middle.

The practice proposed by Busk (1870) who measured both diameters at the level where the popliteal line joins the inner border of the tibia, is also discarded by the author, who concludes by accepting the technique introduced by Broca, continued later by Khuff and Manouvrier, and more recently (1938) so ably defended and systematized by Vallois; that is, the technique which employs as the point of reference the level of the distal border of the nutrient foramen.

The writer then analyzes the possible causes of platicnemia as adduced by physicians and anthropologists from 1868 to the present; *i. e.* platicnemia as a result of pathological conditions, mainly rachitis; as a primitive evolutionary character; as a result of certain foot movements, primarily prehension; as a consequence of abnormal muscular development due to forced marching, squatting, etc.

Then follows a more thorough study of Manouvrier's hypothesis (1888). This author believes that platicnemia is the outcome of a wider area of insertion of the tibialis posterior which in turn is a sequel of its hyperactivity. Manouvrier arrives at the conclusion that we are before an individual variation related to anatomico-physiological conditions subsequent to infancy, and susceptible of appearance in any individual, regardless of race or sex.



The author reviews the varying points of view in this respect, in the works of R. H. Charles (1891), H. H. Hirsch (1895), G. Buschan (1898), J. Grünwald (1917), etc. He discusses also the problem of bone morphogenesis, analyzing the contributions of Marey (1889), Papillault (1901), Regnault (1901), Anthony (1946), Huard and Montagné (1954), Evans and Goff (1957), etc.

Doctor Comas investigations with material from the valley of Mexico (Table I & II), include 4 series with a total of 171 tibiae (84 ♂ and 87 ♀), 93 precolumbian and 78 modern. From their study the following observations were drawn: a greater percentage of platicnemia in the precolumbian series (44.08%) than in the modern (34.6%), with a percentage of more than twice the value in the precolumbian males (60.4%) as compared with the females (30.0%) of the same period. In all 4 series the frequency of platicnemia was greater on the left side than on the right.

Tables III to IX present a systematization for comparative purposes, of all the data it was possible to collect with regard to the cnemic index in numerous series (or individual cases) from the most varied human groups. An examination of this material gave the following tentative results:

- 1) a tendency to greater platicnemia in prehistoric groups or individuals than in modern;
- 2) greater and more frequent platicnemia in males than in females;
- 3) no distinction of any importance in the frequency of platicnemia in right or left tibiae, despite the opposite results obtained by the author in the Mexican series.

In conclusion, and with emphasis on the provisional character inherent in the negligible statistical value of available series, the author considers the thesis proposed by Manouvrier, in 1888, as the most reasonable and acceptable to explain the bone variation studied, although he admits that the problem still needs further deeper investigation. Only one modification would appear which actually seems conclusive; that platicnemia is more frequent in males than in females regardless of geographic or temporal location.