

## Invited Comment

# Assessment of the breast volume by a new simple formula

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The authors have presented impressive anthropometric research on breast sizes and certainly their data have to be taken into consideration.

However, the entire work appears to be based on a wrong ground hypothesis. No volume, except from a perfect sphere, can be measured on the basis of only one parameter. The authors calculate the breast volume according to the measure of the radius of a hypothetical sphere whose circumference corresponds to the breast circumference. It is quite easy to imagine big deviations, according to the different shapes in the breasts. For instance, in the case of a breast with a very large base and a short projection, the application of the authors formula (of any formula, established on the hypothesis that the volume is increasing while the radius increases!) gives a volume greater than in the case of a breast with a narrow base and a long projection; actually, if the projection were very short in the first case and very long in the second case, the real volume would be smaller in the former case than in the latter. In theory, similar considerations could be also expressed for a formula established on two parameters, but the error would be much smaller.

Besides, the circumference (E) shown in Figure 1, is not measured according to established anatomical landmarks but in a somehow subjective way: it would appear to be a value expressing the ptosis degree more than the volume degree. Therefore it is unlikely to consider such a measure the circumference of an actual sphere and to deduce a hypothetical radius from it.

In conclusion, it seems impossible to calculate the breast

volume in a reliable way from only one parameter.

Besides, we cannot agree with the authors' assertion about the "supposed complication" of Westreich's formula to calculate breast volume using two parameters: a simple pocket calculator could manage its components; besides, logarithms are involved only if the volume logarithm has to be calculated, and not the volume itself.

I think the authors could process their rich data in other more accurate ways to draw up some interesting anthropometric comments.

I am going to take advantage of this invited comment by the Editor of this notable Journal to present some considerations on the significance of a mathematical-geometrical approach to breast surgery. As a senior plastic surgeon, I think that the efforts to calculate exact volumes of breasts have a more theoretical than practical significance. Both in reduction and augmentation mammoplasty, the surgeon has to keep in mind that it can be awkward and dangerous to decide how much to remove from (or to add to) a breast just trusting geometrical measures; moreover, most women/patients have no idea of what a change in  $\text{cm}^3$  can really mean. The best results are achieved considering the body size and the general attitude of the woman/patient. In my experience, I can achieve a good idea of what is in my patients minds in order to plan the ideal size of the mammary prosthesis or the amount of tissue to be excised by the aid of some bras of different sizes to be tested during the pre-operative consultation. An exhaustive discussion about their self body image is helpful too.