

Transplantation 2020: Applications of anthropometry in torsoplastic surgery- Fabio Fantozzi-Professor Ivo Pitanguy at Carlos Chagas University in Rio de Janeiro

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Abstract

The study of anthropometry defines the sweetness of the torso from a geometrical perspective. Anthropometry therefore aids the cosmetic surgeon in planning the reshaping of the torso and also makes positioning of areolae and therefore the umbilicus easier. When performing surgery on the breast, it's necessary to relate the breast to the torso as an entire, being anthropometry perfect for this process. When the anthropometric proportions are respected, the result is aesthetically optimal, and the perceived beauty of the body is enhanced. The study of anthropometry is widespread within the artistic field, and that i have chosen the work of sculptor, Carlo Rochet, because the basis for my very own use of anthropometry during plastic surgery.

Introduction

The study of anthropometry defines the sweetness of the torso from a geometrical perspective. Anthropometry therefore aids the cosmetic surgeon in planning the reshaping of the torso.

For example, when performing surgery on the breast, it's necessary to relate the breast to the torso as an entire, through the appliance of anthropometry. When the anthropometric proportions are respected, the result is aesthetically optimal and the perceived beauty of the body is enhanced. This anthropometric approach also makes positioning of areolae and the umbilicus very easy.

A rich source of anthropometric studies can be found in the art world. Artists are often involved in the portrayal of beauty and they have developed techniques for determining and describing such. This process goes at least as far back as Leonardo da Vinci.

As the basis for my very own practise, I even have found nineteenth century sculptor, Carlo Rochet's book, *Le Leggi Naturali Delle Proportion* ('The Natural Laws of Proportion') a superb source, and some of his illustrations, somewhat modified, are herein presented. In this article, i will be able to focus specifically on the appliance of anthropometry when performing cosmetic surgery on the torso.

Methods

In order to apply the anthropometry of the torso, I have gone back to the anthropometric studies of the nineteenth century sculptor Carlo Rochet. The anthropometric underpinnings of beauty are well-known to artists, as they need to breed it in their works. I have been using Rochet's anthropometric studies because the start line for all my cosmetic surgery procedures.

Carlo Rochet's scale (Fig. 1) divides the torso, the head, the upper limbs and the lower limbs into four equal sections, each representing the same proportions. When these anthropometric proportions are respected, we have an 'ideal' body contour.

Clearly, as plastic surgeons, we cannot choose the size of our patients as a sculptor like Rochet can. However, we should always understand this objective geometrical analysis of beauty to assist us improves, as far as possible, the body's contours. Turning now to the torso itself, the correct proportions are achieved by dividing the space between the lower jaw and the inner thigh radix into thirds

- First, we measure the position of the lower jaw and the inner thigh radix.
- Finally, we divide the space into three equal sections.

Positioning the areolae

When performing plastic surgery on the breast, it is necessary to consider the torso as a whole, using anthropometry. The proportions are considered correct when the height of the head is equal to the distance between:

- The lower jaw and the nipples (section A)
- And between the nipples and the umbilicus (section B)

By applying this anthropometric technique, the remodelled breasts will have the correct anthropometric proportions, enhancing the beauty of the patient.

Positioning the umbilicus

The umbilicus is positioned using a similar technique to the areolae. The torso is divided into four equal sections by transverse lines:

- 1.Top of the head to the chin
- 2.Chin to nipples
- 3.Nipples to umbilicus
- 4.Umbilicus to inner thigh radix

With this information, we can now look at how to apply the anthropometric procedures in practise.

Discussion

Artists and sculptors have been applying the principles of anthropometry for centuries, from the time of da Vinci to the modern day. Familiarity with the principles of anthropometry and its relationship with beauty mean we can use anthropometry as an objective tool during our procedures. For my own practise, I have been relying on the work of the sculptor Carlo Rochet, whose book on anthropometry, *The Natural Laws of Proportion*, was published in Italy in the late 1800s and is now in the public domain. This book provided some of the images used in this article and is the basis of my application of anthropometry to my aesthetic and plastic surgery procedures.

The modified measuring stick, a very simple tool, allows us to measure the patient and calculate the correct positioning of the areolae and umbilicus so as to maintain the correct anthropometric proportions. When remodelling the torso, we should apply anthropometry to ensure correct positioning of the areola and the umbilicus. The breast and umbilicus are part of the torso and have an anthropometric relationship: the rule of thirds. Each time this anthropometric rule is met, we obtain an aesthetically optimal result.

Body proportions can vary greatly, so this anthropometric approach should be seen as a guideline. It is not applicable to all cases, such as unusually long or short torsos. However, in most cases, these rules can help reduce the effects of flawed anthropometric proportions.

Perhaps the most important aspect is that the application of anthropometric principles offers a strongly objective method for determining the correct proportions for our patients. While superficial concepts of beauty may have changed, the underlying anthropometric proportions have been very stable over time. Statues created a thousand years ago show the same anthropometric proportions applied back then just as they do today.

A search on PubMed for articles concerning the utilization of anthropometry in cosmetic surgery reveals this specific application of anthropometry has not been the topic of any research. Most of the studies on the appliance of anthropometry in cosmetic surgery found within the medical literature addressed the craniofacial and aesthetic facial surgery field.

I was surprised to discover that none of the papers found considered applying traditional anthropometric techniques and analyses from the art world, where similar research into optimal proportions has already been performed for the benefit of artists and sculptors.

Of the cases returned in our searches, Rodriguez-Feliz et al., Pallua et al. and Rohrich et al. are specifically about the positioning of the umbilicus, with each paper applying a statistical analysis approach. Avşar et al. created a statistical dataset derived from measurements of Turkish patients to guide repositioning of applications of anthropometry to the torso, including the areolae and umbilicus, with the dataset being inevitably biased towards typical Turkish body morphologies.

The evidence suggests that, although my approach relies on work already done in another field, my application of said research to the field of aesthetic and plastic surgery (with a particular focus on the torso) is indeed novel.

The existing literature concerning the anthropometry of the torso and its applications in plastic and aesthetic surgery generally ignores the prevailing research performed by artists and sculptors over the centuries. Of the few papers that check out anthropometry directly, many appear to be duplicating statistical research methods already in use by artists like Carlo Rochet back within the nineteenth century. Some of the existing research looks at applying new measuring techniques, such as laser scanning of the face, a variant of which may be useful in measuring the torso too. Comparison of different techniques is also of interest, but like most of the literature found, most researchers are focused on craniofacial applications, rather than the torso, which is the subject of this article.

The lack of research into applying knowledge gained in the field of art is surprising and it leads me to believe my approach is therefore new to the field of aesthetic and plastic surgery.

Biography

Fabio Fantozzi received his Doctor of Medicine degree from Rome's La Sapienza University, one of the oldest and most esteemed Universities in Europe. He also completed his residency in general surgery at this distinguished university. He completed his plastic surgery residency with Professor Ivo Pita guy at Carlos Chagas University in Rio de Janeiro, *13th International Conference on Transplantation and Medical Surgery* October 14-15, 2020 Prague, Czech Republic

Brazil? The oldest plastic surgery college in the world. This unique training gave him hands-on experience that many other schools do not provide, and the opportunity to work with some of the leading surgeons in the field of cosmetic and reconstructive surgery. His unwavering dedication to quality patient care and safety, and his reputation for producing exceptional results, is what has made our practice one of the leading cosmetic surgery facilities in Italy. He is known among his patients as a doctor who is communicative, thoughtful and highly skilled. He will go above and beyond the call of duty to ensure that his patients are well cared for and satisfied with their results. He takes the time to listen to each patient to gain a better understanding of their desires and expectations. Patients from all over the world come to him to benefit from his unique training and medical expertise.

Note: This work is partly presented at 4th International Conference and Expo on Cosmetology & Trichology June 22-24, 2015 held at Philadelphia, USA.