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# The current preferred female lip ratio



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#### ABSTRACT

Background: Perception of beauty is influenced by the individual's demographic background and characteristics. However, objective measurements and ratios remain the foundation for aesthetic evaluations. This study aimed to elucidate if there exists a universally applicable ideal upper to lower lip ratio. *Methods:* An interactive online survey was designed. Modifiable ranges of lip ratios were achieved via

digital alteration, enabling participants to change the ratio of a single female model's lips. The questionnaire was translated into multiple languages and sent to more than 9000 plastic surgeons and the general public worldwide. Demographic data were collected and analysis of variance was used to investigate respective lip ratio preferences.

Results: A total of 1011 responses from 35 different countries (response rate of 14%) was gathered. The majority of survey takers (60%) chose the 1.0:1.0 lip ratio as most attractive. No differences were found in respect to lip ratio preference and the self-reported ethnicity. However, interesting preferences prevailed when analyzing the subgroups regarding lower lip size.

*Conclusion:* Age, gender, country of residence, and profession significantly impact individual upper to lower lip ratio preferences. However, a 1.0:1.0 lip ratio can apparently be considered most pleasing in females.

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#### 1. Introduction

Defining ideal dimensions and proportions of the human body has been tried for centuries. "Man is the measure of all things", the Greek philosopher Protagoras noted around 500 B. C. But what is the measure of man? This question has been asked in essentially all cultures. The term "Anthropometry" refers to the "study of human body measurements, especially on a comparative basis" (Merriam Webster Dictionary, 2016).

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#### 1.1. Importance of the lips

The lips with their central position in the face capture the observers' attention and are of utmost aesthetic, functional and sensual importance (Reis et al., 2006).

In 1984, Farkas et al. defined proportion standards by using classical anthropometric landmarks in the perioral area (Laeng et al., 2013). In recent years, much effort has been focused on analyzing ideal facial proportions and symmetry of the face (Springer et al., 2007; Mommaerts and Moerenhout, 2011; Milutinovic et al., 2014) and many studies have identified different attractive aspects of the eye and nose (Grundl et al., 2008; Springer et al., 2008; Broer et al., 2012; Grundl et al., 2012; Rhee et al., 2012; Cakir et al., 2013).

However, only a few studies exist which evaluate objective criteria by which an "attractive" lip might be defined. Sforza et al. showed in their study about facial morphometric analysis that

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certain features, such as full lips, are generally considered to be attractive (Sforza et al., 2007). Furthermore, Penna et al. (2015) were able to define distinct parameters of the lips and perioral region that seem to add to the attractiveness of female and male individuals. Their findings proved that gender-related differences exist regarding form and shape of an attractive lower third of the face.

However, although objective and validated measures are useful. aesthetics are not defined simply by metrics alone. There is a strong psychological component to patient satisfaction as it relates to body image. Cosmetic proportion, balance and harmony as well as fulfilling personal expectations of the individual undergoing the procedure and the surgeon performing it, are critical factors that must be considered when determining satisfaction and benefit. This survey project was aimed to find out if certain, most pleasing lip proportions regarding the upper to lower lip *ratio* prevail across different cultures. Demographic factors such as age, sex, social status (of the general public), and type of surgical practice (academic vs. private) were also included in the analysis. The two groups of laypeople and plastic surgeons were chosen to evaluate whether a surgeon's eye and ideas of perfect relations differ from the general population (which can be regarded as a potential patient population). If a surgeon who has the abilities to change lip size and shape has different goals in mind than a patient, this is of importance and could even lead to dissatisfaction on both sides.

#### 2. Material and methods

### 2.1. Survey design

This study was approved by the Technical University Munich School of Medicine Human Investigation Committee (HIC# 310/15). An interactive, online survey displaying computerized images of a Caucasian woman's face was designed. The volunteer model was photographed from an anterior view. Various ranges of upper to lower lip ratios were achieved via digital alteration using imaging software (Adobe Photoshop CS5, Adobe Systems, San José, CA, USA).

Socio-demographic information including sex, age, country of residence/practice, ethnic background, yearly income (laypeople) and type of practice (academic vs. private) was collected on every respondent (Fig. 1).

By choosing one of several images, each of which had different lip sizes, participants were able to change the upper to lower lip ratio of the model's face. Specifically, these modifications allowed the survey taker to apply augmentation or reduction to lip fullness to create a ratio of upper to lower lip of 1.5:1.0, 1.25:1.0, 1.0:1.0, 1.0:1.25 and 1.0:1.5 (Fig. 2a—e). The respective areas of modification in overall volume and upper to lower lip ratio were chosen because they were felt to be critical for achieving the desired aesthetic outcome in both non-surgical and surgical procedures. As a last question, all respondents were asked to judge their own selection as appearing rather natural or artificial.

## 2.2. Participant recruitment

Between September and December 2015, the survey was sent to over nine thousand people, including plastic surgeons and the general public, in 35 countries by using a professional e-mail marketing service (Mailchimp, Atlanta, GA, USA). Additionally, plastic surgeons were contacted through their official national societies and the general public was randomly selected via social networks (LinkedIn, Mountain View, CA, USA; Instagram, Facebook, Facebook Inc., Menlo Park, CA, USA; Twitter, Twitter Inc., San

## **Lip Aesthetics**

	HIC# 310/15, PI P. Niclas Broer.
what is	your gender?
$\bigcirc$	male
$\tilde{}$	female
	are you?
(years	old)
$\bigcirc$	20 - 29
0000	30 - 39
$\bigcirc$	40 - 49
	50 - 59
	60 - 69
	>69
In what	country do you live?
What is	your ethnic background?
Pleas	e select \$
is your p	rractice primarily academic or private?
$\bigcirc$	academic
$\bigcirc$	private
Please	< 25 25 - 50 50 - 75 75 - 100 select the most attractive upper to lower lip ratio (with the grey buttons "decrease" and "increase"):
How nat	< decrease increase > ural would you consider your selection?
How nat	
How nat	ural would you consider your selection?
How nat	ural would you consider your selection?

**Fig. 1.** The online questionnaire for plastic surgeons (with an upper to lower lip ratio of 1.0:1.0).

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