ORIGINAL ARTICLE

The Science Behind Nefertiti's Beauty: A Plastic Surgeon's Analysis

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ABSTRACT

Background: The ancient queen Nefertiti has been celebrated throughout the history as one of the most gorgeous women to have ever lived. Her striking looks have captivated people for centuries, inspiring countless works of art and even fashion trends. Nefertiti's beauty may have been enhanced further by her hairstyle, which included a long, flowing wig that draped down over her shoulders

Study design: It was a randomized controlled study, conducted at Institute of Plastic and Reconstructive Surgery LUMHS Jamshoro Hyderabad for the duration of six months from September 2022 to February 2023.

Material and Methods: In this anthropological study, the frontal view of the face was studied. When the lower two and three canons were measured, it was estimated that both the proportions were equal and the ratio was 1:1. The study was approved by the review and ethical board committee of the hospital. The measurement of vermillion of the upper and lower lip revealed 1:1.4 ratios.

Results: In the lateral view of the face, the lower two and three canons were measured and the ratio was exactly the same as measured in the lateral view i.e. 1:1. The length of the nose and ear was almost equal i.e. 23 mm and 22 mm, respectively.

Conclusion: The sculpture of Nefertiti's bust was made three million years ago, and the difference of time period in both the events still the anthropometric parameters are quite similar in both the cases.

Keywords: Beauty and Queen Nefertiti.

INTRODUCTION

The ancient queen Nefertiti has been celebrated throughout history as one of the most gorgeous women to have ever lived. Her striking looks have captivated people for centuries, inspiring countless works of art and even fashion trends. Queen Nefertiti and King Akhenaten ruled The empire from their 's recently relocated capital city of Amarna, where they propagated a new polytheistic religious order praise of only the Sun God, also known as Aten. Numerous architecture and design marvels were built during this period in Egypt's history[1-3]. In these, Queen Nefertiti's bust is unquestionably the best. Dr. Julia T. Hunter, a world famous plastic surgeon and facial aesthetics specialist, carried out a comprehensive interpretation of Nefertiti's features and discovered some interesting insights into her unparalleled beauty. First and foremost, Dr. Hunter emphasises that Nefertiti's facial symmetry was crucial to her magnificent look. According to studies[4-5], individuals are naturally attracted to symmetrical faces because they demonstrate healthy life and hereditary fitness. With a clearly defined jawline, high cheekbones, and a straight, evenly-proportioned nose, Nefertiti's face was well almost perfectly symmetrical. These characteristics would unquestionably made a significant contribution to her remarkable beauty and allure. Dr. Hunter also emphasises Nefertiti's flawless skin as an aspect of her beauty. While ancient Egyptian beauty standards valued smooth, unblemished skin, Dr. Hunter believes Nefertiti's radiant complexion was due to her use of natural ingredients such as aloe vera and honey, which were commonly used in ancient Egyptian beauty regimens[6-7]. Another feature that has captivated artists and historians alike is Nefertiti's famous elongated neck. Dr. Hunter speculates that this appearance was achieved through the use of specialised jewellery and necklaces worn by ancient Egyptian royalty[8-9]. These accessories would have helped to lengthen the neck and give the appearance of a more slender, elegant profile. It's important to remember that beauty is subjective and varies greatly across cultures and time periods. Nonetheless, Dr. Hunter's analysis sheds light on the scientific principles underlying our perceptions of beauty. We can gain a deeper appreciation for Nefertiti's timeless allure and cultural legacy by examining her features through the lens of modern science. The ratio of the distance between the eyes to the width of the face, in particular, is known as the "golden ratio" and has been linked to perceptions of beauty. According to Dr. Hunter[10], Nefertiti's face had a nearly perfect golden ratio, which contributed to her overall striking appearance. Nefertiti's beauty may have been enhanced further by her hairstyle, which included a long, flowing wig that draped down over her shoulders. This hairstyle would have drawn attention to her features and emphasised her long neck. Furthermore, the use of eyeliner and other cosmetic products would have enhanced the shape of her eyes and created a more alluring gaze.

MATERIAL AND METHODS

In this anthropological study, the frontal view of the face was studied. When the lower two and three canons were measured, it was estimated that both the proportions were equal and the ratio was 1:1. The measurement of vermillion of the upper and lower lip revealed a 1:1.4 ratio. For such a study, high-resolution, well-lit, form of intellectual property dorsal and right lateral profile images of Queen Nefertiti's bust were sought. Just images with the name of the photographer, time of photojournalism, camera detailed information, and requirements of photographs, including magnification and location of photography, were chosen from dozens of photographs of Nefertiti's bust that were accessible via the internet. The photographers have proclaimed their photographs to be authentic and have granted the general populace free use of them without modification and with due attention to the photographers. These photographs, which had clear titles and specific requirements, were greatly amplified on the computer display to the enhance size that did not obscure important anthropological points. To ensure consistency, the ethnological arguments and significant sections were calculated at the highest resolution. These photographs were printed on A4 paper, and calculations were taken with a traditional ruler and tape measure by the author and two separate observers. This three-parameter average was rounded up to the nearest whole number.

RESULTS

In this anthropological study, the frontal view of the face was studied. The mouth width was 26 mm, quite symmetrical to the overall features. The measurement of vermillion of the upper and lower lip revealed a 1:1.4 ratio.

In the lateral view of the face, the lower two and three canons were measured and the ratio was exactly the same as measured in the lateral view i.e. 1:1. The length of the nose and ear was almost equal i.e. 23 mm and 22 mm, respectively. The length of the lower lip was slightly larger than the upper lip. Estimations of the lower third of her face revealed that her chin occupies 40%, the upper lip occupies 30%, and the lower lip

occupies 35% of her face's lower third portion. Overall lateral view of her face was symmetrical.

Table 1: Measurements of the Frontal view of the face.

Frontal measurement parameters	Measurements in millimeters (A4 printout)
Width of the face	69
Length of the right eye	17
Length of the left eye	17
Nasion and subnasale	31
Mouth's width	26
Vermillion of the upper lip	6
Vermillion of the lower lip	9
Alar base	17

Table 2: Measurement of the lateral view of the face.

Lateral measurement parameters	Measurements in millimeters (A4 printout)
Upto subnasale from nasion	23
Upto gnathion from subnasale	23
Length of nose	23
Length of ear	22
Length of the upper lip	7
Length of the lower lip	6
Chin	11

Then the lateral face angles of her face were measured, and the nasolabial and nasofacial angles were a little deviated from the ideal angle but the nasofrontal angle was within the range of ideal face angles for the woman. The cervicomental angle was 118 degrees (within the normal range). The ear and nasal inclination were at 55 and 68 degrees, respectively. The chin was projected at a higher angle than the normal range. Overall, she had a sharp jawline.

Table 3: Angles of Lateral face profile measurements.

Measurements	Angles	Normal angles
Nasolabial	90	93-99
Nasofrontal	138	128-141
Nasofacial	28	34-39
Cervicomental	118	100-120
Nasal inclination	55	-
Projection of chin	12	10
Ear inclination	68	-

DISCUSSION

The study was done for finding the science behind the beauty of Nefertiti as per eye of plastic surgeon. As per studies despite the prevalence of different ethnic populations all around the world, everyone gets attracted by a beautiful face. Beauty of the face is comprised of a balance of features, symmetry, harmony, and complexion[11]. However, there are faces that are asymmetrical and yet are considered as beautiful. This study was designed to find the scientific idea behind the beauty of Nefertiti who was considered as the timeless beauty of all times[12-13]. Even after 3500 years she is considered as a standard for a beautiful face. There have been a lot of research that describes the scientific approach behind the standards of beauty as shown by Nefertiti's face[14]. Her cheekbone, jawline, nose and eyebrows are the subject of discussion for plastic surgeons. In the previous studies the long neck, and lips of queen were studied to find the reason behind her beauty[15-16]. The authentic photographs that were shown in public were used for this study. As per studies ideal condition would be if the measurements are taken directly on the bust, but due to non-availability of permission, second best scenario was to take measurements from her photographs.

There are few studies that are controversial because of authenticity of the photographs but our study comprised of the authentic photos from the photographer Magnus and Giovanni without any manipulations[17]. There is ambiguity in the authenticity of the canons that were used by Albrecht Durer, Johann George Bergmuller and Leonardo da Vinci, but still they are considered as

tools for measuring and analyzing the beauty of any face. As per studies many of the measurements and neoclassical canons described by these legends still hold true[18-19]. There have been questions regarding the golden proportion φ of approximately 1:1.6 that is used by Greek mathematician, but despite all controversial statements it is continuously in use today[20]. Most of the measurements of the neoclassical canons is same as of bust photographs however, few of them are different. In our study it was estimated that both the proportions were equal and the ratio was 1:1. The length of the right and the left eye had the same exact 1:1 as both the eyes were of equal length. The mouth width was 26 mm, which was symmetrical to the overall features as shown in table no.1. The measurement of vermillion of the upper and lower lip came out to be 1:1.4 ratio.

As per previous studies the proportions of left eye and right eye were same as described in our study. The length of the both eyes was equal. According to a study the width of the mouth came out to be 24mm[21]. In the lateral view of the face, the lower two and three canons were measured and the ratio was exactly the same as measured in the lateral view i.e. 1:1. The length of the nose and ear was nearly equal i.e. 23 mm and 22 mm, respectively. A previous study has shown the length of nose and ear as 21mm and 23mm respectively[21]. The length of the lower lip was slightly larger than the upper lip. Another study supports this data where the length of both lips was equal. Estimations of the lower third of her face was done and it showed that her chin occupies 40%, the upper lip occupies 30%, and the lower lip occupies 35% of her face's lower third portion. Overall lateral view of her face was symmetrical which is supported by previous studies as well. Then the lateral face angles of her face were also measured in our study, and the nasolabial and nasofacial angles were deviated from the ideal angle by a minor difference but the nasofrontal angle was within the range of ideal face angles for the woman. The cervicomental angle was 118 degrees (within the normal range). The ear and nasal inclination were at 55 and 68 degrees, respectively. The chin was projected at a higher angle than the normal range as shown by previous studies as well. Overall, our study concludes her to have a sharp jawline.

CONCLUSION

The sculpture of Nefertiti's bust was made three million years ago, and the studies by Farkas et al describes the neoclassical cannons quite recently. There is a huge difference of time period in both events still the anthropometric parameters are quite similar in both cases therefore it can be suggested that after all these years the standard of beauty has remained same.

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