Aesthetic Plastic Surgery

# The Impact of Mastectomy on Trans male's Chest Aesthetics Outcomes: A Pilot Eye Tracking Study

--Manuscript Draft--

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## Abstract

**Background:** Eye tracking Technology provides data about the subconscious attention of the viewer. Aesthetic outcomes can be measured in attractiveness and masculinity likeness. We aim to assess how aesthetic outcomes are perceived by tracking the subconscious gaze patterns which will reflect anatomic features that are most relevant to observers. **Materials and Methods:** A group of trans masculine patients (n=8) who underwent double incision mastectomy with free nipple grafts were included. Forty standardized digital images of chest pre- and post-operative were collected (n=40). Seven photographs of control cis-male chests were also obtained for use in comparative ratings. Gaze patterns from the recruited observer group (n=40) were recorded using an eye tracking system and subjected to a comparative analysis. Each postoperative photograph was rated with a Likert scale. **Results:** Pre-operatively, observers spent 7.47% of their attention on the nipple-areolar complex, and 38.4% on the surrounding chest. Post-operatively, observers spend 8.16% of their attention on the scars, 6.34% on the nipple-areolar complex (which overlaps with the scar), and the rest of the time, 40.51%, on the chest. In control pictures, observers spend 5.67% in the NAC and 37% in the surrounding chest. The similarity to a cis-male chest rating increased from 2.69 pre-operatively to 5.61 post-operatively ($p<0.05$). **Conclusions:** We provide data demonstrating the use of Eye tracking Technology as a novel, objective method to evaluate the impact of trans male patient's chest reconstructions on an observer's reflexive visual perception as well as their deliberate assessments of masculinity.

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- This is the first objective perception's description of attractiveness exclusively for masculinized chests after gender-affirming top surgery.
- We assessed how aesthetic outcomes are perceived by tracking the subconscious gaze patterns which will reflect anatomic features that are most salient to observers in patients undergoing mastectomy top surgery.
- The use of eye tracking technology allows to demonstrate objectively how observers perceive the results of gender-affirming mastectomy.

**Key words:** Trans gender, Gender-affirming surgery, Top-surgery, Eye-tracking, Chest-surgery, Mastectomy.

## Introduction

An estimated of 1.3 million adults in the United States identify as transgender (0.5% of the country population).[1] In the state of Minnesota alone, this represents an estimated 26.000 individuals (0,6% of the state's population).[1] Since 2016, in Minnesota it was implemented that state's Medicaid programs cover gender affirming treatments, including surgery. The increased awareness validated by law brought an exponential surge in surgical procedures for treatment of gender dysphoria.[2]

For trans masculine patients, top surgery or chest wall masculinization is the cornerstone of gender-affirming (GA) surgery.[3] It is often the first surgical procedure during transition, and occasionally the only one performed.[4] It has been positively associated with better social interactions, improved mental health, and quality of life.[5,6] To achieve satisfactory outcomes, the differences between cis-male and cis-female chest and nipple-areolar complex (NAC) anatomy should be carefully considered by the plastic surgeon to resize and reposition accordingly.[7]

There are methods to assess the surgical aesthetic outcomes in GA top surgery such as, patient reported outcomes scales (PROs). For example, the chest module of the BODY-Q scale and the BREAST-Q, although their development did not include any trans or GNC patients.[7–9] Currently, there is a GENDER-Q scale in development exclusively designed for these patients.[10] However, these traditional methods do not provide objective appraisals of how observers perceive the results of reconstruction.

Artificial Intelligence's deep learning has led to the use of eye tracking technology (ETT) which recognizes the amount of time a user observes different areas of the screen. The data generated provides vital information regarding the subconscious gaze, hence areas of interest (AOI) for the observer. Its popularity in plastic surgery has increased over the last decade as it provides objective assessment over the observer's visual preferences as a proxy of our preferences and aversions.[11] Applying this principle to our study, we aim to assess how aesthetic outcomes are perceived by tracking the subconscious gaze patterns which will reflect anatomic features that are most salient to observers in patients undergoing mastectomy top surgery. Aesthetic outcomes can be measured in attractiveness, and in this case, masculinity likeness perceived by observers. Currently, there is limited evidence that has studied the use of ETT for breast and chest aesthetic outcomes.[4,12–14] Only one study shows how gender identity assesses the GA top surgery outcomes of both trans male and trans female.[4] However, none of these assess exclusively the trans male chest aesthetic outcomes. A better comprehension of the subjective concept of chest attractiveness or masculinity could improve the PRO after reconstructive surgeries and contribute to the development of new methods for assessing mastectomy outcomes in this patient's population.

## Materials and Methods

Ethical approval was granted by the Mayo Clinic Institutional Review Board. A written informed consent was obtained from the patients whose images were included in the study. A group of 8 trans masculine patients with mean age 25.13± 4.59 years (range, 21-36 years) *(Figure 3)* who underwent double incision mastectomy with free nipple grafts (DIFNG) were included. Forty standardized digital images of chest pre- and post-operative in antero-posterior view (AP) were retrospectively collected *(Figure 4).* Seven AP standardized digital images of control cis-male chests were also obtained for use in comparative ratings. All photographs were processed individually by hand using predetermined landmarks, in order to divide into 6 symmetric areas of interest (AOIs): 1-2) NAC, 3-4) surrounding chest: defined by borders: clavicle, sternum midline, anterior axillary line; and 5-6) scars (in post operative photographs only) *(Figure 1).* A total of forty participants with mean age 43.63± 11.61 years (range, 20-64 years), 23 females and 17 males *(Figure 2),* were recruited to participate as observers. Written consent was provided prior study participation. Subjects were asked to visually evaluate the overall aesthetic outcomes on the photographs; they were not given specific aesthetic features to focus on.

Visual gaze was tracked using the EyeTech TM4 desktop mounted system (EyeTech Digital Systems, Mesa, AZ) which consists of a near-infrared LEDs light and an eye tracking camera that detects the reflection of light off the cornea with binocular data tracking rate of 30 Hz. It can continuously measure *minute* movements of the eye, and this eye position data is then connected to the pre-assigned AOIs on a photograph being observed on the computer screen by a subject. The precision of this eye tracker model is of less than half a degree (0,5∘) of visual angle, which corresponds to a circle of 0,5 cm in radius of the monitor which displays the image at a viewing distance of 63.5 cm. A chin and forehead rest, with adjustable height and straps, was used

to maintain the observer's head stability *(Figure 6*). An established protocol of distances between the camera, observers chin, monitor stand, camera-monitor, monitor-to chin, and table to bottom chin was applied equally to every experiment. The infrared camera runs a 16-pt calibration on the observer's eye before starting each experiment. The software used for the analysis was the GazeTracker Full 10.0. After each experiment, each postoperative photograph was rated by the observers for similarity to a male chest: 7 being the most similar to a cis-male chest, and 1 being the most similar to a cis-female.

## Results and Discussion

A key goal of chest masculinization top surgery is to improve trans male and GNC patients' body image and self-esteem, thus consequently reducing their gender dysphoria.[4] However, our knowledge about perception of breast attractiveness among patients who underwent mastectomy and their expectations stems primarily from studies whose population entails cis-female patients.[15] Another gap in the current literature is that said studies utilize self-assessment scales and questionnaires as measurements and there is a high discrepancy amongst them.[14,16,17] There is evidence regarding the use of ETT for assessing: female breast attractiveness post mastectomy,[13,14] male preference on female breast,[18,19] and gender identity perception of both GA top surgeries outcomes. Nonetheless, there is no knowledge exclusively regarding the objective perception of attractiveness for masculinized chests after GA top surgery.

Using ETT, the subjective concept of breast attractiveness or aesthetic outcomes are interpreted by how much time observers spent fixating their gaze in specific areas. The first study of ETT of breast reconstruction on cis-female onco-plastic patients 12 years ago established that the AP photographs were the ones where observers would spend the most time,[12] therefore it was the view of choice in this study. Shortly after, a cis male conscious assessment of naive cis female breasts established that medium to large breasts and dark and medium areolar pigmentation are more attractive characteristics than small breasts with light areolae. However, ETT evidenced their gaze pattern did not differ significantly based on these morphological traits, hence their subconscious assessment was different. [18] Now, we aimed to assess the success of "masculinization" of the chest, by comparing the average of the observers' ratings of pre- and post-surgical photos, with 7 being the most similar to ideal male chest and 1 being most similar to ideal

female chest, showed that the similarity to a cis-male chest rating increased from 2.69 pre-operatively to 5.61 post-operatively ($p<0.05$).

Currently, there are three studies that assess ETT on specific AOIs on breasts before and after surgery.[4,14,18] Overall, detailed analysis of gaze patterns have shown that NAC allures the most attention through longest fixation time. [4,14,18] However, if divided before and after surgery, conclusions are split *(table 1)*: some show that preoperatively NAC is still the main AOI;[4,13] nonetheless, another study shows the lower quadrants (25.58% right and 28.62% left) were the main AOI preoperatively,[14] which corresponds to the "surrounding chest" AOI in our study where the observers also spend most of the time (40.51%). Postoperatively, that same study establishes the NAC as the main AOI, [14] as well as the transgender group in another study[4]. However, the cis-gender group focused more on the scars, coinciding with the group of incomplete reconstruction (without NAC) on Cai et al study. Interestingly, the result changes if the patients had a complete reconstruction with NAC present, where the attention is almost the same between NAC (27.5%) and scars (27.7%).[20] However, our study showed observers spend most of the time (40.51%) on the surrounding chest, secondly on the IMF scars (8.16%), and finally on the NAC (6.34%) (which overlaps with the scar) *(Figure 7)*.

This variance on the results between studies can be attributed mainly that the comparison includes different population (cis-females vs trans males) and the one study on GA surgeries compares trans female with trans male results is not significant to draw conclusions for a trans male population. For example, some female chests in ETT studies have incomplete reconstructions: do not have one or both nipples, making this comparison more heterogeneous. More studies are needed in the trans male population regarding perceived aesthetic outcomes through ETT.

One of the limitations of the study is in regards photography: the ones included were only AP; lateral or oblique photographs were not considered; and that AOIs 3-4 integrated the entire chest surrounding, meaning they were not divided it in quadrants, neither included sternum areas, as in other cis-female breast studies.[12,14] The reason behind this chosen methodology is that, in a masculinized chest, quadrants are not very different post operatively amongst each other and there is no projection in other views other than AP. However, to make a close comparison between cis-female and masculinized chest these additional considerations could detail even more the aesthetic areas of importance hence improve cautious during the surgical procedure. On the other hand, in addition to defining longer fixation times on AOIs, some ETT studies have studied dwell-time[12] and the initial fixation AOI,[13] which were not included in our study. Finally, observers' gender identity [4] nor educational background[12] were not taken into consideration, although there is some evidence showing these factors have an effect on AOIs and aesthetic perception after GA top surgery and overall aesthetic assessment, respectively.

## Conclusions

We provide data demonstrating the use of eye tracking technology as a novel, objective method to evaluate the impact of trans male patient’s chest reconstructions on an observer's reflexive visual perception as well as their deliberate assessments of masculinity.

**Table 1. AOIs with Longer Fixation's Summary from ETT Studies for Breast Surgery Aesthetic Outcomes**

| AOIs / study | **Our study** | | | **Martin**[4]- Assessing GA chest surgery outcomes: does gender identity alter gaze? | | **Pietruski** [14]- The Impact of Mastectomy on Women's Visual Perception of Breast Aesthetics and Symmetry: A Pilot ET Study | | **Cai**-[13] Where Do We Look? Assessing Gaze Patterns in Breast Reconstructive Surgery with ETT | |
|---|---|---|---|---|---|---|---|---|---|
| | **2023** | | | **2021** | | **2020** | | **2018** | |
| | **Control** | **Pre-op** | **Post-op** | **Pre-op (naive)** | **Post-op** | **Pre-op (control)** | **Post-op** | **Pre-op** | **Post-op** |
| NAC | 5.67% | 7.47% | 6.34% | Trans (802 ms) > cis (495ms) | Trans | 25.58% (R)<br>28.62% (L) | 25.11% (R)<br>24.22 (L) | 40.2% | 27.5% |
| Surrounding chest | 37% | 38.4% | 40.51% | | | | | | |
| Scars (NAC present) | | | 8.16% | | Cis: IMF and lateral | | | | 27.7% |
| Scars (no NAC) | | | | | | | | | 53.9% |
| Lower outer quadrant | | | | | | 25.75% (R) | 24.57% (R)<br>21.88% (L) | | |
| Lower inner quadrant | | | | | | 26.68% (L) | | | |

*AOIs: areas of interest; NAC: Nipple-areolar complex; (R): Right; (L): Left.

## Figures

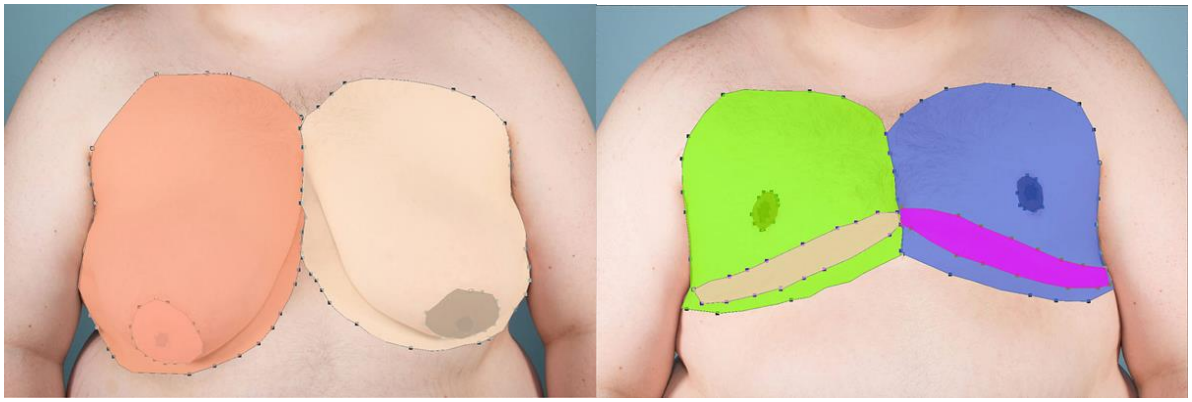

*Figure 1 Study images examples of trans male patient's chest a) pre and b) post DIFNG. All images were processed individually by hand, using predetermined landmarks, in order to assign 6 symmetric AOIs based on key breast*

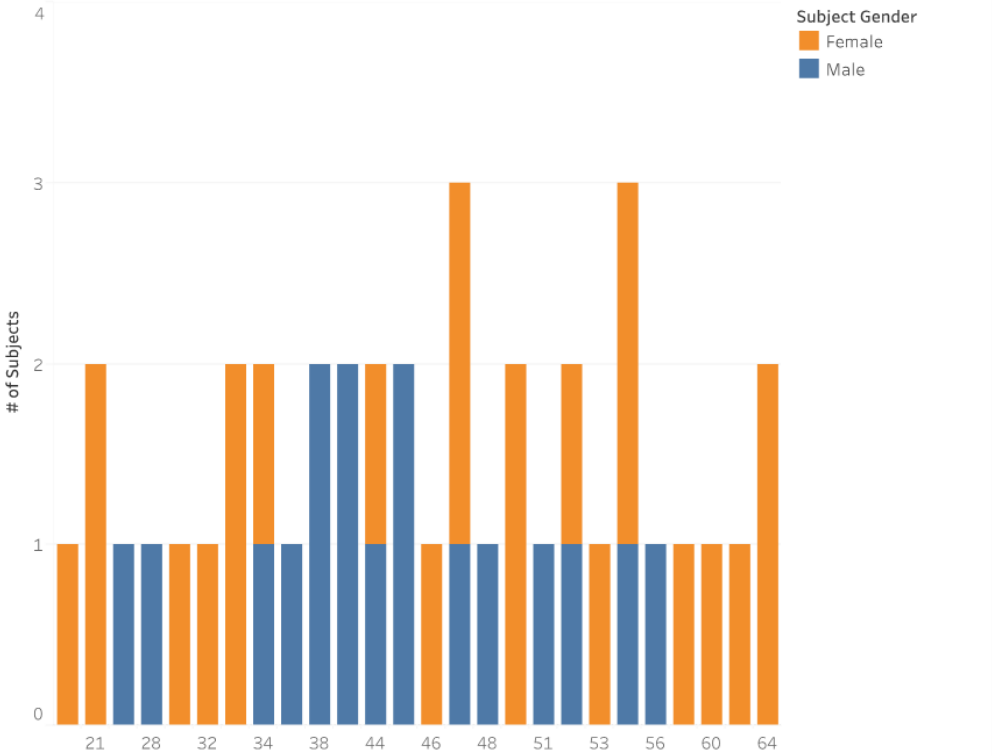


*Figure 2 Observer's age and the distribution according to their age.*

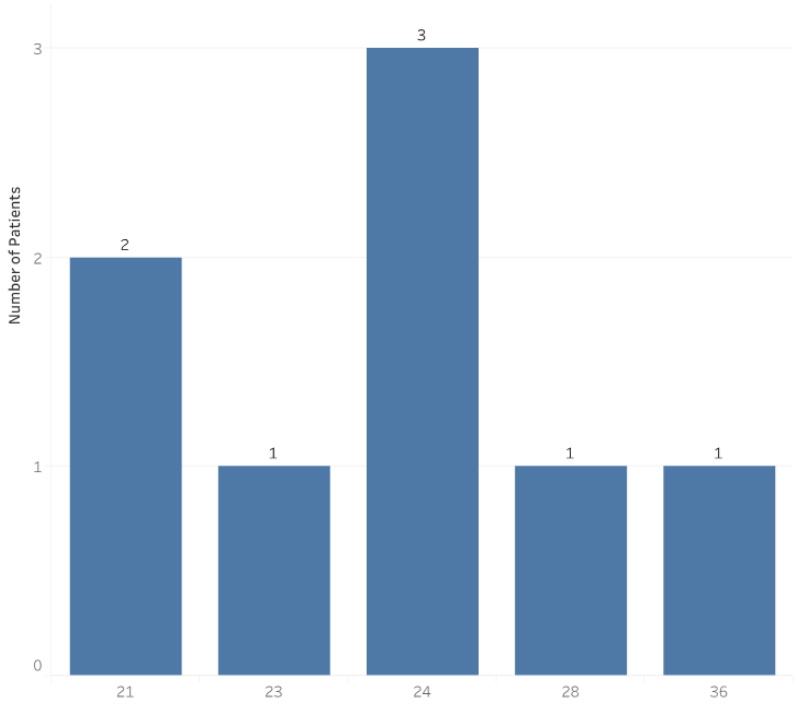


*Figure 3 Patient's age.*

*Figure 4 Pre- and Post-Op photos of the eight trans male patients that underwent gender affirming top surgery. Ages ranged from 21-36 years old.*

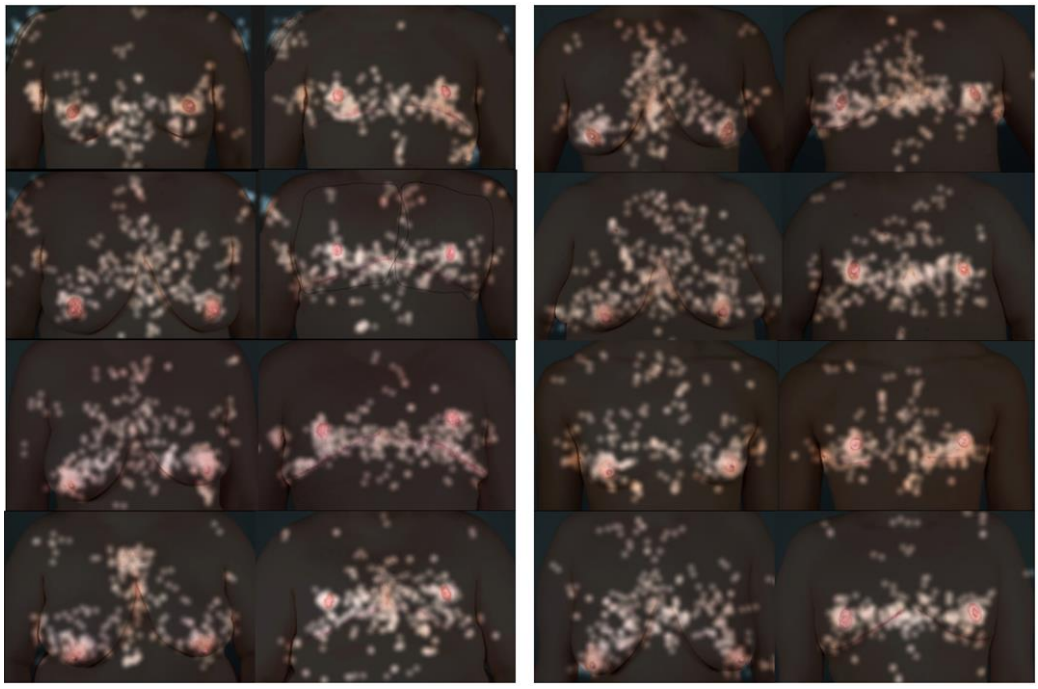

*Figure 5 Corresponding Pre- and Post-Op photos of the eight patients with overlay of the eye tracking technology demonstrating where the observer's fixated their gaze.*

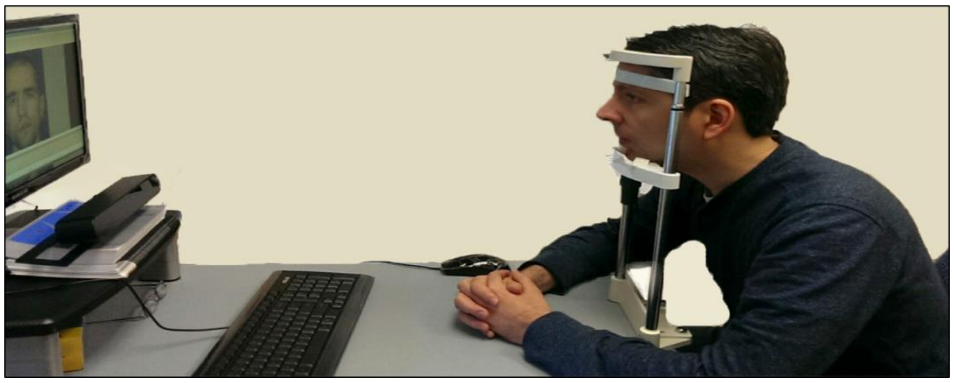

*Figure 6 Our ET setup: viewing subject's face seated on a chin rest, and the near-infrared ET device aiming at the subject's eyes as he observes the monitor. The ET detects movements of less than half a degree of visual angle*

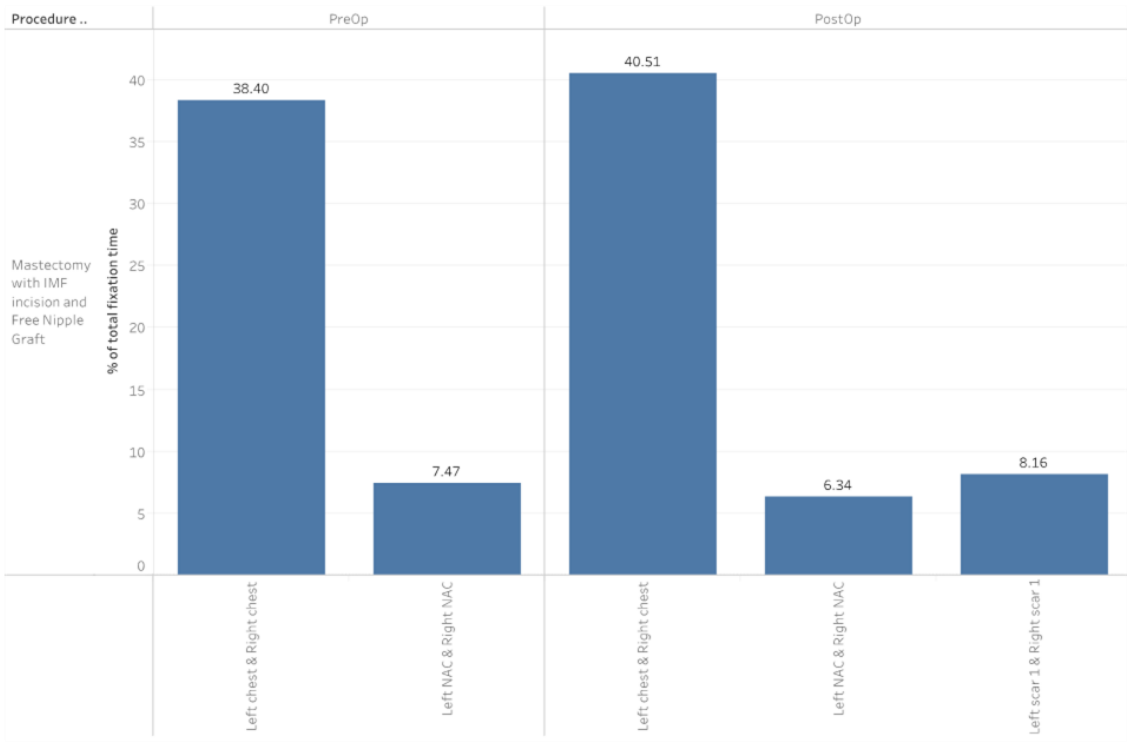


*Figure 7 Observers were found to have the greatest percentage of gaze fixation on the left and right chest regions compared to the nipple areolar complex both pre- and post-operative.*

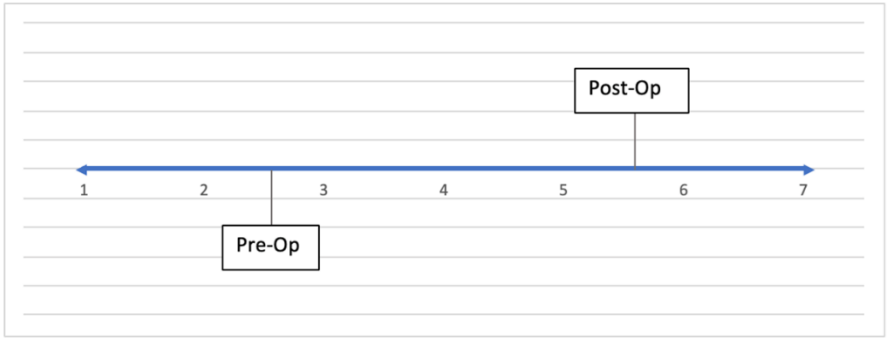


*Figure 8 Average observer ratings of pre- and post-operative gender affirming chest surgery with 7 being most similar to ideal male chest and 1 being most similar to ideal female chest.*

**Acknowledgement**:

- The authors declare that they have no conflict of interest.
- Ethical Approval Institutional review board approval was obtained for the study.
- Informed Consent All patients provided informed consent.

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For trans masculine patients, top surgery or chest wall masculinization is the cornerstone of gender-affirming (GA) surgery.[3] It is often the first surgical procedure during transition, and occasionally the only one performed.[4] It has been positively associated with better social interactions, improved mental health, and quality of life.[5,6] To achieve satisfactory outcomes, the differences between cis-male and cis-female chest and nipple-areolar complex (NAC) anatomy should be carefully considered by the plastic surgeon to resize and reposition accordingly.[7]

There are methods to assess the surgical aesthetic outcomes in GA top surgery such as, patient reported outcomes scales (PROs). For example, the chest module of the BODY-Q scale and the BREAST-Q, although their development did not include any trans or GNC patients.[7–9] Currently, there is a GENDER-Q scale in development exclusively designed for these patients.[10] However, these traditional methods do not provide objective appraisals of how observers perceive the results of reconstruction.

Artificial Intelligence's deep learning has led to the use of eye tracking technology (ETT) which recognizes the amount of time a user observes different areas of the screen. The data generated provides vital information regarding the subconscious gaze, hence areas of interest (AOI) for the observer. Its popularity in plastic surgery has increased over the last decade as it provides objective assessment over the observer's visual preferences as a proxy of our preferences and aversions.[11] Applying this principle to our study, we aim to assess how aesthetic outcomes are perceived by tracking the subconscious gaze patterns which will reflect anatomic features that are most salient to observers in patients undergoing mastectomy top surgery. Aesthetic outcomes can be measured in attractiveness, and in this case, masculinity likeness perceived by observers. Currently, there is limited evidence that has studied the use of ETT for breast and chest aesthetic outcomes.[4,12–14] Only one study shows how gender identity assesses the GA top surgery outcomes of both trans male and trans female.[4] However, none of these assess exclusively the trans male chest aesthetic outcomes. A better comprehension of the subjective concept of chest attractiveness or masculinity could improve the PRO after reconstructive surgeries and contribute to the development of new methods for assessing mastectomy outcomes in this patient's population.

## Materials and Methods

Ethical approval was granted by the Mayo Clinic Institutional Review Board. A written informed consent was obtained from the patients whose images were included in the study. A group of 8 trans masculine patients with mean age 25.13± 4.59 years (range, 21-36 years) *(Figure 3)* who underwent double incision mastectomy with free nipple grafts (DIFNG) were included. Forty standardized digital images of chest pre- and post-operative in antero-posterior view (AP) were retrospectively collected *(Figure 4).* Seven AP standardized digital images of control cis-male chests were also obtained for use in comparative ratings. All photographs were processed individually by hand using predetermined landmarks, in order to divide into 6 symmetric areas of interest (AOIs): 1-2) NAC, 3-4) surrounding chest: defined by borders: clavicle, sternum midline, anterior axillary line; and 5-6) scars (in post operative photographs only) *(Figure 1).* A total of forty participants with mean age 43.63± 11.61 years (range, 20-64 years), 23 females and 17 males *(Figure 2),* were recruited to participate as observers. Written consent was provided prior study participation. Subjects were asked to visually evaluate the overall aesthetic outcomes on the photographs; they were not given specific aesthetic features to focus on.

Visual gaze was tracked using the EyeTech TM4 desktop mounted system (EyeTech Digital Systems, Mesa, AZ) which consists of a near-infrared LEDs light and an eye tracking camera that detects the reflection of light off the cornea with binocular data tracking rate of 30 Hz. It can continuously measure *minute* movements of the eye, and this eye position data is then connected to the pre-assigned AOIs on a photograph being observed on the computer screen by a subject. The precision of this eye tracker model is of less than half a degree (0,5∘) of visual angle, which corresponds to a circle of 0,5 cm in radius of the monitor which displays the image at a viewing distance of 63.5 cm. A chin and forehead rest, with adjustable height and straps, was used

to maintain the observer's head stability *(Figure 6*). An established protocol of distances between the camera, observers chin, monitor stand, camera-monitor, monitor-to chin, and table to bottom chin was applied equally to every experiment. The infrared camera runs a 16-pt calibration on the observer’s eye before starting each experiment. The software used for the analysis was the GazeTracker Full 10.0. After each experiment, each postoperative photograph was rated by the observers for similarity to a male chest: 7 being the most similar to a cis-male chest, and 1 being the most similar to a cis-female.

## Results and Discussion

A key goal of chest masculinization top surgery is to improve trans male and GNC patients' body image and self-esteem, thus consequently reducing their gender dysphoria.[4] However, our knowledge about perception of breast attractiveness among patients who underwent mastectomy and their expectations stems primarily from studies whose population entails cis-female patients.[15] Another gap in the current literature is that said studies utilize self-assessment scales and questionnaires as measurements and there is a high discrepancy amongst them.[14,16,17] There is evidence regarding the use of ETT for assessing: female breast attractiveness post mastectomy,[13,14] male preference on female breast,[18,19] and gender identity perception of both GA top surgeries outcomes. Nonetheless, there is no knowledge exclusively regarding the objective perception of attractiveness for masculinized chests after GA top surgery.

Using ETT, the subjective concept of breast attractiveness or aesthetic outcomes are interpreted by how much time observers spent fixating their gaze in specific areas. The first study of ETT of breast reconstruction on cis-female onco-plastic patients 12 years ago established that the AP photographs were the ones where observers would spend the most time,[12] therefore it was the view of choice in this study. Shortly after, a cis male conscious assessment of naive cis female breasts established that medium to large breasts and dark and medium areolar pigmentation are more attractive characteristics than small breasts with light areolae. However, ETT evidenced their gaze pattern did not differ significantly based on these morphological traits, hence their subconscious assessment was different. [18] Now, we aimed to assess the success of "masculinization" of the chest, by comparing the average of the observers' ratings of pre- and post-surgical photos, with 7 being the most similar to ideal male chest and 1 being most similar to ideal

female chest, showed that the similarity to a cis-male chest rating increased from 2.69 pre-operatively to 5.61 post-operatively ($p<0.05$).

Currently, there are three studies that assess ETT on specific AOIs on breasts before and after surgery.[4,14,18] Overall, detailed analysis of gaze patterns have shown that NAC allures the most attention through longest fixation time. [4,14,18] However, if divided before and after surgery, conclusions are split *(table 1)*: some show that preoperatively NAC is still the main AOI;[4,13] nonetheless, another study shows the lower quadrants (25.58% right and 28.62% left) were the main AOI preoperatively,[14] which corresponds to the "surrounding chest" AOI in our study where the observers also spend most of the time (40.51%). Postoperatively, that same study establishes the NAC as the main AOI, [14] as well as the transgender group in another study[4]. However, the cis-gender group focused more on the scars, coinciding with the group of incomplete reconstruction (without NAC) on Cai et al study. Interestingly, the result changes if the patients had a complete reconstruction with NAC present, where the attention is almost the same between NAC (27.5%) and scars (27.7%).[20] However, our study showed observers spend most of the time (40.51%) on the surrounding chest, secondly on the IMF scars (8.16%), and finally on the NAC (6.34%) (which overlaps with the scar) *(Figure 7)*.

This variance on the results between studies can be attributed mainly that the comparison includes different population (cis-females vs trans males) and the one study on GA surgeries compares trans female with trans male results is not significant to draw conclusions for a trans male population. For example, some female chests in ETT studies have incomplete reconstructions: do not have one or both nipples, making this comparison more heterogeneous. More studies are needed in the trans male population regarding perceived aesthetic outcomes through ETT.

One of the limitations of the study is in regards photography: the ones included were only AP; lateral or oblique photographs were not considered; and that AOIs 3-4 integrated the entire chest surrounding, meaning they were not divided it in quadrants, neither included sternum areas, as in other cis-female breast studies.[12,14] The reason behind this chosen methodology is that, in a masculinized chest, quadrants are not very different post operatively amongst each other and there is no projection in other views other than AP. However, to make a close comparison between cis-female and masculinized chest these additional considerations could detail even more the aesthetic areas of importance hence improve cautious during the surgical procedure. On the other hand, in addition to defining longer fixation times on AOIs, some ETT studies have studied dwell-time[12] and the initial fixation AOI,[13] which were not included in our study. Finally, observers' gender identity [4] nor educational background[12] were not taken into consideration, although there is some evidence showing these factors have an effect on AOIs and aesthetic perception after GA top surgery and overall aesthetic assessment, respectively.

## Conclusions

We provide data demonstrating the use of eye tracking technology as a novel, objective method to evaluate the impact of trans male patient’s chest reconstructions on an observer's reflexive visual perception as well as their deliberate assessments of masculinity.

**Table 1. AOIs with Longer Fixation's Summary from ETT Studies for Breast Surgery Aesthetic Outcomes**

| AOIs / study | **Our study** | | | **Martin**[4]- Assessing GA chest surgery outcomes: does gender identity alter gaze? | | **Pietruski** [14]- The Impact of Mastectomy on Women's Visual Perception of Breast Aesthetics and Symmetry: A Pilot ET Study | | **Cai**-[13] Where Do We Look? Assessing Gaze Patterns in Breast Reconstructive Surgery with ETT | |
|---|---|---|---|---|---|---|---|---|---|
| | **2023** | | | **2021** | | **2020** | | **2018** | |
| | **Control** | **Pre-op** | **Post-op** | **Pre-op (naive)** | **Post-op** | **Pre-op (control)** | **Post-op** | **Pre-op** | **Post-op** |
| NAC | 5.67% | 7.47% | 6.34% | Trans (802 ms) > cis (495ms) | Trans | 25.58% (R)<br>28.62% (L) | 25.11% (R)<br>24.22 (L) | 40.2% | 27.5% |
| Surrounding chest | 37% | 38.4% | 40.51% | | | | | | |
| Scars (NAC present) | | | 8.16% | | Cis: IMF and lateral | | | | 27.7% |
| Scars (no NAC) | | | | | | | | | 53.9% |
| Lower outer quadrant | | | | | | 25.75% (R) | 24.57% (R)<br>21.88% (L) | | |
| Lower inner quadrant | | | | | | 26.68% (L) | | | |

*AOIs: areas of interest; NAC: Nipple-areolar complex; (R): Right; (L): Left.

## Figures

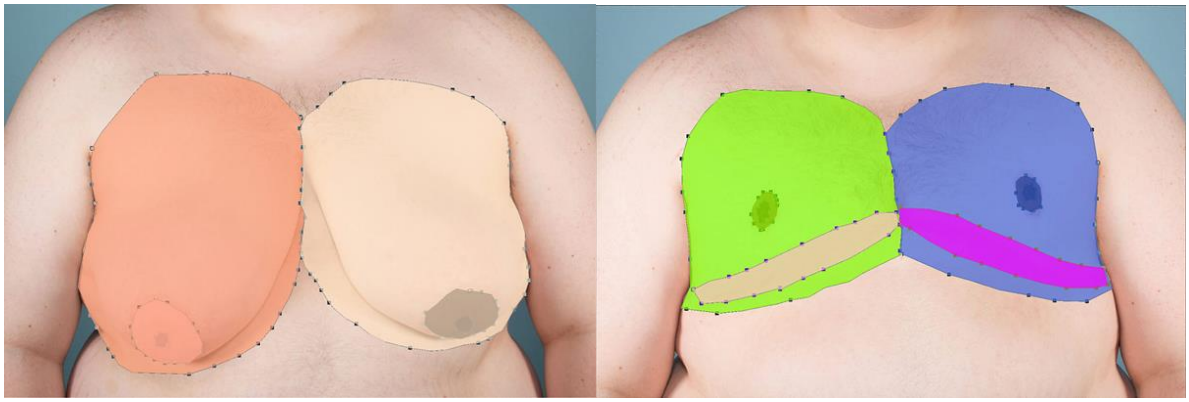

*Figure 1 Study images examples of trans male patient's chest a) pre and b) post DIFNG. All images were processed individually by hand, using predetermined landmarks, in order to assign 6 symmetric AOIs based on key breast*

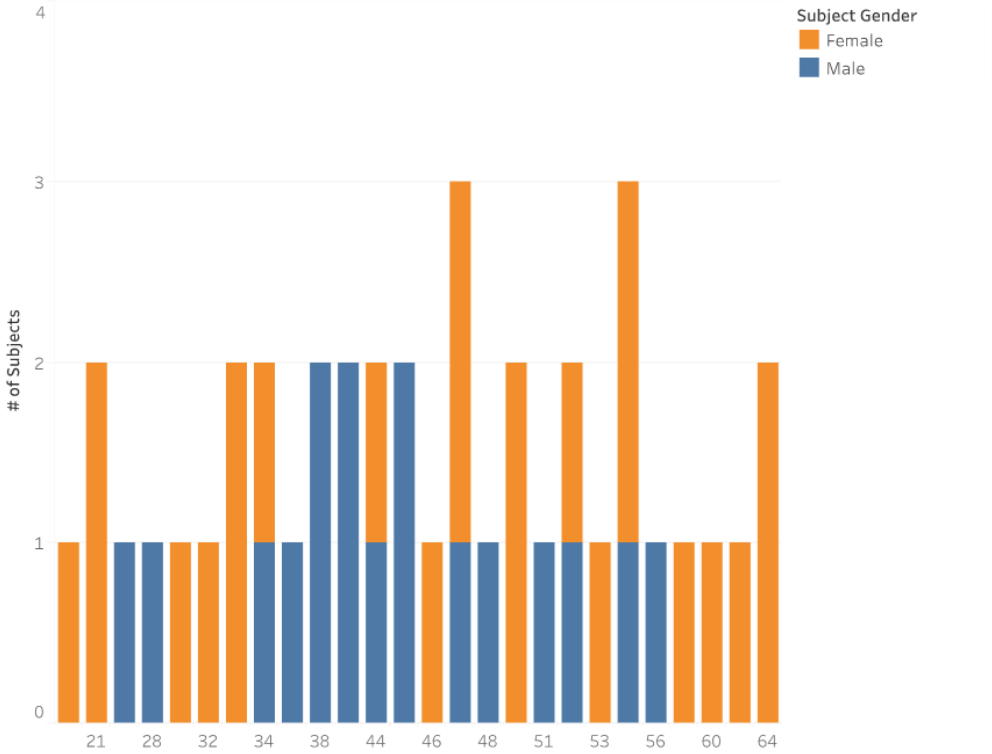


*Figure 2 Observer's age and the distribution according to their age.*

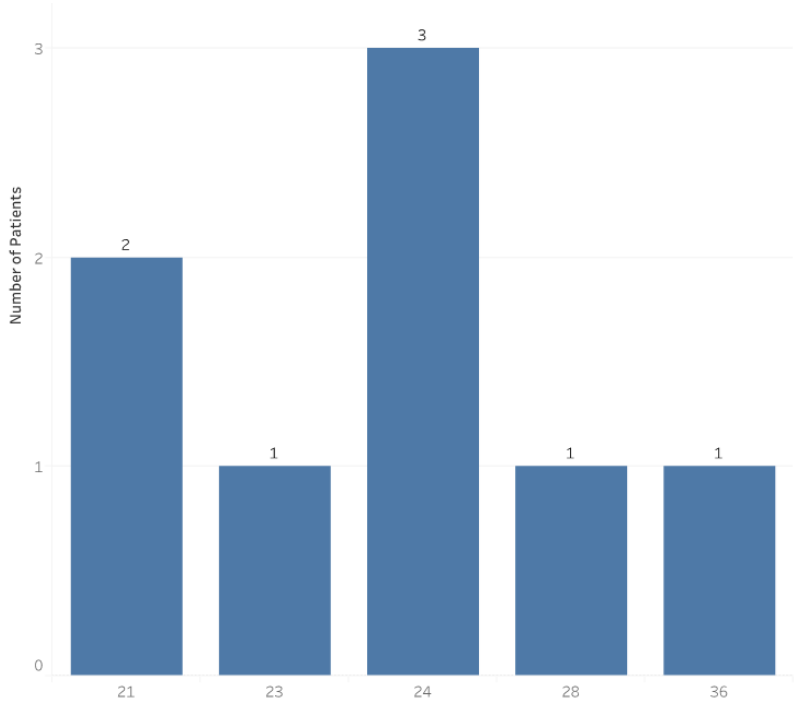


*Figure 3 Patient's age.*

*Figure 4 Pre- and Post-Op photos of the eight trans male patients that underwent gender affirming top surgery. Ages ranged from 21-36 years old.*

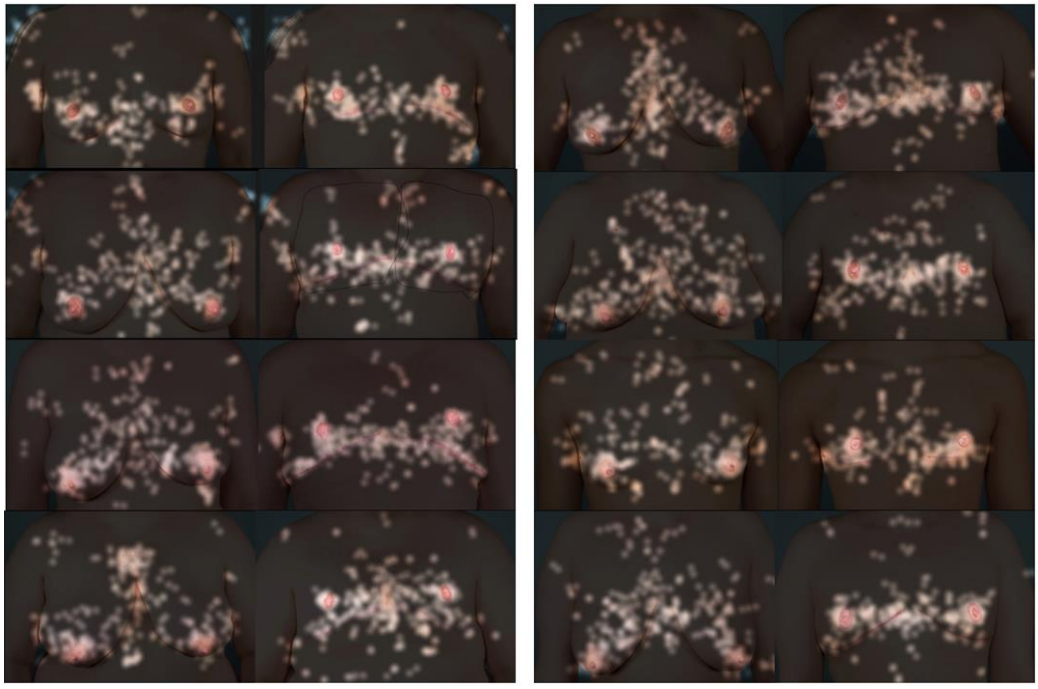

*Figure 5 Corresponding Pre- and Post-Op photos of the eight patients with overlay of the eye tracking technology demonstrating where the observer's fixated their gaze.*

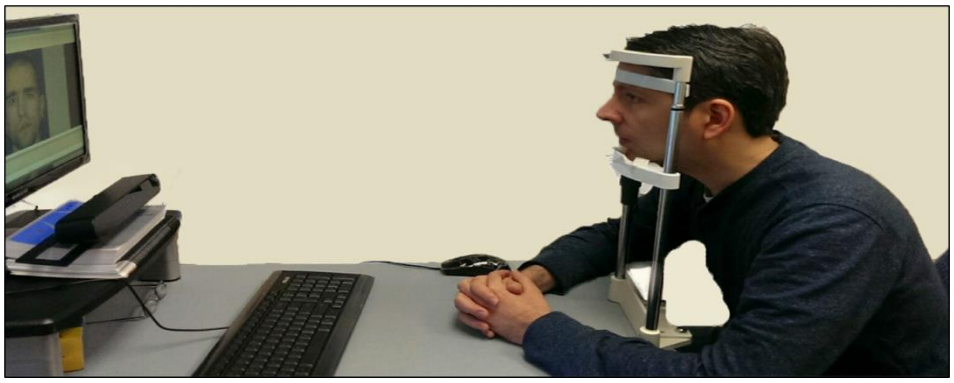

*Figure 6 Our ET setup: viewing subject's face seated on a chin rest, and the near-infrared ET device aiming at the subject's eyes as he observes the monitor. The ET detects movements of less than half a degree of visual angle*

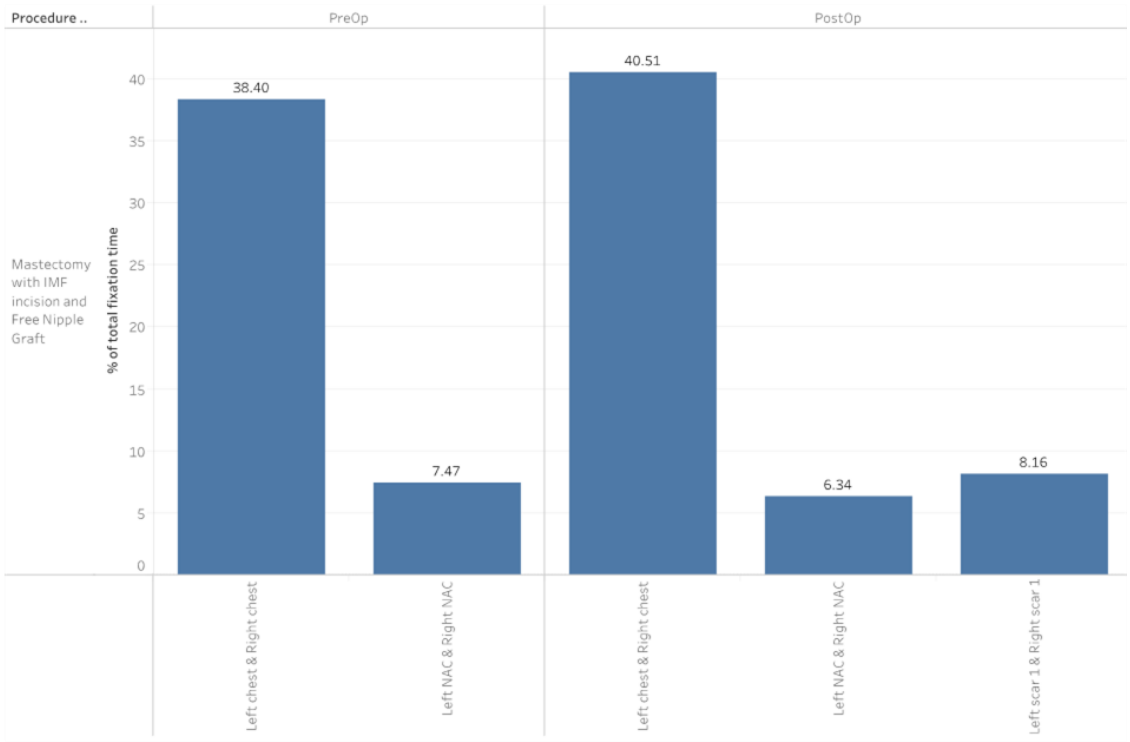


*Figure 7 Observers were found to have the greatest percentage of gaze fixation on the left and right chest regions compared to the nipple areolar complex both pre- and post-operative.*

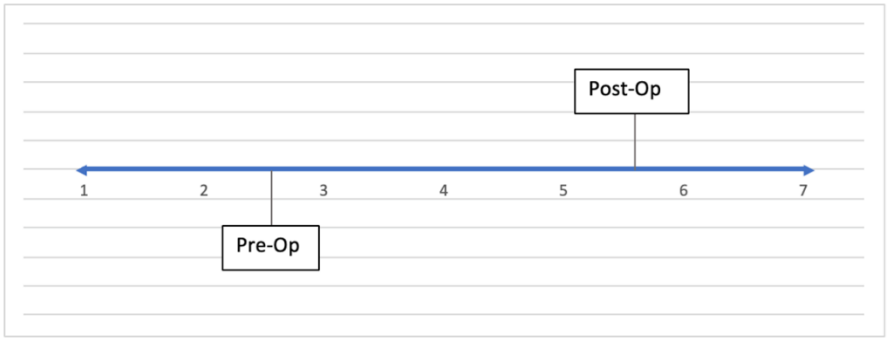


*Figure 8 Average observer ratings of pre- and post-operative gender affirming chest surgery with 7 being most similar to ideal male chest and 1 being most similar to ideal female chest.*

**Acknowledgement**:

- The authors declare that they have no conflict of interest.
- Ethical Approval Institutional review board approval was obtained for the study.
- Informed Consent All patients provided informed consent.

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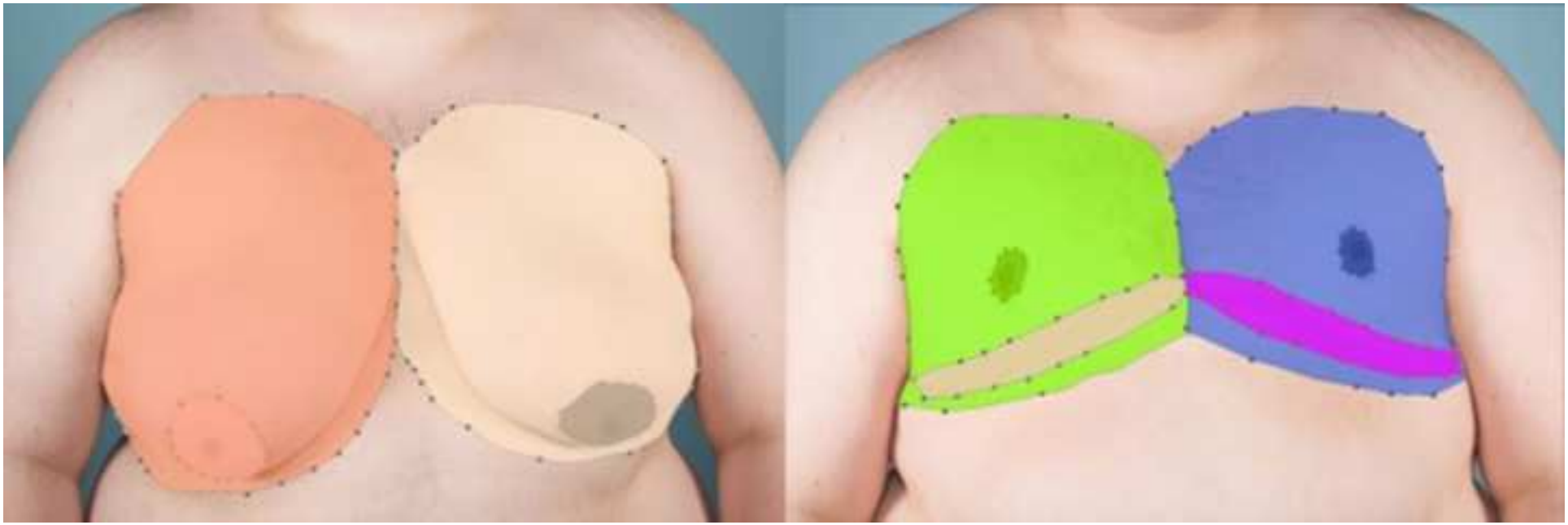

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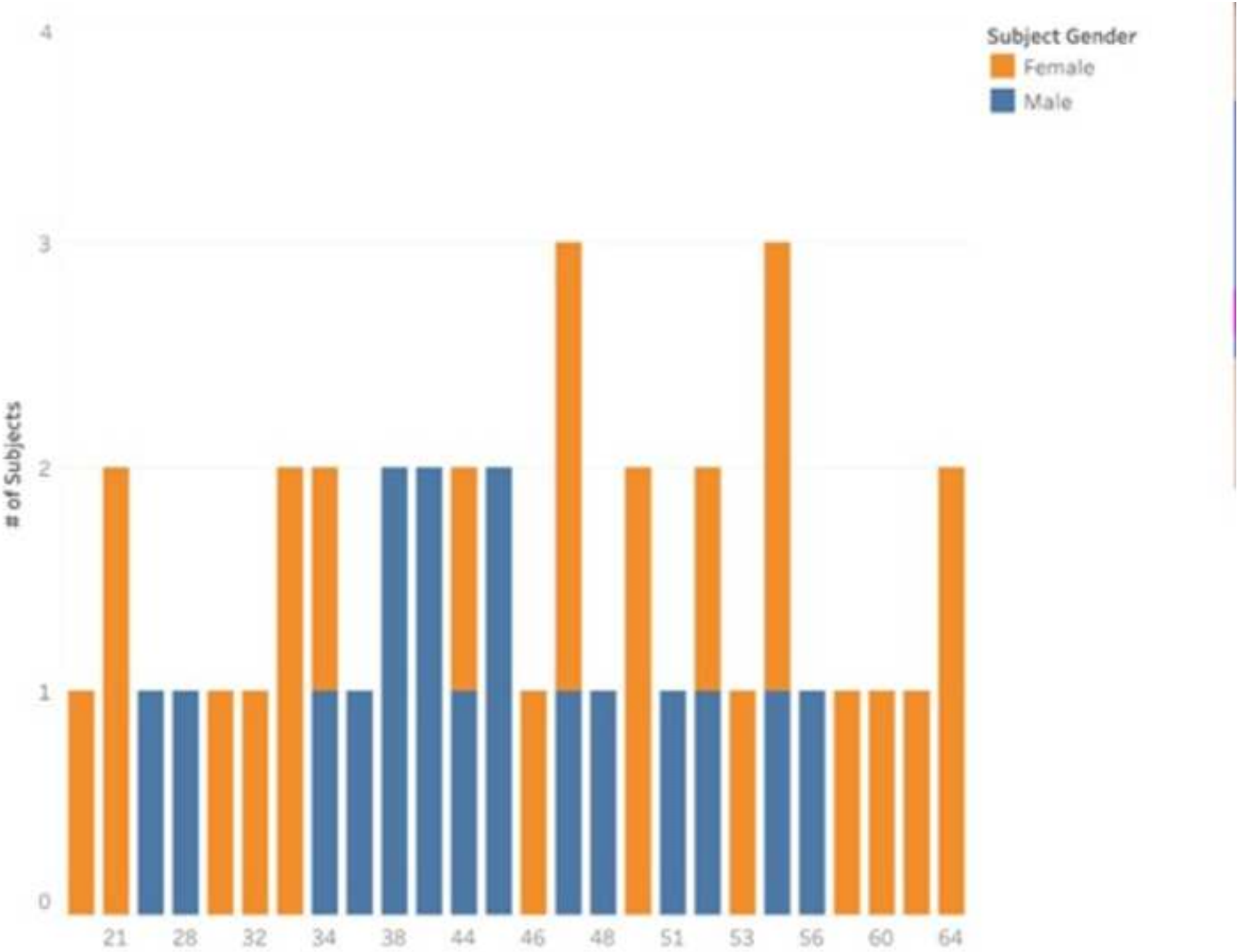

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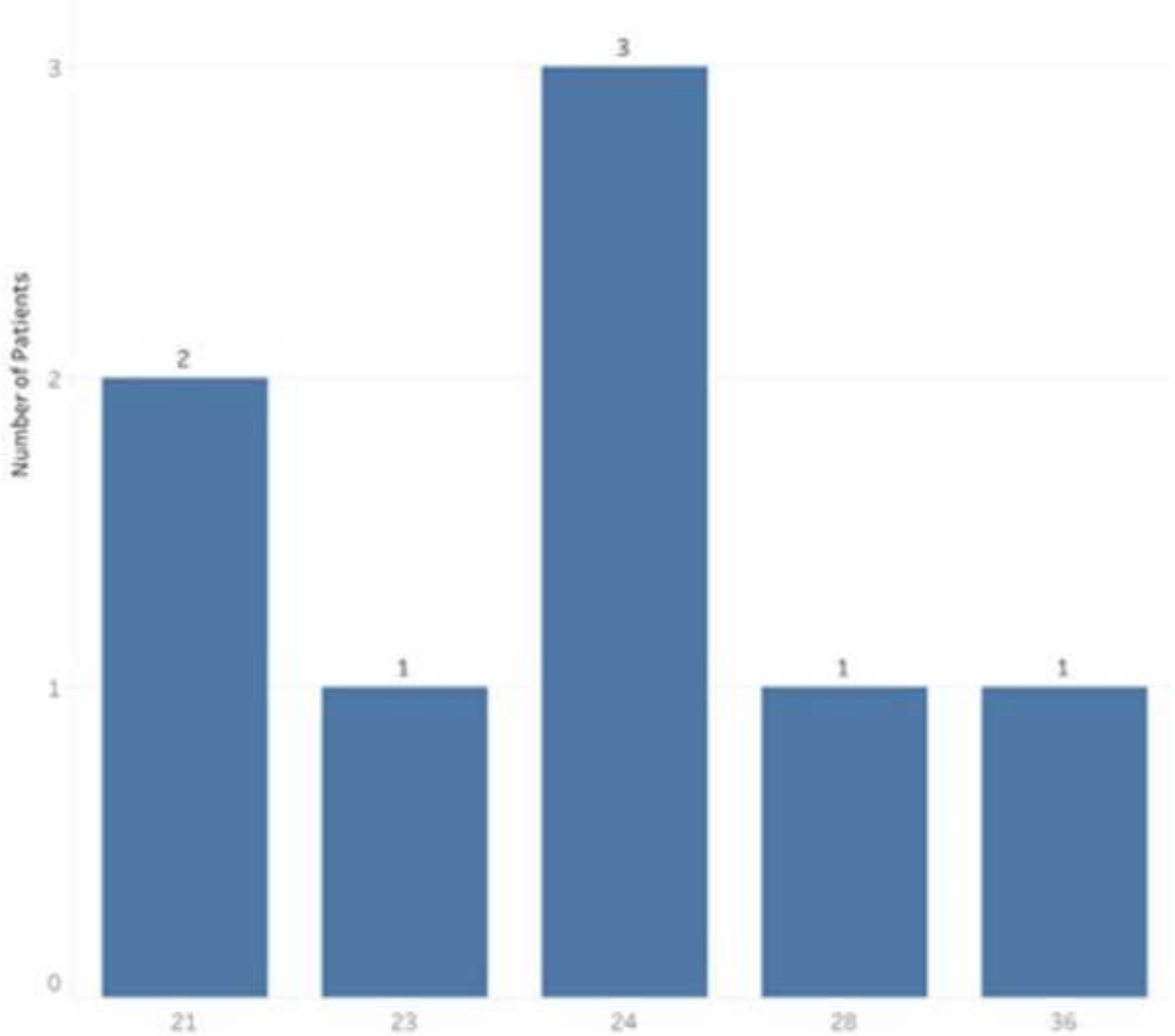

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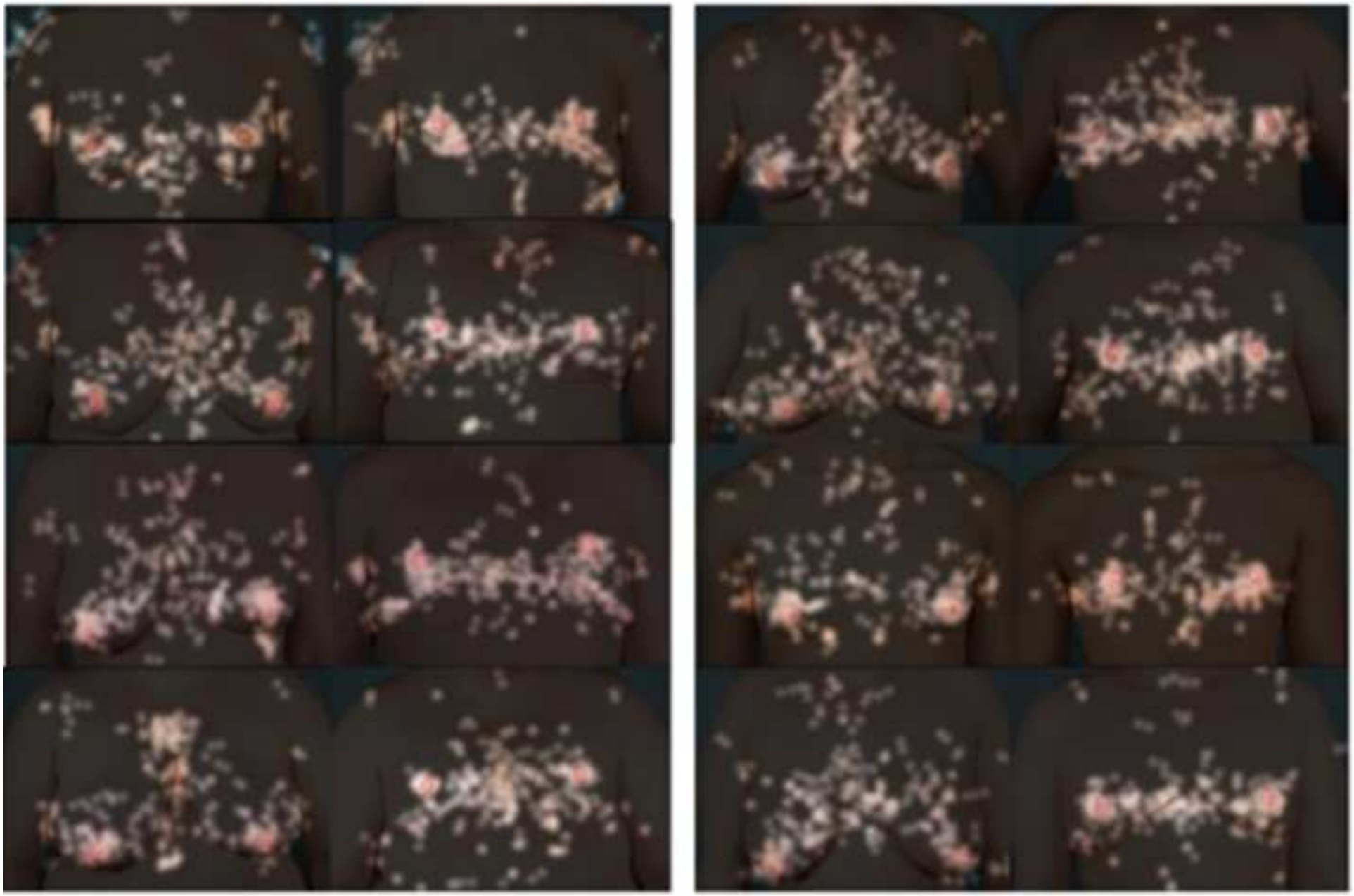

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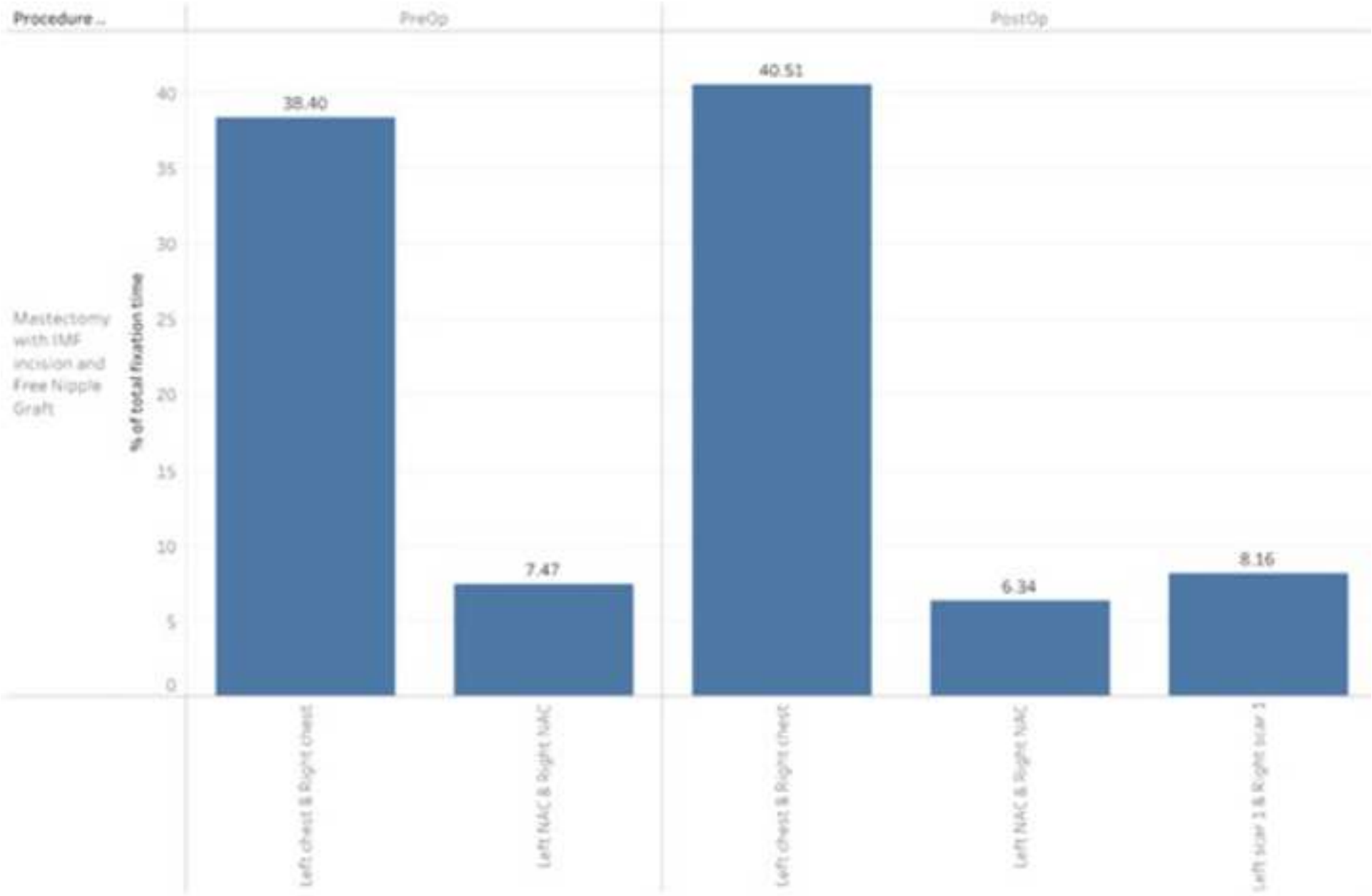

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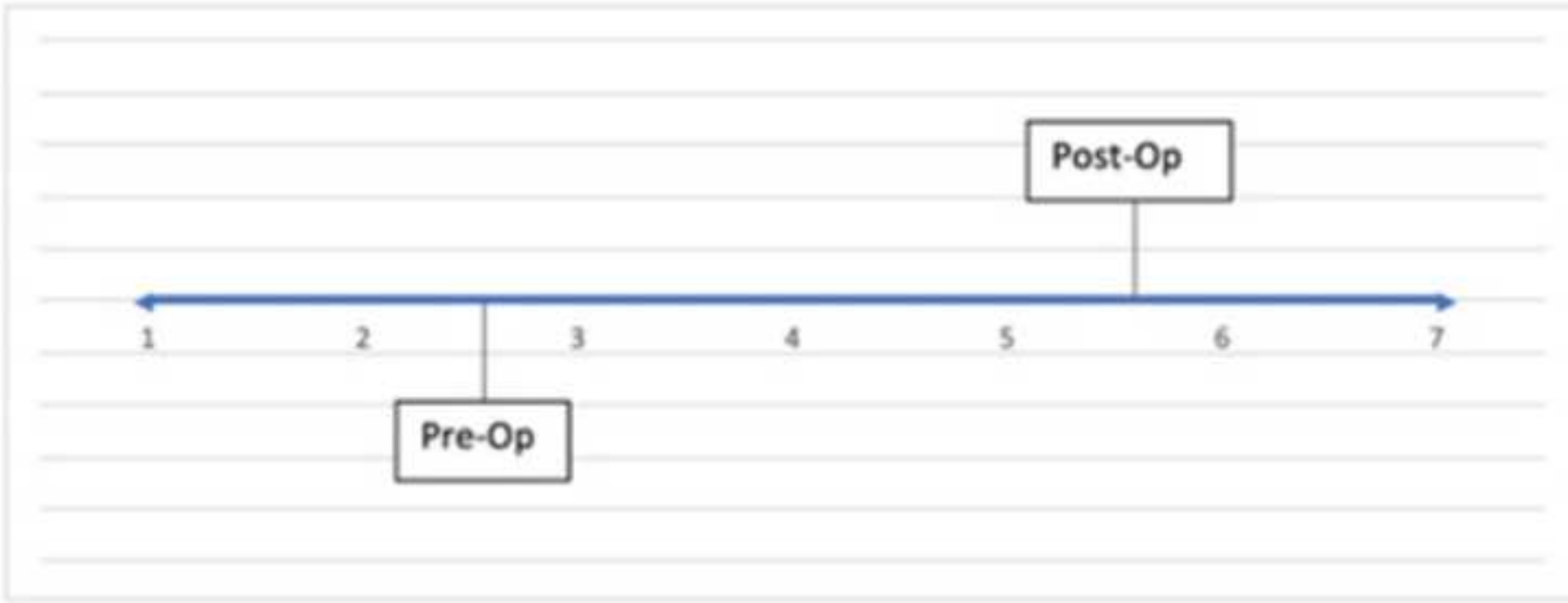

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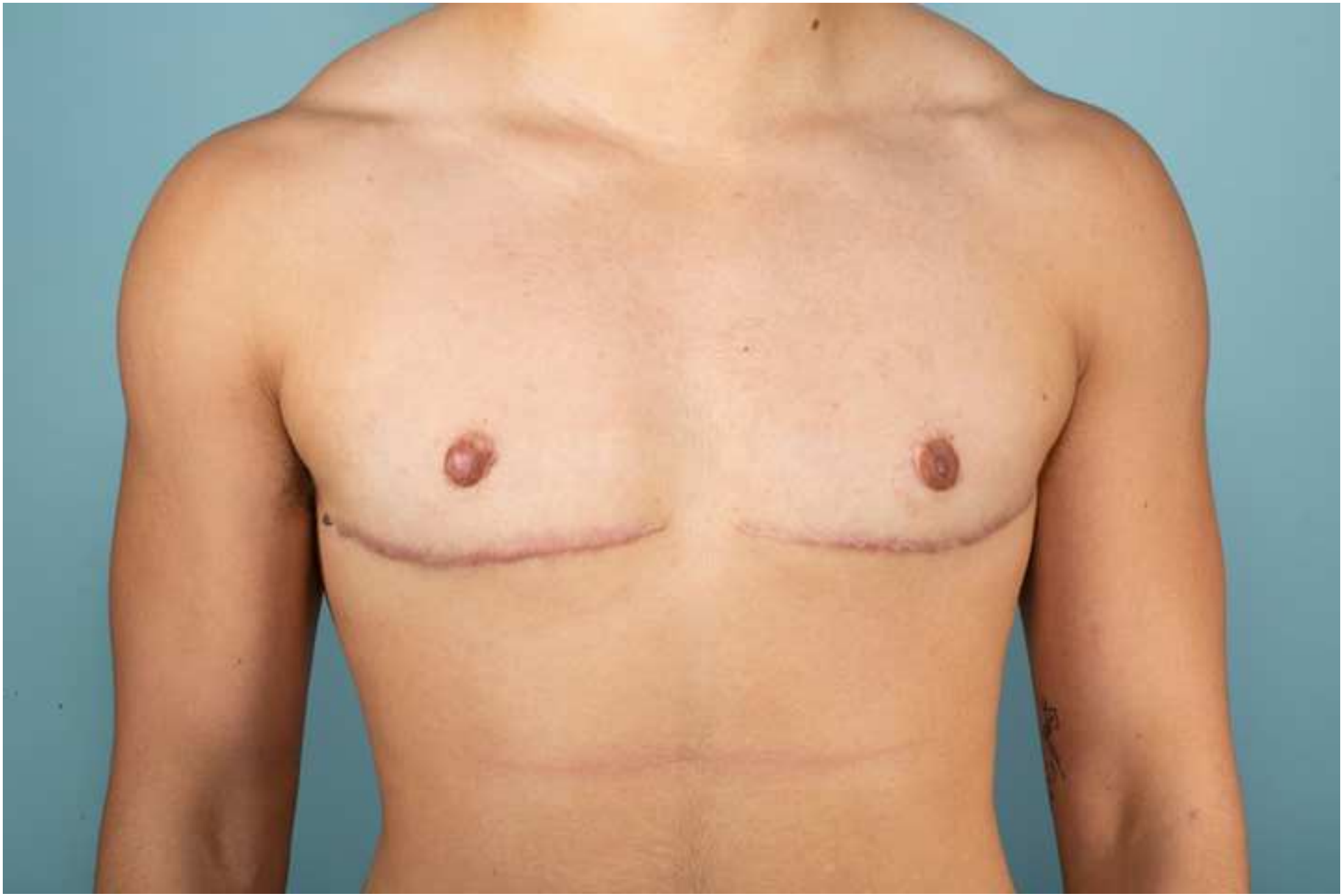

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