

An Updated Overview of Surgical Methods of Breast Cosmetics

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Abstract: Despite the ban on silicone gel breast augmentation in 1992, the last decade experienced a remarkable boost in the number of cosmetic breast enhancement treatments carried out in the United States. In accordance with the American Society of Plastic Surgeons, over 132,000 ladies in this country underwent the treatment in 1998. This is an underestimate of the actual number of breast augmentations carried out each year, as increasing numbers of non surgeon physicians are now performing cosmetic surgery. Provided the rising variety of females who now look for cosmetic breast augmentation surgery, it is likely that women's doctor will be asked by their patients about breast enhancement. This evaluation is designed to offer an introduction of the psychological and medical literature on cosmetic breast augmentation. We start with a history of breast augmentation, consisting of a summary of the controversy of silicone breast augmentation and the Institute of Medicine's report on their safety released in 1999. We also talk about the psychological characteristics of breast enhancement patients, evaluating both postoperative and preoperative studies. We conclude with recommendations for future research study as well as a conversation of the clinical importance of this area for women's healthcare specialists.

Keywords: Surgical Methods, Plastic Surgeons, Breast Enhancement Patients.

1. INTRODUCTION

THE LAST DECADE HAS BEEN a rollercoaster trip for cosmetic breast enhancement surgery. As the 1990s started, increasing varieties of ladies sought cosmetic breast augmentation. The growing popularity of the procedure was accompanied by countless reports to the Food and Drug Administration (FDA) from ladies with silicone-filled implants who were experiencing physical symptoms and nonspecific diseases⁽¹⁾. In action to these reports, then FDA commissioner David Kessler banned using breast implant in the United States, arguing that existing research study had actually shown neither their physical safety nor mental benefit⁽²⁾. This action did little to reduce the controversy about the relationship in between the implants and systemic illness. Because that time, numerous independent research study examinations of silicone implants released in peer-review journals opposed patient reports and cannot identify a relationship in between breast implant and connective tissue and autoimmune disease⁽³⁻⁷⁾. In addition, Dow Corning Wright Company, the biggest producer of breast augmentation in the United States, applied for bankruptcy in 1995, partly in response to a number of class action claims. Nonetheless, given that the ban on breast implant, there has actually been a dramatic boost in the number of ladies who have undergone breast augmentation with saline-filled implants⁽⁸⁾. In the summer of 1999, the Institute of Medicine (IOM) released the results of its investigation of silicone breast implants and concluded there is no association in between silicone implants and autoimmune diseases or other health issue⁽⁹⁾.

As we start the next century, one concern is clear increasing numbers of ladies are seeking breast enhancement surgery. It is approximated that as many as 2 million women in the United States currently have breast augmentation^(9,10). In 1998, breast augmentation surgery was the second most popular cosmetic treatment carried out by American cosmetic surgeon. The American Society of Plastic Surgeons reported that its subscription performed 132,378 cosmetic breast enhancement treatments because year alone, a 51% boost from 1996 and a 306% boost from 1992, the year of the restriction on breast

implant⁽⁸⁾. This is an underestimate of the number of enhancement procedures carried out every year, as increasing numbers of non-plastic cosmetic surgeon doctors now perform breast augmentation surgery.

The increased prevalence of breast augmentation and plastic surgery in general makes breast augmentation surgery an essential issue for ladies health care experts. It is increasingly most likely that ladies will turn to their primary doctor (primary care doctors, internists, or obstetrician/gynecologists) for advice and assistance about breast enhancement. Plastic surgery is no longer just for the rich and famous, as ladies from a variety of age and socioeconomic groups now seek plastic surgery⁽⁸⁾. Women's healthcare doctors remain in an ideal position to have informed discussions with their patients about the dangers and advantages of breast enhancement. They likewise are in a position to determine patients who are unsuitable for surgery, whether because of unrealistic expectations or official psychopathological conditions.

This review is developed as a summary of the physiological and psychological literature on cosmetic breast augmentation surgery. (We do not include a conversation of literature on breast reconstruction surgery, which typically includes using breast implants, in part as the mental issues for these females might be very different from those of women who look for plastic surgery. Readers interested in this literature are referred to a review by Moyer⁽¹¹⁾) We start with a short history of breast enhancement techniques and procedures. The literature on the physiological effects of breast enhancement is talked about, including the conclusions from the current IOM report⁽⁹⁾. Preoperative and postoperative research studies of the psychological status of augmentation patients are likewise examined. We conclude with a discussion of clinical ramifications of breast augmentation surgery and offer recommendations for future research.

2. METHODOLOGY

We searched Medline, PubMed, Cochrane, and CINAHL databases for studies reporting and concerning with cosmetic breast augmentation surgery that was published in English language and in the period of establishment of these databases up to 2016, December. We used augmentation and the following free Mesh terms; "surgical techniques, surgical procedures, indications, outcomes, and complications, ". And we restricted our search to the English-language literature on human subjects. Reference lists were screened manually to find more relevant studies.

3. RESULTS AND CONCLUSION

A HISTORY OF BREAST AUGMENTATION:

The breast has been a prominent part of Western culture for centuries^(12,13). (Readers interested in a more comprehensive discussion of the history of the breast in society and culture than is possible here are referred to Yalom's A History of the Breast⁽¹³⁾. Those thinking about a historic evaluation of plastic surgery are described Haiken's Venus Envy: A History of Cosmetic Surgery⁽¹²⁾) Humankind's fixation with the breast has actually emerged in such mediums as style, advertising, and the popular media. This cultural fascination has placed a lot of pressure on women to conform to society's ideals of charm. In reaction to these long-standing pressures, females have actually modified and enhanced their breasts through a range of methods.

For centuries, women have actually tried to produce the look of a voluptuous and full bosom through modification of clothes. As early as 3000 BC, Minoan women used primitive brassieres and bodices to emphasize their breasts⁽¹⁴⁾. The very first real bodice was invented in the 13th century and was utilized, in conjunction with various clothing designs, to raise the bosom to draw in males. With the exception of relatively short periods in the 15th and 20th centuries when females attempted to deemphasize breast size, big breast size has been more or less in vogue considering that antiquity and continues to represent a major ideal of appeal today⁽¹³⁻¹⁵⁾.

The 18th century marked the onset of invasive efforts at breast enhancement. Big breasts were so sought after that ladies underwent disfiguring and uncomfortable procedures where such products as ivory, glass, metal, and rubber were implanted into their chests⁽¹²⁾. These procedures not just failed to supply women with larger breasts however also triggered a myriad of medical issues, but the focus on large breasts stayed. In the United States, the Gibson Girl, with her slender waist and big bust and hips, initially appeared in 1890. Her idealized female image was satisfied by various attempts by American women to replicate her appearance⁽¹⁵⁾. Interest in finding a more irreversible ways of enlarging the breast was reawakened, and such materials as paraffin, petroleum jelly, and olive oil were injected into the breast. Such radical treatments again caused complications and frequently horrific aesthetic outcomes⁽¹²⁾.

The 1920s presented a momentary duration in which women sought to deemphasize their breasts. American women had actually begun competing with guys in the office and therefore looked for to achieve a boyish, flat-chested appearance by strapping and binding their breasts with foundation garments⁽¹⁶⁾. This small-busted design was reflected in the average measurements of Miss America contest winners throughout the 1920s⁽³²⁻²⁵⁻³⁵⁾⁽¹⁷⁾. The flat-chested style was short-lived, however, and a large-breasted appearance soon regained its well known standing in pop culture. By the 1930s, the average measurements of Miss America winners had increased 2 full inches in chest size to⁽³⁴⁻²⁵⁻³⁵⁾⁽¹⁷⁾ and they increased in the 1940s to⁽³⁵⁻²⁵⁻³⁵⁾, with almost all the winners possessing bigger busts than hips⁽¹⁷⁾. Popular cinema stars of this era, such as Jean Harlow, Mae West, Jane Russell, and Greta Garbo, also offered busty images for females to imitate⁽¹⁵⁾. New approaches of breast augmentation quickly followed, including injection of fat from the buttocks and grafting of autogenous tissue from the fat, fascia, or dermis to the breasts. Many females underwent these new procedures in an attempt to achieve the desired physique, despite the bad visual results⁽¹²⁾.

In the 1950s, the first Playboy centerfold, Marilyn Monroe, glorified the big bust as never ever prior to⁽¹⁸⁾ Her voluptuous bust-hip symmetry became better and was again shown by measurements of Miss America winners of the 1950s, which averaged⁽³⁶⁻²³⁻³⁶⁾⁽¹⁷⁾. Since 1950, almost all Miss America winners have displayed similar bust-hip balance. In an effort to imitate this hourglass figure, females began to use "falsies" to enhance their breast size^(15,17). During the 1950s and 1960s, liquid silicone was injected straight into the breast in an attempt to increase size. Ultimately, this method of enhancement was found to be inefficient and risky, as the silicone got into and damaged surrounding tissue. As a result, numerous females had to go through restorative mastectomies, which left them without breasts.

Large breasts stayed fashionable through the late 1960s, even as Twiggy showed up on the style runway with her⁽³¹⁻²²⁻³²⁾ figure^(15,17). Although some women strived to accomplish her young boyish, relatively curveless figure, movies and publications continued to display females with big breasts⁽¹⁵⁾. The present fashion suitable has actually evolved to a hybrid image of a lean, muscular body with big breasts. A trend towards this perfect of a thin body with large breasts can be seen in the figures of Playboy Playmates from the 1950s to the 1980s. Throughout this duration, these ladies ended up being significantly taller and leaner, while their breasts remained large⁽¹⁷⁾. The perfect of large breasts and a lean body has progressively dominated the mass media. Thin, yet full-breasted stars of the 1980s, such as Bo Derek and Cheryl Tiegs, simply have been replaced by 1990s icons Tyra Banks and Cindy Crawford. These mass media images have actually been thought to add to the continued and now increasing interest in breast enhancement. With the arrival of artificial implants in the early 1960s, it was assumed that this image could be obtained more easily and safely than before.

SYNTHETIC BREAST IMPLANTS:

The enhancement failures prior to 1950, coupled with the sociocultural emphasis on big breasts, stimulated the search for implant products that would increase the size of the breasts without problems or aesthetically unacceptable results. This mission led to the arrival of synthetic implants, consisting of both sponge prostheses and silicone and saline implants.

Sponge prostheses:

In the early 1950s, the Ivalon polyvinyl sponge prosthesis was developed and utilized in breast augmentation surgical treatments. It was soon found, however, that the sponge cells were being attacked by collagen, and the prosthesis was being squashed, causing a hardening of the breast and a reduction in breast size. A polyethylene sac surrounding the sponge was added in an attempt to enhance the prosthesis, however problems, such as fluid build-up, infection, and extreme difficultening, taken place, and the prostheses had to be eliminated⁽¹⁹⁾.

Silicone implants:

In 1963, the silicone gel prosthesis, a silicone sac filled with silicone gel, was developed⁽²⁰⁾. Over the next 30 years, silicone implants would undergo numerous changes, including silicone gel implants encapsulated by a thin layer of polyurethane foam and double-lumen implants making up a central chamber inflated with saline and an external layer filled with silicone gel⁽¹⁹⁾. Even with these advances, silicone implants have been related to a variety of both immediate and long-lasting medical conditions. Immediate problems often consist of pain and skin tightness from the positioning of the implant⁽¹⁹⁾. Inadequate dissection of the implant pocket may cause pain and an exceedingly tough feel to the breast⁽¹⁹⁾. Improper positioning of the implant may cause an aesthetically unattractive outcome⁽¹⁹⁾. Other issues emerging not long after surgery include hematoma and infection, both of which happen in about 1-3% of enhancement patients^(9,21,22).

Most of the controversy surrounding making use of breast implant has actually been associated with prospective long-term issues. These problems include silicone bleed, autoimmune disease, polyurethane toxicity, and implant rupture and

leak. These events may require surgical treatment or elimination of the implant or may leave the patient with significant physical pain or defect.

Silicones bleed:

In both silicone gel prostheses and saline implants enclosed in a silicone envelope, research studies have demonstrated that silicone particles can diffuse into neighboring tissue⁽²³⁾. This silicone bleed can occur with an undamaged implant^(24,25) a ruptured implant^(26,27) or after a closed capsulotomy (a difficult squeezing of the breasts performed by the cosmetic surgeon to decrease capsular contracture)^(28,29). Silicone bleed has actually been thought to be associated with the development of connective tissue disease and other autoimmune disorders⁽³⁰⁻³²⁾.

Autoimmune diseases. Numerous autoimmune diseases have actually been believed to be connected with silicone implants⁽¹⁹⁾. The most regularly diagnosed connective tissue disease is scleroderma, a condition where the body's connective tissue hardens and contracts, leaving the skin thickened and hard, with pigmented spots^(33,34). Other autoimmune diseases thought to be connected with breast implant include systemic lupus erythematosus (SLE), mixed connective tissue disease, rheumatoid arthritis, and Sjögren's syndrome^(33,35-37).

Several researchers, nevertheless, have asserted that the incidence of autoimmune and connective tissue diseases in implant patients is no higher than in the population at large^(5,38,39). As the occurrence of these diseases is relatively uncommon, conclusions relating to a causal relationship are speculative⁽⁴⁰⁾. Nevertheless, that implant elimination frequently produces an instant turnaround of symptoms has been utilized by some to suggest a causal link in between the implants and these diseases⁽¹⁹⁾.

Polyurethane toxicity. Some silicone prostheses were covered in polyurethane, which may produce a hazardous by-product within the body, toluene diamine, which is known to be oncogenic in animals⁽⁴¹⁾. This relationship has not been conclusively demonstrated in human beings⁽³⁰⁾, however many issues have actually been related to polyurethane-coated prostheses, consisting of a scratchy rash, fluid drain, pain, and infection⁽³⁾. As an outcome, these devices were withdrawn from the market willingly by makers in 1991⁽⁴²⁾.

Implant rupture and leakage. Implant rupture may happen spontaneously or after a trauma to the breast, such as a closed capsulotomy or injury⁽⁴²⁾. Aside from the threats presented by silicone leak already noted, ruptured implants may produce physical symptoms, consisting of nodules, reduced breast size, wrinkling, asymmetry, and breast tenderness⁽⁴³⁾. However, burst implants may not constantly produce obvious physical symptoms, making ruptures challenging to spot^(19,42). Implant leak or rupture is thought to take place more regularly in older implants, as the envelopes are known to weaken over time⁽⁴²⁾. In prostheses gotten rid of from females as much as 17 years after implantation, two thirds of implants (and all the implants over 10 years of age) were ruptured or dripping⁽⁴⁴⁾. In a comparable study, 70% of eliminated implants 11-15 years old were found to be burst or leaking⁽⁴⁵⁾. Thus, it is most likely that a female will need several replacement implants throughout her life time.

The high rates of these problems raised considerable concerns about the safety of breast implant. The debate over the implants reached its crescendo in 1992, when the FDA decreed that because of health and wellness concerns, silicone gel breast implants were to be offered to women just through controlled clinical studies⁽²⁾. Thus, because 1992, only saline-filled implants have actually been in prevalent use for breast augmentation and restoration^(22,40).

The Institute of Medicine report:

In the summer season of 1999, the IOM released its report on the safety of silicone breast implants⁽⁹⁾. The committee evaluated over 3300 short articles and reports about silicone and silicone breast augmentation. In addition, they held a public hearing during which professionals from industry and academic community, as well as females who had silicone implants, affirmed about their experiences. After examining the evidence, the committee drew a number of conclusions. The major conclusion suggested that "silicones and other compounds understood to be in breast implants do not supply a basis for health concerns."⁽⁹⁾ The committee likewise concluded that there was no relationship between silicone breast augmentation and silicone in breast milk. Finally, they concluded that there was no relationship in between silicone implants and breast cancer. It is believed that this report might be the driver that leads the FDA to raise the ban on silicone implants in the future.

Saline-filled implants:

Saline implants have actually not been associated with either connective tissue disease or other autoimmune disorders. Nevertheless, they are connected with other prospective problems, although perhaps not with the frequency discovered with breast implant. These complications, ultimately, were the best issue of the IOM committee. In- regular problems

include hematoma, infection, and hypertrophic scarring, all which are approximated to take place in 1%-3% of cases^(19,21,40). More frequent problems consist of capsular contracture, mammographic interference, breastfeeding troubles, and loss of nipple experience, all which are approximated to take place in 10%-35% of cases^(10,46-48). These complications may have an immediate start or may take place years after surgery⁽⁴⁶⁾. In addition, saline implants are extensively believed to produce an inferior aesthetic result.

Capsular contracture. The most typical problem is capsular contracture, a condition where the implant ends up being encapsulated and compressed by a fibrous network of collagen. This causes the breasts to become immobile, unnaturally hard, distorted, and unpleasant^(19,21,35). The reported occurrence of capsular contracture differs widely^(19,49) with quotes recommending that it happens in anywhere from 10% to 70% of females⁽⁴²⁾. Some scientists, nevertheless, price quote that as much as 100% of women with breast implants will develop capsular contracture to a specific degree over the life of the implant⁽¹⁹⁾. Capsular contracture most typically establishes within 6 months of surgery and happens within the very first year after surgery in 90% of ladies who experience contracture^(50,51). Because of its frequency, some researchers have recommended that it be thought about a natural outcome instead of a complication, of augmentation surgery⁽¹⁹⁾. Contracture is connected with both kinds of breast augmentation, however the degree of defect may be less with saline-filled than with silicone-filled implants^(50,51).

Mammographic interference. A consequence of breast augmentation that can have potentially serious implications is interference with mammography. Lots of scientists have concluded that the presence of breast implants hinders the diagnostic ability of mammography to find breast tumors^(3,35,42,52). Hayes et al. ⁽⁵³⁾ reported that the amount of breast tissue obscured by implants during mammography may range from 22% to 83%. Because of the interference with visualization of breast tissue, some have actually recommended that augmented patients with breast cancer are diagnosed at a more advanced disease phase and have a poorer diagnosis⁽⁵²⁾. There is no proof, however, to suggest that the prosthetic materials themselves cause the advancement of breast or other cancers^(21,42,54,55,56).

Breastfeeding difficulties and loss of nipple sensation. Although it is usually thought that enhancement surgery does not interfere with a female's capability to breastfeed⁽⁵⁷⁾ breastfeeding troubles have been reported in females who have gotten implants through periareolar cut⁽¹⁹⁾. One research study discovered that women who received implants via a periareolar cut were five times as likely to have issues breastfeeding than ladies who had actually not had breast surgery⁽⁵⁸⁾. Decrease or loss of experience in the nipple and areola, although not an inherent health threat per se, might have an unhealthy result on a woman's capability to experience sexual pleasure. Loss of sensation is not entirely unusual; it is estimated that decreased nipple and areolar feeling takes place in roughly 15% of breast augmentation patients⁽⁴⁰⁾.

It is extensively believed that saline-filled implants are associated with less dangers and complications than silicone-filled implants, however they still are connected with a considerable number of possible problems. These problems, nevertheless, appear to be an intrinsic part of breast enhancement surgery, independent of the type of implant used. Hence, although both types of implants are now thought to be safe, the surgery itself is connected with fairly high frequency of complications and negative results. A significant conclusion of the IOM report was that "reoperations and local and perioperative complications are frequent enough to be a cause for issue and to validate the conclusion that they are the main safety issue⁽⁹⁾."

PSYCHOLOGICAL CHARACTERISTICS OF BREAST AUGMENTATION PATIENTS:

Another important issue that has yet to be resolved by research study is the psychological status and performance of breast enhancement patients. Do some females, in reaction to sociocultural pressures and comprehensive advertisements, look for a surgical solution to what are really psychological concerns? Alternatively, do women, in fact, experience the positive improvements in body image and self-esteem thought to accompany the surgical result?

Remarkably, hardly any is understood about either the mental characteristics of cosmetic surgery patients or the mental impact of the surgeries⁽⁵⁹⁾. Although lots of studies have been undertaken, they have actually produced inconsistent outcomes and, by and large, have actually suffered from methodological problems, both of which limit the confidence that can be put in their conclusions. In an effort to arrange these research studies, we have actually grouped them in 3 classifications: demographic attributes, preoperative examinations, and postoperative investigations.

Demographic attributes:

The typical breast augmentation patient is Caucasian,^(10,60-65) of middle to upper middle socioeconomic status,^(60-63,66,67) and in her 20s or 30s, with an average age of around 31 years.^(60,61,63,64,66,68-70) She is normally married^(60-62,65,66) and has

children⁽⁶⁰⁻⁶⁵⁾. The fact that most of females who seek cosmetic breast enhancement remain in middle adulthood, wed, and have children is unexpected to numerous, as the stereotyped picture of a breast augmentation prospect is a younger, single woman who has an interest in breast enhancement to assist her be more attractive to men.

Breast augmentation patients have been explained in many methods. Some clinical reports have actually explained them as smart, charming, appealing, and socially elegant^(61-63,66,67). Others have characterized them less positively, describing them as immature and having poor marital and familial relationships^(60-64,68-70). Several research studies have actually found that breast augmentation patients, as compared with other women, have a greater divorce rate,^(60,63,64,68-70) along with an increased rate of gynecological issues^(63,71,72) and sexual dysfunctions^(63,64,69,70,73,74). Breast enhancement patients also are typically of below par weight,^(73,75) leading to speculation that some may experience consuming disorders^(76,77).

What little is known about the demographics of this population has actually been determined mostly through anecdotal reports and disorganized interviews. Thus, the conclusions drawn from this body of research are of doubtful value. These clinical reports, however, have led to more official research studies of the preoperative psychological status of breast augmentation prospects. Among the hypotheses of this research is that females who seek breast enhancement surgery might, in fact, experience psychological disturbances that could be more appropriately addressed by psychotherapy than by plastic surgery.

Preoperative studies of breast augmentation patients:

Studies that investigated the preoperative mental status of breast enhancement patients can be divided in between those that utilized clinical interviews and those that used formal psychometric evaluations. Various conclusions have actually resulted from these two research methods. Clinical interview investigations have explained augmentation patients as experiencing increased symptoms of anxiety, stress and anxiety, guilt, and low self-confidence^(68-70,74). In one such examination, 55% were referred to as being "in need of treatment,"⁽⁷⁰⁾ and 70% in another research study were classified as "deviating from the typical image."⁽⁶⁸⁾ One 3rd to one half of these ladies were reported to have personality disorders⁽⁷⁸⁾. These research studies, consistent with interview-based examinations of other cosmetic surgery populations,^(68-70,74,79-81) have actually suggested a high degree of psychopathology in breast augmentation patients.

These investigations have a number of methodological drawbacks that raise major concerns about their credibility. They normally did not use standardized interview procedures or widely accepted diagnostic criteria. Control or contrast groups were not used. The high levels of psychopathology in the early research studies likewise may have shown the predispositions of the primarily psychoanalytically qualified psychiatrists who spoke with patients^(59,82). As a result of these methodological issues, it is unclear if these studies properly represent the degree of psychopathology in these women.

In contrast, research studies that utilized standardized psychometric tests usually reported less psychological disturbance⁽³⁾ studies of augmentation candidates that used psychometric measures discovered little evidence of psychopathology^(60,63,66). Only one research study discovered greater symptoms of depression in breast enhancement patients as compared to controls⁽⁶⁴⁾. Studies of patients who pursued other cosmetic procedures and who were evaluated by standardized procedures likewise discovered relatively couple of symptoms of psychopathology⁽⁸³⁻⁸⁶⁾.

Although the psychometric research studies present a more favorable image than the interview-based examinations, the former studies also have restrictions. Numerous failed to utilize control or comparison groups. Examinations that compared patients with normative samples regularly cannot explain the demographic qualities of the two groups. As a result, the frequency of psychopathology in females looking for breast enhancement, as compared to similar ladies not seeking surgery, is unknown.

Look issues and body image in breast enhancement candidates. Intuitively, many females look for breast enhancement since they are not pleased with the appearance of their bodies and breasts. It may be that this concern about physical appearance is a specifying attribute of plastic surgery patients. Such issues were typically dismissed as trivial vanity years back, research study over the past a number of years has demonstrated the importance of appearance in daily life. Not only are more physically appealing people perceived more favorably than those who are less attractive, but likewise it appears that the more attractive receive preferential social treatment in social and social scenarios. Provided this understanding, improving one's appearance can be seen less as insignificant vanity and more as a positive, healthy self-care technique. This research, however, discusses only the outdoors view of physical look. It does not account for the inside view, the method an individual sees his or her own look. This internal perspective of physical look can be

comprehended through the psychological construct of body image, which incorporates the understandings, ideas, sensations, and habits about the body. Body image, particularly body image frustration, may be the most appropriate psychological construct by which to comprehend the motivations of breast augmentation candidates, as these ladies choose to undergo a risky, complicated, and costly treatment in order to improve their complete satisfaction with their look⁽⁵⁹⁾.

Body image dissatisfaction is so common in our society that researchers have actually identified it a "normative discontent"⁽⁸⁷⁾. One current body image study of 803 American females showed that nearly half of the sample reported a negative international body image, whereas approximately 25% expressed frustration with their upper torso⁽⁸⁸⁾. Furthermore, patterns appear to show that body frustration in women has increased over the past couple of years, suggesting that the recent occupational, financial, and political advances of women in this nation have actually not helped in improving their body images⁽⁸⁸⁾. Body image discontentment is believed to be among the primary motivators for cosmetic surgery and might be one psychological construct that differentiates ladies who look for enhancement surgery from those who do not⁽⁵⁹⁾.

Body image has long been thought about an important part of one's self-esteem.⁸⁹ Research has generally supported the finding that a person's self-confidence is significantly related to the degree of satisfaction with one's body image⁽⁸⁹⁻⁹⁵⁾. This relationship in between body image and self-esteem might easily be applied to breast augmentation patients, as scientists have actually contended that cosmetic surgery patients attain a good deal of their self-esteem from their physical look⁽⁹⁶⁾, and when this self-confidence decreases, they may pursue a surgical modification in appearance⁽⁹⁷⁾. Empirical research study of body image and self-confidence is thought about important to comprehending the motivations and elements that influence ladies to look for plastic surgery⁽⁵⁹⁾.

Research studies of body image and self-confidence in breast enhancement patients. One constant finding of the preoperative interview studies of breast augmentation patients is that ladies who look for augmentation surgery have actually reported increased frustration with body image, an issue they show patients who look for other kinds of plastic surgery^(61,63,64,66,69,70,75,98-100). Surprisingly, there has actually been little empirical study of body image and self-confidence of plastic surgery patients⁽⁵⁹⁾. Sarwer et al. ⁽⁹⁹⁾ were the very first to empirically assess body image discontentment in prospective cosmetic surgery patients. Prior to surgery, 100 females who looked for a variety of cosmetic procedures completed two measures of body image, and their results were compared with those of the normative samples of each procedure. Prospective patients did not report a greater investment or greater discontentment with their general body image as compared with controls, however they did report heightened frustration with the function for which they were pursuing surgery. Similar outcomes were discovered in subsequent investigations of ladies who looked for facelifts and blepharoplasty (eye surgery) and in guys who sought plastic surgery^(98,100). Together, these outcomes recommend that plastic surgery patients had actually heightened discontentment with the particular feature thought about for surgery instead of more worldwide dissatisfaction with the entire body image.

There have actually been three empirical investigations of body image specifically in breast augmentation patients. In the first, Sarwer et al. ⁽⁷⁵⁾ evaluated the degree of body image dissatisfaction in potential breast enhancement and breast reduction patients. Breast enhancement patients, as anticipated, reported less frustration with their breasts than did breast reduction patients. More than 50% of augmentation patients reported preventing being seen undressed by others, inspecting the appearance of their breasts, and camouflaging the appearance of their breasts with special brassieres or clothing. In the year prior to surgery, 27% of these women reported a considerable life change (i.e., change of work, modification in house, separation, or divorce), 20% reported increased stress and anxiety and anxiety, and 10% reported seeing a mental health professional. Hence, it appears that a substantial minority of women who seek breast augmentation surgery experienced considerable body image dysphoria that might require more psychological assessment or treatment.

In the 2nd investigation, Nordmann⁽¹⁰¹⁾ compared breast enhancement candidates with an age-matched sample of small-breasted females not seeking augmentation. Ladies who looked for breast augmentation reported substantially higher discontentment with their breasts and more frequent unfavorable feelings in situations where they were aware of their physical appearance, such as when wearing a swimsuit, trying on clothes, or during sexual relations. The frequency of these distressing experiences likewise was negatively related to self-confidence. These outcomes further suggested that increased discontentment with a specific body feature may be one characteristic that differentiates individuals who look for cosmetic surgery from those who do not. In addition, the findings elucidated a few of the particular scenarios where

ladies experience negative feelings about their breasts and recommended that these incidents have an unfavorable impact on self-esteem.

The most recent investigation in this area taken a look at body image, appearance-related teasing, and lifestyle in women who looked for breast enhancement as compared to physically comparable females who did not look for surgery (D.B. Sarwer, unpublished data). Reproducing the two previous studies, ladies who sought breast augmentation, as compared with controls, reported greater body image frustration. Women who sought breast enhancement surgery also reported more appearance-related teasing and higher use of psychiatric therapy than did controls. These outcomes recommended that a history of appearance-related teasing may be another variable that identifies women who do and do not look for breast augmentation. Furthermore, the higher use of psychotherapy by females looking for breast enhancement surgery recommends that these women.

COSMETIC BREAST AUGMENTATION:

Postoperative investigations of breast augmentation patients:

Research studies of the mental consequences of breast augmentation have, with couple of exceptions, been mainly anecdotal. They consist mainly of cosmetic surgeons' reports of their patients' fulfillment. These reports recommend that typically 70% or more of patients report satisfaction with their surgical result^(7,65,69,102-104). Such investigations, however, have been fraught with demand characteristics: How many patients are going to tell their surgeon, face to face, that they are not satisfied with their postoperative outcome? How numerous surgeons are going to report to an audience of associates that their patients are not satisfied?

The complete satisfaction rates reported in these research studies are encouraging, they should be seen very carefully. Furthermore, complete satisfaction with the postoperative result appears to be negatively correlated with surgical complications or negative events^(10,105,106). In numerous research studies of breast augmentation patients, 10%-30% of women reported some degree of dissatisfaction postoperatively, usually with breast size, hardening, pain, scarring, or loss of nipple feeling^(10,65,102-104,107,108). Across several research studies, a significant minority of females reported that they would not repeat the treatment because of the physical complications^(7,65,104,108).

Other research studies have actually exceeded examining patient fulfillment and have actually evaluated modifications in mental status after enhancement surgery. In the lack of physical complications, most of interview examinations have reported that females experience mental advantages following augmentation surgery. Improvements in body image and self-confidence have actually been reported by the bulk of patients postoperatively^(60,63,65,68,102,107,109). Similar results have been reported by females who went through other cosmetic procedures^(79,81,110,111). The two research studies of breast enhancement patients that utilized psychometric steps postoperatively found combined results. One study found a decline in symptoms of depression from preoperative status, 104 whereas the other reported increased symptoms of depression in 30% of patients in the instant postoperative duration⁽⁷³⁾. As with a lot of the preoperative investigations, these postoperative examinations likewise had methodological shortcomings, such as failure to use control or contrast groups, which makes it challenging to draw firm conclusions from them.

2 current studies, nevertheless, have actually supplied more persuading evidence of the mental benefits of plastic surgery. In the first research study,⁽¹⁰⁵⁾ ladies who looked for a range of cosmetic procedures completed procedures of depressive symptoms, quality of life, social support, and coping preoperatively and at 1 and 6 months postoperatively⁽¹¹²⁾. As compared to preoperative levels, patients reported considerable improvements in depressive symptoms and lifestyle 6 months postoperatively. This investigation improved on previous research studies through the use of a prospective style and valid and reputable psychometric measures. Additional duplication of these findings in studies that include a non-surgical control group are needed to conclude with greater confidence that plastic surgery results in improvements in anxiety and lifestyle.

Results from a 2nd examination recommended that plastic surgery patients also report improvements in body image⁽¹¹³⁾. At 6 months post-operatively, patients reported a significant decrease in the degree of discontentment with the body feature modified by surgery, although they reported no considerable changes in their investment or degree of fulfillment with their overall body image. Coupling these outcomes with those of Rankin et al.⁽¹¹²⁾, there is now growing evidence to recommend that plastic surgery results in enhancements in a minimum of 3 areas of mental functioning body image, quality of life, and depressive symptoms.

These more recent research studies recommend psychological advantages of cosmetic surgery, however an investigation of ladies who had their silicone breast augmentation got rid of paints a different image⁽¹¹⁴⁾. Breast explantation patients, as compared to both surgical (cholecystectomy) and nonsurgical controls, reported higher levels of breast anxiety, upper torso dissatisfaction, and depression both prior to and after implant elimination. Following surgery, nevertheless, explantation patients reported less satisfaction with their look, fewer favorable appearance-related cognitions, and greater disparity between their present and ideal (postimplant removal) breast size. Therefore, it appears that removal of a breast implant, which might be a likely event for lots of women, might have negative effects on psychological functioning.

4. FUTURE DIRECTIONS AND CLINICAL IMPLICATIONS

After the tumultuous years that was the 1990s for breast augmentation, the new century is poised to start as a time of relative calm for cosmetic breast enhancement. Increasing numbers of women remain thinking about breast augmentation surgery, breast implant have gotten a clean bill of health and might be gone back to the marketplace, and several new implants, which integrate the aesthetic advantages of silicone implants with the safety of saline implants, are undergoing clinical study. Moreover, as the 20th century concluded with two investigations showing improvements in body image, quality of life, and depressive symptoms following plastic surgery, the 21st century promises more research studies on the mental results of plastic surgery.

Several important locations, however, wait for further investigation. First, the factors that inspire women to breast enhancement surgery are not totally understood. Both psychological issues, such as body image and self-confidence, and interpersonal elements, such as marital, sexual, and social relationships, are believed to encourage women to seek surgery. Details collected from the mass media, medical decision making, and economic factors also might affect the decision to look for surgery. Breast augmentation surgery usually costs around \$5000 and is not covered by medical insurance. Therefore, ladies frequently should obtain money, usage individual cost savings, or reallocate financial resources from other locations to pay for the procedure⁽¹²⁾. Identifying the specific factors that encourage ladies for surgery is critical in identifying if patients have affordable expectations for surgery and if these expectations are, in fact, satisfied postoperatively.

Second, the degree of mental distress or disruption in breast augmentation patients awaits further examination. Future research studies need to continue to utilize reliable and valid measures of psychological performance. In addition, they must use suitable control and contrast groups that are matched with surgical candidates on essential demographic variables, such as instructional level and socioeconomic status, as well as on physical characteristics, such as body mass index and breast size. It may be that certain mental symptoms and conditions are related to a bad postoperative outcome or may contraindicate surgery. Recognition of psychiatric medical diagnoses and their relationship to postoperative outcome could be most easily identified by investigations that use the structured clinical interviews and developed diagnostic requirements.

One obvious contraindication to plastic surgery (in addition to active psychosis) appears to be body dysmorphic disorder (BDD). Severe body image dissatisfaction is a main element of BDD, defined as a preoccupation with a pictured or slight problem in appearance that leads to substantial disability in working⁽¹¹⁵⁾. Sarwer et al. ⁽⁹⁹⁾ discovered that 7% of female plastic surgery patients met diagnostic requirements for BDD, a frequency greater than that thought to take place in the general population (2%). This is not unexpected, as persons with BDD are thought to overuse such medical treatment as plastic surgery and dermatology. Clinical reports have actually discovered that people with BDD normally do not benefit from cosmetic surgery⁽¹¹⁶⁾, although this question has yet to be examined empirically. The relationship amongst excessive body image dissatisfaction, BDD, and postoperative result is probably the location of research with the best prospective clinical ramifications.

Alternative techniques of treating body image dissatisfaction that do not include altering physical look have actually been established. Cognitive-behavioral psychiatric therapy has been discovered to be effective in treating body image frustration ^(117,118) and BDD⁽¹¹⁹⁻¹²¹⁾. Such treatments have actually not yet been utilized particularly with cosmetic surgery patients. They may be beneficial to augmentation prospects. For ladies with a moderate degree of discontentment with their breasts, cognitive-behavioral therapy might be a less intrusive and cheaper treatment option. It may be that the combination of breast enhancement surgery and psychiatric therapy is the most reliable treatment of body image dissatisfaction.

Finally, extra research studies of postoperative outcome are required. Such research studies might determine a relationship between preoperative psychological status and postoperative result. In addition, they should examine the relationship in between postoperative issues and psychological result, as it appears that issues are related

to decreased complete satisfaction and increased dysphoria. These studies also need to follow patients for extended periods of time postoperatively, possibly as long as numerous years. One possible explanation for the favorable findings of both Rankin et al.⁽¹¹²⁾ and Sarwer et al.⁽¹¹³⁾ in their postoperative examinations might be the fairly brief postoperative evaluation period (6 months). It might be that the mental advantages of plastic surgery are biggest during the immediate postoperative duration, as patients are getting compliments about their look from friends and family. The benefits might decrease with time as the frequency of these reinforcing comments presumably decreases.

As the variety of women looking for breast enhancement surgery continues to rise, an increasing variety of health professionals are likely to be challenged with concerns, concerns, and problems that frequently accompany the treatment. It is necessary that health professionals be well versed in the physiological and mental aspects of breast augmentation surgery so that they are prepared to address the requirements of their patients most successfully.

REFERENCES

- [1] Brown SL, Parmentier CM, Woo EK, Vishnuvajjala RL, Headrisk ML. Silicone gel breast implant adverse event reports to the Food and Drug Administration, 1984–1995. *Public Health Rep* 1998; 113:535.
- [2] Kessler DA. The basis of the FDA's decision on breast implants. *N Engl J Med* 1992; 326:1713.
- [3] Gabriel SE, O'Fallon WM, Kurland LT, Beard CM, Woods JE, Melton LJ. Risk of connective tissue diseases and other disorders after breast implantation. *N Engl J Med* 1994; 330:1697.
- [4] Lewin SL, Miller TA. A review of epidemiological studies analyzing the relationship between breast implants and connective tissue diseases. *Plast Reconstr Surg* 1997; 100:1309.
- [5] Sanchez-Guerrero J, Colditz GA, Karlson EW, Hunter DJ, Speizer FE, Liang MH. Silicone breast implants and the risk of connective tissue diseases and symptoms. *N Engl J Med* 1995; 332:1666.
- [6] Weinzwieg J, Schnur PL, McConnell JP, et al. Silicone analysis of breast and capsular tissue from patients with saline or silicone gel breast implants: II. Correlation with connective-tissue disease. *Plast Reconstr Surg* 1998; 101:1836.
- [7] Wells KE, Cruse CW, Baker JL, et al. The health status of women following cosmetic surgery. *Plast Reconstr Surg* 1994; 93:907.
- [8] American Society of Plastic and Reconstructive Surgeons. 1998 Plastic Surgery procedural statistics. Arlington Heights, IL: Author, 1998.
- [9] Institutes of Medicine. In: Bonburant S, Ernster V, Herdman R eds. Safety of silicone breast implants. Washington, DC: National Academy Press, 1999.
- [10] Handel N, Wellisch D, Silverstein MJ, Jensen JA, Waisman E. Knowledge, concern, and satisfaction among augmentation mammoplasty patients. *Ann Plastic Surg* 1993;30:13.
- [11] Moyer A. Psychosocial outcomes of breast conserving surgery versus mastectomy: A meta-analytic review. *Health Psych* 1997;16:284.
- [12] Haiken E. Venus envy: A history of cosmetic surgery. Baltimore: Johns Hopkins University Press, 1997.
- [13] Yalom M. A history of the breast. New York: Knopf, 1997.
- [14] Grazer FM, Klingbeil JR. Body image: A surgical perspective. St. Louis: Mosby, 1980.
- [15] Fallon AE. Culture in the mirror: Sociocultural determinants of body image. In: Cash TF, Pruzinsky T, eds. Body images: Development, deviance and change. New York: Guilford Press, 1990:80.
- [16] Caldwell D. And all was revealed: Ladies underwear, 1907–1980. New York: St. Martin's Press, 1981. 17. Mazur A. U.S. trends in feminine beauty and over-adaptation. *J Sex Res* 1986;22:281.

- [17] Weyr T. Reaching for paradise. New York: Time Books, 1978.
- [18] Oberle K, Allen M. Breast augmentation surgery: A women's health issue. *J Adv Nurs* 1994;20:844.
- [19] Cronin TD, Gerow FJ. Augmentation mammoplasty: A new "natural feel" prosthesis. Transactions of the Third International Congress of Plastic Surgery. Excerpta Medica Foundation. 1963:41.
- [20] McGrath MH, Burkhardt BR. The safety and efficacy of breast implants for augmentation mammoplasty. *Plast Reconstr Surg* 1984;74:550.
- [21] Barton FF, Tebbetts JB. Augmentation mammoplasty.
- [22] Price JE, Barker DE. Initial clinical experience with "low bleed" breast implants. *Aesthetic Plast Surg* 1983;7:255.
- [23] Brandt B, Breiting V, Christensen L, Nielsen M, Thomsen JL. Five years experience of breast augmentation using silicone gel prostheses with emphasis on capsule shrinkage. *Scand J Plast Reconstr Surg* 1984;18:311.
- [24] Winding O, Christensen L, Thomsen JL, Nielsen M, Breiting V, Brandt B. Silicon in human breast tissue surrounding silicone gel prostheses. *Scand J Plast Reconstr Surg* 1988; 22:127.
- [25] Rudolph R, Abraham J, Vecchione T, Guber SA, Woodward M. Myofibroblasts and free silicon around breast implants. *Plast Reconstr Surg* 1978;62:185.
- [26] Argenta LC. Migration of silicone gel into breast parenchyma following mammary prosthesis rupture. *Aesthetic Plast Surg* 1983;7:253.
- [27] Eisenberg HV, Bartels RJ. Rupture of a silicone bag- gel breast implant by closed compression capsulotomy. *Plast Reconstr Surg* 1977;59:849.
- [28] Huang TT, Blackwell SJ, Lewis SR. Migration of silicone gel after the "squeeze technique" to rupture a contracted breast capsule: A case report. *Plast Recon- str Surg* 1978; 61:277.
- [29] Byron MA, Venning VA, Mowat AG. Post-mammo- plasty human adjuvant disease. *Br J Rheumatol* 1984; 23:227.
- [30] Van Nunnen SA, Gatenby PA, Basten A. Post-mammoplasty connective tissue disease. *Arthritis Rheum* 1982; 25:694.
- [31] Baldwin CM, Kaplan EN. Silicone-induced human adjuvant disease. *Ann Plast Surg*. 1983; 10:270.
- [32] Sahn EE, Garen PD, Silver RM, Maize JC. Sclero- derma following augmentation mammoplasty. *Arch Dermatol* 1990; 126:1198.
- [33] Spiera H. Scleroderma after silicone augmentation mammoplasty. *JAMA* 1988;260:236.
- [34] Schumann D. Health risks for women with breast implants. *Nurse Practitioner* 1994; 19:19.
- [35] Brozena SJ, Fenske NA, Cruse CW, Espinoza CG, Vasey FB, Germain BF. Human adjuvant disease fol- lowing augmentation mammoplasty. *Arch Dermatol* 1988; 124:1383.
- [36] Kumagai Y, Shiokaw Y, Medsger TA, Rodman GP. Clinical spectrum of connective tissue disease after cosmetic surgery. *Arthritis Rheum* 1984; 27:1.
- [37] Sanchez-Guerro J, Schur PH, Sargent JS, Liang MH. Silicone breast implants and rheumatic disease. *Arthritis Rheum* 1994;37:158.
- [38] Weisman MH, Vecchione TR, Albert D, Moore LT,
- [39] Mueller MR. Connective-tissue disease following breast augmentation: A preliminary test of the human adjuvant disease hypothesis. *Plast Reconstr Surg* 1988;82:626.
- [40] Howrigan PJ. Reduction and augmentation mammoplasty. *Obstet Gynecol Clin North Am* 1994;21: 539.
- [41] Loeser E. Long-term toxicity and carcinogenicity studies with 2,4/2,6-toluene-diisocyanate (80/20) in rats and mice. *Toxicol Lett* 1983; 15:71.
- [42] Reynolds HE. Evaluation of the augmented breast. *Radiol Clin North Am* 1995; 33:1131.

- [43] Andersen B, Hawtof D, Alani H, Kapetansky D. The diagnosis of ruptured breast implants. *Plast Reconstr Surg* 1989;84:903.
- [44] DeCamara DL, Sheridan JM, Kammer BA. Rupture and aging of silicone breast implants. *Plast Reconstr Surg* 1993; 91:828.
- [45] Peters W, Keystone E, Smith D. Factors affecting rupture of silicone gel breast implants. *Ann Plast Surg* 1994; 32:449.
- [46] Brody GS. On the safety of breast implants. *Plast Reconstr Surg* 1997; 100:1314.
- [47] Caputy GG, Flowers RS. Copious lactation following augmentation mammoplasty: An uncommon but not rare condition. *Aesthetic Plast Surg* 1994;18:393.
- [48] Hurst NM. Lactation after augmentation mammoplasty. *Obstet Gynecol* 1996; 87:30.
- [49] Melmed EP. Treatment of breast contractures with open capsulotomy and replacement of gel prostheses with polyurethane-covered implants. *Plast Reconstr Surg* 1990; 86:270.
- [50] McKinney P, Tresley G. Long-term comparison of patients with gel and saline mammary implants. *Plast Reconstr Surg* 1983;72:27.
- [51] Asplund O. Capsular contracture in silicone gel and saline-filled breast implants after reconstruction. *Plast Reconstr Surg* 1984;73:270.
- [52] Silverstein MJ, Handel N, Gamagami P, et al. Breast cancer in women after augmentation mammoplasty. *Arch Surg* 1988;123:681.
- [53] Hayes H, Vandergrit J, Diner WC. Mammography and breast implants. *Plast Reconstr Surg* 1988;82:1.
- [54] Burkhardt BR. Capsular contracture: Hard breasts, soft data. *Clin Plast Surg* 1986;88:521.
- [55] Deapen DM, Pike MC, Casagrande JT, Brody GS. The relationship between breast cancer and augmentation mammoplasty: An epidemiologic study. *Plast Reconstr Surg* 1986; 77:361.
- [56] Berkel H, Birdsell DC, Jenkins H. Breast augmentation: A risk factor for breast cancer? *N Engl J Med* 1992;326:1649.
- [57] Riordan J, Auerbach KG. Breast-feeding and human lactation. Boston: Jones & Bartlett, 1992.
- [58] Neifert M, DeMarzo S, Seacat J, Young D, Leff M, Orleans M. The influence of breast surgery, breast appearance, and pregnancy-induced breast changes on lactation sufficiency, as measured by infant weight gain. *Birth* 1990;17:31.
- [59] Sarwer DB, Wadden TA, Pertschuk MJ, Whitaker LA. The psychology of cosmetic surgery: A review and reconceptualization. *Clin Psych Rev* 1998;18:1.
- [60] Edgerton MT, McClary AR. Augmentation mammoplasty: Psychiatric implications and surgical indications. *Plast Reconstr Surg* 1958;21:279.
- [61] Edgerton MT, Meyer E, Jacobson WE. Augmentation mammoplasty II. Further surgical and psychiatric evaluation. *Plast Reconstr Surg* 1961;27:279.
- [62] Druss RG. Changes in body image following augmentation breast surgery. *Int J Psychoanal Psychother* 1973; 2:248.
- [63] Baker JL, Kolin IS, Bartlett ES. Psychosexual dynamics of patients undergoing mammary augmentation. *Plast Reconstr Surg* 1974; 33:652.
- [64] Schlebusch L. Negative bodily experience and prevalence of depression in patients who request augmentation mammoplasty. *S Afr Med J* 1989;75: 323.
- [65] Young VL, Nemecek JR, Nemecek DA. The efficacy of breast augmentation: Breast size increase, patient satisfaction, and psychological effects. *Plast Reconstr Surg* 1994; 94:958.

- [66] Shipley RH, O'Donnell JM, Bader KF. Personality characteristics of women seeking breast augmentation. *Plast Reconstr Surg* 1977; 60:369.
- [67] Goin JM, Goin MK. *Changing the body: Psychological effects of plastic surgery*. Baltimore: Williams & Wilkens, 1981.
- [68] Sihm F, Jagd M, Pers M. Psychological assessment before and after augmentation mammoplasty. *Scand J Plast Reconstr Surg* 1978; 12:295.
- [69] Beale S, Lisper H, Palm B. A psychological study of patients seeking augmentation mammoplasty. *Br J Psych* 1980; 136:133.
- [70] Schlebusch L, Levin A. A psychological profile of women selected for augmentation mammoplasty. *S Afr Med J* 1983;64:481.
- [71] Birtchnell S, Whitfield P, Lacey JH. Motivational factors in women requesting augmentation and reduction mammoplasty. *J Psychosom Res* 1990; 34:509.
- [72] Cook LS, Daling JR, Voigt LF, et al. Characteristics of women with and without breast augmentation. *JAMA* 1997; 277:1612.
- [73] Meyer L, Ringberg A. Augmentation mammoplasty—Psychiatric and psychosocial characteristics and outcome in a group Swedish women. *Scand J Plast Reconstr Surg* 1987; 21:199.
- [74] Ohlsen L, Ponten B, Hambert G. Augmentation mammoplasty: A surgical and psychiatric evaluation of the results. *Ann Plast Surg* 1978;2:42.
- [75] Sarwer DB, Bartlett SP, Bucky LP, et al. Bigger is not always better: Body image dissatisfaction in breast reduction and breast augmentation patients. *Plast Reconstr Surg* 1998; 101:1956.
- [76] McIntosh VV, Britt E, Bulik CM. Cosmetic breast augmentation and eating disorders. *NZ Med J* 1994; 107:151.
- [77] Yates A, Shisslak CM, Allender JR, Wolman W. Plastic surgery and the bulimic patient. *Int J Eating Disord* 1988;7:557.
- [78] Maddison D. Augmentation mammoplasty: A psychiatric's view. *Aust NZ J Surg* 1976;4:354.
- [79] Marcus P. Psychological aspects of cosmetic rhinoplasty. *Br J Plast Surg* 1984;37:313.
- [80] Meyer E, Jacobson WE, Edgerton MT, Canter A. Motivational patterns in patients seeking elective plastic surgery. *Psychosomatic Medicine* 1960;22: 193.
- [81] Webb WL, Slaughter R, Meyer E, Edgerton M. Mechanisms of psychosocial adjustment in patients seeking "face-lift" operation. *Psychosomatic Medicine* 1965;27:183.
- [82] Sarwer DB, Pertschuk MJ, Wadden TA, Whitaker LA. Psychological investigations of cosmetic surgery patients: A look back and a look ahead. *Plast Reconstr Surg* 1998; 101:1136.
- [83] Goin MK, Burgoyne RW, Goin JM, Staples FR. A prospective psychological study of 50 female face-lift patients. *Plast Reconstr Surg* 1980; 65:436.
- [84] Wright MR, Wright WK. A psychological study of patients undergoing cosmetic surgery. *Arch Otolaryngol* 1975; 101:145.
- [85] Goin MK, Rees TD. A prospective study of patients' psychological reactions to rhinoplasty. *Ann Plast Surg* 1991; 27:210.
- [86] Hollyman JA, Lacey JH, Whitfield PJ, Wilson JSP. Surgery for the psyche: A longitudinal study of women undergoing reduction mammoplasty. *Br J Plast Surg* 1986; 39:222.
- [87] Rodin J, Silberstein LR, Striegel-Moore RH. Women and weight: A normative discontent. *Nebr Symp Motiv* 1984; 32:267.
- [88] Cash TF, Henry PE. Women's body images: The results of a national survey in the U.S.A. *Sex Roles* 1995; 33:19.

- [89] Secord PF, Jourard SM. The appraisal of body- cathexis: Body-cathexis and the self. *J Consult Psychol* 1953;17:343.
- [90] Rosen GM, Ross AO. Relationship of body image to self-concept. *J Consult Clin Psychol* 1968; 32:100.
- [91] Lerner RM, Karabenick SA, Stuart JL. Relations among physical attractiveness, body attitudes, and self-concept in male and female college students. *J Psychol* 1973; 85:119.
- [92] Mahoney ER. Body-cathexis and self-esteem: The importance of subjective importance. *J Psychol* 1974; 88:27.
- [93] King MR, Manaster GJ. Body image, self-esteem, expectations, self-assessments, and actual success in a simulated job interview. *J Appl Psychol* 1977; 62:589.
- [94] Cash TF, Winstead BA, Janda LH. Body image survey report: The great American shape-up. *Psychol Today* 1986;24:30.
- [95] Fabian LJ, Thompson JK. Body image and eating disturbance in young females. *Int J Eating Disord* 1989; 8:63.
- [96] Napoleon A, Lewis C. Psychological considerations in lipoplasty: The problematic or "special care" patient. *Ann Plast Surg* 1989;23:430.
- [97] Edgerton MT, Langman MW. Psychiatric considerations. In: Courtiss EH, ed. *Male aesthetic surgery*. St. Louis: Mosby, 1982;17.
- [98] Pertschuk MJ, Sarwer DB, Wadden TA, Whitaker LA. Body image dissatisfaction in male cosmetic surgery patients. *Aesthetic Plast Surg* 1998; 22:20.
- [99] Sarwer DB, Wadden TA, Pertschuk MJ, Whitaker LA. Body image dissatisfaction and body dysmorphic disorder in 100 cosmetic surgery patients. *Plast Reconstr Surg* 1998; 101:1644.
- [100] Sarwer DB, Whitaker LA, Wadden TA, Pertschuk MJ. Body image dissatisfaction in women seeking rhytidectomy or blepharoplasty. *Aesthetic Surg J* 1997; 17:230.
- [101] Nordmann JE. Body image and self-esteem in women seeking breast augmentation. MCP Hahnmann Universtiy, unpublished doctoral dissertation, 1998.
- [102] Hetter GP. Improved patient satisfaction with augmentation mammoplasty: The transaxillary subpectoral approach. *Aesthetic Plast Surg* 1991;15:123.
- [103] Park AJ, Chetty U, Watson ACH. Patient satisfaction following insertion of silicone breast implants. *Br J Plast Surg* 1996; 49:515.
- [104] Schlebusch L, Marht I. Long-term psychological sequelae of augmentation mammoplasty. *S Afr Med J* 1993; 83:267.
- [105] Beale S, Hambert G, Lisper HO, Ohlsen L, Palm B. Augmentation mammoplasty: The surgical and psychological effects of the operation and prediction of the result. *Ann Plast Surg* 1985; 14:473.
- [106] Fiala TGS, Lee WPA, May JW. Augmentation mammoplasty: Results of a patient survey. *Ann Plast Surg* 1993; 6:503.
- [107] Kilmann PR, Sattler JI, Taylor J. The impact of augmentation mammoplasty: A follow-up study. *Plast Reconstr Surg* 1987; 80:374.
- [108] Palcheff-Wiemer M, Concannon MJ, Cohn VS, Puckett CL. The impact of the media on women with breast implants. *Plast Reconstr Surg* 1993;92:779.
- [109] Kaslow F, Becker H. Breast augmentation: Psychological and plastic surgery considerations. *Psychotherapy* 1992;29:467.
- [110] Edgerton MT, Langman MW, Pruzinsky T. Plastic surgery and psychotherapy in the treatment of 100 psychologically disturbed patients. *Plast Reconstr Surg* 1991; 88:594.
- [111] Goin MK, Goin JM, Gianini MH. The psychic consequences of a reduction mammoplasty. *Plast Reconstr Surg* 1977; 59:530.

- [112] Rankin M, Borah GL, Perry AW, Way PD. Quality- of-life outcomes after cosmetic surgery. *Plast Re- constr Surg* 1998; 102:2139.
- [113] Sarwer DB, Wadden TA, Pertschuk MJ, Whitaker LA. Changes in body image following cosmetic surgery. Paper presented at the annual meeting of the Society of Behavioral Medicine, March 25–28, 1998.
- [114] Walden KJ, Thompson JK, Wells KE. Body image and psychological sequelae of silicone breast explantation: Preliminary findings. *Plast Reconstr Surg* 1997; 100:1299.
- [115] American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: APA Press, 1994.
- [116] Phillips KA, Diaz SF. Gender differences in body dysmorphic disorder. *J Nerv Ment Dis* 1997; 185:570.
- [117] Rosen JC, Saltzberg E, Srebnik D. Cognitive behavior therapy for negative body image. *Behav Ther* 1989; 20:393.
- [118] Butters JW, Cash TF. Cognitive-behavioral treatment of women’s body image dissatisfaction. *J Consult Clin Psychol* 1987; 55:889.
- [119] Neziroglu FA, Yaryura-Tobias, JA. Exposure, response prevention, and cognitive therapy in the treatment of body dysmorphic disorder. *Behavior Therapy* 1993; 24:431.
- [120] Rosen JC, Reiter J, Orosan P. Cognitive behavioral body image therapy for body dysmorphic disorder. *J Consult Clin Psych* 1995; 63:263.
- [121] Veale D, Gournay K, Dryden W, Boocock A, Shah F, Willson R, Walburn J. Body dysmorphic disorder: A cognitive behavioural model and pilot randomized controlled trial. *BehavRes Ther* 1996; 34:717.