

# Breast implants in reconstructive and aesthetic surgery

Citation for published version (APA):

Miseré, R. M. L. (2023). *Breast implants in reconstructive and aesthetic surgery: Studies on self-reported health complaints and quality of life*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20230414rm>

## Document status and date:

Published: 01/01/2023

## DOI:

[10.26481/dis.20230414rm](https://doi.org/10.26481/dis.20230414rm)

## Document Version:

Publisher's PDF, also known as Version of record

## Please check the document version of this publication:

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## IMPACT PARAGRAPH

The goal of cosmetic surgery is to improve and reshape body structures to improve a person's appearance, self-esteem and confidence. In women who are dissatisfied with their breasts, the breasts can be augmented. In addition to aesthetic breast surgery on healthy women, there are women who have lost their breasts as a result of breast cancer treatment. In these women, breast reconstructive surgery can help restore their physical appearance and improve the quality of life. Breast implants are commonly used for both cosmetic and reconstructive breast surgery. However, questions about the safety of silicone breast implants are causing doubt and uncertainty among a growing number of women.

There is a lot of media attention for the safety of breast implants. The development of systemic complaints as a result of breast implants, also known as breast implant illness, is a much-discussed topic. In the Netherlands for instance breast implant illness has been the focus of the Dutch television program Radar. Furthermore, the documentary 'Moordtieten', which discusses the possible, rare and serious side effects of breast implants, received a lot of publicity. As a result of all this (social) media attention, women are inundated with stories of women who experience systemic physical complaints, such as fatigue, muscle complaints and cognitive problems. However, the actual relationship of these complaints with breast implants is not evidence-based. Media coverage of breast implants is often disproportionately focused on potential dangers. As breast implants are used on a large-scale worldwide, many women may be at risk. Maastricht research showed that more than 3% of adult women in the Netherlands have one or two breast implants. For all these women, solid scientific support about safety issues of implants is crucial. This dissertation contributes to that knowledge. The results of the studies described in this thesis provide patients and healthcare providers with evidence-based information.

This thesis shows that systemic symptoms are common in both women with and without breast implants and that selection bias in many studies likely skews the true extend of breast implant illness. Contrary to what the media has suggested, it has not been proven that systemic symptoms are more common in women with breast implants than in women without breast implants. However, in about 50% of the BII cases, an improvement in physical complaints is observed with the removal of implants, which is in line with previous research into explanation. It is unclear what role the placebo effect plays in this symptom improvement.

The results of this thesis provide new insights into the role of psychosocial characteristics in the development and experience of physical complaints in women with breast implants. Several studies in the literature have shown a relationship between psychological well-being and physical complaints. This relationship may also exist in women with breast implants. In our brain imaging study, no neurological abnormalities could be detected by means of fMRI examination and cognitive questionnaires. So, we found no evidence of brain damage from breast implants, as suggested by others. Instead, high levels of anxiety, fear, somatization and depression may make women more susceptible to experiencing physical symptoms. Furthermore, women may experience symptoms as a result of the nocebo effect, which is influenced by social media and social modelling. By means of scientific information, incorrect information on social media can be refuted and experiences can be placed in the right context.

With regard to the application of breast implants in oncology, women undergoing breast reconstruction may be disturbed by negative and incorrect information when choosing a particular reconstruction method. The decision-making process depends on many internal and external factors and requires proper counseling by the plastic surgeon and other medical specialists of the breast cancer team. However, this consideration should not include unproven side effects. Based on this thesis, women can be reassured that an implant reconstruction does not carry a higher risk of systemic physical complaints than an autologous breast reconstruction. No significant differences in the prevalence and severity of health complaints were found between the two reconstruction methods, resulting in an equal health-related quality of life. However, breast-related and body-related outcomes were higher in women undergoing autologous breast reconstruction. This is widely confirmed in the literature.

The results of this thesis are relevant for medical professionals in the field of breast reconstruction and cosmetic breast augmentation, such as plastic surgeons and surgical oncologists, so that they can counsel patients based on the latest evidence. Furthermore, this thesis is of interest to those who currently have breast implants or are considering breast implants, as the results provide insight into patient-reported outcomes after breast implant surgery or breast implant removal.

While this thesis may not be sufficient to answer all the major issues surrounding breast implant illness, it is a step in the right direction. More large-scale prospective studies are required in order to elucidate the association between breast implants and health complaints. A systematic, prospective registration such as the Dutch Breast Implant Registry (DBIR) allows a better estimate of the prevalence of complications and side effects, without selection bias. Ideally, this would include extensive prospective registration of physical and mental health. Whether future research will demonstrate a causal relationship between complaints and silicone remains to be seen. It may become possible to draw up a profile of women with a greater chance of developing complaints on the basis of (psycho)medical history. Physicians should take complaints and concerns seriously and should properly inform patients about the current evidence on the relationship with systemic complaints. This thesis can help plastic surgeons and other medical professionals to advise women on breast implant decisions.