Global study on 3D benefits within the aesthetics field

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Introduction

The successful aesthetic plastic surgeon's practice and reputation relies – more than in other disciplines – upon patient satisfaction. Satisfied patients become an important driver for building a positive reputation and therefore an essential stimulus for further patient referrals. As a consequence, prudent surgeons do their best to ensure patient wishes are fully taken into consideration.

One of the key elements in ensuring patient satisfaction after breast augmentation is meeting the patient's expectation for the postoperative size and shape of the breast. Failure to provide the desired breast size and shape can lead to significant patient dissatisfaction, a strained doctor-patient relationship, and additional costs associated with revisionary surgery. Unfortunately, patient dissatisfaction with the size or the shape of the breast after breast augmentation is not an uncommon occurrence, and reoperation for size or shape change has been noted to occur in up to 20% of patients.[1]

It is therefore essential that the patient gets educated by becoming intimately involved in the process of implant selection, supported by the surgical team, and that the patient "buys-in" to the selection process with enthusiasm, confidence and conviction. As the goal of the procedure is to improve the appearance of the patient, the most pressing question that all patients have in common is how they will look like after the operation that relates to questions like "what is the difference between this size and that size of implant?" or "should I need a C cup or a D cup" or even sometimes patients referred from a friend who want to have the same result with the implant their friend had. Such information allows the surgeon to proceed with confidence, and can provide that last bit of needed reassurance to allow a patient to choose to undergo the procedure.

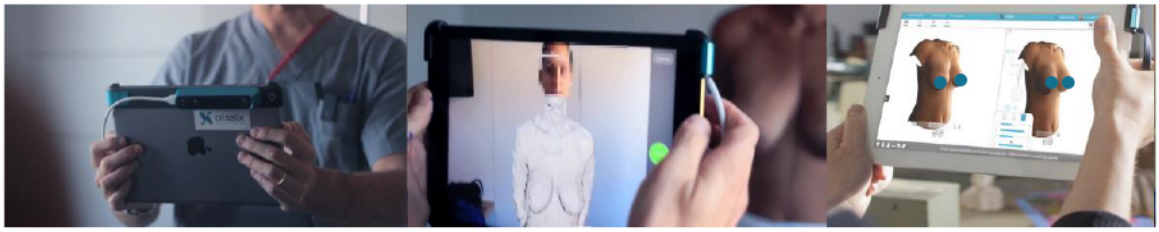
So, what if the patient could get a clear answer on her numerous questions and see her change in appearance before it actually happens? This is what Crisalix is trying to support with its 3D technology, which leads, as shown on the following sections, to an increase in patient satisfaction and benefits both patients and surgeons.

3D imaging

Crisalix is a 3D simulation technology with the characteristic of being portable and available online. Physicians can create 3D models of their patients and simulate breast, face and body procedures.

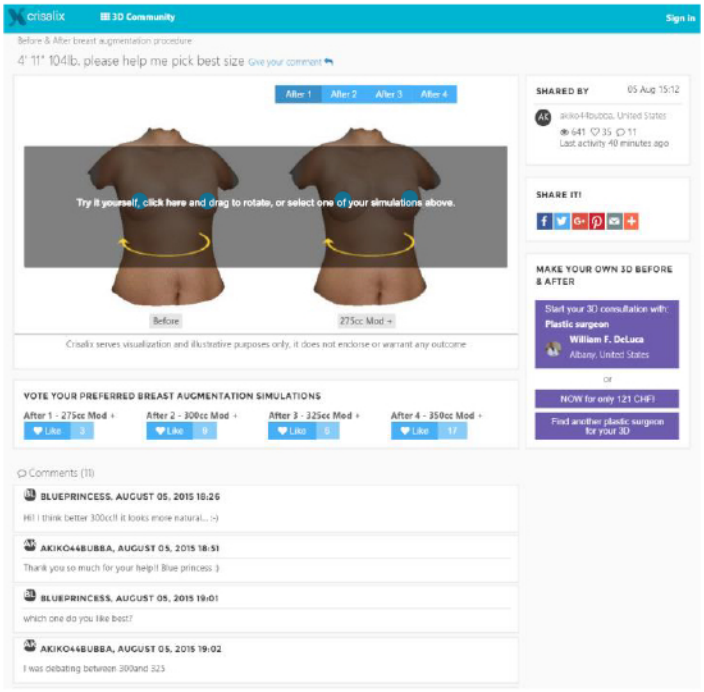
To access the technology, physicians can login into their Crisalix account via the web or from the Crisalix iPad App.

Crisalix is a hybrid solution where the patient can be scanned in 3D either by uploading 3 standard digital photos of the patient (front view and both profiles) or using a portable 3D sensor plugged into an iPad (see image below). The 3D model is rendered in a few seconds and the image is then ready for creating the desired procedure for breast, face, or body procedures.

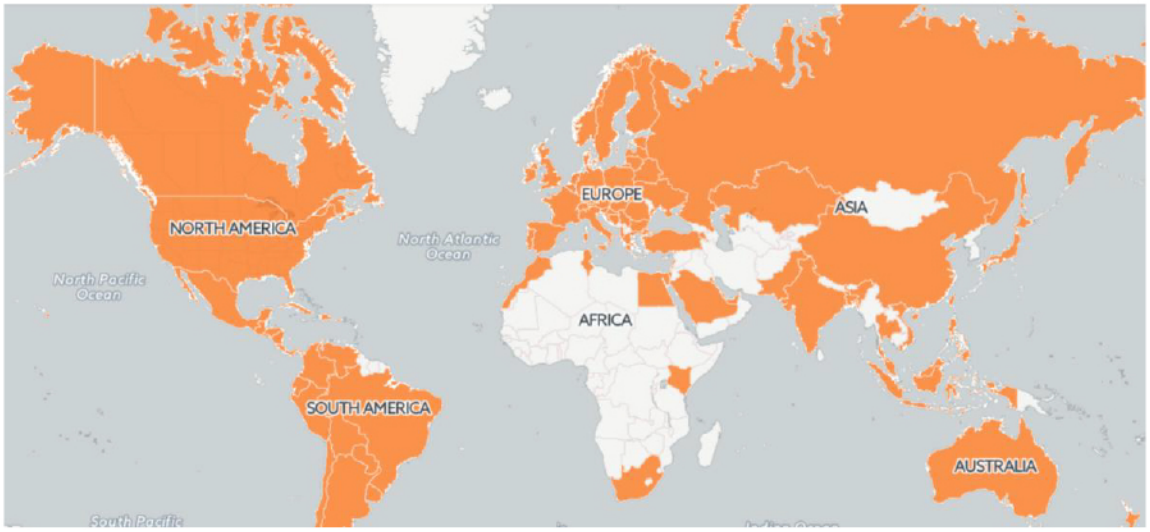


The solution includes as well virtual reality (VR) capabilities (see image below) where patients can “try on” their new body/face, and see the changes in size and shape serving somehow as a fitting room.

To support patients in their decision and educational process, physicians can give remote access to their patients so they can continue visualizing their simulations and share this 3D experience with others to help them to make a better decision. By doing so, patients end up communicating with the practice where they had the consultation. In addition, patients can share their 3D before & after simulations publicly on a community dedicated to receive direct feedback from others (votes for the favorite proposed surgery, comments, etc.).



Since its commercial launch in 2011 until June 24th 2016, Crisalix has simulated 73,407 patients in 3D. Those patients were entered into the system by 2,577 surgeons from 113 different countries. About 40% of simulated patients utilized the remote access since its launch in 2013.

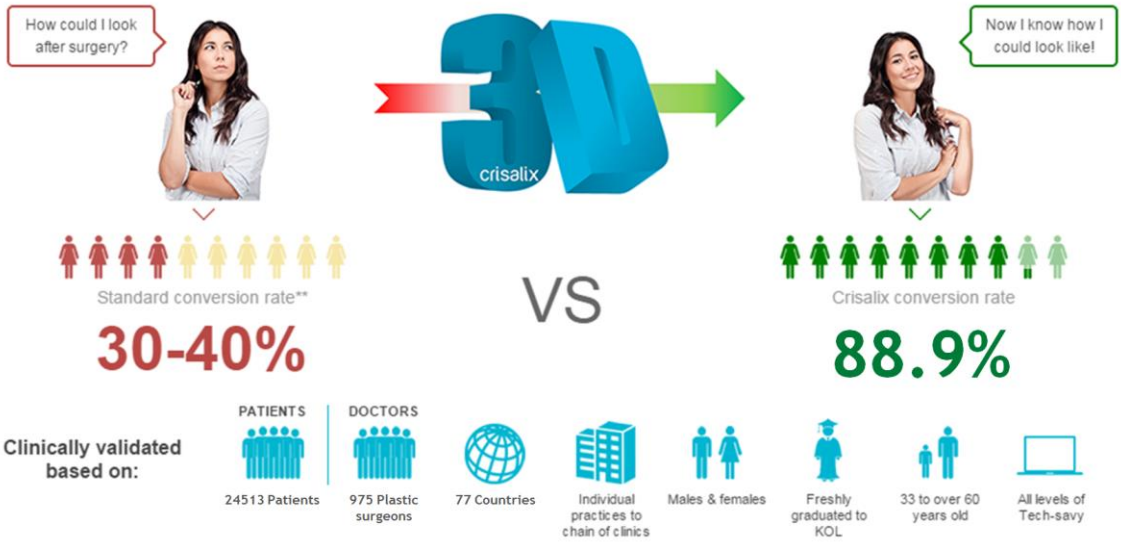


Countries with surgeons using Crisalix 3D technology

Value creation for physicians

Online service generates data allowing its analysis. On February 7th 2014, Crisalix launched an ongoing study with the aim of objectively measuring the impact of its 3D technology in the consultation-to-surgery conversion of its users, called the Crisalix Conversion Index (CCI). By determining if a simulated patient has undergone surgery or not, the physician completes his Crisalix account with information about each 3D consultation measuring his personal 3D conversion rate. It is the first and only unbiased index of its kind showing the overall success rate of 3D consultations. The statistical calculations are automatically generated from data obtained from an aggregated Crisalix community of plastic surgeons from around the world, and this data is taken from thousands of patients' consult-to-surgery final results.

The CCI as of June 23rd 2016 is 88.9%. As shown in the image below. This number has been calculated from the data provided by 975 plastic surgeons from 77 different countries, for a total of 25,413 patients with information about their decision to proceed with surgery.

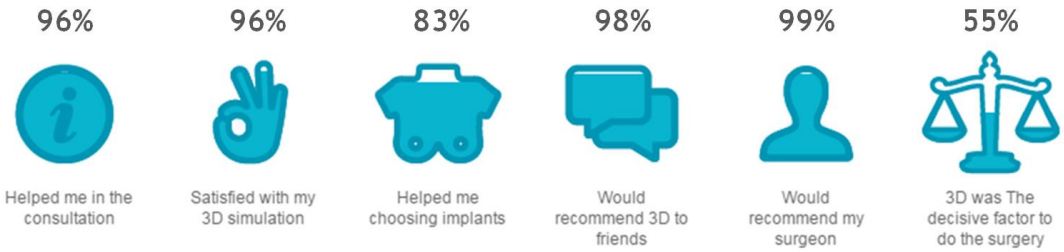


The Crisalix Conversion Index is intended to allow every plastic surgeon from any part of the world, to benchmark his or her own success rate against comparable 3D peers.

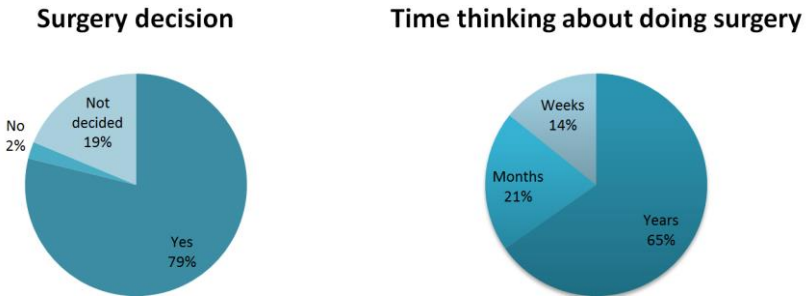
Value creation for patients

The first ongoing study started in September 5th 2014 with the aim of getting feedback after the consultation and measuring the impact of the 3D simulation. Enrolled patients who received the remote access could fill out a post-consultation survey.

As of June 23rd 2016, 1346 patients had filled in the survey from 40 countries. As shown in the graph below, a positive response was noted in reference to questions about satisfaction and how the 3D technology helped them during the consultation to choose the correct implant. It might be interesting to point out that fully 55% of the patients thought that the 3D technology was the decisive factor in whether or not to proceed with surgery.



Concerning the decision about surgery, 79% declared they were going to proceed with surgery against only 2% who would not. Among the 19% of patients who were undecided, the main reason was financing.



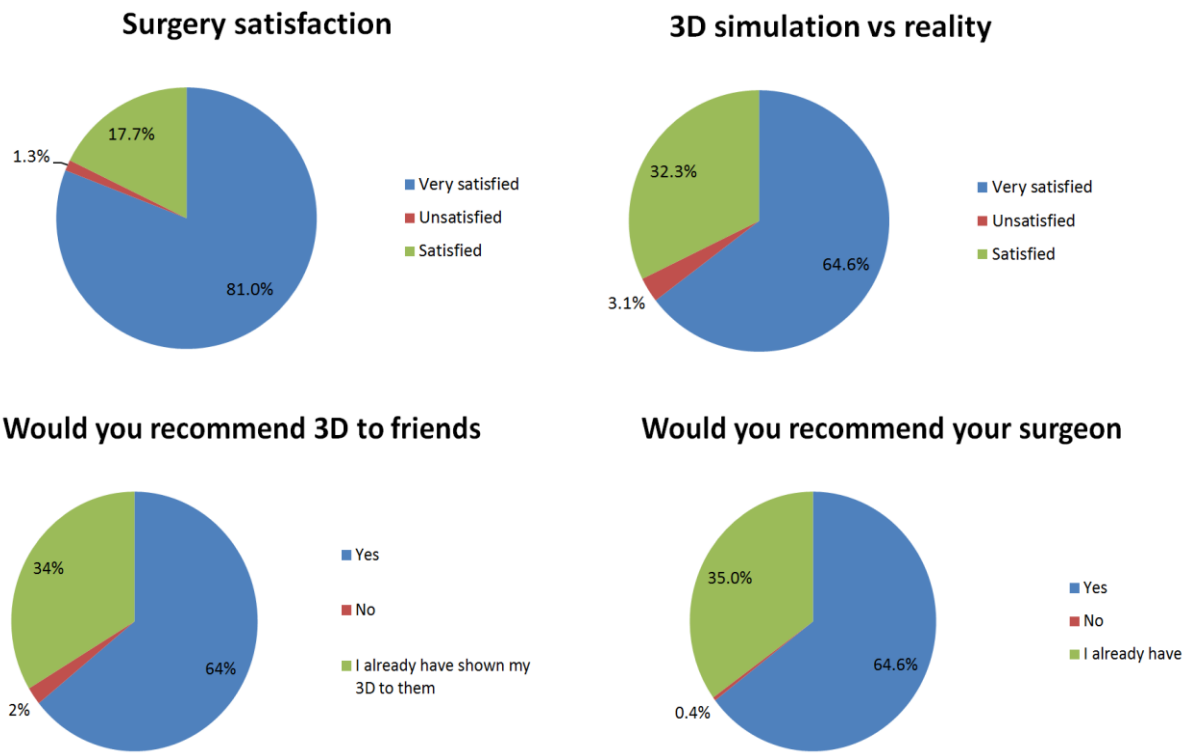
Another aspect analyzed is the timing of the procedure. The majority of surveyed patients declared they had been hesitating for years, however after viewing the 3D technology, many were eager to schedule surgery within days.

So far 1346 patient surveys have been received since September 5th 2014. Based on a confidence level of 95%, the statistical margin of error for this survey is ±2.63%.

If we compare the 88.9% surgeon CCI and the 76.3% to 81.6% CCI from the patients' surveys, one could conclude that surgeons using this 3D imaging solution have on average twice the standard conversion rate. In other words, these surgeons perform 2x as many operations with the same number of consultations (standard conversion rate usually around 30 to 40%[2]).

The second ongoing study started in December 10th 2014 has the aim of getting feedback from the patients after the surgery. Simulated patients who received the remote access and underwent surgery had the option to fill out a post-surgery survey.

As of June 23rd 2016, 226 surveys were received from 29 countries. As shown in the graph below, 98.7% of patients were noted to be satisfied or very satisfied with their result and 96.9% were either satisfied or very satisfied with the 3D simulation compared to their final result. 98% recommended Crisalix to their friends and from the 3.1% of unsatisfied patients, 42% still recommended Crisalix to other patients and all of them recommended their surgeon.



Conclusions

The aim of this white paper is to provide some objective measurements to calculate the effect of 3D imaging.

With the continuous large volume of data generated through the cloud, the study could gather objective information obtained from both surgeons and patients, underlying the following main conclusions:

- Adding 3D imaging to the consultation increases usually the consult-to-surgery conversion rate with numbers here that are on average double the standard ones.
- 86% of the patients were thinking about surgery for years and months and decided in the next days when seeing their own 3D simulation.
- The use of Crisalix during the consultation seems to improve post-consultation and post-surgery satisfaction.
- With 99% of these patients that have recommended or will recommend their surgeon after getting their 3D imaging, it supports practices with their word of mouth a making it an extremely powerful word of mouth solution.
- Patients identify 3D imaging as the decisive factor in the consultation for more than half of the patients.
- Post-surgery dissatisfaction seems to be substantially reduced by managing patient expectations.

For anyone looking to change their appearance, the ultimate aim will remain how. Until 3D imaging, patients undergoing these procedures couldn't have a real answer to their appearance need and were evaluating their potential results often based on the only visual information they could have: photos of other patients. As everyone is different, the potential exists for these expectations to be unrealistic or incomplete which may lead to patient dissatisfaction. With 3D imaging, patients can see tailor made simulations based on the patient's own unique anatomy to be created. These images can then serve as a more reliable predictor of postoperative results, allowing more patients to confidently choose surgery with higher satisfaction rates.

Acknowledgments

We would like to express our special thanks to all the physicians who participated in this study by providing accurate information. We very much appreciate your contribution.

References

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