

Follow-up on Functional Outcomes of Face Transplantation

Sebastian Fischer, MD, Bridget Perry, MS, Muayyad Alhefzi, MD, Mario Aycart, MD, Maximilian Kueckelhaus, MD, Ericka M Bueno, MD, Bohdan Pomahac, MD

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Introduction: This study describes pre-operative functional impairments and post-operative outcomes of 7 face transplantations (FT) performed at the Brigham and Women's Hospital. Furthermore, outcomes of all known cases of FTs worldwide are depicted based on a literature review, to provide a detailed overview of the up- and downsides of this life-giving surgery.

Material and Methods: Between 2005 and 2015, 32 FTs were performed worldwide. We defined functional outcomes of FT as the ability to smell, breathe, eat, speak, generate facial expressions and experience facial sensation. We performed physical examination, photography/video recordings and imaging-based airway volume measurements on the 7 FT recipients at our institution. We quote functional outcomes of the remaining 25FT from peer-reviewed literature.

Results: Before FT, all of our 7 patients had limited ability to breathe, eat, speak, generate facial expressions and experience facial sensation. The ability to smell was compromised in 2 out of 7 patients. Two patients were dependent on tracheostomy and 1 was dependent on gastrostomy tubes. After a mean follow-up of 3.5 years (range 0.5 – 6.5 years), improvements in all functional outcomes were noted. Progressive re-innervation of facial skin and muscles improved or enabled eating, speaking and the ability to produce facial expressions and experience facial sensation. There was significant increase in upper airway volumes, leading to improvements in breathing and smelling. All artificial airways and feeding tubes were removed. In the remaining FT recipients from the peer-reviewed literature, the abilities to smell, eat and feel were improved in 100% of cases, whereas the abilities to breathe, speak and grimace were ameliorated in 93%, 71% and 76%, respectively. Almost 60% of outcomes were not reported in the scientific literature.

Conclusion: This study demonstrates the effectiveness of FT by restoring facial functions and the experience of the Brigham and Women's Hospital as one of the leading facilities for FT worldwide. Future reports should provide similar descriptive information in order to increase the available evidence and thus overcome the experimental state of FT.