is hindered in part by the availability of limbs which can survive a limited amount of time disconnected from the body. Cryobiology is the scientific field which investigates biology at low temperatures. Cryobiologists have long sought to cryopreserve biological samples ranging from single cells to complex organs and whole animals. Vitrification is the transformation of a substance into a non-crystalline amorphous solid using rapid heat removal. Directional freezing is a technique, consisting of highly controlled and cell-friendly ice crystal morphology that significantly reduces mechanical damage. Extremely efficient heat removal and controlled ice crystal propagation make it suitable for freezing both small and large volumes alike. Combining Directional freezing and VCA may open the door for "Organ Banking". If composite tissue could be frozen and then thawed without damage, non transplanted tissue and organ waste would be reduced, potentially enabling better donor and recipient availability and match.

**METHODS:** We used directional freezing and vitrification on a syngeneic heterotrophic rat hindlimb transplant model and monitored the animals and transplanted limbs for up to 72 hours. Cell and tissue samples were taken for culture and histology.

**RESULTS:** Immediately upon thawing the donor hindlimb blood vessels and tissue felt similar to the recipient’s. Following revascularization reperfusion was clinically evident by color and bleeding from distal sites to the anastomosis. Limb survival was noted up to 72 hours post op. Tissue samples including muscle, skin and blood vessels where taken at 24, 48 and 72 hours from transplantation. Histology demonstrated viable myocytes, intact intimal lining of blood vessels and all skin layers.

**CONCLUSION:** Whole limb freezing and reimplantation using directional freezing and vitrification is feasible in small animal models. Based on our current achievements we intend to develop protocols for limb cryopreservation in large animals, aiming to advance the field of cryobiology towards the ambitious goal of human organ banking.
Contractility and ICG-angiography were comparable in the two groups.

CONCLUSION: The normothermic perfusion protocol has the potential to significantly impact outcomes in limb replantation and transplantation. Our results suggest that limbs in the 12-hours perfusion group retain better physiologic parameters at the end-point. However, the continuous optimization of the protocol allowed to maintain limb’s function and preserved peripheral perfusion for up to 44 hours.

A Pilot Study: Eye Tracking Technology in Aesthetic Surgery Outcome Analysis

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INTRODUCTION: Eye tracking technology has been utilized to assess the severity and document the improvement in the treatment of autism. In this pilot we have applied this to the analysis of results following facial aesthetic surgery. Quantitative data including fixation times, and sequence of visual scanpath are obtained to compare pre and postoperative changes post rhytidectomy. In addition, as studies show that a face is scanned in a central triangle pattern of eyes, nose and mouth, we study if this scan path is altered.

METHODS: Five volunteers viewed randomized images of 16 images of six patient’s pre and post rhytidectomy on a LCD monitor. Each patient had at least one frontal view, while two patients had a right lateral view of their face. Each image was displayed for 10 seconds, followed by 5 seconds for the observer to estimate the patient’s age. A SMI RED250 eye movement monitoring system recorded the observer’s eye position, and fixation time.

RESULTS: Data on six rhytidectomy patients in 16 images showed decreased fixation time on certain features of aging post rejuvenation. Post rhytidectomy, the average fixation time on the neck decreased by 99.5 ± 33.59 ms (range: 61.8–160.2) in the frontal views of all six patients. Eyes were a major feature of fixation, at least 90% of observers fixated on both eyes in pre and postoperative images in the frontal views. The average fixation time of the left eye and right eye preoperatively was 345.1 ± 98.3 ms, and 332.81 ± 21 ms, while postoperatively was 364.15 ± 59.7 ms, and 324.6 ± 67.7 ms. The observers scan path varied between pre and postoperative images, but the central triangle pattern remained predominant in both. The average fixation time spent on the central triangle from patient images were 369.7 ± 51.42 ms, and 373.9 ± 18.4 ms pre and postoperatively. Changes in fixation times of left and right buccolabial folds were also apparent, one patient’s average fixation time decreased from 120.2 ms and 40.1 ms to zero fixation postoperatively.

CONCLUSION: Eye tracking provides some quantitative data post facial rejuvenation. Future studies using this technology can further enhance our understanding of visual attention with aesthetic outcomes.

Reference Citations:
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Which Funding Sources are the Greatest Contributors to Scholastic Productivity for Academic Plastic Surgeons?

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INTRODUCTION: Scholastic productivity has previously been shown to be positively associated with National Institute of Health (NIH) grants and industry funding. This study examines whether society, industry or federal funding contributes towards academic productivity as measured by scholastic output of academic plastic surgeons.