























# **BVA Prototype Study**

24 stimulating electrodes

No implanted electronics

Materials: platinum and silicone

Suprachoroidal surgical placement

3 patients with profound vision loss from retinitis

pigmentosa (light perception only)

2 year study







# Likely Benefits of Bionic Eyes – Short Term

- Light perception
- Object detection and avoidance
- Visual certainty
- Social cues



Enjoyment

## Possible Benefits of Bionic Eyes - Long Term

- Higher resolution
- Reading large print?
- Face recognition?



### **Vision Restoration Options**

1. Retinal Prostheses ("bionic eyes")

### 2. Stem cells

- 3. Gene therapy
- 4. Optogenetics

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# Neuroplasticity

- William James 1890
- Plasticity = intrinsic property of the nervous system throughout life
- Evidence that the vision related areas of the occipital cortex are re-wired in a compensatory cross modal manner in people who are blind



# Neuroplasticity

- In experiments, five days of blindfolding is enough to show changes in auditory and tactile mapping in the visual cortex
- This means it is likely that the cortical connections were already present, and are just "unmasked"

# Neuroplasticity

- Likely to improve outcomes in vision restoration interventions (as has been shown in cochlear implants)
- Possible avenue for other therapies
- Important area of research





