

## **TOOLS OF DATA COLLECTION / OVERVIEW:**

- Documentation (ongoing) using video and photography diary
- **Design**
  - Identify key design elements of desired function
  - Identify functional equivalent bio engineered solutions
  - Lab preparation work material acquisition
  - Methodology to Protocol development
  - Measurement Design
- **Build**
  - Lab work
  - HA Spermatozoa binding assay
  - Propulsion force test
  - Vessel production
  - Fabricate bioengineered design for building muscular thin films
    - **Template**
      - Fabrication of template using titanium casting mould.
      - Fabrication of buoyancy clip
    - **Substate**
      - Preparation of PDMS (e.g. Sylgard 184 elastomer)
      - Application of HA coating to PDMS.
      - Attachment of clip buoyancy
    - Seeding of sperm cells
    - Evaluation of performance
  - Standardisation of fabrication into protocol
  - Viability assay with buffer solutions
- **Test**
  - Quantify implementation of key design elements (e.g. structure, physiology, kinematics)
  - Quantify functional performance
- Use of specialist recording and measurement equipment such as Digital Particle Image Velocimetry (DVPI) to visualise fluid motion in a single plane.
- Microsite development (Wordpress or bespoke)
- Reflection and Reporting
- Video editing for final short project documentation
- Exhibition preparation
- Exhibition