Plastination Procedure @ PCOM: Current Practice and Future Use

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INTRODUCTION:

- Plastination serves as a practical method to preserve gross anatomical specimens for study and is utilized at PCOM.
- The practice was developed by German anatomist Gunther von Hagens in 1977[1]

MATERIALS & METHOD:[2,3]

1. Cadaveric specimens fixed & dissected.
2. Specimens dehydrated in consecutive washes of cold (-20◦C) acetone.
3. Acetone concentration checked with acetonometer until it reaches ~99%.
4. Specimens placed into silicone polymer bath at room temperature.
5. Vacuum pressure gradually decreased to replace acetone with silicone.
6. A catalyst hardening agent (S3) is administered to finish the process.

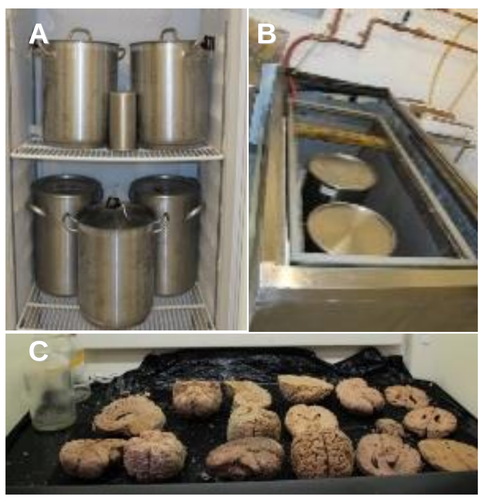

Figure 1, Plastination Stages. A, dehydration in freezer; B, Vacuum chamber; C, Specimens drying under hood with hardener.

CURRENT USES:

- Enriching Allied Health Medical Education
  - Doctor of Osteopathic Medicine
  - Physician Assistants and Physical Therapy
  - Psychology
  - Biomedical Sciences
- Outreach at regional institutions
  e.g., The Franklin Institute
  e.g., The Nebinger School

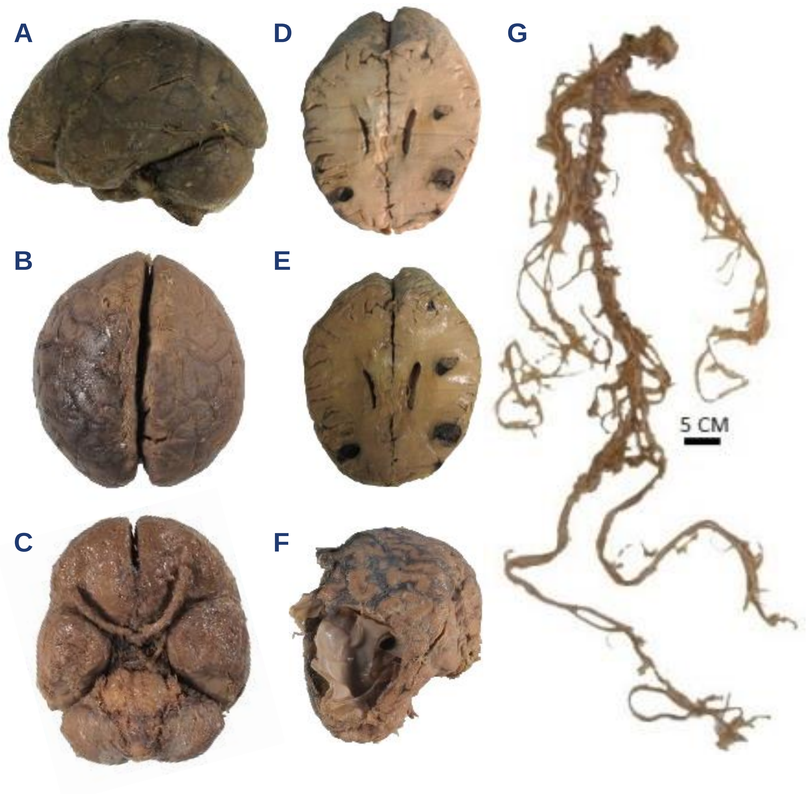

Figure 2, Example material. (A-C) Whole brain in Lateral (A), Dorsal (B), and Ventral (C) views; (D-F) Comparison of axial slice detailing neurodegeneration (D) before plastination and (E) after plastination; (F) Whole brain in anterior oblique view w/ frontal lobe dissected; (G) Anterior view spinal cord and spinal nerves.

Figure 3, Outreach event with 4th graders

FUTURE DIRECTIONS:

- Improve results & experimental design
  - (i.e., dehydration efficiency)
- Continue use of plastinated specimens in various ongoing research initiatives.
- Continue building the medical education collection w/ interesting anatomical anomalies.
- Further enrich the curriculum of high school STEM workshops at PCOM[4]

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