16 - Miscellaneous

PO-032 - (23808) - EVALUATION OF VOLUME AND WEIGHT CHANGES IN PLASTINATED HUMAN BRAIN

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Tissues are plastinated by eliminating their water and oil and replacing them with synthetic polymers to create dry, light, odourless, and long-lasting samples. The tissues shrink during the dehydration step of the plastination technique. Minimizing shrinkage is important to getting realistic samples. We investigated changes in weight and volume when plasticizing the human brain.

A total brain was taken out from a human cadaver which was preserved with 10% formalin solution. The volume and weight of the brain were measured. During the dehydration, the whole brain passed through a series of acetone baths. Xylol-diluted silicone resin [50% xylol+50% Biodur S10+S3 (100:1)] was used in the impregnation step. Plastination was completed with the curing step using Biodur S6. The final volume and weight of the plastinated brain were measured. First measured weight and volume were 1026 grams and 1040 millilitres. After plastination, the weight was 610 grams, and the volume was 670 millilitres. Consequently, 64.42% volume and 59.45% weight loss were detected.

Tissues shrink after formalin fixation. Shrinkage is higher in brain tissue than other tissues. Although it was predicted that plastination with xylol-diluted silicone would cause less volume loss due to the space-retaining properties of xylol, outcomes revealed reverse. The collapse and emptying of the ventricles might possibly be the cause of the weight and volume loss. To minimize the negative volume changes that occur during silicone plastination of brain samples, it may be effective to take measures to preserve the volume of the ventricular cavities during the impregnation step.

Palavras-chave : Plastination, Brain