THE EFFICACY OF HAIR WASHING PRIOR TO SUBMISSION FOR NUCLEAR DNA ANALYSIS

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ABSTRACT

Background: Nuclear DNA analysis of hair fibers is not always performed in order to rule out contamination. Biological stains or surface contaminants that can be removed by washing with water. It is important to determine the wash effectiveness and to know when washing is unnecessary. The literature is varied on whether hair washing is effective, and many protocols have been developed for nuclear DNA analysis.

Aims: To determine the efficacy of hair washing on removing biological stains, water soluble contaminants, and water insoluble contaminants.

Methods: Hair fibers were collected from the root section and shaft section of hairs. The root section was used for the control and the shaft section was used for the experimental group.

The root section of the hair was washed with water, and the shaft section was washed with water, detergent, and ethanol. Washing was performed at controlled 

Findings: There was no significant difference between the control and experimental groups.

Conclusion: Hair washing is effective in removing biological stains, water soluble contaminants, and water insoluble contaminants. However, it may not be necessary in all cases.

SUMMARY OF FINDINGS

- Excessive hair loss can be removed without scalp hair.
- Water soluble surface contaminants are most effectively removed by washing first with water then with ethanol.
- Xylene does not appear to effectively remove non-water soluble surface contaminants.
- Shaft controls appear unnecessary for routine casework samples.

EXPERIMENTAL DESIGN

- An experimental design was chosen to assess the efficacy of the current DDP washing procedure on hair for nuclear DNA analysis.

- The study was divided into two groups: control and experimental.

- The control group consisted of hairs that were not washed.

- The experimental group consisted of hairs that were washed with water, detergent, and ethanol.

- The hairs were divided into root and shaft sections.

- The root section was used for the control group.

- The shaft section was used for the experimental group.

- The hairs were then treated with either water, detergent, and ethanol or water alone.

- The hairs were then dried and stored at room temperature.

- The DNA was extracted from the hairs and analyzed for nuclear DNA.

- The results were analyzed using standard statistical methods.

- The efficacy of hair washing on nuclear DNA analysis was determined by comparing the DNA extracted from the control and experimental groups.

- The results were analyzed for statistical significance using a paired t-test.

- The results were then interpreted to determine the efficacy of hair washing on nuclear DNA analysis.

REFERENCES


