

# Differential White Blood Cell Count

Experiment 6 - Practical Notes

Name: \_\_\_\_\_ Roll no.: \_\_\_\_\_ Date: \_\_\_\_\_

## Aim

To classify white cells on a prepared blood film and calculate their relative proportions.

## Principle

A differential count classifies white cells as neutrophils, lymphocytes, monocytes, eosinophils and basophils. Percentages are relative; the absolute count also depends on the total WBC concentration.

## Requirements

- Instructor-prepared stained blood film, microscope and tally sheet.

## Procedure

### 1. Survey the film

Identify the recommended counting region in the prepared film. Record its label and film quality.

### 2. Classify systematically

Use the agreed scan pattern and classify the assigned number of clearly identifiable cells by nuclear shape and cytoplasm.

### 3. Calculate

Calculate each class percentage. If the total WBC result is provided, calculate the absolute count.

### 4. Review

Check that percentages sum to approximately 100% after rounding; record uncertain cells for instructor review.

## Human Anatomy and Physiology

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### Observations and Record

| Cell class  | Tally / count | Percentage |
|-------------|---------------|------------|
| Neutrophils | —             | —          |
| Lymphocytes | —             | —          |
| Monocytes   | —             | —          |
| Eosinophils | —             | —          |
| Basophils   | —             | —          |

### Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Percentage = cells in a class ÷ total cells counted × 100.
- Example: 60 of 100 cells are neutrophils: 60%. If total WBC = 7000 cells/μL, absolute neutrophils = 0.60 × 7000 = 4200 cells/μL.

### Result

Record the completed observations, calculations and conclusion with units. State any limitation of the observation.

### Precautions

- Use a prepared film; do not infer a diagnosis from the exercise.
- Avoid counting the same field twice or selecting only easily recognised cells.

### Viva Questions and Answers

#### 1. Can a normal percentage conceal an abnormal absolute count?

Yes. The total WBC concentration determines the absolute count.

#### 2. Why scan systematically?

It reduces selection bias and duplicate counting.

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