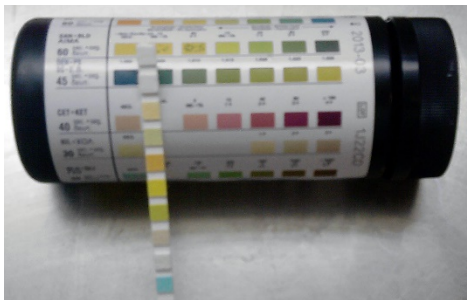
Urinalysis

Introduction



Analyzing the composition of urine can help indicate the health of an individual such as the presence of HCG in pregnancy tests, presence of THC metabolite to test for marijuana use, or cloudiness indicating a urinary tract infection. Diseases like diabetes affect processes that occur in the kidneys, so a urinalysis also provides preliminary indications of these diseases. Early diagnosis of these diseases is important because they can damage the kidneys.

Objective

Determine how disease can affect the composition of urine.

Material

- 4 urine samples – normal, type 1 diabetes, type 2 diabetes, and hyperthyroidism
- pH paper
- 4 glucose-ketone reagent test strips – used in dipstick test for presence of glucose and ketones

Procedure

For each urine sample,

- Predict its appearance, pH, and whether it will contain glucose or ketones. Include your reasoning.
- Observe and record its appearance and determine its composition using the pH paper and glucose-ketone reagent test strips.
- Explain how the characteristics of each disease would cause the observed results.

Questions

1. For diabetes and hyperthyroidism:
   A. What are other common symptoms?
   B. What other diagnostic tests would be used to confirm a diagnosis?
2. What other diseases can be diagnosed using a urinalysis test?

Evaluation

A – EXCEEDS EXPECTATIONS	B – FULLY MEETS EXPECTATIONS	C – EXPECTATIONS NOT MET
Thoughtful explanations that are consistent with ideas/concepts from relevant body systems & clearly show connection between the characteristics of each disease & observed results. Statements demonstrate comprehensive understanding of relevant body systems.	Explanations are somewhat consistent with ideas/concepts from relevant body systems &/or show some connection between the characteristics of each disease & observed results. Statements demonstrate adequate understanding of relevant body systems.	Explanations are not consistent with ideas/concepts from relevant body systems &/or do not show connection between the characteristics of each disease & observed results. Statements demonstrate minimal understanding of relevant body systems.

Urinalysis – Work Sheet

Name _____ Partner _____ Period _____ Date _____

PREDICTION		OBSERVATIONS	EXPLANATION
Urine Appearance, pH, & Results for Glucose-Ketone Reagent Test Strip	Reasoning for Prediction	Results for Each Urine Sample	Reasoning for Observed Results
NORMAL			
TYPE 1 DIABETES			
TYPE 2 DIABETES			
HYPERTHYROIDISM			

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