

Reservoir Matrices

Specimen types known as reservoir matrices:

- Fingernail
- Hair
- Urine
- Meconium
- Umbilical Cord

We define reservoir matrix as a material or substance which can accumulate and retain drug and alcohol biomarkers.

When a person uses drugs or alcohol, there is an ongoing process of biomarker absorption and loss.

Build-up and break-down of drug and alcohol biomarkers happens at the same time, making it impossible to accurately determine the amount of substance ingested.



Factors that can affect how much of a substance may get trapped in a reservoir matrix:



Age



Body Mass



Overall Health



Personal Metabolism



Time



Frequency



Amount

Windows of Detection

Fingernail

Up to 6 Months for Drugs
Up to 3 Months for Alcohol

Hair

Up to 3 Months

Urine

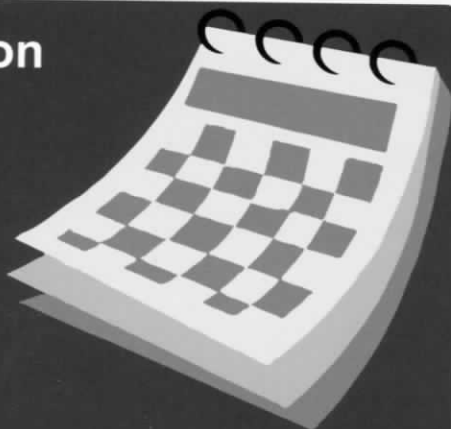
2-3 Days

Meconium

Up to 20 Weeks

Umbilical Cord

About 20 Weeks¹



Attempting to determine the amount, manner, or timing of the substance ingested from the test results is speculation at best. Care should be taken to avoid these interpretations.

1. Montgomery D, Plate C, Alder SC, Jones M, Jones J, Christensen RD. (2006) Testing for fetal exposure to illicit drugs using umbilical cord tissue vs meconium, J Perinatol, 26(1):11-4.



Drug Exposure vs. Ingestion

What You Need to Know

Environmental exposure to illicit drugs is an indirect marker of harm. Exposure testing is different from workplace drug testing.

Zero Metabolite \neq Zero Exposure.

Child hair samples often do not contain drug metabolites, because the child has not ingested illicit substances.

Standard drug tests use government workplace testing guidelines, which can report negative results **even when the native drug is present.**

Workplace guidelines can result in false negative reporting for drug exposure in children.



Environmental Exposure testing uses hair samples.

Hair testing is 3.5x more likely to detect methamphetamine exposure.



The Association Between Drug Exposure and Harm to Children

Children in environments where they are exposed to illicit drugs are at higher risk for abuse and neglect.

4.2x

more likely to experience **neglect**

2.7x

more likely to experience **abuse**

43%

of child **abuse** cases before the court involve substance abuse.



The Benefits of

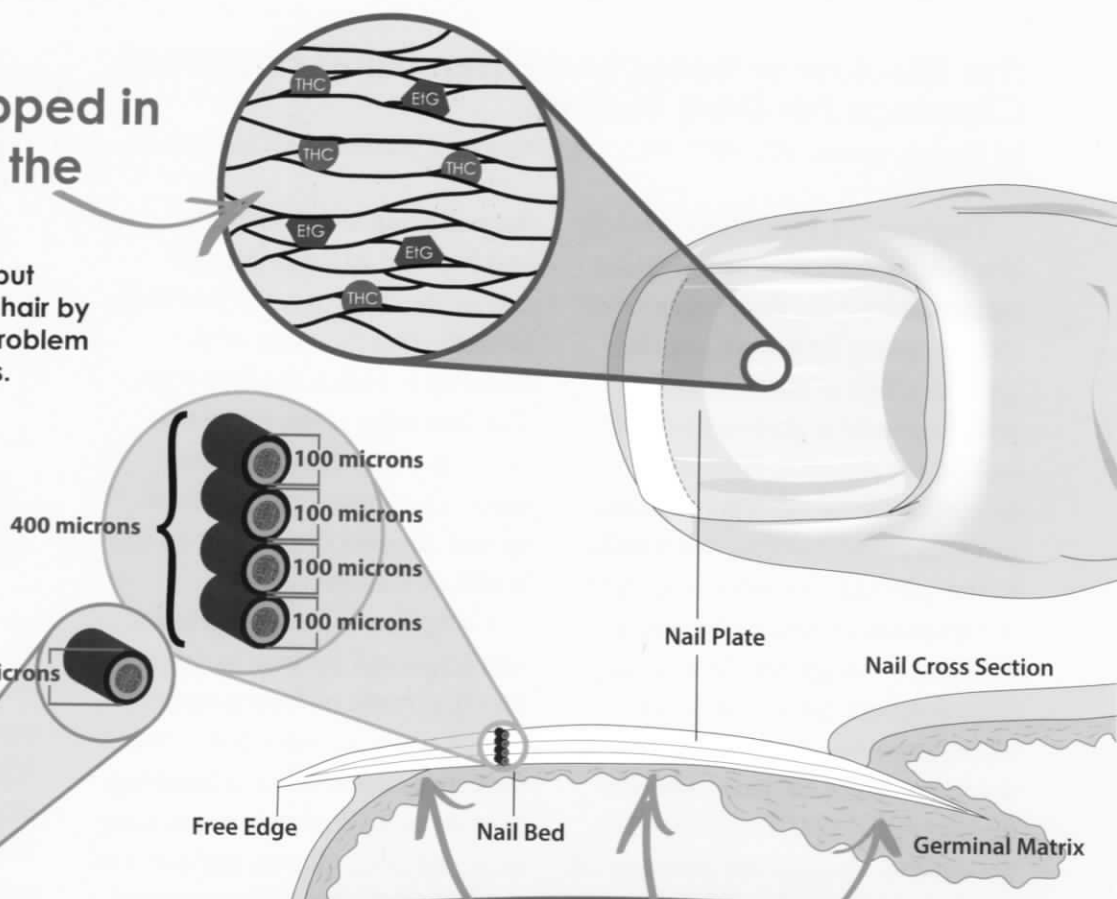
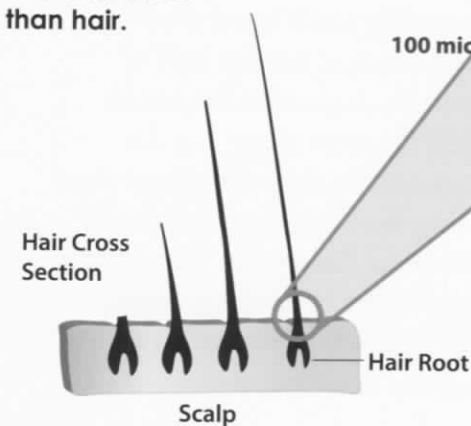
Fingernail Testing

Drug and alcohol biomarkers are trapped in the keratin fibers of the fingernail.

Hair is also made of keratin fibers, but biomarkers may be washed out of hair by common cosmetic treatments, a problem that doesn't exist when testing nails.

Nail keratin is 4X thicker than hair.

Nail often captures more of a biomarker than hair.



As nail grows in thickness and length, biomarkers build up in the nail at the germinal matrix and along the nail bed, collecting the full history of drug use.



Non-intrusive, donor collected sample.

Nail and hair samples capture the same drugs. 1:1

Minimal impact on the donor's appearance.



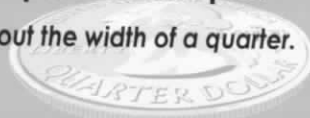
We confirm all presumptive positives on state-of-the-art instruments.



Nails provide 3-6 months of drug and alcohol use history. Biomarkers are detectable in nail one week after drug or alcohol use.

A 2-3mm clipping from each fingernail provides the perfect sample.

About the width of a quarter.



Not enough fingernail? Collect toenails instead.

Never mix fingernails and toenails in the same sample.

