

--- BEGINS ---

ALCOHOL IN HAIR SAMPLES QUESTIONS AND ANSWERS

How does this work?

We extract markers from the hair that only appear when someone has consumed alcohol. These markers are *metabolites* and can only be produced when alcohol is in the body.

What is a metabolite?

When a drug such as alcohol is being broken down by the body it reacts to form intermediate substances that the body eventually removes in urine, faeces or breath. These intermediate substances are called metabolites.

Can I tell if somebody has been consuming excess alcohol?

Yes, the markers that we look for will only appear when alcohol is consumed regularly in excess of social drinking patterns. The more alcohol someone has consumed the more of this marker we detect. We use a sensitivity level or 'cut off level' which relates to alcohol abuse, around 60 grams of alcohol a day. This is a recognised 'problem alcohol' threshold. We ignore any social drinking.

Can I tell if somebody is still drunk?

No, it takes about a week or more for the marker to appear in the hair on the scalp. We are only interested in regular alcohol abuse levels. Breath alcohol is still the perfect solution for inebriation.

How far back can I go?

As far back as the length of the hair will allow. Hair grows at the rate of about 10-12mm per month and we take the first 6 centimetres of hair when the hair is of sufficient length. That relates to a period of around 5 to 6 months. Hair is a perfect historical record of your alcohol history, which now for the first time we are able to unlock.

Can I recognise a pattern of abuse?

No, because we do not section the hair month by month and carry out periodic analysis. Our research has shown this is unsound scientific practice because the markers can migrate along the hair shaft.

Can relapse drinking be detected after long periods of abstinence (e.g. in rehabilitation)?

Yes, after 2 to 4 weeks of excessive consumption. (It takes 6 – 9 days for the metabolites in the hair to reach the surface of the scalp).

Can I use body hair?

Yes, but the rate of growth is more difficult to predict, and we cannot give a timescale for the sample.

What if my shampoo or hair product has alcohol within it?

Products containing alcohol will not affect the result. We look for the alcohol *metabolites* which can only be produced by alcohol that was in the blood. Blood alcohol also combines with fatty acids in a special way and we look for those. We will only report a positive result when these independent markers are detected in their correct ratios. So the analysis is foolproof.

How much hair do you need?

We require about 100 mg of hair. That is a tuft of hair a bit bigger than the size of a pencil diameter. The hair can be taken from more than one location, and the sampling site is usually unnoticeable.

How do I take the hair sample?

We have trained collectors to do that for you, or we can train someone at your organisation to do the collection.

Is the collection difficult then?

No, but collection is an important part of the process and nearly always needs to be done under strict 'chain of custody' rules so that everyone involved can be certain that the sample relates to the correct person.

What situations would I consider using hair alcohol testing?

There are many applications where you would want to determine whether someone had an alcohol problem, or indeed prove they didn't have a problem. These include:

- child custody cases,
- probation service for alcohol offences,
- safety critical employment,
- suspicions that a colleague has an alcohol problem
- proof of responsibility, eg corporate leaders, armed forces etc.,
- alcohol treatment programmes,
- screening people in clinical trials,
- suitability for surgery.

Alcohol use is such a big problem we believe it would also be a helpful diagnostic tool in company medicals.

What are the limitations?

Obviously, we need hair. Occasionally drug screening companies encounter someone who has shaved from head to foot, with not a single hair on their body, but that does obviously raise suspicions.

Can you tell whether someone is totally abstinent from alcohol?

No, the method has not been developed for that purpose.

What information will the report have?

It will include the identity details for the sample that you sent us, and then a result for the alcohol level if it is above our cut off level which indicates alcohol consumption is excessive. In that case we will report an actual figure for the result.

Results can also be provided in a standard Section 9 legal statement where requested.

Can you determine how much alcohol a person has had monthly?

No. Although we will give a value in our report, we can only say that the value exceeds our interpretation of the cut off level we have set, which is 60 grams of alcohol per day over a protracted period. We cannot interpret how much alcohol was actually consumed. To do so would be scientifically unsound because alcohol is metabolised in slightly different ways by different people.

How does alcohol in hair chart against alcohol units?

The alcohol markers relate to actual units because our cut off level is equivalent to 60 grams per day over a period of time. One U.K. unit is 8 grams or 10 ml of pure alcohol. The amount of drink that equates to 60 grams depends on how strong the drink is. So on average we can assume about seven units daily could result in a positive.

How long has this process been established?

We have been working on developing this technology and validating its accuracy for several years but it is only now being offered commercially for the first time.

Where does the process originate from?

It has been developed by a combination of German and English laboratory collaboration using leading experts in this field and the latest analytical technologies.

What quality testing has been done to date?

Results have been fully validated against internal control standards and against a range of donors with recorded drinking habits.

Why would I use hair instead of blood?

Only hair will give a history. Blood is used for drivers who are actually intoxicated, but alcohol in blood decays at the rate of about one unit per hour, so is lost quickly. However while the blood is feeding the hair root, minute traces of alcohol metabolite become trapped in the hair to give an alcohol history which we detect when we analyse the hair.

What is the difference between LFT and CDT tests?

These two current tests are based on a sample of blood. LFT tests are a suite of *liver function tests* and they detect markers that indicate whether the liver is damaged or inflamed. However these markers require specialised interpretation. The CDT test is a *carbohydrate deficient transferrin* marker that becomes elevated when alcohol is consumed to excess. But neither of these tests is a substitute for hair testing because only hair tests will go back in history.

Will this stand up in court if a court has never used it before?

Yes. The method has been fully validated, although until the courts accept values without question it may be necessary to provide expert witness evidence to support results. We have forensic experts who would be happy to support this evidence in court.

How can this help in a child custody battle?

It may be necessary to check the suitability of a parent who is accused of alcohol abuse or has a past history of alcohol problems. Or the test may be used to defend a parent who is accused by the other party of having an alcohol problem, and therefore being unsuitable to take custody of the child. These tests are ideal not only to prove guilt, but to prove innocence. At last there is a test which will give a historical look at the person's alcoholic past.

Should I be considering this test in medicals for my key staff?

Yes, most certainly. Alcoholism is as prevalent as diabetes and affects anybody. Caring companies should be checking their key staff, many of whom could have developed an alcohol habit in part because of company working practices. Alcohol abuse is not easy to detect in other ways, even doctors find this diagnosis problematic.

Contact : Les Vasey

Modern Health Systems Ltd

0845 873 9602