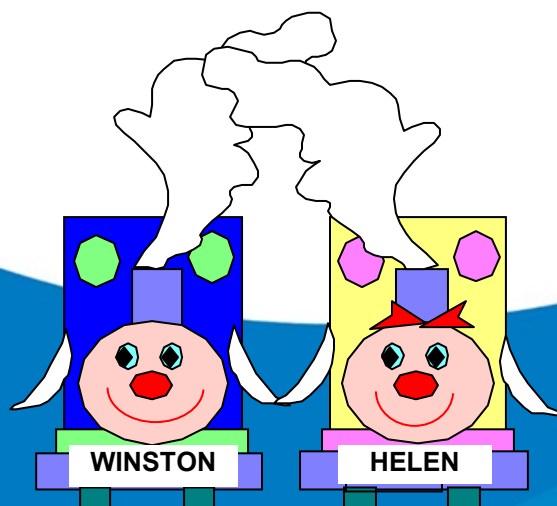


# Water Deprivation Test

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## What is a water deprivation test?

The water deprivation test allows doctors to measure how concentrated your/your child's urine (wee) becomes when not drinking. The test can take several hours to complete.

## Why is it needed and are there any alternatives?

This test is needed to see whether you/your child has a condition called **diabetes insipidus** in which the kidneys pass a lot of dilute urine. This is not the same as the more common condition - diabetes mellitus where children/young people have high blood sugar levels.

Diabetes insipidus is caused either when the pituitary gland (a small gland at the base of the brain) does not release a hormone called anti diuretic hormone (ADH) which normally helps the kidneys concentrate the urine when drinks are not taken. This hormone is essential to keep water balance inside our body by controlling urine production by the kidneys.

## What happens before the test?

You will already have received information about how to prepare for the test from the doctor/nurse looking after you/your child.

**Children 2 years and over** will require admission to the ward on the evening before the test is due. This is to enable the doctors and nurses to prepare you/your child for the test and also record your/your child's fluid intake and output before the test begins. This is called a baseline measurement. **You will be asked to come to the ward between 7.00 and 8.00 pm in the evening.**

**Children under 2 years old** will not need to come into hospital until the day of the test, **between 7.00 and 8.00 am in the morning.** As it is important that we obtain urine samples from your child before we start the test; you may be asked to apply a urine bag (for boys) or a pad (for girls) at home before you leave to come to the hospital.

Your child should wear the same night clothes throughout the test to ensure that any weight lost during the test can be accurately measured.

The doctors and nurses will explain about the test in more detail (if required), discuss any worries you may have and ask you to sign a consent form giving permission for yourself/your child to have the test. If you/your child has any medical problems, particularly allergies or other medical conditions, please tell the doctors about these. Please also bring in any medicine you/your child is taking, show this to the doctor and then hand it to a nurse, who will lock it away safely.

You/your child will need to have a cannula (thin plastic tube) inserted into a vein, so that blood samples can be taken easily so it is important that you arrive on the ward at the planned time to allow a nurse to apply some local anesthetic cream to numb the skin (if not allergic to it) so that putting the cannula in won't hurt as much.

## What does the test involve?

Usually, there are **3 stages** for completing this test:

1. The Screening Phase
  2. The Dehydration Phase where fluid is restricted
  3. The Desmopressin Phase. This part of the test will only be carried out if the diagnosis of diabetes insipidus has not been excluded in the screening or dehydration phases.
- These stages aren't necessarily required to be completed in all cases. Information obtained from the previous stage of the test will determine if the test is to proceed to the next stage
  - The test begins on admission.
  - **The test can take several hours to complete so please be prepared to stay on the ward until late afternoon/early evening on the day following admission, or the day of admission for children under 2 years of age. Very rarely a second night on the ward may be required.**

## The Screening Phase

**Children 2 years and over** will be weighed in the evening and will not be given any fluids from 10.00 pm onwards. This will not apply to children under 2 years old coming for the test in the morning.

The first urine sample passed on the following morning (at around 8.00 am) / day of test will be sent to the lab to test its concentration; this will be accompanied by a blood sample. Any further urine passed by you/your child during the day will be sent to the laboratory for testing and you/your child will be weighed again at the same time.

**If your child is under 2 years old** and their blood and urine test results are normal your child will not be required to have the rest of the investigation. This will be fully explained to you before you are discharged.

## The Dehydration Phase

If the screening phase has not excluded a diagnosis of diabetes insipidus; blood and urine samples will continue to be collected every 2 hours and the amount of urine (wee) passed will be measured. Weight will be recorded once the urine sample has been collected and the bladder is empty.

The test will continue until you have/your child has lost 5% of body weight, or the urine concentration gets to the normal value.

The nurses will keep a good eye on you/your child, checking weight, blood pressure and amount of urine passed or if you/they have any concerns. This part of the test usually finishes around 4.00 pm

## The Desmopressin Phase

This part of the test will only be carried out if the diagnosis of diabetes insipidus has not been excluded in the dehydration phase.

You/your child will be given a single dose of a drug called Desmopressin which reduces the amount of urine (wee) the kidneys produce and also makes the urine concentrated. Desmopressin is given either as a spray into the nostrils or an injection into a muscle. You/your child will be allowed to eat and drink after the Desmopressin has been given but, the nurses will monitor your/your child's intake closely to ensure that not too much fluid is taken too quickly.

During this part of the test blood and urine samples will be collected hourly. On very rare occasions, if your/your child's urine has not become diluted enough at the end of the test, you/your child will need to remain on the ward until the next morning when further blood and urine samples will be collected.

## Are there any risks?

There is a small chance that in order to take a urine sample you/your child may need to have a catheter inserted. This is a small tube which is passed into the bladder through the urethra (the hole which urine (wee) comes out of).

There is a very small risk that you/your child could become severely dehydrated, but as you/your child will be closely watched on the ward, this is unlikely to happen. The nurses will stop the test if they are at all concerned about you/your child's wellbeing.

You/your child will probably feel tired and miserable during the test because you/your child will not be allowed to drink anything. It is important to continue the test so that we can get accurate results.

However tempting it is to have a drink, or give your child a drink, this will mean the test will have to be stopped and rescheduled for a later date.

There is a small risk that you/your child could become dehydrated when you get home, especially if you/your child do not want any food and drink and/or is vomiting (being sick).

### Signs of dehydration include:

- Dry lips, increased thirst, irritability
- Pale skin
- Sunken eyes or,
- Not passing enough urine or passing very concentrated urine

Dehydration can be prevented by having/giving regular small drinks rather than one large drink. This is less likely to make you/your child feel ill.

You should contact the ward (**details on the last page of this booklet**) if you/your child is showing any of the symptoms of dehydration (as above) in the 24 hours following the test.

While your child is not drinking, it is easy for you to forget to drink too. There is a parent's room on the ward where you can make a drink, or the hospital has various outlets where food and drink can be purchased, so please try not to forget your own needs.

### **How long will it take to get the results?**

Your/your child's test results will usually be given to you at the hospital. However, if there is a need to start on new treatment or you/your child needs further assessment at Alder Hey Children's Hospital if the test results are abnormal. If this is the case your consultant will contact you and your GP very quickly.

**You can call the Children's Ward on 0151 430 1627 if you or your child show any of the symptoms of dehydration within 24 hours of discharge.**

**If you have any further questions, please contact your child's consultant via their secretary by phoning the hospital switchboard. The secretaries are available Monday to Friday 9.00 am to 5.00 pm**

**If you need to contact the Department outside of these hours, please phone either:**

**Ward 3F      0151 430 1616**

**Ward 4F      0151 430 1791**

Whiston Hospital  
Warrington Road,  
Prescot, Merseyside, L35 5DR  
Telephone: 0151 426 1600

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