



guardians of drinking water quality
DRINKING WATER INSPECTORATE

Endocrine disrupters and drinking water

What are endocrine disrupters?

The **endocrine system** is the general term for the way that the human body regulates the production and release of hormones. There are many different hormones each with specific functions in the body, for example, hormones regulate growth, metabolism and sexual development. The major glands in the body involved in hormone control are the hypothalamus, the pituitary and the thyroid.

Many natural and synthetic substances are able to mimic or interfere with the functioning of the human endocrine system. Substances with this property are collectively known as **endocrine disrupters**. The general phrase **endocrine disrupting compounds or EDCs** is used by the popular press to describe a wide range of substances thought to be able to act in this way. The 'phenomenon' was first identified in the 1980s following observations by environmental scientists of gender changes in fish living in some rivers. Although studies of the causes of gender change in fish are concerned with the natural environment, the research is often misreported leading to concern that these substances are present in drinking water.

Where are endocrine disrupters found?

Research has found small amounts of EDCs in some of our rivers. However they tend to occur only in immediate proximity to industrial and wastewater discharges. Nearly all of these substances are unstable and break down naturally and quite rapidly in river water. This means that these substances are not widespread in our rivers and the risk of them being present at abstraction points for drinking water treatment works is minimal. Nonetheless European Commission funded studies have looked in depth at the capability of conventional treatment to remove EDCs from both sewage and water. The results are very reassuring and show that treatment is highly effective at removing EDCs.

Why is there so much alarmist media reporting about EDCs?

The birth control pill (oestrogens) is classified as an endocrine disrupter and due to controversy surrounding its use, a popular myth has grown up that widespread prescribing of the birth control pill means it is now in the aquatic environment and is thus a contaminant in our drinking water. However, this is just a myth, because the subject has been researched in depth and the findings

mean we can now be very confident that oestrogens are not present in our drinking water and we know that conventional water treatment is a very effective safeguard. The perception that London's drinking water is particularly at risk is also a myth because these supplies are well protected by large impounding reservoirs, which have a very large natural purification capacity of over 90 days storage.

There is evidence to show that EDCs can pose a hazard to some wildlife and marine studies by Defra (EDMAR) have identified this risk may be significant for wildlife under drought conditions. However these environmental concerns are quite separate from, and should not be related to drinking water - unfortunately much that is written in the popular press does not make this important distinction between environmental issues and human health concerns.

In summary, it is correct that EDCs are of concern in protection of wildlife and the environment in general, however, there is no evidence whatsoever that EDCs pose a risk to human health through drinking water. Due to public interest DWI continues to monitor the development of knowledge about this subject.

Last updated: January 2010