

Iodine/Thyroxin Question

What is happening at the following #'s in the diagram.

1. Iodine is carried in the bloodstream. The thyroid gland requires Iodine to synthesize thyroxin. Since thyroxin is important in regulating metabolism, Iodine must be able to enter the **Thyroid Gland**.
 - a. At #1 the bloodstream's (**capillary**) Iodine concentration is **hypertonic** to the thyroid and therefore Iodine will flow **passively** from the blood to the gland.

2. Eventually, enough Iodine will move from the capillary to the thyroid gland that conditions on either side of the membrane will become **isotonic**. The **concentration gradient** of Iodine is the same in both the thyroid gland and the capillary

3. Because Iodine is a critical mineral, the body must do all it can to acquire it. Therefore active transport is used to move the Iodine from an area of low concentration to an area of high(er) concentration. Even though the body is paying metabolic energy to transport the Iodine from **a hypotonic** side, it is worth it, as the **benefits clearly outweigh the costs**.