



District Endocrine

Thyroid Disorders

- Over- and under-active thyroids are extremely common, and these conditions appear most frequently in women.
- Overactive thyroid could be temporary (thyroiditis, pregnancy) from an illness or a medication, or it could be permanent (Graves' disease or toxic nodules) but there are 3 ways we can treat these conditions:
 - Medication: drugs called methimazole and propylthiouracil can block production and release of thyroid hormone, as well as reduce its conversion to the active form.
 - Radioactive iodine: a pill of an iodine isotope can “burn out” an overactive gland, or the overactive nodules inside of an otherwise normal gland.
 - Surgery: available to people who are unable or unwilling to take the medication or radioactive treatments, or for those whose goiter is so big it's obstructing breathing or swallowing.
- Underactive thyroid is most commonly due to Hashimoto's thyroiditis, an autoimmune disorder. Other causes of underactive thyroid could be due to medications, tumors in the pituitary gland, temporary thyroiditis that is resolving on its own or having thyroid surgery.
- I have an overactive thyroid but I feel great so what's the big deal?
 - Even a very slightly overactive thyroid can “chip away” at our muscle mass, bone density and heart health over time.
- What's the deal with antibodies?
 - They only really matter when a person HAS biochemical (labs) or clinical evidence (symptoms) of thyroid dysfunction. When antibodies are present, but thyroid function is normal, the risk of developing thyroid conditions are increased over the next few years.
 - Graves' disease can be detected by Thyroid Stimulating Immunoglobulin (TSI) or Thyroid Receptor Antibody (TRAb).
 - Hashimoto's thyroiditis can be detected by Thyroid Peroxidase Antibody (TPO). A large percentage of the population may have +TPO, **but it doesn't count until the thyroid hormone production is affected.**
- If I have + antibodies am I at risk for other autoimmune problems?



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- Technically, yes. “Birds of a feather flock together.” But it’s very common for thyroid disease to be an isolated problem.
- How can I tell if my thyroid is overactive?
 - Classic symptoms include: anxiety, enlarged thyroid, sweating, diarrhea, increased appetite but unintentional weight loss, reduced periods, protruding eyes, peeling/splitting nails, heart palpitations, feeling hot all the time.
- How can I tell if my thyroid is underactive?
 - Classic symptoms include: puffy eyes, fatigue, depression, constipation, enlarged thyroid, heavier periods, “brain fog,” slow heart rate, feeling cold all the time.
- **The important thing to remember is that thyroid symptoms represent a spectrum of disease depending on how altered the hormone levels are, so it’s important to look at the whole picture and address other causes for those symptoms too.**
- Medications for overactive thyroid
 - Both methimazole and propylthiouracil (PTU) act to block thyroid hormone production and release of hormone from the gland. PTU also reduces the conversion of T4 to T3 in your body’s cells.
 - Methimazole is the first-choice agent, unless you are pregnant or you cannot tolerate methimazole.
 - Each medication carries a rare (approximately 1/3000) risk of **agranulocytosis**, which means that the body can’t produce the right blood cells. **So if you take this medication and have a fever or acute illness, you must have your blood drawn THAT DAY to confirm you are making the right white cells.**
 - If you have agranulocytosis, it is reversible by discontinuing the medication.
- Medications for underactive thyroid
 - **Levothyroxine** is the generic medication for human thyroid hormone T4. **It is synthetically produced but IDENTICAL in structure to the hormone your body produces.** Your body converts the T4 to T3 as needed.
 - Armour thyroid is ground-up dehydrated pig thyroid gland, so the hormones are not identical to our own hormones. It’s a little harder to adjust because each pill can have different amounts of both T4 and T3 in it, but overall it works fine.



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- Liothyronine (T3) is only used in specific situations because the body is very good at converting T4 to T3 when needed. Using T3 can increase the risk of heart palpitations and thin bones.
- How do I take thyroid hormone?
 - Ideally you take it on an empty stomach and don't take any other medications or food for at least 1 hour.
 - Levothyroxine is a very stable, long acting hormone, so the most important thing to remember is that you need to take it the same way every time. We can adjust the dose according to your body's needs. If you forget a dose, you can take two the next day.
 - Certain medications or foods can interfere with T4 absorption (vitamins/minerals, dairy, PPI medications, etc.). You should take these in afternoon or 4 hours apart from thyroid medication.
- How do we know if my treatment is adequate?
 - We check TSH and FT4 again in about 4-8 weeks.
 - When we hit the sweet spot with levothyroxine or methimazole/PTU dosing, the TSH and FT4 numbers will go back to their normal ranges.
 - **If symptoms persist despite normal thyroid numbers**, we have to “go back to the drawing board” to consider other causes for the symptoms.
- Resources
 - American Thyroid Association <https://www.thyroid.org/thyroid-information/>
 - Mayo Clinic www.mayoclinic.com
- Author: Dr. VanDyke– edited by Dr. Rehman. Disclaimer:

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