PRESCRIPTION MONOGRAPH

Compounded Active Ingredients: Liothyronine Sodium
Form: Oral Capsule

Drug Class: Synthetic thyroid hormone (T3 analog)

Mechanism of Action[1]:
Liothyronine is intended to:

- Replaces deficient T3 directly, bypassing T4-to-T3 conversion.
- Activate thyroid receptors, stimulating transcription of genes that regulate metabolism, growth, and development.
- Increase oxygen consumption, thermogenesis, and energy expenditure across multiple organ systems.
- Support cardiovascular, neurologic, and skeletal function by enhancing heart rate/contractility, brain development, and bone turnover.

Indications Commonly Prescribed for:

- Hypothyroidism: Treatment of primary, secondary, or tertiary hypothyroidism (alone or in combination with levothyroxine).
- Thyroid suppression test: As part of diagnostic evaluation of thyroid function.

Before Use: Let your health care provider know if you have any medication allergies before you take this compounded preparation. Let your health care provider know if you have any liver or kidney problems. Let your healthcare provider know of all supplements you are currently taking.

Contraindications:

- Uncorrected adrenal insufficiency.
- Untreated thyrotoxicosis.
- Known hypersensitivity to liothyronine.

Cautions: Let your Healthcare provider know if you experience any adverse side effects.

How to Use: This compounded preparation is in the form of an oral capsule. Swallow the capsule whole with a glass of water. Do not chew or crush the capsule. If you miss a dose, take as soon as you remember, but not at the time for the next dose. Desired results may take up to several weeks.

Warnings and Precautions:

- Cardiac risk: May exacerbate angina, arrhythmias, or heart failure; start low in elderly and patients with cardiovascular disease.
- Bone effects: Long-term overtreatment may reduce bone mineral density, increasing osteoporosis risk.
- Transition caution: Liothyronine has a shorter half-life (~24 hrs) than levothyroxine (~7 days); requires careful dosing to avoid peaks and troughs.

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Adverse Reactions:

- Common
  - Headache
  - Insomnia, irritability,
  - Menstrual irregularities
- Signs of Over-Replacement
  - Palpitations, tachycardia, arrhythmias
  - Tremor, anxiety, sweating, chest pain
  - Diarrhea, weight loss.

Interactions:

- Anticoagulants (warfarin): Potentiates effect, leading to increased bleeding risk.
- Antidiabetic drugs (insulin, oral agents): May require dose adjustment.
- Sympathomimetics: Additive CV stimulation.
- Cholestyramine/colestipol: Decreases absorption (separate by 4–6 hrs).
- Estrogens/Oral Contraceptives: increases thyroid-binding globulin, may require dose adjustments.
- CYP inducers (phenytoin, carbamazepine, rifampin): May increase metabolism of thyroid hormones.

Use in Specific Populations:

- Pregnancy: Safe and necessary; thyroid hormone replacement should not be stopped.
- Lactation: Minimal secretion into breast milk; considered compatible.
- Elderly/heart disease: Start low and titrate carefully due to arrhythmia/angina risk.
- Pediatrics: Used in congenital hypothyroidism; dose adjusted for age/weight.

Storage:

- Store in original container at room temperature (up to 30°C or 86°F)
- Store in a cool dry place away from heat, sunlight, and moisture

Monitoring Parameters:

- TSH and free T4/free T3: Recheck 4–6 weeks after initiation or dose change.
- Cardiac monitoring: Watch for palpitations, tachyarrhythmias, or chest pain.
- Clinical monitoring: Track energy, weight, mood, sleep, menstrual cycles, and symptoms of over/under-treatment.
- Bone health: Consider periodic BMD in long-term therapy (esp. postmenopausal women).

Citations:

1. Idrees T, Palmer S, Maciel RMB, Bianco AC. Liothyronine and Desiccated Thyroid Extract in the Treatment of Hypothyroidism. *Thyroid*. 2020;30(10):1399-1413. doi:10.1089/thy.2020.0153