Dosing of T3/Triiodothyronine: Normalizing Low Body Temperature

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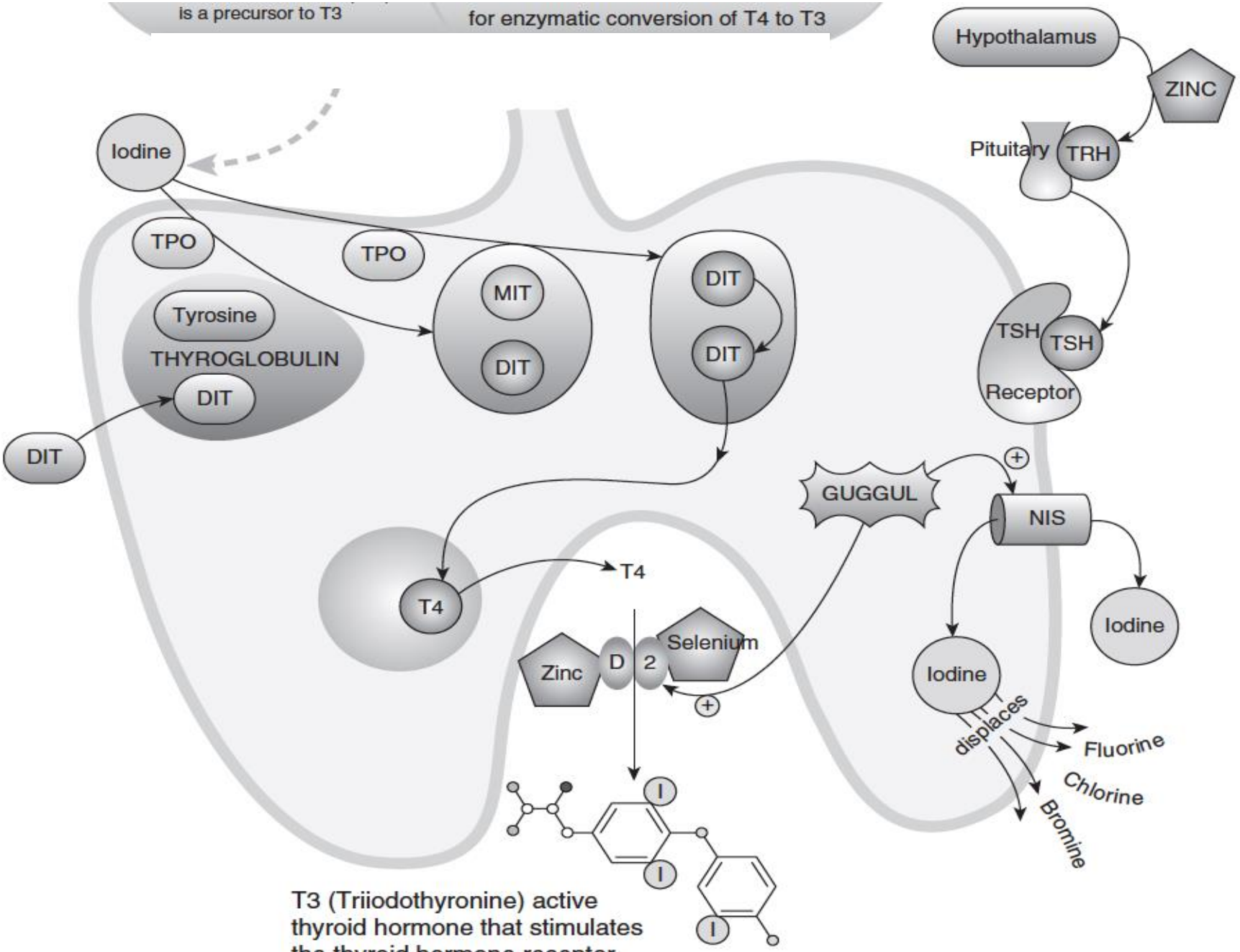
Financial Disclosure: Co- owner Restorative Formulations

(Jan. 14, 10:30-12:30)

When body temperatures are low and thyroid blood tests are normal, there may be a T4-T3 conversion problem

is a precursor to T3

for enzymatic conversion of T4 to T3



T3 (Triiodothyronine) active thyroid hormone that stimulates the thyroid hormone receptor

Workup for low thyroid symptoms and low body temperature

- TSH can rule out primary hypothyroidism
- Multichemistry blood tests can rule out kidney disease, diabetes, liver problems, etc.
- Complete blood counts can rule out anemia, infection, leukemia, and so on.
- Consider adrenal fatigue
- EKG, good baseline to have
- If no better explanation for the symptoms and temperature, consider impaired transport/conversion/resistance of thyroid hormones

Lifestyle measures for low body temperature

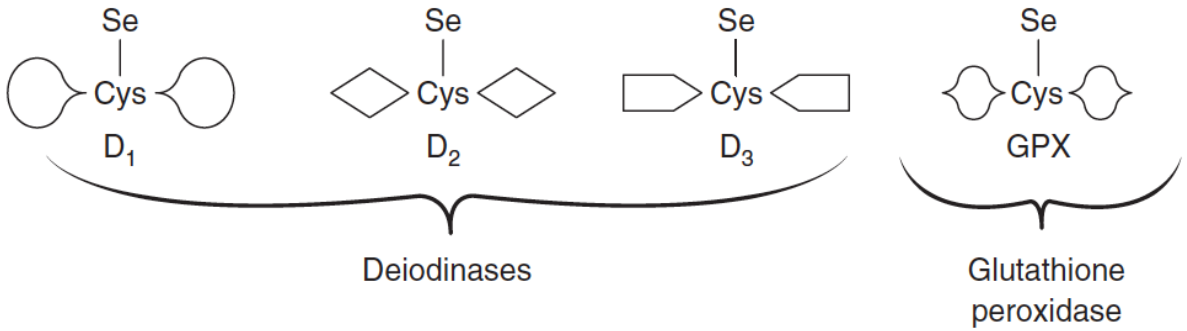
- Stress-reduction, declutter, simplify
- Regular, moderate exercise, especially short sprints
- Detoxification, sauna
- Organic foods (to avoid pesticides and toxins)
- Avoid gluten, aspartame, excess alcohol
- Get adequate rest, good multi-vitamin and nutrition
- Iodine
- Selenium, Zinc
- Iron
- Tyrosine
- Certain thyroid and adrenal support botanicals

Iodine

- Some practitioners report that the majority of their patients with low temperatures and normal thyroid tests will feel better and respond with higher temps when given 2–48 mg/day for a number of months (in combination with Se, herbs). RDA is 150 ⌈g/day.
- T3 can sometimes go up significantly just by adding iodine.
- Probably, <10% of people will respond adversely to high dose iodine.* However, a few may become hypo or hyper. Therefore, monitor response.
- With iodine, if TSH goes up and T4 goes down but T3 does not go down and patient is not feeling worse, then it is not hypothyroidism. Tests usually normalize in 6–9 months.
- In a few: rash, palp's, potentiation of thyroid meds.

* http://www.inchem.org/documents/jecfa/jecmono/v024je11.htm

Selenium (100-800 mcg/day)



Selenium, a component of selenocysteine is found in all three deiodinases as well as GPX

- Increasing doses of iodine have been shown to increase thyroid autoimmunity in specially bred mice, high dose iodine plus selenium has been shown to reduce it.
- Reported to increase plasma glutathione peroxidase by 21% and TPO antibody decreased by 76%. When Se stopped, glutathione peroxidase dropped and TPO markedly climbed.

Chen X et al. Effect of excessive iodine on immune function of lymphocytes and intervention with selenium. J Huazhong Univ Sci Technolog Med Sci. 2007;27(4):422–425.
Zagrodzki P, Ratajczak R. Selenium supplementation in autoimmune thyroiditis female patient--effects on thyroid and ovarian functions (case study). Biol Trace Elem Res. 2008;126:76–82.

Zinc, Iron

- Zinc is important in the production of TSH
- Zinc is important in the conversion of T4 to T3
- Thyroid transcription factors in gene expression contain zinc at cysteine residues
- Iron deficiency decreases T4 to T3 conversion, increases RT3 and reduces intracellular T3 levels

Botanical Support

- Plants and animals fit together like a hand in glove
- We cannot be healthy without our plants, period
- Our agricultural and dietary habits are separating us from our plants more and more
- Plants can provide excellent thyroid and adrenal support

Guggul (Commiphora Myrrha)

- Contains ketosteroids that support iodine uptake and T4 to T3 conversion.
- Supports healthy cholesterol levels. Decreases total serum lipids, cholesterol, triglycerides, and beta lipoproteins and increases all thyroid functions.

Tripathi YB, Malhotra OP, Tripathi SN. Thyroid stimulating action of Z-guggulsterone obtained from Commiphora mukul. Planta Med. 1984;50(1):78–80.
Panda S, Kar A. Gugulu (Commiphora mukul) induces triiodothyronine production: possible involvement of lipid peroxidation. Life Sci. 1999;65(12):PL137–PL141.

Bladderwrack (Fucus Vesiculosis, Kelp)

- Good source of iodine and other substrates.
- Contains diiodotyrosine (2 DIT join to make T4).
- Non-iodine compounds in seaweed may also be very helpful in thyroid related disorders such as Hashimoto's thyroiditis.
- Used for centuries in Asian cultures for both hypo and hyper.

Liu et al. Towards a better understanding of medicinal uses of the brown seaweed Sargassum in traditional Chinese medicine: a phytochemical and pharmacological review.
J Ethnopharmacol. 2012;142(3): 591–619

Blue Flag (Iris Versicolor)

- Used extensively from 1830–1940 to treat thyroid disorders
- Late 1800's made into a pharmaceutical called Iridin for hypothyroidism
- Commercially used to detoxify toxic land
- Traditionally used to "move sluggish body fluids"

Botanical Adrenal Support

- Very important in thyroid disorders and treatment
- Help normalize endocrine function, resistance to stress
- Support for stamina as well as mental and immune function
- Thyroid and Adrenal go together like two players on the same team. When one struggles the other is taxed as well
- Adrenal support can often help people tolerate T3 therapy

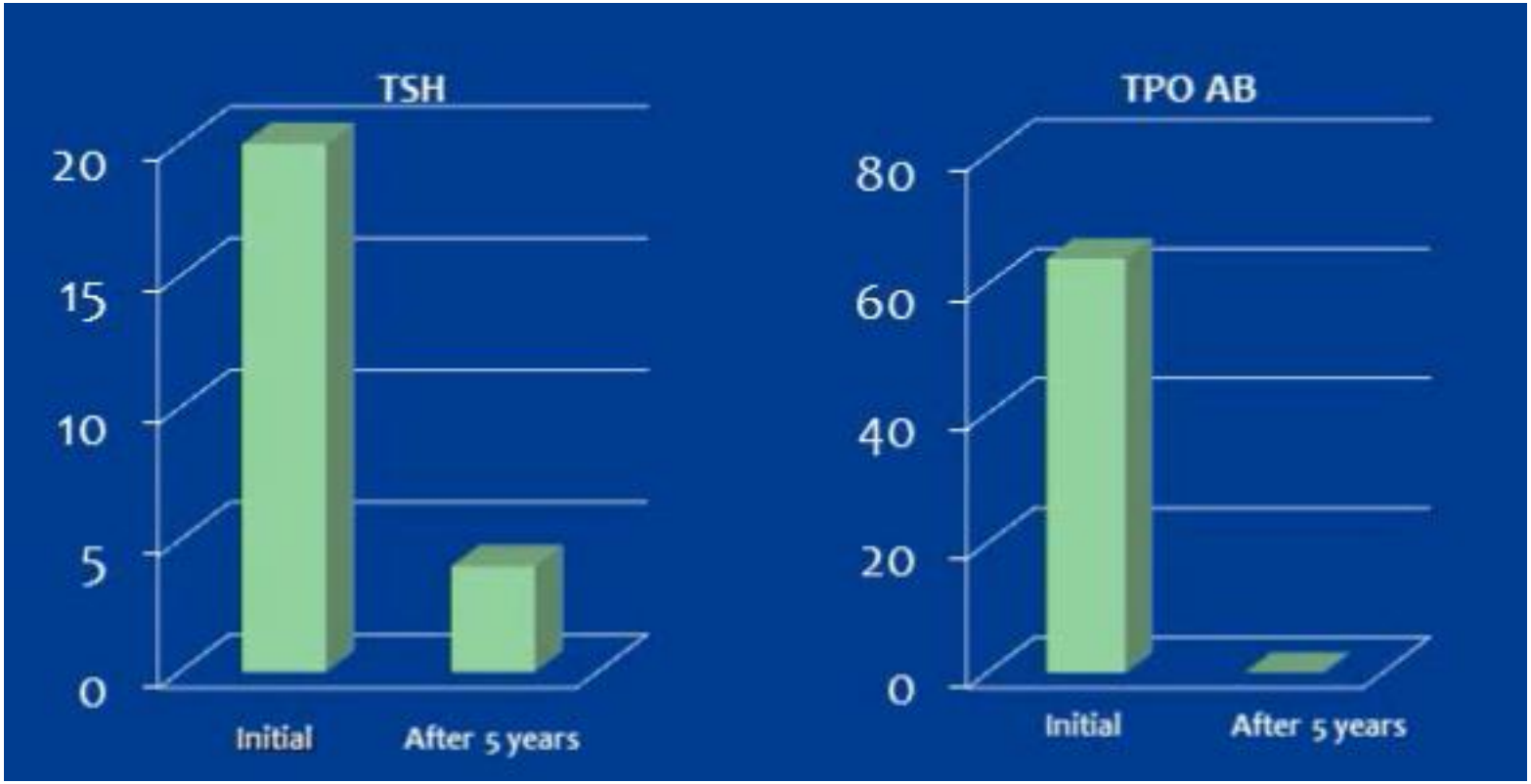
Adrenal Support Herbs

- Siberian Ginseng (Eleutherococcus senticocus) – helps optimize adrenal response. Excellent for stress-related exhaustion and emotional disturbances.
- Holy Basil (Ocimum sanctum) – helps to normalize hyperglycemia, corticosterones, and adrenal hypertrophy from chronic stress.
- Rose Root (Rhodiola rosea) – adaptogen and anti-stress herb
- Licorice – Glycerrhizic acid decreases the breakdown of cortisol which can bind to mineralocorticoid receptors and increase blood pressure. Also been used in the treatment of hepatitis, and viral illnesses such as EBV

Immune Support Herbs

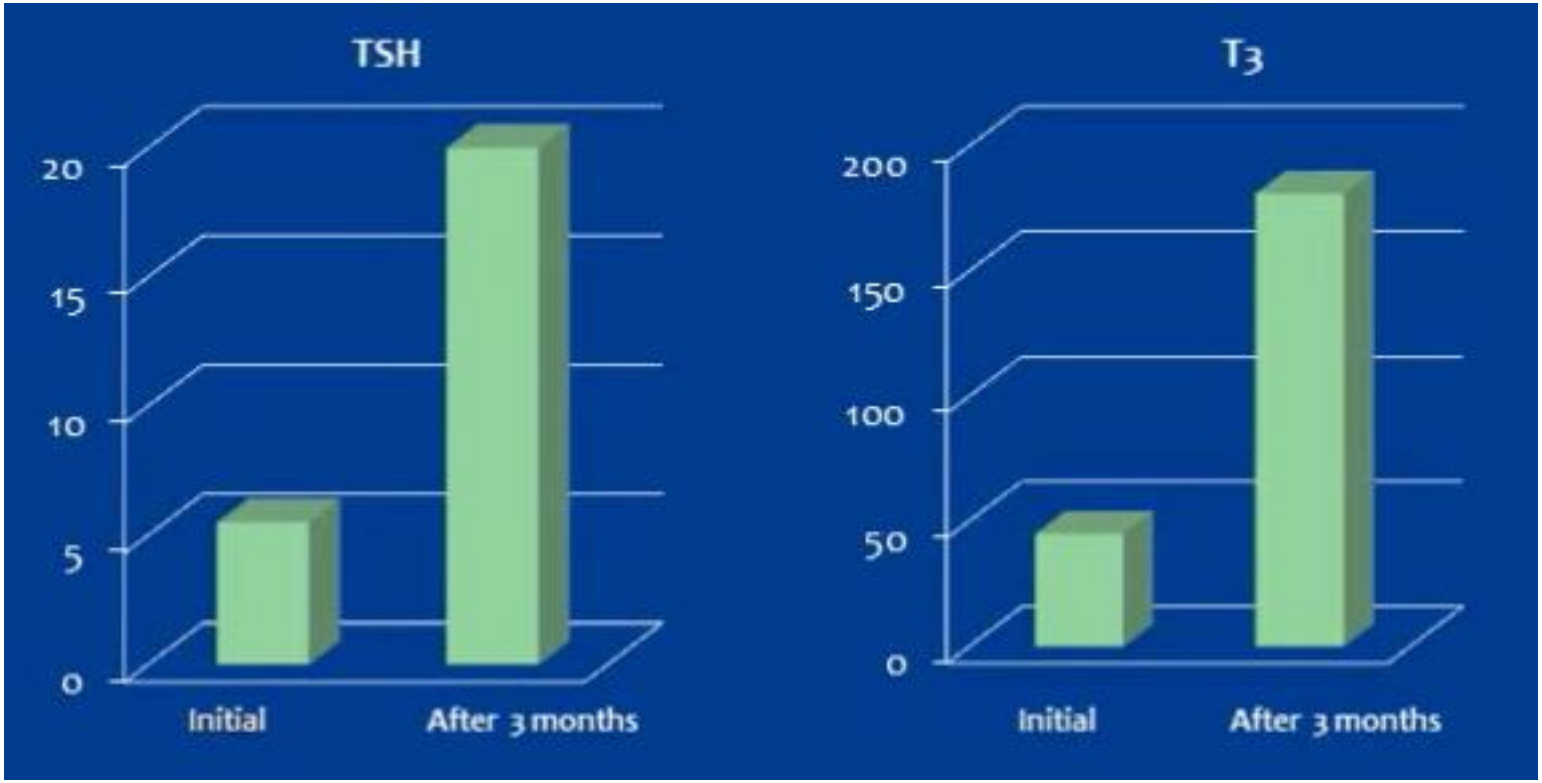
- Rehmannia – Helps balance immune function and B and T cell biosynthesis.
- Cordyceps – Fungus, antioxidant, immune-modulating, protects liver.
- Rosemary (Rosmarinic acid) – Rosmarinic acid is a polyphenol that helps balance immune function by inducing apoptosis of activated T cells and neutrophils without affecting T cells or neutrophils in their resting state. May be helpful in T-cell leukemia, RA, Lupus, SLE, Ulcerative Colitis, Crohn's, MS

Hashimoto's Thyroiditis



15 year old boy

Hashimoto's Thyroiditis



27 year old female

About 70% of people with low temperatures and normal thyroid blood tests can normalize their temperatures using the foregoing lifestyle measures alone

More severe cases will need T3-only therapy

Some people will need T3, botanicals, and nutrients to get their temperatures up

Why use T3?

- Wilson's Syndrome (reversible low temps with normal thyroid tests) is about 10 more common than Hypothyroidism (low temps with high TSH)
- That makes T3 an extremely economical and convenient solution to many difficult problems for a lot of people

Typical Symptoms

- Fatigue
- Fibromyalgia
- Depression
- Weight gain
- Migraines
- PMS
- Irritability
- Fluid retention
- Hair loss
- Dry skin, Dry hair
- Insomnia
- Anxiety and Panic attacks
- Irritable bowel syndrome
- Asthma and Allergies
- Irregular periods
- Decreased memory
- Decreased concentration
- Muscle and joint aches
- Low sex drive
- Carpal tunnel syndrome
- Hives

T3-only Therapy

- A relatively easy way to make a huge difference in the lives of many of your patients
- Has the potential of lasting correction of hypometabolic symptoms in patients with normal TSH tests (whether taking T4-containing medicine or not)
- T3 therapy may be beneficial even when T3 blood tests are high or normal and RT3 tests are low or normal

"I was first diagnosed about 10 yrs ago and successfully treated [with T3]. Since then it reoccurred again about 4-5 yrs later and treated with success." -L.G.

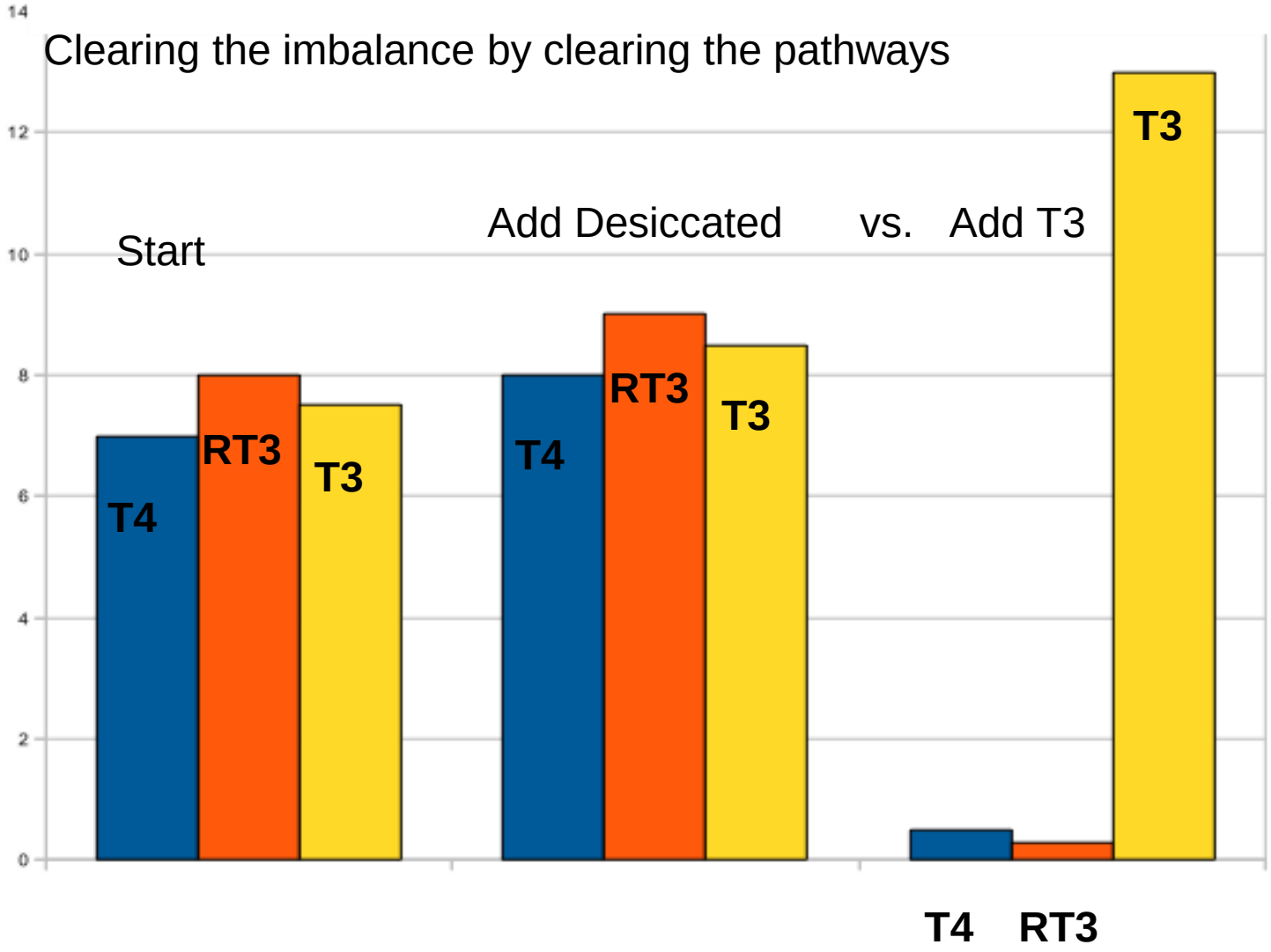
"I have successfully completed your T3 protocol twice over the last twenty years with excellent results." -A.M.

Just switching hypothyroid patients from T4 to T3 for 6 weeks at N.I.H

- Patients lost an average of 4.5 pounds on T3 as compared to T4.
- Cholesterol and LDL went down.
- No change in heart rate, blood pressure, or exercise tolerance.

Celi F, Zemskova M. Metabolic effects of liothyronine therapy in hypothyroidism: A randomized, double-blind, crossover trial of liothyronine versus levothyroxine. *The Journal of Clinical Endocrinology & Metabolism.* 2011;96(11):3466–3474.

Effect on T4, RT3, and T3 levels



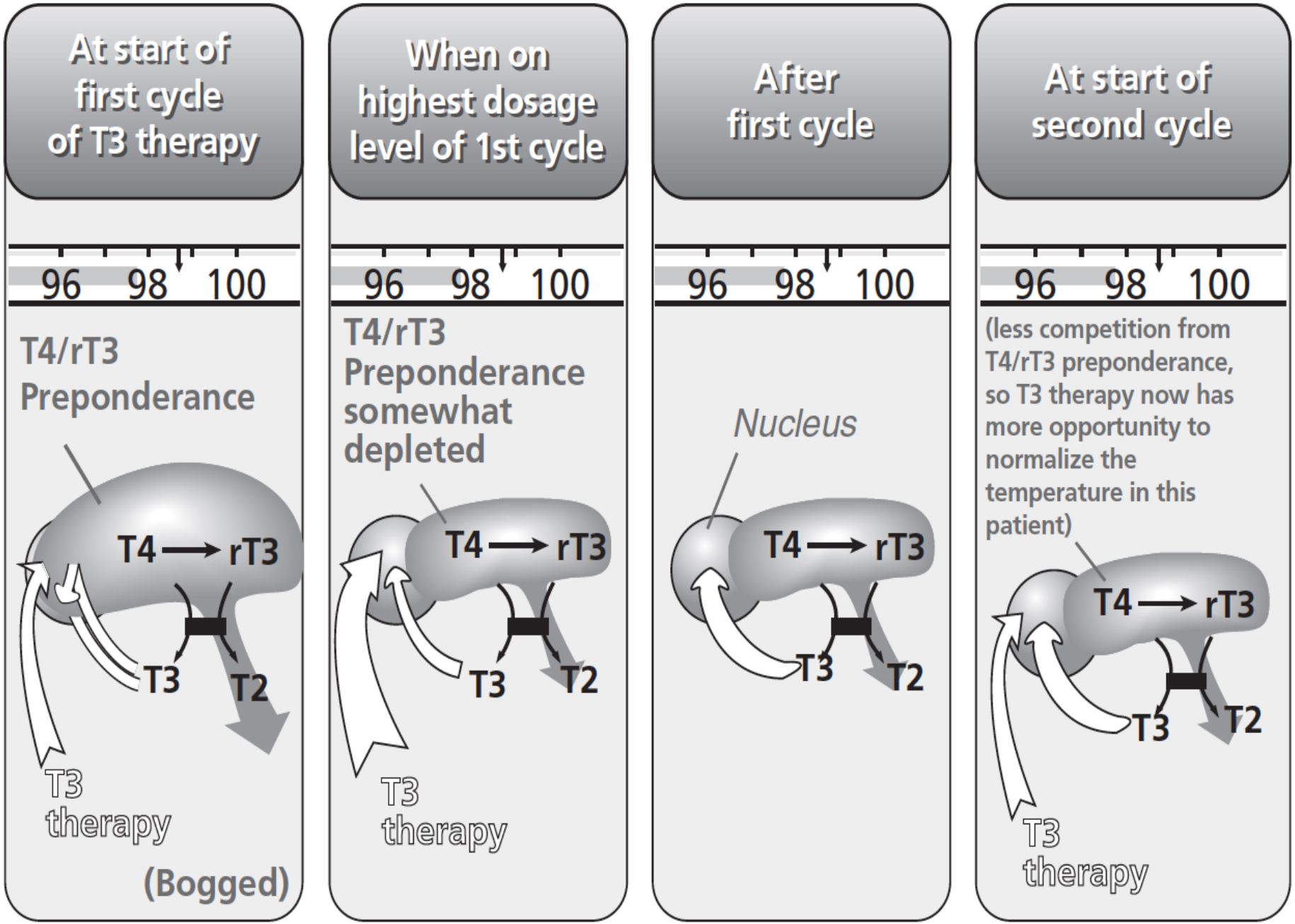
Why not use T4 when TSH is normal and body temperature is low?

- If symptoms do improve with T4-containing medicine, they tend to recur when the T4 is discontinued
- T4 can sometimes make the symptoms worse because if a person is already having trouble utilizing T4 then giving them more T4 can sometimes push them even further in the wrong direction with the wrong medicine
- Classic story: Better for 2–3 months, then worse again, or worse “right off the bat”
- Desiccated has T4 and instant-release T3

The object of cyclic sustained-release T3 therapy in euthyroid patients is to

- eliminate symptoms of slow metabolism
- by resetting the oral body temperature to 98.6°F
- by replacing some or all of the T4 in the body with T3

Cycling patients on and off T3 for one or more cycles as needed appears to be what normalizes the body temperature


At start of first cycle of T3 therapy
96 98 100
T4/rT3 Preponderance
T4 → rT3
T3
T2
T3 therapy
(Bogged)
When on highest dosage level of 1st cycle
96 98 100
T4/rT3 Preponderance somewhat depleted
T4 → rT3
T3
T2
T3 therapy
After first cycle
96 98 100
Nucleus
T4 → rT3
T3
T2
At start of second cycle
96 98 100
(less competition from T4/rT3 preponderance, so T3 therapy now has more opportunity to normalize the temperature in this patient)
T4 → rT3
T3
T2
T3 therapy

Essential concepts for T3 therapy

- T4 is 4 times weaker and 3 times longer-acting. Consequently, T4 tends to have a weaker, more steady effect on the thyroid hormone receptors.
- Also, T4 provides a steady supply of T3 as it is slowly converted to T3 by the body.
- Thus, doctors and patients must understand that T4 has a very stabilizing influence on the thyroid hormone system.

Symptomatic patients with low body temperatures and normal thyroid blood tests (reversible hypometabolism) are in a very stable situation because they have plenty of T4 in their systems,

BUT they still have low body temperatures and symptoms of slow metabolism.

When T4 levels go down and T3 levels go up with treatment,

the weaker and more steady effect of the T4 is replaced with

the stronger and more unsteady effect of the T3.

The stronger effect of the T3 will hopefully normalize the temperature and eliminate the symptoms of slow metabolism,

but every effort must be made to minimize the unsteady effect of the T3 in order to minimize the chance of side effects such as fluid retention, shakiness, irritability, and palpitations

One way to minimize the unsteady effect of T3 is to make the most of the steady effect of the endogenous T4 by

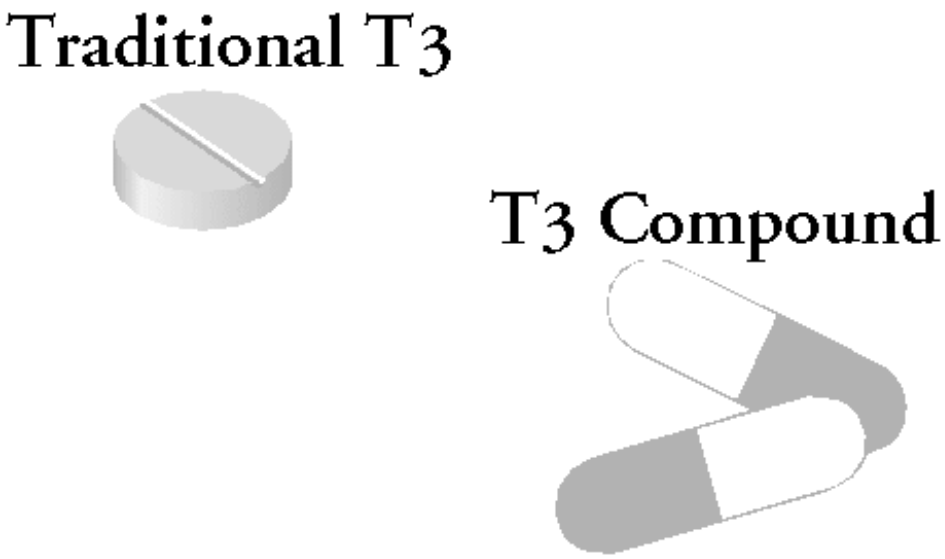
increasing the T3 doses quickly (every 24 hours, and sometimes every 12 hours).

That way, patients are able to get the stronger effect of the T3 while the steady effect of the T4 is still present but decreasing.

“Slow compensators” tolerate rapid increases better than “Fast compensators” tolerate slow ones.

If temp goes down on first dose of T3 rather than up then likely a Fast compensator, more likely side effects, more effort to keep T3 levels steady

Another way to keep T3 levels as steady as possible is to use compounded sustained-release T3



Schor JM, Nigalay A. Sustained release therapeutic compositions based on high molecular weight hydroxypropylmethylcellulose. 1983 US Patent 4389393.

The higher the dose of T3 the more unsteady the effect it has on the thyroid hormone receptors

- One benefit of weaning a cycle of T3 is that it allows the thyroid system to steady down again.
- It is important for people to steady down between cycles.
- Otherwise, people might start the next cycle unsteady and stay unsteady for the whole cycle.
- That is why it is usually best for patients to wean off the T3 entirely between cycles.

Weaning off the T3 slowly (decreasing the dose every 2–6 days) gives the thyroid system and pathways more of a chance to come back on line and maintain any progress in temperature and symptoms that has been obtained from the cycle of T3.

Thus, to keep T3 levels as steady as possible patients should:

- use well-made sustained-release T3 designed to be taken every 12 hours
- take the T3 every 12 hours on time, not even 3 minutes late
- counter-intuitively, increase the T3 doses quickly, wean off the T3 doses more slowly
- make sure they are off the T3 long enough between cycles for their systems to steady down.

Typical stressors that can lower the body temperature

- Childbirth (No. 1 cause)
- Divorce
- Death of a loved one
- Job or family stress
- Surgery or Accidents
- Heavy metal toxicity (e.g., mercury)
- Bromine, Fluorine, Chlorine; especially a mixture of compounds that contain these

Simplified T3 protocol (quick and easy version)

- Will help about 80% of patients.
- Important to know the principles in the book to help manage harder cases, but this is a simplified version many doctors and patients ask for.

Getting started

- Doctors have their patients check their temperatures 3 times a day for a couple of days to see if they average below 98.6F (women are usually low almost all month regardless of their time of ovulation).
- Their body temps are usually 97.8F or lower.
- Can review with them the big potential benefit of T3 therapy and that there is some cardiac risk.

Evaluate whether the patient can tolerate T3

- Can you run around the block, and do you feel OK when your pulse rate goes up? Usually, yes.
- Ever had any cardiac problems (e.g., MI within the past 2 months) or blood pressure issues? PVC's, palpitations, skipped beats?
- Consider baseline TSH, CBC, EKG
- Herbs can help some non-candidates (hypertension, arrhythmias) become candidates.
- Low magnesium levels and adrenal insufficiency may interfere with a person tolerating T3 therapy well.

Adrenal support can help people tolerate T3

- If low adrenal function (e.g., orthostatic hypotension, never sweats, or cortisol is low on a saliva test) then consider hydrocortisone 5 mg BID (8 am and noon) and/or adrenal support herbs for a couple of weeks before treatment (can really help). Otherwise, people may feel worse on the T3 instead of better.
- Some doctors do not like to give T3 without supporting the adrenals first.

Cycling up on the T3

- Have them program their timers or phones with alarms that are 12 hours apart.

- Start on 7.5 mcg / dose every 12 hours

Cycling up on the T3

Increase dose by 7.5 mcg/dose/day

- Day 1 > 7.5 mcg (am), 7.5 mcg (pm)
- Day 2 > 15 mcg, 15 mcg
- Day 3 > 22.5 mcg, 22.5 mcg
- Day 4 > 30 mcg, 30 mcg
- …
- Day 10 > 75 mcg , 75 mcg
- no higher on this cycle, just to be cautious

Patient instructions

- Take the T3, and take it exactly on time, with or without food. Timing of each dose can affect steadiness for up to 2 weeks
- If a few hours late with a dose, go ahead and take the dose and keep following the directions.
- Write down your pulse every day.
- Stop increasing T3 and call the doctor if:
  - Pulse is above 100 b.p.m., or
  - Feeling palpitations.

To manage side effects:

- Can take certain cardiac herbs. Lily of the Valley (contains cardiac glycosides as in Digitalis), Night blooming Cereus (no glycosides) , Hawthorne, Motherwort.
- T3 toxicity or unsteadiness? Check temp, 12.5 mcg T4 and assess after 45 mins (this is a “T4 test dose”).
- Can repeat the dose of T4 an hour later if needed.
- Some people (those 10 % of people that really do not tolerate the treatment well) can continue taking the levothyroxine 12.5–25 mcg T4 every day if it helps them tolerate the protocol better, even if it might hinder their progress.

Continuing the protocol:

- If no issues, keep going up on the T3 (notice that this is irrespective of body temperature)…you cannot really overdo the temperature.
- Once on 75 mcg BID…stay there for about 3 days and then cycle down every 2–3 days (or slower).
- Thus, the first cycle is only up to 75 mcg BID and lasts about a month.
- Ask the patient to check their body temperatures about 2–3 times/day for a couple of days to see if and how it has changed; and then return for a visit.

At 1-month visit

- How did you feel?
- Any palpitations? Were they severe or not?
- If the temperature does not go up as much as you want (which is typical) and they did not have any heart palpitations, then you can have them go up on another cycle, going all the way to 90 mcg BID this time (if no rapid pulse or palpitations).
- Then they can cycle back down slowly (min every 2 days or slower) and check their temperatures.
- Can continue more cycles as needed.

Wrapping it up

- As they are going up on the next cycle, if they find a dose that they feel really good on and their temperatures are in the 98.1–98.5F range then they can stay on that dose for 1 month.
- Then cycle down and come for another visit.
- And that usually takes care of most patients.
- This is one way of using T3 to clear the problem
- Other patients will need more careful temperature titrating protocol in the book (free eManual and eBook on website).

Three most important instructions for patients

- Take the T3 on time.
- Write down pulse rate every morning.
- Pay attention to any disagreeable awareness of the heartbeat.

Most common side effects of T3 therapy

- Fluid retention
- Achiness
- Jitteriness
- Irritability
- Dull headache
- Increased awareness of heart beat
- Usually due to unsteady T3 levels from not taking the medicine on time

Use a reliable compounding pharmacist

- There have been times when patients were not getting good results with the T3 therapy until they switched to another pharmacy and then they began getting better results

What to order

- If you want to follow the simplified treatment we just covered then it is usually convenient to order your patients an assortment or “starter pack” of capsules that they can use to go up on the doses and then wean down.

- The “10 x 6 Starter Pack” has 6 capsules of each of the 1st 10 strengths (7.5–75mcg)
- The “10 x 8 Starter Pack” has 8 capsules of each of the first 10 strengths
- The “12 x 6 Starter Pack” has 6 capsules of each of the first 12 strengths (up to 90 mcg)
- The “12 x 8 Starter Pack” has 8 capsules of each of the first 12 strengths

If you use a “10 x 6 Starter Pack” then your patient will be able to go up a strength every day and then wean down one strength every 2 days. The cycle will be over in 30 days.

If you use a “10 x 8 Starter Pack” then your patient will be able to go up a strength every day and then wean down one strength every 3 days. The cycle will take 40 days.

The advantage of weaning down more slowly:

- body has more time to come up and maintain the thyroid system

The disadvantage of weaning slowly:

- not always necessary
- the cycles take longer and are more expensive

12 x 6 and 12 x 8 Starter Packs are not usually used on the first cycle, but on the next, if the first cycle did not seem strong enough, because the 12 x 6 and 12 x 8 starter packs go up to 90 mcg doses instead of just 75 mcg.

90 mcg BID is a commonly used maximum dose.

With treatment, many patients enjoy complete resolution of their WTS symptoms persisting years after the treatment is discontinued.

Without treatment, the symptoms of WTS can easily persist for decades and can even worsen during episodes of severe mental, emotional, or physical stress, causing untold loss of quality of life and productivity.

Though the goal is for the temperature and symptoms to remain improved even after the T3 has been discontinued,

some people may benefit staying on some T3 on a continual basis. T3 is very well tolerated long-term. A review of 28 studies showed no increase in osteoporosis in premenopausal women on suppressive doses of T3.

Murphy E, Williams GR. The thyroid and the skeleton.
***Clin Endocrinol.* 2004;61:285–298.**

T3 therapy in patients currently taking T4.

- What was the TSH before starting T4?
- Can wean T4 before or while cycling up on T3.
- Can wean off T4 over 1-3 days. 7 day 1/2-life

Murphy E, Williams GR. The thyroid and the skeleton.
***Clin Endocrinol.* 2004;61:285–298.**

DWILSON.WTS@GMAIL.COM

- About 80% of WTS sufferers are women.
- WTS seems more common in populations that have survived famine like Irish, American Indian, Scottish, Welsh, and Russian.
- We'll now cover some concepts of T3 therapy that are helpful to know, especially with the original T3 protocol that involves titrating the dose according to body temperature

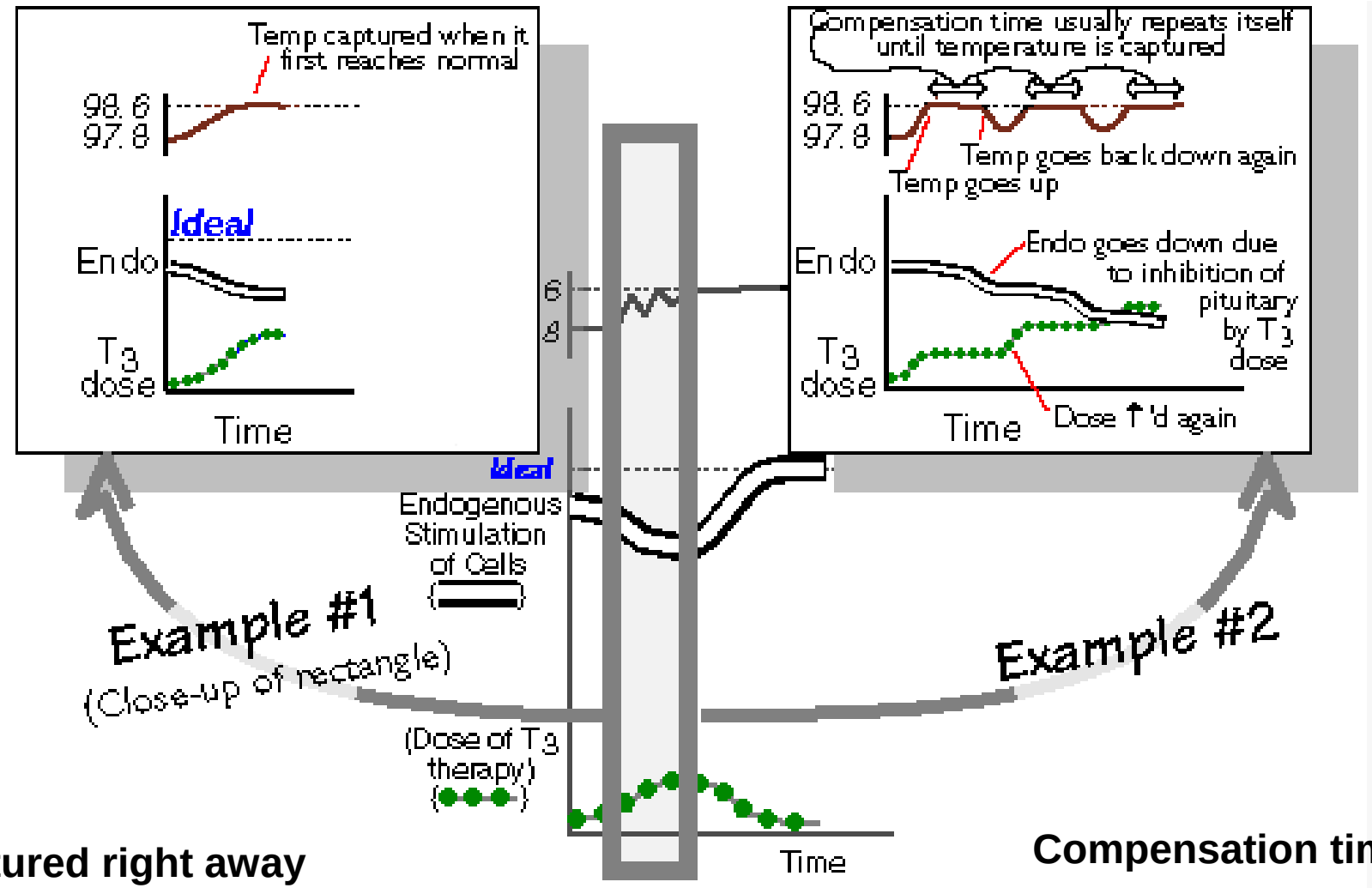
When cycling up on T3

Once the temperature reaches 98.6F on a certain dose it is not unusual for the temperature to drop back down again due to normal compensation via negative feedback inhibition of the pituitary gland.

We refer to this as “compensation”.

“Compensation time” is the amount of time it takes for the temperature to drop back down again after it reaches 98.6F on T3.

Compensation time: time temperature drops back down



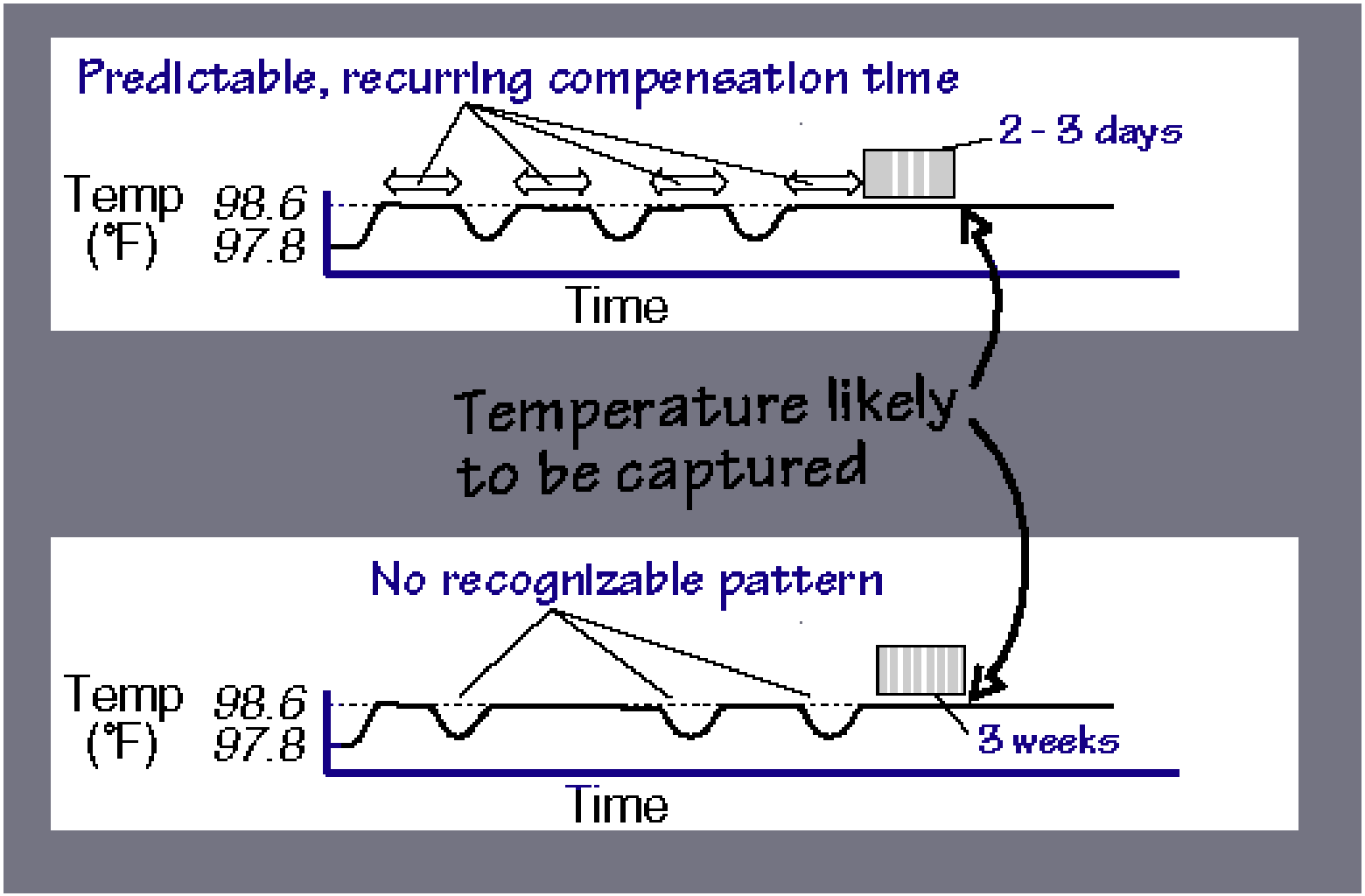
Captured right away

Compensation time

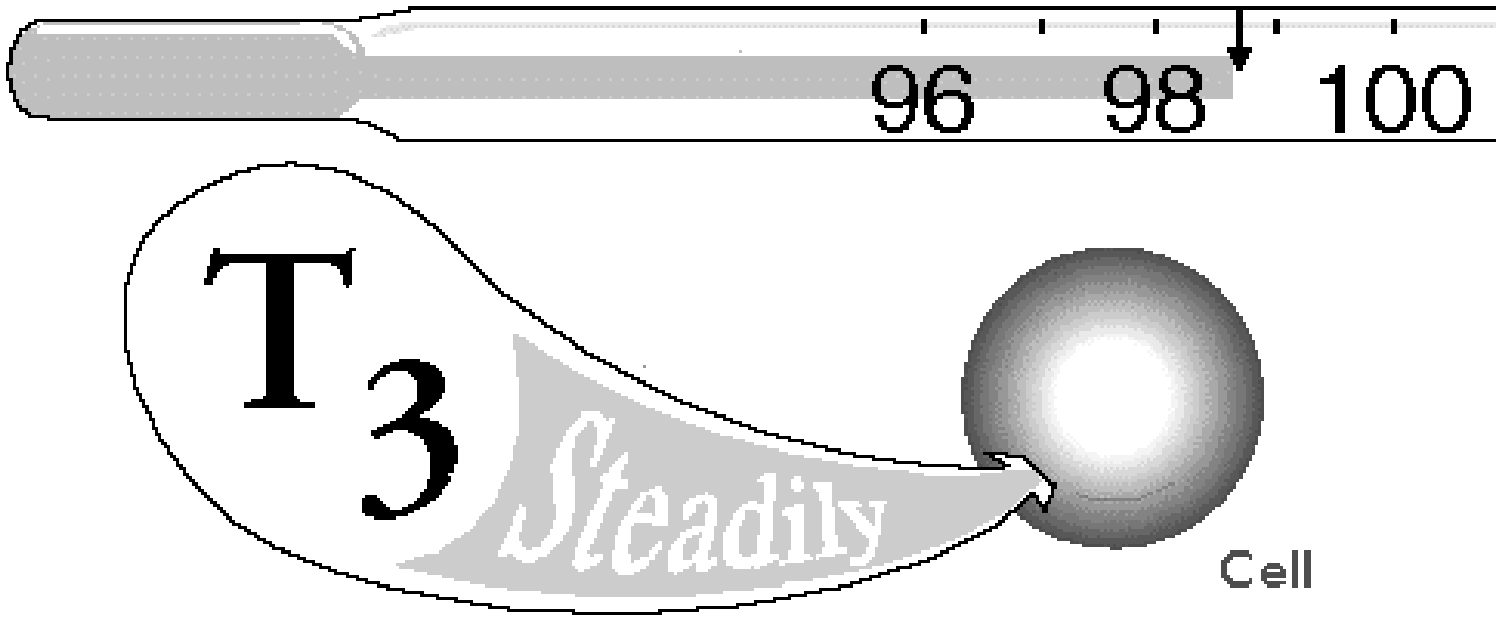
Temperature “captured”

When the average temperature stays up around 98.6F without compensating back down again.

Treatment principles



Treatment principles



Goal #1

Feel well while on T3 therapy

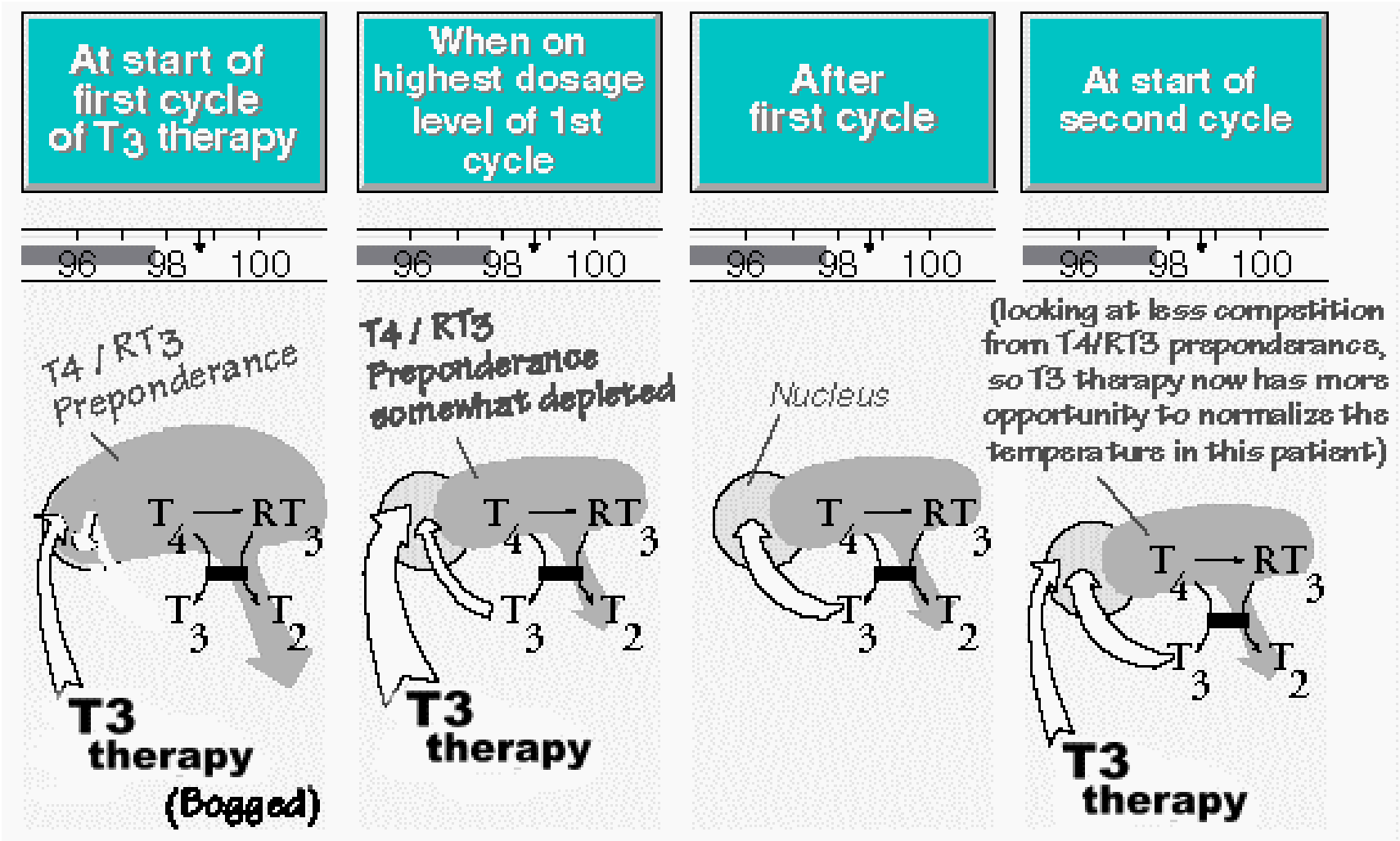
Treatment Principles

depends on...

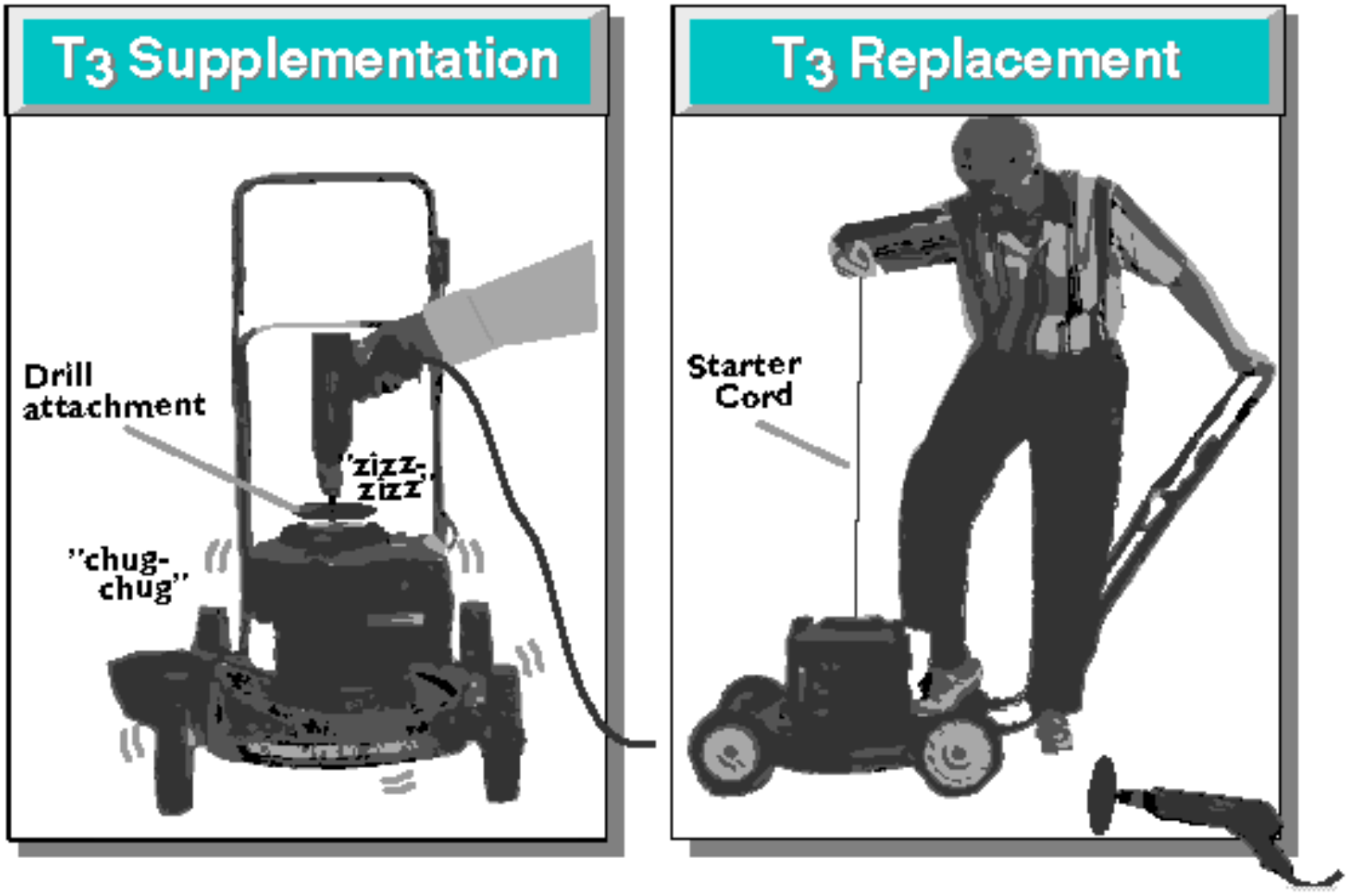
Capturing the Temperature

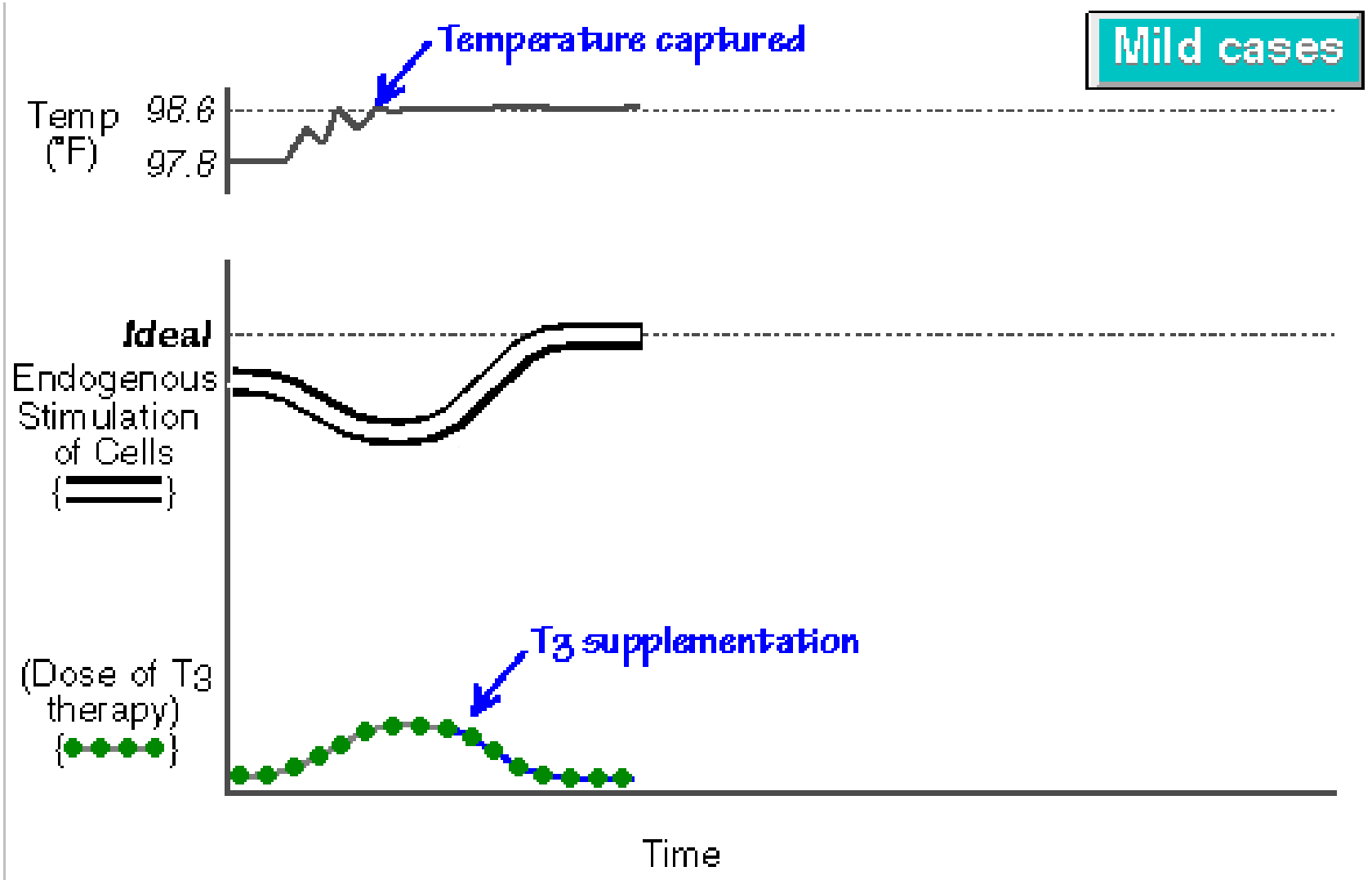
(getting the temperature up to normal such that pituitary negative feedback inhibition does not drop it back down again)

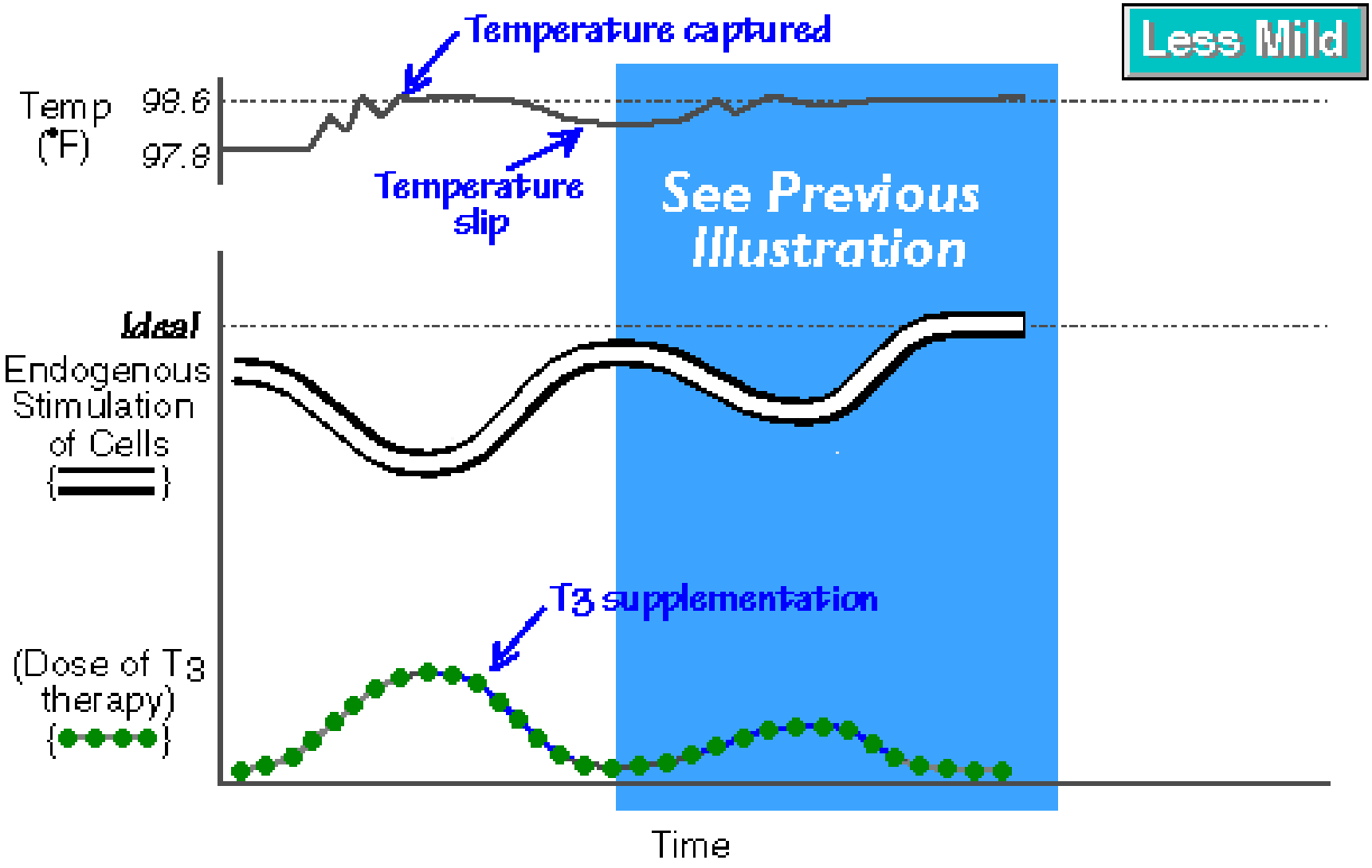
The two goals of WT3 Therapy can be achieved independently of one another.

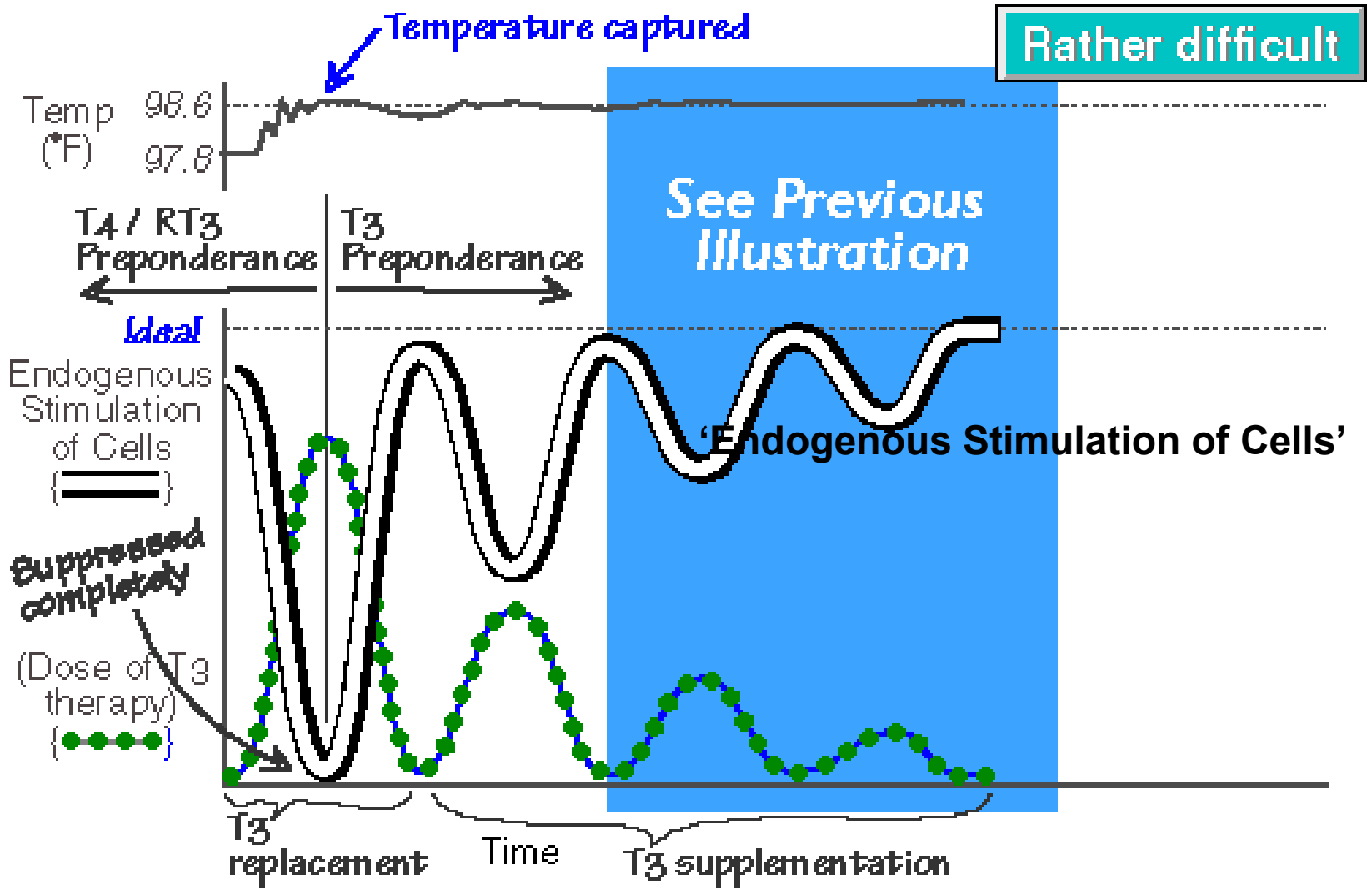


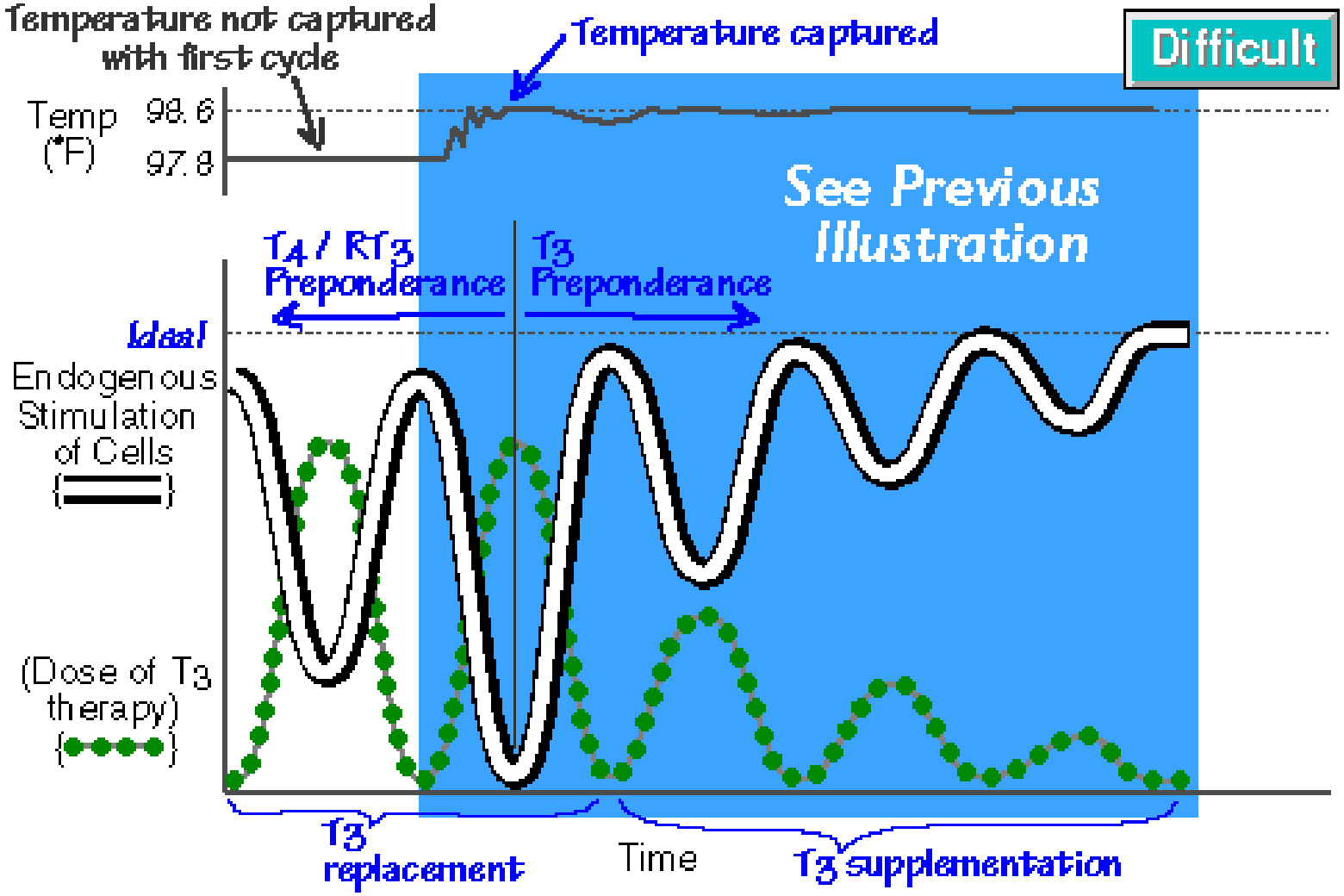
What might explain why the temperature does not go up on one cycle but does on another?


T3 Supplementation
Drill attachment
"zizz-zizz"
"chug-chug"
T3 Replacement
Starter Cord

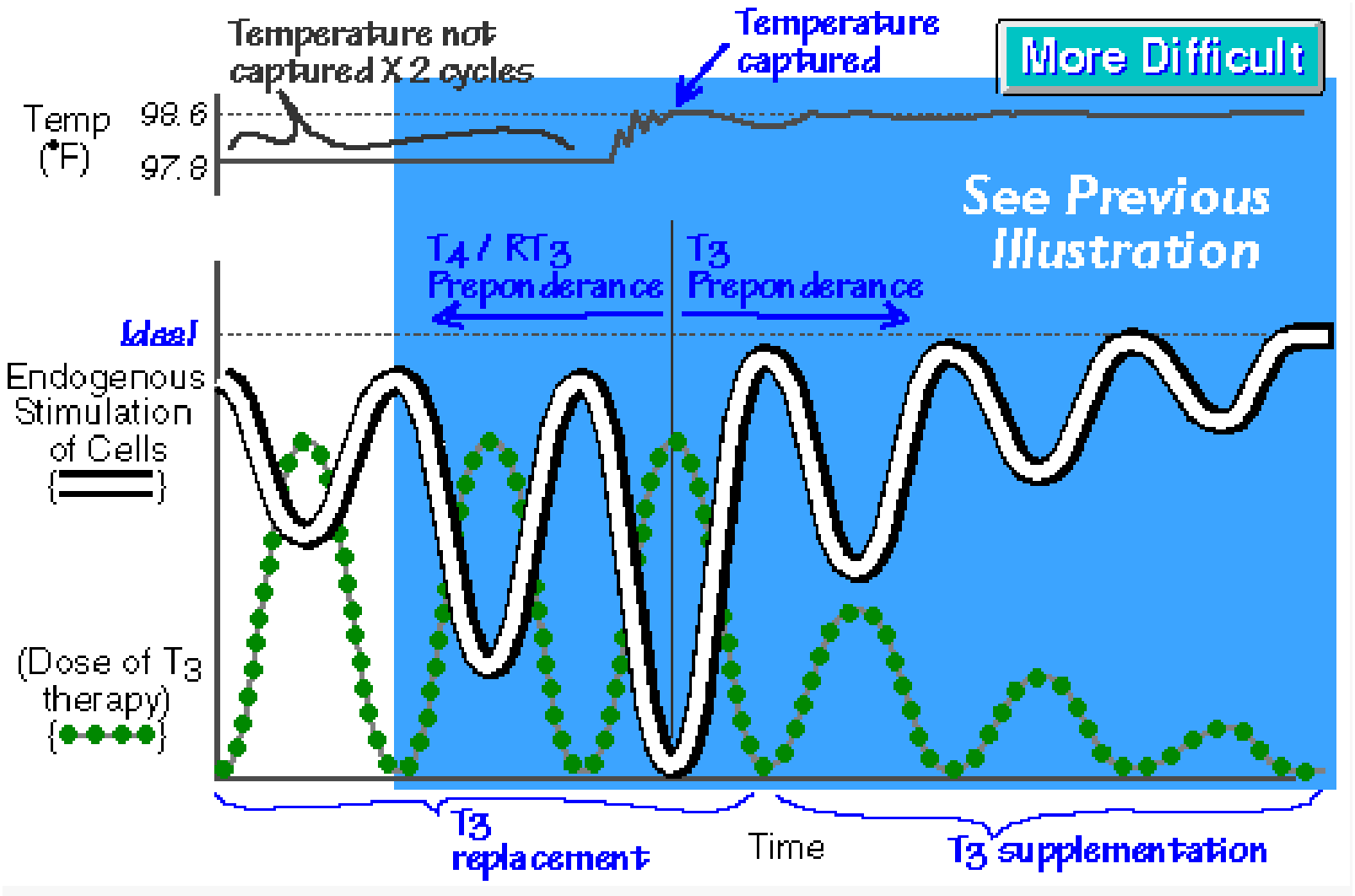

Mild cases
Temperature captured
Temp (°F)
98.6
97.8
Ideal
Endogenous Stimulation of Cells
(Dose of T3 therapy)
T3 supplementation
Time

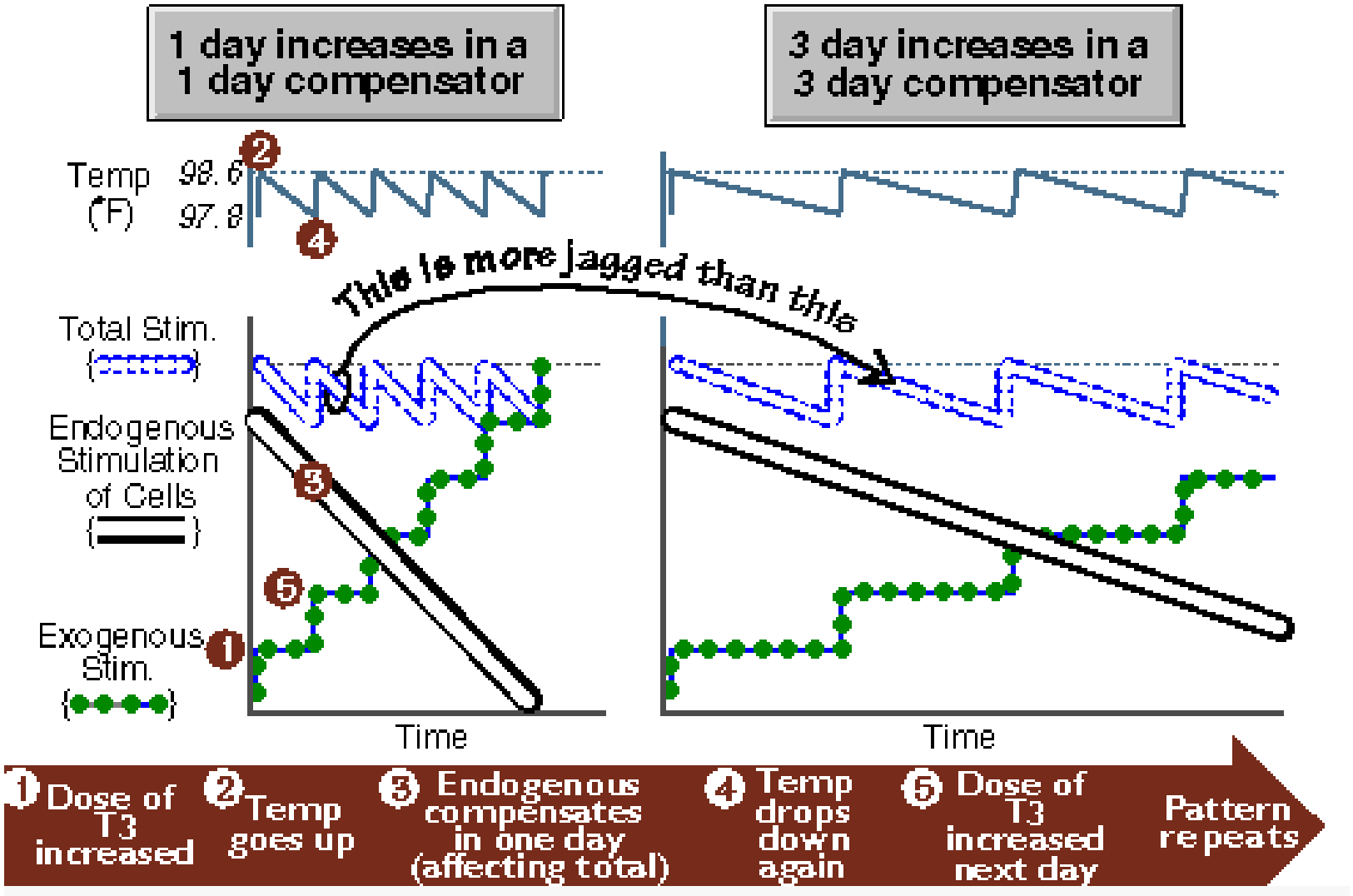

Less Mild
Temperature captured
Temp (°F)
98.6
97.8
Temperature slip
See Previous Illustration
Ideal
Endogenous Stimulation of Cells
T3 supplementation
(Dose of T3 therapy)
Time


Temperature captured
Rather difficult
Temp (°F)
98.6
97.8
T4 / RT3 Preponderance
T3 Preponderance
See Previous Illustration
Ideal
Endogenous Stimulation of Cells
'Endogenous Stimulation of Cells'
Suppressed completely
(Dose of T3 therapy)
T3 replacement
Time
T3 supplementation

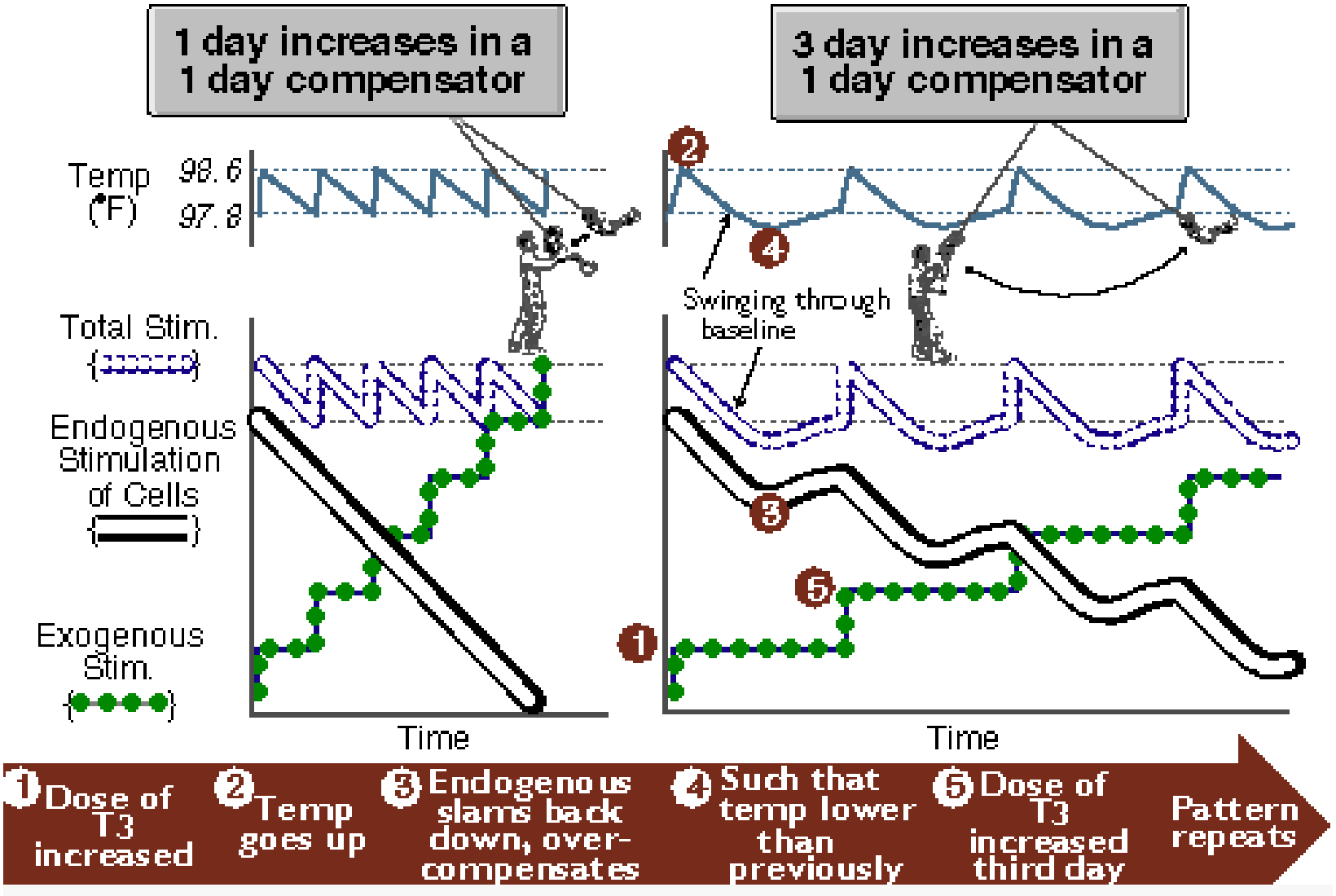

Temperature not captured with first cycle
Temperature captured
Difficult
Temp (°F)
98.6
97.8
See Previous Illustration
T4 / RT3 Preponderance
T3 Preponderance
Ideal
Endogenous Stimulation of Cells
(Dose of T3 therapy)
T3 replacement
Time
T3 supplementation

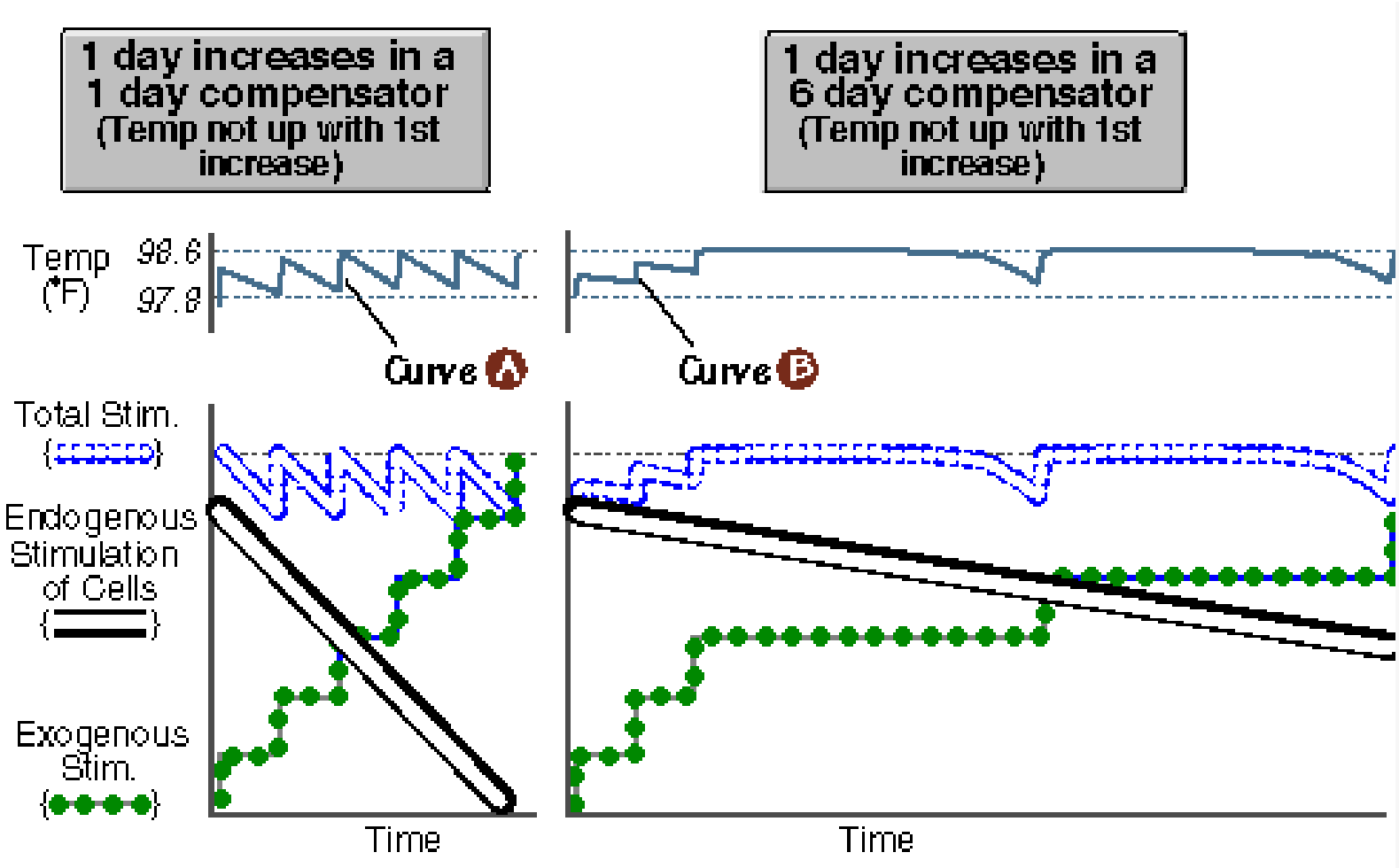
Blood tests on T3: TSH, T4, RT3 down; T3 up



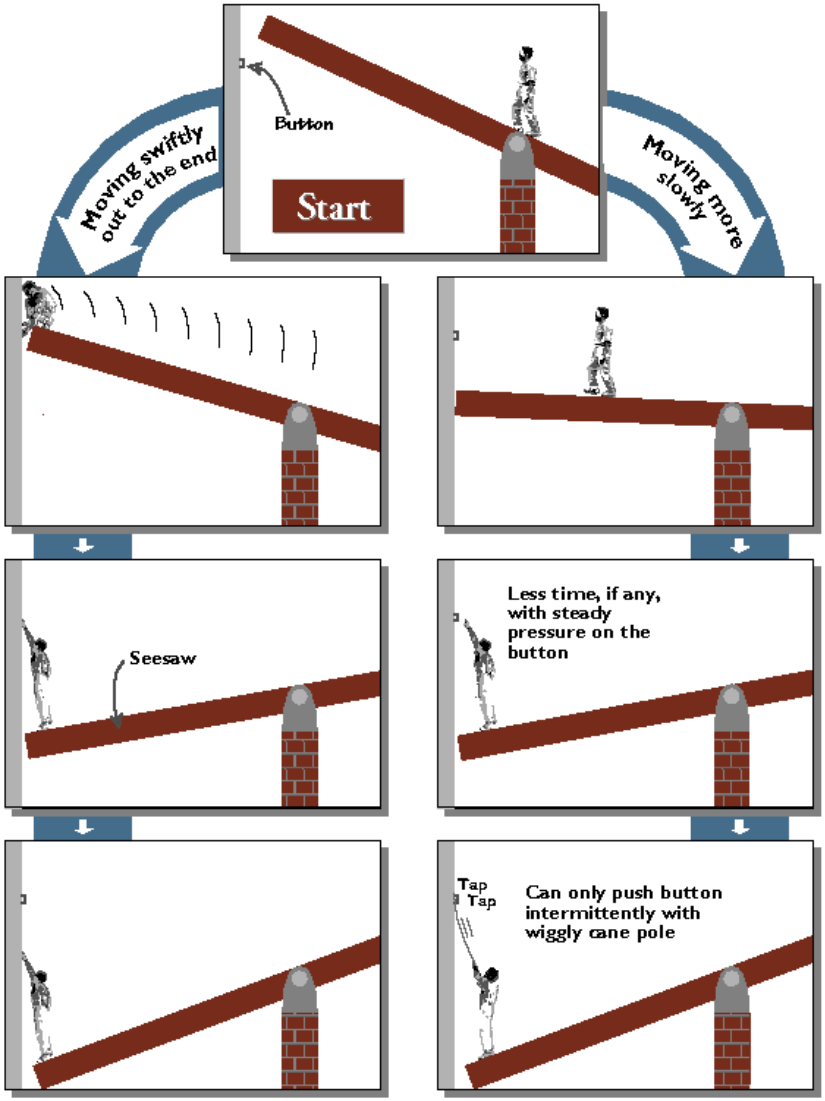

1 day increases in a 1 day compensator
3 day increases in a 3 day compensator
Temp (°F)
98.6
97.8
This is more jagged than this
Total Stim.
Endogenous Stimulation of Cells
Exogenous Stim.
Time
Time
1 Dose of T3 increased
2 Temp goes up
3 Endogenous compensates in one day (affecting total)
4 Temp drops down again
5 Dose of T3 increased next day
Pattern repeats

Fast compensator: temperature goes down not up





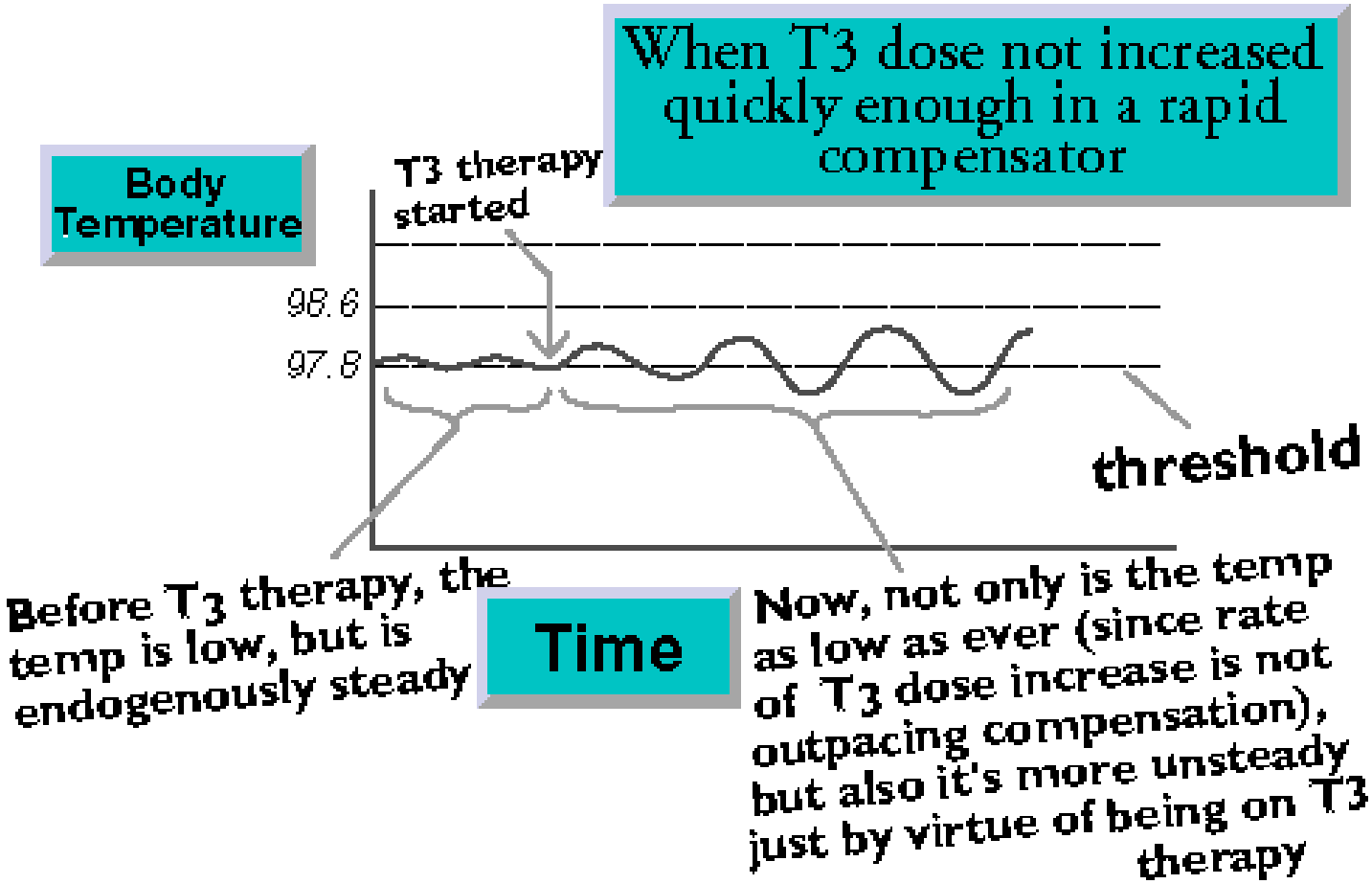
Slow compensators tolerate rapid increases better than fast compensators tolerate slow ones (see previous slide).



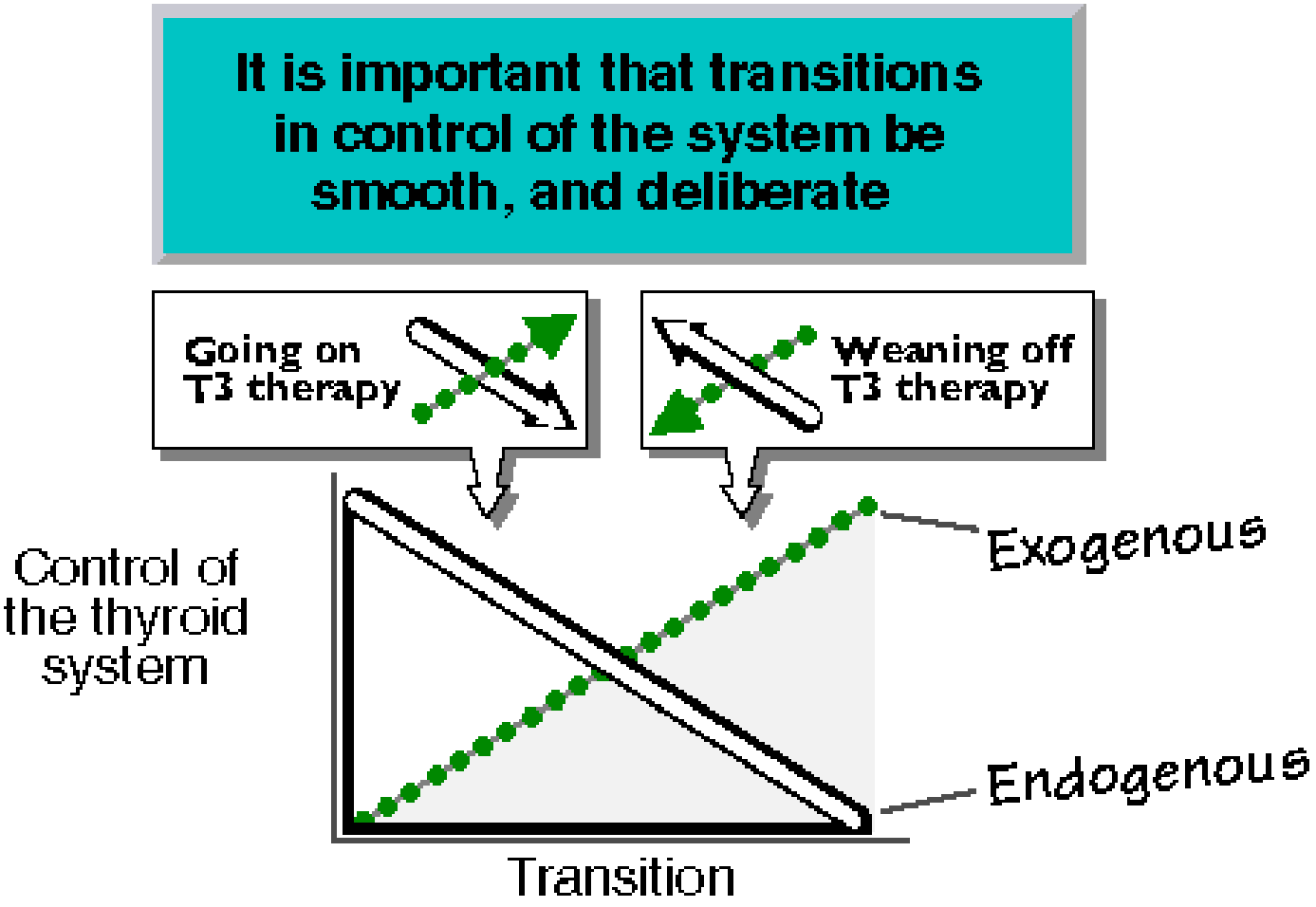
Only 10% of patients are rapid compensators but they can easily account for more than 50% of management problems.

Try to wean off slowly enough that the temperature does not drop more than a couple of tenths of a degree. If 7.5 mcg/dose/day decrement is too fast then you can decelerate to stepping down every 4 days or if that is too fast then every 6 days.

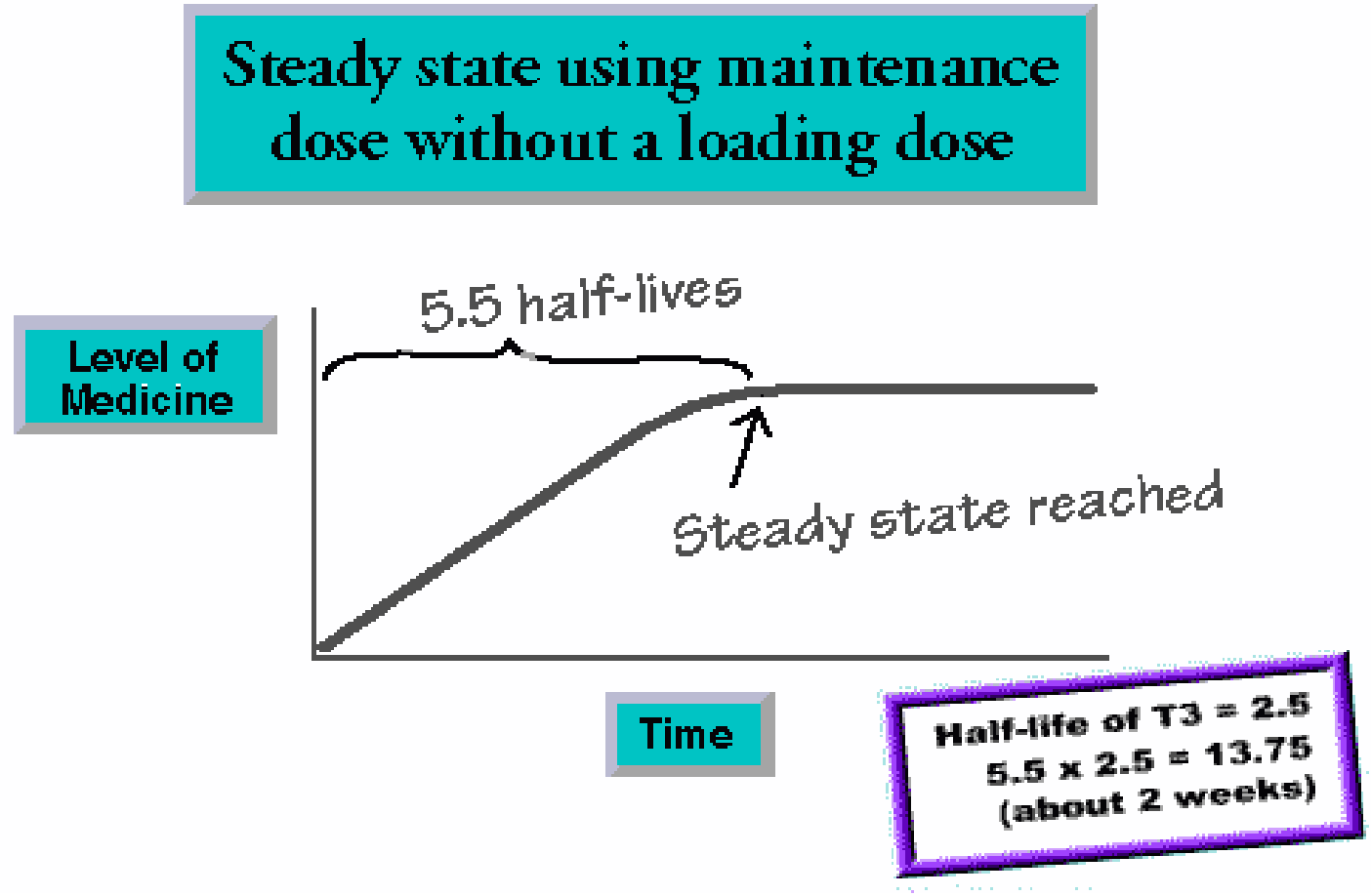
It is counter-intuitive for some but it is safer to go up on T3 quickly and wean down slowly rather than going up slowly and weaning off quickly



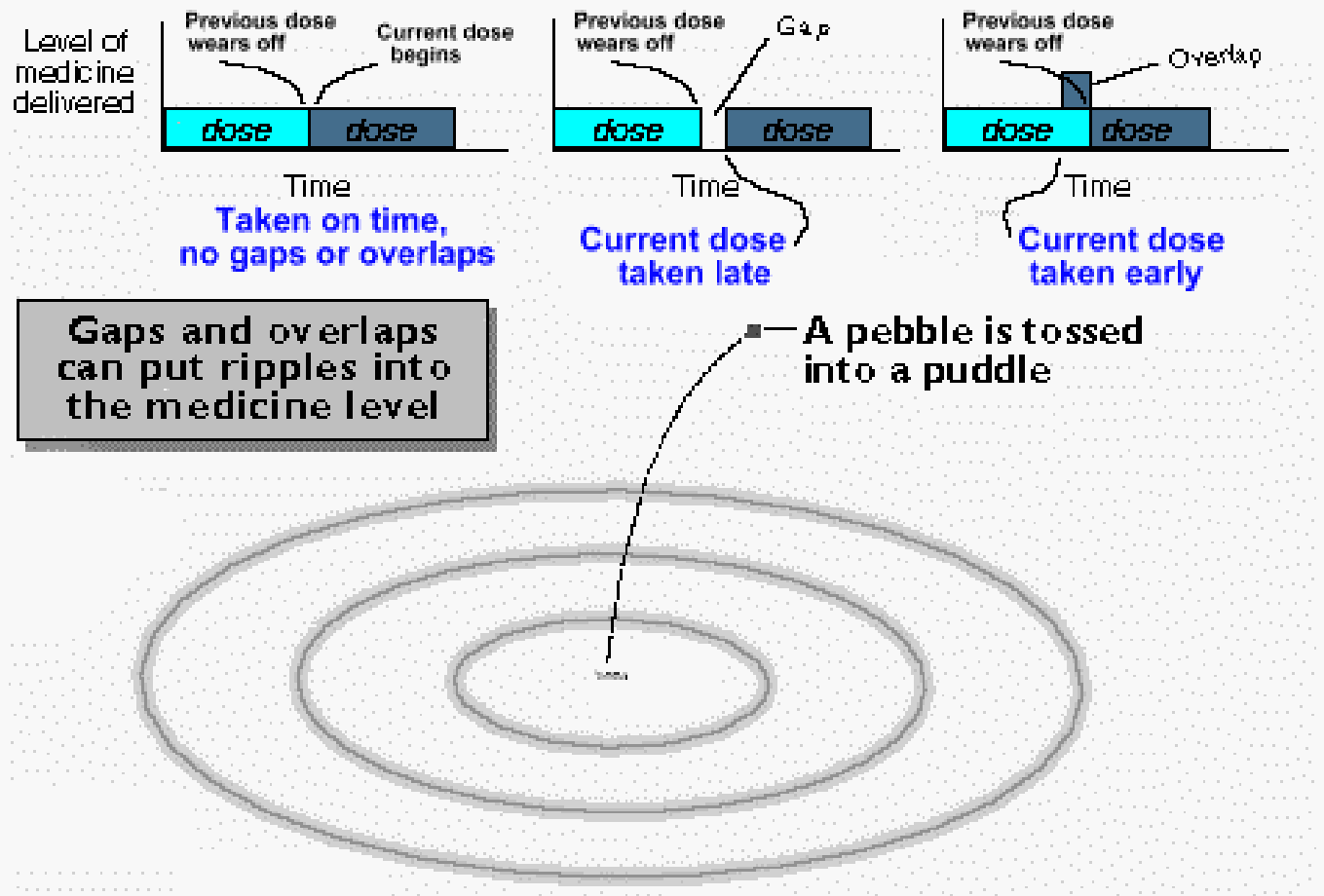
In rapid compensators it is important to raise the dose rapidly enough to get the patient's temperature up to normal, rather than just unsteady.



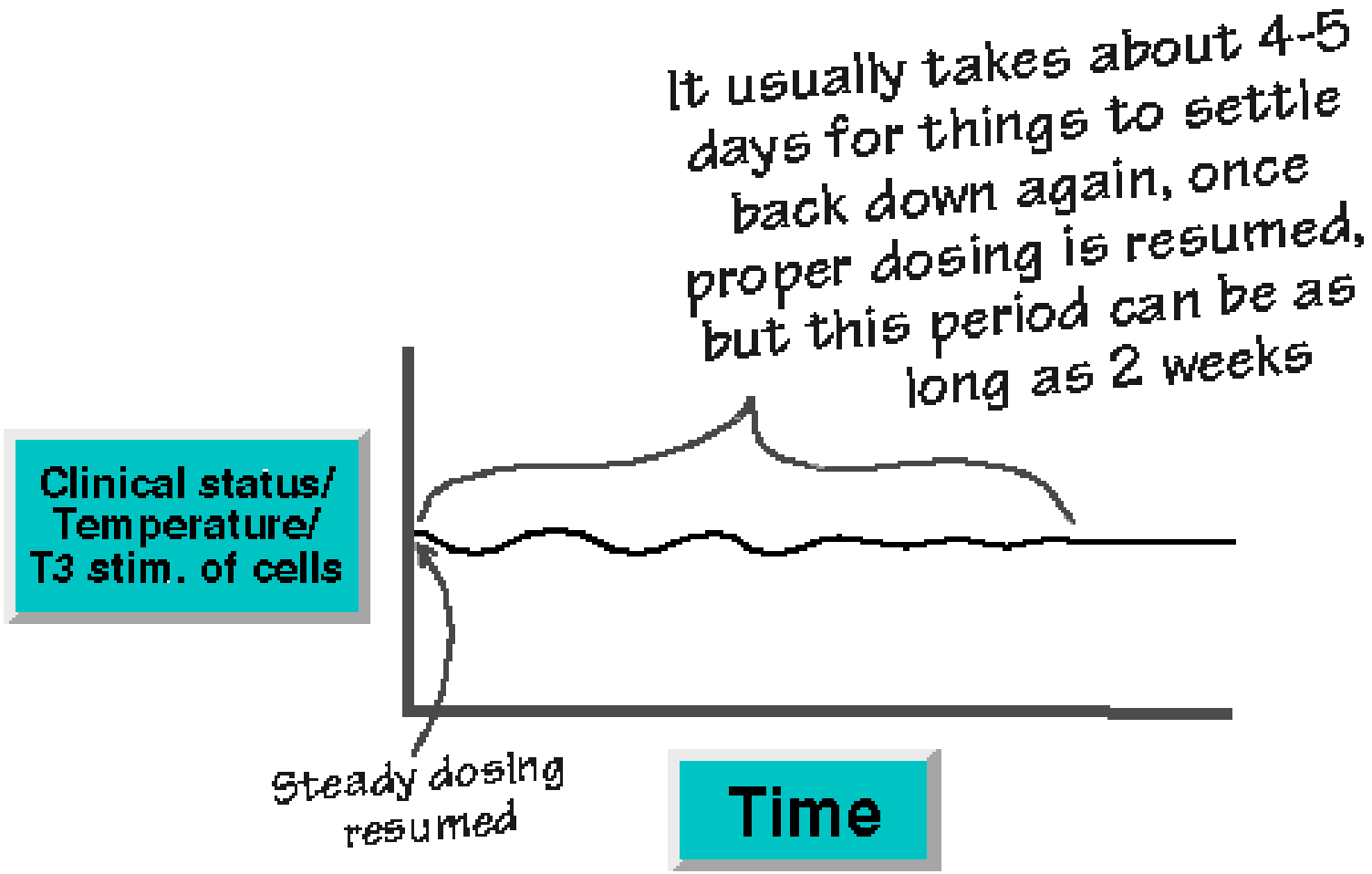
Usually one-way transitions are best, going all the way off of cycles.



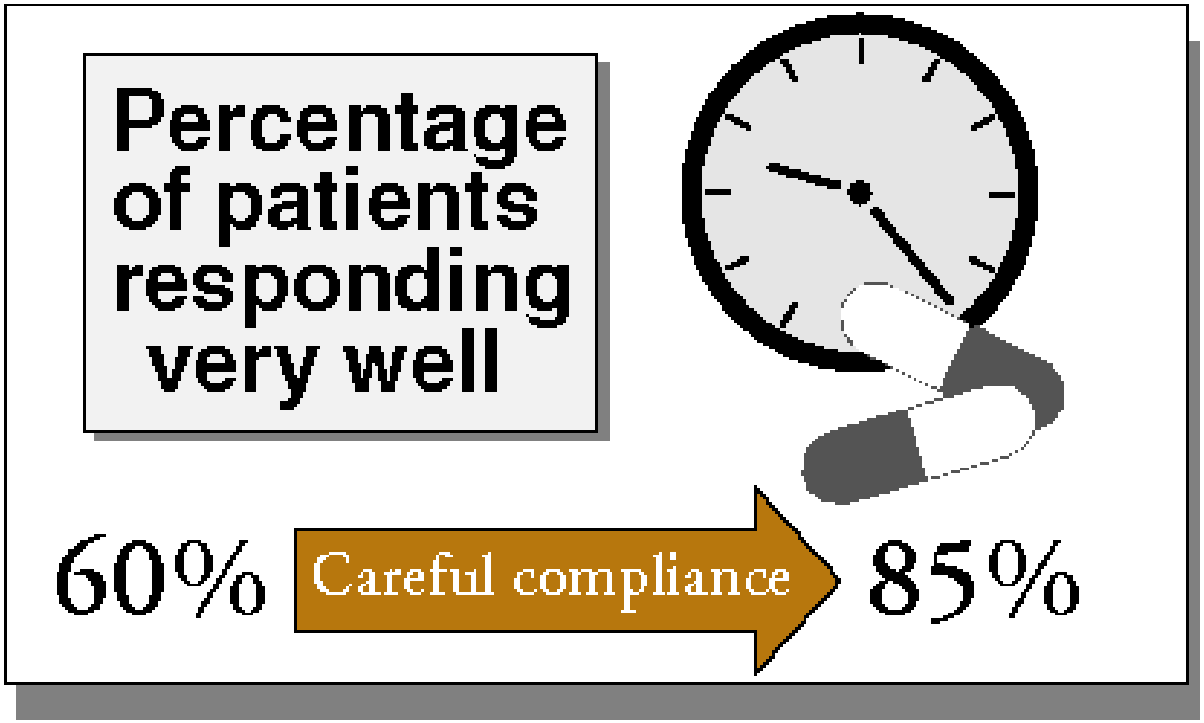
In WT3 Therapy we are focusing on the level not the doses. We manage the dosing to manage the levels. Each dose affects the level.

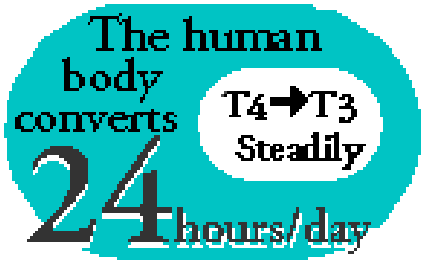


The importance of taking the T3 exactly on time.

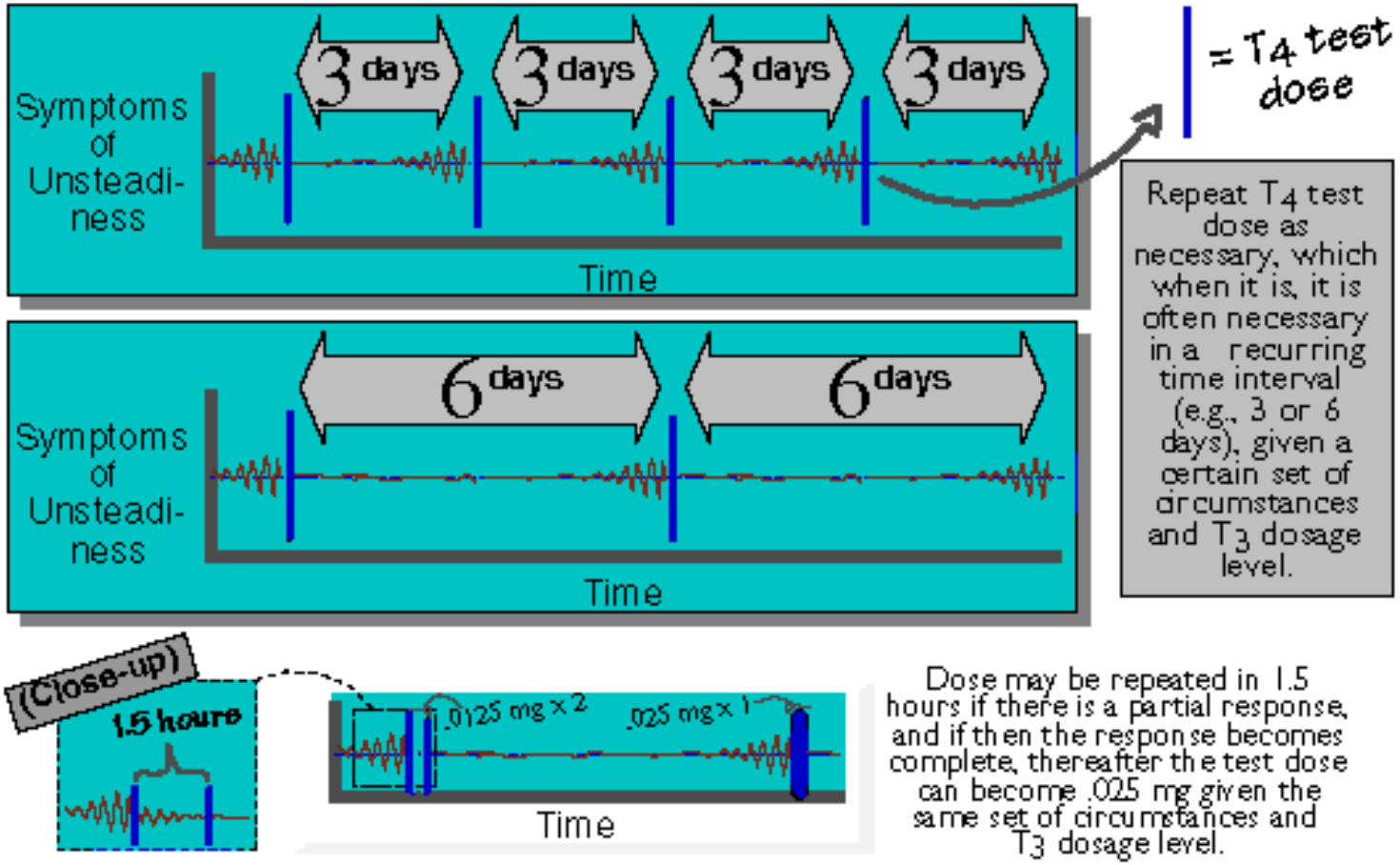

It usually takes about 4-5 days for things to settle back down again, once proper dosing is resumed, but this period can be as long as 2 weeks
Clinical status/ Temperature/ T3 stim. of cells
Steady dosing resumed
Time

No big deal with food (time more crucial)

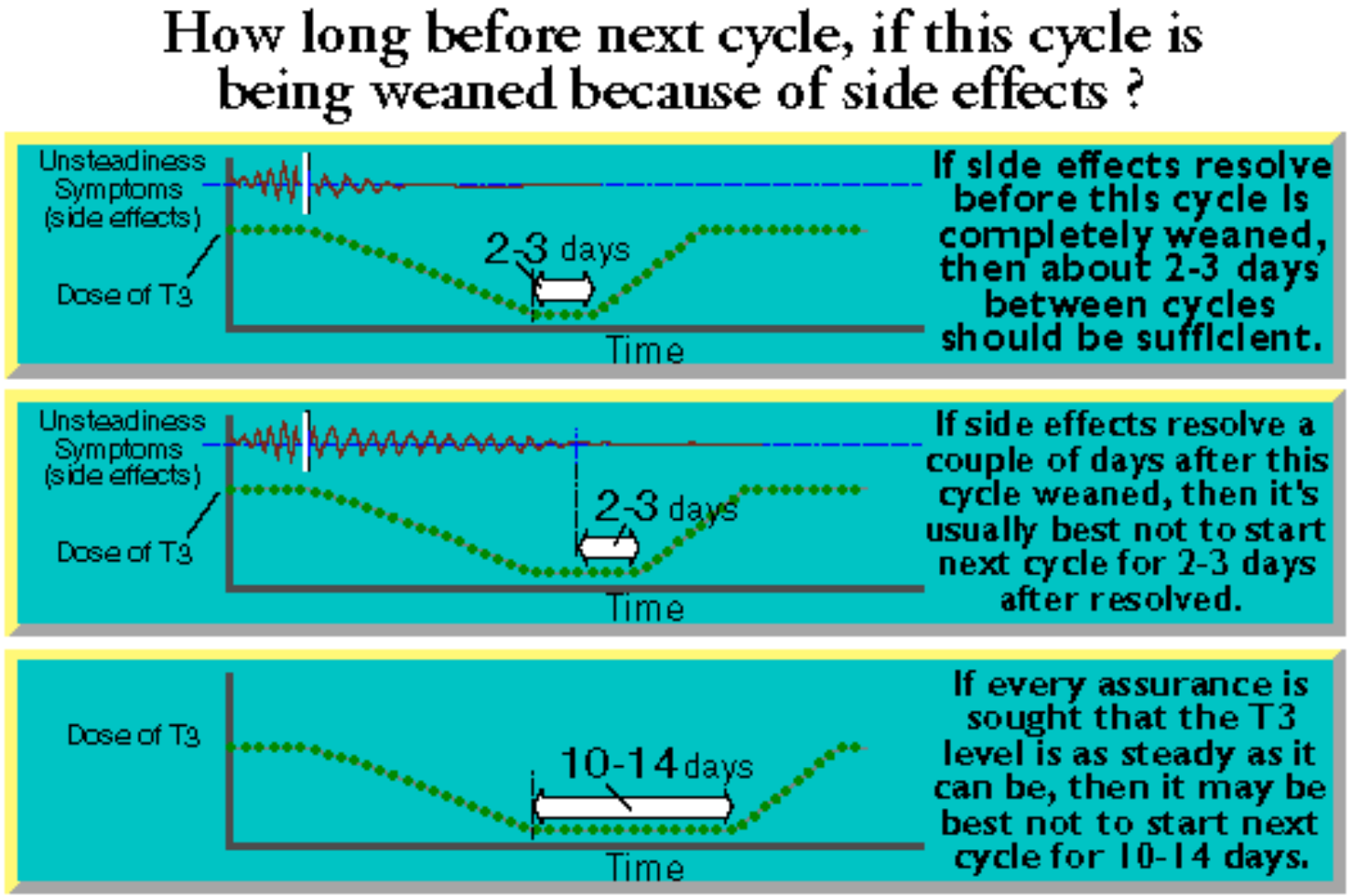




Unsteadiness and the T4 test dose

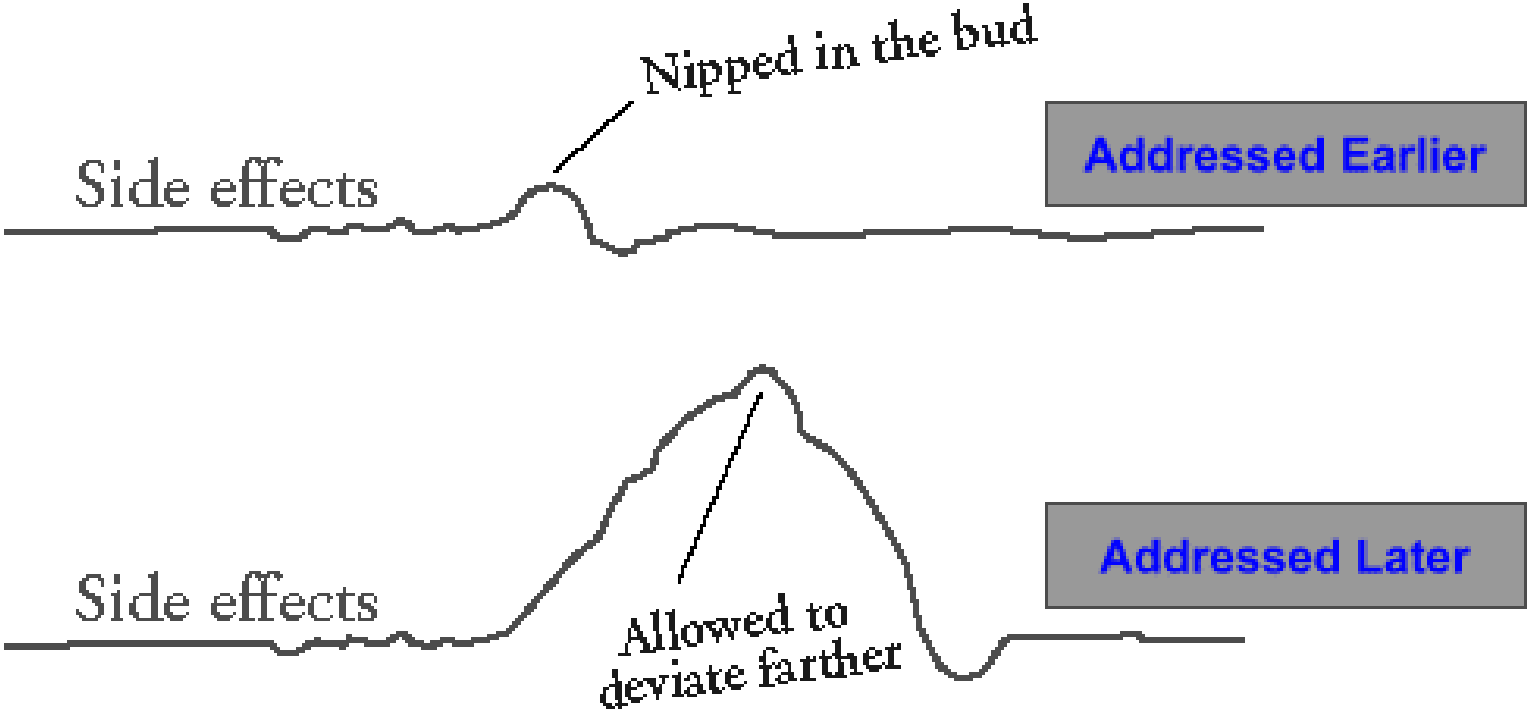


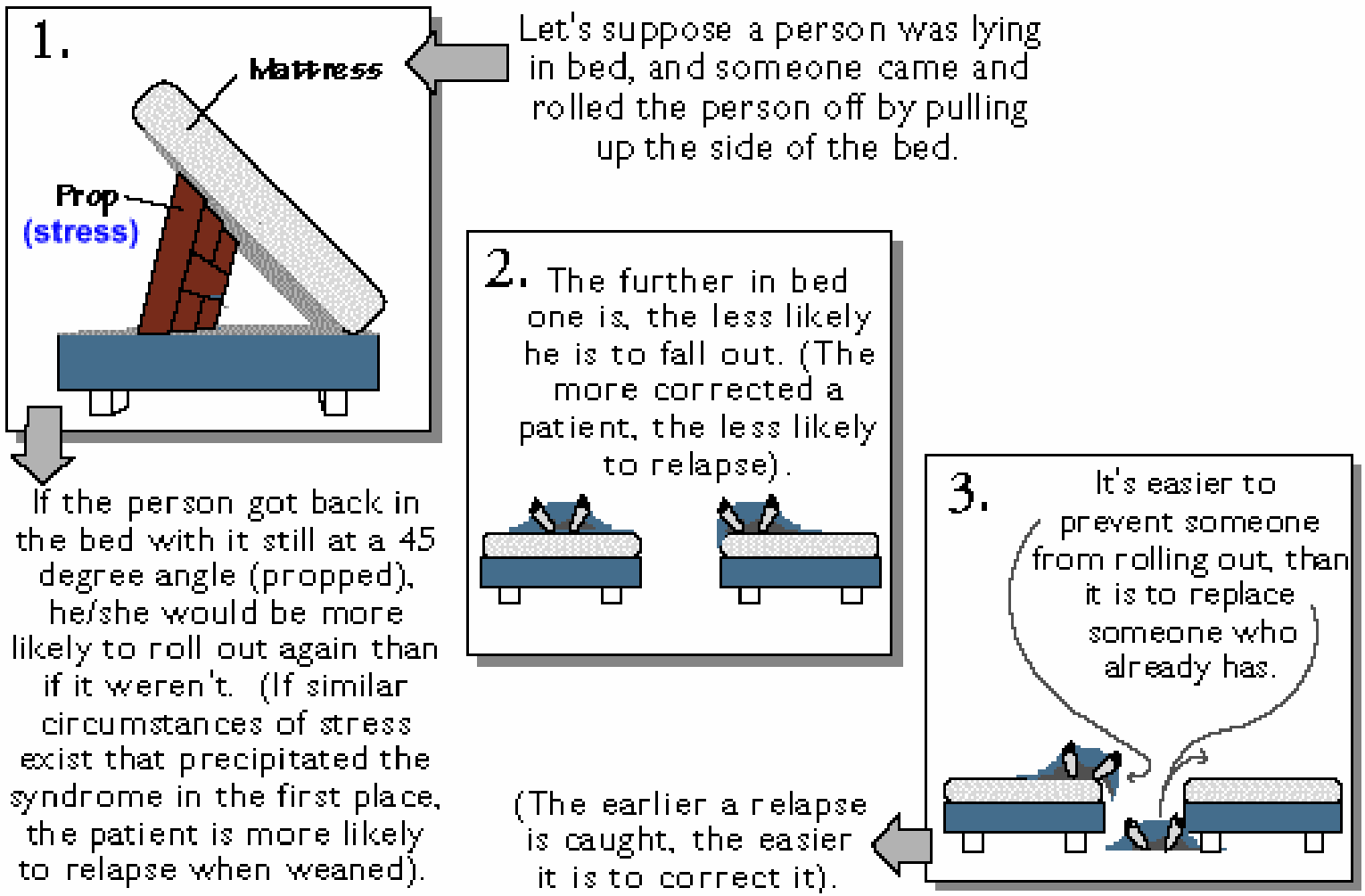
Unsteadiness and the T4 test dose



Unsteadiness and the T4 test dose

It's best to address any side effects early (nip them in the bud). If adjustments are made early, deviations are smaller, and easier to manage.



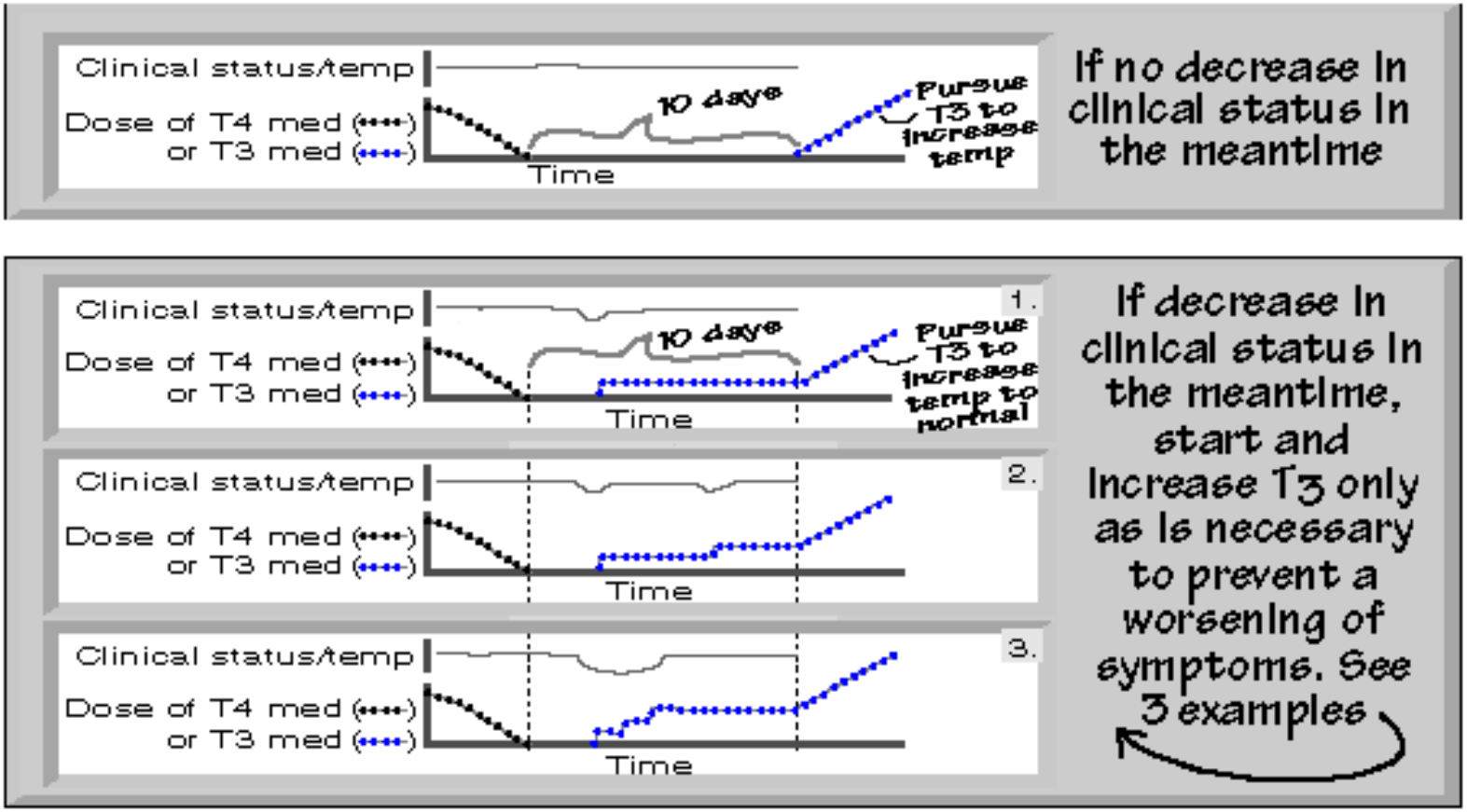

1.
Mattress
Prop
(stress)
Let's suppose a person was lying in bed, and someone came and rolled the person off by pulling up the side of the bed.
If the person got back in the bed with it still at a 45 degree angle (propped), he/she would be more likely to roll out again than if it weren't. (If similar circumstances of stress exist that precipitated the syndrome in the first place, the patient is more likely to relapse when weaned).
2. The further in bed one is, the less likely he is to fall out. (The more corrected a patient, the less likely to relapse).
3.
It's easier to prevent someone from rolling out, than it is to replace someone who already has.
(The earlier a relapse is caught, the easier it is to correct it).

People who are hypothyroid can also have WTS

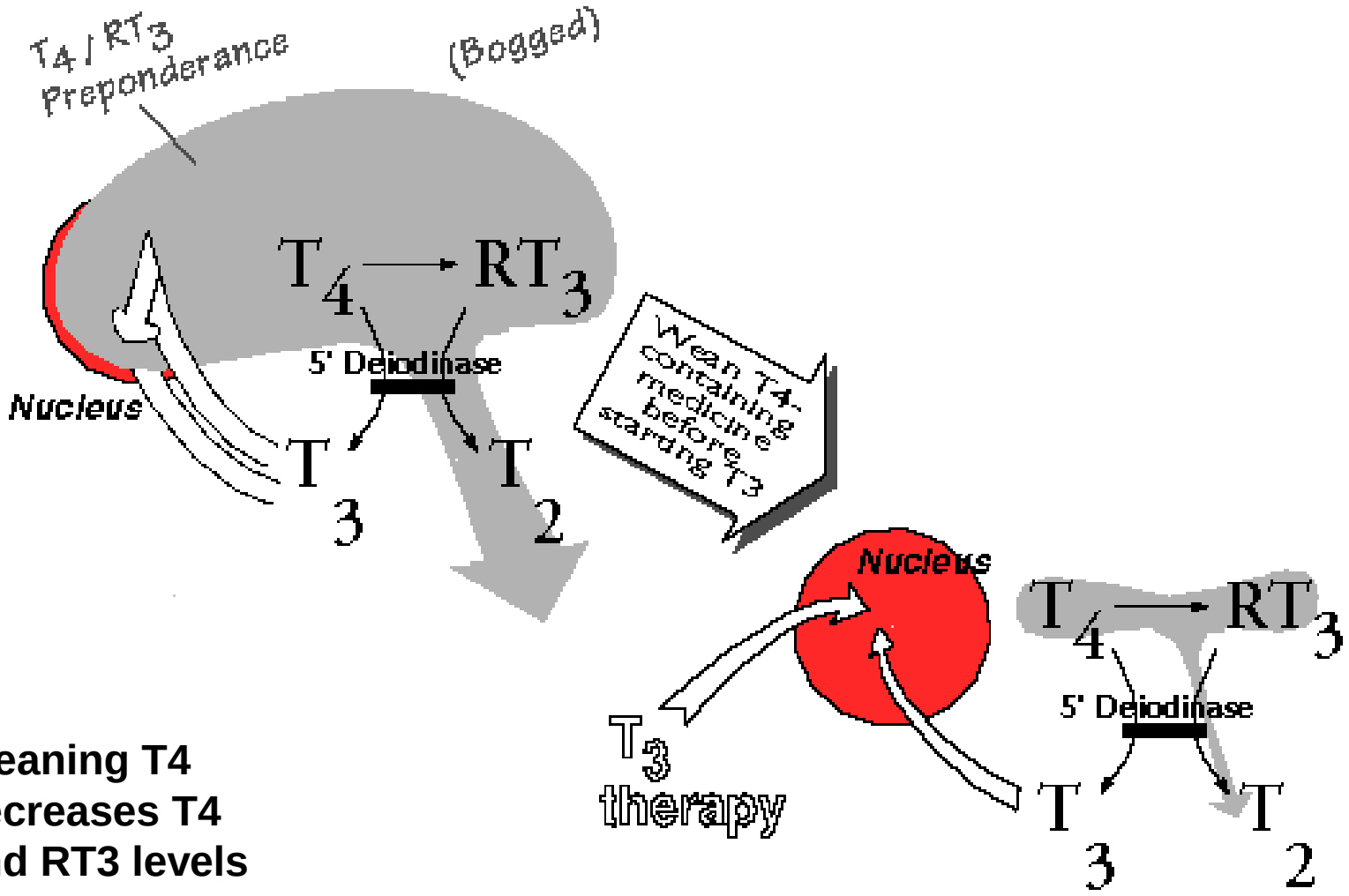
People diagnosed as hypothyroid who are taking T4-containing medicine may never have been hypothyroid, or if they were,
may not be now.

T3 Therapy in hypothyroid patients

Weaning off T4-containing medicine for 10 days before pursuing T3 therapy

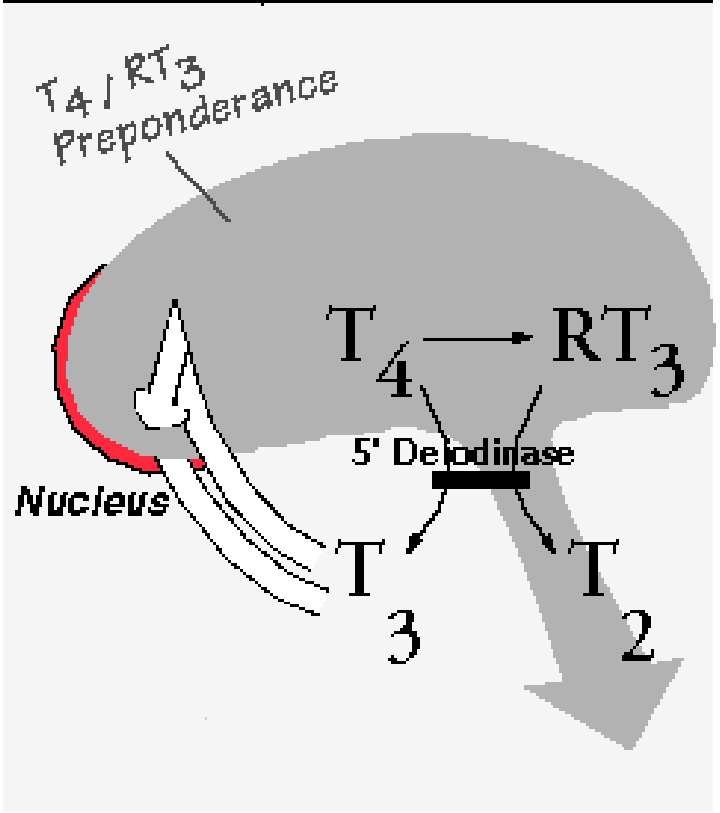


T3 Therapy in hypothyroid patients

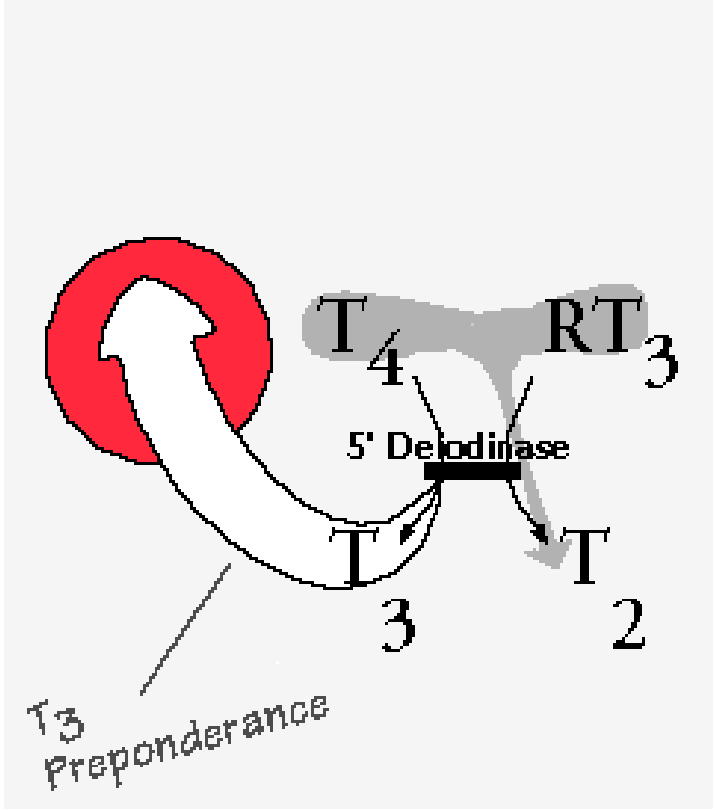


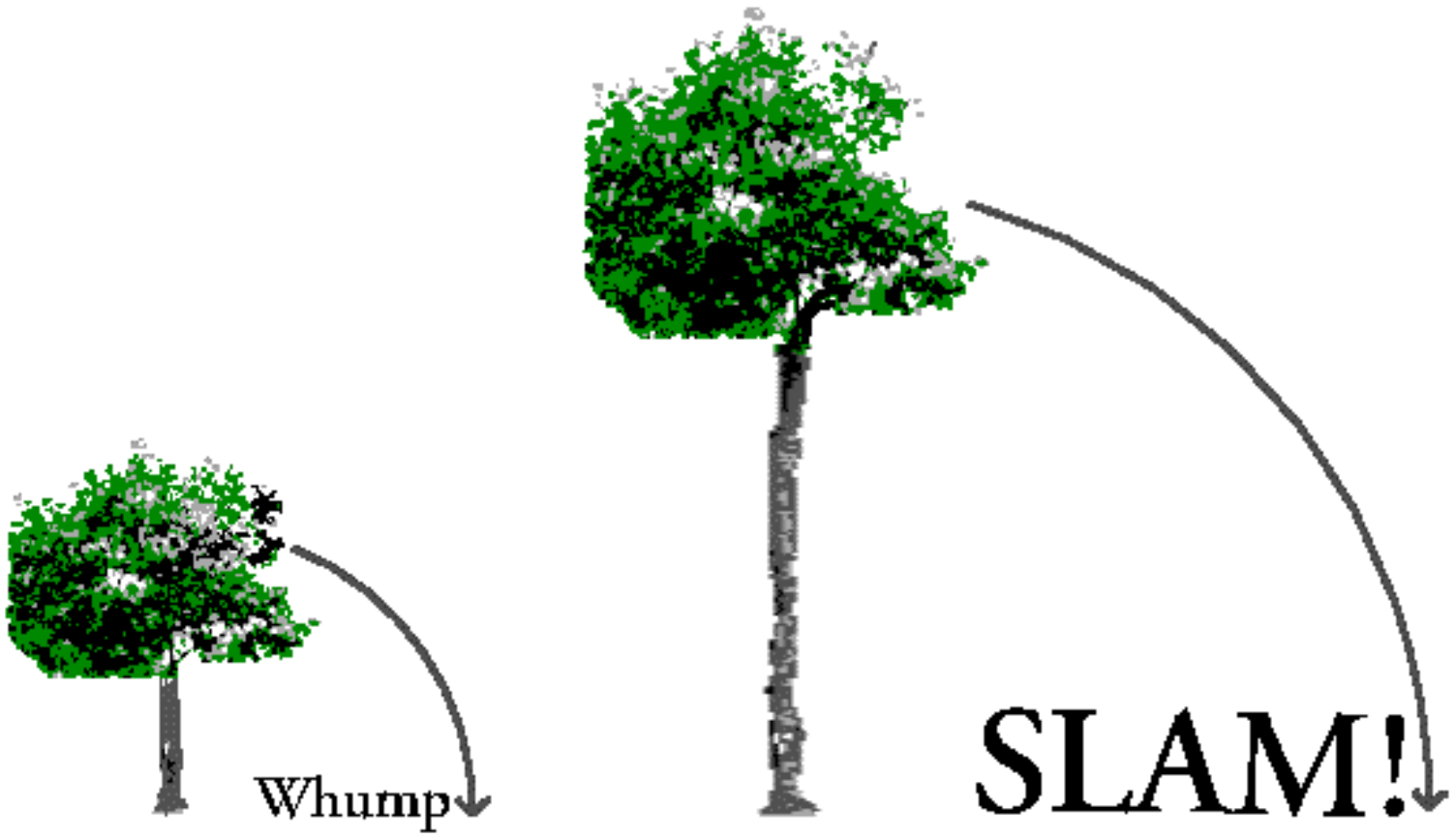
Weaning T4 decreases T4 and RT3 levels

.2 mg T_4 with increased T_4 / RT_3 preponderance



.05 mg T_4 with decreased T_4 / RT_3 preponderance





When T4 is needed it is preferable to stay on the smallest adequate dose.