

T4 Conversion to T3

Under-conversion of T4 to T3:

- caused by inflammation and elevated cortisol
- TSH and T4 will be normal. But T3 will be low.

Thyroid: Fun Facts

80% of thyroid hormone produced is T4...
20% T3, the more potent form

The bulk [80%] of the T3 your body needs is produced by the conversion of T4 into T3 in the cells of the body, such as liver, kidneys & muscles

“0.04% T4 and 0.4% of T3 & is free and active!”

Thyroid Hormone by Theodore C. Friedman, M.D., Ph.D. and Winnie Yu <http://www.netplaces.com/thyroid-disease/all-about-your-thyroid/thyroid-hormone.htm>

Thyroid: Fun Factoids

LabCorp
1447 York Court, Burlington, NC 27215-3361
Phone: 800-762-4344

SPECIMEN 349-176-6514-0	TYPE S	PRIMARY LAB BN	REPORT STATUS COMPLETE	Page #: 1
----------------------------	-----------	-------------------	---------------------------	-----------

ADDITIONAL INFORMATION

NG N
#863 DOB: 11/27/1951

PATIENT NAME
SIMARD, CATHERINE

SEX
F

AGE (YR./MOS)
66 /

PHYSICIAN ID.
FLECIAS J

NPI
1548333730

PATIENT ID.
357159

ACCOUNT: Fitch Family Practice
Jorge D Fitch
80 Doctors Drive Ste 3
Hendersonville, NC 28792-0900

ACCOUNT NUMBER: 32093213

TEST	RESULT	LIMITS	LAB
T4+TSH+T3+T4P+T3Free+ThyAbs...			
Thyroid			01
TSH	3.090 uIU/mL	0.450 - 4.500	01
Thyroxine (T4)	9.1 ug/dL	4.5 - 12.0	01
Triiodothyronine (T3)	119 ng/dL	71 - 180	01
Triiodothyronine, Free, Serum	3.0 pg/mL	2.0 - 4.4	01
T4, Free (Direct)	1.17 ng/dL	0.82 - 1.77	01

eg. 60yowf:

Thyroid					
TSH	3.090	uIU/mL	0.450 - 4.500	01	01
Thyroxine (T4)	9.1	ug/dL	4.5 - 12.0	01	01
Triiodothyronine (T3)	119	ng/dL	71 - 180	01	01
Triiodothyronine, Free, Serum	3.0	pg/mL	2.0 - 4.4	01	01
T4, Free (Direct)	1.17	ng/dL	0.82 - 1.77	01	01

	<u>mcg/dL</u>	<u>ng/dL</u>	<u>pg/ml</u>	<u>ref range</u>	<u>%</u>	<u>% active</u>
T4	9.1	9100		4.5 - 12	98.7%	
T3		119	1190	71 - 180	1.3%	
Free T4		1.17	11.7	0.82 - 1.77	80%	0.01%
Free T3			3.0	2.0 - 4.4	20%	0.25%

“0.04% T4 and 0.4% of T3 & is free and active!”

Looking at Free T4 & Free T3, can we determine anything about adequacy of T4 to T3 conversion?

LabCorp Laboratory Corporation of America		LabCorp Burlington 1447 York Court, Burlington, NC 27215-3361		Phone: 800-762-4344	
Triiodothyronine, Free, Serum	3.0	pg/mL	2.0 - 4.4	01	
T4, Free (Direct)	1.17	ng/dL	0.82 - 1.77	01	

[eg. 60yowf:

		ref range	mid rr	off mid rr
Free T4	1.17mcg/dL	0.82 – 1.77	1.30	- 0.4
Free T3	3.0 pg/mL	2.0 – 4.4	3.2	- 0.2

Thyroid: Fun Factoids

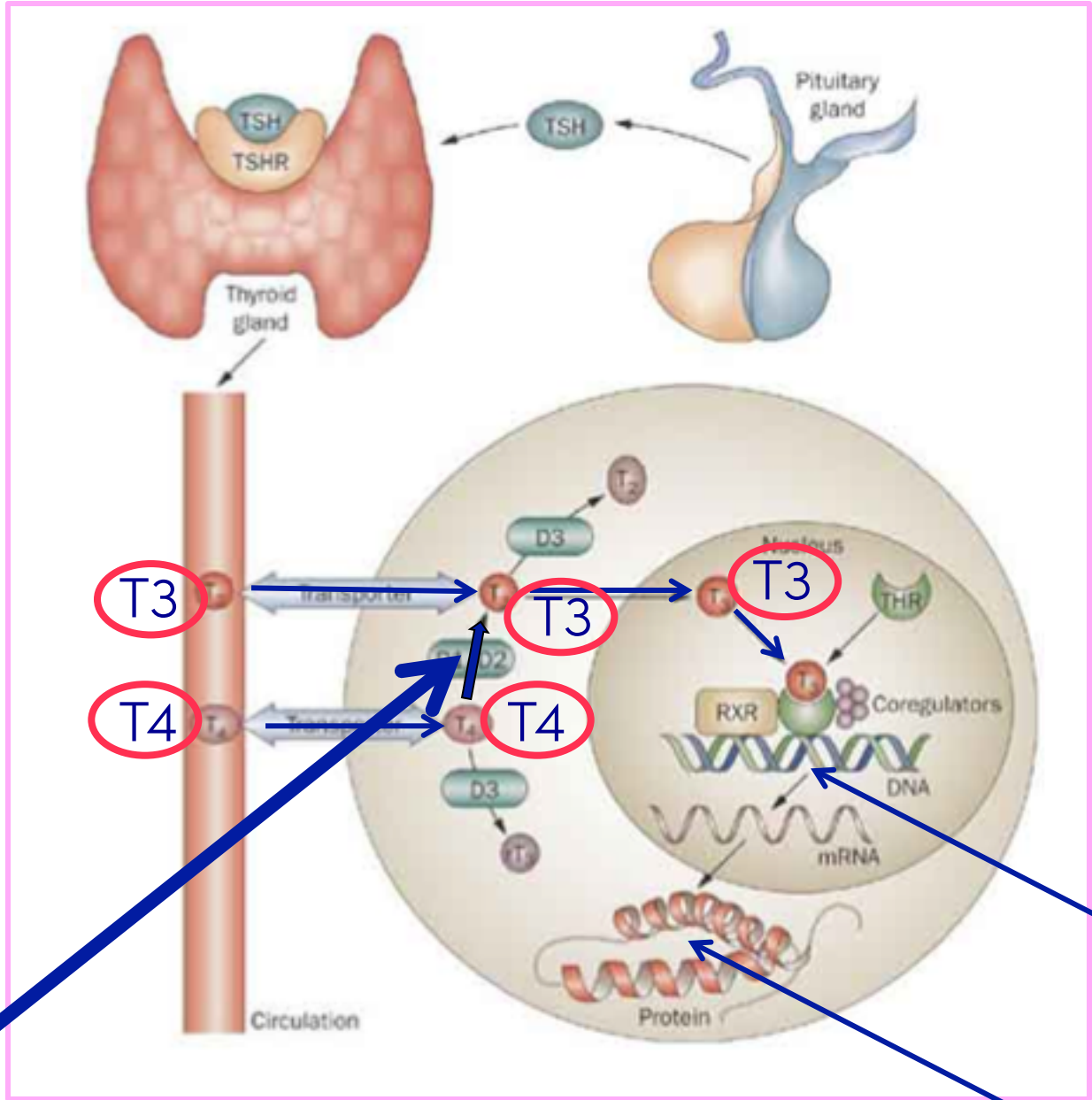
T3 has a shorter half-life than T4... T4 remains in the body a lot longer than T3.

Compounding pharmacists prepare an extended release, a "long acting T3:" LAT3

Pigs have a higher amount of T3 than humans.

To be considered when using dessicated thyroid preps

Thyroid Hormone by Theodore C. Friedman, M.D., Ph.D. and Winnie Yu <http://www.netplaces.com/thyroid-disease/all-about-your-thyroid/thyroid-hormone.htm>



Thyroid Basics

Thyroid hormones are lipid-soluble and pass through cell membranes easily

T3 binds to specific nuclear receptor proteins with an affinity that is tenfold greater than the affinity for T4.

The information alters DNA transcription into mRNA, and the information is eventually translated into many effector proteins.

New Human Physiology | Paulev-Zubieta 2nd Edition
Chapter 28: Thyroid Hormones and Disorders [http://
www.zuniv.net/physiology/book/chapter28.html](http://www.zuniv.net/physiology/book/chapter28.html)