OPTIMIZE U

A Hormone Approach to Optimizing Care

Introduction

Optimal Health

Optimal health is a dynamic balance of physical, emotional, social, spiritual, and intellectual health

Topics

Hormone optimization

Lab Work Analysis

Recovery Modalities

Objectives

1. Leave with a better understanding of what Hormone optimization is

2. Understand patients in your circle of influence who might benefit

3. Understand that some patients will need a multidisciplinary approach in their treatment plan

4. Grasp the concept that building a referral base for your practice will only grow your practice

Hormone Optimization

The **goal** of **hormone optimization** is to assess whether hormone levels in the body are **below their optimal threshold** and, if so, to treat this by developing a plan to improve hormone function"

NORMAL is not Optimal

Hormones

Hormones regulate > growth and development>metabolism>electrolyte balances >reproduction.

Hypothalamus >produces >releasing and inhibiting hormones that act on the pituitary gland **WHICH** stimulates the release of pituitary hormones.

pituitary hormones > act on other glands within the body

Hormone-producing glands >include the adrenal glands, ovaries and testes; the thyroid, the parathyroid, and the pancreas,

Symptoms

>Fatigue

>Brain fog

>Poor Sleep

>Low motivation

>Poor recovery

>Joint pain

>Agitation

>Moodiness

>Weight gain

>Loss of Lean Mass

>Low Libido

>Erectile Dysfunction

>Frequent Muscle injuries

Effects of Aging

Menopause>The starting point for women. Very Accepted DX.

Ages 45>.....

MAN-opause >Goes undetected, poor assessment of labs, poor understanding of literature, guidelines based on Grade D studies. Happens early in a mans life.

DECLINE of approx. 1% /yearly around the age of 27-28

NO ONE CAN ESCAPE it BUT we can feel better in these stages

Who's at risk for sub optimal Hormones?

- Males >30 : Dx, Occupations

- Women >30 : Dx, Meds, Occupations

"Manopause"

Peri menopause –how to dx

Post menopause-how to dx

Normal is Not Optimal

A normal result >>only means that you are within the>>> **range of the average population,** which includes people

>who are sick with chronic disease

➢ eat poorly

➢ are overweight

➢ those who are sedentary

➢ Those are you "in shape"

Normal

- MEN> total T 264-916 ng/dl
  - Free T 7.2-24 pg/ml

- Women>total T 4-50 ng/dl
  - Free 0-4.2 pg/ml

Rethinking low normal

The first AUA study conducted to assess population based testosterone was in 2022.

- ■ RESULTS:

>that men (20-44) had average test levels of 466ng/dl

>further showed traditional dx of testosterone deficiencies were performed in an age indiscriminate manner

>what we saw was young men having the same concentrations as older

Cont. Take aways

- Consider Testosterone to be a therapy offered to patients experiencing symptoms regardless of normal values.

- Lab values should not be used to definitively determine qualification of testosterone tx. ASSESS.

Hormones

➢ Total Testosterone

➢ Free Testosterone

➢ DHEA

➢ Estradiol

➢ Progesterone

Story Time

61 year old male

Patient CO of fatigue, low energy, joint pain, low libido (effecting marriage), depression

TX plan per provider: Adderall, Viagra for libido, Cymbalta for depression

Follow up: pt co of anxiousness, insomnia, continued joint pain, Headaches, dry mouth

POC "let's look at your testosterone

total PSA is between 4.0 and 10.0 ng/mL.

| Testosterone, Serum | 414 | ng/dL | 264-916 | 02 |

Adult male reference interval is based on a population of
healthy nonobese males (BMI <30) between 19 and 39 years old.
Travison, et.al. JCEM 2017,102;1161-1173. PMID: 28324103.

"well it's not your testosterone level so lets make dose adjustments on the Adderall, Viagra, and Cymbalta and follow up in 6 months"

Evaluating the full hormone panel

				17 - 19 years	40 - 491
				>19 years	31 - 701
Free Testosterone (Direct)	**6.4**	**Low**	pg/mL		7.2-24.0
LH	7.6		mIU/mL		1.7-8.6
FSH	11.0		mIU/mL		1.5-12.4
Progesterone	0.2		ng/mL		0.0-0.5
Estrone, Serum	57		pg/mL		15-65
Estradiol	21.6		pg/mL		7.6-42.6

Testosterone =Vitality

- A study in 2020 assessed data from a twin study of Aging men.

- Looked at the relationship between circulating test levels and vitality

- Vitality was assessed with a 36 item vitality subscale

- RESULTS:

➢ Found a significant interaction

➢ **Men with low testosterone had significantly lower vitality**

35 year old male

Testosterone, Serum

Test	Current Result and Flag	
▼ **Testosterone, Serum** [02]	**247**	**Low**

Range for men 264-916

▼ Free Testosterone(Direct) [01]	2.4	Low	6.9	10/14/2019	pg/mL	8.7-25.1
LH [02]	6.9		3.5	03/04/2020	mIU/mL	1.7-8.6
FSH [02]	2.8		2.9	03/04/2020	mIU/mL	1.5-12.4
Progesterone [02]	<0.1				ng/mL	0.0-0.5
▲ Estrone, Serum [01]	67	High			pg/mL	15-65
▼ Estradiol [02]	<5.0	Low	48.7	02/08/2021	pg/mL	7.6-42.6

"You look like a Post Menopausal female", but your normal"

Hormone therapy and Osteoporosis

- 2023' Endocrinal Diabetes Metabolism Case Report evaluated the reversibility of Osteoporosis with testosterone therapy. Evaluating Testosterone levels and aromatase dysfunction by PCR analysis of the CYP19A1 gene.

- The case outlined a 44 year old athletic man who presented with low back pain

>duel ex ray showed severe osteoporosis while labs showed serum total testosterone of 189 ng/dl

>E2 was also signaling aromatase deficiency.

!!!! Treatment included testosterone therapy for 8 years

Cont.

RESULTS>

>Bone Mass Density improved by 29% in LS and 15% in femoral hip

Take Away:

- we should consider TRT in relation to understanding aromatase factors that lead to and risk of osteoporosis as they can influence the dx of.

-findings suggest the importance of testosterone therapy but as well the aromatase of E2

-suggested a serum E2 threshold should be considered in men with a hx of Osteoporosis for tx of trt. (E2 <20pg/ml, E2 <2ng/dl)

Testosterone LAB TRAIN

Name				
Standard Range	5/28/20	11/6/20	5/3/22	6/28/22
Testosterone, Free *7.2 - 24.0 pg/mL*	8.3	8.2	5.9 L	6.0 L
Testosterone, Total *264 - 916 ng/dL*	432	434	432	495

Female case

"you have the hormones of a man", but nothing to do"

36 yr/f CO of hair growth on face, hair loss on scalp, acne, weight gain

Tx plan per previous provider: Ran a total testosterone level (normal)

Said you "might have PCOS"

TX: Rogaine for hair loss and pt told to lose weight, offered birth control

Free Thyroxine Index	1.8		1.2-4.9	
Testosterone, Serum	41	ng/dL	8-48	02

FSH+LH+Prog+E2+TestF+DHEA+E1
 Dehydroepiandrosterone (DHEA) [A]

	1436	**High**	ng/dL	31-701	01

Age	
1 - 5 years	0 - 67
6 - 7 years	0 - 110
8 - 10 years	0 - 185
11 - 12 years	0 - 201
13 - 14 years	0 - 318
15 - 16 years	39 - 481
17 - 19 years	40 - 491
>19 years	31 - 701

Free Testosterone(Direct)	**6.3**	**High**	pg/mL	0.0-4.2	01
LH	8.2		mIU/mL		02

Adult Female:
Follicular phase	2.4 - 12.6
Ovulation phase	14.0 - 95.6
Luteal phase	1.0 - 11.4
Postmenopausal	7.7 - 58.5

FSH	5.1		mIU/mL		02

Adult Female:
Follicular phase	3.5 - 12.5
Ovulation phase	4.7 - 21.5
Luteal phase	1.7 - 7.7
Postmenopausal	25.8 - 134.8

Progesterone	0.4		ng/mL		02

Follicular phase	0.1 - 0.9
Luteal phase	1.8 - 23.9
Ovulation phase	0.1 - 12.0

Pregnant
First trimester	11.0 - 44.3
Second trimester	25.4 - 83.3
Third trimester	58.7 - 214.0
Postmenopausal	0.0 - 0.1

Estrone, Serum	102		pg/mL		01

PCOS

- Higher than normal Testosterone levels (cyclic)

- Acne

- Hair growth/Loss

- Painful menstrual periods

- Weight gain/difficulty losing weight

- Difficulty getting pregnant

- Multiple Miscarriages

Hx of multiple fractures, joint pain, osteoporosis

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                                      Luteal phase          54   -    179
                                    Pregnancy:
                                      1st trimester        247   -   2774
                                      2nd trimester        569   -   5781
                                    Postmenopausal:
                                      with ERT              51   -    488
                                      without ERT           31   -    100
Estradiol                    <5.0               pg/mL                         02
                                    Adult Female:
                                      Follicular phase    12.5   -    166.0
                                      Ovulation phase     85.8   -    498.0
                                      Luteal phase        43.8   -    211.0
                                      Postmenopausal      <6.0   -     54.7
                                    Pregnancy
                                      1st trimester      215.0   -  >4300.0
        Roche ECLIA methodology
```

Menopause

		17 - 19 years	40 - 491
		>19 years	31 - 701
Free Testosterone(Direct)	2.2	pg/mL	0.0-4.2
LH	23.4	mIU/mL	
		Adult Female:	
		Follicular phase	2.4 - 12.6
		Ovulation phase	14.0 - 95.6
		Luteal phase	1.0 - 11.4
		Postmenopausal	7.7 - 58.5
FSH	48.1	mIU/mL	
		Adult Female:	
		Follicular phase	3.5 - 12.5
		Ovulation phase	4.7 - 21.5
		Luteal phase	1.7 - 7.7
		Postmenopausal	25.8 - 134.8
Progesterone	0.4	ng/mL	
		Follicular phase	0.1 - 0.9
		Luteal phase	1.8 - 23.9
		Ovulation phase	0.1 - 12.0
		Pregnant	
		First trimester	11.0 - 44.3
		Second trimester	25.4 - 83.3
		Third trimester	58.7 - 214.0
		Postmenopausal	0.0 - 0.1

"you're <u>Low Normal</u>, but still <u>Normal</u>"

Patient 45 yr/M CO of sleep, fatigue, low motivation, and low libido:

Tx was Ambien and Viagra and told to decrease stress

Pt: but isn't poor sleep a symptom of low testosterone?

<u>Provider: it is but your levels are normal so it can't be that</u>

<u>POC: follow up in 6 months</u>

You're Normal-"clean up your diet"

Testosterone, Serum 360 ng/dL 264-916 02
Adult male reference interval is based on a population of
healthy nonobese males (BMI <30) between 19 and 39 years old.
Travison, et.al. JCEM 2017,102;1161-1173. PMID: 28324103.

Cont.

TESTS	RESULT	FLAG	UNITS	REFERENCE INTERVAL	LAB
FSH+LH+Prog+E2+TestF+DHEA+E1					
Dehydroepiandrosterone (DHEA) [A]	377		ng/dL	31-701	01
			Age		
			1 - 5 years	0 - 67	
			6 - 7 years	0 - 110	
			8 - 10 years	0 - 185	
			11 - 12 years	0 - 201	
			13 - 14 years	0 - 318	
			15 - 16 years	39 - 481	
			17 - 19 years	40 - 491	
			>19 years	31 - 701	
Free Testosterone(Direct)	9.0		pg/mL	7.2-24.0	01
LH	6.6		mIU/mL	1.7-8.6	02
FSH	5.7		mIU/mL	1.5-12.4	02
Progesterone	0.3		ng/mL	0.0-0.5	02
Estrone, Serum	54		pg/mL	15-65	01
Estradiol	14.3		pg/mL	7.6-42.6	02
Roche ECLIA methodology					

Why is HRT scary

ARGUEMNT was

"NO Randomized clinical trials have been conducted in men to assess cardiovascular endpoints"

(JAMA) Transverse Trial 2023'

Cardiovascular Safety in TRT

>This trial was done to resolve the controversy with TRT and Cardiovascular disease that began in 2015 when the FDA made the decision to place a black box warning of (strokes, Heart Attacks, and blood clots).

> This was based on poor quality studies, invalid observational insurance claims research performed method of a retrospective chart review from hospital data bases (Grade D literature) Vigen (2013) and Finkle (2013)

What the Transverse Trial showed

>Grade A study

>Double blinded RCT

>ALL participants had a hx of CVD or were at risk and had low testosterone

Testosterone Therapy failed to increase cardiovascular events above the placebo group

Cont

Guidelines were developed on skewed data and research. Ironically pharmaceutical companies funded the research.

WHI trial

(Women's Health Initiative study)

Where to go

Understanding healthcare and insurance approved labs

Recovery Optimization

- ■ Cold therapy

- ■ Heat Therapy

- ■ Compression

Peptide Optimization

- Sarcotropin
- Sermorelin
- Semaglutide
- Tirzepatide

Who Needs to be Optimized

Patients are talking
Are we Listening

- When to refer

- What are patients saying that should lead to a referral

- What are common statements that should lead you to offer a referral

- Things to ask to ensure it was a proper referral

Building Your Practice

Referrals to another provider do not LEAD to losing a patient. It leads to MORE LEADS