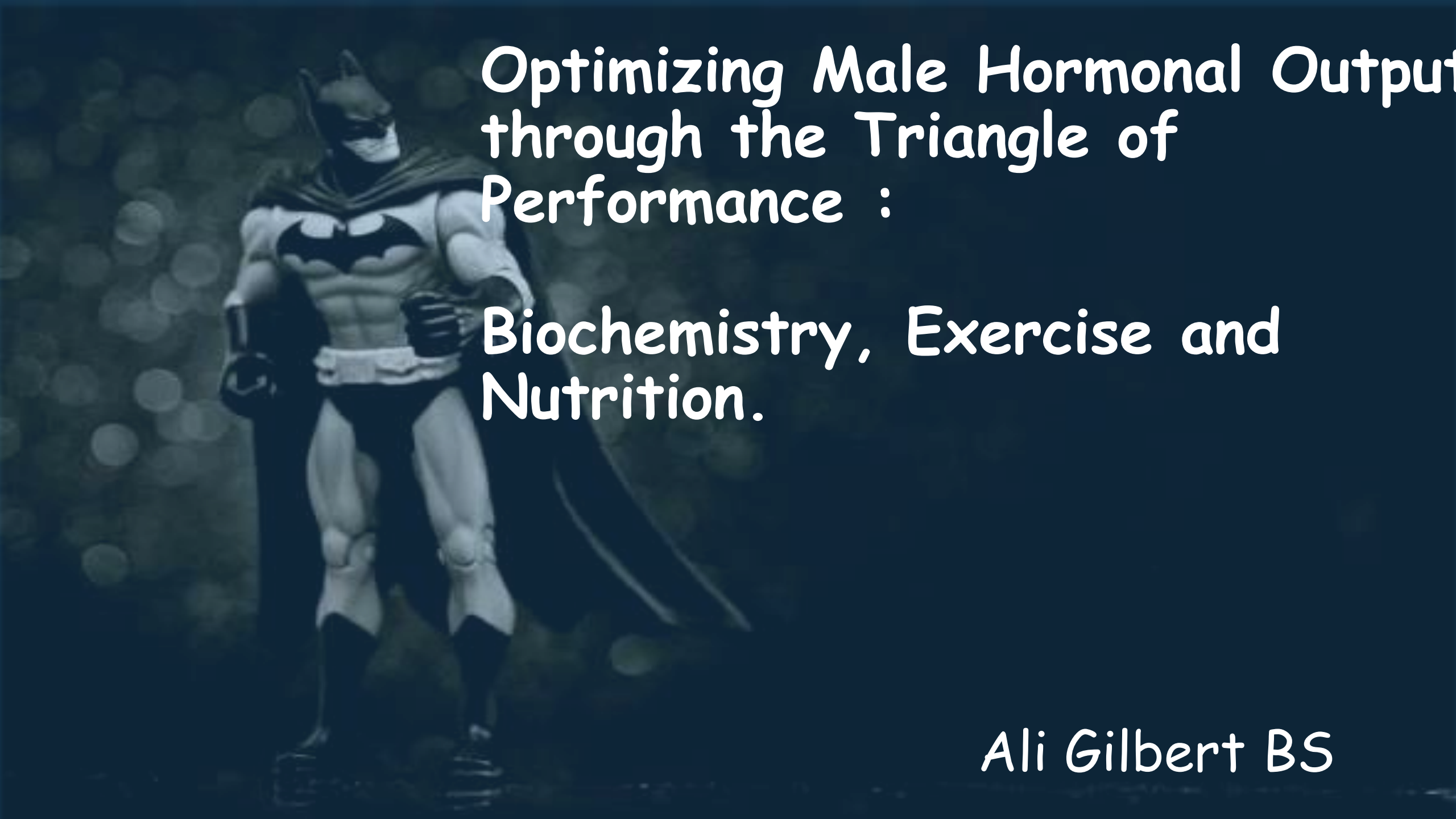


Optimizing Male Hormonal Output through the Triangle of Performance :

Biochemistry, Exercise and Nutrition.

Ali Gilbert BS

HOW DO YOU

MOVE?

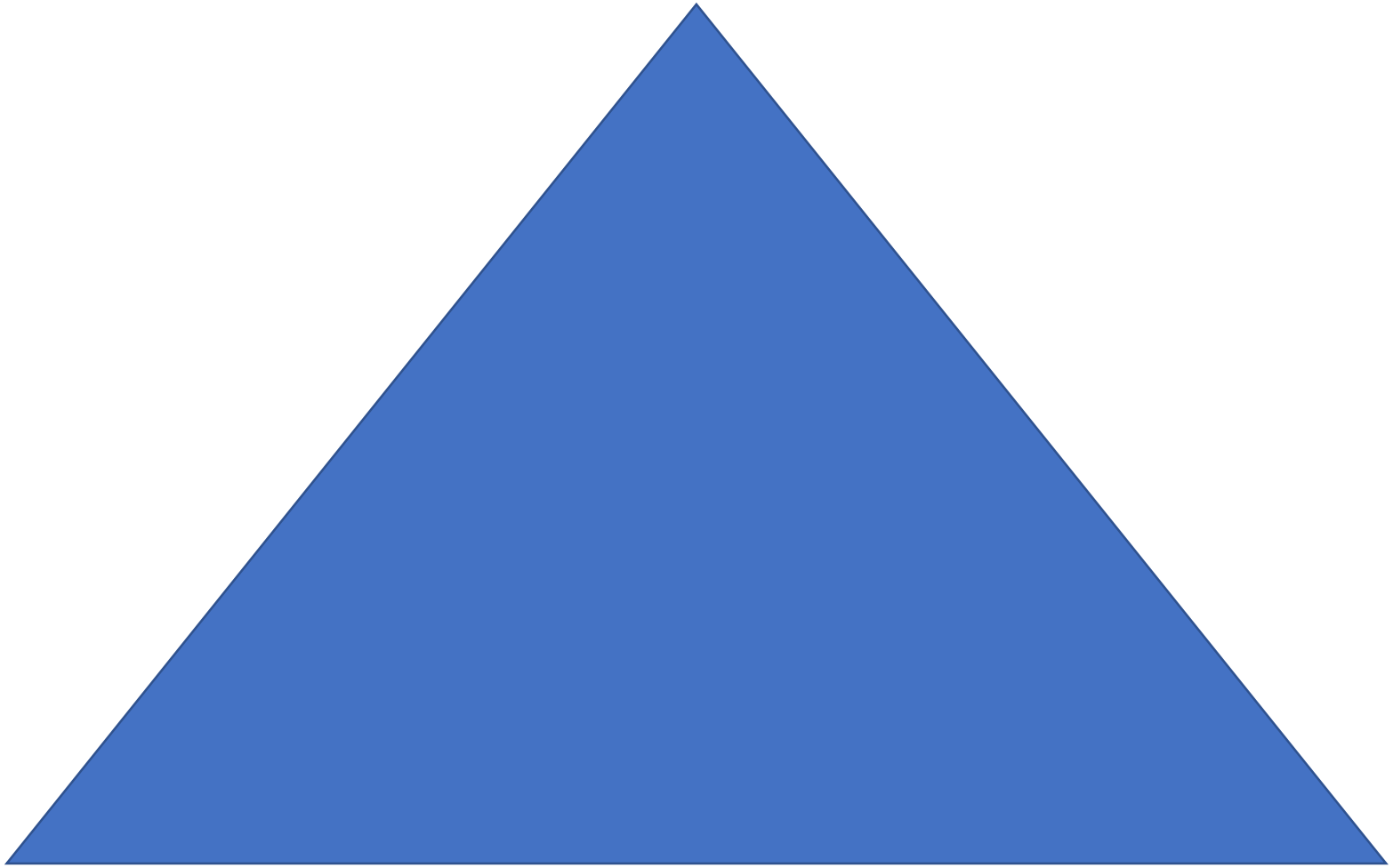








BIOCHEMISTRY



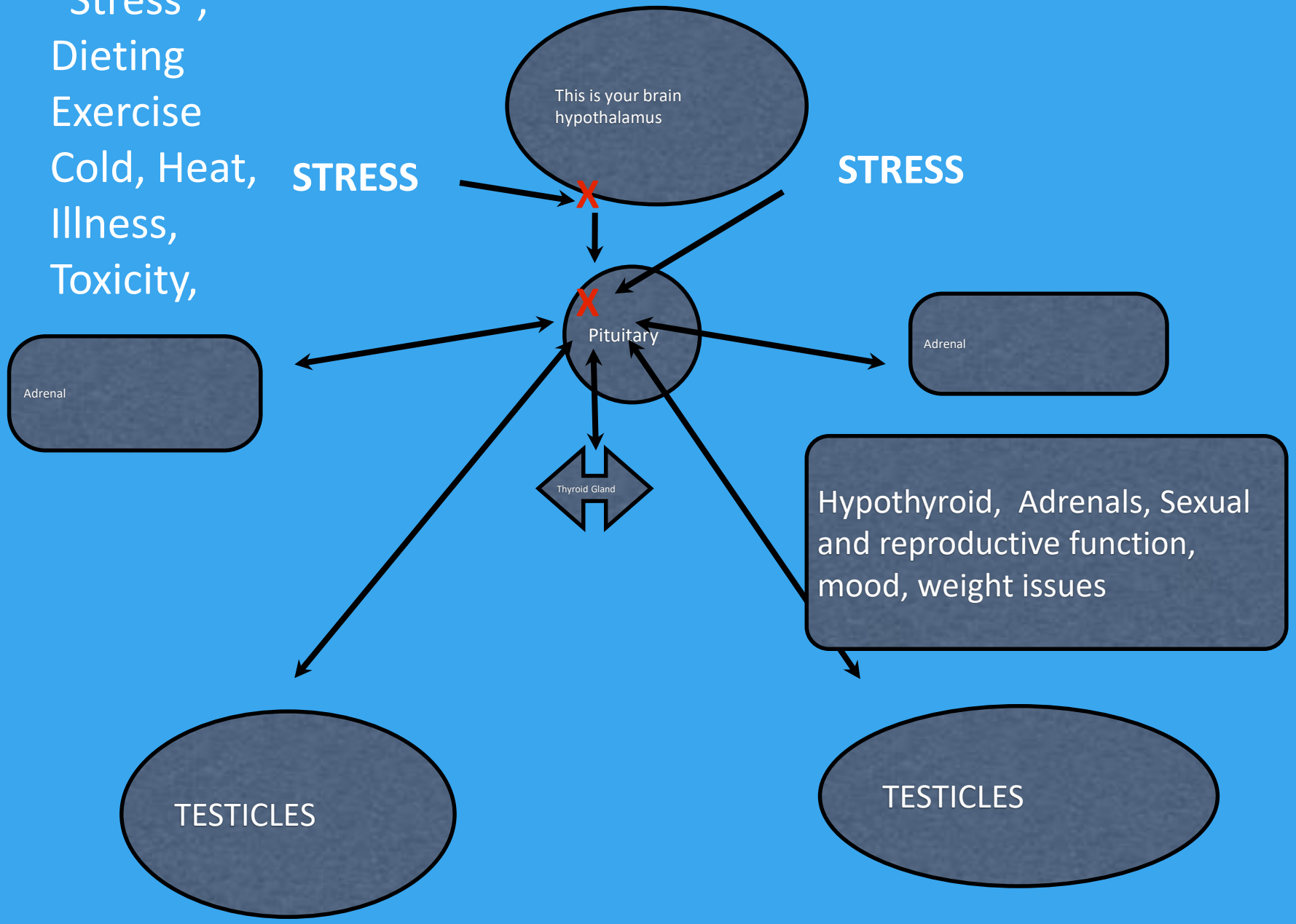
EXERCISE

NUTRITION

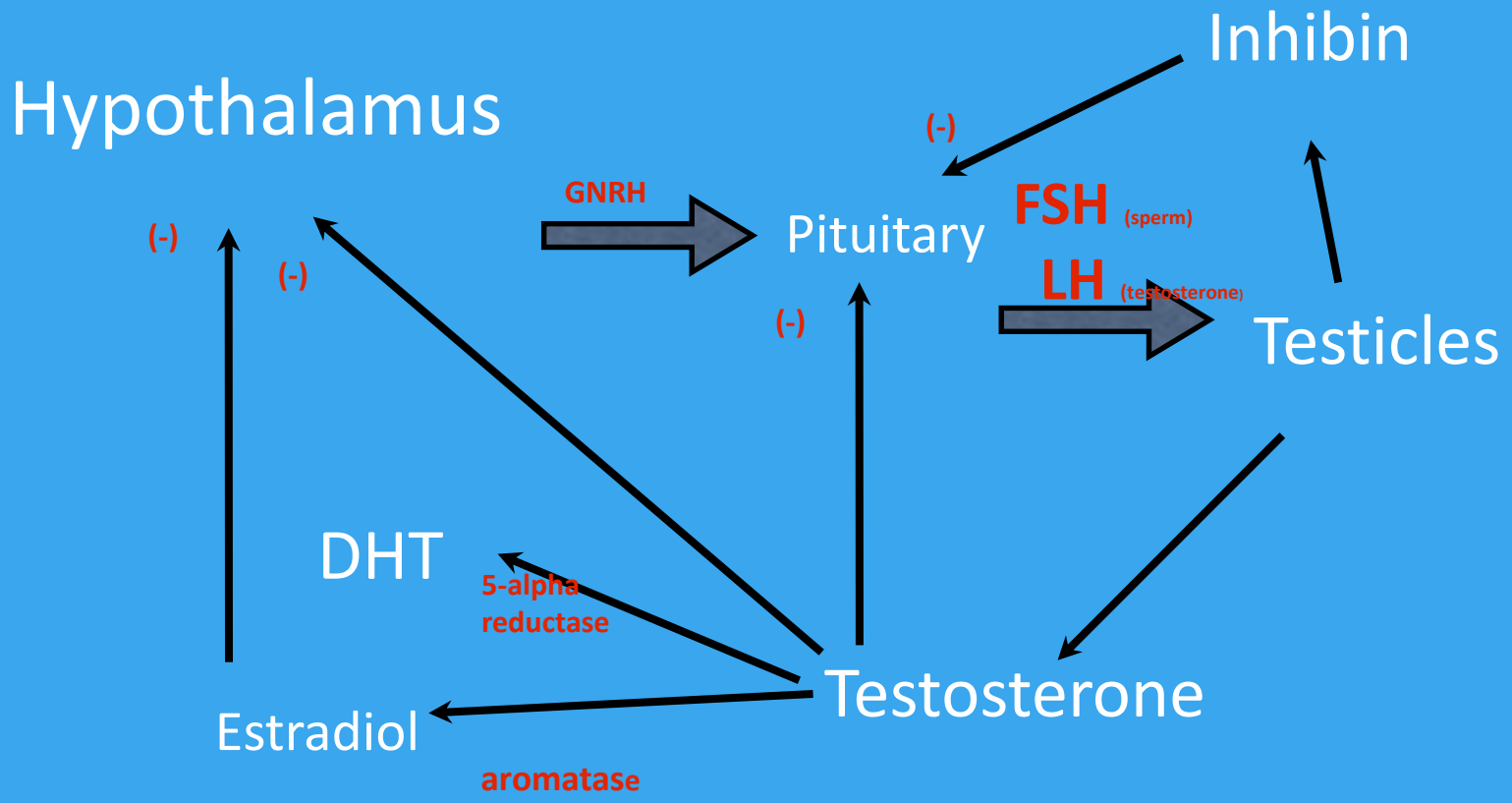

School
Career
Family
Marriage
Baggage
Unemployment
Deadlines
Balance
Struggle
STRESS
Complications
Bills
Work
Failure
Life
Trouble
Anxienty
Headache
Doubt
Deadlines
Debt
23 hours



“Stress”,
Dieting
Exercise
Cold, Heat,
Illness,
Toxicity,

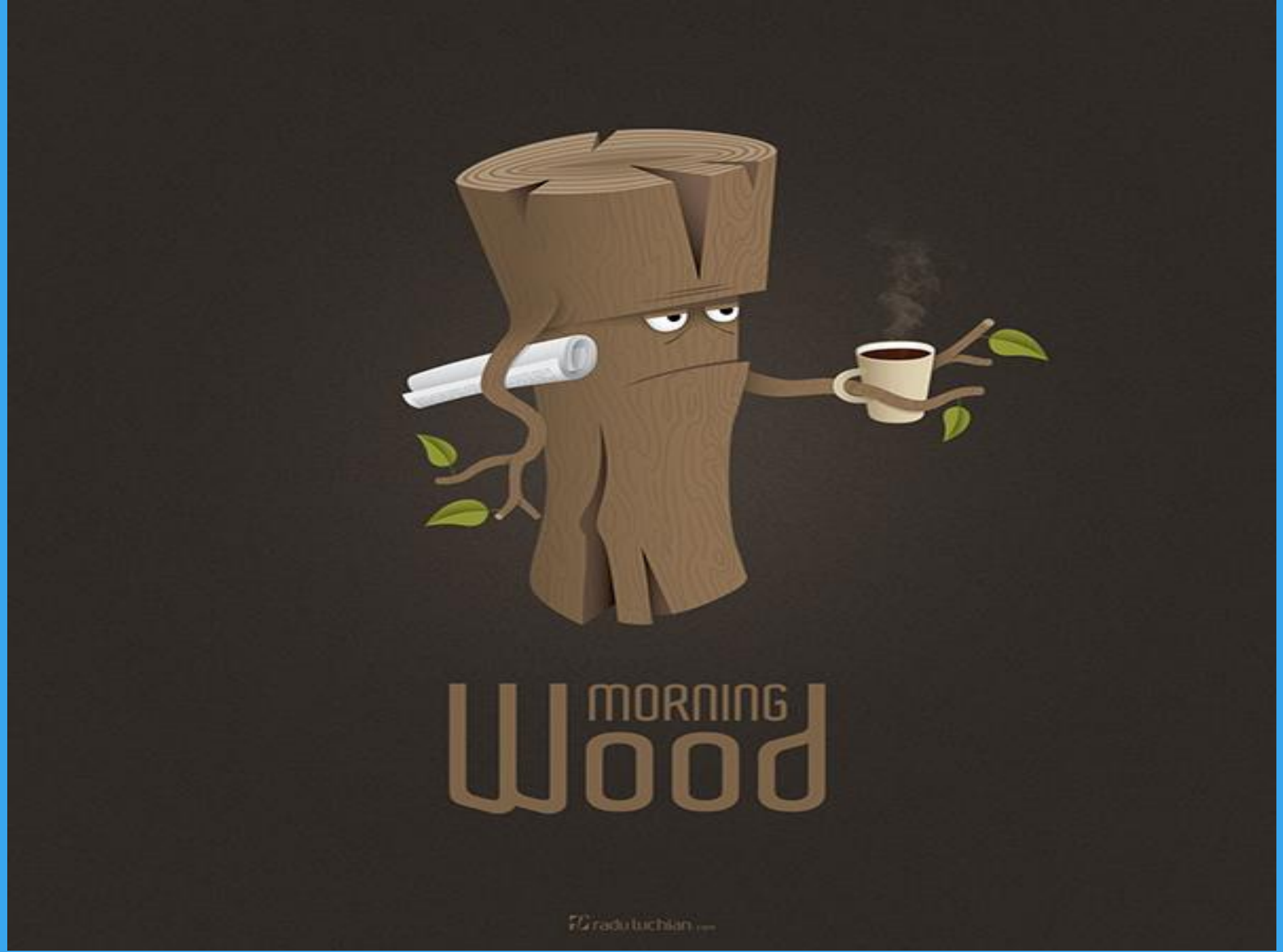


HPT- Axis


Inhibin
Hypothalamus
(-)
GNRH
(-)
(-)
Pituitary
FSH (sperm)
LH (testosterone)
(-)
Testicles
DHT
5-alpha reductase
Testosterone
Estradiol
aromatase




LOW TESTOSTERONE
HIGH TOXIC LOAD
INSULIN RESISTANT
INFLAMED
CONGESTED LIVER


MORNING
Wood


Phthalates
BPA
POPs
Estrogen
Organic foods

Reference Interval	Interval (effective July 17, 2017)
Adult Male >18 years: 348 – 1197 ng/dL	Adult Male >18 years: 264 – 916 ng/dL
Comment: Adult male reference interval is based on a population of lean males up to 40 years old.	Comment: Adult male reference interval is based on a population of healthy nonobese males (BMI <30) between 19 and 39 years old.



80'S TV SET

Only 90's kids remember this



STALKING



CREEPY

SOCIALLY ACCEPTABLE



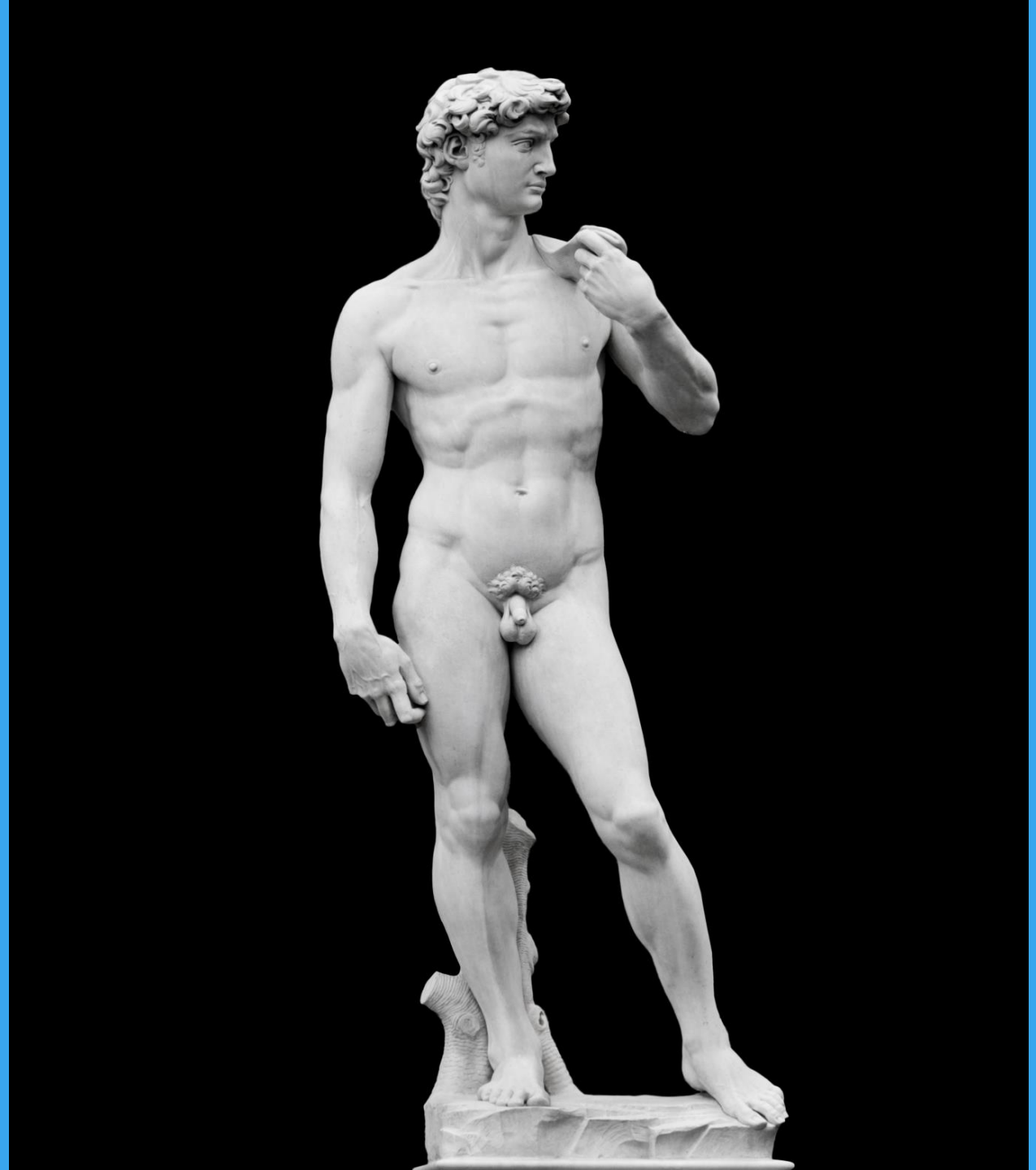

Even better than the real thing




10:10 AM
Wed, July 20
99°F
Dallas
Clear
Allison Ruth Kirk
Happy Birthday!
AP
Travel Company
NOKIA
Nokia Music
Nokia City Lens
Redmond, WA
SAMSUNG
10:37 PM
Sun, 01/15
Google
BlackBerry
BlackBerry World
Browser
ThinkPad
Justin





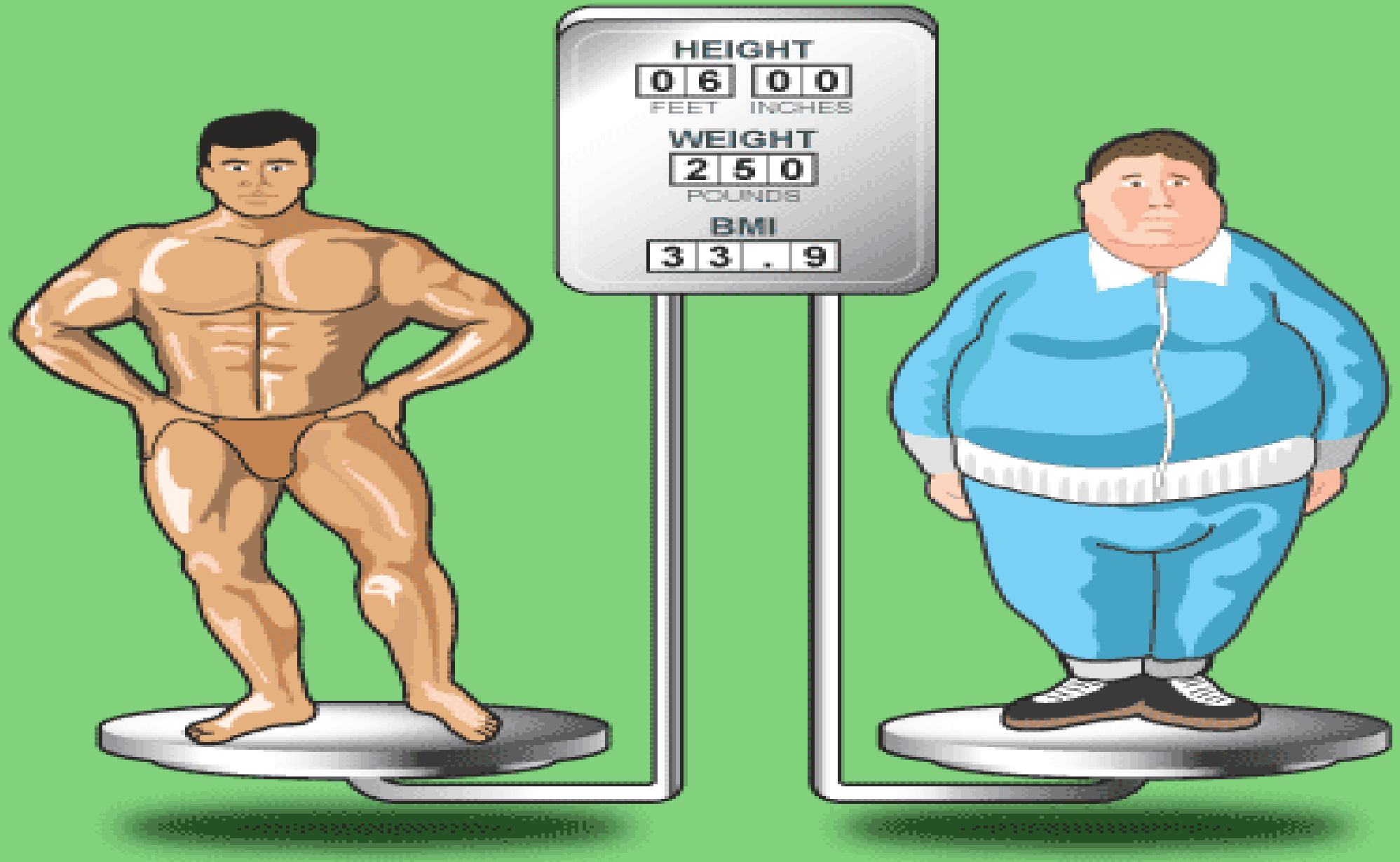


AFTER A TWO YEAR LOAN TO THE UNITED STATES, MICHELANGELO'S DAVID IS BEING RETURNED TO ITALY.

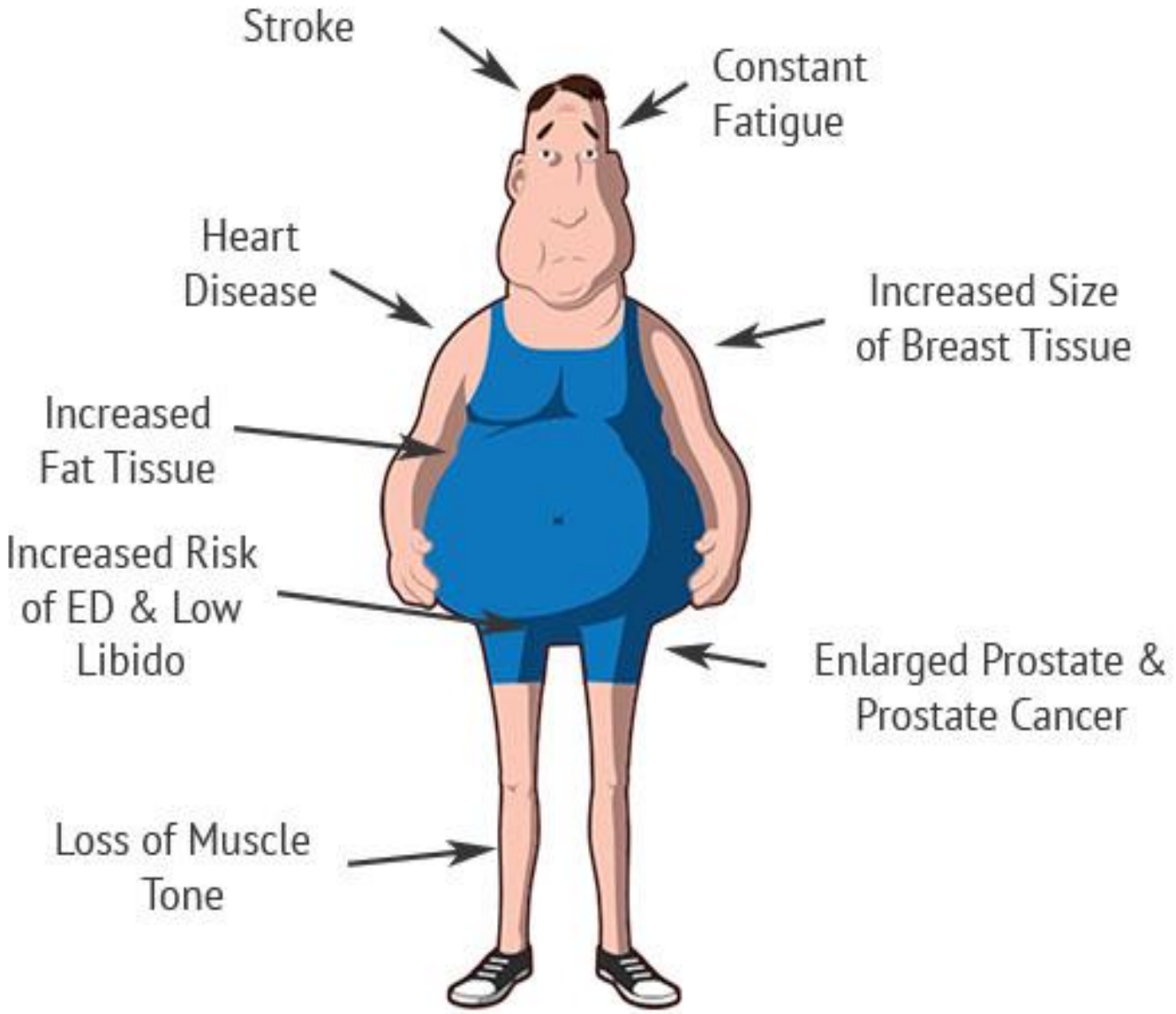


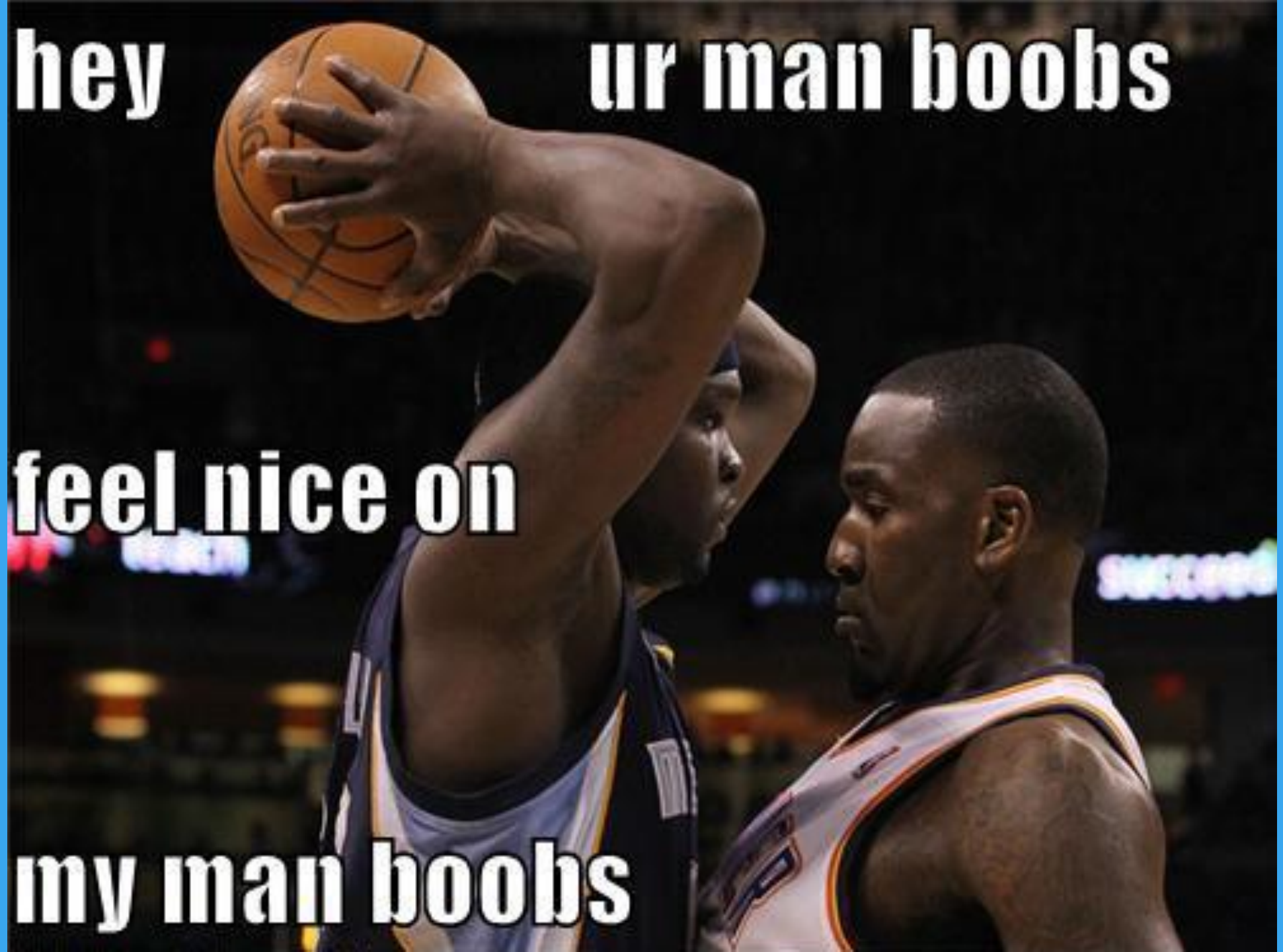
BMI Body Comparison

©2005 HowStuffWorks



High Estrogen in Men




hey
ur man boobs
feel nice on
my man boobs


SOLVE
Glass
CLOROX
Soft Scrub
Causes


30
Zn
Zinc
65.39


NewsTarget.com
NaturalNews.com


Mg


400mg of Caffeine
5-hour ENERGY
5-hour ENERGY
Red Bull
MONSTER ENERGY
MONSTER ENERGY
MONSTER ENERGY
caffeineinformer.com


MESON
JIM BEAM
BOURBON
Red Label
JACK DANIEL'S
WILD TURKEY
TULLAMORE DEW


for the
stress
on a


Methandienone Tablets
10mg
100 Tablets
Methandienone Tablets
Stanozolol Tablets
10mg
100 Tablets
Stanozolol Tablets
10 ml
Test-prop 100
Testosterone Propionate Injection
100mg 1ml
10mg
10mg
50 mg
Proviron
25 mg
Proviron
Bayer


BOOST TESTOSTERONE LEVELS
Pro Testosterone Promotes
Healthy Testosterone Levels
FREE BOTTLE OFFER!
CLICK HERE


Nutrakey
ANTLER TEST
Stimulate Growth Hormone
Boost Testosterone
Rejuvenating Energy
Pharmaceutical Grade


Doctor's
Male Performance Gel
4 oz.


TEST HP
CORTISOL HEALTH & ESTROGEN CONTROL
TEST-HP
GMP
30 SERVINGS
TESTOFEN
7-METHOXYFLAVONE
RHODIOLA ROSEA

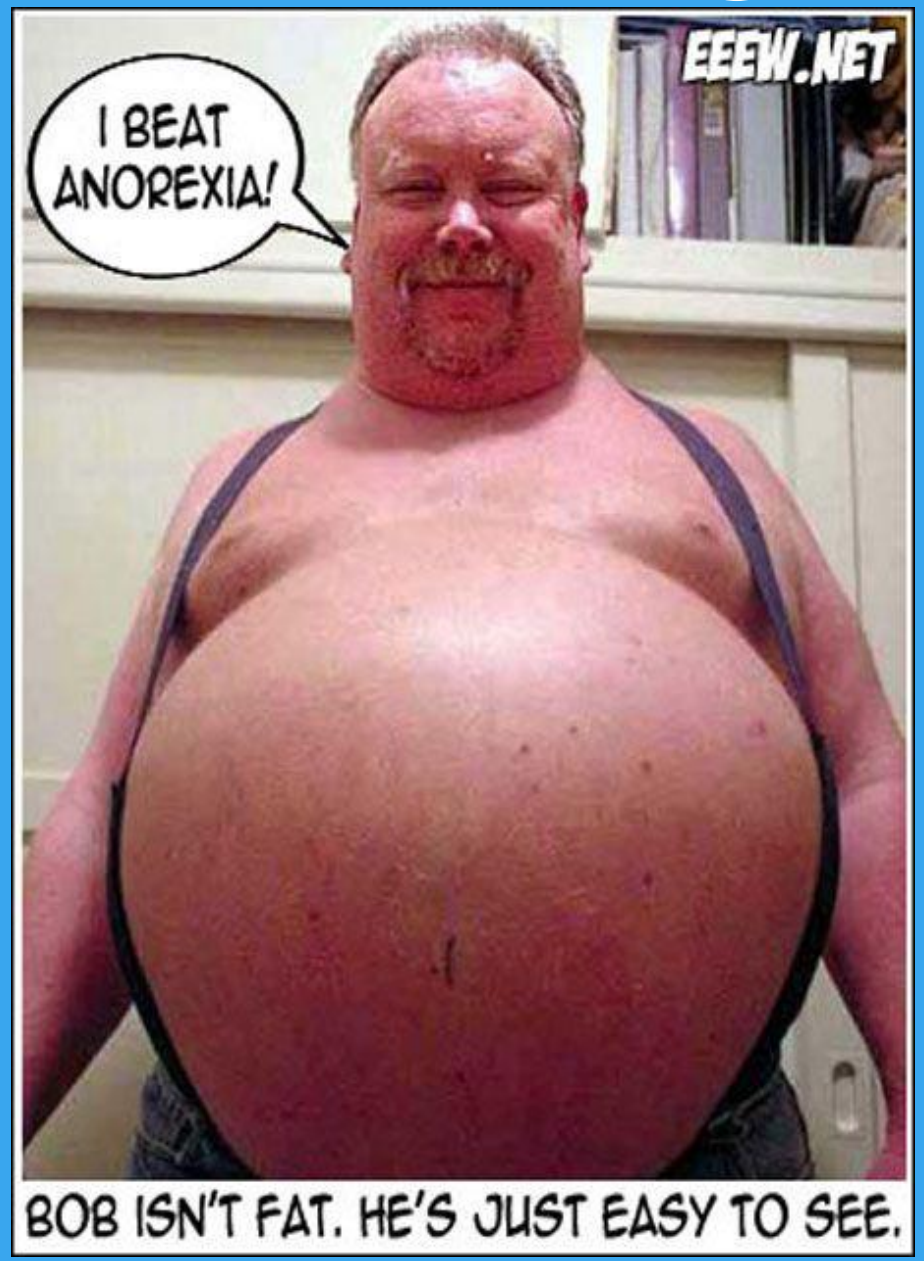

CYBERGENICS
Anti-Aging Nutritional Technologies
ONCE-DAILY MALE SUPPLEMENT
ISO-TEST
Pro-Testosterone Booster
FOR MAXIMUM
TESTOSTERONE PERFORMANCE
BOOSTS FREE TESTOSTERONE
Helps Regain Sex Drive & Interest
Promotes Positive Mood & Vitality
Increases Energy & Stamina
HELP FIGHT LOW-T
Dietary Supplement | 30 Capsules


TESTONUKE
GET RIPPED FAST
BUILD LEAN MUSCLE
REDUCE BODY FAT
SUPERCHARGE LIBIDO
GAIN STRENGTH QUICKLY
BOOST ENERGY LEVELS
30 Day MONEY BACK GUARANTEE
MADE IN THE UK
100% HIGH QUALITY
TESTONUKE
PERFORMANCE SUPPLEMENT
ADVANCED FORMULA
CREATINE ETHYL ESTER
METHOXY ISOFLAVONE
SIBERIAN GINSENG
PANAX GINSENG
& CHRYSIN
60 CAPSULES

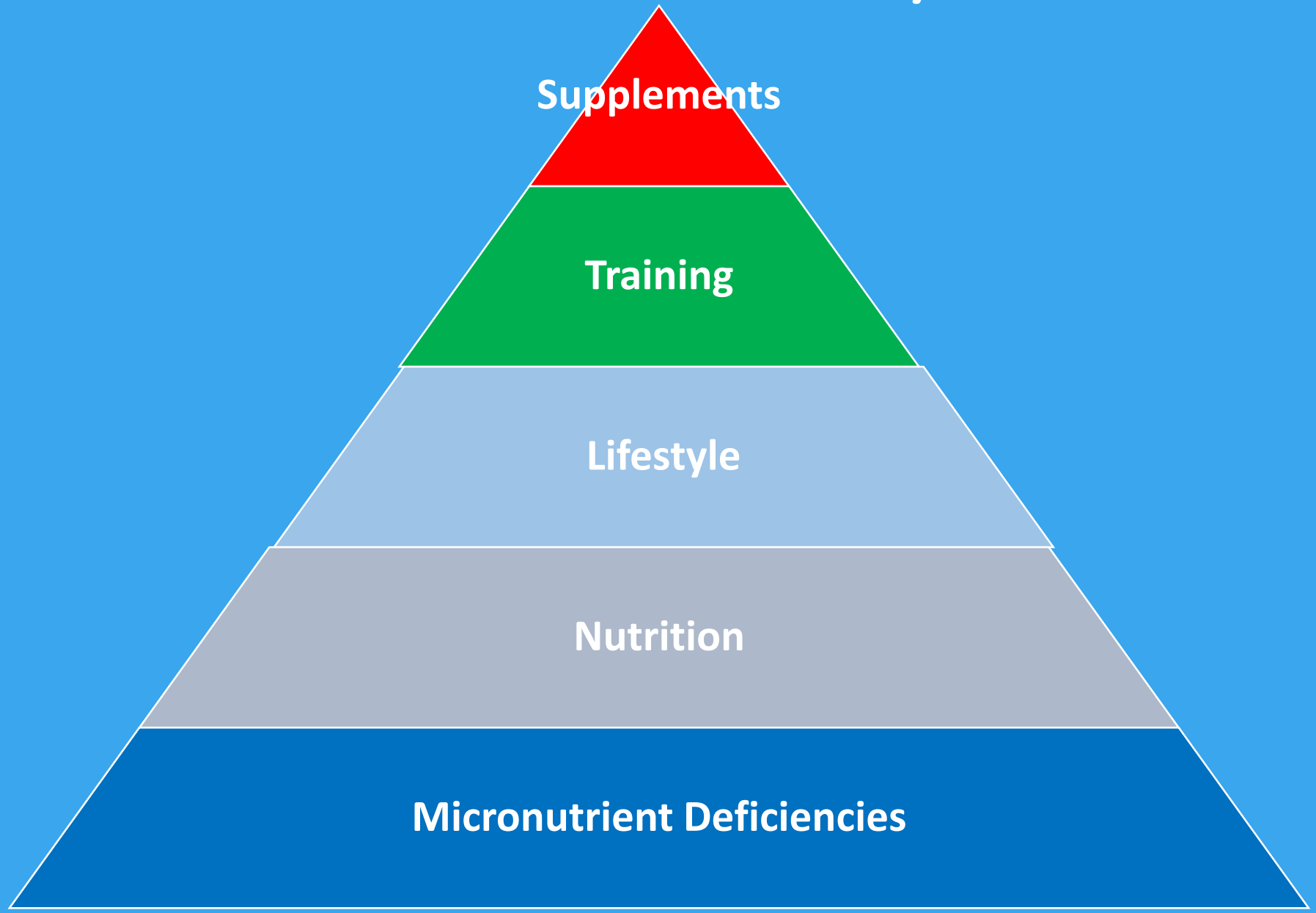

D


© Johner Images/Johner Images/Corbis

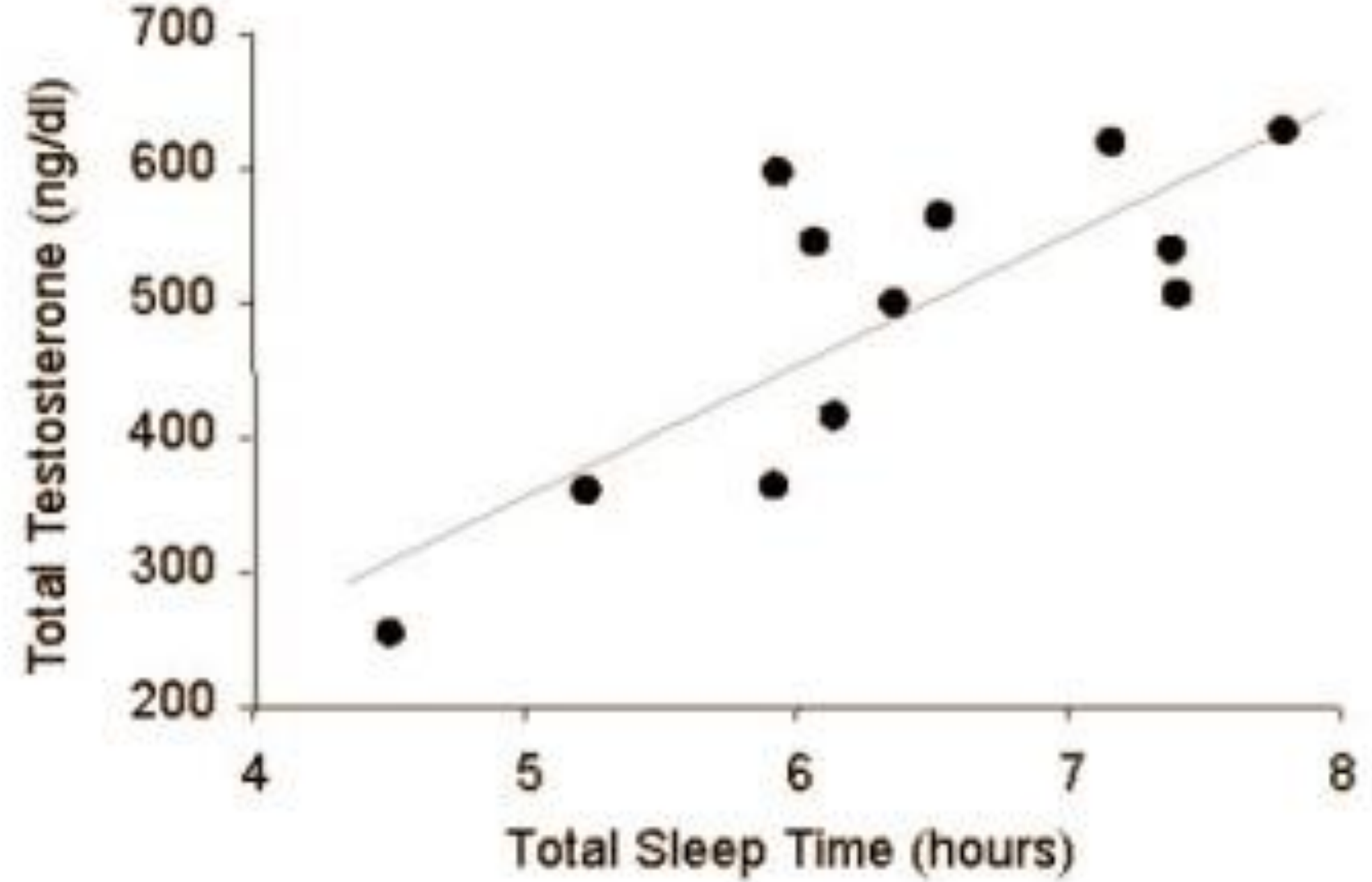
I’m “In Range”



Hi-Performance Lifestyle






700
600
500
400
300
200
Total Testosterone (ng/dl)
4
5
6
7
8
Total Sleep Time (hours)

June 1, 2011

Effect of 1 Week of Sleep Restriction on Testosterone Levels in Young Healthy Men

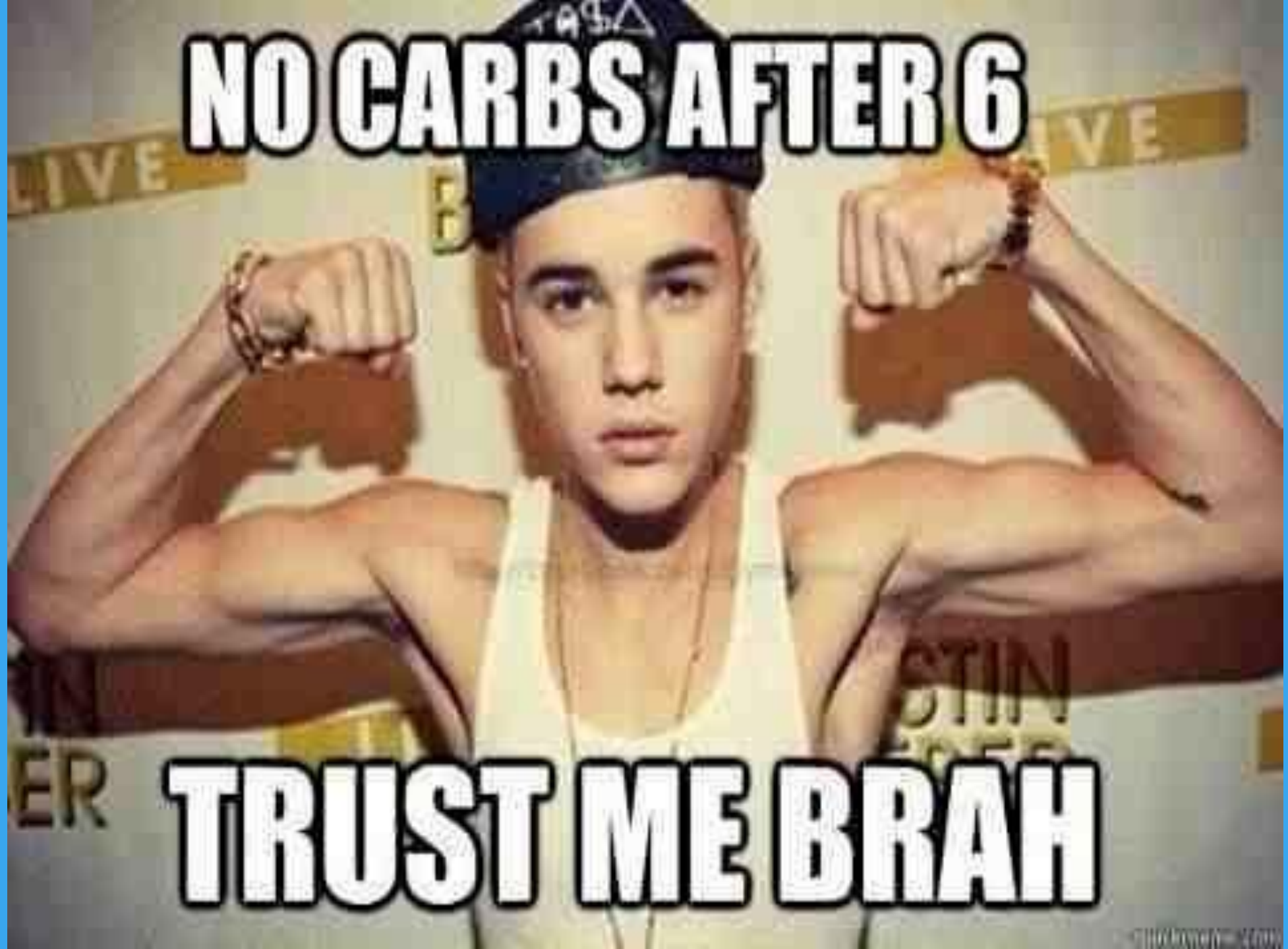
Rachel Leproult, PhD; Eve Van Cauter, PhD

Article Information

JAMA. 2011;305(21):2173-2174. doi:10.1001/jama.2011.710

"Daytime testosterone levels were decreased by 10% to 15% in this small convenience sample of young healthy men who underwent 1 week of sleep restriction to 5 hours per night, a condition experienced by at least 15% of the US working population. "




NO CARBS AFTER 6
TRUST ME BRAH

•**Format**: Abstract

Send to

J Appl Physiol (1985). 1997 Jan;82(1):49-54.

Testosterone and cortisol in relationship to dietary nutrients and resistance exercise.

Volek JS[1], Kraemer WJ, Bush JA, Incledon T, Boetes M.

Author information

Abstract

Manipulation of resistance exercise variables (i.e., intensity, volume, and rest periods) affects the endocrine response to exercise; however, the influence of dietary nutrients on basal and exercise-induced concentrations of hormones is less understood. The present study examined the relationship between dietary nutrients and resting and exercise-induced blood concentrations of testosterone (T) and cortisol (C). Twelve men performed a bench press exercise protocol (5 sets to failure using a 10-repetitions maximum load) and a jump squat protocol (5 sets of 10 repetitions using 30% of each subject's 1-repetition maximum squat) with 2 min of rest between all sets. A blood sample was obtained at preexercise and 5 min postexercise for determination of serum T and C. Subjects also completed detailed dietary food records for a total of 17 days. There was a significant (P < or = 0.05) increase in postexercise T compared with preexercise values for both the bench press (7.4%) and jump squat (15.1%) protocols; however, C was not significantly different from preexercise concentrations. Significant correlations were observed between preexercise T and percent energy protein (r = -0.71), percent energy fat (r = 0.72), saturated fatty acids (g.1,000 kcal-1.day-1; r = 0.77), monounsaturated fatty acids (g.1,000 kcal-1.day-1; r = 0.79, the polyunsaturated fat-to-saturated fat ratio (r = -0.63), and the protein-to-carbohydrate ratio (r = -0.59). There were no significant correlations observed between any nutritional variables and preexercise C or the absolute increase in T and C after exercise. These data confirm that high-intensity resistance exercise results in elevated postexercise T concentrations. A more impressive finding was that dietary nutrients may be capable of modulating resting concentrations of T.

PMID: 9029197 DOI: 10.1152/jappl.1997.82.1.49

[Indexed for MEDLINE] **Free full text**

.5g/kg







5 x 5 x 10

SQUAT
SHOULDER PRESS
DEADLIFT
BENCH
ROW

Sports Med. 2005;35(4):339-61.

Hormonal responses and adaptations to resistance exercise and training.

Kraemer WJ[1], Ratamess NA.

Author information

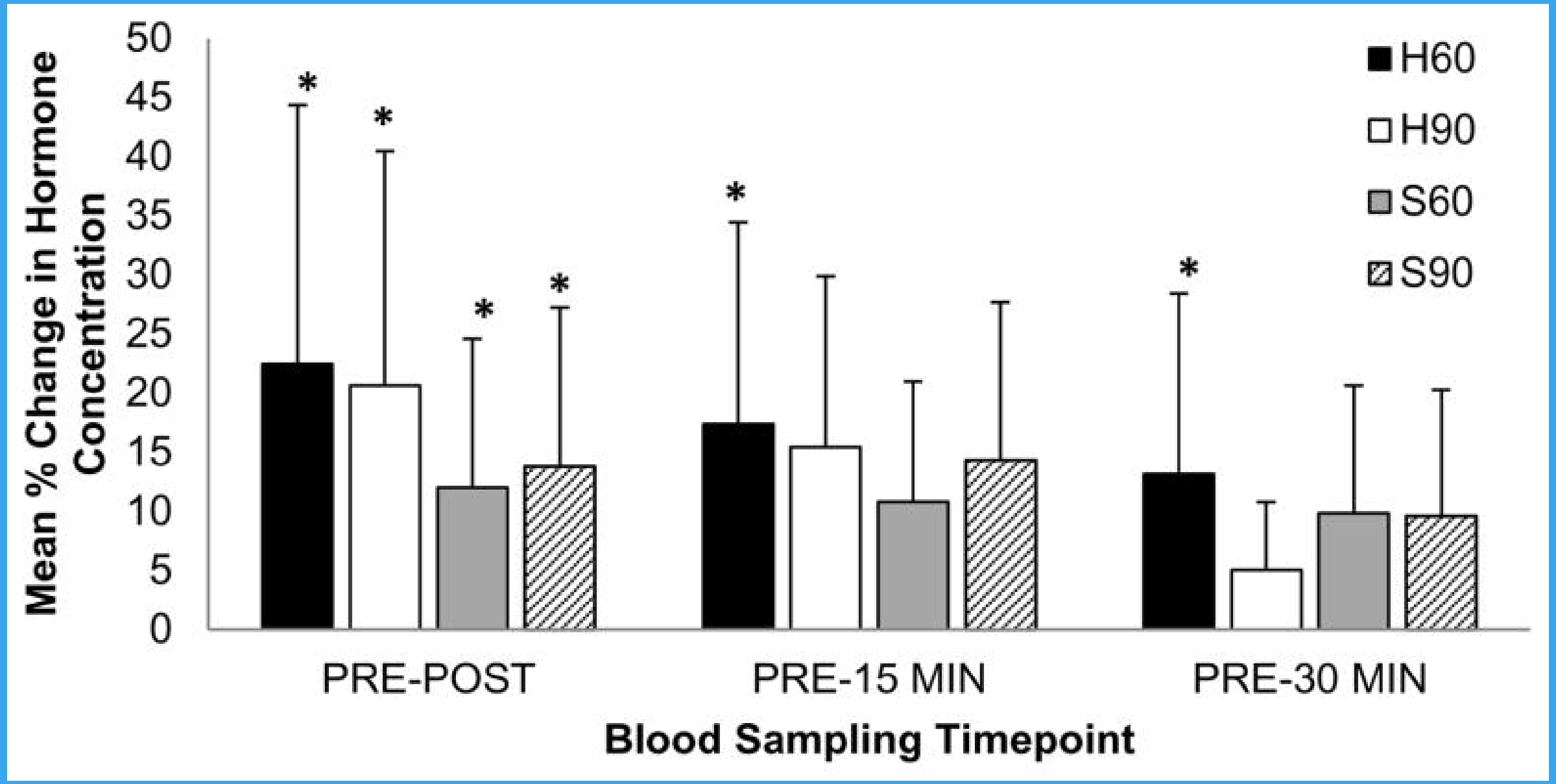
Abstract

"Protocols high in volume, moderate to high in intensity, using short rest intervals and stressing a large muscle mass, tend to produce the greatest acute hormonal elevations (e.g. testosterone, GH and the catabolic hormone cortisol)"

Effects of heavy-resistance training on hormonal response patterns in younger vs. older men

William J. Kraemer
, Keijo Häkkinen
, Robert U. Newton
, Bradley C. Nindl
, Jeff S. Volek
, 1 SEP 1999

"The younger group demonstrated higher total and free testosterone and IGF-I than the older men, training-induced increases in free testosterone at rest and with exercise, and increases in resting IGF-binding protein-3. With training the older group demonstrated a significant increase in total testosterone in response to exercise stress along with significant decreases in resting cortisol"


Mean % Change in Hormone Concentration
50
45
40
35
30
25
20
15
10
5
0
H60
H90
S60
S90
*
PRE-POST
PRE-15 MIN
PRE-30 MIN
Blood Sampling Timepoint

The effect of acute and chronic exercise on steroid hormone fluctuations in young and middle-aged men.

Sellami M[1], Dhahbi W[2], Hayes LD[3], Kuvacic G[4], Milic M[4], Padulo J[4].

Author information

Abstract

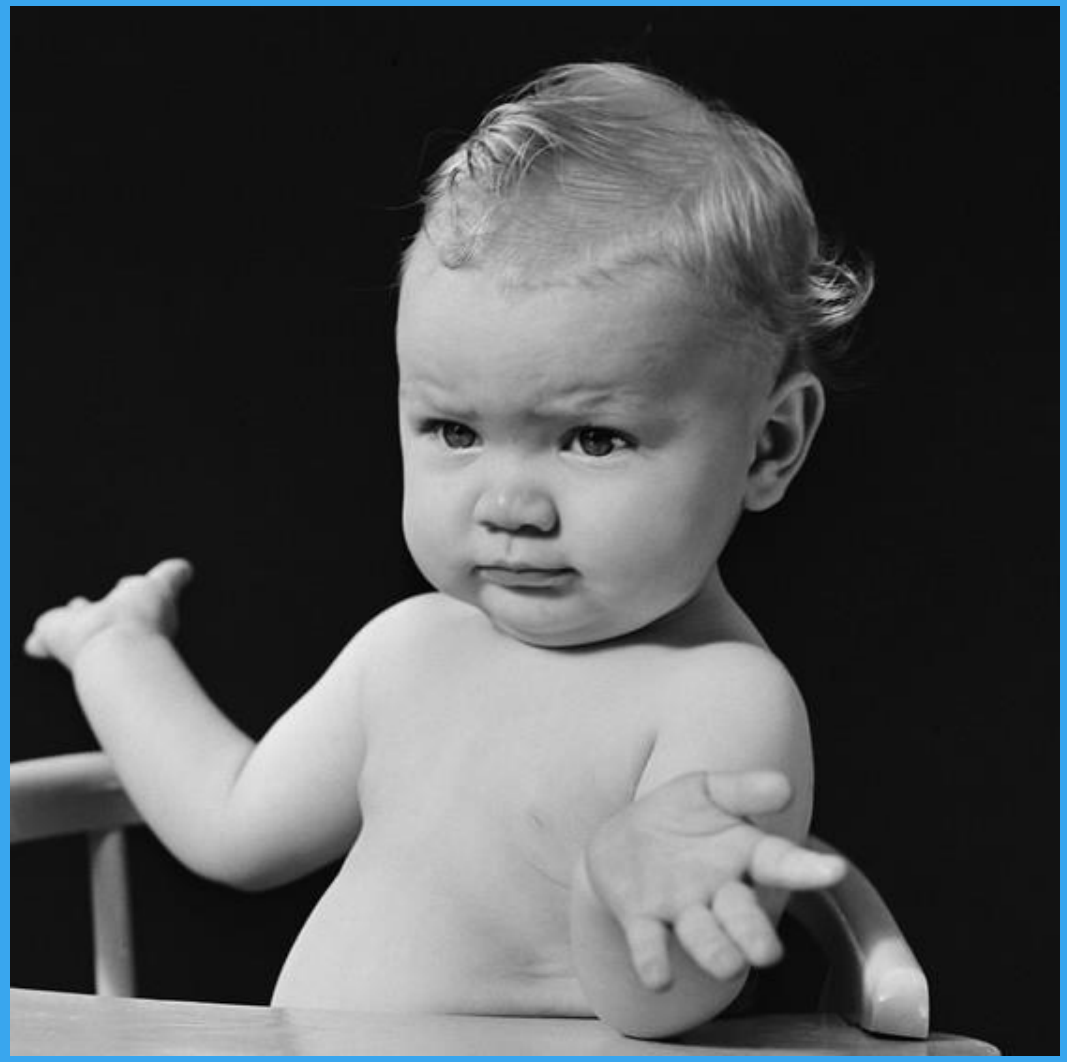
The current study examine the effects of combined sprint and resistance training on serum total testosterone (TT), sex-hormone-binding globulin (SHBG) and cortisol (C), at rest, and in response to the Wingate Anaerobic-Test (WAnT) in 21 and 41 years old men. Forty moderately-trained men were randomly assigned to a young trained (YT), young control (YC), middle-aged trained (MAT), and middle-aged control (MAC) group. Before (P1), and after (P2) training, blood samples were collected at rest and after exercise. At P1, higher C and lower TT was observed in middle-aged groups compared to younger ones ($P < 0.05$). At P2, basal TT increased significantly ($P < 0.05$) in MAT and the age-difference was absent between trained groups ($P > 0.05$). Basal SHBG decreased significantly in YT at P2 ($P < 0.05$) but did not change in other groups from before to after training ($P > 0.05$). Free-testosterone was significantly ($P < 0.05$) higher in young compared to middle-aged groups at P1, but at P2, this age-related difference disappeared between YT and MAT ($P > 0.05$). C post-WAnT increased significantly for MAT only ($P < 0.05$) at P2, whilst no significant changes were observed in the other three groups ($P < 0.05$) at P2. In contrast, resting levels of C did not change in all groups at P2 ($P > 0.05$). The current study demonstrates that this training intervention may help increase steroids hormones in middle-aged men and counteract the negative effect of age on TT and free testosterone.

KEYWORDS:

Aging; Cortisol; Sex hormone-binding globulin; Total testosterone

	Values before the programme		Values after the programme	
	Before the session (A)	After the session (B)	Before the session (C)	After the session (D)
Testosterone	38.73 ± 17.54	33.00 ± 15.64	53.00 ± 45.55	29.00 ± 19.73
Epitestosterone	13.27 ± 6.37	11.73 ± 6.36	21.64 ± 14.45	12.18 ± 6.36
Androstenedione	3.09 ± 1.6	3.00 ± 1.5	4.9 ± 3.1	2.9 ± 1.1
Dehydroepiandrosterone (DHEA)	13.72 ± 8.2	11.0 ± 6.32	17.54 ± 14.5	9.9 ± 6.54
Androsterone	1,736 ± 850	1,527 ± 790	2,596 ± 1,990	1,468 ± 1,250
Etiocholanolone	1,420 ± 974	1,249 ± 750	2,124 ± 1,740	1,202 ± 780

So, is “lift weights” accurate advice to increasing endogenous testosterone production?



J Strength Cond Res. 2013 Jun;27(6):1720-30. doi: 10.1519/JSC.0b013e31828ddd53.

Postexercise hypertrophic adaptations: a reexamination of the hormone hypothesis and its applicability to resistance training program design.

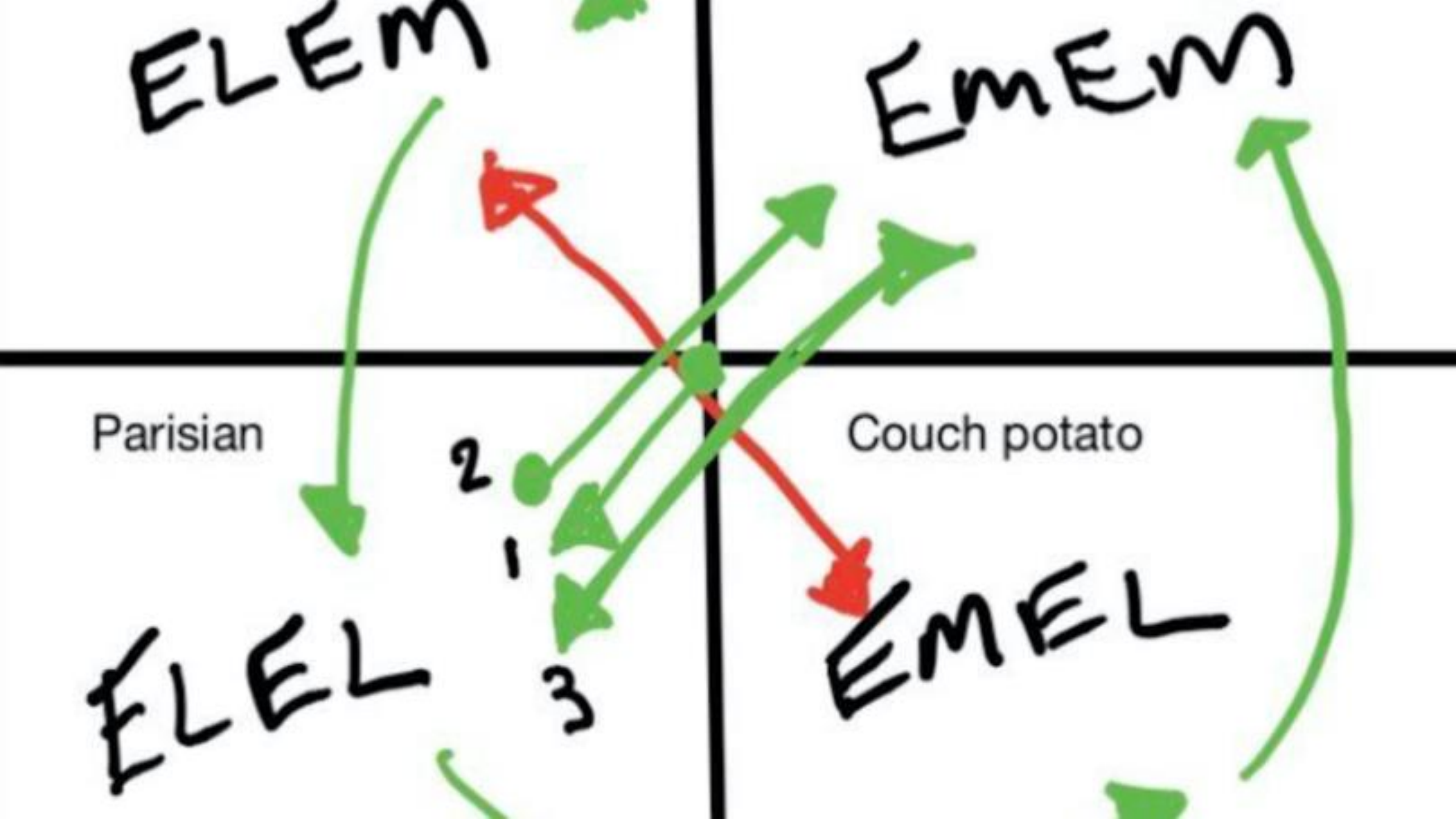
Schoenfeld BJ[1].

"Several researchers have suggested that these transient hormonal elevations may be more critical to hypertrophic adaptations than chronic changes in resting hormonal concentrations. Theoretically, high levels of circulating hormones increase the likelihood of interaction with receptors, which may have particular hypertrophic importance in the postworkout period when muscles are primed for anabolism. Moreover, hormonal spikes may enhance intracellular signaling so that postexercise protein breakdown is rapidly attenuated and anabolic processes are heightened, thereby leading to a greater supercompensatory response. "

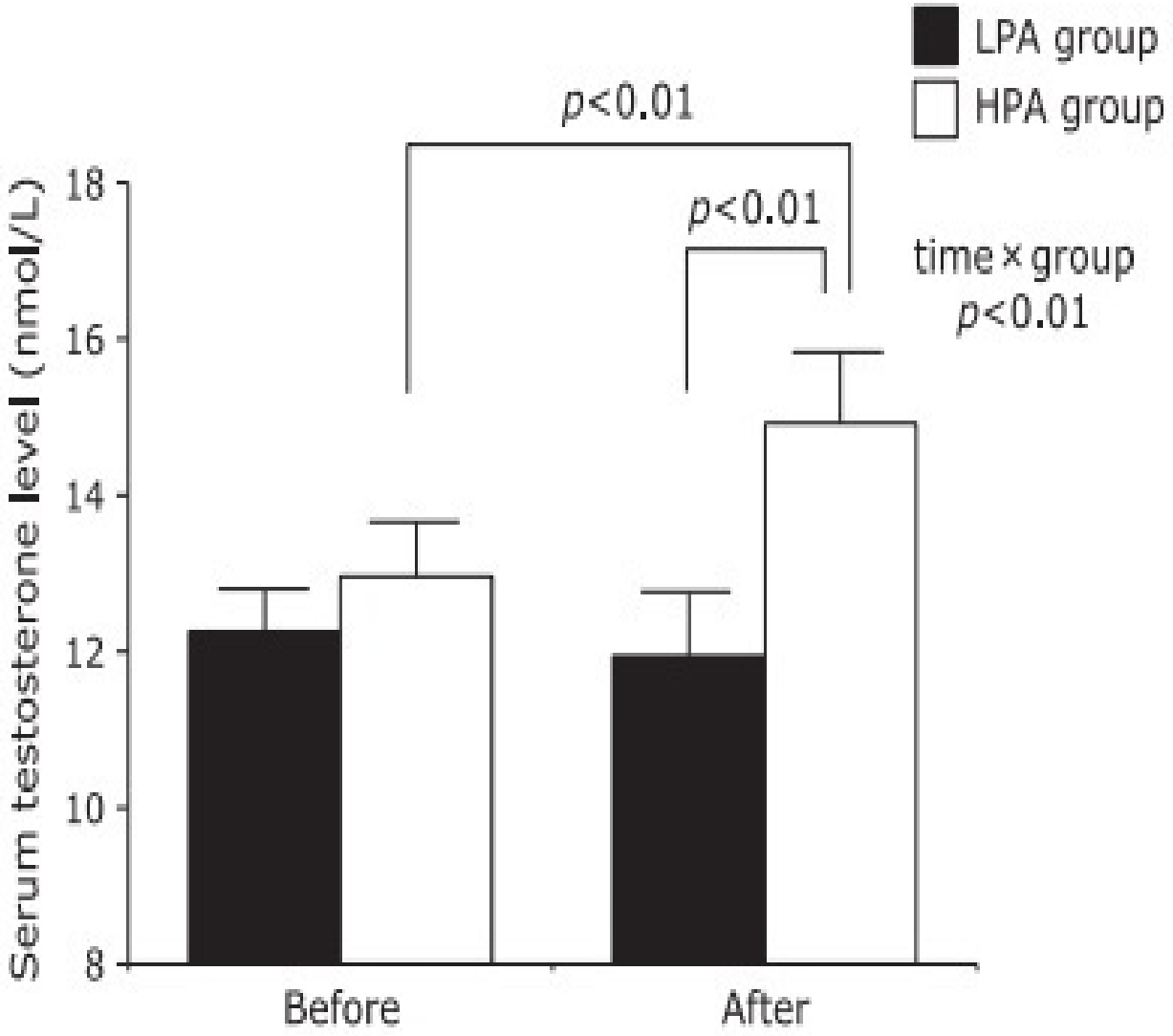


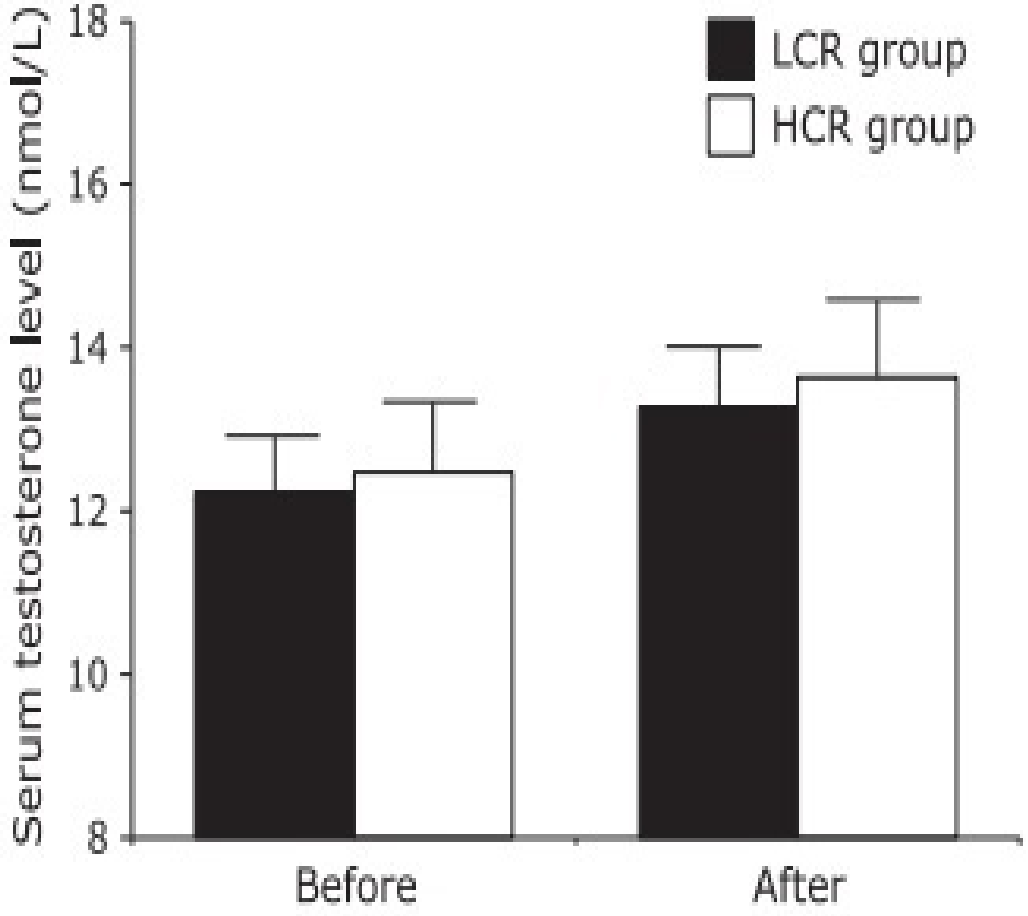
DO WHAT WORKS FOR YOU

- **VOLUME**
- **Sets**
- **Reps**
- **Tension**
- **Intensity**

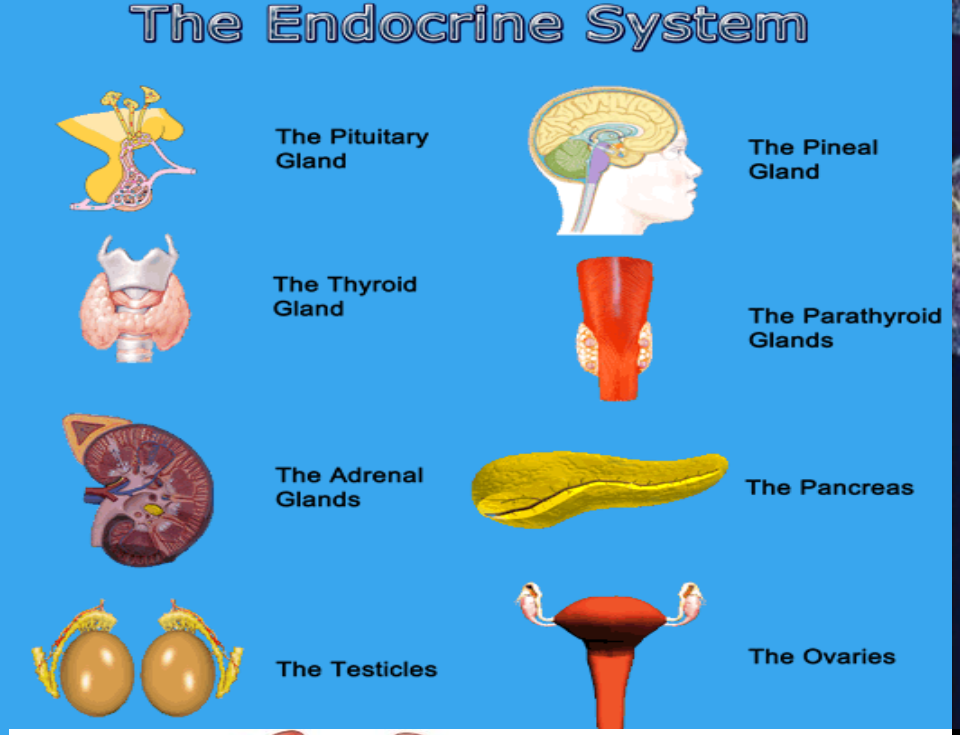

ELEM
EMEM
Parisian
Couch potato
2
1
3
ELEL
EMEL

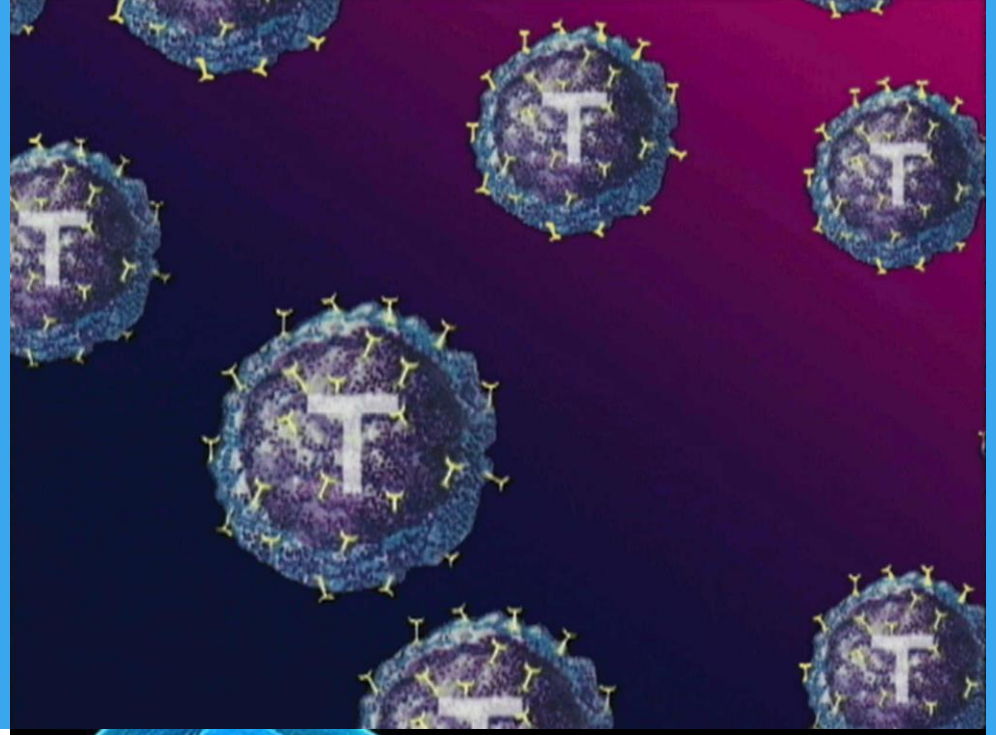


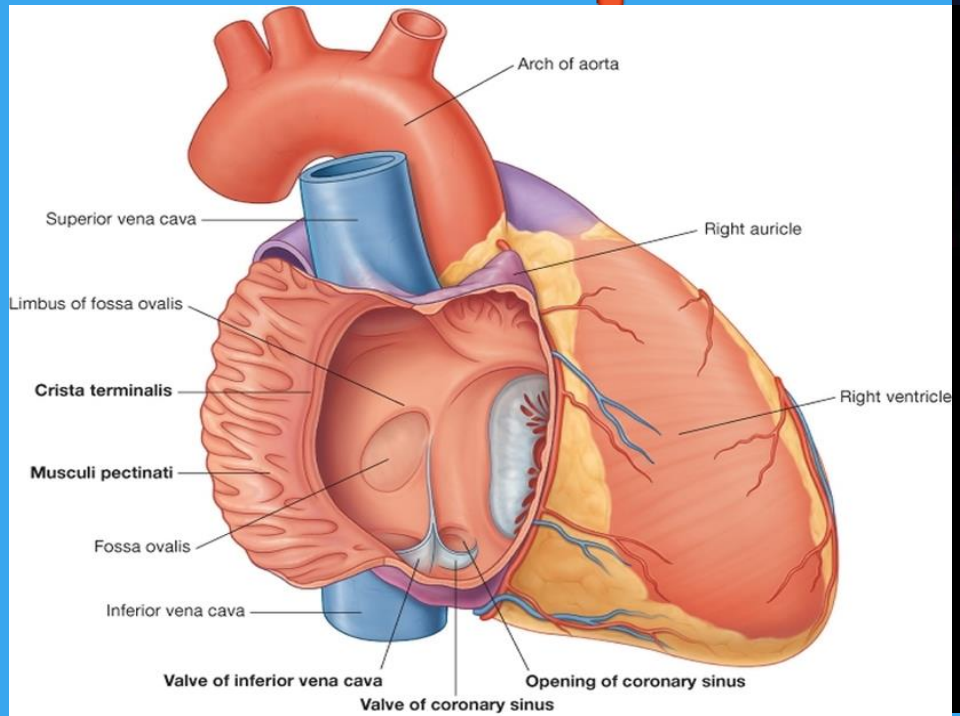

LPA group
HPA group
p<0.01
p<0.01
time × group
p<0.01
Serum testosterone level (nmol/L)
18
16
14
12
10
8
Before
After

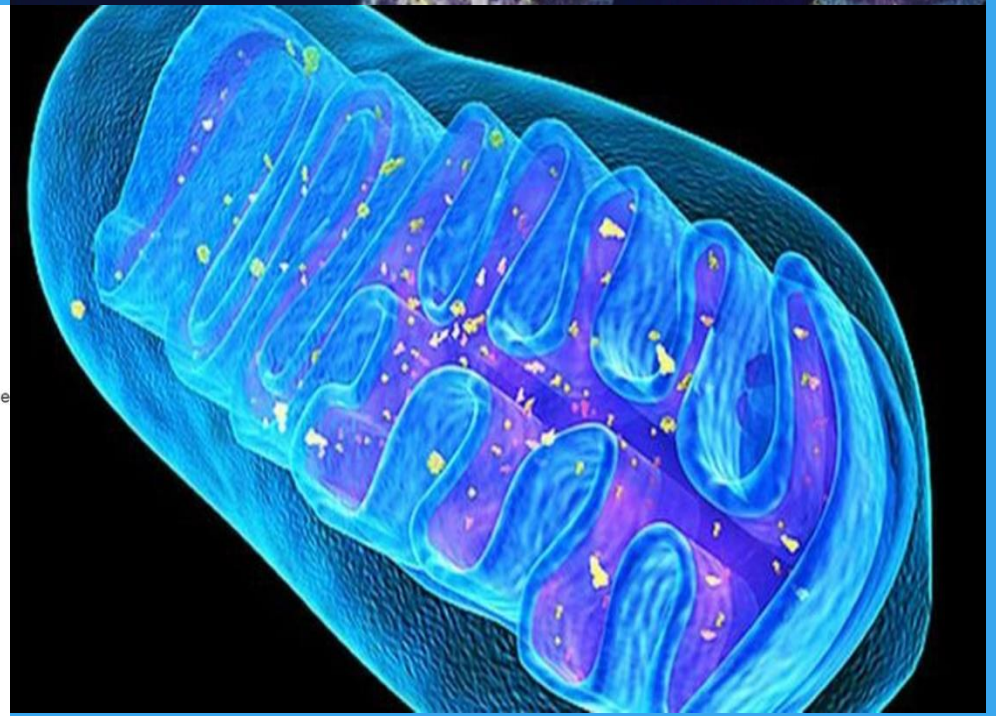

LCR group
HCR group
Serum testosterone level (nmol/L)
18
16
14
12
10
8
Before
After

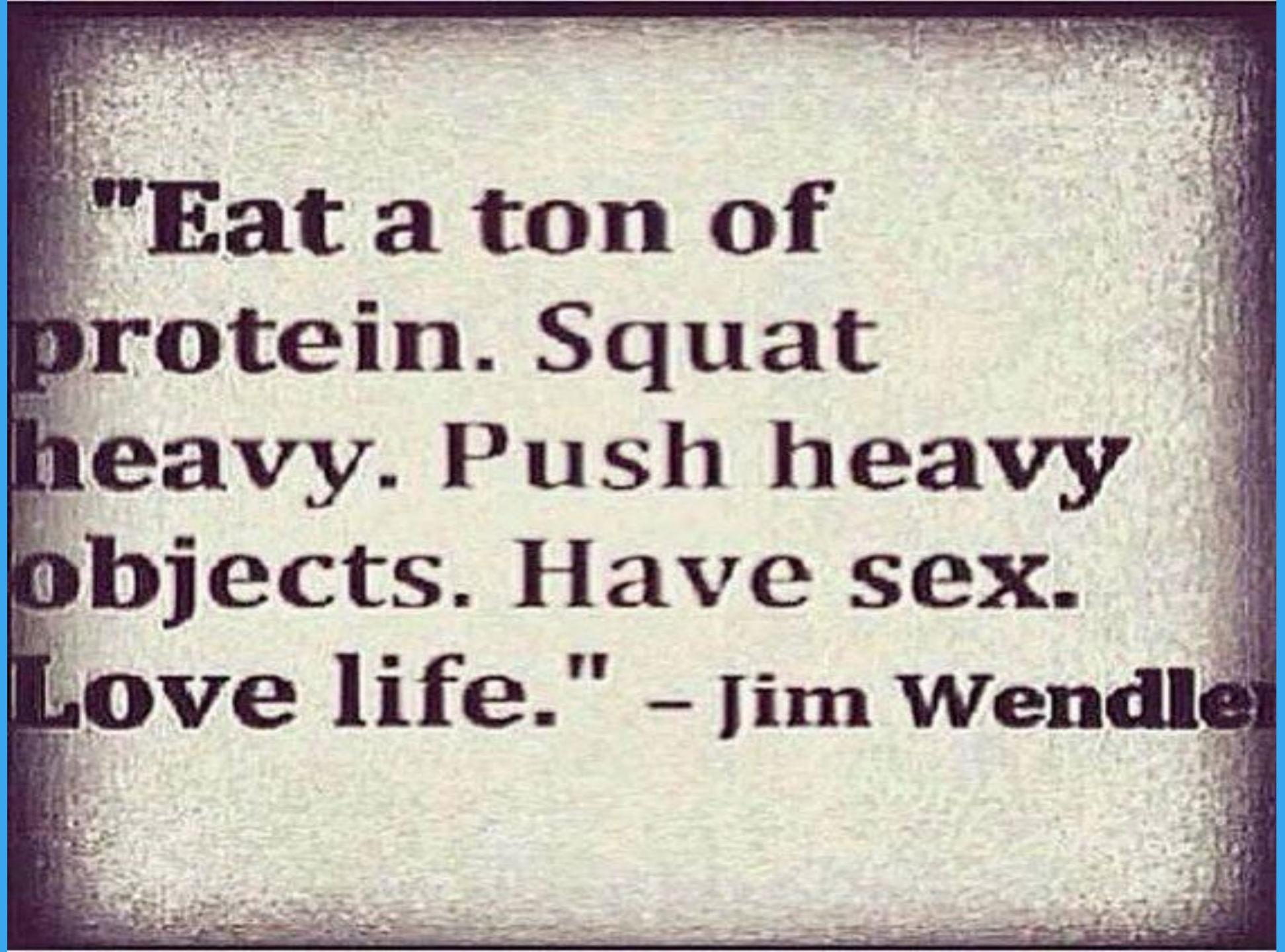
“After the 12-weeks had passed, the researchers found out that it was the high physical activity – not so much the magnitude of the calorie deficit – which was the driving factor in the subjects rising T levels.”


The Endocrine System
The Pituitary Gland
The Pineal Gland
The Thyroid Gland
The Parathyroid Glands
The Adrenal Glands
The Pancreas
The Testicles
The Ovaries




Arch of aorta
Superior vena cava
Right auricle
Limbus of fossa ovalis
Crista terminalis
Right ventricle
Musculi pectinati
Fossa ovalis
Inferior vena cava
Valve of inferior vena cava
Opening of coronary sinus
Valve of coronary sinus




"Eat a ton of
protein. Squat
heavy. Push heavy
objects. Have sex.
Love life." – Jim Wendle

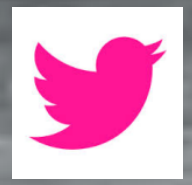
THANK YOU!

ali@metabolicgolf.com

www.metabolicgolf.com



@metabolicgolf



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