



Lecture 29:

How to Naturally Increase Testosterone

Part 2

Copyright Protection:

- This lecture note is owned by the “Canadian Academy of Sports Nutrition” and all rights are reserved and protected by copyright and trademark laws, international conventions, and all other laws relating to the protection of intellectual property and proprietary rights.
- No part of the content of this lecture note may be reproduced, stored in retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from the Canadian Academy of Sports Nutrition. Unauthorized use, display or distribution of any part of the content of this lecture note is deemed copyright infringement.

Testosterone – Boosting Supplements:

- Boron.
- Chrysin.
- Damiana.
- DHEA.
- Maca Root.
- Nettle .
- Pygeum Africanum.
- Saw Palmetto.
- Smilax.
- Tribulus Terrestris.
- Vitamin E.
- Zinc.

DHEA

(Dehydroepiandrosterone):

- DHEA is the most plentiful steroid hormone in the body from which testosterone is made.
- Also known as “**anti-aging super hormone**”, “**fountain of youth**”, “**the mother steroid**”, “**the mother hormone**”, and “**rejuvenating hormone**” in medical papers and reports.
- DHEA is the hormone most heavily discussed in medical papers.

- DHEA is produced mainly by the **adrenal glands**.
- It is also produced in small amounts by the **brain, skin, ovaries (in women), and testes (in men)**.
- It is a hormone with a reputation. The body converts DHEA to major hormones such as testosterone and estrogen.
- DHEA has a broad range of amount in the blood.
 - **Men: 250 – 1500 ng/dl.**
 - **Women: 150 – 1000 ng/dl.**
- The blood level of DHEA declines with aging.

Effects of DHEA:

DHEA is a multifunctional hormone that can influence on many parts of the body.

- 1) **Brain:** Some researchers call DHEA a **neurosteroid**, because the brain can metabolize it, and also it can affect **serotonin** levels—a naturally occurring hormone that improves sleep.

- 2) **Obesity**: DHEA has an **anti-obesity activity** and facilitates weight loss. By affecting fat metabolism, it reduces body fat. It seems that DHEA exerts this effect through:
 - elevation of **IGF-I**.
 - stimulating the release of **cholecystokinin**—a hormone released from the small intestine and acts as an **appetite suppressant** by sending satiety signals to the brain.

- 3) **Immunity:** DHEA modulates the immune system and rejuvenates it. It is believed that immunity improves as a result of **IGF-I** stimulation.
- 4) **Heart:** Reports indicate that DHEA may reduce the risk of heart diseases by lowering **LDL** cholesterol levels and increasing **HDL** levels.
- 5) **Cancers:** It may have anti – cancer activity (preventive feature).

- 6) **Diabetes:** People with insulin-dependent diabetes have been reported to have **low levels of DHEA**. It is reported that patients who take DHEA, need less insulin.
- 7) **Osteoporosis:** people with osteoporosis have low levels of DHEA, and it may increase the density of the bones.
- 8) **Libido:** Supplementing with DHEA increases testosterone levels in both men and women, enhancing sexual desire.

- 9) **Burns:** DHEA may promote the healing process following a burn.
- 10) **Aging and longevity:** Studies have shown that the level of DHEA declines with age. DHEA blunts aging through the following mechanisms:
 - **Antioxidative effect.**
 - Increased production of **IGF-I and GH.**
 - Reduction of the **cardiovascular events.**
 - Reduction of the aging impact of **stress hormone.**
 - Increased production of **melatonin hormone** levels.

Source of DHEA:

- The natural source of DHEA outside the body is **wild yam (Mexican yam)**.
- The outer bark of the wild yam root is rich in saponins such as **diosgenin** and in alkaloids such as **dioscorin**.
- The synthetic form of DHEA that is available as a food supplement in tablet, capsule, liquid, and sublingual form is made from **diosgenin** extracted from wild yam through a series of reactions in the lab.

- **Manufacturers of food supplements make false claims, saying that using diosgenin or wild yam extract increases the production of DHEA in the body.**
- **Keep in mind that the human body does not have the enzymes needed to convert wild yam to DHEA.**
- **So buying these kinds of supplements is just a waste of money, because taking wild yam extracts will never increase DHEA production.**



Can **wild yam extract** increase testosterone level?

The answer is NO, because the human body does not have the enzymes needed to convert "**diosgenin**" in wild yam to DHEA (a testosterone booster).

Canadian Academy of Sports Nutrition

Side Effects of DHEA:

The side effects of DHEA appear at higher doses:

- Acne (in more than half of cases).
- Unwanted hair growth.
- Voice deepening.
- Increased sweating.
- Mood swings and irritability.
- Breast enlargement and tenderness.
- Unwanted weight gain.
- Irregular menstruation.
- Oily skin.
- Increased risk of cancer.
- Headaches.
- Feeling of fatigue and loss of energy.

Athletic Benefits of DHEA:

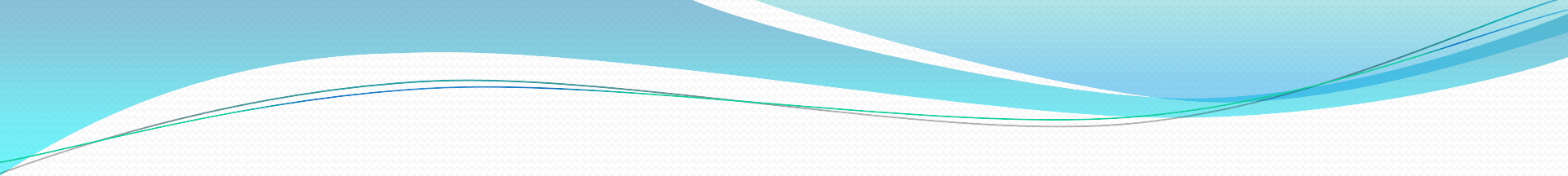
- The anabolic effects of DHEA and its ability to increase **testosterone** and **IGF-I** levels are attractive to athletes.
- Regardless of ban by sports – governing bodies and sports organizations **since 1999**, abuse of DHEA in sports continues.

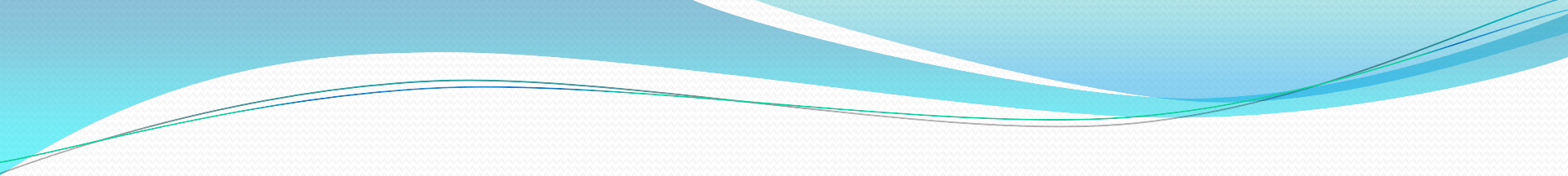
- The **FDA** does not control the claims about the actions and benefits of DHEA, as it is produced naturally in the body.
- Even though **DEA (drug enforcement administration)** does not consider DHEA as an anabolic steroid, the **WADA (world anti – doing agency)** has banned using DHEA in sports with zero tolerance policy.

DHEA benefits athletes through the following activities:

- **Increases testosterone and IGF-I levels.**
- **Burns fat and builds muscles.**
- **Improves physical performance.**
- **Prevents burnout and post-workout muscle soreness.**



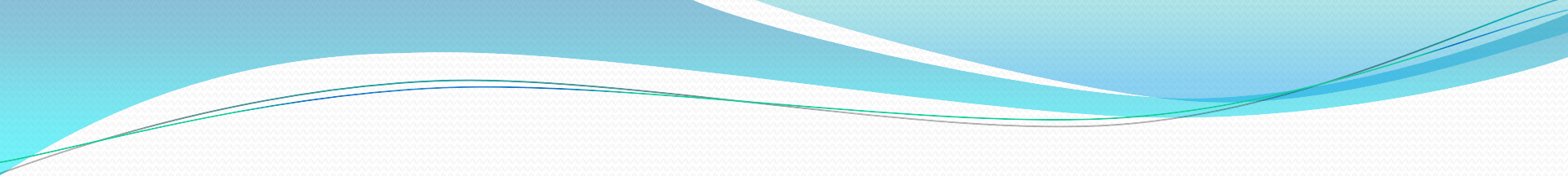
- 
- **Creates an antioxidative effect on working muscles.**
 - **Energizes and increases stamina.**
 - **Reduces stress and neutralizes the effects of stress hormone.**
 - **Elevates HDL levels and lowers LDL levels.**
 - **Strengthens the immune system.**

- 
- **Improves athletes' mood and mental status for competitions.**
 - **Protects joints and bones.**
 - **Reduces recovery time after workouts.**
 - **Accelerates energy storage by the body.**
 - **Elevates melatonin levels, the sleep hormone.**

Non – Athletic Benefits of DHEA:

The following conditions may benefit from DHEA:

- a) Aging.
- b) Depression.
- c) Compromised immune system.
- d) HIV support.
- e) Addison`s disease.
- f) Erectile dysfunction.
- g) Low libido.
- h) Inflammatory bowel disease (Crohn`s disease and ulcerative colitis).

- 
- **i) Schizophrenia.**
 - **j) Systemic lupus erthematosus (SLE).**
 - **k) Rheumatoid arthritis (RA).**
 - **l) Chronic fatigue syndrome (CFS).**
 - **m) Osteoporosis.**
 - **n) Weight management.**
 - **o) Wound healing.**
 - **p) Alzheimer's disease.**
 - **q) Heart disease (prevention only).**
 - **r) Low function thyroid (to correct deficiency).**

How to Elevate DHEA Levels:

Age – related decline of DHEA leads to:

- changes that weaken the body.
 - lower resistance to diseases.
 - deteriorate mental and emotional health.
 - undermine overall health.
-
- To give your body the benefits of DHEA, you need to keep its level in normal range.
-
- Use **DHEA** or **ABAZAR** program.



DHEA program:

- **D**ecrease stress and stressors in your life.
- **H**abituate your body to food supplements, such chromium, zinc, and vitamin E.
- **E**xercise regularly.
- **A**lter your life style.

ABAZAR program:

- **A**lter your life style.
- **B**anish negative thoughts.
- **A**ffirm positive thoughts.
- **Z**inc your body fully.
- **A**ugment your body with food supplements, such as chromium and vitamin E.
- **R**egulate an exercise program.



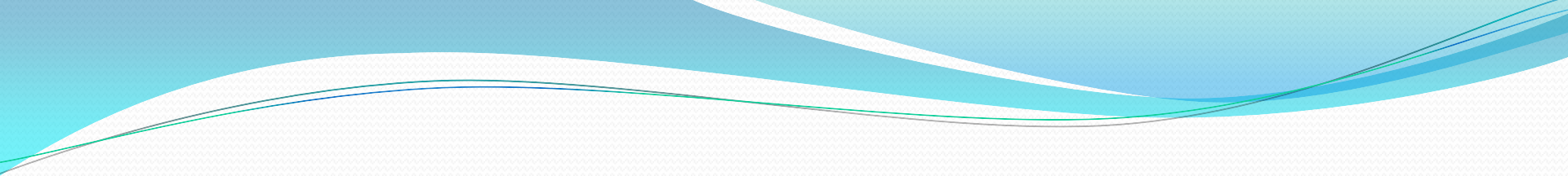
How to Take DHEA:

- Most people do not need to supplement themselves with DHEA. Before making a decision to use it, seek advice from your physician because there is a controversy about DHEA correct dosage.
- **Non – Athletes:** 25 – 50 mg a day.
- **Athletes:** 50 – 75 mg a day.
- Warn the athletes who take DHEA, as it is banned in sports and their drug tests may become positive, leading to ban them from competition for years (2 – 4 years).

Maca Root:

- Known also as **Andin Ginseng** and **Peruvian Ginseng**.
- Maca is a plant from the **crucifer family** and native to the **Andes Mountains of Peru**.
- It has been used by native people for centuries to increase stamina, sexual desire, and vitality.
- Though being used as an aphrodisiac, maca is an **adaptogen** as well.



- 
- There are many controversial reports as to whether maca could increase testosterone level.
 - The effect of maca on sexual desire is due to either its **adaptogenic activity** or **its ability to increase testosterone level** or **both**.
 - The root of this plant (maca root) contains fatty acids, amino acids, glucosinolates, polysaccharides, magnesium, selenium, uridine, malic acid, and amides (macamides).

Athletic Benefits of Maca Root:

- a) It may increase testosterone level.
- b) It may improve athletic performance.
- c) It delays exercise – induced exhaustion and fatigue.
- d) It may help athletes cope with stress easily.
- e) It may accelerate recovery from intense exercise and sports injuries.

Non – Athletic Benefits of Maca Root:

The following conditions may benefit from maca root:

- **a) Low sex drive.**
- **b) Chronic fatigue syndrome (CFS).**
- **c) Low stamina.**
- **d) Fibromyalgia.**
- **e) Depression.**
- **f) Infertility.**
- **g) Compromised immune system.**
- **h) Female hormonal imbalance.**
- **i) Menopause.**

Dosage:

- Maca root is available commercially in tablet, capsule, or liquid form either alone or in combination. The usual dosage is **500 – 2000 mg a day**.

People with the following conditions should avoid taking maca root:

- a) Low function thyroid.
- b) Gout.
- c) Cancers of the breast, uterine, and ovary.
- d) Endometriosis.

Nettle:

- Known also as **stinging nettle**.
- Nettle is a leafy plant that grows in most parts of the world.
- Extensive use in herbal medicine for its **anti-inflammatory activity**.
- Nettle root extract blocks weakly the **enzyme 5 – alpha reductase**, lowering the conversion of testosterone to dihydrotestosterone (DHT).



- The active ingredients in nettle are **lectins**, **polysaccharides**, and a lignan named **divanillyltetrahydrofuran**, which occupies the binding sites of testosterone on the carrier protein SHBG (sex hormone – binding globulin) and leads to an increase in free testosterone levels.
- Also it has been shown that nettle can help lower **blood sugar** level by improving the function of insulin.

Athletic Benefits of Nettle:

- a) It may boost testosterone level.
- b) It may protect from overtraining syndrome.
- c) It may delay fatigue.
- d) It may speed up recovery from sports injuries.

Non – Athletic Benefits of Nettle:

The following conditions may benefit from nettle:

- **a) Benign prostatic hyperplasia (BPH).**
- **b) Prostatitis.**
- **c) Hair loss.**
- **d) Low sex drive.**
- **e) Rheumatoid arthritis.**
- **f) Osteoarthritis.**
- **g) Diabetes.**
- **h) Metabolic syndrome.**
- **i) Skin disorders: hay fever, dermatitis, and eczema.**
- **j) Gout.**
- **k) Kidney and urinary tract inflammation and infection.**

Dosage:

- Nettle is available commercially in tablet, capsule, or liquid form either alone or in combination.
- The usual dosage is **250 – 500 mg a day**.

Homework:

- **1) Describe how taking DHEA could negatively affect an athlete.**
- **2) List athletic and non-athletic benefits of maca root.**



