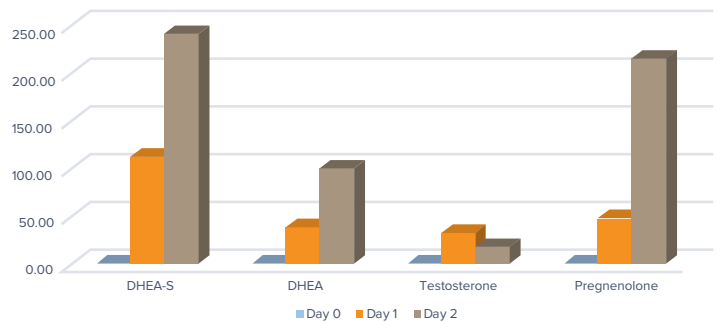


## Supplement Study

CliniCore tested two subjects devoted to using a basic supplement regimen of DHEA and pregnenolone. The supplements used were 25mg DHEA and 30mg of pregnenolone for 3 days. Hormones were monitored prior to and each day of study to determine if over the counter supplements could shift the hormone balance in a more favorable state. Neither subjects previously used these supplements nor were they using any type of hormone replacement therapy.

After three days of the supplement regimen, multiple hormones were elevated and brought closer to the normal range. The subjects demonstrated a 243% increase in DHEA-S, 100% increase in DHEA and a 216% increase in Pregnenolone. The most impressive change was the initial 32% increase in testosterone, which remained 20% higher after the third day of supplement therapy. This limited study demonstrates the potential to help optimize hormone levels by utilizing the precursor supplement hormones. For patients with chronic pain or with long term opiate therapy, this could be a starting point at balancing hormones.

Percent Increase from Supplements



Serum Levels

	DHEA-S	DHEA	Testosterone	Pregnenolone
Day 0	179.661	181.926	244.123	50.119
Day 1	382.143	251.123	323.572	74.021
Day 2	616.518	364.722	289.223	158.745

## Info on Specific Hormones

### Pregnenolone

Parent hormone that is the first enzymatic step from cholesterol. The body utilizes pregnenolone to synthesize all other hormones. Pregnenolone is also converted into allopregane, which has neuroprotective properties as well as anti-depressant and anxiolytic effects. Due to the impact of chronic pain or opiates on a patient, supplementing with pregnenolone may prevent the adrenal fatigue and some of the imbalance that occurs with people in pain.

### Testosterone

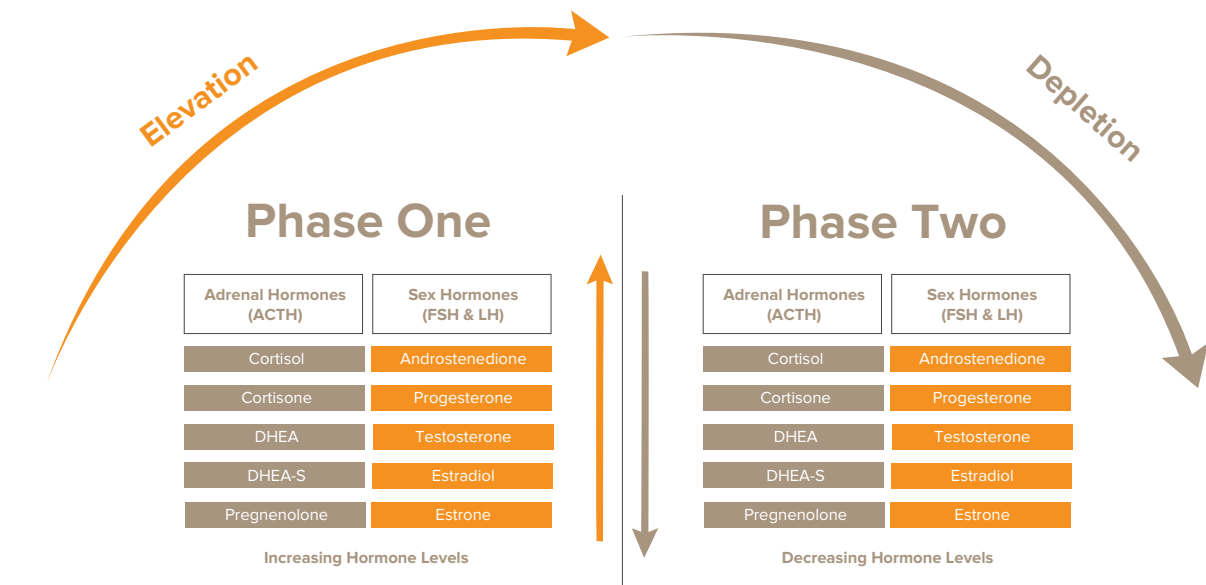
Opiate therapy and long-term pain both cause a decrease in testosterone. Balancing the body’s endocrine system allows the body to properly heal and recover. Long term opiate therapy may require hormone replacement therapy due to the suppression of sex hormones that occurs with the use of opiates. Improving the patient’s testosterone to cortisol ratio allows the patient to be in a more anabolic state and the body’s natural recuperative powers to be more engaged.

### DHEA-S

The sulfate conjugate of DHEA is the reserve pool and is formed from DHEA. In women DHEA-S serves as a mild androgen, which can increase libido and energy levels. This reserve pool of DHEA-S allows the body to utilize DHEA as it needs to maintain healthy levels.

### DHEA

Dehydroepiandrosterone is the precursor to all the sex hormones. DHEA is either converted into androstenedione and then to the other sex hormones or is converted into DHEA-S. In women DHEA-S serves more in an androgen capacity due to their naturally lower levels of testosterone. DHEA also has many neuroprotective effects and is helpful at preventing adrenal fatigue. DHEA-S shows much less diurnal variation than DHEA.



## Available Testing Profiles

### Corticosteroids

Corticosterone Cortisol Cortisone	Stress Response
17 $\alpha$ -OH Progesterone 11-Deoxycorticosterone 21-Deoxycortisol	Hormone Metabolism

### Mineral Corticoids

Aldosterone	Fluid Homeostasis
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### Sex Hormones

DHEA DHEA-S Pregnenolone	Adrenal
Androstenedione Testosterone DHT	Androgens
Progesterone Estrone (E <sub>1</sub> ) 17 $\beta$ -Estradiol (E <sub>2</sub> ) Estril (E <sub>3</sub> )	Estrogens/Progestins

### Other

Dexamethasone	Medication
25-Hydroxy Vitamin D <sub>3</sub>	Secosteroid