

RESEARCH REPORT**Role of cortisol in stress, fat deposition and weight gain in women****Wagh (Patil) Sanjeevani D**

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ABSTRACT

Stress is not an illness but it is a psychological condition which has unpleasant physical side-effects. Stress has become the most common phenomenon now-a-days. Recent studies has shown an association between enormous stress and fat deposition in women. The word Stress was previously used in physics to refer the internal force exerted on material body leading to strain. It is often described as flight or fight response to the external stimuli. The stress hormone, cortisol, is public health enemy number one. Scientists have known for years that elevated cortisol levels also interfere with learning and memory, lower immune function and bone density, increase weight gain, blood pressure, cholesterol, heart disease. Chronic stress and elevated cortisol levels also increase risk for depression, mental illness, and lower life expectancy in women. This study may help women to understand and manage stress related issues.

Keywords: Stress, Depression, Fat-deposition, Cortisol.

INTRODUCTION

Women are to be considered as "Sandwiched" generation, who are exposed to different types of pressures all over. Problems related to money, lack of time, health problems, many types of concerns related to personal lives are leading sources of stress. Under these circumstances women are likely to be depressed and worried about many problems which surround them. (Carol Abaya 1999). At the same time they find no time for their personal issues and management of stress.

Common Causes of Stress

Longterm stress can lead to variety of health problems in women

- 1) Mental health disorders like depression, anxiety, insomnia.
- 2) Eating disorders, obesity, nausea, ulcers, and gastro intestinal problems.
- 3) Fatigue, Depersonalisation, panic-disorders.
- 4) High blood-pressure, palpitation, heart problems, diabetes, chest pain.
- 5) Menstrual and other hormonal imbalances.

Recent study has revealed gender differences in brain's stress response that suggests women proneness to anxiety disorders and mood swings.

Cortico tropin releasing factor (CRF) which acts as both hormone and neuro transmitter, plays important role in response to stress. Women are more susceptible to stress. Women are more socialized to be caretakers of others. Over 70% of married women with children under the age of 18 years are employed outside the home. As women progresses through life stages, hormonal balance associated with pre-menstrual, postpartum and menopausal changes can effect chemical vulnerability to stress and depression.

What is cortisol- Cortisol, a glucocorticoid (steroid hormone) is produced from cholesterol in the two adrenal glands located on top of each kidney. It is normally released in response to events and circumstances such as waking up in the morning, exercising, and acute stress. Cortisol's far reaching systematic effects play many roles in the body's effort to carry out its processes and maintain homeostasis.



Cortisol is also involved in glucose metabolism, insulin release for blood sugar maintenance, and inflammatory response. Normal levels of cortisol increases energy, metabolism and helps regulate blood pressure.

HEALTH EFFECTS OF CORTISOL

1. METABOLIC RESPONSE -

In the early fasting state, cortisol stimulates gluconeogenesis and activates antistress and anti-inflammatory pathways. Additionally, cortisol facilitates the activation of glycogen phosphorylase, which is necessary for epinephrine to have an effect on

glycogenolysis. In the late fasting state, the function of cortisol changes slightly and increases glycogenesis. Elevated levels of cortisol if prolonged, can lead to proteolysis (breakdown of proteins) and muscle wasting.

2) IMMUNE RESPONSE

Cortisol prevents the release of substances in the body that cause inflammation. It is used to treat conditions resulting from over activity of the B-cell-mediated antibody response.

OTHER EFFECTS

The other effects of the cortisol are, Metabolism, Wound Healing, Electrolyte Balance, Stomach and Kidneys, Sleep-Stress-Mood.

PRECAUTIONARY MEASURES TO CONTROL CORTISOL

Cortisol can be greatly managed and good health can be regained by changing diet, exercise routine, sleep and stress levels.

1) Switch to a whole-foods and Anti inflammatory diet

Poorly managed blood sugar levels, especially hypoglycaemia, having low blood sugar and high levels of inflammation can contribute to high cortisol levels and other hormonal imbalances. Following an anti-inflammatory diet low in processed foods and high in anti-oxidants, fiber and essential nutrients is key to balancing hormones, controlling cravings and getting you on the right track. These same strategies will also help with adrenal support allowing you to maintain healthy weight.

2) Reducing And Managing Stress

The natural stress relievers listed below are proven to help reduce cortisol level and reduce the negative impact stress has on our health.

- Meditation or Mindfulness.
- Accupuncture.
- Deep Breathing Exercises.
- Spending Time In Nature.

3) Exercising Regularly

According to research by Harvard Medical School, Regular exercise for about 30 to 60 mins is the great way to manage stress hormone.

4) Getting Enough Sleep And Promoting Relaxation

Getting enough sleep and trying innovative relaxation method like yoga, helps us control the cortisol production, but having high cortisol levels can make it hard to rest.

CONCLUSION

Stress will always be a part of daily living and is necessary for providing challenges to physiological and psychological development. However, too much stress over a period of time combined with poor coping habits may cause physical, chemical and hormonal imbalances in the body. The pathways of the stress response are complex and may activate other hormonal pathways, resulting in the release in the cortisol. Hence, a healthy lifestyle leads to a healthy cortisol level in body. Practicing above methods can help reducing stress hormone and live a stress free life.

Conflicts of interest: The authors stated that no conflicts of interest.

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