

RECOGNIZING THE SEVERAL YEARS' AMBIGUITY OF THE RELATIONSHIP BETWEEN CHRONIC STRESS AND OBESITY BASED ON MODERN MEDICAL RESEARCH AND GENETICS

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Objective: Investigating what ways stress can cause weight gain in people.

Materials & Methods: In short-term stresses, we observe temporary loss of appetite as a cause of the function of the sympathetic nervous system and noradrenaline hormones. This mechanism is processes through the decrease in blood flow and related enzymes in gastrointestinal system as a result of neural effect and the influence of the mentioned hormones. But in long- term stresses the case is totally different. The stresses that depress the individuals are different and the weight gain occurs in two direct and indirect manners. In first case: increased plasma levels of cortisol cause weight gain in three ways: Protein breakdown and eventual loss and atrophy of the muscles of the body, especially around the abdomen. These hormones along with slimming hormones such as growth hormone and testosterone have a negative feedback in the blood levels. As an unknown reason, this hormone (cortisol) increases the areas of fat accumulation around the waist. On the other hand, brain faces impaired shortage of serotonin as a cause of frequent cortisol release to balance the body situation and keep biochemistry of the brain in balance and therefore proceeding to the substantial caloric intake so it may compensate for the lack of this substance in the brain. There are different theories about the subsequent decrease in serotonin of the brain after cortisol increase. One hypothesis is that the reason is the effect of cortisol on serotonin-producing genes in brain cells. Another hypothesis is that the increased rate of cell raises suicide mechanism in body, especially in serotonin making cells. Whatever the cause is, both of the above mentioned reasons have the same goal, decreasing the amount of serotonin in the brain. Perhaps our desire for sweets and food in a stressed situation is not due to that they are delicious but because our body tries to pull a trigger against the chronic and severe stresses by keeping a biochemistry balance in the brain or maybe increased amount of glucose in blood increases the excitability of brain cells to receive the tryptophan amino acid which has a great role in serotonin production. In the case of indirect influence, chronic stresses causes the creation of depressed mood in the individual and eventually these kind of people have a little interest for activity which can decrease the metabolism level of the body and cause in the indirect weight increase. People rushed to get food in stressful situations which could be another reason for this.

Results: Studies show that the intrinsic patterns of each person is one of the determinants of overweight and obesity problems. There are other factors, so-called stressors that severely affect chronic stress, diet and behavioural hormones and raise the risk of obesity. But the question is whether if the mechanisms that the body uses automatically to keep us happy will function when the serotonin production mechanisms in the neurons of the brain are destructed if the levels of tryptophan and glucose are increased?

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