

# Correspondence

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Questions and comments from readers. Answers of Assoc. Prof. Nițescu Vasile, MD, PhD.

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### **1. Question: What is the determining factor of the increase of birth rate in a certain period of the year in a certain geographical area?**

#### **Answer:**

In winter, cold temperatures increase the TSH secretion, which stimulates prolactin secretion, leading to the decreased dopamine secretion, with the subsequent decrease in the sexual activity - the essential element of (human) procreation. Also, in the winter season, the synthesis of Melatonin (N-Acetyl-5-Methoxy-Triptamine), a hormone produced by the pineal gland (epiphysis) increases, because, under the conditions of low solar radiation, this structure does not receive sufficient light impulses.

Moreover, Melatonin is also synthesized by epithelial cells (retina), bone marrow, lymphocytes, gastrointestinal tract cells, acting as a paracrine hormone.

Melatonin has multiple actions: it regula-

tes seasonal biorhythms, controls the sexual function by inhibiting the FSH secretion, having an anti-gonadotropic role (inhibiting the gonadotrophin secretion) and modulates the sleep-wake cycle.

At the level of the epiphysis, Melatonin is synthesized from Tryptophan; melatonin production decreases with age, is maximal during the night, between 2 and 4 hours, being inhibited by light and mediated by serotonin (a neurotransmitter).

On the other hand, heat has a positive effect on the gonads, increasing the number of steroid hormones produced by the ovary or the testicle and sensitizing the sensitive receptors, with a trophic effect on the genital organs. The impulse received reaches the brain, through the medullary ascending pathways, the cerebral excitation stimulates "in cascade" the copulation, ejaculation, release of seminal fluid and, therefore, the procreation.

**2. Why is it said that obese men have a low erectile potential? How can you explain that obese men have reduced sexual activity?**

**Answer:**

Normally, in men, the highest serum testosterone level is experienced around the age of 20-30. In the man with overweight (obesity), that generally appears after the age of 35, the testosterone serum titre starts to drop slightly. Testosterone is metabolized by the aromatase, an enzyme that converts it to estradiol. Also, in the obese men the level of “sex hormone binding globulin” is low, so the impairment of the blood transport of testosterone further decreases its serum level.

In obese men, the adipose tissue on the lower abdomen covers 2-4 centimetres of the length of the penis in the fat of the pubic region. In this situation, the visualization of the penis by the man and the woman reduces the partner’s state of excitation through the brain inhibition process determined by the visual information transmitted through the optic nerve pathway, significantly lowering the libido, which is also influenced negatively by the decrease of testosterone by the aforementioned process. At maturity, the desire to have a sexual intercourse is directly correlated with the level of testosterone in the blood.

**3. Question: Apart from the feeling of pleasure/happiness and the chance of reproduction, what other benefits does sexual intercourse have?**

**Answer:**

The dopamine, the “hormone of happiness”, causes cerebral vasodilation, the stimulation of neurogenesis and the increase in the permeability of the cell membrane, stimulating memory and verbal affluence in the human relationship, factors favouring the sexual intercourse.

Also, dopamine contributes to the intensification of libido by increasing the sensitivity of the receptors in the external genital organs.

The pleasure sensation of the sexual intercourse culminates with the orgasm, the more powerful the affection for the partner is greater.

The stimulation of neurogenesis by dopamine contributes to compensating for the physiological loss of neurons, respectively increasing the number of synapses (inter-neuronal connections) up to 4. Thus, in the elderly, the process of biological involution is improved on the whole.

Last but not least, from a psychological point of view, the sexual intercourse offers a meaning to the individual’s life.