

Sexual Medicine Committee

Newsletter - 2



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Environmental Effect on Sexuality

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The effect of environmental adversities on fertility is well established. But what's about effect of environment on the "bedroom performance" of an individual?

Limitations of the research: The environmental interaction with sexual performance is difficult to study because

- **Complex nature of human sexuality (1).** For example, if two men are exposed to a same environmental pollutant, one may experience no change whereas another man, who has relationship conflict with the partner, may be affected by severe erectile dysfunction (ED) (1).
- **Exposure to the environmental toxin is often difficult to quantify.**
- **Most data on ED-** Most of the studies on correlation between environmental exposure and sexual dysfunction concentrated on ED, probably because it is more "objectively" defined and can be graded using questionnaires like International Index for Erectile Function (IIEF) (2). The effect on other aspects of human sexual function is not known in details.
- **Most results have been extrapolated from animal studies (3,4)**

How environmental noxious agents affect human sexual performance?

They do mainly in 3 ways (1)

1) Physiological:

- The penile erection, vaginal lubrication and orgasm are controlled by vascular and neurological factors (5; 1).
- Some noxious agents may damage the vascular and neural compartments in the body leading to ED and orgasmic dysfunction (5; 6).
- It is already established that ED may be the earliest sign of cardiovascular diseases (5,7,8).

2) Endocrine:

- In men, testosterone is responsible for libido and erection, although erectile response to visual stimulation can happen even in absence of androgen (5).
- In contrast, in women the endocrine control of sexual function is less established, although estrogen influences the vaginal response and testosterone is needed for desire in female (1,9,10,11).
- Environmental disruptors tend to affect testosterone production and can lead to low libido and ED (1).

3) Psychosomatic:

- Depression and anxiety can affect the arousal, desire, erection and orgasm (12,13,14).
- Some pollutants can affect the psychological health, which in turn leads to sexual dysfunction.
- It is well known that an uncomfortable and unhealthy environment (like extremes of temperature changes or overcrowding) can affect the sexual behavior and mood of a couple (1).

The common environmental factors which have been studied are:

- **Air pollution**- Some toxins can directly affect the penile production of nitric oxide (NO) which is essential for erection. Tallon et al., 2017 found that fine particulate material, associated with air pollution hampers NO production in elderly men and can account for ED (15).
- **Microwave**- one older uncontrolled study found that men exposed to microwave experience “sexual disturbances” (16).
- **Radiation** is well known risk factor in both sexes (5,17)
- **Industrial toxins**- lead and carbon-di-sulphide affect both pituitary and gonadal hormones (1).
- **Pesticides** including organophosphorous- can have anti-androgenic effects (1)
- **Arsenic exposure** is associated with drastically increased risk of ED (18)
- **Tobacco and alcohol**- They act by affecting mood and causing vasculopathy and neuropathy, which ultimately lead to ED and orgasmic dysfunction (5,6,19). Passive smoking also exerts negative influences (1).
- **Dietary factors**- Intake of high calorie diet is associated with atherosclerosis in the penile vasculature (1,5). Obese women also complain more sexual dysfunction than healthy counterparts. Lack of micronutrients particularly zinc has been found to be responsible for ED (1).

So, what can we conclude?

Environmental factors do influence sexual function although robust studies are necessary to establish the cause-effect and dose-response relationship. Most of the studies on environment and sex concentrated on ED. Further studies are needed to see how environmental factors affect other aspects of male sexual dysfunction and female sexual disorders. Although it is not always possible to avoid all types of harmful exposure, at least some measures can be taken (like cessation of smoking, reduction of alcohol, having balanced diet) to maintain a healthy sex life.

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