Cycling may negatively affect male reproductive health, study finds

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(Medical Xpress) -- A study by researchers at the UCLA School of Nursing has found that serious male cyclists may experience hormonal imbalances that could affect their reproductive health.

The study, "Reproductive Hormones and Interleukin-6 in Serious Leisure Male Athletes," was recently published in the *European Journal of Applied Physiology*.

To date, an extensive amount of research has been done documenting the positive effects of long-term exercise on health. Yet while moderate exercise can lead to enhanced cardiovascular and metabolic function and reduced body fat, studies have shown that ultra-endurance levels of exercise can also adversely affect the neuroendocrine system and reproductive health.

Most research studying the effects of exercise on reproductive health has focused on female athletes; there have been few studies that have looked at male endurance-trained athletes.

The UCLA study explored associations between exercise intensity and circulating levels of reproductive hormones in both serious leisure athletes and recreational athletes. The researchers divided 107 healthy male study subjects (ages 18 to 60) into three groups: 16 triathletes, 46 cyclists and 45 recreational athletes.

Participants completed the International Physical Assessment

Questionnaire to provide an objective estimate of time they spent participating in different levels of physical activity and inactivity during the previous week. Blood samples were then collected from each participant to measure total testosterone, estradiol, cortisol, interleukin-6 and other hormones.

"Plasma estradiol and testosterone levels were significantly elevated in serious leisure male cyclists, a finding not previously reported in any type of male athlete," said Leah FitzGerald, an assistant professor at the UCLA School of Nursing and principal investigator and senior author of the study.

Plasma estradiol concentrations were more than two times higher in the cyclists than in the triathletes and recreational athletes, and total testosterone levels were about 50 percent higher in cyclists than in the recreational athletes.

Estradiol is a form of estrogen and, in males, is produced as an active metabolic product of testosterone. Possible conditions associated with elevated estrogen in males include gynecomastia, a condition that may result in the loss of pubic hair and enlarged breast tissue.

"Although preliminary, these findings warrant further investigation to determine if specific types of exercise may be associated with altered sex-hormone levels in men that could affect general health and reproductive well-being," FitzGerald said.

One of the interesting findings of the study related to the use of chamois cream. Some cyclists apply chamois cream to their perineum area to help prevent chaffing and bacterial infections related to bicycle saddle sores. However, many commercial creams contain a variety of ingredients, including lubricants, polymers and oils, and some also contain parabens, which are anti-microbial preservatives and weak estrogen agonists.

In the study, 48.5 percent of cyclists — compared with 10 percent of triathletes — reported using a paraben-containing chamois cream. The study found an association between an increase in estrogen levels and increasing years of chamois cream use, particularly for male cyclists using the cream for more than four years. At this time, however, no direct cause and effect has been found, the researchers said.

The study was funded by the UCLA School of Nursing, the UCLA General Clinical Research Center and the Kaiser Foundation. Other authors of the study included Wendie A. Robbins, also of the UCLA School of Nursing, and James S. Kesner, of the division of applied research and technology at the Centers for Disease Control and Prevention's National Institute for Occupational Safety and Health.

More information: (The findings and conclusions in the report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.)

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