The Physician and Sportsmedicine

ISSN: 0091-3847 (Print) 2326-3660 (Online) Journal homepage: https://www.tandfonline.com/loi/ipsm20

Retrospective analyses must be interpreted cautiously. A reply to 'oral contraceptives provide protection against anterior crucial ligaments tears'

Ellis Muggleton & Tülin Muggleton

To cite this article: Ellis Muggleton & Tülin Muggleton (2019) Retrospective analyses must be interpreted cautiously. A reply to 'oral contraceptives provide protection against anterior crucial ligaments tears', The Physician and Sportsmedicine, 47:3, 239-239, DOI: 10.1080/00913847.2019.1629738

To link to this article: https://doi.org/10.1080/00913847.2019.1629738

Accepted author version posted online: 07 Jun 2019.
Published online: 13 Jun 2019.

THE PHYSICIAN AND SPORTSMEDICINE
2019, VOL. 47, NO. 3, 239
https://doi.org/10.1080/00913847.2019.1629738

Taylor & Francis
Taylor & Francis Group

CLINICAL FEATURE
LETTER TO THE EDITOR

Retrospective analyses must be interpreted cautiously. A reply to 'oral contraceptives provide protection against anterior crucial ligaments tears'

Ellis Muggleton and Tülin Muggleton

Department of Anesthesiology and Intensive Care Medicine, Klinikum rechts der Isar, Technical University of Munich, Munich, Germany

ARTICLE HISTORY Received 10 May 2019 ; Accepted 1 June 2019

The study from DeFrodo et al [1], according to the authors, demonstrates that 'OCPs have a protective effect on ACL tear'. We believe the evidence presented is neither convincing nor adequately compelling to warrant intervention on this basis.

The Bradford-Hill criteria [2], first proposed in 1965, list nine criteria needed to support evidence of a link between presumed cause and observed effect in epidemiological studies. These criteria include effect size, consistency, plausibility, specificity, temporality and coherence. Several of these are clearly not fulfilled in this study.

The authors are unclear on which hormonal changes are responsible: fluctuations in estrogen and progesterone levels? Increased levels of estrogen and progesterone? It is described that a decrease in fibroblast proliferation and collagen synthesis was seen with increasing estradiol concentration and this effect was attenuated with increasing progesterone concentration [3]. Previous studies have demonstrated the luteal phase to have the highest rate of ACL injuries [4] yet the progesterone level peaks in this phase. Would this not result in increased fibroblast proliferation and collagen synthesis hence contradicting the proposed mechanism?

Of more concern, are the results presented in Table 2. The only category with less ACL reconstructions was the age group 15–19. Surely if this was a hormonal effect it would be seen in the other pre-menopausal groups? How do the authors explain the lack of effect seen in the other age groups?

Retrospective searches for associations are fraught with difficulties and confounders and this study is an excellent example of why. No data is presented about the patients other than ages to help alleviate these reservations; numbers of ACL ruptures conservatively managed, comorbidities and even socioeconomic status are highly relevant.

The authors conclude that, 'OCPs have a protective effect on ACL tears, especially in the 15–19 age group'. This is misleading. More accurate would be to state: 'the results demonstrate an association of unclear significance between OCP and a lower rate of ACL reconstruction only in a 15–19 age group'.

Declaration of interest

No potential conflict of interest was reported by the authors.

Transparency

This letter was written independently; no company or institution supported the authors financially or by providing a professional writer. Both authors generated the ideas and wrote the letter.

Neither author has any conflicts of interest to declare. PSM peer reviewers on this letter have no conflicts of interest to disclose.

References

1. DeFroda SF, Bokshan SL, Worobey S, et al. Oral contraceptives provide protection against anterior crucial ligaments tears: a national database study of 165,748 female patients. Phys Sportsmed. 2019 Mar. DOI:10.1080/00913847.2019.1600334.
2. Hill AB. The environment and disease: association or causation? Proc R Soc Med. 1965;58(5):295–306.
3. Yu WD, Panossian V, Hatch JD, et al. Combined effects of estrogen and progesterone on the anterior crucial ligament. Clin Orthopedic Relat Res. 2001;383:268–281.
4. Herzberg SD, Motu'apuaka ML, Lambert W, et al. The effect of menstrual cycle and contraceptives on ACL injuries and laxity: a systematic review and meta-analysis. Orthop J Sport Med. 2017;5(7):232596711771878.

CONTACT Ellis Muggleton Ellis.muggleton@gmail.com Department of Anesthesiology and Intensive Care Medicine, Klinikum rechts der Isar, Technical University of Munich, Munich, Germany