

# **Use of Hormonal Contraceptives is Associated with Decreased Incidence of ACL Injuries Requiring Reconstruction in Females**

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**Purpose:** To investigate associations between hormonal contraceptive use and females who had sustained an anterior cruciate ligament (ACL) injury requiring reconstruction.

**Methods:** De-identified data were obtained from female patients from 15 to 35 years of age between 2011 to 2024 from the Colorado Health Data Compass database for this study. The study was separated by females who sustained an ACL injury, treated by arthroscopic ACL reconstruction, and females without a history of ACL injury. Among these groups, non-contraceptive users, hormonal systemic contraceptive (including oral contraceptive pills (OCPs), implant, ring, injection, and patch) users, OCP users (including formulations norethindrone (NE) only, drospirenone (DS) + ethinyl estradiol (EE), (NE + EE), norgestimate (NG + EE)) users were included in the analysis.

**Results:** The 2,120,628 females in the systemic hormonal contraceptive use group had a lower ACL injury incidence (0.079%; CI: 0.075 to 0.083) compared to the incidence of the 12,766,138 females in the no contraceptive use group (0.12%; CI: 0.118 to 0.121). The 745,062 females in the OCP use group also had a lower ACL injury incidence (0.088%; CI: 0.081 to 0.095), suggesting an association between contraceptive use and ACL injuries. When stratified by five-year age intervals, the 15 to 19-year-old age group saw no difference between ACL injury incidence in the OCP use group (0.101%, CI: 0.081, 0.125) and no contraceptive group (0.118%, CI: 0.114, 0.122) while all other age groups had a lower ACL injury incidence in the OCP use group. All age groups in the systemic hormonal contraceptive use group had a lower ACL injury incidence compared to the no contraceptive use. Additionally, different contraceptive formulations showed similar injury incidence, with a lower proportion of ACL injuries in NE only (0.03%) users compared to NG+EE (0.093%), NE+EE (0.099%), and DS+EE users (0.096%).

**Conclusion:** Systemic hormonal contraceptive use is associated with a lower incidence of ACL injury requiring ACL reconstruction compared with no contraceptive use in female patients aged 15 to 35 years, with a stronger association with progestin-only OCPs. Female patients aged 15 to 19 years showed no difference in the association with the ACL injury incidence between OCP use and no contraceptive use.