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**題目 (Title):**

女性青少年運動員下肢肌力成熟效應的長期追蹤

(A Longitudinal Evaluation of Maturation Effects on Lower Extremity Strength in  
Female Adolescent Athletes)

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**目的 (Purpose):**

最近的研究顯示，青少年生長時若肌力無法相對適應，可能導致髕骨股骨疼痛與前十字韌帶損傷。此研究目的為調查一群女性學生運動員下肢肌力在成熟階段的縱貫走向。

(Recent studies demonstrate that adolescent growth without corresponding strength adaptations may lead to the development of risk factors for patellofemoral pain and anterior cruciate ligament injuries. Our purpose was to investigate the longitudinal trajectories of lower extremity strength across maturational stages for a cohort of female student athletes.)

**方法 (Methods):**

以嵌入型世代研究設計方式調查 39 位個案。所有個案在青春期前轉換至青春期的階段，共接受了 3 次，每次間隔約 1 年的測試；包含完整的膝關節屈曲，膝關節伸直，及髖關節外展肌力數據。

(A nested cohort design was used to identify 39 subjects who had complete knee flexion, knee extension, and hip abduction strength data for 3 test sessions spaced approximately 1 year apart and during which they transitioned from prepubertal to a pubertal status.)

### **結果 (Results):**

在青春期前轉換至青春期的階段，膝關節伸直肌力增加，髖關節外展肌力與膕旁肌對股四頭肌肌力比值則減少 ( $P < .05$ )。膝關節屈曲肌力或非慣用/慣用肢體差異不受時間影響 ( $P > .05$ )。

(Knee extension strength increased while hip abduction and hamstrings-to-quadriceps ratio strength decreased from prepubertal to pubertal stages ( $P < .05$ ). No effects of time with respect to knee flexion strength or nondominant/dominant limb differences were found ( $P > .05$ ).

### **結論 (Conclusions):**

這些數據支持青春期前是建立以傷害預防為目的之肌力訓練計劃的絕佳時機。

(These data provide support that preadolescence is an optimal time to institute strength training programs aimed toward injury prevention.)

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