

**Associations between Benign Cutaneous Nevi and Risk of Type 2 Diabetes Mellitus in Men and Women:
Results from Two Prospective Cohort Studies**

Hongji Dai^{1,2}, Qi Sun³, Xi Zhang¹, JoAnn E. Manson^{4,5}, Frank B. Hu^{3,4}, Yiqing Song¹

¹ Department of Epidemiology, Richard M. Fairbanks School of Public Health, ² Melvin and Bren Simon Cancer Center, Indiana University, Indianapolis, IN; ³ Department of Nutrition, ⁴ Department of Epidemiology, Harvard School of Public Health, Boston, MA; ⁵ Division of Preventive Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

ABSTRACT

Objective: Previous studies suggest that the number of cutaneous nevi and type 2 diabetes mellitus (T2DM) are both associated with endogenous sex hormone levels. However, no prospective studies have specifically examined the relationship between the number of benign cutaneous nevi and T2DM.

Research Design and Methods: We prospectively examined the associations between the number of nevi and risk of T2DM among 23,748 men (1986-2010) from the Health Professionals Follow-up Study (HPFS) and 67,050 women (1989-2010) from the Nurses' Health Study (NHS). Information on the numbers of melanocytic nevi on arms and the incidence of T2DM was collected by validated questionnaires.

Results: During 1,831,118 person-years of follow-up, we documented 8748 incident cases of T2DM. After adjustment for age, BMI, and other diabetes risk factors, the number of nevi was significantly associated with increased risk of T2DM. Multivariable-adjusted HRs (95% CIs) for <1, 1-5, 6-14, and ≥ 15 nevi were 1.00 (reference), 1.02 (0.92, 1.14), 1.10 (0.87, 1.38), and 1.70 (1.22, 2.36), respectively, for men (P trend = 0.03) and 1.00 (reference), 1.15 (1.09, 1.21), 1.25 (1.11, 1.40), and 1.70 (1.38, 2.09), respectively, for women (P trend = 0.019). This positive association remained consistent across subgroups of participants.

Conclusions: Mole count may represent a novel marker for development of T2DM in men and women, indicating a unique nevus development-related mechanism, possibly due to altered levels or functions of endogenous steroid sex hormones, in the pathogenesis of T2DM. Further studies are warranted to clarify the relationship of nevogenesis and T2DM and underlying mechanisms.