

referral (statute 627.6472).⁶ Florida also has several cancer initiatives that may be positively influencing screening activities, such as the Governor's Task Force on Skin Cancer Prevention and the Moffitt Cancer Center's program, "Mole Patrol."¹ This center has launched educational opportunities for Florida health care providers, which could have led to a greater awareness for routine screening. In addition, many Florida dermatologists have completed their residency in Florida, and are thus more aware of the dangers of residing at Florida's latitude.⁷ Finally, living in the "Sunshine State" may raise awareness of the need for skin cancer screening, especially for those with a family history of cancer.¹

Limitations of this study include the self-report and cross-sectional nature of the NHIS. A similarly worded self-reported whole-body skin examination question has been validated previously at a sensitivity of 90.5%,⁸ but this study was conducted outside of the United States. Also, it is unclear who is conducting the screening, and previous literature has shown that screening accuracy varies by practitioner type.³ Nevertheless, the combination of stakeholder efforts for skin cancer screening is essential, especially given the high prevalence of melanoma in Florida.¹

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No Association Between Coffee and Caffeine Intake and Risk of Psoriasis in US Women

Psoriasis is an immune-mediated disorder, but the involved genetic and environmental factors remain to be elucidated. The positive and negative effects of coffee and caffeine on psoriasis have been reported previously.¹⁻⁶ Among the positive effects, coffee has anti-oxidative properties that may help quell inflammation¹; topical caffeine has been used for the psoriasis treatment²; and coffee intake may improve the efficacy of methotrexate and sulfasalazine for psoriasis treatment.³ On the other hand, diterpenes present in unfiltered coffee and caffeine may increase serum cholesterol levels and blood pressure¹; exceptionally high caffeine plasma levels were shown to induce an adverse effect of photochemotherapy on psoriasis⁴; and coffee and caffeine have been implicated as contributing to psoriasis and flaring psoriasis phenotypes, although this last association has not been scientifically proven.⁵

It would be of public health significance to elucidate the long-term relationship between coffee and caffeine intake and the risk of psoriasis. Currently, there is a paucity of research on this topic, and the association remains unclear.⁶ Herein, we evaluated the association between consumption of coffee, decaffeinated coffee, and caffeine and the risk of incident psoriasis in women in the United States.

Methods. Participants free of psoriasis in 1991 were included from the Nurses' Health Study (NHS) II⁷ and ob-

Table 1. Age-Standardized Baseline Characteristics of Study Participants by Coffee and Caffeine Intake in NHS II^a

Characteristic	Caffeine Intake by Quintile (Q)				
	Q1 (n = 16 604)	Q2 (n = 16 460)	Q3 (n = 16 438)	Q4 (n = 16 570)	Q5 (n = 16 467)
Age, y ^b	35.6 (4.8)	35.5 (4.8)	36.0 (4.7)	36.7 (4.4)	37.2 (4.4)
BMI	24.4 (5.3)	24.8 (5.6)	24.6 (5.3)	24.4 (5.1)	24.4 (4.9)
Current smoking, %	5.2	7.0	10.2	14.3	25.9
Alcohol intake, g/wk	1.7 (4.5)	2.3 (4.8)	3.1 (5.7)	4.4 (7.3)	4.2 (7.0)
Vigorous physical activity, metabolic equivalent, h/wk	13.4 (21.0)	13.0 (21.8)	13.8 (23.0)	14.3 (23.5)	13.6 (23.3)

Abbreviations: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); NHS II, Nurses' Health Study II.⁷

^aUnless otherwise indicated, data are mean (SD) values and standardized to the age distribution of the study population.

^bValues are not age adjusted.

Table 2. Age- and Multivariate-Adjusted RRs for the Association of Coffee and Caffeine Consumption (Updated Cumulative Average Intake) With Risk of Psoriasis

Characteristic	Cases, No.	Person-years	RR (95% CI)		
			Age-Adjusted Model	Multivariate-Adjusted Model 1 ^a	Multivariate-Adjusted Model 2 ^b
Coffee intake, cups					
<1/mo	285	365 035	1 [Reference]	1 [Reference]	1 [Reference]
1/mo to 4/wk	132	173 920	0.93 (0.75-1.14)	0.91 (0.73-1.14)	0.89 (0.72-1.11)
5-7/wk	106	138 215	0.97 (0.77-1.21)	0.98 (0.77-1.23)	0.93 (0.74-1.18)
2-3/d	404	395 663	1.19 (1.02-1.38)	1.16 (0.98-1.38)	1.05 (0.88-1.25)
≥4/d	59	67 926	1.18 (0.89-1.57)	1.16 (0.87-1.54)	0.93 (0.69-1.25)
<i>P</i> value for trend	NA	NA	.007	.02	.56
RR per 1 additional cup	NA	NA	1.06 (1.02-1.11)	1.06 (1.01-1.11)	1.01 (0.97-1.06)
Decaffeinated coffee intake, cups					
<1/mo	528	631 628	1 [Reference]	1 [Reference]	1 [Reference]
1/mo to 4/wk	292	322 477	1.03 (0.89-1.18)	1.05 (0.90-1.23)	1.08 (0.92-1.27)
5-7/wk	74	85 231	0.96 (0.75-1.23)	1.01 (0.79-1.30)	1.03 (0.80-1.32)
2-3/d	90	95 662	1.05 (0.84-1.31)	1.08 (0.85-1.37)	1.07 (0.84-1.35)
≥4/d	2	5761	0.51 (0.13-2.05)	0.53 (0.13-2.14)	0.49 (0.12-1.96)
<i>P</i> value for trend	NA	NA	.93	.91	.92
RR per 1 additional cup	NA	NA	1.00 (0.92-1.08)	1.01 (0.92-1.10)	1.00 (0.91-1.09)
Caffeine intake					
Quintile 1	160	228 180	1 [Reference]	1 [Reference]	1 [Reference]
Quintile 2	186	228 222	1.09 (0.88-1.35)	1.04 (0.84-1.28)	1.02 (0.83-1.27)
Quintile 3	212	228 220	1.25 (1.02-1.54)	1.19 (0.96-1.46)	1.13 (0.92-1.39)
Quintile 4	217	227 942	1.25 (1.02-1.53)	1.19 (0.96-1.46)	1.09 (0.88-1.35)
Quintile 5	211	228 196	1.35 (1.10-1.66)	1.27 (1.03-1.56)	1.08 (0.87-1.35)
<i>P</i> value for trend	NA	NA	.003	.02	.50
Per 100 mg of additional caffeine	NA	NA	1.06 (1.02-1.10)	1.05 (1.01-1.09)	1.01 (0.97-1.05)

Abbreviation: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); NA, not applicable; RR, relative risk.

^aAdjusted for age (continuous variable), BMI (<21, 21-22.9, 23-24.9, 25-26.9, 27.0-29.9, 30.0-32.9, 33-34.9, and ≥35), alcohol drinking (none, <4.9, 5.0-9.9, or ≥10.0 g/d), and physical activity (<3, 3.0-8.9, 9.0-17.9, 18.0-26.9, or ≥27.0 metabolic equivalent h/wk). For analysis of coffee or decaffeinated coffee, consumption of other beverages by cup (coffee, decaffeinated coffee, tea, and decaffeinated tea [<1/mo, 1/mo to 4/wk, 5-7/wk, 2-3/d, or ≥4/d]) were adjusted for concomitantly.

^bAdjusted for smoking (never, past, or current with 1-14, 15-24, or ≥25 cigarettes/d) in addition to the variables in multivariate-adjusted model 1.

served until 2005. In 2005, incidence of psoriasis was ascertained by self-report on questionnaires that inquired about the clinician-diagnosed psoriasis and the date of diagnosis. We confirmed the diagnosis by using the Psoriasis Screening Tool questionnaire,⁸ which has 99% sensitivity and 94% specificity.

Participants were asked about their daily intake of foods and beverages during the previous year for specified serving sizes in 1991, 1995, 1999, and 2003. Total caffeine intake was calculated according to the method of the US Department of Agriculture food composition data supple-

mented with other sources. The caffeine content was assumed as 137 mg per cup of coffee, 47 mg per cup of tea, 46 mg per can or 12-ounce bottle of caffeine-containing soft drink, and 7 mg per 1-ounce serving of chocolate candy. Data were available on coffee and caffeine consumption at baseline and during the follow-up as well as updated cumulative average consumption. To best ascertain long-term effect and reduce within-subject variation, we used the updated cumulative average intake from all available questionnaire cycles instead of using 1-time measurement. In addition, we examined coffee and caf-

feine intake only at baseline as well as updated intake at individual cycles in secondary analyses.

Cox proportional hazards regression models were used to estimate relative risks (RRs) and 95% CIs. Analyses were updated because the main exposure, outcome, and covariates were all time varying. We had multivariate models with or without smoking. Analyses were conducted using SAS software, version 9.2 (SAS Institute Inc). The study was approved by the institutional review board of Brigham and Women's Hospital. Our receipt of each completed questionnaire implied participant's informed consent of the present study.

Results. A total of 82 539 participants were included. The baseline characteristics of participants by intake of caffeine (in quintiles) are listed in **Table 1**. Participants with higher consumption of caffeine were more likely to be current smokers and had a higher quantity of alcohol intake.

During 1 140 758 person-years of follow-up, we identified 986 incident cases of psoriasis. Risk of psoriasis was moderately elevated with increasing coffee consumption in the age-adjusted model. However, this trend became nonsignificant after adjustment for smoking. We also evaluated the association between decaffeinated coffee and risk of psoriasis, which was not significant. A trend toward increased risk of psoriasis was observed with higher caffeine intake in the age-adjusted model. The association became null after adjustment for smoking (**Table 2**).

Stratified analyses did not show significant findings among nonsmokers. Secondary analysis by only using different measures of coffee and caffeine consumption did not reveal material change of the effect estimation (eTable 1 and eTable 2; available at <http://www.archdermatol.com>).

Comment. In this prospective cohort study, we did not observe a material change of psoriasis incidence associated with coffee or caffeine intake, after adjusting for known confounders. Smoking appears to be the major confounder underlying the observed significant association between coffee and caffeine intake and risk of psoriasis in age-adjusted models. Consistent with published case-control studies, present data did not lend support to the effect of coffee or caffeine intake on risk of psoriasis.⁶ Our study had retrospective characteristics, given that information on psoriasis was collected in 2005, and misclassification is possible. Further studies are warranted to confirm our findings.

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Comparison of Refined and Crude Indigo Naturalis Ointment in Treating Psoriasis: Randomized, Observer-Blind, Controlled, Inpatient Trial

Our group's previous studies^{1,2} have shown that topical application of indigo naturalis significantly improves psoriatic symptoms. However, patient compliance is hindered because the preparation is unsightly and stains clothing.

To improve patient compliance, we have developed a refined formulation in which the blue dye component is removed, leaving only a purple-red color that is closer to natural skin tones and less prone to stain clothing. Herein, we describe a study of the efficacy and safety of this new product.