

## Supplementary contents

Study	Search strategies	Registers and websites	Inclusion criteria	Exclusion criteria
Martin A. Weinstock, 1992	Patients initially presented for evaluation at the Pigmented Lesion Unit of Massachusetts General Hospital.	A retrospective case-control study, not registered.	Caucasian patients 18 years old and older, had no personal history of malignancy other than skin cancer or medical history that might affect nutritional status, and no evidence of metastatic melanoma.	Patients with dysplastic or atypical nevi were excluded. Patients and controls lack of adequate dietary information were excluded.
Amy E. Millen, 2004	Melanoma patients treated between January 1, 1991 and December 31, 1992 at the Pigmented Lesion Clinic of the Hospital of the University of Pennsylvania in Philadelphia and the Melanoma Clinic of the University of California in San Francisco.	A case-control study registered in National Cancer Institute of the U.S. states to investigate the relationship of number and type of nevi to the development of melanoma.	Individuals ages 20 to 79 with newly diagnosed, histologically confirmed invasive cutaneous melanoma were recruited. Controls were from outpatient clinics.	Any potential control with dermatologic or psychiatric reason for clinic visit was excluded.
Maryam M. Asgari, 2009	Local residents participating the prospective study of the Vitamins and Lifestyle (VITAL) cohort to investigate whether vitamin D intake is associated with melanoma risk.	A cohort study registered in the Fred Hutchinson Cancer Research Center	Participants were 50-76 years old residing in western Washington recruited in the Vitamins and Lifestyle cohort study.	Participants reported a melanoma diagnosis at baseline were excluded. Nonwhites and those who did not report their race were excluded. Participants with preexisting conditions that could alter the vitamin D synthesis pathway were excluded.
Marco Vinceti, 2011	Melanoma patients in the Departments	A population-based case-control study in a	Patients with newly diagnosed cutaneous	Patients disagreed to participate or didn't mail back

	of Dermatology of the Parma, Modena, Bologna, and Ferrara University Hospitals and to the Unit of Dermatology of the Reggio Emilia Santa Maria Nuova Hospital and of the Bologna Bellaria-Maggiore Hospital.	northern region of Italy.	malignant melanoma during the years 2005 and 2006 in the Departments of Dermatology of the hospitals designated.	their informed consent and questionnaires.
Jean Y. Tang, 2011	Postmenopausal women age 50 to 79 years enrolled as participants in the Women's Health Initiative CaD trial were enrolled between 1995 and 2000.	This clinical trial is registered on JCO.org.	Participants had to have a life expectancy of at least 3 years and no history of cancer, except nonmelanoma skin cancer within the past decade.	Participants with history of hypercalcemia, kidney stones, corticosteroid, or calcitriol use were ineligible.
Sang Min Park, 2016	Female registered nurses aged 30–55 years, and male health professionals aged 40–75 years completed a questionnaire that inquired about medical history and lifestyle practices were included.	Nurses' Health Study registered in National Cancer Institute of the U.S. states.	85944 residents in 11 U.S. states were recruited for periodic collection of disease, health and lifestyle data.	Participants were excluded if they couldn't complete the questionnaire with fewer than 10 missing items or with a daily caloric intake out of the range of 500-3,500 kcal/day.
NÜRNBERG, 2009	Melanoma patients treated from December 1997 to March 2007 at the Department of Dermatology of the Saarland University Hospital or at the Department of Dermatology of the University of Mannheim were included.	A retrospective study registered in the University of Duisburg-Essen in Germany.	The study consisted of patients with histologically proven cutaneous melanoma of different stages.	Patients with no histological evidences were excluded.
Jacqueline M. Major, 2012	29,133 male smokers who smoked at	A joint project between the National Public	The trial participants had to be male,	Chronic renal insufficiency; cirrhosis of liver;

	least five cigarettes a day were included in this study conducted in southwestern Finland and included	Health Institute of Finland and the U.S. National Cancer Institute.	between 50 and 69 years old, residing within the study region.	chronic alcoholism; receiving anticoagulant therapy; psychiatric disorder or physical disability.
Shoaib Afzal, 2012	Danish general population aged 20–100 years were drawn randomly from the Danish Central Person to participate in the prospective cohort study, which is to explore the relationship of plasma 25-Hydroxyvitamin D and risk of skin non-melanoma and melanoma.	The Copenhagen City Heart Study is a prospective cohort study registered in the Copenhagen University Hospital.	Participants with available plasma samples for 25-OH-vitD measurement were included.	Participants with a diagnosis of skin cancer before study entry were excluded.
Jolieke C. van der Pols, 2012	Adults who had participated in the skin cancer prevention trial of daily sunscreen use and beta-carotene supplementation were followed and assessed for 11 years.	This community-based randomized trial with a 2 by 2 factorial was registered in the Griffith University of Australia.	Participants were originally randomly chosen residents of Queensland, who were aged between 20 and 69 years.	Participants without a second survey or a complete skin examination by a dermatologist were excluded.
Eun Joo Lee, 2017	The serum 25(OH)D levels of patients diagnosed with Crohn disease at the Department of Pediatrics in the Seoul National University Children's Hospital were checked from 2011 to 2015.	This retrospective study was registered in the Seoul National University.	Participants were diagnosed with conventional radiological histological evidences.	Participants who have a history of small bowel resection or couldn't visit the hospital at 6 and 12 months after checking the 25(OH)D levels were excluded.
Maria Sofia Cattaruz, 2019	This case-control study, carried out at the Dermatology	This case-control study was registered in the Sant Andrea	All the melanoma cases were diagnosed histologically,	Participants with a history of cancer or acute/chronic diseases at the

	Melanoma patients diagnosed from 2007 to 2012 and histologically confirmed at the Clinic of Sant Andrea Hospital, Rome, Italy, were enrolled. Healthy controls of a similar quantity were also recruited.	Hospital of Italy.	aged between 18 and 85 years.	time of enrollment.
Julia A. Newton Bishop, 2009	The patients were population-ascertained incident patients with melanoma (Stages I to IIIA) recruited in northern England from September 2000 through March 2008. Participants completed a questionnaire containing questions on drug intake and use of dietary supplements.	This retrospective cohort study was registered at the UK National Cancer Research Network.	Melanoma cases had all been diagnosed at least 3 years previously without relapse. Participants had a tumor Breslow thickness greater than 0.75 mm.	Participants without a single serum sample were excluded.
T. Gambichler, 2013	Patients with melanoma were prospectively recruited (December 2009 to March 2012) at the Skin Cancer Center, Ruhr-University (Bochum, Germany).	This cohort study was registered in the Ruhr-University Bochum.	Patients with malignant melanoma were included and staged in accordance with the American Joint Committee on Cancer classification system.	Patients using 25(OH)D supplements were not included.
Candy Wyatt, 2015	Patients were recruited between 1 July 2010 and 27 July 2011 in Brisbane, Australia.	This retrospective study was registered in the Queensland University of Technology.	Participants were patients aged 18 years and older with histologically confirmed cutaneous melanoma.	Diagnosis made from metastatic or lymph node tissue; pre-existing conditions that could interfere with the vitamin D pathway such as chronic liver or kidney disease; transplant recipients; or receiving high

				dose calcium therapy.
Alvin Lim, 2018	Cases included patients with cutaneous melanoma who were diagnosed and treated or referred for management at the institution. Cases were retrospectively recruited by searching records of melanoma biopsy and excision specimens in the database of the pathology department between the years 2001 and 2013. Case selection was not restricted by age, sex, or ethnicity.	This retrospective study was registered in the Royal Melbourne Hospital of Australia.	Participants were with melanoma biopsy and excision specimens in the database of the pathology department.	Participants without certain histological evidences were excluded.