

## Melanoma Incidence Rates Among Whites in the U.S. Military

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### RESEARCH HIGHLIGHTS:

- While melanoma rates have increased across populations within the United States over the last 30 years, overall incidences among active-duty military personnel are significantly lower, with incidences among non-white active-duty personnel being negligible.
- In this study, researchers used an age-adjusted analysis to compare melanoma incidence rates between civilians and active-duty military service members. Overall incidence rates were significantly lower in military personnel younger than 45 years of age but higher among those 45 and older.
- Active-duty male personnel serving in the Air Force, Navy and Marines had higher incidence rates than those in the Army. Among females, those serving in the Air Force and Navy had significantly higher incidence rates than those in the Army. However, the overall incidence rate among females in the military is small. Future research on risk factors for melanoma among military personnel is needed.

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### ABSTRACT:

*Background:* The U.S. Military and general populations may differ in the exposure to sunlight and other risk factors for melanoma and therefore the incidence rates of melanoma may be different in these two populations. However, few studies have compared melanoma incidence rates and trends over time between the military and the general population.

*Methods:* Melanoma incidence rates from 1990 to 2004 among white active-duty military personnel and the general U.S. population were compared using data from the Department of Defense Automated Central Tumor Registry and the National Cancer Institute Surveillance, Epidemiology, and End Results program.

*Results:* Age-adjusted melanoma rates overall were significantly lower in the military than in the general population; the incidence rate ratio was 0.75 for men and 0.56 for women. Age-specific rates, however, were significantly lower among individuals younger than 45 years, but significantly higher among those 45 years or older ( $P < 0.05$ ). Melanoma incidence increased from 1990 – 1994 to 2000 – 2004 in both populations, with the most rapid increase (40%) among younger men in the military. Melanoma incidence rates also varied by branch of military service; rates were highest in the air force.

*Conclusion:* These results suggest that melanoma incidence rate patterns differ between the military and the general population.

*Impact:* Further studies of risk factors for melanoma in the military are needed to explain these findings.”

## Implications

### FOR PRACTICE

Because active duty personnel are generally healthier, more active, and have easier access to healthcare compared to the U.S. population overall, they may perceive themselves to be less at risk for developing melanoma. However, it is still important for this population to have routine physical examinations and skin cancer checks. While all military branches have created and distributed information on ways to minimize sun exposure and proper application of sunscreen, personnel should be warned that there are other potential risk factors for melanoma such as exposure to PCBs. As such, physicians should incorporate skin cancer screening into annual physical examinations, and active duty service members should request such examinations if they are not offered outright. Additionally, as melanoma risk increases with prolonged exposure to risk factors, doctors should take time to screen older personnel as well.

### FOR POLICY

There is little documentation on policy directed toward melanoma detection and prevention. Studies have determined exposure to PCBs to be a risk factor for melanoma. PCBs were used in the construction of Navy vessels between 1946 and 1977. Some of those vessels are still in use today. Policy makers should require the DoD to increase efforts to retire vessels containing PCBs as well as require those who have been exposed to this toxin to undergo melanoma screening. Additionally, mandating the provision of sun protective clothing and sunscreen for at-risk military populations would assist in preventative measures. Partnership between the VA and military branches to increase sun safety behaviors and melanoma awareness would increase both preventative early detection efforts.

### FOR FUTURE RESEARCH

There is little research investigating the risk and incidence of melanoma among active-duty service personnel, with this being one of the first studies using DoD-wide data. Two previous studies are of note: one analyzing data from 1974-1984 and another which focuses on melanoma among Air Force pilots. Previous research found no significant difference in incidence rates between the general population and military populations. Future researchers should explore potential causes of the significant increase in melanoma incidence in younger male service members. Studies have shown that among all branches of the military, the Air Force has the highest rate of melanoma. Studies found Air Force pilots to be at higher risk of developing melanoma but the majority of Air Force servicemembers are not pilots. Future research should examine different risk factors for melanoma among the military branches, as well as any significant differentiation occurring within each branch. Longitudinal research analyzing the impact of cumulative exposure to sun, polychlorinated biphenyls (PCB) and other chemicals that might be related to melanoma is needed, as well.

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