

# Risk stratification for melanoma: insights from 9705 patients undergoing 3D total-body imaging

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DERMATOLOGIE  
MALDEGEM

## BACKGROUND

In a retrospective study, 9705 patients underwent 3D total-body imaging with digital dermoscopy. 3D imaging was used either as a triage tool in individuals without elevated melanoma risk, aiming to identify those with suspicious lesions requiring dermatologic consultation (TRIAGE scan), or to facilitate longitudinal dermatologic follow-up in high-risk patients (ASSIST scan).

While individuals with more than 100 nevi are well recognized as being at increased risk for melanoma, less is known about melanoma risk among patients with fewer than 100 nevi, a group that constitutes a much larger proportion of the general population. We therefore sought to examine melanoma risk factors in these patients with fewer than 100 nevi within a 3D total-body imaging cohort.

## METHODS



- Retrospective cohort study with 9705 patients (age 18-95 years)
- 3D total body scan with digital dermoscopic imaging
- Risk stratification for melanoma was based on **age, gender, total nevus count, presence of atypical nevi, and personal history of melanoma**
- Cross-tabulations were used to examine associations between melanoma detection and nevus count, presence of atypical nevi or personal history of melanoma
- Subgroup analyses were conducted within nevus count categories stratified by presence of atypical nevi

## RESULTS

MELANOMA DETECTION RATE		
Total cohort: 0.78% (n = 76)		
<p><b>&lt; 50 nevi (n = 4355)</b></p> <p>0.4% (n = 16)</p> <p>No atypical nevi (n = 3883)</p> <p>Atypical nevi (n = 472)</p> <p>0.18% (n = 7)</p> <p>1.91% (n = 9)</p>	<p><b>50 - 100 nevi (n = 2577)</b></p> <p>0.9% (n = 24)</p> <p>No atypical nevi (n = 1323)</p> <p>Atypical nevi (n = 1254)</p> <p>0.60% (n = 8)</p> <p>1.28% (n = 16)</p>	<p><b>&gt; 100 nevi (n = 2773)</b></p> <p>1.3% (n = 36)</p> <p>No atypical nevi (n = 531)</p> <p>Atypical nevi (n = 2242)</p> <p>0.75% (n = 4)</p> <p>1.43% (n = 32)</p>

### Baseline characteristics

Variable	Total cohort (n = 9705)
Age, years — median (range)	52 (18 - 95)
Female, n (%)	5568 (57.4%)
Atypical nevi, n (%)	3968 (40.9%)
Personal history of melanoma, n (%)	1378 (14.2%)

- Nevus count was significantly associated with melanoma detection: 0.4% in patients with <50 nevi, 0.9% in those with 50-100 nevi, and 1.3% in patients with >100 nevi ( $p < 0.0001$ )
- Within these nevus count categories, the presence of atypical nevi was a robust predictor of melanoma, particularly in the < 50 nevus count category (0.18% vs 1.91%;  $p < 0.0001$ ). In the 50–100 nevus count category, the association between atypical nevi and melanoma was clinically relevant, but not statistically significant (0.6% vs 1.28%;  $p = 0.076$ ).
- Age emerged as a significant risk factor, whereas gender did not.
- Conversely, personal history of melanoma did not significantly alter outcomes (<50 nevi: 0.34% vs 0.76%;  $p = 0.27$ ; 50–100 nevi: 0.84% vs 1.54%;  $p = 0.223$ ).

## CONCLUSION

Our findings confirm known risk factors for melanoma: age and nevus count. A notable observation is the **high melanoma detection rate** among patients **with a low nevus count but in the presence of atypical nevi**. If confirmed in larger studies, this may help identify a new subgroup of patients at increased risk for melanoma detection using 3D total-body imaging. Other potential risk factors, such as genetic predisposition, family history of melanoma, and skin phototype, were not included in this analysis. The latter two were excluded because the available data were deemed unreliable, and genetic background was not assessed.

### References:

Vossaert K et al. The TRIAGE and ASSIST scan: A new concept in three-dimensional total-body imaging for early melanoma detection. *EJC Skin Cancer*. 2025;3:100748.

Swetter SM et al. Guidelines of care for the management of primary cutaneous melanoma. *J Am Acad Dermatol*. 2019;80:208–250.