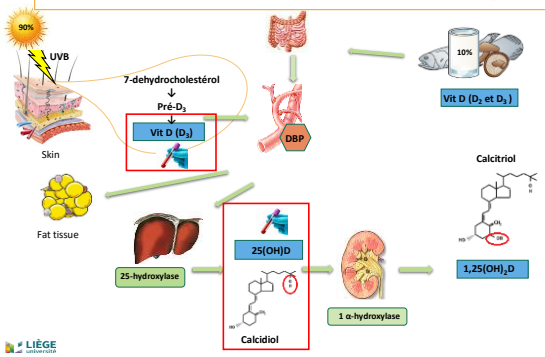
Contribution to the study of the relationship between vitamin D and skin

Dr Florence Libon

PhD Thesis in Medical Sciences

Prof A.F. Nikkels

Synthesis of vitamin D

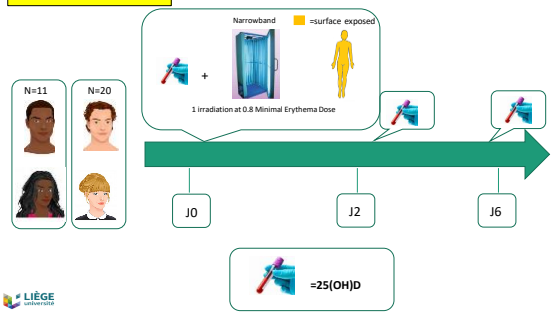


Influence of skin color on vitamin D production

F. Libon, A.F. Nikkels, E. Cavalier
Skin color is relevant to vitamin D synthesis
Dermatology 2013;227:250-4. **FI: 1,449**

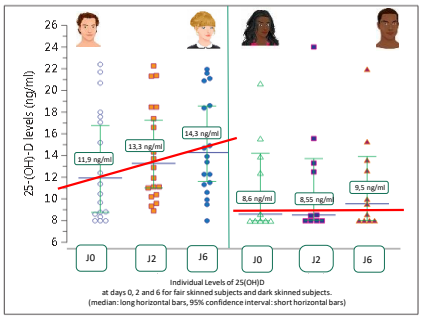
Influence of skin color on vitamin D production

Materials and methods



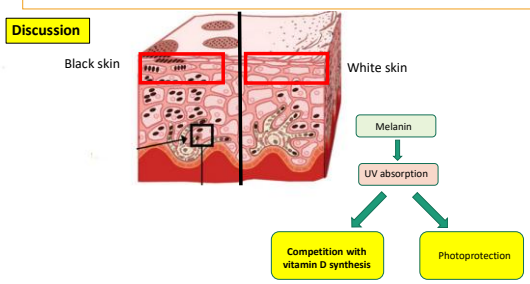
Influence of skin color on vitamin D production

Results



Influence of skin color on vitamin D production

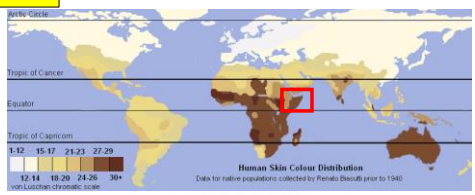
Discussion



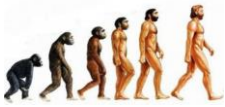
Melanosomes of black skin remain intact in epidermal layers

Influence of skin color on vitamin D production

Discussion



Correlation between skin pigmentation and equatorial latitude

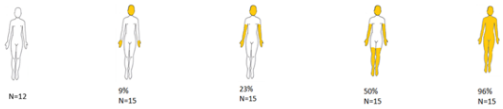


Influence of skin color on vitamin D production

Conclusion

This study suggests that skin pigmentation is an obstacle to vitamin D synthesis.

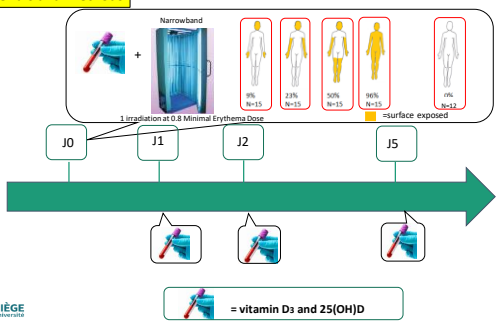
Effect of body site and surface on vitamin D and 25(OH)D production



F. Libon, J. Courtois, C. Le Goff, P. Lukas, N. Fabregat-Cabello, L. Seidel, E. Cavalier, A.F. Nikkels.
Effect of body site and surface on vitamin D and 25-hydroxyvitamin D production after a single narrowband UVB-exposure.
J Invest Dermatol 2017;137:1391-1393. **FI: 6,915**

Effect of body site and surface on vitamin D and 25(OH)D production

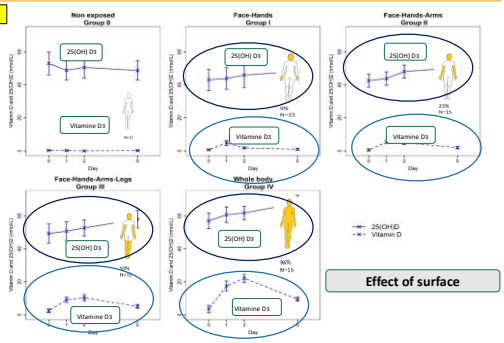
Materials and Methods



= vitamin D3 and 25(OH)D

Effect of body site and surface on vitamin D and 25(OH)D production

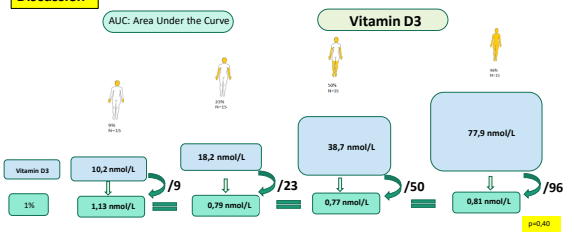
Results



Effect of surface

Effect of body site and surface on vitamin D and 25(OH)D production

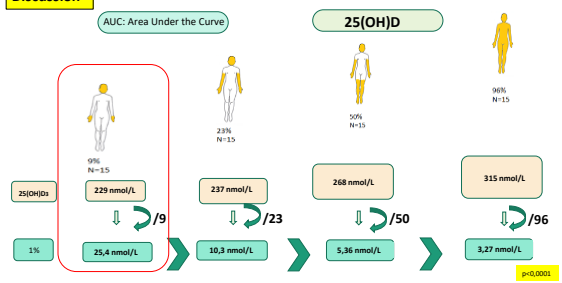
Discussion



Effect of site

Effect of body site and surface on vitamin D and 25(OH)D production

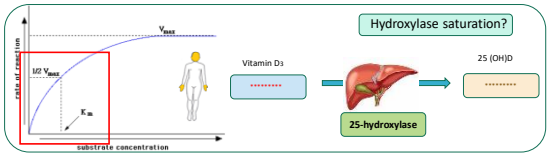
Discussion



Effect of site

Effect of body site and surface on vitamin D and 25(OH)D production

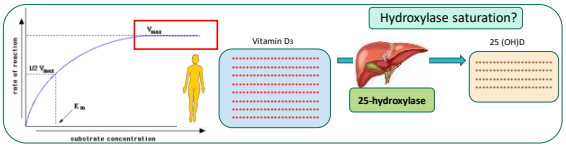
Discussion

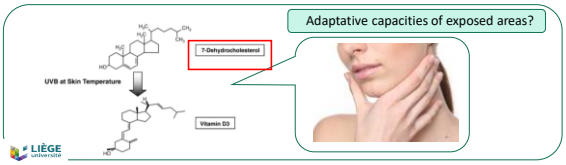


Effect of site

Effect of body site and surface on vitamin D and 25(OH)D production

Discussion





Effect of body site and surface on vitamin D and 25(OH)D production

Conclusion

The larger the area exposed to UVB, the higher the production of vitamin D and 25 (OH)D.

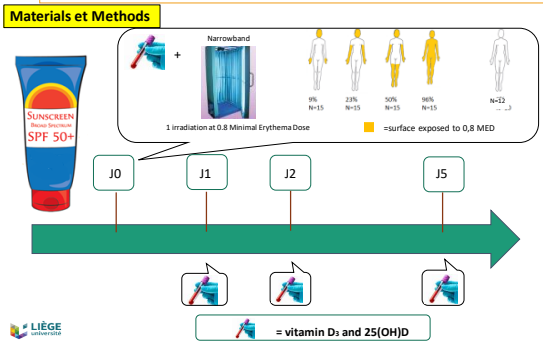
The hands and the face are more efficient in terms of the production capacity of 25(OH)D compared to the whole body

Influence of sunscreen on vitamin D and 25(OH)D production

Libon F, Courtois J, Le Goff C, Lukas P, Fabregat-Cabello N, Seidel L, Cavalier E, Nikkels AF. *Sunscreens block cutaneous vitamin D production with only a minimal effect on circulating 25-hydroxyvitamin D.* *Arch Osteoporos 2017;12:epub* **FI: 2,387**

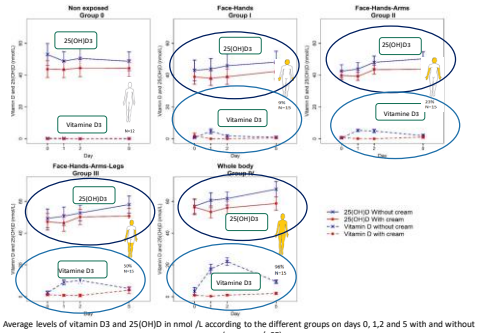
Influence of sunscreen on vitamin D and 25(OH)D production

Materials et Methods



Influence of sunscreen on vitamin D and 25(OH)D production

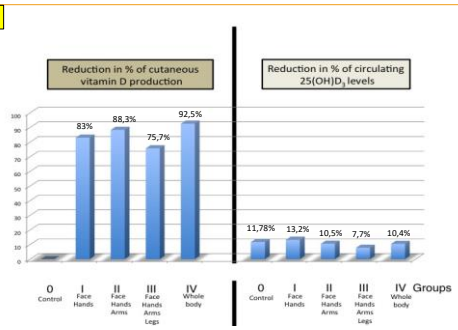
Results



Average levels of vitamin D3 and 25(OH)D in nmol /L according to the different groups on days 0, 1,2 and 5 with and without cream (average +/- SE)

Influence of sunscreen on vitamin D and 25(OH)D production

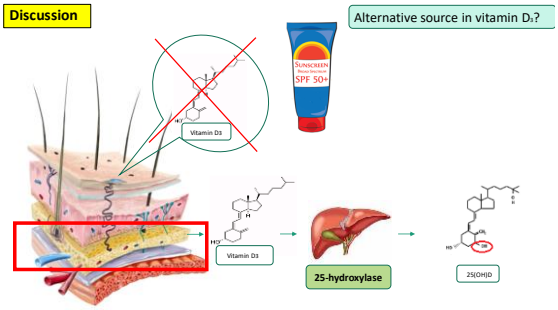
Results



Influence of sunscreen on vitamin D and 25(OH)D production

Discussion

Alternative source in vitamin D_3?



Influence of sunscreen on vitamin D and 25(OH)D production

Conclusion

The application of sunscreen (SPF50 +) is associated with a decrease in vitamin D_3 production which reaches 92.5%

The application of sunscreen (SPF50 +) is associated with a decrease in 25(OH)D synthesis approaching 10 % in different groups

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

F. Libon, L. Seidel, E. Cavalier, A.F Nikkels
Vitamin D Supplementation does not improve the severity or the resolution of Ultraviolet B-Induced acute erythema
Dermatology 2015;231:280-5. **FI: 1,449**

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

Materials et Methods

50 subjects of phototype III

UVB MED TESTER ou PHOTOTEST

Phototest → UVB induced erythema

Day 1

24 hours after

COLORIMETER

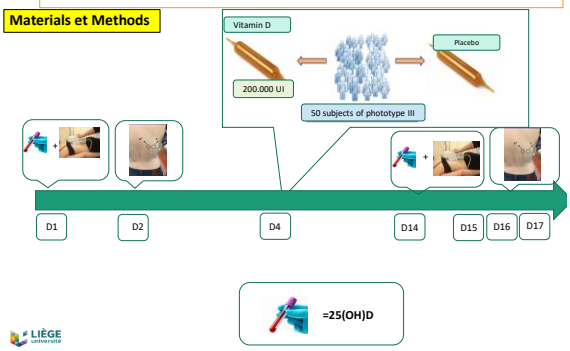
a*: measurement of induced UVB erythema
C : control

Colorimeter: a*- C= intensity of erythema

Day 2

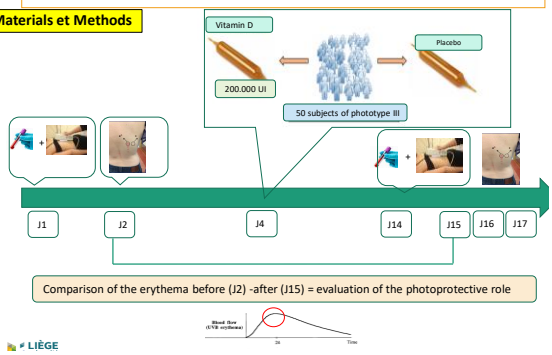
Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

Materials et Methods



Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

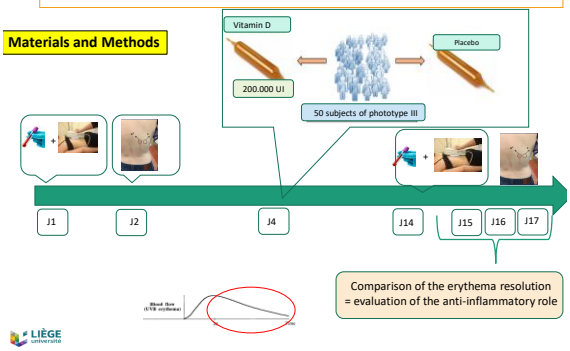
Materials et Methods



Comparison of the erythema before (J2) -after (J15) = evaluation of the photoprotective role

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

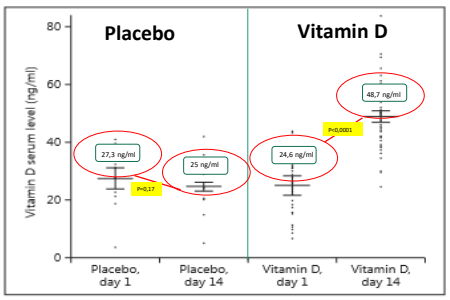
Materials and Methods



Comparison of the erythema resolution = evaluation of the anti-inflammatory role

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

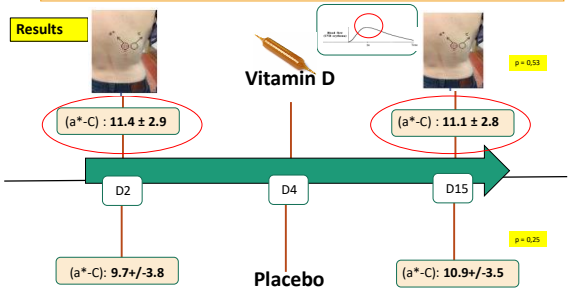
Results



Serum Levels of 25 (OH) D in Placebo and Vitamin D Groups at Days 1 and 14
(individual values presented as averages +/- SE).

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

Results

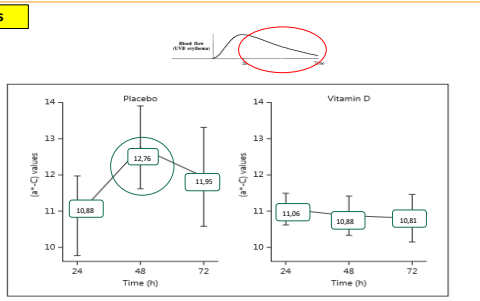


No statistically significant difference in mean (a *-C) values before and after vitamin D3 supplementation

No photoprotective effect in vivo

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

Results



Temporal evolution of (a * -C) (mean +/- SE) in the placebo group and the group supplemented with vitamin D (J15, J16, J17)

Vitamin D improves the resolution of erythema

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

Discussion

No photoprotective effect in vivo

Levels of 25(OH)D?

Mean of 25(OH)D_3 = 48.7 ng/ml → **not enough ?**

Threshold effect?

"Anti-erythema" effect of vitamin D not detectable with SUPRA - DEM doses**?**

LIÈGE université

Does vitamin D have a role in the severity and persistence of UVB-induced erythema?

Conclusion

Oral supplementation with high doses of vitamin D_3 does not improve protection against UVB-induced erythema.

Oral supplementation with high doses of vitamin D_3 improves the resolution of erythema in fair skinned individuals.

LIÈGE université

Thank you for your attention