

Omega-3 polyunsaturated fatty acids: photoprotective macronutrients.

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Abstract

Ultraviolet radiation (UVR) in sunlight has deleterious effects on skin, while behavioural changes have resulted in people gaining more sun exposure. The clinical impact includes a year-on-year increase in skin cancer incidence, and topical sunscreens alone provide an inadequate measure to combat overexposure to UVR. Novel methods of photoprotection are being targeted as additional measures, with growing interest in the potential for systemic photoprotection through naturally sourced nutrients. Omega-3 polyunsaturated fatty acids (n-3 PUFA) are promising candidates, showing potential to protect the skin from UVR injury through a range of mechanisms. In this review, we discuss the biological actions of n-3 PUFA in the context of skin protection from acute and chronic UVR overexposure and describe how emerging new technologies such as nutrigenomics and lipidomics assist our understanding of the contribution of such nutrients to skin health.