



ACNE, ROSACEA, AND RELATED DISORDERS (INCLUDING HIDRADENITIS SUPPURATIVA)

THE LINK BETWEEN ACNE AND PROSTATE CANCER

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Introduction: Epidemiological studies link acne in adolescence with the risk of prostate cancer (PCa) in adulthood.

Objective: It is the intention of this presentation to provide an explanation for the acne-PCa association by comparing common milk-induced signaling pathways in acne vulgaris and PCa.

Methods: Epidemiological studies presented on the milk-acne association and milk-PCa association are linked to milk-induced IGF-1-AKT-mTORC1 signaling by means of translational research.

Results: Epidemiological studies support the association between milk consumption and acne vulgaris as well as milk intake and PCa. Recently, an association between acne in adolescence and PCa later in adult life has been reported. More severe acne has been related to more aggressive PCa. According to the Island study, daily milk consumption during adolescence in comparison to less frequent milk consumption increased the risk of advanced PCa in adulthood by the factor of 3.2. Both, acne and PCa are promoted by androgen- and increased IGF-1-AKT-mTORC1 signaling. The occurrence of acne in adolescence and the sexual maturation of the prostate via mTORC1-dependent morphogenesis coincide during adolescence. Milk consumption increases androgen- and IGF-1-AKT-mTORC1 signaling, thus promotes acne pathogenesis and may disturb adequate branching morphogenesis of the prostate during adolescence. IGF-1-mediated suppression of FoxO1 and milk-microRNA-148a-mediated suppression of DNA methyltransferase 1 enhances androgen signaling. Lactose intolerance and dairy-free Paleolithic diets, which are associated with restricted milk intake, protect against the development of both acne and PCa.

Conclusion: Based on epidemiological and translational evidence, milk intake during adolescence results in over-activated androgen- and mTORC1-signaling that promotes the pathogenesis of acne vulgaris and PCa. Patients with acne should restrict their milk





consumption not only to improve their acne but also to prevent PCa in adult life.

