# TISSUE LEVELS OF RETINOL IN GROUPS AT RISK OF UPPER AERODIGESTIVE TRACT CANCER

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Tissue levels of retinol are important in maintaining mucosal epithelia in a fully differentiated, non-metaplastic state (Lippman et al, 1987). Despite this, very few studies have examined levels of retinol in tissue exposed to high levels of carcinogens, but prior to the development of a tumour.

The present study examined cheek cell retinol levels in males at elevated risk of upper aero-digestive tract cancers: nasopharyngeal cancer (ethnic Chinese background) and oral and oesophageal cancer (heavy exposure to alcohol and tobacco). Both groups were compared to a non-smoking, non-drinking caucasian control group. The table shows unadjusted mean buccal retinol considered by smoking and drinking status, and mean buccal retinol adjusted for dietary retinol, ß-carotene, supplementation with vitamin A, ethnic group and time of sample collection.

| Smoking/ Drinking status | | N | Buccal Retinol (ng/pg protein) Adjusted Mean (ln)1 | Unadjusted Mean, se | |
|---|---|---|---|---|---|
| 0 | Neither | 78 | 1.88 | 9.78 | 2.06 |
| 1 | Drink only | 18 | 1.71 | 7.09 | 2.89 |
| 2 | Smoke only | 11 | 1.38 | 5.90* | 3.78 |
| 3 | Drink & Smoke | 51 | 1.30* | 4.60* | 1.57 |

* comparison with the baseline group is significant at the 5% level.

Buccal retinol levels were 50% lower in the smoking and drinking group. The difference remained significant after adjustment for age, time of sample collection and dietary and supplementary vitamin A. Chinese ethnic background was associated with a smaller, non-significant reduction in buccal retinol. Analysis of variance, considering smoking and drinking variables separately, demonstrated that the effect was due to smoking exposure alone. A dose-response effect of smoking could be demonstrated at levels known to substantially increase risk of oral and oesophageal cancer.

Lowered tissue levels of a retinol in response to carcinogen exposure, but in the presence of adequate serum and liver levels have been reported in animals (Edes et al, 1991). Studies reporting only plasma levels of retinol will not revela focal deficiencies of retinol at the cancer site.

LIPPMAN S.M., KESSLER J.F., and MEYSKENS F.L. (1987). Cancer Treat. Rep. 71:391-405.

EDES T.E., GYSBERS D.G., BUCKLEY C.S., THORNTON W.H. (1991).Nutr. Cancer 15:159-66.

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