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### Beetroot juice increases the risk of thyroid nodules and hypothyroidism in breast cancer patients

After diagnosis, many breast cancer patients start consuming high quantities of beetroot and carrot juice in the hope that it will sustain their treatment. But these foods are very high in nitrates which can competitively inhibit the use of iodine by the thyroid, potentially leading to hypothyroidism or thyroid nodules. Thus, we applied a nitrate and iodine food frequency questionnaire (asking about dairy, fish, sea food and iodized salt for iodine intake and spinach, carrots, beetroot, lettuce and arugula for nitrates intake) to 353 ER+/PR±/HER2- breast cancer patients during anti-estrogenic treatment. We excluded patients with a thyroid disease diagnosis before the cancer diagnosis, ex-smokers or those with renal disease or bipolar disorders. In this sample of patients, the only correlations between dietary intake of nitrates and the appearance of thyroid nodules were protection factor by minimum intake of dairies 250 ml/day; risk factor by intake over 200 g spinach, 250 g carrots or beetroot 250 g/day. And the correlations between dietary intake of nitrates and hypothyroidism were protection factor by intake of iodized salt 2.5 g, minimum fish 100 g or 250 ml dairy/day; and risk factor by intake over 250 g carrots or beetroot 250 g/day. The results of this study support the hypothesis that an increased intake of foods high in nitrate - in particular beetroot and carrot juice-is a risk factor for the *de novo* development of hypothyroidism or thyroid nodules after the diagnosis of breast cancer.

### Biography

Diana V Artene is a Nutritionist-Dietitian, with a Master's degree in Nutrition Sciences and PhD in Oncology Nutrition. She is a Certified Member of the International Society of Sports Nutrition and a Reviewer for the American Society for Nutrition. She has written three Nutrition Books: "The Old Chocolate Diet"; "Nutrition Guide for Mums" and "5 Gears Diet". She works as an Oncology Nutritionist at Professor Dr. Al Trestioreanu Institute of Oncology in Bucharest, Romania.

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