

## LETTER TO THE EDITOR ΓΡΑΜΜΑ ΠΡΟΣ ΤΟΝ ΕΚΔΟΤΗ

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### Is garlic consumption protective against drunkenness? A modern medical approach to a Hippocratic viewpoint

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Hippocrates of Kos (c. 460–370 BC), the “Father of Medicine”, wrote the following 2,500 years ago: “...σκόροδον... ούρητικόν δέ, καί τοῦτο ἔχει ἀγαθόν· ἄριστον δέ αὐτοῦ φαγέειν μέλλοντι ἐς πόσιν ἰέναι, ἢ μεθύοντι” (...garlic... [being] diuretic, and which is beneficial; the best occasion to eat it is when one is going to drink or is drunk).<sup>1</sup> Another of his claims was: “ἐφ’ οἷσι γινόμενα ρύεται, τούτων προγενόμενα κωλύει” (whatever treats the disease later [after its occurrence], can prevent its occurrence before hand).<sup>2</sup> Hippocrates suggested the consumption of raw garlic as a means of preventing, and of treating, alcohol intoxication, because of its diuretic properties, and implied that the diuretic action of alcohol acts as a “therapeutic” agent against drunkenness. Even today, a similar and quite common, though unproven, practice in Greece is to consume tzatziki (a traditional sauce made from raw garlic, cucumber, olive oil and strained yogurt) before drinking alcohol, to avoid drunkenness.

Can the Hippocratic practice of consuming raw garlic before imbibing large amounts of alcohol actually be a preventive measure against intoxication? Although the hepatoprotective effect of garlic (*Allium sativum*) against

alcoholic liver disease is well documented,<sup>3</sup> the Hippocratic recommendation of consuming a large quantity of raw garlic before drinking alcohol as a precaution against intoxication may not, in practice, be beneficial. This is because sugar content of alcoholic drinks (e.g. in liqueur) and their diuretic action, in combination with the diuretic action and constituents of raw garlic (water: 59 g/100 g, low fat: 0.5 g/100 g; high carbohydrates: 33 g/100 g),<sup>4</sup> along with low water consumption, can facilitate the rapid absorption of alcohol into the bloodstream, leading more rapidly to alcohol intoxication (bearing in mind that ethanol is soluble in water, that fats inhibit gastric emptying and carbohydrates speed up the absorption of alcohol into the body). In addition, according to the findings of a recent study,<sup>5</sup> the sulfur compounds in garlic probably inhibit the activity of the enzyme aldehyde dehydrogenase (ALDH) which catalyzes the critical step of ethanol metabolism, i.e., the transformation of toxic acetaldehyde to acetic acid, and thereby increases the probability of a hangover syndrome due to accumulation of acetaldehyde. Causing an increase in serum acetaldehyde level by inhibiting ALDH, and the associated adverse effects are known to produce an aversion towards further ethanol consumption (i.e., acting in the same way as disulfiram, an alcohol dependence therapy). In addition, the accumulation of toxic acetaldehyde promotes the death of cancer cells, and for this reason garlic-induced ALDH inhibition can be beneficial in cancer therapy. The presence of strained yogurt in tzatziki not only is likely to slow down the body’s absorption of alcohol by inhibiting gastric emptying, but it also helps to reduce the bad breath resulting from garlic ingestion, and to mask the garlic flavor while eating tzatziki.<sup>6</sup>

It can be concluded from the above discussion that the consumption of raw garlic before drinking a large amount of alcohol does not protect against drunkenness, but, conversely, increases the probability of development of a hangover syndrome, but further scientific studies are needed to confirm these views.

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## ΠΕΡΙΛΗΨΗ

**Η κατανάλωση σκόρδου προστατεύει από την οξεία μέθη; Σύγχρονη ιατρική προσέγγιση μιας Ιπποκρατικής άποψης**

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**Λέξεις ευρετηρίου:** Ιπποκράτης, Οινόπνευμα, Οξεία μέθη, Σκόρδο**References**

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