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Editorial

“This has no flavor”: balancing nutrition, taste, and salt restriction in geriatric care units

A R T I C L E I N F O

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A B S T R A C T

Salt (sodium chloride, NaCl) has played a fundamental role in human history, not only as a dietary component but also as a cultural, symbolic, and economic resource. Global salt intake remains high and heterogeneous, with marked geographical variation in both consumption levels and dietary sources. Numerous studies have shown significant associations between salt consumption and adverse health outcomes. Hospitals have implemented salt-restriction strategies that may have unintended consequences for food palatability and nutritional intake, particularly among older adults. In geriatric settings, where appetite-related disorders such as dysgeusia, dysphagia, and xerostomia are common, strict dietary sodium restriction may further compromise food consumption and increase the risk of malnutrition. Here, we discuss the potential implications of salt restriction in acute geriatric care, highlighting its possible impact on dietary intake, palatability and nutritional status.

Salt refers to a crystalline compound primarily composed of sodium chloride (NaCl), which has held diverse roles and symbolic meanings throughout history. According to mythology, Aphrodite (Venus in Roman mythology) was born from sea foam, highlighting the symbolic association between salt and life [1,2]. In ancient Rome, soldiers were partly paid with salt, giving rise to the term *salarium*, from which the modern word “salary” derives [1,2]. The Via Salaria, one of the main Roman roads, received its name because it was an important route for the transport and trade of salt [1,2]. In ancient Egypt, salt was placed on the bodies of the deceased during funerary rituals [2]. Salt held a similar connotation in Scotland, where it was also associated with immortality [2]. In several ancient societies, salt was believed to possess purification and healing properties and was therefore used in religious rituals and sacrificial offerings [1]. During the Middle Ages, salt became one of the most valuable commodities in Venice trade and commerce [1,2].

The utilization of salt in cuisine originated primarily as a method of food preservation [3]. This technique prevents microbial growth by reducing water activity and limiting hydration available for microorganisms [3]. It is still used today in many countries for the preservation of specific traditional foods, such as *carne-seca* (dry-meat) in Brazil, cured ham in Spain and Italy, and *bacalhau* (cod) in Portugal [3]. Over time, the taste of salt-preserved foods became widely appreciated and culturally integrated into culinary practices [3]. This scenario reflects not only its preservative properties and effects on flavor, but also a range of sensory impacts, including enhanced perception of texture and thickness, modulation of sweetness and overall flavor intensity, as well as the masking of metallic and chemical off-notes [3].

The global average salt intake is estimated to be approximately 9.3 ± 1.3 g/day [4]. However, findings from recent surveys indicate that these values vary considerably across the world. For instance, high intakes per capita per day have been reported in China (17.7 g), Hungary (14.3 g), Czechia (13.0 g), and Slovenia (13.0 g), whereas countries, such as the Republic of the Congo (5.7 g), Estonia (5.7 g), Turkey (5.3 g), and Samoa (5.1 g), exhibit lower consumption levels, all below 6.0 g/day [5]. The dietary sources of salt also differ according to geographical location [6]. Bread and bakery products contribute 25–40% of daily salt intake in many European countries and the USA, while cereals and grains contribute up to 24%, particularly in China and Brazil [6]. Meat products account for up to 31% in the USA and 4–16% in several European, South American, Australian, and New Zealand populations [6].

These findings are concerning, as sodium intake is positively associated with mortality even at low levels, with a hazard ratio of 1.12 per 1000 mg/24 h increment in 24-hour urinary sodium excretion [7]. Other studies have challenged this view, as results indicated no linear, but a J-shaped association between salt intake and both major cardiovascular events (i.e., myocardial infarction and stroke) and mortality [8]. In this context, lower and higher intakes of salt were associated with an increased risk, whereas no significant associations were found for moderate consumption [8]. Although these findings contrast with most current recommendations and have prompted expert groups to reconsider existing assumptions, some authors have raised substantial concerns regarding these results due to the potential influence of reverse causality and measurement error [9]. These conservative views are endorsed by the World Health Organization (WHO) that recommends a daily salt intake of 5 g for adults.

Observational studies have shown that efforts have been made to adapt hospital menus to these recommendations, with the average sodium intake provided by regular menus estimated at 7.2 g/day, alongside the provision of sodium-restricted alternative options [10,11]. These values represent only the sodium content provided by manufacturers and do not account for additional salt packets, as these are not commonly offered in hospital settings. A question that arises from this

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scenario is whether such restrictions affect the intake of essential nutrients among older patients, potentially increasing the risk of malnutrition in this population.

Indeed, it is important to emphasize that older patients commonly present numerous appetite-related disorders, including anorexia of aging, dysgeusia, dysphagia, and xerostomia, to quote a few [12–15]. The management of these conditions, particularly in short-term settings such as geriatric acute care units, is complex and multifactorial, involving mechanical factors (e.g., dysphagia) and pharmacological adverse effects (e.g., dysgeusia) [16]. Accordingly, interventions are often acute in nature (e.g., modifying fluid textures, adding oral nutritional supplementation) to prevent nutritional complications during hospitalization. However, their effectiveness is debated. As such, efforts are made by the medical team to encourage patients to consume their main meals. Nevertheless, a frequent complaint is that food “has no flavor,” with patients often requesting the addition of salt [17].

There is a limited body of evidence examining the effects of salt restriction on outcomes in geriatric patients. However, existing evidence suggests that short-term salt restriction during hospitalization does not confer additional benefits in terms of adverse outcomes. In one of the few studies in this theme, Hirose et al [18] investigated the effects of a 3-week salt-restricted diet (8 g/day) in geriatric inpatients and reported that salt restriction significantly reduced caloric intake without affecting blood pressure. Kalogeropoulos et al [19] compared the effects of 1500 mg and 3000 mg sodium diets in middle-aged and older adults with heart failure, reporting no significant differences in dietary adherence, NT-proBNP levels, or hospitalization outcomes. Pooled analyses of randomized clinical trials conducted across different settings have yielded similar results, further indicating no significant differences in mortality rates [20,21]. Notably, when salt-reduction strategies demonstrated beneficial effects on clinical outcomes, the mean intervention duration was approximately 7.8 months [22], with initial effects observed from 4 weeks onward [23].

Taken together, these findings suggest that salt restriction in acute geriatric settings may not represent a priority for the medical team. Indeed, ESPEN guidelines recommend that sodium chloride intake should not be reduced below 6 g/day, emphasizing that the primary objective is the prevention of malnutrition [24]. This view is consistent with that of the International Conference on Frailty and Sarcopenia Research (ICFSR), which identifies low-salt diets as a potential risk factor for weight loss among older adults [25]. For such, dietitians and nutritionists may play a key role in monitoring patients’ sodium intake. This should include an assessment of usual pre-hospital dietary intake and its adaptation to the hospital setting. Healthcare professionals should be aware of the levels required to enhance palatability while avoiding excessive intake, prioritizing adequate food consumption.

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Conflict of interest

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