

IMPACT OF ENERGY DRINKS AND GELS IN PATIENTS WITH AND WITHOUT ORTHODONTIC APPLIANCES

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Introducción

The consumption of energy drinks and gels has drastically increased among the adolescent and adult populations. This represents a risk factor for the development of caries, beginning with the demineralization and erosion of dental enamel, which is exacerbated in patients with orthodontic appliances.

Objetive

The aim of this systematic review was to investigate the impact of energy drinks and gels on dental enamel in patients with and without orthodontic appliances.

Methods

PICO Question:

Do energy drinks and gels cause enamel erosion and white spot lesions in patients with and without orthodontics appliances?

In this systematic review, the authors identified relevant articles listed in PubMed, Google Scholar, Scopes and Scielo , using search terms related to "sports gels," "isotonic drinks," "carbonated beverages," and "energy drinks," which were combined with "teeth," "teeth and orthodontics," and "orthodontics." "erosion" "WLS" The search was defined for the period 2015-2025. This resulted in 628 studies.

| Inclusion Criteria | Exclusion Criteria |
|---|--|
| Randomized controlled clinical trials (RCTs) involving human subjects of all ages | Duplicate publications |
| Studies including both male and female participants | Animal studies |
| In vitro studies evaluating beverages | Narrative reviews lacking statistical analysis |
| In vitro studies evaluating gels | Studies with unclear methodology or insufficient methodological detail |

Conclusion

Frequent consumption of energy drinks/gels promotes dental erosion and white spot lesions through their acidic properties, though individual variability exists due to salivary and dietary factors. This highlights the need for personalized prevention in orthodontic patients.

Results

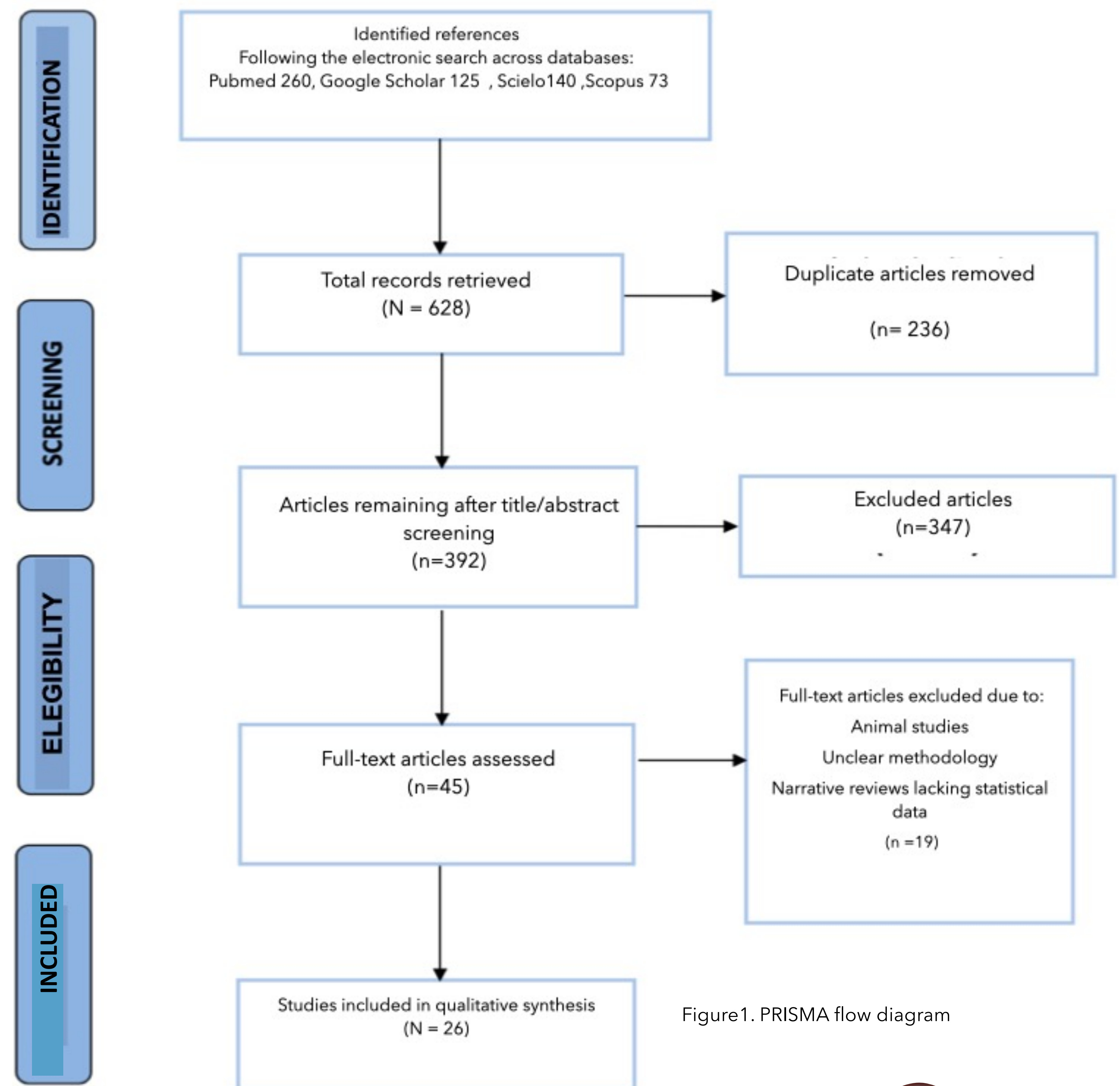
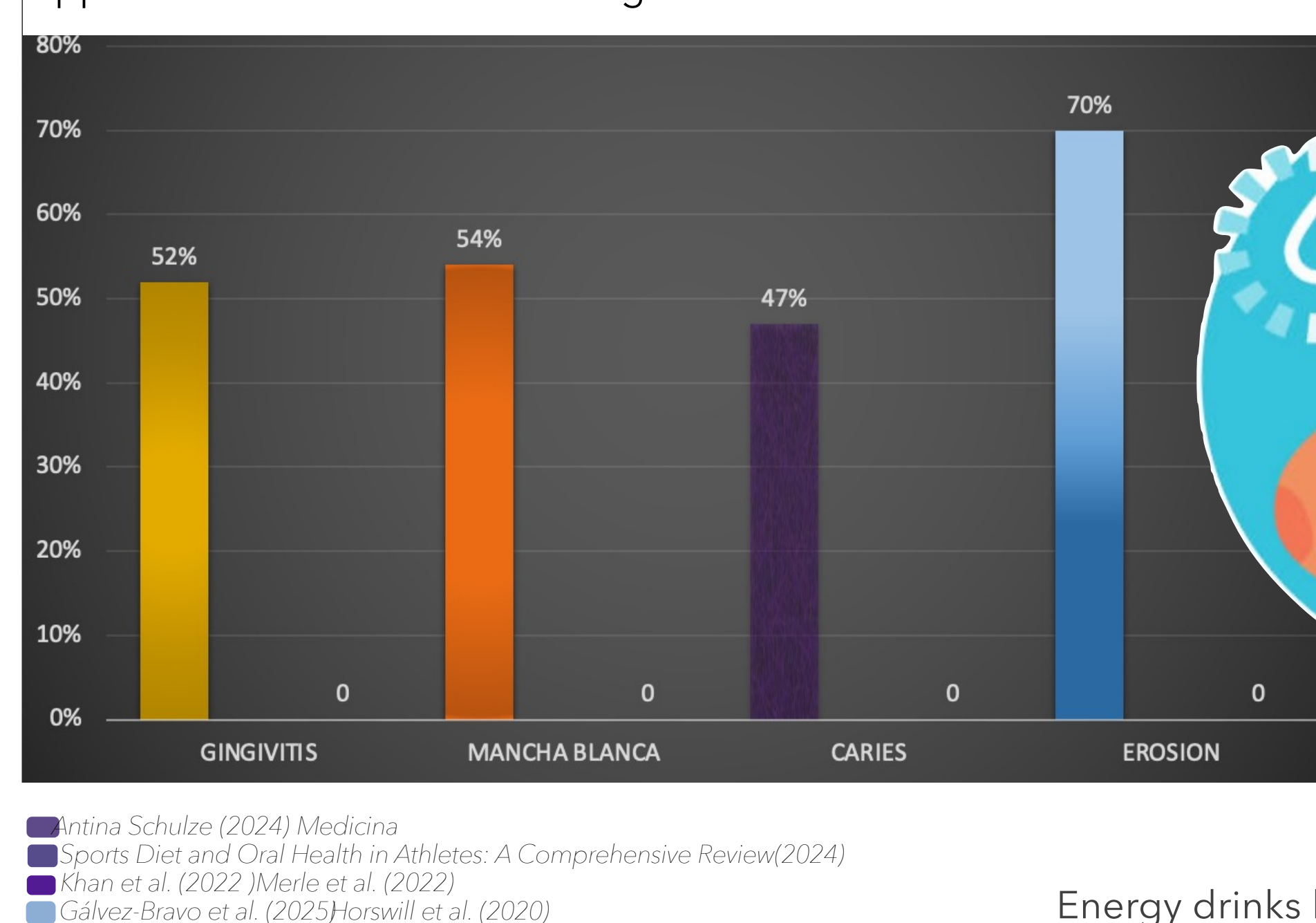


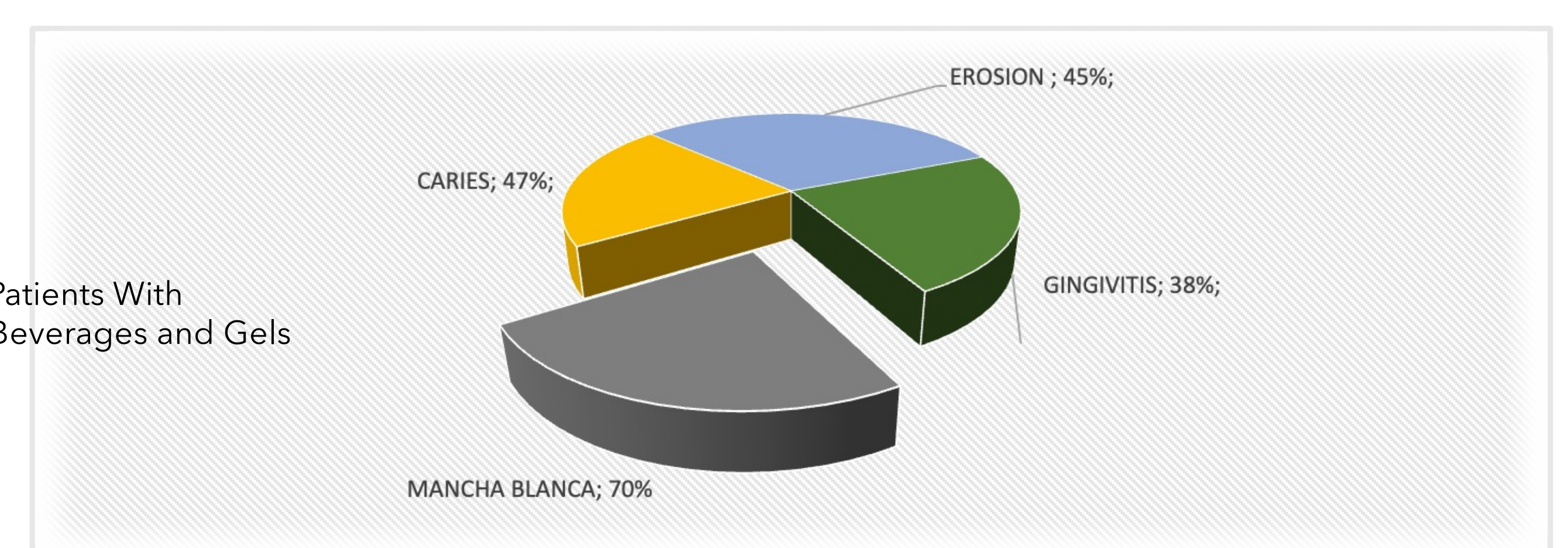
Figure 2. Prevalence of Oral Lesions in Patients Without Orthodontic appliance in Contact with Beverages and Gels



pH of energy gels ranges between 3.5 and 4.5 (acidic)

Energy drinks have an acidic pH, between 2.5 and 3.5, which is lower than energy gels.

Figure 3. Prevalence of Oral Lesions in Patients With Orthodontic appliance in Contact with Beverages and Gels



Ganss et al. (2024)

White Spot Lesions in Orthodontics - Consensus Statements (2023) /Rodríguez ML, García S. (2023)

Abd Al-Hussain & Nahidh (2020)

Aldayel & Tashkandi (2023) /Lopes et al. (2024)

Reference

Khan, M. A., Hussain, S. B., & Ahmed, S. (2022). Oral health status and consumption of energy drinks among elite athletes. *Nutrients*, 14, 5089

Michaelis, V., Klock, K., & Chukwumah, N. M. (2022). Evaluation of enamel white lesions caused by commercial beverages. *Journal of Dental and Oral Disorders*, 16, 29

Gálvez-Bravo, L., Martínez-González, J. M., & Pérez-Pérez, A. (2025). Prevalence of dental erosion in athletes: A systematic review. *Nutrients*, 17, 403