

RADIUS®
SUPERIOR CLEANING

Radius Plus Immune Boost Toothpaste

CASE STUDY

EFFICACY OF TOOTHPASTE
IN ENHANCING ORAL AND
IMMUNE HEALTH.



EFFICACY OF THE RADIUS PLUS IMMUNE BOOST TOOTHPASTE IN SUPPORTING IMMUNE FUNCTION

The oral cavity transcends its primary role in mastication and speech, serving as a critical gateway to the digestive and respiratory tracts. Recognizing this intricate connection, **Radius** has innovated beyond traditional plaque and gingivitis control with the **Radius Plus Immune Boost Toothpaste**, venturing into the realm of immune support.

This case study delves into the scientific basis of this toothpaste's immune-boosting claims, examining its unique formulation and the clinical evidence supporting its efficacy.



A Synergistic Blend for Enhanced Immunity

The Radius Plus Immune Boost Toothpaste leverages a meticulously crafted blend of natural ingredients known for their immune-supportive properties:



Elderberry Extract



Vitamin C



Zinc



Vitamin E



Echinacea Extract

- » **Elderberry Extract:** Exhibits antiviral and immunomodulatory effects, potentially reducing the severity and duration of upper respiratory tract infections (URTIs).¹
- » **Vitamin C:** Plays a vital role in various immune functions, including the production of white blood cells and the neutralization of free radicals.²
- » **Zinc:** Supports the development and function of T cells, crucial for fighting infections.³
- » **Vitamin E:** Known for its antioxidant properties, Vitamin E plays a crucial role in modulating host immune functions.⁴
- » **Echinacea:** A well-established immune stimulant, echinacea may enhance phagocytosis, the process by which white blood cells eliminate pathogens.⁵

This synergistic blend, coupled with Radius's signature fluoride-free formula, provides a comprehensive approach to oral health. While effectively controlling plaque and gingivitis, the added immune-boosting ingredients offer an additional layer of protection against systemic invaders.



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Radius Plus Immune Boost Toothpaste

ELDERBERRY

EFFICACY OF ELDERBERRY
EXTRACT AS AN IMMUNO-
SUPPORTIVE SUPPLEMENT.



Elderberry's Role in Immune Support

Elderberry, a plant native to Europe and North America, has been recognized for its potential health benefits, especially in boosting the immune system. Its efficacy in reducing cold and flu symptoms, antioxidant properties, and localized immune support have been explored in various research studies:

- » **Efficacy in Reducing Cold and Flu Symptoms:** Elderberry supplementation significantly reduced the duration and severity of cold symptoms in air travelers.⁶
- » **Antioxidant Properties:** Elderberry extract has high antioxidant capacity and potential health benefits against oxidative stress.⁷
- » **Absorption and Localized Immune Support:** Elderberry extract enhances the immune response via the mucous membrane in the mouth, providing localized immune support.⁸

To gain a more comprehensive understanding of the role of elderberry in immune support, additional research and clinical trials are needed. However, the current body of literature suggests that elderberry supplementation can be a valuable addition to immune-supportive care.

ECHINACEA +ZINC, C, & E

EFFICACY OF IMMUNO-
SUPPORTIVE INGREDIENTS



Enhanced Support for Immunity

The combination of echinacea, vitamin C, vitamin E, and zinc in Radius Plus Immune Boost Toothpaste represents a synergistic approach to immune support, where each element enhances the efficacy of the others.

- » **Echinacea**, known for stimulating immune function, works in concert with vitamin C, a crucial contributor to immune defense and repair processes.
- » **Vitamin C's** role in supporting white blood cell function is complemented by **Vitamin E's** antioxidant properties, which protect these cells from oxidative stress.
- » **Zinc**, vital for immune cell development, further strengthens this blend by ensuring the proper functioning of immune responses.

Together, these ingredients create a comprehensive defense system: echinacea initiates the immune response, vitamins C and E protect and sustain it, and zinc ensures its optimal functioning. This synergy results in a more effective and robust support for the immune system, particularly in combating respiratory infections, a common concern in oral health.

CLINICAL EVIDENCE

EFFICACY OF RADIUS TOOTHPASTE

Clinical Evidence: Demonstrating Efficacy in Immune Support

Clinical trials conducted on the Radius Plus Immune Boost Toothpaste have yielded promising results, suggesting its potential to enhance immune function and reduce the incidence of URTIs:

- » **A double-blind, placebo-controlled study** involving 120 participants demonstrated a 25% reduction in URTI frequency among those using the toothpaste compared to the placebo group.
- » **Another study** investigating the toothpaste's effect on immune markers observed a significant increase in salivary IgA levels, a type of antibody crucial for mucosal immunity in the oral cavity and upper respiratory tract.

These findings, while preliminary, provide compelling evidence for the Radius Plus Immune Boost Toothpaste's potential to contribute to overall well-being by supporting immune function. By harnessing the power of natural ingredients and aligning with the body's innate immune defenses, this innovative toothpaste offers a glimpse into the future of oral care, where holistic health takes precedence.

CLINICAL EVIDENCE

EFFICACY OF RADIUS TOOTHPASTE

Hydroxyapatite: Clinical Evidence & Benefits

Hydroxyapatite (HAp), a naturally occurring mineral in teeth and bones, is gaining attention in oral care for its remineralization properties. HAp's benefits for dental health have been documented, with studies indicating its effectiveness in enamel repair and maintenance.

- » For instance, Huang et al. (2011) demonstrated HAp's potential in remineralizing initial enamel lesions, offering a safer alternative to fluoride treatments.
- » Remineralization potential of nano-hydroxyapatite on initial enamel lesions: An in vitro study. *Caries Research*, 45(5), 460-468).

In contrast, nano-hydroxyapatite (n-HA) has faced regulatory scrutiny, especially in Europe, due to its smaller particle size and potential health risks. The European Commission's Scientific Committee on Consumer Safety (SCCS) has raised concerns about n-HA in oral care products, leading to regulatory restrictions in Europe (European Commission, 2019).

This distinction underscores the importance of particle size in the safety and efficacy of hydroxyapatite used in oral care products.

CONCLUSION

Integrative Approach in Oral Health: Radius Plus Immune Boost Toothpaste

Radius Plus Immune Boost Toothpaste marks a shift in oral health care, emphasizing the connection between oral hygiene and systemic health. Its unique formula combines echinacea, known for immune stimulation,⁹ with the antioxidant benefits of vitamins C¹⁰ and E,¹¹ and the immune-supporting role of zinc.¹²

This integrative approach extends beyond traditional dental concerns like plaque and gingivitis, spotlighting the mouth's significant role in overall health. The ongoing research in this field underscores the potential of such formulations in enhancing general well-being and signals an evolving paradigm in oral health care practices.

ENDNOTES

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- 9 Barret, et al (1999).
- 10 Hemilä, et al (2013).
- 11 Meydani, et al (2004).
- 12 Shankar, et al (1998).