

Systematic Review on the Health Effects of Kangen Water: Myths and Evidences

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Abstract: *Kangen water, a form of alkaline ionized water generated by electrolysis, has gained substantial attention for its purported health benefits, including antioxidant effects, improved hydration, and chronic disease prevention. This systematic review critically examines the scientific literature evaluating the physiological effects, safety, and efficacy of Kangen water. Databases including PubMed, Scopus, Embase, and Google Scholar were searched using keywords such as "alkaline water," "ionized water," and "Kangen water." Eighteen studies (10 human, 5 animal, 3 in vitro) met inclusion criteria. While some studies report potential benefits—such as enhanced hydration and reduced oxidative stress—most lack rigorous design and sufficient sample sizes. Current evidence is inconclusive and does not definitively support the health claims made by proponents of Kangen water.*

Keywords: Kangen water; alkaline ionized water; electrolyzed water; oxidative stress; hydration; chronic disease; gastrointestinal symptoms; antioxidant effects; acid - base balance; blood pH regulation; systemic alkalization; electrolyte balance; gut microbiota; physical performance; safety profile

1. Introduction

Kangen water is alkaline ionized water produced by a water ionizer that filters and electrolyzes tap water, increasing its pH and negative oxidation - reduction potential (ORP). Advocates assert that it neutralizes systemic acidity, delays aging, and offers protection against various diseases. Despite its popularity, these claims lack robust scientific validation. Physiological systems such as renal and respiratory buffers maintain blood pH tightly around 7.4, limiting any systemic impact of consuming alkaline water [Fenton & Huang, 2016].

2. Methods

Search Strategy:

Systematic searches were conducted up to April 2025 across PubMed, Scopus, Embase, and Google Scholar.

Keywords:

"Kangen water," "alkaline ionized water," "electrolyzed water," "health benefits," "oxidative stress," "acid - base balance," "hydration," "chronic disease."

Inclusion Criteria:

- Human, animal, or in vitro studies examining the health effects of alkaline or Kangen water
- Published in English
- Peer - reviewed articles

Exclusion Criteria:

- Editorials, opinion pieces, or articles lacking control groups
- Non - peer - reviewed publications

Data Extraction:

Information on study design, population, intervention, outcome measures, and key results was extracted and synthesized.

3. Results

Total Studies Included: 18

Human studies: 10

Animal studies: 5

In vitro studies: 3

Domains Evaluated:

a) Hydration & Physical Performance (4 studies)

Moderate improvements in fluid retention and post - exercise recovery noted in athletes [Watanabe et al., 2013; Koseki et al., 2018].

b) Gastrointestinal Symptoms (3 studies)

Mild symptom relief observed in GERD and constipation [Hayakawa et al., 2014].

c) Oxidative Stress & Inflammation (5 studies)

Reduced oxidative biomarkers and improved antioxidant status, particularly in animal models [Tsunoda et al., 2015].

d) Chronic Disease Parameters (6 studies)

Preliminary improvements in blood glucose and blood pressure in diabetics and hypertensives, but lacking statistical significance or RCT backing [Kim et al., 2009; Yamasaki et al., 2012].

Evidence Quality:

Mostly low to moderate

Limitations:

Small sample sizes, short durations, industry - funded trials, lack of blinding and placebo control

4. Discussion

Though early studies suggest potential benefits of alkaline ionized water in hydration, GI symptoms, and oxidative stress, the evidence remains weak due to design flaws and potential bias. Large - scale randomized controlled trials (RCTs) are absent. Moreover, systemic alkalization via drinking water remains physiologically implausible due to tight blood pH regulation by renal and respiratory systems [Fenton & Huang, 2016].

Furthermore, some publications are funded by water ionizer manufacturers, raising concerns about conflict of interest and publication bias. Critical appraisal indicates that most studies lack methodological rigor needed to support therapeutic claims.

5. Safety Considerations

No significant adverse effects have been documented in short - term studies. However, possible long - term consequences such as altered gut microbiota, electrolyte imbalance, or changes in mineral absorption remain understudied and warrant caution [Heil & Seifert, 2009].

6. Conclusion

Currently, there is insufficient high - quality evidence to support the claimed health benefits of Kangen water. While consumption appears to be safe in the short term, marketing assertions regarding disease prevention and systemic alkalization are not grounded in scientific consensus. Healthcare professionals should rely on evidence - based practices and caution patients about exaggerated claims.

7. Recommendations for Future Research

- Well - designed, large - scale RCTs across diverse populations
- Independent trials without commercial funding
- Long - term safety and metabolic impact assessment
- Mechanistic studies on gut microbiome and electrolyte balance

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