

# A systematic appraisal of emerging alternative therapies in men's health and wellness

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## ABSTRACT

**INTRODUCTION:** The use of alternative therapies for men's health continues to grow in popularity, as claims of their urologic and overall health benefits become more widespread. This study aimed to evaluate commonly purported therapies (intravenous [IV] nutrient infusions, saunas, ice baths, light therapy, and condensed nutritional supplements) in the treatment or improvement of men's urologic health.

**METHODS:** A scoping review was conducted using the databases PubMed and SCOPUS to identify literature discussing each intervention. Outcomes of interest were urologic parameters in men aged 18 and above.

**RESULTS:** Overall, the results were often conflicting or inconclusive. IV therapy lacked any supportive evidence for the claims regarding its benefits in erectile dysfunction, sperm quality, or testosterone enhancement. Sauna had mixed outcomes, with some temporary increases in testosterone and reversible adverse effects on sperm parameters. Similarly, cold water immersion showed inconsistent benefits for testosterone, with improvements in fatigue and soreness. Light therapy showed non-significant changes in hormone levels, while improvements in sexual satisfaction and hair regrowth were noted. While some herbal products showed benefits for sexual function, testosterone levels, and sperm quality, others had negligible or inconsistent outcomes.

**CONCLUSIONS:** There is a discordance between media claims and scientific literature regarding the impact of alternative therapies for men's health. The data are significantly limited by small sample sizes and a lack of long-term followup. There is a need for larger-scale trials to better inform patient counseling.

## INTRODUCTION

Complementary and alternative medicines (CAM) have been increasingly popular since the late 1970s.<sup>1,2</sup> Studies show that women are more likely to report using CAM (adjusted odds ratio [AOR] 1.49, 95% confidence interval [CI] 1.35, 1.65) compared to men.<sup>3</sup> Nevertheless, CAM use among men is rampant. In Canada, a survey of men with prostate cancer showed that 29.8% had used CAM for their cancer care, with no association to education, income, or geographic location.<sup>4</sup>

The surge of various health and wellness interventions claiming to improve men's health is evident in day-to-day practice. Urologists regularly encounter questions from patients about various alternative "wellness" therapies and their impact on men's health, including testosterone levels, erectile function, and fertility. There is an overwhelming number of commercial therapies with no readily available, scientifically based resource that urologists can use to counsel patients.

To address these questions, we searched popular media platforms for the most common 'men's health therapies' being advertised. Five commonly published therapies were identified, including intravenous (IV) nutrient therapy, saunas, ice baths/cold water immersion (CWI), light therapy, and nutritional supplements. These have been heavily promoted to enhance energy, testosterone levels, erectile dysfunction (ED), sperm quality, hair loss, and prostate health.

The objective of this study was, therefore, pragmatic: to equip urolo-

## KEY MESSAGES

- Our study assessed the available scientific evidence on 5 alternative therapies in the treatment or improvement of men's urologic health.
- Overall, the results were often conflicting or inconclusive.
- The available literature is heterogenous, and studies suffer from small sample sizes, poor blinding, and reliance on surrogate endpoints, limiting generalizability.

gists with an evidence-based reference guide that can be used to counsel patients on these popular interventions. While some interventions have a theoretical rationale, exaggerated claims and potential misinformation may lead to inappropriate self-treatment and harm. It is critical to assess whether these popular strategies are scientifically validated in the context of men's health. Our goal is to bridge the gap between popular claims and available scientific evidence to better guide clinicians and patients.

## METHODS

### Search strategy

The interventions assessed in this study were selected based on a combination of our review of non-scientific general media publications, and clinical experience with patient concerns and questions. Five commonly advertised therapies were identified, including IV nutrient therapy, sauna, ice baths/CWI, light therapy, and nutritional supplements. This scoping review followed the Preferred Reporting Items for Systematic reviews and Meta-Analysis (PRISMA) extension for scoping review framework.

PubMed and SCOPUS were searched for English articles from inception to November 2024 using various keywords in combination (Appendix A; available at [cuaj.ca](#)). Two reviewers screened and synthesized data, with disagreements resolved by a third reviewer.

### Study design criteria

Included studies were randomized controlled trials (RCTs), non-randomized trials, cohort studies, and observational studies, published in English.

### Study participants and intervention criteria

Eligible studies included male participants aged 18+ and assessed six commonly reported men's health outcomes that appeared frequently in our media search (testosterone levels, ED, spermatogenesis, infertility, alopecia, and prostate health)

## RESULTS

### IV nutrient therapy

IV nutrient therapy encompasses the administration of nutrients, vitamins, or minerals through an intravenous route for various claimed health benefits. It is usually offered at private clinics, medical spas, or even through mobile IV therapy services. Ingredients in the therapies are not always tailored to individual deficiencies, and the operating clinics and services are usually within a profit-driven or private healthcare model. The popular urologic benefit claims for IV therapy include correcting ED/hypogonadism, improving sperm quality, and enhancing libido.<sup>5,6</sup>

Of the 709 screened studies, six made it past primary screening, but none were included following secondary screening (Supplementary Figure 1; available at [cuaj.ca](#)). There were no studies available in the literature that supported any of the media claims surrounding IV therapy. This demonstrates an apparent disconnect between what is being marketed and what is being rigorously studied.

### Sauna

Sauna is purported to improve ED through cardiovascular benefits, counter depression, and promote hair growth.<sup>7-10</sup>

We identified a total of 13 studies that met eligibility, most of which were small, non-randomized trials (Supplementary Figure 2; available at [cuaj.ca](#)). Overall, the findings from these studies on sauna use are mixed. Two studies reported transient increases in testosterone levels (small sample sizes, n=8) following a sauna session,<sup>11,12</sup> yet this effect was not consistent and often quickly reversible.<sup>13-16</sup> More critically, several studies consistently identified detrimental effects of sauna use on spermatogenesis, motility, and sperm morphology, suggesting a net reproductive risk; however, the negative impact on sperm parameters was reversible, with a return to normal values 10–12 weeks after sauna exposure.<sup>15,17-20</sup> Although many of these studies were experimental, non-randomized trials with low sample sizes, the observed negative effects of sauna on sper-

“Most alternative therapies for men’s urologic health remain supported by limited, heterogeneous, and inconclusive evidence.”

matogenesis warrant caution, particularly in young men considering workup and treatment for infertility.

### CWI therapy

CWI is often promoted for boosting testosterone levels, enhancing recovery, and improving overall mood.<sup>21,22</sup>

Our final analysis included six studies, all of which were RCTs, assessing CWI (Supplementary Figure 3; available at [cuaj.ca](#)). All six studies evaluating CWI, which was typically administered following an exercise intervention, failed to demonstrate any significant testosterone elevation, with some studies showing evidence of decline in levels, raising concerns that CWI may blunt anabolic responses.<sup>23-28</sup> Nevertheless, several studies reported improved subjective recovery markers.<sup>23,24,26</sup> For example, Halson et al demonstrated reduced fatigue (5.3 vs. 6.3), soreness (3.8 vs. 5.0), and enhanced mental recovery (6.7 vs. 6.1) with CWI.<sup>23</sup> Therefore, while CWI may help with recovery post-exercise, the claims regarding testosterone lack scientific support.

### Light therapy

Light therapy is promoted for its effect on improving libido, testosterone levels, hair growth, and overall mood, as well as reducing lactic acid accumulation.<sup>29-33</sup> Our review included two meta-analyses, three RCTs, and one observational cohort study discussing light therapy (Supplementary Figure 4; available at [cuaj.ca](#)).

There is no evidence to support claims regarding a reduction in the levels of inflammatory markers.<sup>34</sup> Most studies showed non-significant or marginal changes in testosterone levels following light therapy. Interestingly, Parikh et al suggested there may be seasonal testosterone changes with natural light exposure, but these were not directly tied to therapeutic light devices.<sup>35</sup> Nevertheless, several studies showed improved self-reported sexual satisfaction and PLS scale scores after light therapy with ultraviolet B radiation exposure, suggesting benefits for libido and sexual well-being.<sup>35-37</sup>

For androgenetic alopecia, low-level laser therapy (LLLT) showed promising results, with the meta-analysis by Adil and Godwin<sup>38</sup> reporting a significant increase in hair density (+17.66 hairs/cm<sup>2</sup>), and the meta-analysis

by Perez et al<sup>39</sup> confirming these findings across eight RCTs, with a pooled effect size of 1.32 (95% CI 0.93–1.71,  $p=0.000$ ). This remains one of the few domains in our review where evidence supports popular claims.

### Condensed nutritional supplement

Nutritional supplements were the most diverse category in this study, with heterogeneous study designs and outcomes. We have reported on some of the most commonly discussed supplements, although a full review of every nutritional supplement is beyond the scope of this review. Overall, the evidence was mixed and often limited by small sample sizes, short study durations, and inconsistent outcomes. Refer to the PRISMA diagram in Supplementary Figure 5 (available at [cuaj.ca](#))

#### CAFFEINE

Caffeine is claimed to improve sexual function and lower rates of ED.<sup>40</sup> One cross-sectional study ( $n=3724$ ) suggested reduced incidence of ED with moderate caffeine intake, but pooled data from two large meta-analyses found no causal association.<sup>41-43</sup> Its effects on testosterone levels are mixed, with contradictory results from two different RCTs.<sup>44,45</sup>

#### ANDROSTENEDIONE

Androstenedione is claimed to increase muscle mass and testosterone levels.<sup>46</sup> RCTs demonstrate conflicting evidence on the impact on testosterone levels, with overall inconsistent results. Long-term safety concerns (e.g., secondary conversion to estrogen, testicular atrophy, impotence) remain unaddressed.<sup>47-51</sup>

#### VITAMIN D

Vitamin D is claimed to improve testosterone levels, ED, and fertility.<sup>52</sup> Conflicting evidence exists, however, there may be an observed benefit on testosterone levels, International Index of Erectile Function-5 (IIEF-5 scores), and sperm parameters in patients with coexistent vitamin D deficiency.<sup>53-57</sup>

#### HERBAL SUPPLEMENTS

Herbal supplements, such as *Fenugreek*, *Ashwagandha*, *Mucuna pruriens*, and *Eurycoma longifolia*, are claimed to have benefits on testosterone levels, various sperm parameters, ED, and overall sexual function.<sup>58-61</sup> Studies on these supplements showed potential benefits for boosting testosterone levels, sperm quality, and sexual function; however, the extent of the benefit varied across studies, which were limited by small sample sizes

and a lack of long-term followup. Therefore, the clinical significance of this net benefit is yet to be determined, with ambiguity regarding long-term safety.<sup>62-73</sup>

#### D-ASPARTIC ACID, CREATINE, AND L-ARGININE

D-aspartic acid, creatine, and L-arginine are claimed to boost testosterone levels, sexual function, and muscle strength, as well as reduce fatigue.<sup>74-76</sup> Overall, from our included studies on D-aspartic acid and creatine, no clear benefit towards elevating testosterone was established.<sup>77-80</sup> Conversely, there is some evidence (one RCT, n=108) that L-arginine supplementation may improve IIEF-5 scores and total testosterone levels in combination with tadalafil in diabetic patients with ED.<sup>81</sup>

#### MINERALS

We reviewed magnesium, calcium, and zinc, which have various claims surrounding their benefits in popular media, including improving testosterone levels, bone strength, exercise recovery, ED, infertility, prostate health, and sperm count, amongst others.<sup>82-84</sup> In terms of our outcomes of interest, many of the studies yielded inconclusive findings, particularly in the context of several confounders, such as baseline deficiencies and activity levels.<sup>85-87</sup> Therefore, it is not possible to draw clinical conclusions based on the current literature.

#### Limitations

This review is subject to several limitations. The significant heterogeneity in interventions, study designs, populations, and outcomes prevented direct comparisons or a meta-analysis. Additionally, although most of the studies assessed were RCTs, many contained small sample sizes, lacked blinding, and relied on surrogate endpoints rather than clinically meaningful outcomes, limiting generalizability. Lastly, our focus on urologic outcomes may have excluded broader effects that could still influence overall supplement usage and health perceptions. Nonetheless, this review offers a comprehensive summary of the available evidence, or lack thereof, behind widely marketed supplements.

#### CONCLUSIONS

CAM has grown in popularity over the last two decades, with many seeking it for preventative health strategies and to maintain a healthy lifestyle. At least a third of American adults have used CAM in the past.<sup>88</sup> In Canada, 80% of Canadians have used CAM at some point in their lives, with the majority of respondents reporting doing so to improve “wellness” and maintain health and vitality.<sup>89</sup>

Our study highlights a significant disconnect between the health claims propagated through popular platforms and the evidence base available in peer-reviewed literature, particularly in urologic domains such as testosterone regulation, erectile function, fertility, and sexual health. While some interventions, like light therapy, show promise, others, including IV therapy, ice baths, sauna, and several nutritional supplements, lack concrete evidence. Many studies suffer from small sample sizes, poor blinding, and reliance on surrogate endpoints, limiting generalizability.

Large-scale, high-quality, randomized controlled trials are needed to align consumer expectations and clinical reality. This paper should serve as a reference for urologists in their discussions with patients presenting with questions about these treatments.

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This paper has been peer-reviewed.

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