



EDITORIAL COMMENT

Sauna bathing and lower urinary tract symptoms- the heat is on?

The study by Pöyhönen A et al. in this issue of the *Scand J Urol* is the first investigation of the association between sauna bathing and lower urinary tract symptoms (LUTS) [1]. The study is based on the Tampere Aging Male Urologic Study (TAMUS), and it is an important and appreciated new contribution in the sauna research field. Sweat bathing is an ancient human tradition that has been used for centuries in many parts of the world for hygiene, health, social, and spiritual purposes. In recent years, there has been a resurgence of interest in the potential health benefits of sauna bathing. Emerging evidence suggests that sauna bathing, a passive form of heat therapy aka thermotherapy, has shown several positive physical and mental health benefits, and also reduces the risk of several chronic diseases as well as death. Epidemiological studies from Finland have demonstrated that regular sauna bathing reduces the risk of fatal cardiovascular disease events, pulmonary diseases, hypertension, stroke, and dementia [2–4]. There are several limitations of the study by Pöyhönen A et al. The number of sauna sessions were assessed at the baseline questionnaire in 1994 and changes in sauna habits during the 10-year follow-up period were not evaluated. Frequent sauna bathers were younger than less frequent bathers, there was no non-exposed group, and no standardized protocol was used. This points to the need of standardized study protocols in future studies of health effects of sauna bathing, including detailed information on source of heat, temperature, humidity, numbers of sauna sessions and time spent in the sauna, numbers and duration of cool-off sessions, and the number of sauna sessions per week. Interestingly, there were some weak suggestions of a positive effect of sauna bathing on LUTS. The mean symptom scores were slightly, but not significantly, lower in men with frequent sauna bathing both at baseline and at follow-up. ‘Feeling of incomplete emptying’, was less common in frequent sauna bathers. Although the frequency of sauna bathing was not significantly associated with medication or surgery for LUTS, a small difference between the sauna bathing groups (with less medication and less surgery in men bathing 2 or more as compared to 0–1 times per week) was seen at inclusion, and this difference was accentuated at follow-up. However, since the study was quite small and these differences were observed both at baseline and at follow up they may be due to chance or confounding. The positive health effects by sauna bathing have proposed to be mediated by favorably modulation of the cardiovascular function, autonomic nervous, endocrine, and immune system. On a cellular level, thermotherapy has been proposed to induce metabolic changes that include production of heat shock proteins, reduction of reactive oxygenated species, oxidative stress and inflammation pathway activities, increased NO (nitric oxide) bioavailability, and alterations in various

endothelial-dependent vasodilatation metabolic pathways [3]. The theories behind possible positive effects of sauna bathing on LUTS, as stated by the authors includes; relaxation of the muscles and increased blood flow in the pelvic region, a general relaxing effect, reduced urine production and increased nitric oxide (NO) bioactivity. Alterations in nitric oxide has been shown to be induced by PDE-5 inhibitors and they affect LUTS by decreasing smooth muscle cell proliferation in the prostate, and relaxing smooth muscles in the prostate and in the bladder neck [5]. Another interesting hypothesis, not mentioned by the authors, for a positive effect on LUTS could be decreased systemic inflammation as suggested in an earlier study by Laukkanen et al [6]. Although the authors conclude that ‘sauna bathing does not affect LUTS development or natural history in long term’ I would like to encourage to further research on the association between sauna bathing and LUTS in men and women. Well-designed prospective randomized studies to evaluate the effect of thermal therapy on LUTS are warranted.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Hans Hägglund
Hematology Department of Medical Sciences Uppsala University
Hospital, Uppsala, Sweden
✉ hans.hagglund@medsci.uu.se

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