

사우나내의 공기가 비점액섬모기능에 미치는 영향

이철범 · 조재식 · 임상철 · 조 연 · 나애선 · 정형수

The Effect of Air in a Sauna on Nasal Mucociliary Function

Cheol Beom Lee, MD, Jae Shik Cho, MD, Sang Chul Lim, MD,
Yeon Cho, MD, Ae Sun Na, MD and Hyung Soo Jeong, MD

Department of Otolaryngology and Head & Neck Surgery, Chonnam University Medical School, Kwangju, Korea

ABSTRACT

Background and Objectives : There has been many attempts to find out the changes in the nasal mucociliary transport function under various conditions. In this study, we intended to determine if air in a sauna exerts any beneficial effect on the nasal mucociliary function using the saccharin method, which is regarded as the proper screening test for nasal mucociliary function. **Materials and Methods :** Normal healthy adults (16 men, 15 women) aged from 18 to 22 volunteered for this study. We measured each saccharin transit time (STT) twice, inside a room (25℃, 85%), a dry sauna (70℃, 85%), and a wet sauna (70℃, 100%), respectively. **Results :** The average STT was 7.98 ± 2.95 minutes at the room, 8.47 ± 1.71 at the dry sauna, and 7.59 ± 2.95 at the wet sauna. There was no meaningful relationships of STT among each condition ($p = 0.157$). **Conclusion :** Air in a sauna has neither any beneficial effect on the nasal mucociliary function nor any harmful effect on it. (Korean J Otolaryngol 1999;42:1261-3)

KEY WORDS : Nasal mucociliary function · Sauna · Saccharin.

가 가

¹⁾ 가 24 31 (16 , 15)

²⁾ ³⁾ 가 (sac -
cahrin transit time, STT)
1 2 mm, 4 5 mg
(Sigma chemical Co., Saccharin sodium
salt hydrate).

: 1999 6 17 / : 1999 9 7
: , 501 - 190 8
: (062) 220 - 6771 · : (062) 228 - 7743
E - mail : cjscopy@chonnam.chonnam.ac.kr

가 ,
4 cm

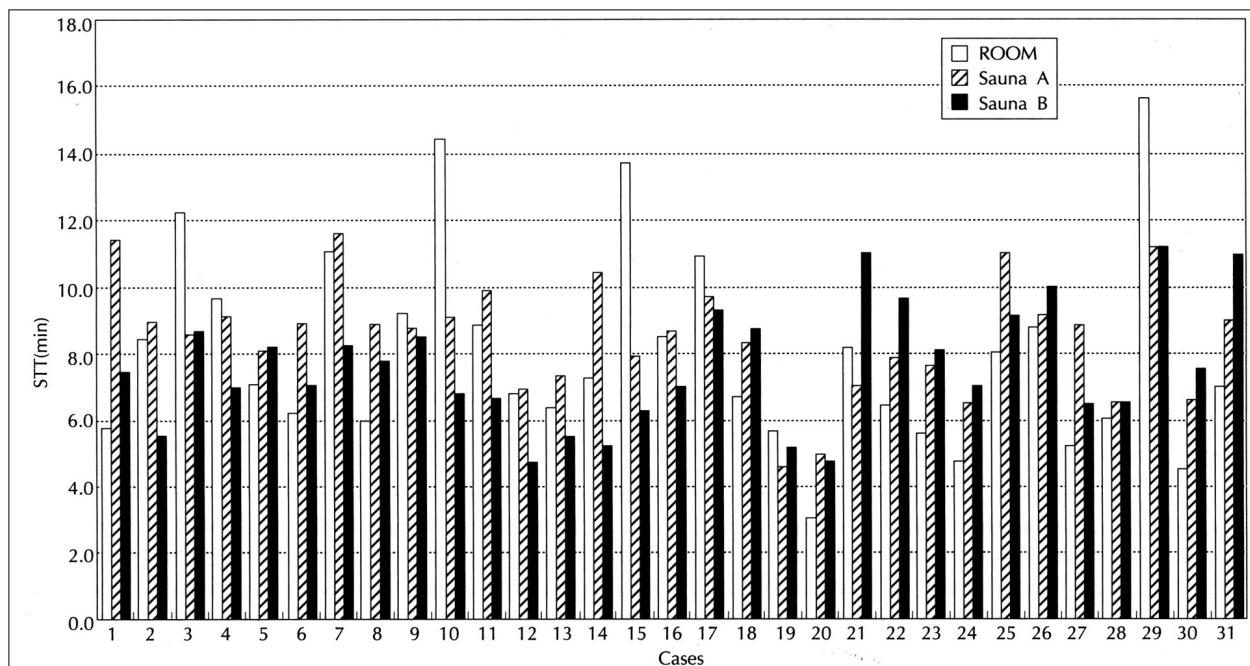


Fig. 1. Individual STT in three conditions.

(Sauna A)

(Sauna B)

25 , 85% 70 , 85%

70 , 100% 4)

2 가 가

가 가

7 8 가

가

t - test, ANOVA test

5)

Puchelle 6) aluminum disc,
tagged resin

(Sauna A) (Sanuna B)

가 가 7)

(Fig. 1). 7.98 가

± 2.95 , 8.47 ± 1.71 , 6)

7.59 ± 2.95

($p=0.157$).

가⁶⁾
 2⁶⁾
 2
 6.5⁸⁾ 26.7⁹⁾
 가
 7.98
 ,²⁾ serotonin, acetylcholin¹⁰⁾ SO₂¹⁰⁾
 ,¹⁰⁾ cocain¹⁾
 , immotile cilia syndrome(Katagener's syn -
 drome)¹⁰⁾
 2) 30%
 , Anderson¹²⁾
 가
 2) Quinlan
 가
 Green³⁾ 40
 가 70 120
 70 120
 가 가
 가 가
 (inhaled air)

REFERENCES

- 1) Proctor DF, Anderson I. *The nose*. Amsterdam, Elsevier Biomedical press;1982. p.245-470.
- 2) Quinlan MF, Salman SD, Swift DL, Wagner HN, Proctor DF. *Measurement of mucociliary function in man*. *Am Rew Resp Dis* 1969;99:13-23.
- 3) Green A, Smallman LA, Logan AC, Drake-Lee AB. *The effect of temperature on nasal ciliary beat frequency*. *Clin Otolaryngol* 1995;20:178-80.
- 4) Proctor DF. *Nasal mucous transport and our ambient air*. *Laryngoscope* 1983;93:58-70.
- 5) Sade J, Eliezer N, Silberberg A, et al. *The role of mucous transport by cilia*. *Am Rew Respir Dis* 1970;102:48-52.
- 6) Puchelle E, Pharm FAQT, Bertrand A. *Comparison of three methods for measuring nasal mucociliary clearance in man*. *Acta Otolaryngol* 1981;91:297-303.
- 7) Sakakura Y, Majima Y, Harada T, et al. *Nasal mucociliary clearance under various conditions*. *Acta Otolaryngol* 1983;96:167-73.
- 8) Chae SW, Lee SH, Lee HM, Lee SH, Choi JO, Hwang SJ. *A study about the mucociliary transport time in chronic sinusitis*. *Korean J Otolaryngol* 1992;35:619-25.
- 9) Hady MRA, Shehata O, Hassan R. *Nasal mucociliary function in different diseases of the nose*. *J Laryngol Otol* 1983;97:497-502.
- 10) Mygind N. *Nasal allergy*. 2nd Ed. Oxford, Blackwell;1979. p.3-56.
- 11) Sakakura Y, Ukai K, Hornick RB, et al. *Mucociliary function during experimentally induced rhinovirus infection in man*. *Ann Otol Rhinol Laryngol* 1973;82:203-12.
- 12) Anderson IB, Lundqvist GR, Proctor DF. *Human nasal mucosal function under four controlled humidities*. *Am Rew Respir Dis* 1972;106:438-50.