
Ventilation tube insertion is a common treatment for children with persistent otitis media with effusion. Parents are concerned about the morbidity of this procedure and the influence of ventilation tubes on daily activities. Permissibility of swimming is a question that is most often asked. The aim of this study was to investigate the possibility of water penetration through ventilation tubes into the middle ear while swimming in children with ventilation tubes under immediate observation.

**METHODS:** We included 14 patients who had otitis media with effusion who received ventilation tube insertion. They had complete ear, nose and throat physical examination. All 14 patients were taken to enjoy surface swimming for 1 hour without ear protection. Before and after swimming, we checked the tympanic membrane and external ear canal using a videotelescope and monitor immediately at the poolside to discover if there was fluid in the external ear canal and middle ear. Patients were followed-up 2 weeks later to check if otorrhea had occurred.

**RESULTS:** The 14 patients were from 5 to 14 years old. Nine were male and 5 were female. Nine patients had bilateral ventilation tubes and 5 had unilateral ones. One ear was excluded due to the tube nearly dropping out. A total of 22 ears were included. Eight ears were noted to be dry after swimming. Five ears were noted to have water over the outer 1 third of the external ear canal. Two ears were noted to have water over the inner 2 thirds of the external ear canal. Water on the tube or tympanic membrane was found in 6 ears. Only 1 ear with water penetration into the middle ear was found. No otorrhea had occurred in any ears after 2 weeks.

**CONCLUSION:** Water penetration into the middle ear through ventilation tubes and middle ear infection are not likely when surface swimming. Children with ventilation tubes can enjoy swimming without protection in clean chlorinated swimming pools.


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The objective was to determine whether there is an increased incidence of otorrhea in young children with tympanostomy tubes who swim and bathe without water precautions as compared with children who use water precautions in the form of ear plugs.

**STUDY DESIGN:** Prospective, randomized, investigator-blinded, controlled trial.

**METHODS:** Two hundred one children (age range, 6 mo-6 y) who had undergone bilateral myringotomy and tube insertion were randomly assigned into one of two groups: swimming and bathing with or without ear plugs. Children were seen monthly for 1 year and whenever there was intercurrent otorrhea.

**RESULTS:** Ninety children with and 82 children without ear plugs returned for at least one follow-up visit. Mean (SD) duration of follow-up was 9.4 (4.1) months for the children with ear plugs and 9.1 (4.4) months for the children without ear plugs. Forty-two children (47%) who wore ear plugs developed at least one episode of otorrhea, as compared with 46 (56%) who did not use ear plugs (logistic regression adjusting for stratification variables, P = .21). The mean (SD) rate of otorrhea per month was 0.07 (0.31) for the children who wore ear plugs as compared with 0.10 (0.31) for the children who did not wear ear plugs (Poisson regression adjusting for stratification variables, P = .05).

**CONCLUSION:** There is a small but statistically significant increase in the rate of otorrhea in young children who swim and bathe without the use of ear plugs as compared with children who use ear plugs. Because the clinical impact of using ear plugs is small, their routine use may be unnecessary.
### Safety of Pediatric Aquatic Therapy—Ear

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<tr>
<th>Lee D, Youk A, Goldstein NA. A meta-analysis of swimming and water precautions. Laryngoscope. 1999 Apr;109(4):536-40.</th>
<th><strong>STUDY SELECTION:</strong> Articles were identified by MEDLINE search, Current Contents, and references from review articles, textbook chapters, and retrieved reports. Controlled trials of water precautions following tympanostomy tube placement were selected by independent observers and scored on 10 measures of study validity. Five English-language articles met all inclusion criteria.</th>
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<td>To reconcile conflicting reports concerning the incidence of otorrhea in children with tympanostomy tubes who swim without ear protection.</td>
<td><strong>DATA EXTRACTION:</strong> Data were abstracted for an endpoint of otorrhea following swimming without ear protection with a minimum follow-up of 6 weeks.</td>
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<td><strong>DATA SYNTHESIS:</strong> Pooled analysis of 619 children revealed a rate difference of -5.04 (95% confidence interval [CI], -11.62 to 1.54). No significant difference in the incidence of otorrhea was noted between patients who swam without ear protection and nonswimmers.</td>
<td><strong>CONCLUSION:</strong> There is no increase in incidence of otorrhea in children who swim without ear protection compared with children who do not swim following tympanostomy tube placement.</td>
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| Nystad W, Njå F, Magnus P, Nafstad P. Baby swimming increases the risk of recurrent respiratory tract infections and otitis media. Acta Paediatr. 2003 Aug;92(8):905-9. | **METHODS:** Norwegian schoolchildren (n = 2862) was enrolled in a cross-sectional study of asthma and allergy using the questionnaire of the International Study of Asthma and Allergies in Childhood (ISAAC). The outcomes were parental retrospective report of recurrent respiratory tract infections and otitis media diagnosed by a physician in the first year of life. The exposure was baby swimming during the same period. Parental atopy reflects a history of maternal or paternal asthma, hayfever or eczema. |
| Email: wenche.nystad@fhi.no | **RESULTS:** The prevalence of recurrent respiratory tract infections was higher (12.3%) among children who took part in baby swimming than among those who did not (7.5%). The prevalence of recurrent respiratory tract infections during the first year of life was 5.6% and 10.5%, respectively, in children of parents without and with atopy, whereas the prevalence of baby swimming was 5.6% and 5.1%, respectively, in the two groups. Stratified analysis using parental atopy as strata showed that the increased risk of recurrent respiratory tract infections was only present among children of parents with atopy [adjusted odds ratio (aOR) 2.08, 95% confidence interval (95% CI) 1.08-4.03]. A similar trend was present for otitis media (aOR 1.77, 95% CI 0.96-3.25). |
| To estimate the association between baby swimming and recurrent respiratory tract infections and otitis media in the first year of life in children of parents without and with atopy. | **CONCLUSION:** The results of this study suggest that baby swimming and infant respiratory health may be linked. The findings need to be examined in a longitudinal study. |

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To determine if the use of ear protection when swimming of children with ventilation tubes modifies the risk of acute otitis media (AOM) compared to not swimming.

METHODS: Systematic review. DATA SOURCES: Search conducted in MEDLINE, EMBASE and The Cochrane Library databases.

STUDY SELECTION: Prospective cohort studies and controlled clinical trials of children with ventilation tubes, with a minimum follow-up of 2 months. Data extraction: Two reviewers independently assessed trial quality and extracted data.

RESULTS: 11 studies were selected. No difference was found in risk of AOM in children who swim without ear protection compared with those who do not swim: Odds ratio=0.78, 95% confidence interval 0.42-1.44; nor compared with those who use earplugs and swimming caps, odds ratio=0.75, 95% confidence interval 0.38-1.48; nor in those who use ear drops after swimming compared with those who used earplugs or swimming caps, odds ratio=0.76, 95% confidence interval 0.56 to 1.02. The use of ear drops after swimming increases the risk of AOM in children with ventilation tubes as compared with those who do not swim, odds ratio=3.14, 95% confidence interval 1.40 to 7.05.

CONCLUSIONS: There is no evidence to suggest that protection when swimming with earplugs, swimming caps or ear drops in children with ventilation tubes reduces the risk of AOM. Ear drops may even increase this risk.

Centers for Disease Control and Prevention. "Swimmer’s Ear (Otitis Externa)". Protection Against Recreational Water Illnesses (RWIs). CDC website www.healthyswimming.com

Swimmer’s Ear (ear ache) is an infection of the ear and/or outer ear canal. It can cause the ear to itch or become red and inflamed so that head movement or touching of the ear is very painful. Pus may also drain from the ear.

Swimmer’s Ear is often caused by infection with a germ called Pseudomonas aeruginosa. This germ is common in the environment (soil, water) and is microscopic so that it can’t be seen with the naked eye. Although all age groups are affected by Swimmer’s Ear, it is more common in children and young adults and can be extremely painful.

How is Swimmer’s Ear spread?
Having contaminated water get in the ear can give people Swimmer’s Ear. Swimmer’s Ear usually occurs within a few days of getting contaminated water or placing contaminated objects in the ear.

Is there a difference between a childhood middle ear infection and Swimmer’s Ear?
Yes. Swimmer’s Ear is not the same as the common childhood middle ear infection. If you can wiggle the outer ear without pain or discomfort then your ear infection is probably not Swimmer’s Ear.

Can Swimmer’s Ear be prevented?
Yes. Here are four Healthy Swimming tips for protection against Swimmer’s Ear:
1) Dry your ears after swimming. If it is difficult to get water out of your ear, apply a few drops of an alcohol-based ear product into the ear. Ask a pharmacist at your local bookstore for this product.
2) Ask your pool manager about the chlorine and pH testing program at your pool. Pools and hot tubs with good chlorine and pH control are unlikely to spread Swimmer’s Ear.
3) Pay attention to signage and avoid swimming in locations that have been closed because of pollution.
4) Avoid putting objects in the ear (e.g. fingers, cotton swabs) that may scratch the ear canal and provide a site for infection.

If you think you have Swimmer’s Ear, consult your healthcare provider. Swimmer’s Ear can be treated with antibiotic ear drops.