

# Search Results

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**1. Effectiveness of combined counseling and low-level laser stimulation in the treatment of disturbing chronic tinnitus.**

**Citation:** International Tinnitus Journal, 2008, vol./is. 14/2(175-80), 0946-5448

**Author(s):** Cuda D; De Caria A

**Institution:** Department of Otolaryngology, Guglielmo da Saliceto Hospital, Piacenza, Italy. d.cuda@ausl.pc.it

**Language:** English

**Abstract:** We recruited 46 adult patients affected by disturbing tinnitus lasting for at least 3 years. All were treated with a combined counseling protocol constituting hypnotherapeutic and muscle relaxation techniques. We randomly assigned 26 patients to the group receiving low-level laser stimulation treatment and 20 to the placebo group. The laser power was 5 mV and the wavelength 650 nm. The irradiation lasted 20 minutes daily for 3 months. The Tinnitus Handicap Inventory (THI) questionnaire was submitted at the beginning and at the end of treatment. The THI scores improved in the entire sample after treatment but more significantly in the group receiving low-level laser stimulation. From the point of view of clinical classification, approximately 61% of irradiated patients had tinnitus severity decreased by one class, in comparison to 35% of the placebo group.

**Country of Publication:** United States

**Publication Type:** Comparative Study; Journal Article; Randomized Controlled Trial

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Aged, 80 and over](#)  
[Chronic Disease](#)  
[Combined Modality Therapy](#)  
[\\*Counseling/mt \[Methods\]](#)  
[Disability Evaluation](#)  
[Female](#)  
[Humans](#)  
[Hypnosis](#)  
[\\*Laser Therapy, Low-Level](#)  
[Male](#)  
[Middle Aged](#)  
[Muscle Relaxation](#)  
[\\*Tinnitus/th \[Therapy\]](#)

**Source:** MEDLINE

**2. Transmeatal low-level laser therapy for chronic tinnitus with cochlear dysfunction.**

**Citation:** Audiology & Neuro-Otology, 2009, vol./is. 14/2(115-20), 1421-9700

**Author(s):** Teggi R; Bellini C; Piccioni LO; Palonta F; Bussi M

**Institution:** ENT Department, San Raffaele Hospital, 'Vita e Salute' University, Milan, Italy. teggi.roberto@hsr.it

**Language:** English

**Abstract:** OBJECTIVES: To establish the efficacy of low-level laser therapy for tinnitus. METHODS: We performed a prospective, randomized double-blind study on 60 outpatients with tinnitus presenting sensorineural hearing loss in the affected ear. They were randomly divided into two groups, the first performing active laser therapy 20 min a day for 3 months with a 650-nm, 5-mW soft laser (group L), the second using a dummy device which duplicated all aspects of active laser therapy except for the activation of the laser beam (group C). One subject in both groups dropped out due to an increase in tinnitus loudness. Two more patients in each group ceased to comply with the protocol due to familiar problems. RESULTS: The Tinnitus Handicap Inventory (THI) was considered the main outcome measure; no statistical difference was detected between the

2 groups in the THI total score ( $p = 0.97$ ), and its functional ( $p = 0.89$ ), emotional ( $p = 0.89$ ) and catastrophic ( $p = 0.89$ ) subscales. Moreover, a visual analog scale for self-perceived loudness of the tinnitus showed no difference between the groups ( $p = 0.69$ ). Regarding psychoacoustic parameters, the minimum masking level showed no difference ( $p = 0.42$ ), while loudness expressed in sensation level exhibited lower values in group L ( $p = 0.0127$ ). Group L subjects also presented a decreased rate of hyperacusis ( $p = 0.02$ ). No changes were detected in the audiometric threshold in both groups. CONCLUSIONS: Soft laser therapy demonstrated no efficacy as a therapeutic measure for tinnitus. 2008 S. Karger AG, Basel.

**Country of Publication:** Switzerland  
**Publication Type:** Journal Article; Randomized Controlled Trial  
**Subject Headings:** [Adult](#)  
[Audiometry, Pure-Tone](#)  
[Cochlear Diseases/di \[Diagnosis\]](#)  
[\\*Cochlear Diseases/th \[Therapy\]](#)  
[Female](#)  
[Follow-Up Studies](#)  
[Humans](#)  
[\\*Laser Therapy, Low-Level](#)  
[Loudness Perception](#)  
[Male](#)  
[Middle Aged](#)  
[Perceptual Masking](#)  
[Prospective Studies](#)  
[Psychoacoustics](#)  
[Questionnaires](#)  
[Severity of Illness Index](#)  
[Tinnitus/di \[Diagnosis\]](#)  
[\\*Tinnitus/th \[Therapy\]](#)  
[Treatment Outcome](#)

**Source:** MEDLINE

### 3. Multimodal therapy for chronic tinnitus.

**Citation:** International Tinnitus Journal, 2008, vol./is. 14/1(69-72), 0946-5448  
**Author(s):** Hahn A; Radkova L; Achiemere G; Klement V; Alpini D; Strouhal J  
**Institution:** Ear, Nose, and Throat Department, Third Medical Faculty, Charles University, Prague, Czech Republic. hahn@fnkv.cz  
**Language:** English  
**Abstract:** From 2001 to 2006, we performed a retrospective study of patients suffering from chronic unilateral or bilateral tinnitus that was previously ineffectively treated by oral drugs [betahistine (Betaserc), extract of Ginkgo biloba (EGb 761), tanakan (Tebokan), and cinnarizine-dimenhydrinate (Arlevert), singly or in combination]. We divided 150 tinnitus patients (80 men, 70 women) into seven treatment groups. Treatments consisted of application of intravenous pentoxifylline, lidocaine, or vinpocetine (Cavinton) and combination of these agents with physiotherapy and soft laser. Mean duration (+/- standard deviation) of tinnitus in these patients was 7.4 +/- 6.0 years; their mean age was 55.6 +/- 12.5 years. The aim of our study was to compare treatment modalities and define their effectiveness for tinnitus relief. The most effective treatment was defined as a combination of Cavinton and physiotherapy. We evaluated pure lidocaine infusion therapy as ineffective. None of the treatment modalities had an objective correlate of improvement, though improvement was reported by a visual analog scale.

**Country of Publication:** United States  
**CAS Registry Number:** 0 (Arlevert); 0 (Drug Combinations); 0 (Ginkgo biloba extract 761); 0 (Plant Extracts); 0 (Vinca Alkaloids); 137-58-6 (Lidocaine); 298-57-7 (Cinnarizine); 42971-12-0

(vinpocetine); 523-87-5 (Dimenhydrinate); 5638-76-6 (Betahistine); 6493-05-6 (Pentoxifylline)

**Publication Type:** Comparative Study; Journal Article

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Betahistine/tu \[Therapeutic Use\]](#)  
[Chronic Disease](#)  
[Cinnarizine/tu \[Therapeutic Use\]](#)  
[Combined Modality Therapy](#)  
[Dimenhydrinate/tu \[Therapeutic Use\]](#)  
[Drug Combinations](#)  
[Drug Therapy, Combination](#)  
[Female](#)  
[Humans](#)  
[Laser Therapy, Low-Level](#)  
[Lidocaine/tu \[Therapeutic Use\]](#)  
[Male](#)  
[Middle Aged](#)  
[Pentoxifylline/tu \[Therapeutic Use\]](#)  
[Physical Therapy Modalities](#)  
[Plant Extracts/tu \[Therapeutic Use\]](#)  
[Retrospective Studies](#)  
[\\*Tinnitus/rh \[Rehabilitation\]](#)  
[Vinca Alkaloids/tu \[Therapeutic Use\]](#)

**Source:** MEDLINE

#### 4. Effectiveness of transmeatal low power laser irradiation for chronic tinnitus.

**Citation:** Journal of Laryngology & Otology, May 2008, vol./is. 122/5(447-51), 1748-5460

**Author(s):** Gungor A; Dogru S; Cincik H; Erkul E; Poyrazoglu E

**Institution:** Department of Otolaryngology, Haydarpasa Military Hospital, Istanbul, Turkey.

**Language:** English

**Abstract:** OBJECTIVE: To evaluate effectiveness of 5 mW laser irradiation in the treatment of chronic tinnitus. STUDY DESIGN: Prospective, randomised, double-blind study. Methods: This investigation included 66 ears in 45 patients with chronic unilateral or bilateral tinnitus. A 5 mW laser with a wavelength of 650 nm, or placebo laser, was applied transmeatally for 15 minutes, once daily for a week. A questionnaire was administered which asked patients to score their symptoms on a five-point scale, before and two weeks after laser irradiation. A decrease of one scale point, regarding the loudness, duration and degree of annoyance of tinnitus, was accepted to represent an improvement. RESULTS: The loudness, duration and degree of annoyance of tinnitus were improved, respectively, in up to 48.8, 57.7 and 55.5 per cent of the patients in the active laser group. No significant improvement was observed in the placebo laser group. CONCLUSION: Transmeatal, low power (5 mW) laser irradiation was found to be useful for the treatment of chronic tinnitus.

**Country of Publication:** England

**Publication Type:** Journal Article; Randomized Controlled Trial

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Chronic Disease](#)  
[Double-Blind Method](#)  
[Female](#)  
[Humans](#)  
[\\*Laser Therapy, Low-Level/mt \[Methods\]](#)  
[Laser Therapy, Low-Level/st \[Standards\]](#)  
[\\*Loudness Perception/ph \[Physiology\]](#)

Male  
 Middle Aged  
 Prospective Studies  
 Questionnaires  
 Severity of Illness Index  
 Statistics as Topic  
 \*Tinnitus/rt [Radiotherapy]

**Source:** MEDLINE

**Full Text:** Available in *fulltext* at [ProQuest](#)  
 Available in *print* at [Pinderfields NHS Staff Library](#)

##### 5. Erbium: yttrium-aluminum-garnet laser stapedotomy--a safe technique.

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**Citation:** Otolaryngology - Head & Neck Surgery, April 2008, vol./is. 138/4(507-12), 0194-5998

**Author(s):** Parrilla C; Galli J; Fetoni AR; Rigante M; Paludetti G

**Institution:** Institute of Otolaryngology, Catholic University of Sacred Heart, Rome, Italy.  
 claudioparrilla@yahoo.com

**Language:** English

**Abstract:** OBJECTIVE: To standardize the technical parameters of the erbium: yttrium-aluminum-garnet (Er:YAG) laser stapedotomy. STUDY DESIGN: Retrospective study of all patients with otosclerosis who underwent stapedotomy from January 2002 to January 2006. SUBJECTS AND METHODS: The charts of 152 consecutive patients who underwent stapedotomy were reviewed. The patients were stratified into two groups, according to the instrument used. Stapedotomies were performed in group A, with the OPMI TwinEr:YAG laser; and in group B with manual microperforators. RESULTS: No statistically significant differences were found over all measured frequencies, between pre- and postoperative bone conduction thresholds, in each group. At the last postoperative follow-up, vertigo and nystagmus were not detected; two patients in group A and one patient in group B showed persistent tinnitus. CONCLUSION: Er:YAG laser stapedotomy is a safe and effective procedure, with no damage of the inner ear when strict adherence to the safety parameters is observed. The Er:YAG laser is definitively suitable for stapes surgery, and represents a useful and safe tool in the armamentarium of otological microsurgery.

**Country of Publication:** United States

**Publication Type:** Journal Article; Randomized Controlled Trial

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Audiometry](#)  
[Bone Conduction](#)  
[Female](#)  
[Hearing Loss, Sensorineural/ep \[Epidemiology\]](#)  
[Humans](#)  
[Lasers, Solid-State/ae \[Adverse Effects\]](#)  
[\\*Lasers, Solid-State/tu \[Therapeutic Use\]](#)  
[Male](#)  
[Middle Aged](#)  
[\\*Otosclerosis/su \[Surgery\]](#)  
[Postoperative Complications/ep \[Epidemiology\]](#)  
[Retrospective Studies](#)  
[\\*Stapes Surgery/mt \[Methods\]](#)

**Source:** MEDLINE

##### 6. [The use of CO2 laser in stapes surgery]. [Polish] Stapedotomia za pomoca lasera CO2.

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**Original Title:** Stapedotomia za pomoca lasera CO2.

**Citation:** Otolaryngologia Polska, 2007, vol./is. 61/4(463-7), 0030-6657

**Author(s):** Szymanski M

**Institution:** Klinika Otolaryngologii i Onkologii Laryngologicznej AM w Lublinie.

**Language:** Polish

**Abstract:** Different microsurgical instruments and laser systems have been used to perform stapedotomy. We evaluated prospectively subjective intraoperative effect of CO2 laser use during stapedotomy performed under local anesthesia in 67 patients with otosclerosis. Hearing results were evaluated 4-8 months after surgery according to Committee on Hearing and Equilibrium guidelines. The CO2 laser was used 3-12 times to create a stapedotomy opening. The patients described the effect of laser application as a mild click. Neither tinnitus nor noise was reported during application of the laser on the footplate. The mean air conduction improved for 30+/-12.5 dB. There was no patient with deterioration of bone conduction (BC) in the group. Mean BC improvement was 8+/-9.1 dB. CO2 laser is a safe and effective tool in stapes surgery with no adverse effect on the cochlea. The use of the laser with manufacturer's parameters is not likely to produce unpleasant effects to the patients operated under local anesthesia.

**Country of Publication:** Poland

**Publication Type:** English Abstract; Journal Article

**Subject Headings:** [Adult](#)  
[Female](#)  
[Humans](#)  
[\\*Lasers, Gas/tu \[Therapeutic Use\]](#)  
[Male](#)  
[Middle Aged](#)  
[\\*Otosclerosis/su \[Surgery\]](#)  
[Prospective Studies](#)  
[\\*Stapes](#)  
[\\*Stapes Surgery/is \[Instrumentation\]](#)  
[Treatment Outcome](#)

**Source:** MEDLINE

#### 7. Neural correlates of transmeatal cochlear laser (TCL) stimulation in healthy human subjects.

**Citation:** Neuroscience Letters, January 2007, vol./is. 411/3(189-93), 0304-3940

**Author(s):** Siedentopf CM; Ischebeck A; Haala IA; Mottaghy FM; Schikora D; Verius M; Koppelstaetter F; Buchberger W; Schlager A; Felber SR; Golaszewski SM

**Institution:** Department of Radiology II, Division of Neuroradiology, University Hospital of Innsbruck, Medical University Innsbruck, Anichstrasse 35, 6020 Innsbruck, Austria. christian.siedentopf@fmri-easy.de

**Language:** English

**Abstract:** Transmeatal cochlear laser (TCL) treatment has recently been proposed as a therapeutic procedure for cochlear dysfunction such as chronic cochlear tinnitus or sensorineural hearing loss. The aim of this study was to investigate whether TLC has any influence on the central nervous system using functional MRI with healthy young adults. The laser stimulation device was placed on the tympanic membrane of both ears. A laser stimulation run and a placebo run were performed in random order. The participants were unable to differentiate between verum and placebo stimulation. In the comparison of verum to placebo runs, we observed significant activations within the left superior frontal gyrus, the right middle and medial frontal gyrus, the right superior parietal lobule, the left superior occipital gyrus, the precuneus and cuneus bilaterally, the right anterior and the left and right middle and posterior cingulate gyrus and the left thalamus. This network of brain areas corresponds well to results from previous PET studies of patients with tinnitus. Though TCL seems to have a clinically measurable effect on the central nervous system the neurophysiological mechanism leading to the observed activated neuronal network remains unknown.

**Country of Publication:** Ireland

**CAS Registry Number:** 7782-44-7 (Oxygen)

**Publication Type:** Clinical Trial; Journal Article; Randomized Controlled Trial; Research Support, Non-U.S. Gov't

**Subject Headings:** [Adolescent](#)  
[Adult](#)  
[Brain/bs \[Blood Supply\]](#)  
[Brain/ph \[Physiology\]](#)  
[\\*Brain/re \[Radiation Effects\]](#)  
[\\*Brain Mapping](#)  
[Cochlea/ir \[Innervation\]](#)  
[\\*Cochlea/re \[Radiation Effects\]](#)  
[Cross-Over Studies](#)  
[Double-Blind Method](#)  
[Female](#)  
[Humans](#)  
[Image Processing, Computer-Assisted](#)  
[\\*Lasers](#)  
[Magnetic Resonance Imaging](#)  
[Male](#)  
[Oxygen/bl \[Blood\]](#)

**Source:** MEDLINE

#### 8. Adjuvant laser acupuncture in the treatment of whiplash injuries: a prospective, randomized placebo-controlled trial.

**Citation:** Wiener Klinische Wochenschrift, March 2006, vol./is. 118/3-4(95-9), 0043-5325

**Author(s):** Aigner N; Fialka C; Radda C; Vecsei V

**Institution:** Department of Orthopedics 1, Speising Orthopedic Hospital, Vienna, Austria.  
 nicolas.aigner@aon.at

**Language:** English

**Abstract:** Following introduction of the compulsory use of seat belts in cars, whiplash injuries of the cervical spine have become common in everyday practice. Current treatment approaches lead to resolution of the symptoms within a short time in most cases but cannot prevent a small proportion of patients developing persistent health problems. The effects of adjuvant treatment with laser acupuncture on the acute symptoms and the results one year after the injury were studied in this prospective, randomized, placebo-controlled single-blind study. One group of patients (n = 23) were treated with laser acupuncture (5 mW HeNe laser on 22 acupuncture points for 15 s each) plus cervical collar and a combination of paracetamol and chlormezanone; a second group (n = 22) received the same treatments but with the use of a placebo laser. The treatment was given three times per week until the patient was asymptomatic. No statistically significant advantage of the laser acupuncture treatment was found in the acute phase (mobility in all three planes, duration of pain and duration of use of a cervical collar) or the chronic phase (drug use and the incidences of chronic recurrent problems such as myofascial pain, headaches, vertigo and tinnitus). **CONCLUSION:** Adjuvant laser acupuncture with a 5 mW HeNe laser and an irradiation time of 15 s appears to be ineffective in the management of whiplash injuries.

**Country of Publication:** Austria

**CAS Registry Number:** 0 (Analgesics, Non-Narcotic); 0 (Muscle Relaxants, Central); 0 (Placebos); 103-90-2 (Acetaminophen); 80-77-3 (Chlormezanone)

**Publication Type:** Comparative Study; Journal Article; Randomized Controlled Trial

**Subject Headings:** [Acetaminophen/ad \[Administration & Dosage\]](#)  
[Acetaminophen/tu \[Therapeutic Use\]](#)  
[Acupuncture Points](#)  
[\\*Acupuncture Therapy/mt \[Methods\]](#)

Adolescent  
 Adult  
 Analgesics, Non-Narcotic/ad [Administration & Dosage]  
 Analgesics, Non-Narcotic/tu [Therapeutic Use]  
 Chlormezanone/ad [Administration & Dosage]  
 Chlormezanone/tu [Therapeutic Use]  
 Data Interpretation, Statistical  
 Drug Therapy, Combination  
 Female  
 Follow-Up Studies  
 Humans  
 Laser Therapy  
 \*Laser Therapy, Low-Level  
 Male  
 Middle Aged  
 Muscle Relaxants, Central/ad [Administration & Dosage]  
 Muscle Relaxants, Central/tu [Therapeutic Use]  
 Placebos  
 Prospective Studies  
 Questionnaires  
 Radiotherapy, Adjuvant  
 Time Factors  
 Treatment Outcome  
 Whiplash Injuries/dt [Drug Therapy]  
 Whiplash Injuries/rt [Radiotherapy]  
 \*Whiplash Injuries/th [Therapy]

**Source:** MEDLINE

### 9. Prospective clinical study on cochlear function after erbium:yttrium-aluminum-garnet laser stapedotomy.

**Citation:** Laryngoscope, September 2005, vol./is. 115/9(1627-31), 0023-852X

**Author(s):** Keck T; Burner H; Rettinger G

**Institution:** Department of Otorhinolaryngology, Head and Neck Surgery, University Hospital of Ulm, Frauensteige 12, 89075 Ulm, Germany. tilman.keck@medizin.uni-ulm.de

**Language:** English

**Abstract:** OBJECTIVE: To assess whether the application of the emitting erbium:yttrium-aluminum-garnet (Er:YAG) laser in stapedotomy has negative effects on vestibular and cochlear functions. DESIGN: Prospective, with 12 to 14 months follow-up. SETTING: Academic tertiary referral center. PATIENTS: Twenty-four patients undergoing stapedotomy (primary surgery) in otosclerosis. INTERVENTION: All patients underwent Er:YAG laser-assisted stapedotomy for otosclerosis between January 2000 and June 2002. MAIN OUTCOME MEASURES: Early (1-3 days after surgery) and late (12-14 months after surgery) postoperative bone-conduction thresholds and the presence of post-operative tinnitus and vertigo were analyzed. In addition, the relation between applied laser energy and postoperative bone-conduction thresholds was calculated. RESULTS: In 22 patients, unchanged preoperative minus early postoperative pure-tone bone-conduction averages at 1, 2, and 4 kHz were observed. In one patient, a slight early deterioration between 10 and 20 dB was seen. In 18 patients, unchanged preoperative minus late postoperative pure-tone bone-conduction averages at 1, 2, and 4 kHz were observed. In two patients, a slight late deterioration between 10 and 20 dB was seen. In two patients, a new postoperative tinnitus was observed. No patient suffered from vertigo at the time of second evaluation. No correlation between applied laser energy and both postoperative bone-conduction thresholds was found. CONCLUSIONS: The Er:YAG laser stapedotomy in otosclerosis is a safe technique. Vestibular and cochlear function is not significantly disturbed after Er:YAG laser stapedotomy.

**Country of Publication:** United States

**Publication Type:** Journal Article

**Subject Headings:** [Adult](#)  
[\\*Bone Conduction/ph \[Physiology\]](#)  
[Cochlear Diseases/et \[Etiology\]](#)  
[Female](#)  
[Follow-Up Studies](#)  
[Humans](#)  
[\\*Laser Therapy/ae \[Adverse Effects\]](#)  
[Male](#)  
[Middle Aged](#)  
[Otosclerosis/su \[Surgery\]](#)  
[Postoperative Complications](#)  
[Prospective Studies](#)  
[\\*Stapes Surgery/ae \[Adverse Effects\]](#)  
[Tinnitus/et \[Etiology\]](#)  
[Vertigo/et \[Etiology\]](#)  
[Vestibular Diseases/et \[Etiology\]](#)

**Source:** MEDLINE

**Full Text:** Available in *fulltext* at [Ovid](#)  
 Available in *print* at [Dewsbury NHS Staff Library](#)  
 Available in *print* at [Pinderfields NHS Staff Library](#)

#### 10. Pre- and intraoperative predictive factors of facial palsy in vestibular schwannoma surgery.

**Citation:** Acta Oto-Laryngologica, April 2005, vol./is. 125/4(363-9), 0001-6489

**Author(s):** Zaouche S; Ionescu E; Dubreuil C; Ferber-Viart C

**Institution:** Service d'ORL et d'Explorations Audiovestibulaires, Neurosciences et Systemes Sensoriels, Centre Hospitalier Lyon Sud, UMR CNRS 5020 Pierre Benite Cedex, France.

**Language:** English

**Abstract:** CONCLUSION:S These results support previous ones with regard to FN risk factors in VS surgery. However, they also provide new preoperative factors that influence postoperative FN function, such as clinical symptoms, the nature of the surgical procedure (use of laser) and ABR results. OBJECTIVE: To determine pre- and perioperative factors influencing facial nerve (FN) outcome in vestibular schwannoma (VS) surgery. MATERIAL AND METHODS: A total of 424 patients undergoing VS surgery were included in this retrospective study. Patients were divided into two groups according to the existence or absence of a FN palsy during the 8 days following surgery (Groups 1 and 2, respectively). Various parameters were evaluated preoperatively as follows. Quantitative parameters: age; duration of clinical symptoms; pure-tone audiometry (PTA) results; speech reception threshold; speech discrimination score; auditory brainstem response (ABR) results; and transient-evoked otoacoustic emission amplitude. Qualitative parameters: gender; side of the tumor; angle between the tumor and the internal auditory canal (VS/IAC angle) < or = or > 30 degrees; MRI aspect (n = 69); surgical approach; ease of the surgical procedure, the use or non-use of laser dissection; and the histological Antoni's type of the tumor. RESULTS Pre- and perioperative factors that differed significantly between Groups 1 and 2 were as follows. Quantitative factors: tinnitus duration was longer and PTA and ABR results were worse in Group 1. Qualitative factors: heterogenous/cystic MRI aspect, use of retrosigmoid and middle fossa approaches, easy surgical procedure, dissection without laser and Antoni's type A were more frequently found in Group 1.

**Country of Publication:** Norway

**Publication Type:** Comparative Study; Journal Article

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Audiometry, Pure-Tone](#)  
[Brain Stem/pp \[Physiopathology\]](#)  
[Evoked Potentials, Auditory, Brain Stem/ph \[Physiology\]](#)

Facial Nerve/pp [Physiopathology]  
 \*Facial Paralysis/et [Etiology]  
 Female  
 Humans  
 \*Intraoperative Complications/et [Etiology]  
 Intraoperative Complications/pp [Physiopathology]  
 Laser Therapy  
 Male  
 Middle Aged  
 \*Neuroma, Acoustic/su [Surgery]  
 Otoacoustic Emissions, Spontaneous/ph [Physiology]  
 \*Postoperative Complications/et [Etiology]  
 Postoperative Complications/pp [Physiopathology]  
 Predictive Value of Tests  
 Preoperative Care  
 Reference Values  
 Retrospective Studies  
 Risk Assessment  
 Speech Reception Threshold Test

**Source:** MEDLINE  
**Full Text:** Available in *fulltext* at [EBSCO Host](#)  
 Available in *fulltext* at [EBSCO Host](#)

#### 11. Transmeatal cochlear laser (TCL) treatment of cochlear dysfunction: a feasibility study for chronic tinnitus.

**Citation:** Lasers in Medical Science, 2003, vol./is. 18/3(154-61), 0268-8921  
**Author(s):** Tauber S; Schorn K; Beyer W; Baumgartner R  
**Institution:** Department of Otolaryngology, Head and Neck Surgery, Ludwig-Maximilians-University of Munich, D-81377 Munich, FRG. drtauber@yahoo.de  
**Language:** English  
**Abstract:** Low-level-laser-therapy (LLLT) targeting the inner ear has been discussed as a therapeutic procedure for cochlear dysfunction such as chronic cochlear tinnitus or sensorineural hearing loss. Former studies demonstrate dose-dependent biological and physiological effects of LLLT such as enhanced recovery of peripheral nerve injuries, which could be of therapeutic interest in cochlear dysfunction. To date, in patients with chronic tinnitus mastoidal and transmeatal irradiation has been performed without systematic dosimetric assessment. However, light-dosimetric studies on human temporal bones demonstrated that controlled application of laserlight to the human cochlea depends on defined radiator position within the external auditory meatus. This feasibility study first presents a laser application system enabling dose-controlled transmeatal cochlear laser-irradiation (TCL), as well as preliminary clinical results in patients with chronic cochlear tinnitus. The novel laser TCL-system, consisting of four diode lasers ( $\lambda=635\text{ nm}-830\text{ nm}$ ) and a new specific head-set applicator, was developed on the basis of dosimetric data from a former light-dosimetric study. In a preliminary clinical study, the TCL-system was applied to 35 patients with chronic tinnitus and sensorineural hearing loss. The chronic symptoms persisted after standard therapeutic procedures for at least six months, while retrocochlear or middle-ear pathologies have been ruled out. The patients were randomised and received five single diode laser treatments ( $\lambda=635\text{ nm}$ , 7.8 mW cw, n=17 and  $\lambda=830\text{ nm}$ , 20 mW cw, n=18) with a space irradiation of 4 J/cm<sup>2</sup> site of maximal cochlear injury. For evaluation of laser-induced effects complete otolaryngologic examinations with audiometry, tinnitus masking and matching, and a tinnitus-self-assessment were performed before, during and after the laser-irradiation. The first clinical use of the TCL-system has been well tolerated without side-effects and produced no observable damage to the external, middle or inner ear. Changes of tinnitus loudness and tinnitus matching have been described. After a follow-up period of six months tinnitus loudness was attenuated in 13 of 35 irradiated patients, while two of 35 patients reported their tinnitus as totally absent. Hearing threshold levels and middle ear function remained unchanged. Further investigations by large double-blind

placebo-controlled studies are mandatory for clinical evaluation of the presented TCL-system and its therapeutic effectiveness in acute and chronic cochlear dysfunction.

**Country of Publication:** England

**Publication Type:** Clinical Trial; Journal Article; Randomized Controlled Trial

**Subject Headings:** [Chronic Disease](#)  
[Cochlear Diseases/co \[Complications\]](#)  
[\\*Cochlear Diseases/rt \[Radiotherapy\]](#)  
[Feasibility Studies](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Middle Aged](#)  
[Random Allocation](#)  
[Tinnitus/et \[Etiology\]](#)  
[\\*Tinnitus/pc \[Prevention & Control\]](#)

**Source:** MEDLINE

**Full Text:** Available in *fulltext* at [ProQuest](#)

## 12. Advantages of CO2 laser use in surgical management of otosclerosis.

**Citation:** Vojnosanitetski Pregled, May 2003, vol./is. 60/3(273-8), 0042-8450

**Author(s):** Matkovic S; Kitanoski B; Malicevic Z

**Institution:** Military Medical Academy, Clinic of Otorinolaryngology, Belgrade.

**Language:** English

**Abstract:** BACKGROUND: Otosclerosis is a progressive osteo-destructive disorder of the bony labyrinth in which the fixation of the stapes causes the hearing loss. The aim of this study was the postoperative determination of parameters of the effect of surgical intervention on hearing and the incidence of complications and, on the basis of the differences in the examined parameters of the study, the estimation of the efficacy of the two mentioned surgical techniques in the treatment of otosclerosis. METHODS: In our research 40 patients with conductive hearing loss caused by otosclerosis underwent surgery with CO2 laser. Functional results were compared postoperatively with the results of 40 patients operated by the classical technique without the use of CO2 laser. The research was accomplished as a prospective comparative study. RESULTS: The air-bone interval (gap) as the difference between the rim of air and bone conductivity for separate frequencies did not significantly differ between the control and the experimental group. Both methods were effective in closing the air-bone gap with the rates of closure to within 10 dB in 82.6% and 75.3% for the laser and drill, respectively. The incidence of tinnitus was significantly lower in patients who underwent surgery with CO2 laser. The frequency of intraoperative and postoperative complications was significantly lower in the laser group. Differences were statistically significant for all parameters ( $p < 0.05$ ). CONCLUSION: On the basis of the degree of postoperative hearing improvement, tinnitus and the incidence of complications it can be concluded that the use of CO2 laser during inverse stapedoplasty represents an effective and safe method, justifying the promotion of its use in the surgical management of otosclerosis.

**Country of Publication:** Yugoslavia

**Publication Type:** Journal Article

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Female](#)  
[Humans](#)  
[Intraoperative Complications](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Middle Aged](#)  
[\\*Otosclerosis/su \[Surgery\]](#)

Postoperative Complications  
Stapes Surgery

Source: MEDLINE

13. [Results after erbium:YAG-laser stapedotomy]. [German] Ergebnisse nach Stapedotomie mit dem Erbium:YAG-Laser.

**Original Title:** Ergebnisse nach Stapedotomie mit dem Erbium:YAG-Laser.

**Citation:** Laryngo- Rhino- Otologie, March 2003, vol./is. 82/3(157-61), 0935-8943

**Author(s):** Keck T; Wiebe M; Riechelmann H; Rettinger G

**Institution:** Universitats-HNO-Klinik Ulm. tilman.keck@medizin.uni-ulm.de

**Language:** German

**Abstract:** BACKGROUND: The analysis of postoperative results after Erbium : YAG-Laser stapedotomy in patients with otosclerosis. METHODS: For all operations the microscope-integrated Erbium : YAG-Laser Twin ER (Zeiss, Oberkochen) was used by different surgeons. Data of 53 patients who were operated on between October 1993 and May 1999 were analysed. The mean follow-up time was 17 months. Postoperative bone-conduction and air-conduction thresholds and the presence of postoperative tinnitus and vertigo were analysed. The data were analysed according to the guidelines of the Committee on Hearing and Equilibrium of the American Academy of Otolaryngology-Head and Neck Surgery (1994). RESULTS: In 49 patients unchanged preoperative minus postoperative pure tone bone conduction averages at 1, 2, and 4 kHz were observed. In 4 patients a slight deterioration between 10 and 20 dB was seen. In 2 patients a new postoperative tinnitus was observed. No patient suffered from vertigo at the time of evaluation. In 22 patients the postoperative air-bone gap was between 0 and 10 dB, in 25 patients between 11 and 20 dB, and in 6 patients between 21 and 30 dB. No patient had a postoperative air-bone gap of more than 30 dB. CONCLUSIONS: The Erbium : YAG-Laser stapedotomy is a safe technique. Good postoperative hearing results may be achieved in patients with otosclerosis.

**Country of Publication:** Germany

**CAS Registry Number:** 7440-57-5 (Gold)

**Publication Type:** English Abstract; Journal Article

**Subject Headings:** Adolescent  
Adult  
Aged  
Audiometry, Pure-Tone  
Auditory Threshold/ph [Physiology]  
Bone Conduction/ph [Physiology]  
Ear, Inner/pp [Physiopathology]  
Female  
Follow-Up Studies  
Gold  
Humans  
\*Laser Therapy/is [Instrumentation]  
Male  
Microsurgery/is [Instrumentation]  
Middle Aged  
Ossicular Prosthesis  
Otosclerosis/pp [Physiopathology]  
\*Otosclerosis/su [Surgery]  
\*Postoperative Complications/et [Etiology]  
Postoperative Complications/pp [Physiopathology]  
\*Stapes Surgery/is [Instrumentation]  
Tinnitus/et [Etiology]  
Tinnitus/pp [Physiopathology]  
Treatment Outcome

**Source:** MEDLINE

#### 14. Micro-lesions in Reissner's membrane evoked by acute hydrops.

**Citation:** Audiology & Neuro-Otology, March 2003, vol./is. 8/2(59-69), 1420-3030

**Author(s):** Flock A; Flock B

**Institution:** Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden. ake.flock@fyafa.ki.se

**Language:** English

**Abstract:** In some pathological conditions excessive amounts of endolymph can accumulate and cause swelling, hydrops, of the membranous labyrinth. Reissner's membrane in the cochlea will distend and may even rupture. We have studied the effects of acute hydrops, followed for up to 5-6 h, in a preparation that allows continuous monitoring of structural alterations in individual cells in Reissner's membrane. This is accomplished by using laser confocal microscopy on the membrane visualized by labeling its cells with fluorescent dyes. In specimens subjected to hydrops it was observed that discrete structural defects developed in Reissner's membrane. These were seen as lesions in single cells or in groups of cells in the epithelial layer. It is suggested that through these micro-lesions the electro-chemical environment of the organ of Corti can be altered causing hearing loss and tinnitus during hydrops. Copyright 2003 S. Karger AG, Basel

**Country of Publication:** Switzerland

**Publication Type:** Journal Article; Research Support, Non-U.S. Gov't

**Subject Headings:** [\\*Cochlea/pa \[Pathology\]](#)  
[\\*Endolymphatic Hydrops/co \[Complications\]](#)  
[\\*Endolymphatic Hydrops/pa \[Pathology\]](#)  
[Epithelium/pa \[Pathology\]](#)  
[Humans](#)  
[Membranes/pa \[Pathology\]](#)  
[\\*Meniere Disease/et \[Etiology\]](#)  
[Organ of Corti/pa \[Pathology\]](#)

**Source:** MEDLINE

**Full Text:** Available in *fulltext* at [ProQuest](#)  
 Available in *fulltext* at [ProQuest](#)

#### 15. A study of the intra-operative effect of the Argon and KTP laser in stapes surgery.

**Citation:** Clinical Otolaryngology & Allied Sciences, August 2002, vol./is. 27/4(279-82), 0307-7772

**Author(s):** Yung MW

**Institution:** Department of Otolaryngology, The Ipswich Hospital NHS Trust, Ipswich, Suffolk, UK. yung@doctors.org.uk

**Language:** English

**Abstract:** The intraoperative effect of the Argon and KTP laser was studied on 20 patients who had primary stapes surgery under local anaesthetic; 10 had Argon and 10 had KTP laser stapedotomy. Symptoms of inner ear disturbance such as dizziness and tinnitus were systematically recorded during the laser procedure. Both dizziness and tinnitus were relatively uncommon when the laser was used on the promontory. When the laser was used to transect the posterior crus, all the patients reported transient dizziness, probably from the thermal effect through the posterior crus into the inner ear. However, tinnitus was unusual during this stage. When the laser was used to fenestrate the footplate, only 30% of patients reported a transient dizziness as less laser energy was used. On the other hand, 55% of the patients experienced tinnitus during this stage, which indicates an acoustic effect on the inner ear. There is no difference between the Argon and KTP laser.

**Country of Publication:** England

**Publication Type:** Journal Article

**Subject Headings:** [Anesthesia, Local](#)  
[Dizziness/et \[Etiology\]](#)  
[Female](#)  
[Humans](#)  
[\\*Intraoperative Complications](#)  
[Laser Therapy/ae \[Adverse Effects\]](#)  
[Laser Therapy/mt \[Methods\]](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Middle Aged](#)  
[Stapes Surgery/ae \[Adverse Effects\]](#)  
[Stapes Surgery/mt \[Methods\]](#)  
[\\*Stapes Surgery](#)  
[Tinnitus/et \[Etiology\]](#)

**Source:** MEDLINE

#### 16. Small fenestra stapedotomy for otosclerosis in a Canadian teaching centre.

**Citation:** Journal of Otolaryngology, April 2002, vol./is. 31/2(112-7), 0381-6605

**Author(s):** Agrawal S; Parnes L

**Institution:** Department of Otolaryngology, University of Western Ontario, London.

**Language:** English

**Abstract:** OBJECTIVE: This study reports the results of 112 primary stapedotomies and 13 revision stapedotomies performed by the senior author. STUDY DESIGN: Retrospective case review of all primary and revision stapedotomies performed at University Hospital between 1994 and 1999. All patients in this series had otosclerosis and underwent stapedotomy using a 0.6-mm diameter platinum wire/Teflon piston prosthesis. The air-bone gap was calculated as the difference between the preoperative boneconduction and the postoperative air-conduction thresholds. The average follow-up time post-stapedotomy to audiometric testing was approximately 2.5 months. OUTCOME MEASURES: An average air-bone gap closure at 500, 1000, and 2000 Hz to 10 dB or less was used as the criterion for success. The effects of stapedotomy on speech reception thresholds (SRTs), speech discrimination scores (SDSs), and airconduction thresholds are also reported. RESULTS: In primary stapedotomy, an air-bone gap closure of 10 dB or less was achieved in 85.7% of patients. A significant hearing gain was achieved at all frequencies (250-8000 Hz), with the greatest benefit being achieved at the lower frequencies. The SRT was significantly improved post-stapedotomy by an average of 26.7 dB, and no significant change was found in the SDS. In revision stapedotomy, 38.5% of patients had a significant hearing gain at 250 to 4000 Hz. The SRT was significantly improved postoperatively by an average of 12.7 dB, and no significant change was found in SDS. Overall complication rates were similar to other series with two cases of partial hearing loss (1.6%), one incus fracture (0.8%), one large tympanic membrane perforation (0.8%), and one perilymphatic fistula (0.8%), which was successfully repaired. No patients in this series experienced complete sensorineural hearing loss, facial nerve injury, worsened tinnitus, or reparative granuloma. CONCLUSIONS: The results of this study are comparable to other similar studies examining the use of stapedotomy in patients with otosclerosis. The high success rate and low incidence of serious complications support stapedotomy, without a laser but with resident involvement, as a highly effective treatment for otosclerosis.

**Country of Publication:** Canada

**Publication Type:** Journal Article

**Subject Headings:** [Adolescent](#)  
[Adult](#)  
[Aged](#)  
[Canada](#)

Female  
 Hearing Tests/mt [Methods]  
 Hospitals, University  
 Humans  
 Male  
 Middle Aged  
 \*Otosclerosis/su [Surgery]  
 Retrospective Studies  
 \*Stapes Surgery/mt [Methods]

**Source:** MEDLINE

### 17. Transmeatal low-power laser irradiation for tinnitus.

**Citation:** Otology & Neurotology, May 2002, vol./is. 23/3(296-300), 1531-7129

**Author(s):** Nakashima T; Ueda H; Misawa H; Suzuki T; Tominaga M; Ito A; Numata S; Kasai S; Asahi K; Vernon JA; Meikle MB

**Institution:** Department of Otorhinolaryngology, Nagoya University School of Medicine, 65 Tsurumai-cho, Showa-ku, Nagoya 466-8550, Japan.

**Language:** English

**Abstract:** OBJECTIVE: To evaluate effectiveness of 60-mW laser irradiation in the treatment of tinnitus. STUDY DESIGN: Prospective, randomized double-blind study. METHODS: This investigation included 68 ears in 45 patients with disabling unilateral or bilateral tinnitus. The active or placebo laser treatment was administered transmeatally once a week for 6 minutes. Laser irradiation was performed four times during a 4-week period. A questionnaire was administered to evaluate the loudness, duration, quality, and annoyance of tinnitus before and after irradiation. The loudness and pitch match for tinnitus were obtained, and distortion product otoacoustic emissions were also examined. RESULTS: No significant difference was observed between the active and placebo laser groups with regard to outcome of loudness, duration, quality, and annoyance of tinnitus. In one patient who received active laser treatment, acute hearing deterioration occurred after the third irradiation. CONCLUSION: Transmeatal low-power laser irradiation with 60 mW is not effective for the treatment of tinnitus.

**Country of Publication:** United States

**Publication Type:** Clinical Trial; Journal Article; Randomized Controlled Trial; Research Support, Non-U.S. Gov't

**Subject Headings:** Adult  
 Aged  
 Dose-Response Relationship, Radiation  
 Double-Blind Method  
 Female  
 Hearing  
 Humans  
 \*Laser Therapy  
 Loudness Perception  
 Male  
 Middle Aged  
 Tinnitus/pp [Physiopathology]  
 \*Tinnitus/rt [Radiotherapy]  
 Treatment Failure

**Source:** MEDLINE

**Full Text:** Available in *fulltext* at *Ovid*

### 18. Safety of the erbium:yttrium-aluminum-garnet laser in stapes surgery in otosclerosis.

**Citation:** Otology & Neurotology, January 2002, vol./is. 23/1(21-4), 1531-7129

**Author(s):** Keck T; Wiebe M; Rettinger G; Riechelmann H

<b>Institution:</b>	Department of Otorhinolaryngology, University of Ulm, Ulm, Germany. tilman.keck@medizin.uni-ulm.de
<b>Language:</b>	English
<b>Abstract:</b>	<p><b>OBJECTIVE:</b> The purpose of this study was to present early and late bone-conduction hearing thresholds and data about cochlear and vestibular disturbances in patients after erbium:yttrium-aluminum-garnet (Er:YAG) laser stapedotomy in otosclerosis. <b>STUDY DESIGN:</b> The study design was a retrospective study. <b>SETTING:</b> The study was conducted at an academic tertiary referral center. <b>PATIENTS:</b> In this study, audiologic data of 117 patients undergoing Er:YAG laser-assisted stapedotomy for otosclerosis between 1993 and 1999 were included. <b>MAIN OUTCOME MEASURES:</b> The preoperative minus 2 postoperative (early, 1-3 days; late, at least 6 weeks) average pure-tone bone-conduction thresholds at 1, 2, and 4 kHz and 0.5, 1, 2, and 3 kHz were calculated. The postoperative appearance of nystagmus, vertigo, and tinnitus was analyzed. <b>RESULTS:</b> A total of 91 of 117 patients showed unchanged preoperative minus postoperative pure-tone bone-conduction averages at 1, 2, and 4 kHz in the late postoperative measurement. A slight deterioration was observed in 8 of 117 patients. Regarding the frequencies 0.5, 1, 2, and 3 kHz, 97 of 117 patients showed unchanged preoperative minus postoperative pure-tone bone-conduction averages. A new transient tinnitus appeared in 37 of 117 patients, and a new persistent tinnitus was found in 3 of 117 patients. Most of the patients had no postoperative dizziness (63/117 patients) and no postoperative nystagmus (109/117 patients). <b>CONCLUSION:</b> The study did not show significant sensorineural hearing loss at or below 3 kHz. Vestibular and cochlear function has no clinically relevant suppression after Er:YAG laser stapedotomy.</p>
<b>Country of Publication:</b>	United States
<b>CAS Registry Number:</b>	7429-90-5 (Aluminum); 7440-52-0 (Erbium); 7440-65-5 (Yttrium)
<b>Publication Type:</b>	Journal Article
<b>Subject Headings:</b>	<p>Adolescent  Adult  Aged  *Aluminum/ae [Adverse Effects]  Auditory Threshold/ph [Physiology]  Bone Conduction/ph [Physiology]  Child  Cochlea/pp [Physiopathology]  *Erbium/ae [Adverse Effects]  Hearing Loss, Conductive/di [Diagnosis]  Humans  *Laser Therapy  Middle Aged  Nystagmus, Pathologic/di [Diagnosis]  Nystagmus, Pathologic/et [Etiology]  Otosclerosis/co [Complications]  Otosclerosis/pp [Physiopathology]  *Otosclerosis/su [Surgery]  Postoperative Care  Preoperative Care  Retrospective Studies  Severity of Illness Index  *Stapes Surgery  Tinnitus/di [Diagnosis]  Tinnitus/et [Etiology]  Vertigo/di [Diagnosis]  Vertigo/et [Etiology]  Vestibule, Labyrinth/pp [Physiopathology]  *Yttrium/ae [Adverse Effects]</p>
<b>Source:</b>	MEDLINE

**Full Text:** Available in *fulltext* at *Ovid*

### 19. Combined laser-EGb 761 tinnitus therapy.

**Citation:** Acta Oto-Laryngologica Supplement, 2001, vol./is. 545/(92-3), 0365-5237

**Author(s):** Hahn A; Sejna I; Stolbova K; Cocek A

**Institution:** ENT Clinic, 3rd Medical Faculty, Charles University Prague, Prague, Czech Republic.

**Language:** English

**Abstract:** The treatment of patients with chronic tinnitus is very problematic and therefore otologists are trying to discover more suitable courses of therapy. In this study we wanted to evaluate the outcome of using a combination of EGb 761 and soft laser therapy. We examined 120 patients with an average duration of tinnitus of 10 years. The patients underwent pure-tone audiometry, speech audiometry and objective audiometry tests. The intensity and frequency of tinnitus was also determined. EGb 761 was administered 3 weeks before starting soft laser therapy. Patients underwent 10 sessions of laser therapy, each lasting for 10 min. An improvement in tinnitus was audiometrically confirmed in 50.8% of patients: 10 dB in 18; 20 dB in 22; 30 dB in 10; 40 dB in 6; and 50 dB in 5.

**Country of Publication:** Norway

**Publication Type:** Journal Article

**Subject Headings:** [Adolescent](#)  
[Adult](#)  
[Aged](#)  
[Aged, 80 and over](#)  
[Audiometry, Pure-Tone](#)  
[Chronic Disease](#)  
[Female](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Middle Aged](#)  
[Prospective Studies](#)  
[Tinnitus/di \[Diagnosis\]](#)  
[\\*Tinnitus/th \[Therapy\]](#)

**Source:** MEDLINE

**Full Text:** Available in *fulltext* at *EBSCO Host*

### 20. Perioperative glucocorticoid treatment does not influence early post-laser stapedotomy hearing thresholds.

**Citation:** American Journal of Otology, November 2000, vol./is. 21/6(809-12), 0192-9763

**Author(s):** Riechelmann H; Tholen M; Keck T; Rettinger G

**Institution:** Department of Otorhinolaryngology-Head Neck Surgery, University of Ulm Medical School, Germany.

**Language:** English

**Abstract:** **OBJECTIVE:** The aim of this study was to evaluate the efficiency of prophylactic perioperative glucocorticoid treatment during stapes surgery in preventing damage to the inner ear and reducing the frequency of early postoperative complications. **STUDY DESIGN:** A prospective, randomized, unblinded study design was selected. **SETTING:** The study was conducted at an academic tertiary referral center. **PATIENTS:** Ninety-five consecutive patients undergoing erbium:YAG laser-assisted stapedotomy for otosclerosis between 1996 and 1999 were included. **MAIN OUTCOME MEASURES:** The preoperative minus postoperative (1-4 days and at least 6 weeks) average pure-tone bone conduction thresholds at 1, 2, and 4 kHz were compared in the prednisolone and control groups by the Mann-Whitney U Test. In addition, the occurrences of sensorineural hearing loss of >10 dB, nystagmus, vertigo, and tinnitus were counted and evaluated by

use of the Freeman-Halton or Fisher's exact test, respectively. RESULTS: Prophylactic perioperative prednisolone treatment was not able to improve the early postoperative average bone conduction thresholds or reduce the frequency of early sensorineural hearing loss ( $p > 0.5$ ). The patients who received perioperative prednisolone treatment experienced postoperative vertigo more frequently than did the control patients ( $p < 0.05$ ). CONCLUSION: Perioperative cortisone prophylaxis for prevention of inner ear damage during stapes surgery is ineffective and is associated with increased postoperative patient discomfort.

**Country of Publication:** UNITED STATES

**CAS Registry Number:** 0 (Anti-Inflammatory Agents); 50-24-8 (Prednisolone); 53-06-5 (Cortisone)

**Publication Type:** Clinical Trial; Controlled Clinical Trial; Journal Article; Randomized Controlled Trial

**Subject Headings:** [Adult](#)  
[Anti-Inflammatory Agents/ad \[Administration & Dosage\]](#)  
[\\*Anti-Inflammatory Agents/tu \[Therapeutic Use\]](#)  
[Audiometry, Pure-Tone](#)  
[\\*Auditory Threshold/ph \[Physiology\]](#)  
[Cortisone/ad \[Administration & Dosage\]](#)  
[\\*Cortisone/tu \[Therapeutic Use\]](#)  
[Female](#)  
[\\*Hearing Loss, Sensorineural/di \[Diagnosis\]](#)  
[Hearing Loss, Sensorineural/et \[Etiology\]](#)  
[Humans](#)  
[\\*Intraoperative Care](#)  
[Laser Therapy](#)  
[Male](#)  
[Nystagmus, Pathologic/ep \[Epidemiology\]](#)  
[Otosclerosis/co \[Complications\]](#)  
[\\*Otosclerosis/dt \[Drug Therapy\]](#)  
[\\*Otosclerosis/su \[Surgery\]](#)  
[\\*Postoperative Care](#)  
[Prednisolone/ad \[Administration & Dosage\]](#)  
[\\*Prednisolone/tu \[Therapeutic Use\]](#)  
[Prospective Studies](#)  
[\\*Stapes Surgery](#)  
[Tinnitus/ep \[Epidemiology\]](#)  
[Treatment Outcome](#)  
[Vertigo/ep \[Epidemiology\]](#)

**Source:** MEDLINE

## 21. [Treatment of tinnitus with low-intensity laser]. [Danish] Behandling af tinnitus med lavenergi-laser.

**Original Title:** Behandling af tinnitus med lavenergi-laser.

**Citation:** Ugeskrift for Laeger, June 2000, vol./is. 162/25(3607-10), 0041-5782

**Author(s):** Mirz F; Zachariae B; Andersen SE; Nielsen AG; Johansen LV; Bjerring P; Pedersen CB

**Institution:** Arhus Universitetshospital, Arhus Kommunehospital, ore-naese-halsafdeling H. mirz@dadlnet.dk

**Language:** Danish

**Abstract:** This study evaluated the effect of low-power laser in the treatment of tinnitus in a randomized, prospective, double-blind, placebo-controlled trial. The active laser applied 50 mW (cw, 830 nm) over a period of 10 minutes per session. Forty-nine patients were included. The main outcome was measured using psychoacoustical match of tinnitus loudness, Visual Analog Scale (VAS) ratings of subjective loudness, annoyance and attention involved, scores on tinnitus-specific questionnaires, and a number of psychosocial questionnaires. Only few subjects (18%) experienced subjective improvement. There were no statistically significant differences between the effects of the active laser and placebo treatments. CONCLUSION: Low-power laser treatment is not

indicated in the treatment of tinnitus. Reports of significant benefits of this treatment in previous studies may be explained by the placebo effect.

**Country of Publication:** DENMARK

**Publication Type:** Clinical Trial; English Abstract; Journal Article; Randomized Controlled Trial

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Double-Blind Method](#)  
[Female](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Middle Aged](#)  
[Placebo Effect](#)  
[Prospective Studies](#)  
[Psychiatric Status Rating Scales](#)  
[Psychoacoustics](#)  
[Questionnaires](#)  
[Social Support](#)  
[Tinnitus/di \[Diagnosis\]](#)  
[Tinnitus/px \[Psychology\]](#)  
[\\*Tinnitus/rt \[Radiotherapy\]](#)

**Source:** MEDLINE

## 22. Salivary gland choristoma of the middle ear: case treated with KTP laser.

**Citation:** Journal of Laryngology & Otology, July 2000, vol./is. 114/7(528-32), 0022-2151

**Author(s):** Supiyaphun P; Snidvongs K; Shuangshoti S

**Institution:** Department of Otolaryngology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand. pakpooms@hotmail.com

**Language:** English

**Abstract:**

Salivary gland choristoma of the middle ear is rare. It consists of non-malignant, non-growing, normal salivary gland tissue in the middle ear. It is a developmental abnormality that occurs around the proximal part of the second branchial arch before the fourth month of intrauterine life. The authors found the 25th recorded case in our centre and another 24 reported cases from a review of the literature between 1961 and 1999. Intratympanic salivary gland choristoma frequently occurs during the first and second decades of life and with a female preponderance (56 per cent). Nearly all the patients (96 per cent) in our review presented with a hearing loss, that had begun since birth, in infancy, or during childhood. Tinnitus (28 per cent), and serous otitis media (24 per cent) were also commonly present. One case complained of otorrhoea. Intratympanic and extratympanic anomalies were found in 96.2 per cent and 34.6 per cent of cases respectively. Of these anomalies, ossicular chain (88.5 per cent), facial nerve (65.4 per cent), middle-ear muscles (30.8 per cent) and labyrinthine windows (23 per cent) were the four most common sites. Therefore, salivary gland choristoma may represent a manifestation of a congenital ear anomaly. Diagnosis of salivary gland choristoma is generally not documented pre-operatively, but is based on surgical biopsy and histopathological investigations. Treatment of this rare lesion depends on the size, location and extent of the mass, degree of anatomical abnormality and expertise of the surgeon. In difficult cases where the mass is attached to the dehiscent or inferiorly placed facial nerve, only biopsy is recommended. However, complete surgical removal is advocated for a mass that is easy to remove. KTP laser use via a 200 micron fibre-optic light carrier can facilitate removal especially in cases with ossicular chain involvement.

**Country of Publication:** ENGLAND

**Publication Type:** Case Reports; Journal Article; Review

**Subject Headings:** [Child](#)  
[Choristoma/di \[Diagnosis\]](#)

\*Choristoma/su [Surgery]  
 Ear Diseases/di [Diagnosis]  
 \*Ear Diseases/su [Surgery]  
 Ear, Middle/su [Surgery]  
 Female  
 Humans  
 \*Laser Therapy  
 \*Salivary Glands

**Source:** MEDLINE

**Full Text:** Available in *print* at [Pinderfields NHS Staff Library](#)

**23. [Low-power laser in the treatment of tinnitus--a placebo-controlled study]. [Polish] Laser niskoenergetyczny w leczeniu szumow usznych--badania porownawcze z placebo.**

**Original Title:** Laser niskoenergetyczny w leczeniu szumow usznych--badania porownawcze z placebo.

**Citation:** Otolaryngologia Polska, 1999, vol./is. 53/3(315-20), 0030-6657

**Author(s):** Rogowski M; Mnich S; Gindzienska E; Lazarczyk B

**Institution:** Katedra i Klinika Otolaryngologii AM w Białymstoku.

**Language:** Polish

**Abstract:** The present study was performed on 32 patients in order to investigate the effect of low-power laser on their tinnitus. The patients were divided into two groups. One group received laser therapy and the other was given a placebo procedure. The effect was evaluated by the use of visual analogue scales. Within the patient group transiently evoked otoacoustic emissions (TEOAE) were measured before, during and after therapy. No significant difference between laser and placebo was found in annoyance or loudness of the tinnitus and in changes of TEOAE amplitude. These results indicate that there is no relationship between the effect of low-power laser and changes in cochlear micromechanics.

**Country of Publication:** POLAND

**Publication Type:** Clinical Trial; Controlled Clinical Trial; English Abstract; Journal Article; Research Support, Non-U.S. Gov't

**Subject Headings:** [Adult](#)  
[Audiometry, Speech](#)  
[Cochlea/re \[Radiation Effects\]](#)  
[Female](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Middle Aged](#)  
[Otoacoustic Emissions, Spontaneous](#)  
[Pain Measurement](#)  
[Tinnitus/di \[Diagnosis\]](#)  
[\\*Tinnitus/rt \[Radiotherapy\]](#)  
[Treatment Outcome](#)

**Source:** MEDLINE

**24. The low-power laser in the treatment of tinnitus.**

**Citation:** Clinical Otolaryngology & Allied Sciences, August 1999, vol./is. 24/4(346-54), 0307-7772

**Author(s):** Mirz F; Zachariae R; Andersen SE; Nielsen AG; Johansen LV; Bjerring P; Pedersen CB

**Institution:** Department of Otorhinolaryngology, Arhus University Hospitals, Denmark. mirz@dadlnet.dk

**Language:** English

**Abstract:** The purpose of this study was to evaluate the low-power laser on the treatment of tinnitus. In a randomized, prospective, double-blind, placebo-controlled trial, either active or placebo low-power laser irradiation was given through the external acoustic meatus of the affected ear towards the cochlea. The active laser applied 50 mW (cw, 830 nm) over a period of 10 min per session. Forty-nine patients with severe, chronic uni- or bilateral tinnitus were studied. The main outcome was measured using psychoacoustical match of tinnitus loudness and pitch, Visual Analogue Scale (VAS) ratings of subjective loudness, annoyance and attention involved, scores on the Tinnitus Handicap Inventory (THI), the Tinnitus Coping Style Questionnaire (TCSQ), and a number of psychosocial questionnaires. The results showed only moderate (18%) subjective improvement with no statistically significant differences between the effects of the active laser and placebo treatments. Also, there were no statistically significant differences in prepost measurements of tinnitus loudness, VAS scores, THI scores, or TCSQ scores for patients treated with active laser compared with those treated with placebo. We conclude that low-power laser treatment is not indicated in the treatment of tinnitus. Reports of significant benefits of this treatment in previous, mostly uncontrolled or single-blinded studies may be explained by the placebo effect.

**Country of Publication:** ENGLAND

**Publication Type:** Clinical Trial; Journal Article; Randomized Controlled Trial

**Subject Headings:** [Adaptation, Psychological](#)  
[Adult](#)  
[Aged](#)  
[Attitude to Health](#)  
[Double-Blind Method](#)  
[Female](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Middle Aged](#)  
[Personality Tests](#)  
[Questionnaires](#)  
[Tinnitus/pp \[Physiopathology\]](#)  
[Tinnitus/px \[Psychology\]](#)  
[\\*Tinnitus/rt \[Radiotherapy\]](#)  
[Treatment Outcome](#)

**Source:** MEDLINE

## 25. Direct round window membrane application of gentamicin in the treatment of Meniere's disease.

**Citation:** Otolaryngology - Head & Neck Surgery, May 1999, vol./is. 120/5(649-55), 0194-5998

**Author(s):** Silverstein H; Arruda J; Rosenberg SI; Deems D; Hester TO

**Institution:** Ear Research Foundation, Sarasota, FL 34239, USA.

**Language:** English

**Abstract:** **OBJECTIVE:** To evaluate the effectiveness of the round window membrane (RWM) Gelfoam gentamicin technique in patients with Meniere's disease who were unresponsive to medical management or in whom surgical therapy failed. **Study Design:** Protocol 1, single intratympanic gentamicin infusion; protocol 2 (the best method), 2 infusions, 5 days apart with reevaluation at 1 month; and protocol 3, multiple infusions 1 to 4 weeks apart. **PATIENTS:** In total, 32 patients (19 male, 13 female) were enrolled in the study. The mean age was 65 years (range 34 to 94 years). Seven of these patients were surgical salvage cases. **INTERVENTIONS:** Laser-assisted otoendoscopy with a 1.7-mm otoendoscope (Smith-Nephew Richards, Memphis, TN) was performed first. If the RWM was obscured by mucosa or adhesions, these were cleared before placing a 2 x 3 mm piece of dry Gelfoam against the RWM. Buffered gentamicin (26.7 mg/mL) was then injected into the middle ear (0.2 to 0.3 mL). **RESULTS:** Overall, vertigo was controlled in 75% of the patients after the completion of the treatment, with subtotal vestibular ablation in two thirds of patients. Hearing was preserved in 90% of the patients (within 15 dB

pure-tone average or 15% speech discrimination score), tinnitus improved in 48%, and aural pressure improved in 62.5%.

<b>Country of Publication:</b>	UNITED STATES
<b>CAS Registry Number:</b>	0 (Anti-Bacterial Agents); 0 (Gentamicins)
<b>Publication Type:</b>	Clinical Trial; Controlled Clinical Trial; Journal Article; Research Support, Non-U.S. Gov't
<b>Subject Headings:</b>	<p>Adult  Aged  Aged, 80 and over  *Anti-Bacterial Agents/ad [Administration &amp; Dosage]  Audiometry  Caloric Tests  Clinical Protocols  Drug Administration Schedule  Endoscopy  Female  *Gelatin Sponge, Absorbable/ad [Administration &amp; Dosage]  *Gentamicins/ad [Administration &amp; Dosage]  Humans  Injections  Instillation, Drug  Laser Therapy  Male  Meniere Disease/co [Complications]  Meniere Disease/di [Diagnosis]  *Meniere Disease/dt [Drug Therapy]  Middle Aged  Middle Ear Ventilation  *Round Window, Ear  Time Factors  Treatment Outcome</p>
<b>Source:</b>	MEDLINE

## 26. Inner ear perfusion and the role of round window patency.

<b>Citation:</b>	American Journal of Otology, September 1997, vol./is. 18/5(586-9), 0192-9763
<b>Author(s):</b>	Silverstein H; Rowan PT; Olds MJ; Rosenberg SI
<b>Institution:</b>	Ear Research Foundation, Sarasota, Florida, USA.
<b>Language:</b>	English
<b>Abstract:</b>	<p><b>OBJECTIVE:</b> The goal of this investigation was to evaluate the degree of round window membrane obstruction in the native state. The implications for the perfusion of the inner ear via the intratympanic instillation of medications are addressed. <b>STUDY DESIGN:</b> This was a retrospective chart review and a prospective intraoperative observation in the setting of an outpatient office. <b>PATIENTS:</b> The study population was composed of 41 patients who were undergoing middle ear endoscopy before perfusion of the inner ear with medication for the treatment of Meniere's disease, sudden sensorineural hearing loss, or tinnitus. <b>INTERVENTION:</b> Office-based laser-assisted tympanostomy and middle ear endoscopy was carried out in each case. Lysis of adhesions overlying the round window membrane was undertaken when the underlying round window membrane could not be visualized. <b>MAIN OUTCOME MEASURES:</b> Evaluation of the round window niche with regard to accessibility of the round window membrane was recorded for each patient studied. <b>RESULTS:</b> Of the 41 cases examined, 29 of the round windows were judged to be unobstructed, 7 were obstructed partially, and 5 were obstructed completely. <b>CONCLUSION:</b> A significant rate of round window obstruction exists among patients who have no history of manipulation to this area. Although, intuitively, we would expect prior middle ear surgery to increase the likelihood of obstruction, this is not uniformly the outcome. If intratympanic instillation of a medication is contemplated for the treatment of</p>

an inner ear disorder, considerations for the evaluation of the round window should be made to enhance adequate diffusion into the perilymph.

**Country of Publication:** UNITED STATES  
**CAS Registry Number:** 0 (Anti-Bacterial Agents); 0 (Gentamicins)  
**Publication Type:** Journal Article; Research Support, Non-U.S. Gov't  
**Subject Headings:** Aged  
 \*Anti-Bacterial Agents/pd [Pharmacology]  
 \*Chemotherapy, Cancer, Regional Perfusion  
 Endoscopy  
 Female  
 \*Gentamicins/pd [Pharmacology]  
 Hearing Loss, Sensorineural/dt [Drug Therapy]  
 Hearing Loss, Sensorineural/pa [Pathology]  
 Hearing Loss, Sensorineural/su [Surgery]  
 Humans  
 Male  
 Meniere Disease/dt [Drug Therapy]  
 Meniere Disease/pa [Pathology]  
 Meniere Disease/su [Surgery]  
 Middle Aged  
 Middle Ear Ventilation  
 Prospective Studies  
 Retrospective Studies  
 \*Round Window, Ear/de [Drug Effects]  
 Round Window, Ear/pa [Pathology]  
 Round Window, Ear/su [Surgery]  
 Tinnitus/dt [Drug Therapy]  
 Tinnitus/pa [Pathology]  
 Tinnitus/su [Surgery]  
**Source:** MEDLINE

### 27. Osmotic drugs in the treatment of cochlear disorders: a clinical and experimental study.

**Citation:** Acta Oto-Laryngologica, March 1997, vol./is. 117/2(229-31), 0001-6489  
**Author(s):** Filipo R; Barbara M; Cordier A; Mafera B; Romeo R; Attanasio G; Mancini P; Marzetti A  
**Institution:** Department of Otolaryngology, University of Rome La Sapienza, Italy.  
**Language:** English  
**Abstract:** On the grounds of positive results obtained with Meniere's patients, agents such as glycerol and mannitol have been included in the therapeutical protocol of other cochlear disorders presenting with hearing loss either of sudden onset, but not observed at an early stage, or accompanied by tinnitus and aural pressure. Intravenous infusions of either 10% glycerol or 18% mannitol were given to selected patients 3 to 6 times with a time interval of 1 to 3 days. Hearing loss, tinnitus and aural pressure were evaluated as improved, unchanged or worsened. In 33% of the glycerol group and 23.8% of the mannitol group we observed hearing threshold improvement, while aural fullness improved in 45% of the glycerol and 56.2% of the mannitol groups, and tinnitus was only relieved in 13.1% of the glycerol and 5.8% of the mannitol group. A parallel experimental study was carried out on guinea-pigs in order to shed light on the effects of mannitol and glycerol on the inner ear. Cochlear blood flow was measured with a laser Doppler flowmeter at the level of the basal turn of the cochlear lateral wall, both in normal and hydropic guinea-pigs, before and after osmotic intraperitoneal infusion. Basal values in the normal cochlea were much higher than in the hydropic one, and both mannitol and glycerol markedly influenced the local blood flow in the normal cochlea, giving few or no changes in the hydropic one.  
**Country of Publication:** NORWAY  
**CAS Registry Number:** 56-81-5 (Glycerol); 69-65-8 (Mannitol)

**Publication Type:** Clinical Trial; Journal Article

**Subject Headings:** [Animals](#)  
[Auditory Threshold](#)  
[Cochlea/bs \[Blood Supply\]](#)  
[\\*Cochlear Diseases/dt \[Drug Therapy\]](#)  
[Endolymphatic Hydrops/pa \[Pathology\]](#)  
[Endolymphatic Hydrops/pp \[Physiopathology\]](#)  
[Endolymphatic Hydrops/th \[Therapy\]](#)  
[Glycerol/ad \[Administration & Dosage\]](#)  
[\\*Glycerol/tu \[Therapeutic Use\]](#)  
[Guinea Pigs](#)  
[Hearing](#)  
[Hearing Loss, Sensorineural/et \[Etiology\]](#)  
[Hearing Loss, Sensorineural/pp \[Physiopathology\]](#)  
[\\*Hearing Loss, Sensorineural/th \[Therapy\]](#)  
[Humans](#)  
[Infusions, Intravenous](#)  
[Laser-Doppler Flowmetry](#)  
[Mannitol/ad \[Administration & Dosage\]](#)  
[\\*Mannitol/tu \[Therapeutic Use\]](#)  
[Stria Vascularis/pa \[Pathology\]](#)  
[Tinnitus/th \[Therapy\]](#)

**Source:** MEDLINE

#### 28. Efficacy of transmeatal low power laser irradiation on tinnitus: a preliminary report.

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**Citation:** Auris, Nasus, Larynx, 1997, vol./is. 24/1(39-42), 0385-8146

**Author(s):** Shiomi Y; Takahashi H; Honjo I; Kojima H; Naito Y; Fujiki N

**Institution:** Department of Otolaryngology, Faculty of Medicine, Kyoto University, Japan.

**Language:** English

**Abstract:** Thirty-eight patients suffering from tinnitus resistant to several medical therapies for more than 6 months were treated by low power laser irradiation. A 40 mW laser with a wavelength of 830 nm was irradiated via their external auditory meatus toward the cochlea for 9 min once a week, 10 times or more. Patients were asked to score their symptoms on a 5 point scale before and after the treatment for a subjective evaluation of the effect. The results were estimated by the change of the loudness and duration of tinnitus, and the degree of annoyance due to tinnitus. Although only 26% of the patients had improved duration, loudness and degree of annoyance were relieved in up to 58 and 55%, respectively, without major complication. Laser therapy seemed to be worth trying on patients with intractable tinnitus.

**Country of Publication:** NETHERLANDS

**Publication Type:** Journal Article

**Subject Headings:** [Adult](#)  
[Aged](#)  
[Audiometry, Pure-Tone](#)  
[Female](#)  
[Humans](#)  
[\\*Lasers](#)  
[Male](#)  
[Middle Aged](#)  
[Severity of Illness Index](#)  
[\\*Tinnitus/rt \[Radiotherapy\]](#)

**Source:** MEDLINE

#### 29. Intratympanic steroid treatment of inner ear disease and tinnitus (preliminary report).

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**Citation:** Ear, Nose, & Throat Journal, August 1996, vol./is. 75/8(468-71, 474, 476 passim), 0145-5613

**Author(s):** Silverstein H; Choo D; Rosenberg SI; Kuhn J; Seidman M; Stein I

**Institution:** Ear Research Foundation, Sarasota, FL 34239, USA.

**Language:** English

**Abstract:** Intratympanic instillation of Depo-Medrol (80 mg/cc), dexamethasone ophthalmic solution (1 mg/cc), or dexamethasone intravenous (4 mg/cc) solution produces improvement of cochlear function in certain patients with Meniere's disease, autoimmune inner ear disease and sudden sensorineural deafness. Tinnitus improved in 47%, most often in patients with Meniere's disease (9 of 15; 60%). The SRT improvement of greater than 10 dB or SD greater than 15% was documented in 41% (average improvement in SRT: 15 dB; SD: 24%). Patients with tinnitus and bilateral sensorineural hearing loss (i.e., presbycusis) did not benefit from the treatment. Prior to treatment with intratympanic medication, laser assisted tympanostomy with middle ear exploration, using otoendoscopy to determine the status of the round window niche and remove mucosal folds, helps in making the round window membrane accessible to local application of drops. Placing Gelfoam into the round window niche under direct vision, and using a Venturi Bobbin tube in the tympanic membrane, appears to be a satisfactory method for delivering medication to the inner ear fluids. The medication can be injected by the physician through the tube into the middle ear, or the patient can perform self-treatment at home, placing medication in the external auditory canal. A double-blind, cross-over study in patients with Meniere's disease is now in progress with Institutional Review Board (IRB) approval, which will be reported at a later date. This preliminary study has shown that intratympanic steroids may affect the symptoms of hearing loss and tinnitus in patients with various inner ear problems. Patients with Meniere's disease appear to respond in the highest percentage of cases. Hopefully, additional research will suggest the appropriate drugs which can be used to treat inner ear disease. Direct application of the drug to the round window membrane may increase the concentration in the inner ear fluids, thus avoiding the systemic effects.

**Country of Publication:** UNITED STATES

**CAS Registry Number:** 0 (Anti-Inflammatory Agents); 50-02-2 (Dexamethasone)

**Publication Type:** Case Reports; Comparative Study; Journal Article; Research Support, Non-U.S. Gov't

**Subject Headings:** [Aged](#)  
[Animals](#)  
[\\*Anti-Inflammatory Agents/pd \[Pharmacology\]](#)  
[Anti-Inflammatory Agents/tu \[Therapeutic Use\]](#)  
[\\*Dexamethasone/pd \[Pharmacology\]](#)  
[Dexamethasone/tu \[Therapeutic Use\]](#)  
[Ear, Inner/de \[Drug Effects\]](#)  
[Ear, Inner/pp \[Physiopathology\]](#)  
[Guinea Pigs](#)  
[Humans](#)  
[Male](#)  
[\\*Meniere Disease/co \[Complications\]](#)  
[Meniere Disease/pp \[Physiopathology\]](#)  
[\\*Tinnitus/co \[Complications\]](#)  
[\\*Tinnitus/dt \[Drug Therapy\]](#)  
[\\*Tympanic Membrane/de \[Drug Effects\]](#)  
[\\*Tympanic Membrane/pp \[Physiopathology\]](#)

**Source:** MEDLINE

### 30. Soft-laser/Ginkgo therapy in chronic tinnitus. A placebo-controlled study.

**Citation:** Advances in Oto-Rhino-Laryngology, 1995, vol./is. 49/(105-8), 0065-3071

**Author(s):** von Wedel H; Calero L; Walger M; Hoenen S; Rutwalt D

**Institution:** ENT Department, University of Cologne, Germany.  
**Language:** English  
**Country of Publication:** SWITZERLAND  
**CAS Registry Number:** 0 (Placebos); 0 (Plant Extracts)  
**Publication Type:** Comparative Study; Journal Article  
**Subject Headings:** [Audiometry](#)  
[Chronic Disease](#)  
[Cochlea/de \[Drug Effects\]](#)  
[\\*Cochlea/su \[Surgery\]](#)  
[Combined Modality Therapy](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Placebos](#)  
[Plant Extracts/pd \[Pharmacology\]](#)  
[\\*Plant Extracts/tu \[Therapeutic Use\]](#)  
[Tinnitus/di \[Diagnosis\]](#)  
[\\*Tinnitus/dt \[Drug Therapy\]](#)  
[\\*Tinnitus/su \[Surgery\]](#)  
[Treatment Outcome](#)

**Source:** MEDLINE

### 31. Results of combined low-power laser therapy and extracts of Ginkgo biloba in cases of sensorineural hearing loss and tinnitus.

**Citation:** Advances in Oto-Rhino-Laryngology, 1995, vol./is. 49/(101-4), 0065-3071  
**Author(s):** Plath P; Olivier J  
**Institution:** Department for ENT, Head and Neck Surgery of the Ruhr University Bochum, Prosper Hospital Recklinghausen, Germany.  
**Language:** English  
**Country of Publication:** SWITZERLAND  
**CAS Registry Number:** 0 (Plant Extracts)  
**Publication Type:** Journal Article  
**Subject Headings:** [Audiometry](#)  
[Combined Modality Therapy](#)  
[Ear, Inner/de \[Drug Effects\]](#)  
[\\*Ear, Inner/su \[Surgery\]](#)  
[Female](#)  
[Hearing Loss, Sensorineural/co \[Complications\]](#)  
[Hearing Loss, Sensorineural/di \[Diagnosis\]](#)  
[\\*Hearing Loss, Sensorineural/dt \[Drug Therapy\]](#)  
[Humans](#)  
[\\*Laser Therapy](#)  
[Male](#)  
[Plant Extracts/pd \[Pharmacology\]](#)  
[\\*Plant Extracts/tu \[Therapeutic Use\]](#)  
[Tinnitus/co \[Complications\]](#)  
[\\*Tinnitus/dt \[Drug Therapy\]](#)  
[\\*Tinnitus/su \[Surgery\]](#)  
[Treatment Outcome](#)

**Source:** MEDLINE

### 32. [Suitability of various lasers for interventions from the tympanic membrane to the foot plate (Er:YAG, argon, CO2 s.p.--, Ho:YAG laser). [German] Eignung verschiedener Laser fur Eingriffe vom Trommelfell bis zur Fussplatte (Er:YAG-, Argon-, CO2 s.p.--, Ho:YAG-Laser.

**Original Title:** Eignung verschiedener Laser für Eingriffe vom Trommelfell bis zur Fussplatte (Er:YAG-, Argon-, CO<sub>2</sub> s.p.-, Ho:YAG-Laser).

**Citation:** Laryngo- Rhino- Otologie, January 1995, vol./is. 74/1(21-5), 0935-8943

**Author(s):** Pfalz R

**Institution:** Hals-Nasen-Ohrenklinik, Universität Ulm.

**Language:** German

**Abstract:** The Erbium:YAG-laser is a good tool for microresection of bone and soft tissue from the ear drum, to the ossicles and extending to the footplate. The mechanism of ablation is based on the fact that the emission of infrared light is of the same wavelength at which water has its peak of optimal light absorption. 14% of bone is water, just sufficient force for ablation. At 50 mJ impulses the temperature in the centre stays below the coagulation point. 500 impulses of 50 mJoule definitely remain below the acoustic risk. In 44 guinea pigs 500 x 50 mJ caused a temporal threshold shift of maximal 38 dB at 2000 cps which recovered after 90-135 min. In 60 tympanoplasties neither tinnitus nor audiological side effects of the laser application were measured. The ear drum is perforated by 1 (-3) impulses. This can be done even in children after superficial anaesthesia (2% pantocaine drops) to drain the middle ear. The laser perforation of 0.3 mm [symbol: see text] will close after a day and has to be re-opened in the office to avoid tubes. We do not yet know how often general anaesthesia and removal by suction of too viscous mucus remain nevertheless necessary. With the Er:YAG laser parts of the ossicles can be cut out of the intact chain, without contact and trauma, nearly without loss of bone tissue. This allows better radicality in removing cholesteatomas or scars with less destruction. 500 impulses of 50 mJ ablate 32 mg of bone, i.e. the weight of an incus.(ABSTRACT TRUNCATED AT 250 WORDS)

**Country of Publication:** GERMANY

**Publication Type:** Comparative Study; English Abstract; Journal Article; Review

**Subject Headings:** [Adult](#)  
[Animals](#)  
[Child](#)  
[\\*Ear Ossicles/su \[Surgery\]](#)  
[Guinea Pigs](#)  
[Humans](#)  
[\\*Laser Therapy/is \[Instrumentation\]](#)  
[Microsurgery/is \[Instrumentation\]](#)  
[Stapes Surgery/is \[Instrumentation\]](#)  
[\\*Tympanoplasty/is \[Instrumentation\]](#)

**Source:** MEDLINE

### 33. Epinephrine-induced changes in human cochlear blood flow.

**Citation:** American Journal of Otology, May 1994, vol./is. 15/3(299-305; discussion 305-6), 0192-9763

**Author(s):** Miller JM; Laurikainen EA; Grenman RA; Suonpaa; Bredberg G

**Institution:** Kresge Hearing Research Institute, Department of Otolaryngology, University of Michigan, Ann Arbor 48109-0506, USA.

**Language:** English

**Abstract:** Cochlear blood flow (CBF) was monitored over the basal turn stria vascularis using laser Doppler flowmetry in five human subjects during middle ear surgery. The effects of systemically administered epinephrine (0.3 microgram/kg) and topically applied epinephrine (1:10,000) on the round window membrane (RWM) were examined. Topical epinephrine caused a mean reduction of 60 percent in CBF (maximum peak reduction 65-85% across subjects), which slowly recovered (> 10 min) toward baseline following epinephrine removal from the RWM. The changes in CBF are similar to those found in animal studies, but are much larger, indicating a relatively more pronounced role of

adrenergic agents in CBF control in humans. Systemic epinephrine caused a 40 percent decrease in skin blood flow, a 90 percent increase in blood pressure (BP), above a resting hypotensive mean level of 65 mmHg, and a 50 percent increase in CBF. The CBF change followed the change in BP, but recovered toward baseline more slowly. The dramatic and somewhat prolonged decreases in CBF with RWM application of epinephrine may compromise sensory function and could account for the occasional unexplained sensorineural hearing loss or tinnitus associated with middle ear procedures that use topical epinephrine. The semipermeability of the RWM may, on the other hand, offer a route for therapeutic increases in CBF with vasodilative agents and provide an appropriate treatment for some cases of sensorineural hearing loss.

**Country of Publication:** UNITED STATES

**CAS Registry Number:** 51-43-4 (Epinephrine)

**Publication Type:** Comparative Study; Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, P.H.S.

**Subject Headings:** [Administration, Topical](#)  
[Adolescent](#)  
[Adult](#)  
[Clinical Protocols](#)  
[\\*Cochlea/bs \[Blood Supply\]](#)  
[\\*Cochlea/de \[Drug Effects\]](#)  
[Epinephrine/ad \[Administration & Dosage\]](#)  
[Epinephrine/ae \[Adverse Effects\]](#)  
[\\*Epinephrine/pd \[Pharmacology\]](#)  
[Female](#)  
[Hearing Loss, Sensorineural/ci \[Chemically Induced\]](#)  
[Humans](#)  
[Injections, Intravenous](#)  
[Laser-Doppler Flowmetry](#)  
[Male](#)  
[\\*Round Window, Ear/de \[Drug Effects\]](#)  
[Time Factors](#)  
[Tympanic Membrane/su \[Surgery\]](#)

**Source:** MEDLINE

#### 34. The role of KTP laser in revision stapedectomy.

**Citation:** Otolaryngology - Head & Neck Surgery, November 1993, vol./is. 109/5(839-43), 0194-5998

**Author(s):** McGee TM; Diaz-Ordaz EA; Kartush JM

**Institution:** Michigan Ear Institute, Portsmouth.

**Language:** English

**Abstract:** In recent years, the safety and efficacy of revision stapedectomy has come under scrutiny. Experienced surgeons report that the results of such surgery are often worse than the results after primary surgery and that the risks of sensorineural hearing loss, tinnitus, and vertigo are increased. With the addition of laser technology to revision stapes surgery, the procedure to open the neomembrane over the oval window and gain access to the inner ear can now be performed safely. This allows positive identification of the oval window and assures placement of the prosthesis through the fenestra rather than on an intermediate segment of scar or bone in the region of the footplate. Our studies have shown the laser to be an important tool that enhances the safety and efficacy of revision stapedectomy.

**Country of Publication:** UNITED STATES

**Publication Type:** Comparative Study; Journal Article; Review

**Subject Headings:** [Audiometry](#)  
[Bone Conduction](#)

[Causality](#)  
[Cochlear Implants](#)  
[Hearing Loss, Sensorineural/ep \[Epidemiology\]](#)  
[Hearing Loss, Sensorineural/et \[Etiology\]](#)  
[Humans](#)  
[Laser Therapy/ae \[Adverse Effects\]](#)  
[\\*Laser Therapy/mt \[Methods\]](#)  
[Prosthesis Failure](#)  
[Reoperation/ae \[Adverse Effects\]](#)  
[Reoperation/mt \[Methods\]](#)  
[Retrospective Studies](#)  
[Speech Perception](#)  
[Stapes Surgery/ae \[Adverse Effects\]](#)  
[\\*Stapes Surgery/mt \[Methods\]](#)  
[Tinnitus/ep \[Epidemiology\]](#)  
[Tinnitus/et \[Etiology\]](#)  
[Treatment Outcome](#)  
[Vertigo/ep \[Epidemiology\]](#)  
[Vertigo/et \[Etiology\]](#)

**Source:** MEDLINE

### 35. Ototoxicity of salicylate, nonsteroidal antiinflammatory drugs, and quinine.

**Citation:** Otolaryngologic Clinics of North America, October 1993, vol./is. 26/5(791-810), 0030-6665

**Author(s):** Jung TT; Rhee CK; Lee CS; Park YS; Choi DC

**Institution:** Loma Linda University School of Medicine, California.

**Language:** English

**Abstract:** Salicylates and most NSAIDS in high doses cause mild to moderate temporary hearing loss, either flat or greater in the high frequencies. Hearing loss is accompanied by tinnitus and suprathreshold changes. Salicylates may or may not exacerbate hearing loss and cochlear damage induced by noise. The mechanism of salicylate ototoxicity seems to be multifactorial. Morphologic studies suggest that no permanent cochlear damage occurs with salicylate ototoxicity. Electrophysiologic, morphologic, and in vitro data conclusively demonstrate that salicylate affects outer hair cells. In addition, salicylates appear to decrease cochlear blood flow. Salicylates and NSAIDS inhibit PG-forming cyclooxygenase, and recent studies suggest that abnormal levels of arachidonic acid metabolites consisting of decreased PGs and increased LTs may mediate salicylate ototoxicity. As with salicylate, quinine ototoxicity appears to be multifactorial in origin. The mechanism includes vasoconstriction and decreases in cochlear blood flow, as measured by laser Doppler flowmetry, motion photographic studies, and histologic studies. Reversible alterations of outer hair cells also appear to play an important role, as demonstrated by histology, electron microscopy, isolated hair cell studies, and cochlear potential evaluations. Unlike with salicylate, however, the role of prostaglandins in quinine ototoxicity has not been clearly demonstrated. Also, one of quinine's principal actions, antagonism of calcium-dependent potassium channels, has yet to be investigated for its potential role in ototoxicity.

**Country of Publication:** UNITED STATES

**CAS Registry Number:** 0 (Anti-Inflammatory Agents, Non-Steroidal); 0 (Salicylates); 130-95-0 (Quinine)

**Publication Type:** Journal Article; Research Support, Non-U.S. Gov't; Review

**Subject Headings:** [Animals](#)  
[\\*Anti-Inflammatory Agents, Non-Steroidal/ae \[Adverse Effects\]](#)  
[\\*Cochlea/de \[Drug Effects\]](#)  
[Cochlea/pa \[Pathology\]](#)  
[Cochlea/pp \[Physiopathology\]](#)  
[\\*Hearing Loss/ci \[Chemically Induced\]](#)  
[Humans](#)

\*Quinine/ae [Adverse Effects]  
 Quinine/pk [Pharmacokinetics]  
 \*Salicylates/ae [Adverse Effects]  
 Salicylates/pk [Pharmacokinetics]  
 Tinnitus/ci [Chemically Induced]

**Source:** MEDLINE

**36. [Soft laser therapy in combination with tebonin i.v. in tinnitus]. [German] Softlasertherapie in Kombination mit Tebonin i.v. bei Tinnitus.**

**Original Title:** Softlasertherapie in Kombination mit Tebonin i.v. bei Tinnitus.

**Citation:** Laryngo- Rhino- Otologie, January 1993, vol./is. 72/1(28-31), 0935-8943

**Author(s):** Partheniadis-Stumpf M; Maurer J; Mann W

**Institution:** Univ. HNO-Klinik Mainz.

**Language:** German

**Abstract:** 28 patients were treated with soft-laser therapy. Two-thirds of them had suffered from tinnitus for more than six months and had undergone different therapies before. Each patient was treated twelve times, treatment lasting ten minutes. Before therapy six ml of Tebonin were given i.v. Four minutes later, the laser was positioned at a distance of one centimetre from the patients' mastoid. The laser beam was directed two fingers above the mastoid tip aiming at the lateral wall of the contralateral orbit. Before and three weeks after treatment each patient underwent pure tone audiometry and determination of the tinnitus intensity. Patients were asked to score symptoms before and three weeks after therapy. Hearing levels before and after soft-laser therapy did not show any statistic difference. Three weeks after the last treatment, twenty patients denied any change in tinnitus. Two patients felt an improvement of tinnitus and one patient had recovered completely. Five patients remained undecided about the outcome of therapy. To sum up, according to our results, the trial so far failed to show clear benefits of soft-laser therapy for patients suffering from chronic tinnitus.

**Country of Publication:** GERMANY

**CAS Registry Number:** 0 (Flavonoids); 0 (Ginkgo biloba extract 761); 0 (Plant Extracts)

**Publication Type:** English Abstract; Journal Article

**Subject Headings:** Adult  
 Aged  
 Auditory Threshold/de [Drug Effects]  
 Auditory Threshold/re [Radiation Effects]  
 Bone Conduction/de [Drug Effects]  
 Bone Conduction/re [Radiation Effects]  
 Combined Modality Therapy  
 Female  
 \*Flavonoids/ad [Administration & Dosage]  
 Ginkgo biloba  
 Humans  
 Infusions, Intravenous  
 \*Laser Therapy  
 Male  
 Middle Aged  
 \*Plant Extracts  
 Tinnitus/dt [Drug Therapy]  
 \*Tinnitus/rt [Radiotherapy]

**Source:** MEDLINE

**37. Betahistine-induced vascular effects in the rat cochlea.**

**Citation:** American Journal of Otology, January 1993, vol./is. 14/1(24-30), 0192-9763

**Author(s):** Laurikainen EA; Miller JM; Quirk WS; Kallinen J; Ren T; Nuttall AL; Grenman R; Virolainen E

**Institution:** Kresge Hearing Research Institute, Department of Otolaryngology, University of Michigan, Ann Arbor 48901-0506.

**Language:** English

**Abstract:** Betahistine (BH) has been used widely to treat cochlear disorders, such as tinnitus and Meniere's disease. The mechanism of action of BH in the cochlea is assumed to be based on its histamine-like effect on H1 receptors in the cochlear vasculature, leading to an increased cochlear blood flow (CBF). Recently it has been shown that BH can strongly affect H3 heteroreceptors (a novel histamine receptor subclass) in the periphery, via an autonomic ligand. This mechanism may also contribute to the BH effects on CBF. This study was to validate BH effects in the cochlear vasculature and to investigate the possible mechanisms of action of this drug in the inner ear vasculature. We assessed the effects of BH on CBF with the laser Doppler flowmeter in 23 rats and concluded that BH affects vascular conductivity in the cochlea in a dose-dependent fashion; betahistine diffuses through the round window, but does not have access to vascular receptors or ligands once in the labyrinthine fluids; and the H1 receptors mediate the systemic and peripheral vascular effects of BH, whereas the cochlear effect involves cholinergic receptors.

**Country of Publication:** UNITED STATES

**CAS Registry Number:** 51-55-8 (Atropine); 5638-76-6 (Betahistine); 60-87-7 (Promethazine)

**Publication Type:** Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, P.H.S.

**Subject Headings:** [Animals](#)  
[Atropine/du \[Diagnostic Use\]](#)  
[Betahistine/ad \[Administration & Dosage\]](#)  
[Betahistine/ae \[Adverse Effects\]](#)  
[\\*Betahistine/du \[Diagnostic Use\]](#)  
[\\*Cerebrovascular Circulation/de \[Drug Effects\]](#)  
[Cochlea/bs \[Blood Supply\]](#)  
[\\*Cochlea/de \[Drug Effects\]](#)  
[Drug Synergism](#)  
[Female](#)  
[Infusions, Intravenous](#)  
[Laser-Doppler Flowmetry](#)  
[Male](#)  
[Promethazine/du \[Diagnostic Use\]](#)  
[Rats](#)

**Source:** MEDLINE

**38. Common factors contributing to intractable pain and medical problems with insufficient drug uptake in areas to be treated, and their pathogenesis and treatment: Part I. Combined use of medication with acupuncture, (+) Qi gong energy-stored material, soft laser or electrical stimulation.**

**Citation:** Acupuncture & Electro-Therapeutics Research, 1992, vol./is. 17/2(107-48), 0360-1293

**Author(s):** Omura Y; Losco BM; Omura AK; Takeshige C; Hisamitsu T; Shimotsuura Y; Yamamoto S; Ishikawa H; Muteki T; Nakajima H; et al

**Institution:** Heart Disease Research Foundation, New York.

**Language:** English

**Abstract:** Most frequently encountered causes of intractable pain and intractable medical problems, including headache, post-herpetic neuralgia, tinnitus with hearing difficulty, brachial essential hypertension, cephalic hypertension and hypotension, arrhythmia, stroke, osteo-arthritis, Minamata disease, Alzheimer's disease and neuromuscular problems, such as Amyotrophic Lateral Sclerosis, and cancer are often found to be due to co-existence of 1) viral or bacterial infection, 2) localized microcirculatory disturbances, 3) localized deposits of heavy metals, such as lead or mercury, in affected areas of the body, 4) with or

without additional harmful environmental electro-magnetic or electric fields from household electrical devices in close vicinity, which create microcirculatory disturbances and reduced acetylcholine. The main reason why medications known to be effective prove ineffective with intractable medical problems, the authors found, is that even effective medications often cannot reach these affected areas in sufficient therapeutic doses, even though the medications can reach the normal parts of the body and result in side effects when doses are excessive. These conditions are often difficult to treat or may be considered incurable in both Western and Oriental medicine. As solutions to these problems, the authors found some of the following methods can improve circulation and selectively enhance drug uptake: 1) Acupuncture, 2) Low pulse repetition rate electrical stimulation (1-2 pulses/second), 3) (+) Qi Gong energy, 4) Soft lasers using Ga-As diode laser or He-Ne gas laser, 5) Certain electro-magnetic fields or rapidly changing or moving electric or magnetic fields, 6) Heat or moxibustion, 7) Individually selected Calcium Channel Blockers, 8) Individually selected Oriental herb medicines known to reduce or eliminate circulatory disturbances. Each method has advantages and limitations and therefore the individually optimal method has to be selected. Applications of (+) Qi Gong energy stored paper or cloth every 4 hours, along with effective medications, were often found to be effective, as Qigongnized materials can often be used repeatedly, as long as they are not exposed to rapidly changing electric, magnetic or electro-magnetic fields. Application of (+) Qi Gong energy-stored paper or cloth, soft laser or changing electric field for 30-60 seconds on the area above the medulla oblongata, vertebral arteries or endocrine representation area at the tail of pancreas reduced or eliminated microcirculatory disturbances and enhanced drug uptake.(ABSTRACT TRUNCATED AT 400 WORDS)

**Country of Publication:** UNITED STATES

**CAS Registry Number:** 0 (Analgesics); 0 (Metals); 54397-85-2 (Thromboxane B2)

**Publication Type:** Case Reports; Clinical Trial; Journal Article; Research Support, Non-U.S. Gov't

**Subject Headings:** [Acupuncture Therapy/mt \[Methods\]](#)  
[\\*Acupuncture Therapy/st \[Standards\]](#)  
 Aged  
[Analgesics/ad \[Administration & Dosage\]](#)  
[Analgesics/pk \[Pharmacokinetics\]](#)  
[\\*Analgesics/tu \[Therapeutic Use\]](#)  
 Combined Modality Therapy  
 Comorbidity  
[Electric Stimulation Therapy/st \[Standards\]](#)  
[Electromagnetic Phenomena/st \[Standards\]](#)  
 Female  
 Humans  
[Infection/co \[Complications\]](#)  
 Laser Therapy  
 Male  
[Metals/po \[Poisoning\]](#)  
 Middle Aged  
[Moxibustion/st \[Standards\]](#)  
[Pain, Intractable/ep \[Epidemiology\]](#)  
[Pain, Intractable/et \[Etiology\]](#)  
[\\*Pain, Intractable/th \[Therapy\]](#)  
 Risk Factors  
[Thromboxane B2/bl \[Blood\]](#)

**Source:** MEDLINE