A=Acupuncture & Trigger point, B=Basic Research, Bb=Blood Irradiation, D=Dermatology, Dd=Dental, ENT=Ears, Nose, Throat, G=Gynegology, Gm=General Medicine, Hp=High Power Laser, I=Intervenious, M=Meta-analysis, N=Neurology, Nt=Neural Therapy, O=Orthopedics, Op=Opthalmology, P=Pain, R=Rheumatology, Rr=Report, S=Sports, T=Traumatology, U=Urology, V=Veterinary

B=Blin H=Hyp Trial, Rl	d, CLIN=Clinical, othesis, RCT=Ran E=Review, VIT=In \ Study	DB=DoubleBlind, domized Clinical /itro, VIV=In Vivo			updated: 10/04/03	, DB, H, E, VIV, VIT					
Code Letter	Indication	Author 1	Co-Authors	Name of Publication	Abstract	Key Words	B, CLIN RCT, RE	Lang.			
D1	Wound Healing	Braverman B.	McCarthy R.J. Ivankovich A.D. Forde D.E. Overfield M. Bapna M.S.	Lasers in Surgery and Medicine 9:50-58 (1989), © Alan R. Liss, Inc.	1989	50-58	"Effect of Helium- Neon and Infrared Laser Irradiation on Wound Healing in Rabbits"	We examined the biostimulating effects of helium-neon laser radiation (HeNe; 632.8 nm), pulsed infrared laser radiation (IR; 904 nm), and the two combined on skin wound healing in New Zealand white rabbits. Seventy-two rabbits received either 1) no exposure, 2) 1.65 J/cm2 HeNe, 3) 8.25 J/cm2 pulsed IR, or 4) both HeNe and IR together to one of two dorsal full- thickness skin wounds, daily, for 21 days. Wound areas were measured photographically at periodic intervals. Tissue samples were analyzed for tenile strength, and histology was done to measure epidermal thickness and cross-sectional collagen area. Significant differences were found in the tensile strength of all laser-treated groups (both the	biostimulation low-energy denstities skin wounds tensile strength trichrome collagen stain wound area animal study rabbit HeNe IR 600-690 nm >900 nm 1.65 J/cm2 8.25 J/cm2	VIV	GB

A=Acupuncture & Trigger point, B=Basic Research, Bb=Blood Irradiation, D=Dermatology, Dd=Dental, ENT=Ears, Nose, Throat, G=Gynegology, Gm=General Medicine, Hp=High Power Laser, I=Intervenious, M=Meta-analysis, N=Neurology, Nt=Neural Therapy, O=Orthopedics, Op=Opthalmology, P=Pain, R=Rheumatology, Rr=Report, S=Sports, T=Traumatology, U=Urology, V=Veterinary rds B=Blind, CLIN=Clinical, DB=DoubleBlind, PUBLICATIONS H=Hypothesis, RCT=Randomized Clinical Trial, RE=Review, VIT=In Vitro, VIV=In Vivo **DOWNI OAD** Study Year Lang. Code of Page Letter Indication Author 1 Co-Authors Name of Publication Publ. Nr. Title Abstract Kev Words Snyder-Mackler DB Musculoskeletal Bork C. Physical Therapy Volume 1986 1087-"Effect of Helium-Cold lasers have been proposed HeNe GB A1 trigger points 66, Number 7, 1087-1090, 1090 Neon Laser on recently as a therapeutic tool for L. 1986 Musculoskeletal treating a wide variety of Trigger Points" pathological conditions, including wounds, arthritis, Bourbon B. VIV trigger point Trumbore D. muscles pain physical therapy **A1** CLIN GB 1990 147-148 Acupuncture Ohshiro T. Laser Therapy, 147-148, "Acupuncture, Laser **Review of Laser Acupuncture** review A2 1990© John Wiley & Sons, Acupuncture, And and LLLT by Toshio Ohshiro., Ltd. LLLT" Acupuncture, Ohshiro T. A2 acupuncture Migräne Ho H. 1999 159-170 "Zur Intervalltherapie Die Akupunktur gewinnt als DB D A3 Kropp P. AKU 27,3, 159-170, 1999 intervalltherapie der Migräne mit Laser nebenwirkungsarmes akupunktur" Therapieverfahren zunehmende Bedeutung in der Kopfschmerzund Migränetherapie. Unter Wallasch T. migräne CLIN Niederberger U. akupunktur Weinschütz T. klinische parameter A3 elektrophysiologi sche parameter **A**4 Postoperative Schlager A. Offer T. AKU 28,2, 102-104, 2000 2000 102-104 "Laser Stimulation of Prävention von postoperativem DB D acupuncture Vomitina in Acupuncture Point P Erbrechen bei Kindern nach 6 Reduces Children Strabisoperationen durch Undergoing Postoperative Laserakupunktur des Strabismus Vomitting in Children Akupunkturpunktes P 6., Undergoing **Postoperative Vomiting in** Surgery Strabismus Surgery" **Children Undergoing Strabismus** Surgery, Schlager A., Offer T., Baldissera I., AKU 28,2, 102-104, 2000, "Laser Stimulation of Acupuncture Point P 6 Reduces CLIN Baldissera I. postoperative visible red diode laser

A 4								strabismus surgery		
A5 A5	Acute Headache Syndromes	Amoils S.	Kues J.	LLLT Original Articles, 155- 157, 1991 © John Wiley & Sons, Ltd.	1991 155-1	57 "The Effect of Low Level Laser Therapy on Acute Headache Syndromes"	A study on the effect of low level laser therapy on acute headache syndromes was undertaken. Ten patients with acute vascular headache or occipital neuralgia	occipital neuralgia diode laser trigger points visible red vascular beedeebe	CLIN	GB
A6 A6	Rhinopathia pollinosa	Langer H.	Hauswald B.	Dtsch. Zschr. Akup. 32/1989, 109-111		"Die therapeutische Wirkung der Akupunktur und Laserpunktur bei Patienten mit Rhinopathia pollinosa"	65 patients, suffering from Rhinopathia pollinosa, has been treated with acupuncture in a prospective randomized clinical simple blind study with exogen control. 22 patients of this group got normal acupuncture, 26 laserpuncture and 17	rhinopathia pollinosa acupuncture HeNe	B	D
Α7	Regulationsthera pie	Bergsmann O.		Ganzheitsmedizin, Nr. 2, 8 Jg., 7-14, 1995	1995 7-14	"Grundlagen und Möglichkeiten der Regulationstherapie mit Laser"	Der LPL kann unter bestimmten Voraussetzungen unter neuraltherapeutischen Gesichtspunkten eingesetzt werden. Seine Wirkung ist mit den üblichen Techniken vergleichbar. Die Unterschiede werden aufgezeigt. Die Wirkung des Lasers gibt darüber hinaus Anlass zum Überdenken eingeführter Denkmodelle.	regulationstherapi e neuraltherapie infrared HeNe	RE	D
A 7								gesichtspunkten		
A8 A8	Migraine Headaches	McKibbin L.S.	Downie R.	LLLT Original Articles, 23- 28, 1993 © John Wiley & Sons, Ltd.	1993 23-28	"Treatment of Migraine Headaches Using Auricular Acupuncture Techniques"	Chronic Headaches of various etiologies are commonly managed by pharmalogical and cognitive behaviour modification techniques. The use of Acupuncture Techniques has	auricular acupuncture headache migraine HeNe	CLIN	GB

Alo Postoperative vomiting in children undergoing strabismus surgery Schlager A. Mice Offer T. Schlager A. Schlager A. British Journal of Anaesthesia 1998; 81; 529- 332 199 529-532 surgery "Laser stimulation of education of surgery on the surgery on the surger	A9	Yamamoto- Neuen-Schädel- akupunktur	Wiesner- Zechmeister M.	Meissl S. Schwabl H.	AKU Heft 2, 22. Jahrgang, 2 Quartal, 108-114		108-114	"Systemtheoretische Aspekte bei der Anwendung des Lasers in der Yamamoto-Neuen- Schädel-akupunktur"	The organism is an open cybernetic system, which follows the rules of nonlinearity. These are the rules of chaos and selforganization. Thus it can be influenced most efficiently by minimal stimulation, for example	laserpuncture cybernetic system fractals	Η	D
Alu Postoperative vomiting in children undergoing strabismus surgery Schlager A. Postoperative undergoing strabismus Children surgery Diffitish Journal of Alu Sad The second strabismus Diffitish Journal of Alu Sad The second surgery Diffitish Journal of Alu Sad The second strabismus Measures surgery Diffitish Journal of Sad	A9	.	<u></u>	o		400-				HeNe		
A10 Patellaspitzensy ndromen Aigner N. Fialka C. AKU 24, 1, 11-14, 1996 1996 11-14 "Laserakupunktur von Patellaspitzensydmon men bei Leistungssportlern" Patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendinitis is an overuse prospective non-randomized study soft-laser-light was patellar tendinitis an output of the patellar tendinitis is an overuse prospective non-randomized study soft-laser-light was patellar tendinitis an output of the patellar tendinitis an output of the patellar tendinitis an output of the patellar tendinitis is an output of the patellar tendinitis an o	A10	Postoperative vomiting in children undergoing strabismus surgery	Schlager A.	Offer 1. Baldissera I.	British Journal of Anaesthesia 1998; 81; 529- 532	1998	529-532	"Laser stimulation of acupuncture point P 6 reduces postoperative vomiting in children undergoing strabismus surgery"	We conducted a double-blind, randomized, placebo-controlled study to investigate the effectiveness of P6 acupuncture on postoperative vomiting in children undergoing strabismus surgery. Acupuncture was performed by laser stimulation with a low-level laser. Laser stimulation of P6 was	anaesthesia paediatric acupuncture vomiting nausea	CLIN	GB
A11 Patellaspitzensy ndromen Aigner N. Fialka C. AKU 24, 1, 11-14, 1996 1996 11-14 von Patellaspitzensyndro men bei Leistungssportlern" Patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendon of the proximal part of the patellaspitzensyndro men bei Leistungssportlern" Patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendon of the patellar tendon of the patellar transaction of the patellar tendon of the patellar tendon of the acupuncture Disch. 2schr. Akup. 37, 1, 12-19. 1994 1994 12-19 "Acupuncture Comparing Laser Stimulation and Traditional Needle Acupuncture." Modern medicine is witnessing a cessation acupuncture therapy. Many clinical and experimental studies show the analgesic effectiveness of needle acupuncture. With advancing Mypalgesia review A12 Danhof S. Diplomarbeit, 2000 2000 "Laser Treatment and Smoking Cessation" For a long time, a large group of	A10									ophthalmological		
A12 Acupuncture Controversy Hilkert-Boehme E.M. Dtsch. Zschr. Akup. 37, 1, 12-19. 1994 1994 12-19 "Acupuncture Controversy: Comparing Laser Stimulation and Traditional Needle Acupuncture" Modern medicine is witnessing a renaissance of acupuncture therapy. Many clinical and experimental studies show the analgesic effectiveness of needle acupuncture. With advancing acupuncture hypalgesia review RE GB A12 A13 Smoking Cessation Danhof S. Diplomarbeit, 2000 2000 "Laser Treatment and Smoking Cessation" For a long time, a large group of smokers has been searching for an easy method to quit their Smoking cessation CLIN GB	A11 A11	Patellaspitzensy ndromen	Aigner N.	Fialka C. Weinstabl R. Aigner G. Fritz A.	AKU 24, 1, 11-14, 1996	1996	11-14	"Laserakupunktur von Patellaspitzensyndro men bei Leistungssportlern"	Patellar tendinitis is an overuse syndrome of the proximal part of the patellar tendon occuring in various sport disciplines. In a prospective non-randomized study soft-laser-light was	patellar tendinitis jumper's knee acupuncture HeNe	CLIN	D
A13 Smoking Cessation Danhof S. Diplomarbeit, 2000 2000 "Laser Treatment and Smoking Cessation" For a long time, a large group of smokers has been searching for an easy method to quit their Smoking cessation CLIN GB	A12	Acupuncture Controversy	Hilkert-Boehme E.M.		Dtsch. Zschr. Akup. 37, 1, 12-19. 1994	1994	12-19	"Acupuncture Controversy: Comparing Laser Stimulation and Traditional Needle Acupuncture"	Modern medicine is witnessing a renaissance of acupuncture therapy. Many clinical and experimental studies show the analgesic effectiveness of needle acupuncture. With advancing	acupuncture hypalgesia review	RE	GB
A13 an easy method to quit their diplomarbeit	A13	Smoking Cessation	Danhof S.		Diplomarbeit, 2000	2000		"Laser Treatment and Smoking Cessation"	For a long time, a large group of smokers has been searching for	smoking cessation	CLIN	GB
	∆1 3							-	an easy method to quit their	diplomarbeit		

A14 	Drug detoxification	Backmund M.	Meyer K Baeyens H. Eichenlaub D.	Dt. Ztschr.f.Akup. 4/1999	1999		"Akupunktur und stationärer Drogenentzug -eine kontrollierte Pilotstudie"	Since the seventies, acupuncture of the ear has been used in drug withdrawal in addicts of heroin and cocaine at the Lincoln Hospital in New York. An	drug detoxification acupuncture motivation	CLIN	D
A15,P A15,P	Erkrankungen des Bewegungsappa rates	Caspers K.H.		Physikalische Medizin und Rehabilitation 18 Jahrgang, 1977,	1977	426-445	"Laser-Reiztherapie"	This paper deals with experiences gained from applications of a laser beam of 2 milliwatts intesity, which	locomotor system migraine gonarthrosis	CLIN	D
A16	Laser- Akupunktur	Elias J.		CO'MED 1/97	1997		"Die Anwendung der Laser-Akupunktur"	Die Laser-Akupunktur hat sich durchgesetzt. Biologische Grundlagenversuche der 60er	acupuncture	RE	D
A17	Carpal-tunnel syndrome	Aigner N.	Zöch G. Petje G.	Dt. Ztschr. F. Akup. 2/1999, 70-75	1999	70-75	"Laserakupunktur bei der präoperativen Schmerzbekämpfung beim Karpaltunnelsyndrom - eine prospektiv randomisierte Studie"	In this prospective, randomized and single-blind study the authors investigated, whether a soft-laser acupuncture showed a benefit in the preoperative treatment of patients suffering from carpal-tunnel syndrome. In one group acupuncture points were irradiated with soft-laser light while in the other group the	carpal-tunnel syndrome preoperative therapy concepts laser acupuncture HeNe	RCT	D
A18	Epicondylitis lateralis humeri	Coenen C.H.M.	van Bergel A.F.M. Zalm J.	Productgroep "Onderzoek en Dienstverlening Gezondheidszorg" HvA		1-27	"Vergelijkend onderzoek tussen laser- en naaldacupunctuur bij epicondylitis lateralis humeri"	Het gebruik van laser in de acupunctuur is al vele jaren bekend en kent een langere historie dan de fysiotherapeutische toepassing ervan. Met de laserstraal worden acupunctuurpunten gestimuleerd	epicondylitis lateralis humeri acupuncture	RE	NL
A19,B	Blood Microcirculation	Skobelkin O.K.	Kozlov V.I. Litwin G.D. Builin V.A. Gurovo O.A.	Laser Therapy Vol.2 No. 2, 69-77, 1990 © John Wiley & Sons, Ltd.	1990	69-77	"Blood micocirculation under laser physio - and reflexotherapy in patients with lesions in vessels of low extremities"	The effects of a low-intensity laser beam in the IR-range of the spectrum on blood microcirculation in man were studied when the projection of large blood vessels and acupuncture points were irradiated. A stimulating effect of laser irradiation on the	astherosclerois of arteries in low extremities bulboangioscopy varices in low capillary	CLIN	GB

A19,B			Azizov G.A.						capillarometry laser acupuncture laser blood semiconductor obliterating		
A20,G	Tubal Infertility	Deng Q.	Han Z.	Laser Therapy Vol.2, No.3, 117-118, 1990 © John Wiley & Sons, Ltd.	1990	117-118	"Therapy of female tubal infertility under defocused CO2 and He-Ne laser acupoint irradiation"	In this paper, 50 patients suffering from female tubal infertility had received the therapy of CO2 and He-Ne laser acupoint irradiation. The acupoints of "Uterus" and "Baliao" were selected for laser	tubal infertility acupoint defocuse CO2	CLIN	GB
<u>A20,G</u> A21,D	Scald Injury	He J.		Laser Therapy Vol.2, No.4, 179-180, 1990 © John Wiley & Sons, Ltd.	1990	179-180	"Clinical analysis of 100 cases of scald injury cured by HeNe laser acupuncture in combination with scanning LLLT"	Scald injuries are particularly seen in children and can be serious if not treated promptly. The present study summarizes the work by the author on a group of 100 scald injury patients, treated using HeNe laser acupuncture to the points	HeNe laser acupuncture scald injury second degree burn HeNe scanper	CLIN	GB
A22	Prostatitis	Li S.	You S. Zhang S.	Laser Therapy Vol.1, No.1, 37-40, 1989 © John Wiley & Sons, Ltd.	1989	37-40	"A new approach in the application of the helium-neon laser in acupuncture therapy for prostatitis: a clinical study involving 114 cases"	One hundred and fourteen patients with prostatitis were treated with laser needle acupuncture. This new method was based on the combination of both the biological effects of laser radiation of the human body and the therapeutic action of traditional Chinese needle acupuncture. The new method	needles HeNe prostatitie	CLIN	GB
A23	Diarrhoea in children	He J.		Laser Therapy Vol.3, No.2, 93-95, 1991 © John Wiley & Sons, Ltd.	1991	93-95	"Clinical observation on 500 cases of diarrhoea in children treated with two helium-neon laser "light needles""	A study is presented involving 500 cases of infant diarrhoea treated by needlesless acupuncture using two HeNe laser "light needles", compared with 120 cases treated with conventional needle acupuncture. Patients' ages	diarrhoea laser acupuncture light needle	CLIN	GB

A23									bioactivation HeNe		
A24,P	Cervical Tendomyosis	Seidel U.	Uhlemann C.	Dt. Ztschr. F. Akup. 4/2002, 258-269, 2002	2002	258-269	"Behandlung der zervikalen Tendomyose"	Aim of this randomized controlled, concerning lasertherapy double-blind study was to investigate therapeutical	acupuncture dosed laser therapy cervical tendomyosis needles infrared GaAlAs	RCT DB	D
A25	Cerebral Circulation	Litscher G.	Wang L. Wiesner- Zechmeister M.	Lasers Med Sci 15:57-62, 2000 © Springer-Verlag London Limited	2000	57-62	"Specific Effects of Laserpuncture on the Cerebral Circulation"	Acupuncture is a from of traditional Chinese medicine that has developed over thousands of years. We studied the effects of	acupuncture brain cerebral blood flow velocity laserpuncture middle cerebral artery posterior cerebral artery transcranial doppler sonography needles 685 nm diode laser	CLIN	GB
A26	Nadel- und Lasernadelakupu nktur	Litscher G.	Schikora D.	Aku 30,3, 140-146, 2002	2002	140-146	"Nahinfrarot- spektroskopische Untersuchungen zur Nadel- und Lasernadelakupunktu r"	Near infrared spectroscopy has been used in this study successfully to objecitfy cerebral alterations of oxyhemoglobin and desoxyhemoglobin due to manual needle acupuncture and	acupuncture laserneedle brain function near-infrared	RCT	D

Δ27	Skin Blood Perfusion	Litscher G.	Wang L. Huber E. Nilsson G.	Lasers Med Sci 17:19-25, 2002 © Springer-Verlag London Limited	2002	19-25	"Changed Skin Blood Perfusion in the Fingertip Following Acupuncture Beedle Introduction as Evaluated by Laser Doppler Perfusion Imaging"	Rapidly repeated imaging of the left middle fingertip skin blood perfusion was performed in 51 healthy volunteers prior to, immediately after and in the early perfusion phase following introduction of an acupuncture needle at the Neiguan point and at a placebo point repsectively, using a Laser Doppler Perfusion Imager. The average skin	acupuncture cutaneous perfusion laser doppler perfusion imaging microcirculation placebo needle	RCT	GB
A27 A28	Acupuncture	Nichijo K		Proceedings of the 4th	2002	105-100	"Science of		techniques	RE	GB
A20	Technique	Nishjo K.		Congress of the World Association for Laser Therapy, 105-109, 2002 © Monduzzi Editore S.p.A.	2002	105-105	Acupuncture Technique"		techniques		GD
A28									acununcture		
A29 A29	Laseracupunctur e	Pöntinen P.J.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 111-116, 2002 © Monduzzi Editore S.p.A.	2002	111-116	"Laseracupuncture"	Laseracupuncture provides a noninvasive and low risk alternative to needle stimulation. A combination of local reactive points or Ahshi points and active muscle trigger points form a practical and effective basis for	trigger point O-ring test	RE	GB
B1	•-Endorphin Response in Blood and Cerebrospinal Fluid	Alvarez Rico F.	Labajos Manzanares M.T.	Journal of Clinical Laser Medicine & Surgery Vol 12, No 1, 1994 © Mary Ann Liebert, Inc.	1994	1-6	"•-Endorphin Response in Blood and Cerebrospinal Fluid after Single and Multiple Irradiation with HeNe and GaAs Low-Power Laser"	Low-power laser irradiation causes biological effects such as analgesia. Cerebrospinal fluid and blood immunoreactive endorphin delivery is involved; however, there are no opioid dose-response curves for different laser energy densities irradiation. In this work we try to determine dose-response curves	•-endorphin response	VIT	GB
B1									GaAs		

B2	Low Intensity Laser Therapy	Basford J.R.		Lasers in Surgery and Medicine 16:331-342, 1995 © Wiley-Liss, Inc.	1995	331-342	"Low Intensity Laser Therapy: Still Not an Established Clinical Tool"	The surgical, ophthalmological, and dermatological applications of high power lasers are well known and easily understood. What is neither as well known	review	RE	GB
B3	Biological effect of laser irradiation	Berki T.	Németh P. Hegedüs J.	Lasers in Medical Science Vol 3:35, 35-39, 1988 © Baillière Tindall	1988	35-59	"Biological Effect of Low-power Helium- Neon (HeNe) Laser Irradiation"	The functional effects of low- power, continuous-wave HeNe laser irradiation were studied in different in vitro cultured cell lines. A characteristic dose-	cultured cells biological effects HeNe	VIT	GB
B4, Op B4, Op	Ophthalmic Effects of Low- Energy Laser Irradiation	Belkin M.	Schwartz M.	Survey of Ophthalmology Vol. 39, No. 2, 113-122, 1994	1994	113-122	"Ophthalmic Effects of Low-Energy Laser Irradiation"	Laser irradiation at subthreshold energies exerts vatious effects on the eye and other parts of the body, mainly the skin and	bioeffects optic nerve retina review	RE	GB
B5 B5	Photobiological Fundamentals	Karu T.I.		IEEE Journal of Quantum Electronics Vol. QE-23, No. 10, 1987 © IEEE	1987	1703- 1717	"Photobiological Fundamentals of Low- Power Laser Therapy"	Quantitative studies of the action of low-power visible monochromatic light on various cells were performed to find	DNA & RNA synthesis respiratory chain	VIT RE	GB
B6 B6	Elektromagnetis che Bioinformation	Torghele K.	Schwabl H. Lipp B. Klima H.	Forsch Komplementärmed 1995;2:133-144, 1995 © S. Karger GmbH.	1995	133-144	"Elektromagnetische Bioinformation - eine Übersicht"	Electromagnetic bioinformation is a synthesis of the two essential phenomena of life. At the one hand all reactions of the living organism are controlled by	absorption dissipative systems bifurcation review	RE	D
B7	Open Biological Systems	Klima H.		Laser No. 2/88, 16-20, 1988	1988	16-20	"Effect of weak laser light and oxygen activation in open biological systems"	Our knowledge of open systems has been extensively improved during the last decade. It was found that open systems can create new structures, which can be compared with essential	oxygen activation	H	GB
B8	Energetische Aspekte	Klima H.	Schwabl H.	Ganzheitsmedizin, zweiter wiener dialog, 128-136		128-136	"Energetische Aspekte der		systems dissipative systems	H	D
B8							Lasertnerapie		biological systems		

B9 B9	Penetration of Unfocused Laser Light	Kolari P.J.		Arch Dermatol Res 277:342-344, 1985 © Springer-Verlag	1985	342-344	"Penetration of Unfocused Laser Light into the Skin"	The use of optical methods in medicine has increased extensively in recent decades. In the case of human skin, different	cutaneous optics skin blood flow laser doppler flowmetry light transmission	VIT	GB
B10	Intestinal	Labaios M	Fernández-Perez	Laser 2:21-25 1086 @	1096	21-25	"Effect of the IR	The action of the IR radiation of	intestinal	VIV	GB
510	Absorption		J.A.	Verlag EBM GmbH.	1900	21-23	Radiation of the GaAs Diode Laser on Intestinal Absorption: In Vitro and in Vivo Studies"	diode laser on intestinal absorption was studied. Both in vitro and in vivo experiments were performed on the rat intestine. A dose of 1 J/cm2 was applied to the intestinal segment under test. An inhibition of fluid	absorption		GB
			Ruiz M.D.						hydroelectrolytic	VIT	
									transport		
			Diez de los Rios						Isotonic		
			Martinez-Morillo						diode laser		
B10			М.						Co.A.o.		
B10 B11	Motilität und	Landthaler M.	Sato H.	Verhandlungsbericht der	1982	104-109	"Einfluss von	Ein stimulierender Effekt von	leukozvten	VIT	D
	Geschwindigkeit von Spermien			Deutschen Gesellschaft für Lasermedizin e.V., 1.Tagung, München, 36. November 1982.			Laserlicht niedriger Leistungsdichte auf Motilität und Geschwindigkeit von Spermien"	Laserstrahlen niedriger Leitungsdichte wurde bisher and der Phagozytosefähigkeit von Leukozyten, am Wachstum von Ehrlich-Aszites-Tumorzellen un von E. coli und am	,		
			Haina D.						biologische		
			Waidelich W						systeme motilität		
			Schill WB.						geschwindigkeit		
B11									spermien		
B12	Human Oral Mucosa Fibroblasts	Loeveschall H.	Arenholt-Bindslev D.	Lasers in Surgery and Medicine 14:347-354, 1994 © Wiley-Liss, Inc.	1994	347-354	"Effect of Low Level Diode Laser Irradiation of Human Oral Mucosa Fibroblasts In Vitro"	The effects of low level laser irradiation on the proliferation of human buccal fibroblasts were studied. A standardized LLL set- up was developed. Cultures in petridishes were divided into eight groups. On day 6 after	cell culture	VIT	GB
B12								leigint groups. On day o alter	DNA synthesis near-infrared photobiology proliferation tritium-labelled thymidine diode laser		

B13	Skin Temperature and Antidromic Conduction Latencies in the Human Median Nerve	Lowe A.S.	Baxter G.D. Walsh D.M. Allen J.M.	Lasers in Surgery and Medicine 14:40-46, 1994 © Wiley-Liss, Inc.	1994	40-46	"Effect of Low Intensity Laser (830nm) Irradiation on Skin Temperature and Antidromic Conduction Latencies in the Human Median Nerve: A Relevance of Radiant Exposure"	The effect of low intensity near- infrared laser radiation on peripheral neurophysiology and skin temperature were investigated using antidromic conduction studies in the human median nerve in vivo. Healthy human volunteers were recruited and randomly allocated to one of two control or five laser groups. Analysis of variance in negative peak latency difference scores and skin temperature over a 20	nerve conduction near-infrared skin temperature	VIV	GB
B13									830 nm		
B14	Laser biostimulation	Mester A.F.	Mester A.	Laser			"Scientific background of laser biostimulation"	This is a complete bibliographical survey of the scientific data on the non-thermal effects of the laser so far	bibliographical survey	RE	GΒ
B14									clinical research future developments		
B15	Acetylcholine Releasing Effect	Vizi E.S.	Mester E.	J. Neural Transmission 40, 305-308, 1977 © Springer- Verlag	1977	305-308	"Acetylcholine Releasing Effect of Laser Irradiation on Auerbach's Plexus in Guinea-Pig Ileum"	An increased acetylcholine release could be produced by ruby laser from the Auerbach plexus of the guinea-pig ileum.	acetylcholine	VIT	GB
B15			Tisza S. Mester A.						ruby laser guinea-pig animal study		
B16	Licht- wirkmechanism	Warnke U.		Zahnheilkunde			"Lichtautomat"	Sonnenlicht ist nicht für alles Lebendige der entscheidende Evolutionsfaktor, sondern	licht- wirkmechanism	VIT	D
B17	Dioden-Laser	Warnke U.		Deutsches Ärzteblatt, 84.Jahrgang/Heft 44. 2941- 2944, 1987	1987	2941- 2944	"Der Dioden-Laser"	Dioden-Laser sind in einigen europäischen Nachbarländern und in Japan bekannter als in Deutschland und den USA. Die	diode laser	RE	D
B18	Mitochondrien im zellstoffwechsel	Warnke U.		Ärzliche Praxis, Jahrgang Nr. 97, 3039-3040, 1987			"Wie Licht-Energie zu Zell-Energie wird"	Unter Infrarot werden Mitochondrien zu Sonnerkraftwerken - Gestereirte	infrarot mitchondrien ATP-produktion	RE	D
B18									wundheilung		

B19	Wirkungsweise physikalischer Behandlungsmet hoden	Warnke U.		collegium veterinarium XXIII, 150-154, 1992	1992	150-154	"Wirkungsweise physikalischer Behandlungsmethode n"		infrarot ionen	RE	D
B19									magnetfeld		
B20	Cellular Respiration	Warnke U.		Electromagnetic Bio- Information, 213-220		213-220	"Influence of Light on Cellular Respiration"	The early predecessors of all higher species in the world of plants, animals, and humanoids developed along their lines of	cellular respiration	VIT	GB
B20									absorption		
B21	Hemopoietic Cell Lines HL-60 and U937	O'Kane S.	Shields D. Gilmore W.S.	Lasers in Surgery and Medicine 14:34-39, 1994 © Wiley-Liss, Inc.	1994	34-39	"Low Intensity Laser Irradiation Inhibits Tritiated Thymidine Incorporation in the Hemopoietic Cell Lines HL-60 and U937"	The purpose of this study was to determine the effect of low intensity laser irradiation on tritiated thymidine incorporation in two hemopoietic cell lines, HL- 60 and U937. Cells were suspended at a concentration of 1 x 10 6/ml in their respective	cell proliferation	VIT	GB
<u>B21</u>	Fibrebleet	Dimour I	Allen J.A.	LLLT Ovining LAuticles 05	1001	05.00	llOhan maa in	Fibushisst visbility, availity stick	photobiology	VIT	
B22	Proliferation and Metabolism	nıgau J.	Calderhead R.G. Mayayo E.	33, 1991 © John Wiley & Sons, Ltd.	1991	25-33	Fibroblast Proliferation and Metabolism Following In Vitro Helium-Neon Laser Irradiation"	and metabolic changes were studied following in vitro irradiation with a continuous wave 10 mW helium-neon laser. Fresh first generation fibroblasts prepared directly from a healthy	proliferation metabolism collagen formation ATP	VII	GB
B22	·······								HeNe		
B23	Human dermis	Jacques S.L.	Aiter C.A. Prahl S.A.	Lasers in the Life Sciences 1(4), 309-333, 1987 © Harwood Academic Publishers GmbH	1987	309-333	"Angular Dependence of HeNe Laser Light Scattering by Human Dermis"	A goniometric apparatus is presented for measuring the angular dependence of scattering of a HeNe laser beam by in vitro human dermis samples of	numan dermis HeNe	VII	GB
B23	Injured Ontic	Bosper M	Canlan M	Lasers in Surgery and	1003	611-617	"Dose and Temporal	Low-energy laser irradiation has	biomodulation	VIV	GB
524	Nerve Degeneration	NOSHEL M.	Cohen S.	Medicine 13:611-617, 1993 © Wiley-Liss, Inc.	1990		Parameters in Delaying Injured Optic Nerve Degeneration by Low- Energy Laser Irradiation"	been reported to postpone the degenerative processes in crushed optic nerves of rats, which are part of the nonregenerable mammalian central nervous system. In the present study, we evaluated the	biostimulation		

<u>B24</u> B25	Adhesion of HeLa Cells	Karu T.I.	Duvdevani R. Solomon A. Assia E. Balkin M. Schwartz M. Pyatibrat V.	Lasers in Surgery and Medicine 18:171-177, 1996 © Wiley-Liss, Inc.	1996	171-177	"Effects of Monochromatic Low- Intensity Light and Laser Irradiation on Adhesion of HeLa	The adhesion of HeLa cells was evaluated after irradiation with monochromatic low-intensity light or laser irradiation. It is well known that the cell-cell and cell-	central nervous sytem electrophysiology HeNe nerve trauma optic nerve cell-cell adhesion	VIT	GB
<u>B25</u>	P. Harris	0-h	Kalendo G.S. Esenaliev R.O.,	La como in Oceano and	1007			wound repair. For better understanding of low-power	cell-glass adhesion wound healing		
B26	Posttraumatic Degeneration of Adult Rabbit Optic Nerve	Schwartz M.	Doron A. Erlich M. Lavie V. Benbasat S. Belkin M. Rochkind S.	Lasers in Surgery and Medicine 7:51-55, 1987 © Alan R.Liss, Inc.	1987	51-55	"Effects of Low- Energy He-Ne Laser Irradiation on Posttraumatic Degeneration of Adult Rabbit Optic Nerve"	Axons of the mammalian peripheral and central nervous sytems degenerate after nerve injury. We have recently found that HeNe laser irradiation may prevent some of the consequences of the injury in	central nervous sytem neural trauma radiation biostimulation rabbits animal study optic nerve	viv	GB
B27	Penetration depths of 830 nm diode laser irradiation in the head and neck	Ohshiro T.	Ogata H. Yoshimi K. Yoshida M. Tanaka Y.	Laser Therapy 8:197-204, 1996 © LT Publishers, U.K., Ltd.	1996	197-204	"Penetration Depths of 830nm Diode Laser Irradiation in the Head and Neck Assessed Using a Radiographic Phantom Model and Wavelength-Specific Imaging Film"	Penetration Depths of 830nm Diode Laser Irradiation in the Head and Neck Assessed Using a Radiographic Phantom Model and Wavelength-Specific Imaging Film	radiographic phantom laser penetration 830 nm diode laser	VIT	GB
B27			Sasaki K.						head neck		

B28	Wound healing processes and modulation of human immune system	Uitto J.	Lask G.P.				"Biological Effects of Low Energy Laser Irradiation: Evidence for Biostimulation of Wound Healing Processes and Modulation of Human Immune System In Vitro"		wound healing immune system	VIT	GB
B 28									biostimulation		
B29	Optical transmission properties	LaPlant M.	Parker J. Stewart B.	Lasers in Surgery and Medicine 7:336-338, 1987 © Alan R. Liss, Inc.	1987	336-338	"Comparison of the Optical Transmission Properties of Pulsed and Continous Wave Light in Biological Tissue"	The purpose of this study is to compare the optical transmission of the pulsed gold vapor laser to that of the continous wave argon- pumped dye laser in a homogenous tissue model. Gluteal muscle was taken from a rabbit, and sections of varying thicknesses were made. The	gold vapor laser	VIT	GB
B29			Waner M. Straight R.C.						dye laser photodynamic therapy optical transmission		
B30	ATPase Activity Enhanced by GaAs Laser Irradiation	Majni G.	Bolognani L.	Physics in Environmental and Biomedical Research, 205-208, 1986 © World Scientific Publishing Co.	1986	205-208	"ATPase Activity Enchanced By GaAs Laser Irradiation"	It is well known the role of the adenosynetriphosphate in the energetic cellular exchanges. Different ATPases are under ionic control. The GaAs laser effects on ATPase Na+ and K+ dependent activity of both	ATP	VIV	GB
B30			Volpi N.						enzyme activity	VII	
B31	Light action on cellular level	Karu T.		Proceedings of SPIE Vol. 4159, 2000 © SPIE	2000		"Mechanisms of Low- Power Laser Light Action on Cellular Level"	The most frequently used mechanism of photon energy conversion in laser medicine is heating. Average heating of	cellular level	VIT	GB
B32	Dose distribution in living tissue	Hode L.	Tunér J.	Proceedings of SPIE Vol. 4166, 2000	2000		"Dose distribution in living tissue at different wavelengths, power densities and incident target area"	In the literature, the given parameters are seldom well enough specified. Because of that, it is not possible to repeat a study, even if the intention is to repeat it, it will always be a new and different one. The dose, for instance, is usually given as a	dose distribution	RE	GB

B32									diode laser fluence		
B33	Characterization of Light Penetration in Rat Tissues	Melo C.A.S.	Lima A.L.L.A. Brasil I.R.C. Castro E Silva Jr. O.	Journal of Clinical Laser Medicine & Surgery, Vol. 19 No 4, 175-179, 2001 © Mary Ann Liebert, Inc.	2001	175-179	"Characterization of Light Penetration in Rat Tissues"	The goal of this study is to determine the optical properties of different rat tissues with respect to spatial intensity variation and light	light penetration rats animal study	VIT	GB
			Magalhaes D.V. Marcassa L.G.						CCD camera		
B33			Bagnato V.S.						light distribution		
B34	Electromagnetic processes within the Mitochondrial Energy Transfer	Wilden L.	Karthein R.	XII Congress of ISLSM Rostock/Germany, Sept. 1113.1997 and Laser Florence '95, 5th International Congress of EMLA, Florence, Italy, Sept. 1820.1997	1997		Reflections on the importance of electromagnetic processes within the mitochondrial energy transfer"		mitochondria	Н	GB
									energy transfer		
B34									electomagnetic process		
B35	Respiratory Burst in Bovine Neutrophils	Duan R.	Cheng-Yi Liu T. Li Y.	Lasers in Surgery and Medicine 29:174-178, 2001 © Wiley-Liss, Inc.	2001	174-178	"Signal Transduction Pathways Involved in Low Intensity He-Ne Laser-Induced Respiratory Burst in Bovine Neutrophils: A Potential Mechanism of Low Intensity Laser Biostimulation"	Low intensity HeNe laser irradiation has been reported to induce respiratory burst of neutrophils for a long time, but the mechanism remains obscure. We speculated that it is mediated by some signal transduction pathways. The protein tyrosine kinases inhibitor, genistein, the phospholipase C inhibitor, U- 73122, and the protein kinase C inhibitor, calphostin C, were used to probe signal transduction nathways of	neutrophil respiratory burst	VIT	GB
B35			Guo H. Yao L-B.						HeNe transduction pathway		
B36	Myocardial infarction	Ad N.	Oron U.	International Journal of Vardiology 80, 109-116, 2001 © Elsevier Science Ireland Ltd.	2001	109-116	"Impact of low level laser irradiation on infarct size in the rat following myocardial infarction"	Low energy level irradiation has been found to modulate biological processes. The effect of LLLI on the development of acute myocardial infarction was investigated following chronic ligation of the left anterior	myocardial infarction ischemia	VIV	GB

B36									rats animal study diode laser		
B37	Biostimulatory Windows in Low- Intensity Laser Activation	Sommer A.P.	Pinheiro A.L.B. Mester A.R. Franke R-P. Whelan H.T.	Journal of Clinical Laser Medicine & Surgery, Vol. 19, Number 1, 29-33, 2001 © Mary Ann Liebert, Inc.	2001	29-33	"Biostimulatory Windows in Low- Intensity Laser Activation: Lasers, Scanners, and NASA's Light- Emitting Diode Array System"	The purpose of this study was to assess and to formulate physically an irreducible set of irradiation parameters that could be relevant in the achieving reproducible light-effects in biological systems, both in vitro and in vivoThe interdependence is of practical	light-emitting diode array NASA	RE	GB
B38	Traumatic paraplegia	Rochkind S.	Shahar A. Alon M. Nevo Z.	Neurological Research, 2002 © Forefront Publishing Group, Vol. 24	2002		"Transplantation of ebryonal spinal cord nerve cells cultured on biodegradable microcarriers followed by low power laser irradiation for the treatment of traumatic paraplegia in rats"	The pilot study examined the effects of composite implants of cultured embryonal nerve cells and laser irradiation on the regeneration and repair of the completely transected spinal cord. Embryonal spinal cord nerve cells dissociated from rat fetuses and cultured on biodegradable microcarriers and embedded in hyaluronic acid were implanted in the completely transected spinal cords of 24	transplantation paraplegia biodegradable microcarriers rats	VIV, VIT	GB
B39	Mitochondrial membrane potential	Greco M.	Vacca R.A. Moro L. Perlino E. Petragallo V.A. Marra E.	Lasers in Surgery and Medicine 29:433-441, 2001 © Wiley-Liss, Inc.	2001	433-441	"Helium-Neon Laser Irradiation of Hepatocytes can Trigger Increase of the Mitochondrial Membrane Potential and cn Stimulate c- fos Expression in a Ca2+ -Dependent Manner"		calcium c-fos gene expression mitochondria mitochondrial membrane potential HeNe	VIT	GB
B39			Passarella S.						hepatocytes		

B40	Cell proliferation	Pinheiro A.	Carneiro do Nascimiento S., de Barros Viera A.L., Barros Rolim A., Soriano da Silva P., Brugeroro A. In	Lasers in dentistry VI, SPIE Vol. 3910, 2000	2000	75-81	"Effects of LLLT on the proliferation of HEp2 Cells: Study in vitro"	LLLT has been used successfully in biomedicine and some of the results are thouht to be related to cell proliferation. The effects of LLLT on cell proliferation is	cell proliferation hazards stimulatory effect 635nm	VIT	GB
<u>B41</u> B41	Photobactericida I Efficacy	Usacheva M.N.	Biel M.A.	Lasers in surgery and medicine 29:165-173, 2001 © Wiley-Liss, Inc.			"Comparison of the Methylene Blue and Toluidine Blue Photobactericidal Efficacy Against Gram-Positive and Gram-Negative Microorganisms"	Studies on the photobactericidal efficacy of methylene blue and toluidine blue have shown inconsistent results in the literature. This study evaluated the bactericidal efficacy of MB and TB against different bacteria under light and dark conditions to determine the most effective bactericidal dye. Suspensions of	dark toxicity red lasers pathogenic microorganisms phenothiazine dyes photosensitizers	VIT	GB
B42	Follicular cells of the thyroid	Villaplana- Torres L.A.	Santi-Martinez M.A. Ferres-Torres E. Castro-Girona M.M. Smith-Agreda V. Trelles M A	Laser 1:123-128, 1985 © Verlag EBM GmbH	1985	123-128	"Morphofunctional Aspects of the follicular Cells of the Thyroid of Albino Rats after Pituitary Activation with Low Power Laser"	After experimental stimulation of the adenohypophysis with laser He-Ne, the follicular cells of the thyroid show morphological signs of nuclear and cytoplasmic activity revealing hormone synthesis, reabsorption and excertion.	follicular cells hormone synthesis colloid reabsorption hormone excretion	VIV	GB

B43	Human Petrous Bone	Tauber S.	Baumgartner R. Schorn K.	Lasers in Surgery and Medicine 28:18-26, 2001© Wiley-Liss, Inc.	2001	18-26	"Lightdosimetric Quantitative Analysis of the Human Petrous Bone: Experimental Study for Laser Irradiation of the Cochlea"	Application of laser irradiation targeting the inner ear has to be investigated for therapeutic effectiveness in cochlear injury and dysfunction. In vitro data demonstrate low-level laser- induced photochemical and photobiologic cell response, depending on cell type and	cochlear light distribution	VIV	GB
B 42			Beyer W.						human cochlea tinnitus aurium sensorineural hearing loss		
540									calculation		
B44	Physikalisch- physiologische Grundlagen zu Licht- und Lasereffekten	Warnke U.		Laser Journal 4/2001	2001	19-22	"Am Anfang war das Licht"	Kurioserweise war Licht in früheren Zeiten als Therapiemittel besser bekannt und häufiger verwendet als heute. Eine Renaissance der	physikalich- physiologishce grundlagen	RE	D
B45	Stimulation and damage of cell cultures	Friedmann H.	Lubart R.	J. Photochem. Photobiol. B: Biol., 11, 87-95, 1991	1991	87-95	"A possible explanation of laser- induced stimulation and damage of cell cultures"		cell culture	н	GB
B 45			Laulicht I.						infrared visible	VIT	
<u>B45</u> B46	Vascular endothelial growth factor	Kipshidze N.	Nikolaychik V. Keelan M.H. Shankar L.R. Khanna A. Kornowski R.	Lasers in Surgery and Medicine 28:355-364, 2001© Wiley-Liss, Inc.	2001	355-364	"Low-Power Helium:Neon Laser Irradiation Enhances Production of Vascular Endothelial Growth Factor and Promotes Growth of Endothelial Cells In Vitro"	Numerous reports suggest that low-power laser irradiation is capable of affecting cellular processes in the absence of significant thermal effect. The objective of the present study was to determine the effect of LPLI on secretion of vascular endothelial growth factor and proliferation of human endothelial cells in vitro. Cell cultures were irradiated with	coronary artery disease angiogenesis angioplasty endothelial cells	VIT	GB
B46			Leon M. Moses J.						HeNe cell culture		

B47 B47	Laser Strahlung auf Zellen	Wilden L.	Karthein J. Karthein R.	Laser Journal 1/2002			"Der Wirkungsmechanism us von Low Level Laser Strahlung auf Zellen"	Die aus der Lasertechnik entwickelte Low Level Laser Therapie befindet sich seit Jahren in einer deutlichen Expansion und gewinnt zunehmend an experimenteller,	zellen wirkungsmechani	Η	D
B48 B48	Human erythrocyte membranes	Kilanczyk E.	Palecz D. Bryszewska M	Journal of Clinical Laser Medicine & Surgery, Vol 20 No 2, 2002 © Mary Ann Liebert, Inc.			"Effect of Red Laser Light on Na+, K+ - ATPase Activity in Human Erythrocyte Membranes Sensitized with Zn- Phthalocyanine"	The influence of laser light on human erythrocyte membrane Na+, K+ -ATPase activity in the presence and absence of Zn- phthalocyanine was studied. The response of erythrocyte membranes to low-power laser irradiation has not been fully elucidated. In our study, we	erythrocyte membranes visible ATPase enzyme activity	VIT	GB
B49 B49	Absorbance of monolayer of living cells	Karu T.I	Afanasyeva N.I. Kolyakov S.F. Pyatibrat L.V. Welser L.	IEEE Journal on selected topics in quantum electronics vol 7, no 6, 2001 © IEEE	2001	982-988	"Changes in Absorbance of Monolayer of Living Cells Induced by Laser Radiation at 633, 670, and 820 nm"	Redox absorbance changes in living cells under laser irradiation at 633, 670n, and 802nm have been studied by the method of multichannel recording in spectral range 530-890 nm. It has been found that the irradiation	cytochrome c oxidase redox-absorbance changes in living cells cells HeLa cells	VIT	GB
B50 B50	Circular dichroism spectra of living cells	Karu T.I	Kolyakov S.F. Pyatibrat L.V. Mikhailov E.L. Kompanets O.N	IEEE Journal on selected topics in quantum electronics vol 7, no 6, 2001 © IEEE	2001	976-981	"Irradiation With a Diode at 820 nm Induces Changes in Circular Dichroism Spectra of Living Cells"	A sensitive method for measuring the circular dichroism of living HeLa cells in the visible- near infrared region is developed.The changes in CD spectra from 250 to 780 nm of HeLa cell suspension after the first and second irradiation at 820	circular dichroism of cells cytochrome c oxidase HeLa cells cells	VIT	GB
B51	Calcium uptake by macrophages	Young S.R.	Dyson M. Bolton P.	Laser Therapy Vol.2 No. 2, 53-57, 1990 © John Wiley & Sons, Ltd.	1990	53-57	"Effect of light on calcium uptake by macrophages"	The effect of light on calcium uptake by U937 cells was studied using 45Ca radiotracer techniques. Cells were treated	45Ca energy density fibroblast	VIT	GB

D.C.									macrophage pulse frequency		
B51 B52 B52	Sodium- Potassium- Adenosine Triphosphatase Activity	Kudoh Ch.	Inomata K. Okajima K. Motegi M. Ohshiro T.	Laser Therapy Vol.1, No.2, 63-67, 1989 © John Wiley & Sons, Ltd.	1989	63-67	"Effects of 830 nm gallium aluminium arsenide diode laser radiation on rat saphenous nerve sodium-potassium- adenosine triphosphatase activity: a possible pain attenuation mechanism examined"	Rat saphenous nerve was irradiated in vivo with an 830 nm, 60 mW continuous wave beam of a gallium aluminium arsenide diode laser for 6s, 15 s, 30 s, 60 s and 120 s. An unirradiated group of animals served as control. Demonstrable sodium-potassium- adenosien triphosphatase activity noticeably increased over the normal control level following 6 s irradiation, peaked at 15 s, decreased following 30 s, and was inhibited to below normal level after 60e and 120e	Wavelength ATPase K-NPPase Na-K-ATPase photobioactivatio n diode laser pain attenuation	VIV	GB
B53	Adenosine Triphosphatase Activity	Nasu F.	Tomiyasu K. Inomata K. Calderhead R.G.	Laser Therapy Vol.1, No.2, 89-92, 1989 © John Wiley & Sons, Ltd.	1989	89-92	"Cytochemical effects of GaAlAs diode laser radiation on rat saphenous artery calcium ion dependent adenosine triphophatase activity"	This study investigated cytochemical changes of calcium ion dependent adenosine triphosphatase activity in rat saphenous artery following irradiation of low reactive level laser. Three experimental groups of animals were used: group 1 received a single 15s irradiation, group 2 for 2 days, twice per day,	Ca2+ -ATPase endothelial cells blood vessel diode laser	VIV	GB
B54	Thyroid Cells	Hernández L.C.	Santisteban P. del Valle-Soto M.E. Ayala J.M. Vega J.A.	Laser Therapy Vol.1, No.4, 203-208, 1989 © John Wiley & Sons, Ltd.	1989	203-208	"Changes in mRNA of thyroglobulin, cytoskeleton of thyroid cells and thyroid hormone levels induced by ir- laser radiation"	The variations in the mRNA of thyroglobulin, cytoskeleton of thyroid follicular cells, thyroid stimulating hormone, and the thyroidal hormones plasma levels were studied in Wistar female rats after infrared laser radiation. IR-L radiation induces	dot-blot bybridization ultrastructure thyroidal hormones infrared	VIV	GB

B55	Photobiological Basis of LLLT	Smith K.C.		Laser Therapy Vol.3, No.1., 19-24, 1991 © John Wiley & Sons, Ltd.	1991	19-24	"The photobiological basis of low level laser radiation therapy"	Low level laser radiation therapy is effective in a number of clinical situations, but the photobiological basis of this therapy is not well-understood.	photobiological basis of LLLT	н	GB
									action spectra quantum yield absorption spectra		
									first law of photochemistry true photochemical		
									sensitivity photoactivation of		
B55									enzymes		
									photomodulation of membranes		
B56	Thyroid "C" Cells	Ayala J.M.	Hernandez L.C.	Laser Therapy Vol.3, No3., 123-127, 1991 © John Wiley & Sons, Ltd.	1991	123-127	"Structural and immunohistochemica I study of low incident energy infrared laser radiation on thyroid "C" cells in white rats demonstrates an increased immunohistochemica I reaction"	The effect of Infrared-Laser radiation on white rat thyroid C cells was studied structurally employing toluidine blue staining of semifine slices, and immunohistochemically employing staining to demonstrate and assay the presence of somatostatin and calcitonin. There were 55 rats in the study population. Ten animals served as unirradiated	calcitonin thyroid photoimmunopro ducts infrared	VIV	GB
B57	Growth of Experimental Tumours	Mikhailov V.A.	Skobelkin O.K. Denisov I.N.	Laser Therapy Vol.5, No.1, 33-38, 1993 © John Wiley & Sons, Ltd.	1993	33-38	"Investigations on the influence of low level diode laser irradiation on the growth of experimental tumours"	Investigations on rats with an implanted tumour - carcinosarcoma of Walker, cancer of the mammary glands, RMK-1 and in mice with spontaneous cancer of the mammary gland -have shown	experimental tumours tumour growth	VIV	GB
B57			Voltchenko N.N.						diode laser		

B58	Reactive Oxygen Species	Yamaya M.	Shiroto C. Kobayashi H. Naganuma S. Sakamoto J. Suzuki K-J. Nakaji S. Sugawara K.	Laser Therapy 5;111-116, 1993 © John Wiley & Sons, Ltd.	1993	111-116	"Mechanistic aproach to GaAlAs diode laser effects on production of reactive oxygen species from human neutrophils as a model for therapeutic modality at cellular level"	There have been many reports on the applications of low reactive level laser therapy for pain attenuation or pain removal. Our group has reported previously on the effects of in vitro irradiation of LLL particularly on the phagocytic activity of human neutrophils, using luminol- dependent chemiluminescence for measurement of reactive oxygen species production from human neutrophils. But the	luminol- and lucigenin- dependent chemiluminescen ce human neutrophils reactive oxygen species GaAIAs diode laser cellular level	VIT	GB
B58		Delemente em O	Kumae T.	Lesen Thomas Web C. No. O	1004	107 110		M	ROS	VIT	0.0
B59	responsiveness	najaramam 5.	Dyson M.	Laser Therapy Vol.6, No.2, 107-112, 1994 © Laser Therapy, Ltd.	1994	107-112	responsiveness to laser therapy with varying pulsing frequencies"	macrophages are a source of many important mediators of wound repair. Cells of a established macrophage-like cell line were exposed in vitro to a 820 nm coherent light source, at	fibroblast proliferation frequency		GB
B60	Growth of Microbes	Sachdeva R.	Bhagwanani N.S. Chitnis D.S.	Laser Therapy Vol.7, No.1, 023-026, 1995 © Laser Therapy, Ltd.	1995	23-26	"The nitrogen laser inhibits the growth of wide range of microbes in vitro"	With the report on promising therapeutic effects of nitrogen laser to treat tuberculous lung cavities, studies were carried out to examine the in vitro effects of	antimicrobial tuberculosis multiple drug resistant bacteria gram positive bacteria gram negative bacteria	VIT	GΒ
B61	Fibroblasts	Lubart R.	Friedmann H.	Laser Therapy Vol.7, No.3, 101-106, 1995 © Laser Therapy, Ltd.	1995	101-106	"Biostimulation of photosensitized fibroblasts by low incident levels of visible light energy"	It was long assumed that visible and near infrared light does not interact with tissue. In the past three decades, however, it has been found that lasers in the visible and near infrared cause	photosensitizatio n	VIT	GB

B61			Sinykov M. Grossman N.						photochemical reaction photophysical reaction phototherapy photodynamic therapy		
B62 B62	Human Neutrophils	Sachdeva R.	Bhagwanani N.S. Chitnis D.S.	Laser Therapy Vol.7, No.3, 107-112, 1995 © Laser Therapy, Ltd.	1995	107-112	"Low incident energy levels of the nitrogen laser enhances the biocidal activity of human neutrophils on internalized bacteria: an in vitro study"	The activation effect of the nitrogen laser with an energy density of 5.4 J/cm2 and exposure time of 15 minutes was studied in vitro on the biocidal efficiency of human neutrophils on internalized bacteria. Experimental models used previously have ruled out the direct inactivating effect of the	phagocytosis human neutrophils nitrogen laser intracellular	VIT	GB
B63	Cytosolic Calcium Oscillations	Friedmann H.	Lubart R.	Laser Therapy Vol.8, No.2, 137-142, 1996 © LT Publishers. Ltd	1996	137-142	"Photobiostimulation by light-induced cytosolic calcium oscillations"	We discuss light-induced stimulation of biological activity in terms of cytosolic calcium ion concentration oscillations triggered by visible or infrared	bacteria photobiomodulati on calcium oscillations redox activity reactive oxygen enecies	VIT	GB
B64	Intracellular CA2+ Concentration in Fibroblasts	Lubart R.	Friedmann H. Sinyakov M. Shiman A. Grossman N. Adamek M. Shainberg A.	Laser Therapy Vol.9, No.3, 115-120, 1997 © LT Publishers, U.K., Ltd.	1997	115-120	"The effect of HeNe laser (633nm) radiation on intracellular CA2+ concentration in fibroblasts"	The increasing use of phototherapy has led to a great interest in the mechanism of light biosystem interaction. Therefore, recent observations on the enhancement of the proliferation of irradiated skin cells by visible	fibroblasts intracellular concentration skin cells HeNe proliferation	VIT	GB
B65	T-lymphocyte Proliferation	Agaiby A.	Ghali L. Dyson M.	Laser Therapy Vol.10, No.4, 153-158, 1998 © LT Publishers, U.K., Ltd.	1998	153-158	"Laser modulation of t-lymphocyte proliferation in vitro"	The effect of coherent light on the proliferation of resting and mitogen transformed T- lymphocytes was investigated in vitro. T-cells were separated from human peripheral blood by Ficoll-	T-lymphocytes	VIT	GB

B65									cell proliferation		
B66	Human Macrophages	Hemvani N.	Chitnis D.S. Bhagwanani N.S.	Laser Therapy Vol.10, No.4, 159-164, 1998 © LT Publishers, U.K., Ltd.	1998	159-164	"Effect of Helium- Neon laser on cultured human macrophages"	Low incident doses of Helium- Neon laser therapy are routinely used in our institute as an adjunct to chemotherapy for treating cases of tuberculosis.	macrophage cells TNF-alpha HeNe GM-CSF tuberculosis	VIT	GB
B67	Myogenic Satellite Cells	Shefer G.	Halevy O. Cullen M. Oron U.	Laser Therapy Vol. 11, No. 3, 114-118, 1999	1999	114-118	"Low level laser irradiation shows no histopathological effect on myogenic satellite cells in tissue culture"	It has been found that low energy laser exposure can affect various processes in cells and tissues. The effects of direct HeNe laser on the histopathology of a primary culture of satellite cells isolated from rat skeletal muscle was investigated using electron	skeletal muscle satellite cell electron microscopy HeNe	VIT	GB
B68	Hamster Egg Penetration	Lubart R.	Breitbart H. Sofer Y. Lavie R.	Laser Therapy Vol.11, No. 4, 171-176, 1999	1999	171-176	"He-Ne irradiation of human spermatozoa: enhancement in hamster egg penetration"	Irradiation of human spermatozoa with a He-Ne laser resulted in a significant increase in its hamster egg penetration ability. This has been studied by using the zona-free hamster egg penetration model. The effect	visible reactive oxygen species electron paramagnetic resonance human spermatozoa HeNe	VIT	GB
B69	Interstitial scarring	Yaakov N.	Ben-Haim S.A. Oron U.	Laser Therapy Vol.11, No.4, 190-197, 1999	1999	190-197	"Low level laser irradiation reduces interstitial scarring in the isoproternol- induced hypertrophic rat heart"	Low level laser irradiation has been shown to modulate various biological processes. We have recently shown that LLLI has a profound effect on reduction of infarct size and ventricular dilatation post myocardial infarction in small and large experimental animals. In the	cardioprotection hypertrophy interstitial scarring	VIV	GB

B69									isoproternol rats		
B70 B70	Peripheral Blood Mononuclear Cells	Zhevagol N.A.	Samoilova K.A. Glazanova T.V. Pavlova I.E. Rozanova O.E. Bubnova L.N. Odolenskaya K.D.	Laser & Tecnology Vol. 12 N.1, 7-24, 2002	2002	7-24	"Exposures of Human Body Surface to Polychromatic (Visible + Infrared) Polarized Light Modulate Membrane Phenotype of Peripheral Blood Mononuclear Cells"	An attempt has been made to prove that immunomodulatory efect of therapeutic doses of the polychromatic, visible+infrared, polarized light at its application on a small area of the body surface is owing to a transcutaneous photomodification of a small amount of blood in superficial skin microvessels. For this purpose, in parallel experiments, by using monoclonal antibodies.	immunophenotyp e markers visible infrared mononuclear cells polarized light immune system	VIT	GB
B71	Regional Cerebral Blood Flow	Gushiken T.	Nakabeppu Y. Masuyama T. Yagi Y. Tobo K. Tsuneyoshi I. Dohgomori H. Kakihana Y. Kanmura Y.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 135-139, 2002 © Monduzzi Editore S.p.A.	2002	135-139	"The Effects of Linear Polarized Infrared Ray Therapy on Regional Cerebral Blood Flow"	It is not clear whether cerebral blood flow changes after irradiation on stellate ganglion. We investigated the effect of linear polarized near-infrared therapy using Super Lizer on the brain perfusions detected by	cerebral blood flow infrared super lizer 1800mW stellate ganglion statistical parametric mapping thalamus cortex	CLIN	GB
B72 B72	Stellate Ganglion	Kurita S.	Kawamoto M. Hidaka S. Saeki N. Niinai H. Moriwaki K. Yuge O.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 143-145, 2002 © Monduzzi Editore S.p.A.	2002	143-145	"Heart Rate Variability Analysis Predicts the Efficacy of Diode Laser Irradiation Around Stellate Ganglion"	We investigated how Heart rate variability analysis can predict the efficacy of diode laser irradiation around stellate ganglion.After control data were obtained, we recorded ECG during SGL. R-R interval of ECG was used for HRV analysis by	heart rate diode laser stellate ganglion ECG 1000mW heart rate variability	VIV	GB

B73	Hepatocyte Permeability	Onac I.	Pop L. Onac I. Ungur R.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 157-165, 2002 © Monduzzi Editore S.p.A.	2002	157-165	"Hepatocyte Permeability in Humans and in Experiment Animals After Laser Biostimulation"	Objective to study hepatocyte permeability in humans and in Cavia Cobaia. GOT and GPT enzymes were studied.	hepatocyte permeability biostimulation GaAlAs HeNe monochromatic	VIV	GB
B73									red light enzyme changes		
B74	Cerebral Blood Flow	Yokoyama K.	Sugiyama K.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 177-180, 2002 © Monduzzi Editore S.p.A.	2002	177-180	"Influence of Linearly- polarized Near- infrared Irradiation Around Unilateral Stellate Ganglion on Cerebral Blood Flow: Analysis Using Transcranial Near- Infrared Spectroscopy"	It is known that linerly-polarized near-infrared irradiation around a unilateral stellate ganglion area has different biological effects from unilateral stellate ganglion block. We investigated the influence of unilateral SGR on bilateral cerebral hemoglobin volumes using transcranial near- infrared spectroscopy. Bilateral cerebral total, oxygenated and deoxygenated hemoglobin volumes at 3cm and 5cm below	near-infrared stellate ganglion cerebral blood	VIV	GB
B74									flow near-infrared		
B75	Attenuation and Penetration of Light in Soft Tissues	Enwemeka C.S.		Laser Therapy Vol.13, 2001	2001	95-101	"Attenuation and Penetration of Visible 632.8nm and Invisible Infra-red 904nm Light in Soft Tissues"	We studied the depth of penetration and the magnitude of attenuation of 632.8nm and 904nm light in skin, muscle, tendon, and cartilagenous tissues of live anaesthetized	light attenuation	VIV	GB
B75									animal study various wavelengths		
B76	Optical and Biochemcial Properties of Glutamate Dehydrogenase	Ostuni A.	Passarella S. Quagliariello E.	Proceedings of the round table on "Basic and applied research in photobiology and photomedicine" Trani 10- 11 November 1990	1990		"The Effect of Helium- Neon Laser Irradiation on Optical and Biochemical Properties of Glutamate Dehydrogenase"	Over the last few years there has been a growing interest in the biological effect of visible radiation upon living matter. Although an increasing number of clinical reports claims that tissue irradiation with low power Helium-Neon laser gives	coherent light non-coherent light	VIT	GB

B76									glutamate dehydrogenase		
B77 B77	Alternative Light Source to Lasers for Photodynamic Therapy	Whitehurst C.	Byrne K. Moore J.V.	Lasers in Medical Science 8:259-267, 1993 © Bailliere Tindall	1993	259-267	"Development of an Alternative Light Source to Lasers for Photodynamic Therapy: 1. Comparative In Vitro Dose Response Characteristics"	The relative performances of a prototype lamp, a pulsed laser and a continuous wave laser, were compared for photodynamic therapy. Recent advaces in short arc technology and lamp miniturization coupled with improvements in the efficiency of optical filter catings have led to the design and	photodynamic therapy various wavelengths haematoporphyrin derivative alternative light source	VIT	GB
B78	Proliferation of Human Gingival Fibroblasts	Kreisler M.	Christoffers A.B. Al-Haj H. Willershausen B. d'Hoedt B.	Lasers in Surgery and Medicine 30:365-369, 2002 © Wiley-Liss, Inc.	2002	365-369	"Low Level 809-nm Diode Laser-Induced In Vitro Stimulation of the Proliferation of Human Gingival Fibroblasts"	The authors investigated the effects of low level laser irradiation on the proliferation rate of human gingival fibroblasts in vitro. HGF were obtained from gingival connective tissue explants and	GaAIAs oral fibroblasts proliferation diode laser	VIT	GB
B79	Effects of Laser Irradiation on Three Species of Bacteria	Nussbaum E.L.	Lilge L. Mazzulli T.	Journal of Clinical Laser Medicine & Surgery Vol. 20, No.6, 325-333, 2002 © Mary Ann Liebert, Inc.	2002	325-333	"Effects of 630 660-, 810-, and 905-nm Laser Irradiation Delivering Radiant Exposure of 1-50 J/cm2 on Three Species of Bacteria in Vitro"	To examine the effects of low- intensity laser therapy on bacterial growth in vitro. LILT is undergoing investigation as a treatment for accelerating healing of open wounds. The potential of coincident effects on wound bacteria has received little attention. Increased bacterial	various wavelengths bacterial growth diode laser	VIT	GB
В79									argon-ion dye laser		

B80 B80	Deformability of Human Stored Erythrocytes	Yokoyama K.	Sugiyama K.	Journal of Clinical Laser Medicine & Surgery, Vol 21, No. 1, 19-22. 2003 © Mary Ann Liebert, Inc.	2003	19-22	"Influence of Linearly Polarized Near- Infrared Irradiation on Deformability of Human Stored Erythrocytes"	To investigate the influence of linearly polarized near-infrared irradiation using the Super Lizer on deformability of human erythrocytes. Not only low- powered laser but also linearly polarized near-infrared beams have some biostimualation	near infrared erythrocytes super lizer polarized HeNe	VIT	GB
	Cell Growth and Procollagen Synthesis	Pereira A.N.	Eduardo C.P. Matson E. Margues M.M.	Lasers in Surgery and Medicine 31:263-267, 2002	2002	263-267	"Effect of Low-Power Laser Irradiation on Cell Growth and Procollagen Synthesis of Cultured Fibroblasts"	In dentistry, low-power lasers have been used in the treatment of dentin hypersesitivity, gingivitis, periodontitis, and different forms of oral ulcers. This in vitro study focuses on the biostimulation of NIH-3T3 fibroblasts by a low-power Ga-As	biostimulation cell culture cell proliferation GaAs pulsed	VIT	GB
	Cerebral Ischemia & Nitrin Oxide Synthase	Leung M.C.P.	Lo S.C.L. Siu F.K.W. So K.F.	Lasers in Surgery and Medicine 3:283-288, 2002 © Wiley-Liss, Inc.	2002	283-288	"Treatment of Experimentally Induced Transient Cerebral Ischemia With Low Energy Laser Inhibits Nitric Oxide Synthase Activity and Up- Regulates the Expression of Transforming Growth Factor-Beta 1"	Nitric oxide has been shown to be neurotoxic while transforming growth factor beta 1 is neuroprotective in the stroke model. The present study investigates the effects of low energy laser on nitric oxide synthase and TGF-beta1 activities after cerebral ischemia and reperfusion injury. Cerebral ischemia was induced for 1 hour in male adult Sprague-Dawley rats eith unilateral occlusion of middle cerebral artery. Low energy laser irradiation was then	nitric oxide stroke transforming growth factor GaAIAs cerebral ischemia rats	VIV	GB
B82									rats animal study		

B83	Hard Tissue Generation	Nagasawa A.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 53-58, 2002 © Monduzzi Editore S.p.A.	2002	53-58	"Hard Tissue Generation Activation Effect of Lasers"	Since the reports on therapeutic utilities of low power lasers by Mester and Plog the therapeutic effect in the biostimulation of low reactive level lasers has been greatly noticed. The author has	biostimulation	RE	GB
B83									hard tissue		
D1	Wound Healing	Braverman B.	McCarthy R.J.	Lasers in Surgery and Medicine 9:50-58 (1989), © Alan R. Liss, Inc.	1989	50-58	"Effect of Helium- Neon and Infrared Laser Irradiation on Wound Healing in Rabbits"	We examined the biostimulating effects of helium-neon laser radiation (HeNe; 632.8 nm), pulsed infrared laser radiation (IR; 904 nm), and the two combined on skin wound healing in New Zealand white rabbits. Seventy-two rabbits received	biostimulation	VIV	GB
			Ivankovich A.D. Forde D.E. Overfield M.						low-energy denstities skin wounds tensile strength		
D 4			Bapna M.S.						trichrome		
<u></u> D1	Dermeteese	Chlabaray C		Madical Ecous 2/1089	1000	40.40	"Lesse theremy	The commencet explication of	8.25 J/Cm2		
DL.	Demaioses				1500		Treatment of large- area dermatoses with He-Ne and infrared lasers"	lasers in medical therapy at the present time is the helium-neon laser used in combination with infrared lasers in dermatology and allergology. The results of		OLIN	
D2									visible		
D3 D3	Epidermales Stoffwechsel- Modell	Pratzel H. Chlebarov S.		Z. Phys. Med. Baln. Med. Klim. 13 (1984) 227-234	1984	227-234	"Zum Einfluss von monochromatischer Rotlichtbestrahlung (LASER 632,8 nm) auf ein epidermales Stoffwechsel-Modell"	Bei 20 hautgesunden Personen im Alter zwischen 14 und 60 Jahren wurde eine bestimmte, unbehaarte Stelle an der Innenseite des rechten Unterarms mit einem He/Ne-Gas- Laser (MBB, Typ BioLas) (632,8 nm, 5 mW) bestrahlt. Bestrahlungsabstand und -dauer	epidermales Stoffwechsel- modell 600-690 nm 1.5 J/cm2	VIV	D
D4	Hypertrophic	Webb C.	Dyson M.	Laser in Surgery and	1998	294-301	"Stimulatory Effect of	Varying effects of red light	in vitro fibroblasts	VIT	GB
	Scar-derived Fibroblasts		Lewis W.H.P.	Medicine 22:294-301 (1998), © Wiley-Liss Inc.			660 nm Low Level Laser Energy on Hypertrophic Scar- derived Fibroblasts: Possible Mechanisms for Increase in Cell Counts''	wavelengths on in vitro cells have been reported. Low level lasers (LLL) are employed to assists wound healing especially for indolent ulcers. on healing, burn wounds may become hypertrophic, resulting in excessive wound contraction, poor cosmesis, and functional impairment. This study enquired	LLLT		

D4									4 J/cm2		
D5	Plastic Surgery	Ginsbach G.		Laser Therapy, 1993; 5: 169-173, © John Wiley & Sons. Ltd.	1993	169-173	"Laser Biostimulation In Plastic Surgery"	In the past 30 years the interest in problems of wound-healing has dramatically increased.	Laser- biostimulation Plastic surgery	CLIN	GB
D5									LLLT		
D6	Sepsis by Photobiomodulat ion	Yu W.	Chi L.H. Naim J.O. Lanzafame R.J.	Lasers in Surgery and Medicine 21:262-268 (1997), © Wiley-Liss Inc.	1997	262-268	"Improvement of Host Response to Sepsis by Photobiomodulation"	Late sepsis causes immunosuppression and is associated with energy depletion in lymphocytes. Adjuvant treatment with ATP-MgCL2 appears to improve cellular	sepsis photobiomodulati on rats	VIV	GB
D6									5 J/cm2		
D7	Postoperative/Co smetic	Katalinic D.		LLLT Original Articles, 63- 65, 1991, © John Wiley & Sons, Ltd.	1991	63-65	"LLLT For Postoperative Treatment In Cosmetic Surgery"	During cosmetic surgical procedures, the operative field and surrounding tissue are often subjected to fairly rough handling, and traumatic tissue	biostimulation bioactivation postoperative trauma lipofilling LLLT	CLIN	GB
<u>D7</u>									HeNe		_
D8	Grossflachige Laseranwendung	Katalinic D.		Hautnan 2/1996 schweiz, 73-77	1996	73-77	"Grossfiachige Laseranwendung vs. Verbrennungstrauma "	laboratorischen Untersuchungen haben gezeigt, dass grosse Flächen, die durch den Laser (CO2 oder YAG) verursacht	Grossflacnige Laseranwendung	CLIN	U
D0	Deat Harmatia	Makibbin I.C	Downio D			1 5	"Treatment of Deat	Chinaloo io hooomina on	infrared		CP
D9	Neuralgia	MCRIDUII L.S.					Herpetic Neuralgia Using 904 nm Low Energy Laser (Infrared): A Clinical Study"	affliction of the elderly. Herpes zoster - the viral cause of shingles - is a member of the herpes family of organisms. Herpes 1 causes cold sores and Herpes 2 causes genital	>900 nm 4 J/cm2	CLIN	GB
D10	Venous Ulcers	Kleinman Y.	Simmer S. Braksma Y. Morag B.	Laser Therapy, 1996: 8: 205-208, © LT Publishers, U.K., Ltd.	1996	205-208	"Low Level Laser Therapy In Patients With Venous Ulcers: Early and long-term Outcome"	The effectiveness of low level laser therapy in accelerating wound healing has been clinically well documented. We report our experience treating 42 patients with resistant venous	LLLT laser therapy venous stasis ulcer	CLIN	GB

D10			Lichtenstein D.						wound healing		
D11	Venous Ulceration	Lagan K.M.	McDonough S.M. Clements B.A. Baxter G.D.	Journal of Clinical Laser Medicine & Surgery, Volume 18, Number 1, 2000, 15-22. ©Mary Ann Liebert, Inc.	2000	15-22	"A Case Report of Low Intensity Laser Therapy (LILT) in the Management of Venous Ulceration: Potential Effects of Wound Debridement upon Efficacy"	This single case report (ABA design) was undertaken as a preliminary investigation into the clinical effects of low intensity laser upon venous ulceration, applied to wound margins only, and the potential relevance of wound debridement and wound measurement techniques to any effects observed. Methods: Ethical approval was granted by	LILT 800-900 nm 9 J/cm2	CLIN	GB
D12	Dermatologie	Landthaler M.	Haina D. Waidelich W. Braun-Falco O.	Der Hautarzt (1981) 32: 450- 454, ©Springer-Verlag	1981	450-454	"Therapeutische Laseranwendungen in der Dermatologie"	Lasers are used increasingly in dermatology. The use of different laser types for various indications is discussed. Nevi	dermatotherapy wound healing low-energy denstities malignant tumors	CLIN	D
D12	Postzosterischen Schmerzen Zoster Herpes simplex	Landthaler M.	Haina D. Waidelich W.	Fortschritte der Medizin 101. Jg., Nr. 22 (1983), 1039-1041	1983	1039- 1041	"Behandlung von Zoster, postzosterischen Schmerzen und Herpes simplex recidivans in loco mit Laser-Licht"	Herpes simplex recidivans in loco und postzorische Neuralgien stellen auch heute noch therapeutische Probleme dar. Angeregt durch entsprechende Mitteilungen in der Literatur (Calderhead et al.	schmerzen herpes simplex krypton-ionen- laser	CLIN	D
D14	Wundheilung	Haina D.	Brunner R. Landthaler M. Waidelich W. Braun-Falco O.	Der Hautarzt, Supplementum V, 32. (1981) 429-431, ©Springer- Verlag	1981	429-431	"Stimulierung der Wundheilung mit Laserlicht - Klinische und tierexperimentelle Untersuchungen Wundheilung"	Nachdem es Maiman 1960 gelang, einen Laser in Betrieb zu nehmen, setzte eine stürmische Entwicklung ein, die schliesslich auch zum Einsatz von Lasern in verschiedensten Disziplinen der Medizin führte. Das Wort Laser ist eine Abkürzung für Light	wundheilung stimulierung ulcera cruris krypton-ionen-	CLIN	D
D14									laser 600-690 nm		

D15	Collagen synthesis	Lam T.S.	Abergel R.P.	Lasers in the Life Sciences 1(1), 1986, 61-77, ©Harwood Academic Publishers GmbH	1986	61-77	"Laser Stimulation of Collagen Synthesis in Human Skin Fibroblast Cultures"	Two low energy lasers, helium- neon (He-Ne, continous wave, 632,8 nm), and gallium-arsenide (Ga-As, pulse, 904 nm), were tested for their effects on connective tissue metabolism by human skin fibroblasts in	fibroblast	VIT	GΒ
			Meeker C.A. Castel J.C.						collagen synthesis HeNe		
D15			Uitto J.						GaAs >900 nm		
D16	Vasomotricity of the Lymphatic System	Lievens P.C.		Lasers in Medical Science Vol 6:189 1991, ©Baillière Tindall	1991	189-191	"The Effect of I.R. Laser Irradiation on the Vasomotricity of the Lymphatic System"	In this study the effect of I.r. laser irradiation on the vasomotricity of the lymphatic system was investigated. In order to examine this influence we carried out microscopic observations bv	infrared mice edema animal study	VIV	GB
D16									GaAs		
D17	Lymphatic system	Lievens P.		Clinical research, N.2/88, 12-15	1988	12-15	"Effects of laser treatment on the lymphatic system and wound healing"	The Author verified the effects of laser therapy IR on venous and lymphatic microvessels, and regeneration of experimental wounds. The positive results	infrared	VIV	GB
D17	Wound healing								lymphatic system venous vessels wound healing oedema		
D18	Wound healing	Lievens P.C.		Lasers in Medical Science Vol 6:193 1991,© Baillière Tindall	1991	193-199	"The Effect of a combined HeNe and I.R. Laser Treatment on the Regeneration of the Lymphatic System During the Process of Wound Healing"	To study the effect of a combined HeNe and I.r. laser treatment on the regeneration of the lymphatic system during the process of wound healing, we compared the evolution of a surgical induced incision wound in two groups of mice. In the control group (N=500) as well as in he test	wound healing	VIV	GB
									lymphatic system		
D18									animal studv		
D19	Ulcus cruris	Hübner K.		Der Deutsche Dermatologe 4, 2000, 275-277	2000	275-277	"Therapie des Ulcus cruris mit dem Infrarot-Dioden- Laser"	In den letzten Jahren wird der Dermatologe in der Praxis förmlich überschüttet mit Anngeboten aus der Industrie.	infrared	CLIN	D
									800-900 nm		
D19							1		>900 nm		

D20	Wound Healing	Lyons R.F.	Abergel R.P.	Annals of Plastic Surgery Vol 18, No 1, 1987, 47-50	1987	47-50	"Biostimulation of Wound Healing in Vivo by a Helium- Neon Laser"	Clinical observations have suggested that low-energy lasers might stimulate wound healing. To understand the mechanism of	biostimulation	VIV	GB
D20			White R.A. Dwyer R.M. Castel J.C. Uitto J.						wound healing HeNe mice animal study 1.22 J/cm2		
D21	Ulcera, decubitus	Theriseaux F.	Stotzer Y. Wyer J.	Diplomarbeit, 1-51		1-51	"Lasertherapie bei Wunden, Ulcera und Decubitus"	In dieser Arbeit konzentrieren wir uns auf die Behandlung von Ulcera, Decubiti und Wunden. In einem ersten theoretischen Block sind die verschiedenen	diplomarbeit ulcera	CLIN	D
D21									decubitus wunden		
D22	Wound healing, in vivo and in vitro	Halevy S.	Lubart R.	Laser Therapy, 1997: 9: 159-164, ©LT Publishers, U.K., Ltd.	1997	159-164	"Infrared (780 nm) Low Level Laser Therapy for Wound Healing: In Vivo and In Vitro Studies"	The potential therapeutic Effect of 780 nm low power diode laser irradiation (LPDLI) was evaluated in vivo on wound healing, and in vitro on proliferation of cultured normal human fibroblasts (NHF)	fibroblasts	VIT	GB
D22			Reuveni H. Grossman N						skin fissures keratinocytes infrared	VIV	
D23	Lymphocytes	Stadler I.	Evans R. Kolb B. Naim J.O. Narayan V. Buehner N. Lanzafame B. L	Lasers in Surgery and Medicine 27:255-261 (2000), ©Wiley-Liss Inc.	2000	255-261	"In Vitro Effects of Low-Level Laser Irradiation at 660 nm on Peripheral Blood Lymphocytes"	The effects of low-level laser light irradiation are still highly contested, and the mechanisms of its action still unclear. This study was conducted to test the effects of low-level laser	biostimulation cell-culture free radicals hemoglobin laser therapy	VIT	GB
D23									600-690 nm		
D24	Tensile strength of Microsutures	Menovsky T.	Beek J.F. van Gemert M.J.C.	Lasers in Surgery and Medicine 20:64-68 (1997), ©Wiley-Liss, Inc.	1997	64-68	"Effect of the CO2 Milliwatt Laser on Tensile Strength of Microsutures"	Laser-assisted tissue repair is often accompanied by a high dehiscence rate, which may be due to alterations in suture material after laser exposure. The	laser microsurgery 10-0 nylon	VIT	GB
D24	1		1			1	1		microsutures		

D25	Vaskulitis am diabetischen Fuss	Baxas A.	Picht J.W.	Baxamed Medical Center, 2000	2000	1	"Laser und Plaquex bei kryoglobulinämie bedingter Vaskulitis am diabetischen Fuss"	Ein 53 jähriger Patient mit bekanntem nicht-insulin- abhängigem Diabetes mellitus seit 5 Jahren sowie einer aktiven Hepatitic C Infektion unbekannter Dauer und Herkunft entwickelte über Nacht and Digitus I+II des	diabetischen Fuss 800-900 nm infrared	CLIN	D
D25									4 J/cm2		
D26	Biomedical Effects	Mester E.	Mester A.F. Mester A.	Lasers in Surgery and Medicine 5:31-39 (1985), ©Alan R. Liss, Inc.	1985	31-39	"The Biomedical Effects of Laser Application"	This paper briefly reviews the authors' experimental and clinical use of lasers over a 20- year period, during which laser	laser laser	CLIN	GB
D26									non-healing		
D27	Wound-healing stimulation	Mester E.		Laser 75 Optoelectronics Conference Proceedings, 119-125,		119-125	"Clinical results of wound-healing stimulation with laser and experimental studies of the action mechanism"	We report on the experiences gained in 32 healed clinical cases, grouped according to etiology. In order to elucidate the action mechanism of the bioregulatory process respectively, laser stimulation of the wound-healing, the following	ulcers wound healing laser stimulation	CLIN	GB
D28	Crural ulcers	Bihari I.	Mester A.R.	Laser Therapy 97-98, 1989,© John Wiley & Sons, Ltd.	1989	97-98	"The Biostimulative Effect of Low Level Laser Therapy of Long-standing Crural Ulcers Using Helium Neon Laser, Helium Neon Plus Infrared Lasers, And Noncoherent Light: Preliminary Report of a Randomized Double Blind Study"	Forty-five patients with crural ulcers resistant to conventional therapy were divided into three groups randomly by age (n=15). Group 1 was treated with a hand- held helium neon (HeNe) laser; group 2 with a machine-scanned combined HeNe and infrared (pulsed, 904 nm) laser; and group 3 with noncoherent unpolarized red light. All three groups received approximately equal dosage. An additional fourth group of patients (n=5) with recurrent ulcers was treated with the machine-scanned HeNe/pulsed infrared laser	LLLT torpid ulcers	CLIN	GB
D28									noncoherent light		

D29	Wundheilung und Regeneration	Mester E.	Nagylucskay S.	Z. Exper. Chirurg. 10 (1977) 301-306	1977	'301-306	"Neuere Untersuchungen über die Wirkung der Laserstrahlen auf die Wundheilung - Immunologische Effekte"	Durch gleichzeitige Anwendung der HeNe- und Rubin-Laser sowohl in bezug auf die T- Lymphozyten wie auf die B- Lymphozyten, bei minimalem Zellverlust, kann eine bedeutende immunsuppressive Wirkung erreicht werden. Unsere	wundheilung	VIV	D
			Tisza S.						HeNe	CLIN	
D29			Mester A.						Rubin-Laser Iymphozyten		
D30	Biostimulation	Mester A.F.	Mester A.	Laser 85 Optoelektronik with 2nd International Nd: YAG Laser Conference, 100-109, 1986, ©Springer- Verlag	1986	100-109	"Mester's Method of Laser Biostimulation"	One of the most significant discoveries of present medical engineering is that of the laser. It involves new, almost inconcievable perspectives in the fields of biological research and applications in the medical	biostimulation	VIV	GB
D30									Ruby Laser wound healing	CLIN	
D31	Imunological study	Mester A.R.	Nagylucskay S.	-, 1997, 1-4	1997	1-4	"Experimental Imunological Study with Radiological Application of Low Power Laser"	Aim of the study was to compare different wavelength laser immunological reactions. Methods: Lymphocytes of patients suffering of severe crural ulcers were separated from peripheral blood. The HeNe	imunology	VIT	GB
			Mako E.						radiological application		
			Hoffman G.						low power laser		
D31			Serenyi M.						lymphocytes ulcus cruris HeNe		
D32	Atopic dermatitis	Morita H.	Kohno J.	Laser Therapy, 1993; 5; 75- 78, ©John Wiley & Sons, Ltd.	1993	75-78	"Clinical Application of GaAlAs 830 nm Diode Laser for Atopic Dermatitis"	Patients with atopic dermatitis (AD) were treated with diode low reactive laser therapy (LLLT), and the following results were obtained. (1) Itchy sensation decreased in 63 of 81 cases	GaAlAs	CLIN	GB
			Tanaka S. Kitano Y.						laser therapy atopic dermatitis		
D32			Sagami S.						800-900 nm LLLT		<u> </u>

D33	Läsionen der Mamillen	Herzog C.		Laktation und stillen Sonderausgabe Kongress 1999, 34-36	1999	34-36	"Low Level Lasertherapie in der Stillzeit Reagieren Läsionen der Mamillen auf die Low Level Lasertherapie?"	Wunde Mamillen stellen trotz weltweit verbessertem Anleiten zum korrekten Positionieren ein ernsthaftes Stillproblem dar, das häufig zum Abstillen führt. Gute resultate werden seit Jahren in der Behandlung von Wunden und Decubiti mit Low Level	LLLT mamillen infrared	CLIN	D
D33									800-900 nm		
D34	Wundheilung	Porteder H.	Strassl H.	Österr. Z. Stomatol. 80, 333-339 (1983)	1983	333-339	"Einsatz des Helium- Neon-Lasers zur Förderung der Wundheilung"	Das Ziel dieser Studie war es, zu prüfen, inwieweit eine Wundheilungsförderung durch den Helium-Neon-Laser erreichbar ist. An zwei	Laserbestrahlung		D
D34			Vinzenz K.						Haut- und Schleimhautläsio nen HeNe		
D35	Review of LLLT	Ohshiro T.		Laser Therapy, 5-22, 1993, ©John Wiley & Sons, Ltd.	1993	5-22	"Light and Life: A Review of Low Reactive-Level Laser Therapy, Following 13 Years' Experience in Over 12 000 Patients"	Laser therapy, or preferably, Low reactive-Level Laser Thearpy (LLLT) is now being recognized as a valid medical tool, with the theories advanced from clinical experiences and double-blind trials being backed up by research data. From its beginnings with Professor Endre	LLLT bioactivation review alpha-effect laser therapy	CLIN	GB
D36	Post herpetic neuralgia	Moore K.C.	Hira N. Kumar P.S. Jayakumar C.S. Ohshiro T.	Laser Therapy, 333-337, 1988, ©John Wiley & Sons, Ltd.	1988	333-337	"LLLT treatment of post herpetic neuralgia"	Post herpetic neuralgia can be an extremely painful condition which in many cases proves	post herpetic GaAlAs 800-900 nm	CLIN	GB
D37	Hypertrophic Scars and Keloids	Ohshiro T.	Maeda T.	Laser Therapy, 155-168, 1992 ©John Wiley & Sons, Ltd.	1992	155-168	"Application of 830 nm Diode Laser LLLT as Successful Adjunctive Therapy of Hypertophic Scars and Keloids"	Keloids and hypertrophic scars are often encountered in the course of clinical practice in dermatology or plastic and reconstructive surgery clinics. There is however no precise definition of the hypertrophic scar or the keloid, thus there is no fixed established treatment	total treatment concept wound healing	CLIN	GB
D38	Cerebral Palsy	Asagai Y.	Ueno R. Miura Y. Obsbiro T	Laser Therapy, 1995; 7: 113-118,© Laser Therapy, Ltd.	1995	113-118	"Application of Low Reactive-Level Laser Therapy (LLLT) in Patients with Cerebral Palsy of the Adult Tension Athetosis Type"	In patients with cerebral palsy of the tension athesosis type, a number of symtpoms may be observed, including not only the fairly constant involuntary athetotic movements but also myotonic disorders of the motor function of all four limbs and	adult tension athetosis type LLLT cerebral palsy	CLIN	GB
------------	-----------------------------------	-----------------	---	--	------	---------	---	--	---	------	----
D38									800-900 nm		
D39	Corneal neovascularizati on	Pallikaris I.G.	Tslimbaris M.K. Iliaki O.E. Naoumidi I.I. Georgiades A.	Lasers in Surgery and Medicine 13: 197-203 (1993), ©Wiley-Liss, Inc.	1993	197-203	"Effectiveness of Corneal Neovascularization Photothrombosis Using Phthalocyanine and a Diode Laser (675 nm)"	We used chloroaluminium sulfonated phthalocyanine as a photosensitizer and a diode laser as a light source for induction of photothrombosis of corneal neovascularization. Corneal neovascularization was induced in 1 eye of each of 10 New Zealand white rabbits using intrastromal 6.0 silk sutures.	eyes histology occlusion	VIV	GB
D39									neovascularizatio		
D40	Post-mastectomy Lymphoedema	Piller N.B.	Thelander A.	Laser Therapy, 1995; 7: 163-168, ©Laser Therapy, Ltd.	1995	163-168	"Treating Chronic Post-Mastectomy Lymphoedema with Low Level Laser Therapy: A Cost Effective Strategy to Reduce Severity and Improve the Quality of Survival"	While there are some controversies and uncertainties about the effectiveness of LLLT in acute tissue disease and damage situations and some uncertainty about penetration, scatter and reflection effects of laser light, most do not apply to the progressive condition of chronic lymphoedema. In this study patients with moderate to	axillary clearance	CLIN	GB
D40 D41	Late Dermal Necrosis	Rezvani M.	Nissan M. Hopewell J.W. van den Aardweg G.J.M.J. Robbins M.E.C.	Lasers in Surgery and Medicine 12:288-293 (1992), ©Wiley-Liss, Inc.	1992	288-293	"Prevention of X-Ray- Induced Late Dermal Necrosis in the Pig by Treatment With Multi- Wavelength Light"	Low-level light from a multi- wavelength array of light sources has been used to prevent late X- ray-induced dermal necrosis in the pig. Skin fields, measuring 4x4 cm on the flank, were irradiated with a single dose of 23.4 Gv of X-ravs. This X-rav dose	Jermal necrosis light pigs animal study	VIV	GB

D41			Whitehouse E.M.						X-ray GaAlAs multi-wavelength		
D42	Analgesic Action	Tam G.		Journal of Clinical Laser Medicine & Surgery, Volume 17, number 1, 1999, 29-33, ©Mary Ann Liebert, Inc.	1999	29-33	"Low Power Laser Therapy and Analgenic Action"	The semiconductor or laser diode (GaAs, 904 nm) is the most appropriate choice in pain reduction therapy. Summary Background Data: Low-power density laser acts on the	analgesic GaAs trigger points	CLIN	GB
 D43	Cutaneous Wounds	Saperia D.	Glassberg E. Lyons R.F. Abergel R.P. Baneux P. Castel J.C.	Biochemical and Biophysical Research Communications, Vol. 138, No.3, 1986, 1123-1128, ©Academic Press, Inc.	1986	1123- 1128	"Demonstration of Elevated Type I and Type III Procollagen mRNA Levels In Cutaneous Wounds Treated With Helium- Neon Laser"	To assess laser modulation of wound healing, full-thickness cutaneous wounds were produced in the back of pigs, and subjected to treatment with helium-neon laser. For comparison, some wounds were treated with non-laser energy source (a tungsten light) or left untreated as controls. Type I and	HeNe wound healing pigs animal study	VIV	GB
D43			Dwyer R.M. Uitto J.						procollagen 600-690 nm		
D44 D44	Laserstrahlen in der Dermatologie	Seipp W.	Haina D. Justen V. Waidelich W.	Der Deutsche Dermatologe, 26.Jahrg. (11):557-575 (1978), ©Grosse Verlag	1978	557-575	"Laserstrahlen in der Dermatologie"	Seit Entdeckung der Laserstrahlen Anfang der 60er Jahre hat die Lasertechnik auf vielen Gebieten eine so stürmische Entwicklund durchlaufen, dass sich die	dermatologie HeNe 600-690 nm	CLIN	D
D45	Wound healing in diabetic mouse	Yu W.	Naim J.O. Lanzafame R.J.	Lasers in Surgery and Medicine 20:56-63 (1997), © Wiley-Liss, Inc.	1997	56-63	"Effects of Photostimulation on Wound Healing in Diabetic mice"	Low-level laser irradiation at certain fluences and wavelengths can enchance the release of growth factors from fibroblasts and stimulate cell proliferation in vitro. We evaluated whether low-	growth factors biostimulation	VIV	GB

D46	Interleukin Release	Yu H.S.	Chang K.L. Yu C.L. Chen J.W. Chen G.S.	The Journal of Investigative Dermatology, Vol. 107, No. 4, 1996, 593- 596, ©The Society for Investigative Dermatology, Inc.	1996	593-596	"Low-Energy Helium- Neon Laser Irradiation Stimulates Interleukin-1alpha and Interleukin-8 Release from Cultured Human Keratinocytes"	Clinical observations have suggested that low-energy lasers might promote wound healing. Evidence suggests that He-Ne laser irradiation induces an increase in the rate of keratinocyte migration and proliferation as compared with nonirradiated controls in vitro. This study sought to determine whether He-ne laser could induce	HeNe cytokine wound healing interleukin keratinocytes	VIT	GB
D46 D47, B	Blood microcirculation	Schaffer M.	Bonel H. Sroka R. Schaffer P.M. Busch M. Reiser M. Dühmke E.	J. Photochem. Photobiol. B: Biol.54 (2000) 55-60, ©Elsevier Science S.A.	2000	55-60	"Effects of 780 nm diode laser irradiation on blood microcirculation: preliminary findings on time-dependent T1- weighted contrast- enhanced magnetic resonance imaging (MRI)"	Laser therapy by low light doses shows promising results in the modulation of some cell functions. Various clinical studies indicate that laser therapy is a vluable method for pain treatment and the acceleration of wound healing. However, the mechanism behind it is still not completely understood. To explore the effect of a low-power diode laser (780 nm) on normal skin tissue, time- dependent contrast enhancement	MRI laser- biomodulation microcirculation	VIV	GB
D4 <i>7</i> , B D48, B	Tumor cells	Schaffer M.	Sroka R. Fuchs C. Schrader- Reichardt U. Schaffer P.M. Busch M. Dühmke E.	Journal of Photochemistry and Photobiology B: Biology 40 (1997) 253-257, ©Elsevier Science S.A.	1997	253-257	"Biomodulative effects induced by 805 nm laser light irradiation of normal and tumor cells"	The influence of light emitted from a diode laser ventered at 805 nm was investigated on murine skeletal myotubes (C2), normal urothelial cells (HCV29), human squamous carinoma cells	biomodulative effects biomodulation laser light irradiation normal cells tumor cells 800-900 nm	VIT	GB

D49, B	Mitosis of normal and tumor cells	Sroka R.	Schaffer M. Fuchs C. Pongratz T. Schrader- Reichard U. Busch M. Schaffer P.M. Dühmke E. Baumgartner R.	Lasers in Surgery and Medicine 25:263-271 (1999), ©Wiley-Liss, Inc.	1999	263-271	"Effects on the Mitosis of Normal and Tumor Cells Induced by Light Treatment of Different Wavelengths"	Although the background of laser therapy by means of low level energy and power is still only partially understood, there are nevertheless promising reports from clinical studies concerning pain treatment, the acceleration of wound healing, and the	action spectra biostimulation biomodulation LLLT wound healing normal cells tumor cells multi-wavelength	VIT	GB
D49, B									mitosis		
D50	Side effects caused by ionizing radiation	Schaffer M.	Bonel H. Sroka R. Schaffer P.M. Busch M. Sittek H. Reiser M. Dübmke F	Journal of Photochemistry and Photobiology B: Biology 59 (2000) 1-8. ©Elsevier Science B.V.	2000	1-8	"Magnetic resonance imaging (MRI) controlled outcome of side effects caused by ionizing radiation, treated with 780 nm- diode laser - preliminary results"	Ionizing radiation therapy by way of various beams such as electron, photon and neutron is an established method in tumor teatment. The side effects caused by this treatment such as ulcer, painful mastitis and delay of wound healing are well known, too. Biomodulation by low level laser therapy (LLLT) has become popular as a therapeutic modality for the acceleration of wound	MRI LLLT ionizing irradiation side effects biomodulation 700-800 pm	CLIN	GB
D51	Wound healing	Simunovic Z.	Ivankovich A.D. Depolo A.	Journal of Clinical Laser Medicine & Surgery, Volume 18, Number 2, 67- 73, 2000 © Mary Ann Liebert, Inc.	2000	67-73	"Wound Healing of Animal and Human Body Sport and Traffic Accident Injuries Using Low- Level Laser Therapy Treatment: A Randomized Clinical Study of Seventy- Four Patients with Control Group"	The main objective of current animal and clinical studies was to assess the efficacy of low level laser therapy on wound healing in rabbits and humans. In the initial part of our research we conducted a randomized controlled animal study, where we evaluated the effects of laser irradiation on the healing of surgical wound on rabbits. The manner of the application of LLLT on the human body are	rabbits HeNe	CLIN	GB

D52 D52	Herpes simplex infection	Schindl A.	Neumann R.	The Journal of Investigative Dermatology 113:221-223, 1999© The Society for Investigative Dermatology, Inc.	1999	221-223	"Low-Intensity Laser Therapy is an Effective Treatment for Recurrent Herpes Simplex Infection. Results from a Randomized Double- Blind Placebo- Controlled Study"	Recurrent infection with herpes simplex virus is a common disease. Recently, alternative therapies have been introduced. Among those, low-intensity laser therapy mainly used for the acceleration of wound healing and in pain therapy has previously been shown to be of benefit in herpes zoster infections. In this study we evaluated the influence of low-	biostimulation immunology 600-690 nm	DB	GB
D53	Laser in der medizinischen Praxis	Schindl L.		Natur-Heilkunde 10. Jahrkang, 3, 22-26, 1990	1990	22-26	"Low-Power-Laser in der medizinischen Praxis"	Der Praktische Arzt oder Facharzt, der sich näher mit Lasertherapie beschäftigen möchte, sieht sich sowohl einem	physikalische therapie HeNe		D
D53 D54	Microcirculation	Maegawa Y.	ltoh T. Hosokawa T. Yaegashi K. Nishi M.	Lasers in Surgery and Medicine 27:427-437, 2000© Wiley-Liss, Inc.	2000	427-437	"Effects of Near- Infrared Low-Level Laser Irradiation on Microcirculation"	Recently, there has been an increase in the clinical application of low-level laser irradiation in various fields. The present study was conducted to	infrarot cytosolic calcium concentration nitric oxide vasodilation vascular smooth muscle	VIV	GB
D55	Mucosa of the Equine Upper Airway	Gomez- Villamandos R.J.	Santisteban Valenzuela J.M. Ruiz Calatrava I. Gomez- Villamandos J.C. Avila Jurado I.	Lasers in Surgery and Medicine 16:184-188, 1995 © Wiley-Liss Inc.	1995	184-188	"He-Ne Laser Therapy by Fibroendoscopy in the Mucosa of the Equine Upper Airway"	A study was made of the effects of low-level laser irradiation on the cicatrization of superficial wounds in the pharyngeal mucosa of the horse. Duplicate pharyngeal mucosal ulcers were	HeNe fibroendoscope mucosa cicatrization horse	VIV	GB
D55	Flan survival	Kami T	Voshimura V	Annals of Plastic Surgery	1985	278-283	"Effects of Low-	We investigated the effect of low-	animal study	VIV	GB
D56			Nakajima T Ohshiro T. Fujino T.	Vol 14 No 3 1985	1903	210-203	Power Diode Lasers on Flap Survival"	power laser irradiation on the survival of experimental skin flaps in rats. A gallium-aluminium arsenide diode laser that was	skin flaps rats animal study		GD

D57,B	Fibroblast proliferation	Lubart R.	Friedmann H. Peled I. Grossman N.	Laser Therapy, 5; 55-57, 1993 © John Wiley & Sons, Ltd	1993	55-57	"Light Effect on Fibroblast Proliferation"	The healing effect of low energy lasers is generally attributed to enhanced cell proliferation due to the irradiation. As it was not clear	fibroblasts proliferation non laser light sources non-linearity	VIT	GB
D58	Wound Healing	Whelan H.T.	Smits R.L. Buchman E.V. Whelan N.T. Turner S.G. Margolis D.A. Cevenini V. Stinson H. Ignatius R. Martin T. Cwiklinski J. Philippi A.F. Graf W.R. Hodgson B. Gould L. Kane M. Chen G.	Journal of Clinical Laser Medicine & Surgery, Vol 19, No 6, 2001 © Mary Ann Liebert, Inc.	2001	305-314	"Effect of NASA Light- Emitting Diode Irradiation on Wound Healing"	The purpose of this study was to assess the effects of hyperbaric oxygen and near-infrared light therapy on wound healing. Light- emitting diodes, originally developed for NASA plant growth	wound healing LED NASA hyperbaric oxygen HBO near-infrared	RE	GB
D59 D59	Wound management	Dyson M.	Lyder C.	The Prevention and Treatment of Pressure Ulcers, Mosby, 2001	2001	177-193	"Wound management: physical modalities"	The aim of wound treatment should be to replace wound management by wound healing. Physical modalities can be used,	wound healing ultrasound electrical stimulation	RE	GB
D60 D60	Decubitus Stadium III	Lucas C.	Moll W.A.W. Coenen C.H.M.	Afdeling Contractactiviteiten, Facultat Gezondheidszorg, Hogeschool van Amsterdam, 1994	1994	1-53	"Low Level Laser Therapy bij Decubitus Stadium III, een dubbelblind, placebo- gecontroleerd effectoderzoek"	Decubitus is een betrekkelijk veel voorkomende, dermatologische aandoening die voraal gezien wordt bij bedlegerige patienten, bij patienten die langdurig in bezelfde houding zitten, maar ook bijvoorbeld bij dragers van prothesen. Haalboom geeft in zijn	decubitus wondgenezing prosthesen infrared	DB	NL

D61	Indolent Ulcers caused by Buerger' s Disease	Schindl L.	Kainz A. Kern H.	Laser Therapy Vol.4, No.1, 25-29, 1992 © John Wiley & Sons, Ltd.	1992	25-29	"Effect of low level laser irradiation on indolent ulcers caused by Buerger' s disease; literature review and preliminary report"	Thromboangiitis obliterans, or Buerger's disease, is a comparatively rare but extremely unsettling condition, associated with very high levels of pain, often with amputation or reamputation the only surgical recourse. Because of its propensity to be found in the vounger patient. it is imprtant	thromboangiitis obliterans nicotine endangiitis obliterans indolent ulcers gangerene microcirculation ir-thermography	RE	GB
D62	Adverse Photothermal Effects on the Skin and Subcutaneous Tissue	Sasaki K.	Calderhead R.G. Chin I. Inomata K.	Laser Therapy Vol.4, No.2, 69-72, 1992 © John Wiley & Sons, Ltd.	1992	69-72	"To examine the adverse photothermal effects of extended dosage laser therapy in vivo on the skin and subcutaneous tissue in the rat model"	The incidence of the use of the laser in laser therapy, or LLLT, rather than laser surgery, has been reported as increasing in many areas. While the applications of LLLT increase, concern has been expressed in the literature regarding the possible damage to tissue following extended doses of laser radiation having low	photobioactivatio n laser safety infrared	VIV	GB
D63	Skin Flap Survival	Zhang D.	Zhou Y. Xiao B.	Laser Therapy Vol.4, No.2, 75-79, 1992 © John Wiley & Sons, Ltd.	1992	75-79	"The effect of postoperative irradiation with low incident levels of CO2 laser irradiation on skin flap survival and the possible mechanisms"	We performed an experimental study to determine the effect of low incident levels of carbon dioxide laser irradiation on the survival of experimental acute random skin flaps in the rat model. In the experimental group the skin flaps were irradiated postoperatively with the defocused beam of the CO2	Skin flap survival	VIV	GB
D63			Li G.						n CO2 laser		

D64	Strawberry Haemangioma in the Infant	Ohshiro T.	Chen I.	Laser Therapy Vol.4, No.3, 127-132, 1992 © John Wiley & Sons, Ltd.	1992	127-132	"Low reactive-level 830 nm diode laser therapy (LLLT) sucessfully accelerates regression of strawberry haemangioma in the infant: case reports"	The strawberry haemangioma is a disturbing lesion, especially for the parents of the affected infant. Surgical intervention is unacceptable in most cases, owing to the possibility of severe scarring. Reports have appeared on successful application of laser surgery for smaller lesions, but the possibility of scarring still exists. Because of the success of	strawberry haemangioma strawberry mark photobioactivatio n diode laser	CLIN	GB
D65	Cicatrical Vitiligo	Sasaki K.	Ohshiro T.	Laser Therapy Vol.1, No3.,	1989	141-146	"Role of low reactive-	Vitiligo, characterized by a partial	diode laser	CLIN	GB
				141-146, 1989 © John Wiley & Sons, Ltd.			level laser therapy (LLLT) in the treatment of acquired and cicatrical vitiligo"	or complete loss of melanin pigmentation, is very difficult to treat successfully. Two classifications of the disease are offered. Acquired idiopathic vitiligo, occurring spontaneously,	melanocytes vitiligo		
D65									bioactivation		
D66	Herpes Zoster	Matsumura C.	Ishikawa F. Imai M. Kemmotsu O.	Laser Therapy Vol.5, No.1, 43-46, 1993 © John Wiley & Sons, Ltd.	1993	43-64	"Useful effect of application of helium- neon LLLT on an early stage case of herpes zoster: a case report"	Low reactive-level laser therapy has been reported as effective in treating the intractable pain of chronic post herpetic neuralgia, but no reports have appeared on the use of LLLT on the acute phase of Herpes zoster. A case	herpes zoster virus post herpetic neuralgia sympathetic block adjunctive LLLT HeNe scanning	CLIN	GB
D67	Open Skin Wounds	Lee P.	Kim K. Kim K.	Laser Therapy Vol.5, No.2, 59-64, 1993 © John Wiley & Sons, Ltd.	1993	59-64	"Effects of low incident energy levels of infrared laser irradiation on healing of infected open skin wounds in rats"	It is suggested that S. mutans can be stimulated by LLLT in vivo, and similar modulation could potentially occur in the other bacteria exposed to LLLT. In addition the acceleration of healing in the infected lesion following GaAs LLLT indicates	wound healing gallium arsenide infrared	VIV	GB

D67									bacterial infection		
D68	Wound Healing	Al-Watban F.A.H.	Zhang X-Y.	Laser Therapy Vol.7, No.1, 011-018, 1995 © Laser Therapy, Ltd.	1995	11-18	"Stimulative and inhibitory effects of low incident levels of argon laser energy on wound healing"	A study on the stimulative and inhibitory effects of low incident power densities of argon laser energy on wound healing in rats was undertaken. Our results were calculated ay 80% of wound	argon laser dosimetry inhibitory effect stimulative effect	VIV	GB
D68									wound healing		
D69	Wunden Mamillen	Bednar B.	Unterberger E.	Laktation und Stillen 2/2002	2002		"Lasertherapie bei wunden Mamillen"	Bereits seit Jahren wird der Low- Level-Laser- oder Soft-Laser zur Beschleunigung der Wundheilung in der	wunden mamillen	CLIN	D
D70, B	Burn Wounds	Sasaki K.	Ohshiro T. Hoshino T.	Laser Therapy Vol.9, No.2, 59-66, 1997 © LT Publishers, U.K., Ltd.	1997	59-66	"A preliminary double blind controlled study on free amino acid analysis in burn wounds in the mouse following 830 nm diode laser therapy"	A double-blind controlled study is presented on the amino acid analysis of levels of a selected group of 26 free amino acids in CO2 laser generated standardized burn wounds on the bilateral dorsum in the ddy mouse model. Four groups of ddy white mice, 6 animals per aroup. were anaesthetized with	free amino acids wound healing	DB	GB
D70, B									burn wounds diode laser		
D71, B	Infected Wounds	Kim K-S.	Lee P-Y.	Laser Therapy Vol.10, No.1, 17-24, 1998 © LT Publishers, U.K., Ltd.	1998	17-24	"Effects of different modes of low level laser irradiation on the healing of experimentally infected wounds"	Many studies, using low level laser irradiation, have been performed to investigate the influence of laser irradiation on the healing process of wounds or lesions. It has been proposed that the low incident levels of	wound healing	VIV	GB
D71, B			Lee J-H. Kim Y-K.						staphylococcus aureus GaAs diode laser pulse type wound bed irradiation peripheral		
D72	Skin Ulcers	Kubota J.		Laser Therapy Vol.10, No.3, 123-128, 1998 © LT Publishers, U.K., Ltd.	1998	123-128	"Treatment of skin ulcers with 830 nm GaAIAs diode laser therapy"	Persistent skin ulcers are still a major problem for the plastic and recontructive surgeon. These ulcers of various aetiologies are often resistant to conventional	irradiation persistent ulcers	CLIN	GB

D72									failing flaps graft necrosis circulatory failure macrophage angiogenesis diode laser		
D73	Nail Disorders, Chronic Paronychia and Ingrown Nail	Shoji A.	Inoue A.	Laser Therapy Vol.10, No.3, 133-138, 1998 © LT Publishers, U.K., Ltd.	1998 13	3-138	"Treatment of nail disorders with LLLT (2) chronic paronychia and ingrown nail"	A diode laser system was used for the treatment of 17 patients with nail disorders: nine patients with chronic paronychia and eight patients with ingrown nail. We treated stage I of ingrown	diode laser chronic paronychia ingrown nail	CLIN	GB
D73 D74	Wound Healing	Al-Watban	Zhang X.Y.	Laser Therapy Vol.11,	1999 6-1	10	"The acceleration of	A study was carried out to	onychocryptosis wound healing	viv	GB
		F.A.H.		No.1, 6-10, 1999			wound healing is not attributed to laser skin transmission"	observe the acceleration of wound healing using different wavelengths of laser, and to assess the role played by the amount of laser transmitted bt	biostimulation		
D74									various wavelengths		
D75	Venous Stasis Ulcers	Lichtenstein D.	Morag B.	Laser Therapy Vol.11 No.2, 71-78, 1999	1999 71	-78	"Low level laser therapy in ambulatory patients with venous stasis ulcers"	The effectiveness of laser therapy in accelerating wound healing has been clinically well documented. We used to devices: one, a He-Ne laser with a wavelength of 632.8 nm and power output of 8 mW; the other,	venous ulcer wound healing	CLIN	GB
D75 D76	Flap Survival, Microcirculation	Kubota J.	Ohshiro T.	Laser Therapy, 8:241-246, 1996 © LT Publishers, Ltd.	1996 24	1-246	"The Effects of Dioed Laser LLLT on Flap Survival: Measurement of Flap Microcirculation with Laser Speckle Flowmetry"	A laser speckle flowmetry technique has been developed to enable visualization of the distribution of skin blood flow and has been used to measure the microcirculation in various angiopathies as well as to monitor blood flow changes and other haemodynamics in skin	leg ulcer diode laser flap survival microcirculation laser speckle flowmetry random caudal flap	VIV	GB
D76									flap take GaAlAs		
			+		!					•	•

D77	Scatter-Limited Phototherapy	Reinisch L.		Lasers in Surgery and Medicine 30:381-388, 2002 © Wiley-Liss, Inc.	2002	381-388	"Scatter-Limited Phototherapy: A Model for Laser Treatment of Skin"	To effectively deliver laser light into the skin for non-ablative resurfacing, hair removal, and other applications, one mut account for scatter, absorption, and thermal diffusion. A novel	penetration thermal diffusion non-ablative resurfacing bair removal	CLIN	GB
D78,B	Growth of	Nussbaum E.L.	Lilge L.	Lasers in Surgery and	2002	343-351	"Effects of 810 nm	Low intensity laser therapy may	infection	VIT	GB
	Bacteria		Mazzulli T.	Medicine 31:343-351, 2002 © Wiley-Liss, Inc.			Laser Irradiation on In Vitro Growth of Bacteria: Comparison of Continuous Wave and Frequency Modulated Light"	modify growth of wound bacteria, which could affect wound healing. This study compares the effects on bacteria of 810 nm laser using various delivery modes. Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa were	physical therapy wound healing continuous wave frequency modulated light		
D78,B									diode laser		
D79 D79	Psoriasis	Rodewald E.J.	Housman T.S. Mellen B.G. Feldman S.R.	Lasers in Surgery and Medicine 31:202-206, 2002 © Wiley-Liss, Inc.	2002	202-206	"Follow-up Survey of 308-nm Laser Treatment of Psoriasis"	UVB treatment with a 308nm excimer laser is a new treatment modality for localized psoriasis. The purpose of this study is to assess patients' impressions and satisfaction with 308nm laser	survey 308 nm psoriasis ultraviolet B excimer phototherapy	CLIN	GB
D80	Blood Flow in Axial Pattern Flaps	Kubota J.		Lasers Med Sci 17:146- 153, 2002 © Springer- Verlag London Limited	2002	146-153	"Effects of Diode Laser Therapy on Blood Flow in Axial Pattern Flaps in the Rat Model"	Axial pattern skin flaps are a very important reparative tool for the plastic and reconstructive surgeon in the reconstruction of tissue defects. From whatever unfortunate reason, part of all of	autonomic nervous system diode laser failing skin flaps photobioactivatio	VIV	GB
D80									n tissue ischaemia		

D81	Primary Raynaud' s Phenomenon	Hirschl M.	Katzenschlager R. Ammer K. Melnizky P. Rathkolb O.	VASA 31:91-94, 2002 © Verlag Hans Huber Bern	2002	91-94	"Double-blind, randomized, placebo controlled low level laser therapy study in patients with primary Raynaud' s phenomenon"	No causal treatment of primary Raynaud' s phenomenon is available due to its unclear aetiology. Low level laser therapy is applied in a multitude of medical conditions often without sufficient evidence of efficacy and established mechanisms. To asses the effect of this therapy in patients with primary Raynaud' s	primary Raynaud' s phenomenon placebo vasospastic attacks infrared thermography	DB	GB
D81	Scars and	Kontoes P	Kundi M. Vlachos S	Proceedings of the 4th	2002	101-104	"IPI Treatment of	l asers and intense nulsed light	diode array	RF	GB
D82	Photodamaged Skin	KUNUES F.	Viaciios S.	Congress of the World Association for Laser Therapy, 101-104, 2002 © Monduzzi Editore S.p.A.	2002	101-104	Scars and Photodamaged Skin: A LLLT Aspect?"	sources have been extensively used in non-ablative procedures: Removal of pigmented and vascular lesions, hair reduction, photorejuvenation. IPLS, through their wide spectrum of	photodamaged skin intense pulsed light	nc	GB
D83	Pediatric Skin Diseases	Ailioaie C.	Ailioaie L.M. Chiran D.A. Ailioaie R.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 121-125, 2002 © Monduzzi Editore S.p.A.	2002	121-125	"Healing Induced by LLLT in Pediatric Skin Diseases"	The goal of the present study was to investigate the effects of Low Level Laser Therapy in children with: Nonbullous Impetigo, Folliculitis, Perianal Dermatitis, and Diaper Dermatitis superinfected with Candida,	pediatric skin diseases GaAlAs NK cells	CLIN	GB
Dd1	Aurikulomedizin	Mastalier O.		The International Journal	1996	17-23	"Aurikulomedizin und	Die Aurikulomedizin bietet in der	holistic dentistry	RE	D
	und zahnheilkunde			of Auricular Medicine 1/96, 17-23, 1996			Ganzheitliche Zahnheilkunde''	ganzheitlichen Zahnmedizin eine nahezu universelle komplementaere Diagnostik und			
Dd1									auricular medicine		
Dd2 Dd2	Overview of LLLT, Research Abstracts,	Parker S.P.Ā.	Turnér J. Ross G.	Wavelengths, Winter 2001 Vol 9 Issue 1, 13- 28, 2001	2001	13-28	"Featured Wavelegth: LLLT"	Overview of LLLT, Research Abstracts, Summary of LLL Investigations, Overview of LLLT,	overview research abstract summary on	RE	GB
Duz									investigations		

Dd3	Dentistry	Tunér J.	Christensen P.H.	Dental Products Report Europe Nov/Dec 2000, 12- 14	2000	12-14	"Low-Level Lasers new possibilities in dentistry"	Low-level laser technology offers clinicians the opportunity to treat patients with herpes, mucositis, post-operative pain, parethesia, sinuitis and TMD., Dentistry	herpes	RE	GB
Dd3									mucositis post-operative pain paresthesia sinuitis TMD		
Dd4	Antro-oral Communication	Grzesiak-Janas G.	Janas A.	Journal of Clinical Laser Medicine & Surgery Vol 19, No 4, 181-184, 2001© Mary Ann Liebert, Inc.	2001	181-184	"Conservative Closure of Antro-oral Communication Stimulated with Laser Light"	To evaluate application of laser biostimulation in the treatment of antro-oral communications. Sixty- one patients between the ages of 14 and 58 were subjected to biostimulation with laser light.	antro-oral communication tooth extract infrared	CLIN	GB
Dd5	Intra- und postoperativen Phase	Semmler R.		ZMK 9 Jahrgang, Nr. 8, Nov/Dez 1993 © Spitta Verlag	1993		"Die Low-Level-Laser- Therapie in der intra- und postoperativen Phase"	Nach richtiger und korrekter Diagnose, Indikation und Insertion ist für eine erfolgreiche Implantation die ungestörte Wundheilung von	implantation wundheilung infrarot dioden laser intraoperativ postoperativ	CLIN	D
Dd6 Dd6	Dental and Oral Surgery	Nagasawa A.	Negishi A. Kato K.	LLLT Original Articles, 119- 122, 1991© John Wiley & Sons, Ltd	1991	119-122	"Clinical Applications of LLLT In Dental And Oral Surgery In The Urawa Clinic"	The Urawa Clinic is a dental office established in 1971 in the city of Urawa, Saitama prefecture, near Tokyo. Recently, the medical application of lasers has been developing actively, but it is not	diode laser HeNe argon laser bone regeneration	CLIN	GB
Dd7	Haut und Orale Schleimhautgew ebe	Schenk P.	Porteder H. Zetner K.	Laryng. Rhinol. Otol. 65, 146-150, 1986 © Georg Thieme Verlag	1986	146-150	"Helium-Neon-Laser- Effekt auf Haut und orale Schleimhautgewebe"	The biological effetcs of the helium-neon laser on skin and oral mucosa were examined for the first time electron microscopically. Canine	mucosa HeNe canine epidermis	VIV	D
Dd7									gingiva sublingual		

Dd8	Die Low-Level- Lasertherapie	Wagner B.		ZMK 6-7/97, 2-5, 1997 © Spitta Verlag	1997	2-5	"Die Low-Level- Lasertherapie"	Während ausländische Studien die Wirksamkeit des Low-Level- Lasers bestätigen, stehen deutsche Zahnärzte dem Einsatz	dentistry infrared schmerz HaNa	RE	D
Dd0 Dd9	Tandläkaren	Tunér J.					"Laser hos	Borren går. Det gör inte ont - tack	dentistry	RE	s
							tandläkaren"	och lov för bedövningen! Men			
Dd9									overview		
Dd10	Periodontal Pockets	Moritz A.	Schoop U. Goharkhay K. Schauer P. Doertbudak O. Wernisch J.	Lasers in Surgery and Medicine 22:302-311, 1998 © Wiley-Liss, Inc.	1998	302-311	"Treatment of Periodontal Pockets With A Diode Laser"	The aim of his study is to examine the long-term effect of diode laser therapy on periodontal pocket with regard to	root scaling microbiology diode laser periodontal pockets bacterial count	CLIN	GB
Duit			Spen w.						bacterial count		
Dd11	Zahnmedizin	Graumann A.K.		Zahn Prax 2, 24-29, 1999	1999	24-29	"Akupunktur in der Zahnmedizin"	Das Interesse an ergänzenden Therapiemassnahmen nimmt auch unter Zahnärzten mehr zu.	zahnmedizin analgesie	RE	D
Dd11									akupunktur		
Dd12	Fixed Prosthodontic Pain Control	Wafa F.	El-Matar Sh. Al-Omar S.	LLLT Original Articles, 83- 87, 1990 © John Wiley & Sons, Ltd.			"A Clinical Study of LLLT In Fixed Prosthodontic Pain Control After Tooth Preparation To Receive A Crown"	The analgesic effect of laser therapy was evaluated on a group of 60 patients, who had teeth prepared to receive porcelain-fused to gold crowns. Clinical observation was performed regarding remission of pain in relation to the number	analgesic effect diode laser infrared fixed prosthodontic dentistry	CLIN	GB
Dd13 Dd13	Verborgene Zahnstörfelder	Strittmatter B.		Akupunktur/Aurikulomediz in 2/1997, 3-11			"Verborgene Zahnstörfelder - häufiger Grund für "unerklärliche" Therapieresistenz in der Akupunktur"	Besonders hartnäckige Zahnstörfelder tendieren dazu, sich "abzukapseln" bzw. Zu "isolieren". Sie sind mittels der üblichen Störfelddiagnostik über die fünf Störfeldhinweispunkte nach Bahr nicht oder nur schwer zu erfassen und unterhalten	akupunktur diode laser zahnstörfelder	RE	D
Duri											

Dd14, B Dd14, B	Human gingival fibroblasts proliferation	Almeida-Lopes L.	Rigau J. Zangaro R.A. Guidugli-Neto J. Marques Jaeger M.M.	Lasers in Surgery and Medicine 29:179-184, 2001 © Wiley-Liss, Inc.	2001	179-184	"Comparison of the Low Level Laser Therapy Effects on Cultured Human Gingival Fibroblasts Proliferation Using Different Irradiance and Same Fluence"	The low level laser therapy has been used in dentistry to improve wound healing. In order to analyze the effect of LLLT on the in vitro proliferation of gingival fibroblasts we developed a primary culture of human gingival fibroblasts. We found that cells cultured in nutritional deficit condition grown in medium supplemented by only	cell culture diode laser human fibroblasts wound healing proliferation	VIT	GB
Dd15 Dd15	Oral Mucositis	Migliorati C.	Massumoto C. Eduardo F.P. Muller K.P. Carrieri T. Haypek P. Eduardo C.P.	Science, Vol 1, No2, 2001, 97-100	2001	97-100	"Low-energy Laser Therapy in Oral Mucositis"	The use of high-dose chemotherapy as part of the preparative regimen for stem cell	bone marrow transplantation oral mucositis high dose chemotherapy	CLIN	GB
Dd16	Prevention of radiation- induced mucositis	Bensadoun R.J.	Franquin J.C. Ciais G. Darcourt V. Schubert M.M. Viot M. Dejou J. Tardiou C	Support Care Cancer 7, 1999 © Springer-Verlag	1999	244-252	"Low-energy He/Ne laser in the prevention of radiation-induced mucositis"	Use of low-energy helium-neon laser appears to be a simple atraumatic technique for the prevention and treatment of mucositis of various origins. Preliminary findings, and	mucositis radiotherapy head and neck cancer HeNe	CLIN	GB
Dd17, B	Improvement of macromolecular clearance via lymph flow	Shimotoyodome A.	Kobayashi H. Tokimitsu I.	Lasers in Surgery and Medicine 29:442-447, © 2001	2001	442-447	"Improvement of Macromolecular Clearance Via Lymph Flow in Hamster Gingiva by Low- Power Carbon Dioxide Laser- Irradiation"	Although therapeutic effects of low-power laser-irradiation on periodontal disease have been reported, little is known about the biological effects of laser- irradiation in the gingiva. Recently we reported that topical warming stimulated macromolecular clearance via	albumin clearance periodontal disease submandibular lymph nodes	VIV, B	GB

Dd17, B			Fujimura A.						animal study CO2 laser		
Dd18 Dd18	Mucositis	Bensadoun R-J.	Magné N. Marcy P-Y. Demard F.	Eur Arch Otorhinolaryngol 258:481-487, 2001 © Springer-Verlag	2001	481-487	"Chemotherapy- and radiotherapy-induced mucositis in head and neck cancer patients: new trends in pathophysiology, prevention and treatment"	Mucositis is the intensity-limiting toxicity in the management of locally advanced non-resectable head and neck cancer with radiotherapy and chemotherapy. New radiation modalities as well as combined modality regimens in this situation induce higher rates of acute toxicity. Hyperfractionation, for example,	mucositis stomatitis chemotherapy radiotherapy head and neck cancer	RE	GB
Dd19 Dd19	Zahnmedizin	Норр М.		Laser Journal 4/2001, 6-15,	2001	6-15	"Entdecke die Möglichkeiten Softlaseranwendung am Patienten"	Softlaseranwendungen in Europa sind erst im Wachsen begriffen. Ausserdem ist erkennbar, dass die Zahnmedizin bei dieser Form der Therapie, wie in anderen	zahnmedizin photobiostimulati on	RE	D
Dd20	Dentinary hypersensitivity	Brugnera A. Jr.	Cruz F.M. Zanin F. Pecora J.D.	SPIE Conference on Lasers in Dentistry V, Jan 1999, SPIE Vol. 3593	1999	66-68	"Clinical results evaluation of dentinary hypersensitivity patients treated with lasertherapy"	The purpose of this investigation was to show the percentage of cured patients treated with low level laser therapy clinically diagnosed dentinary hypersensitivity. The authors report on this investigation more	dentinary hypersensitivity HeNe ArGaAl	CLIN	GB
Dd21	Gingival fibroblasts	Lopes A.L.	Jaeger M.M. Brugnera A.Jr.	SPIE Vol.3248 1998			"Action of low power laser irradiation on the proliferation of human gingival fibroblasts in vitro"	The low power laser has been used in dental treatments aiming to improve tissue healing. An in vitro study was performed to analyse the laser influence on gengival fibroblast. A human gingival fibroblast culture was	fibroblasts gingival fibroblasts infrared	VIT	GB
Dd22	Effets secondaires chimio et radioinduits dan l' oropharynx	Ciais G.	יוואַמע ט.	3me Journées Monégasques de Cancerologie, 1998	1998	83-85	"Prevention et traitement des effets secondaires chimio et radioinduits dans l' oropharynx par lase froid He-Ne"		HeNe	RE	F

Dd22									effets chimio et radioinduits oropharynx cavite buccale		
Dd23	Prevention des mucites liees	Franquin J-C.	Ciais G.	Actualités Odonto- Stomatologiques n 186, 1994	1994	255-267	"La laserthérapie dans la prévention des mucites liées à la chimiothérapie et à la radiothérapie anticancéreuses"	L' apparition frequente de mucites au niveau de la cavite buccale et des muqueuses aero-digestives superieures est une pathologie iatrogene algigue et limitante liee a certains protocoles de chimiotherapie et de radiotherapie anticancereuses.	5-fluorouracile HeNe mucites radiotherapie	RE	F
Dd24	Fysiotherpaie en de tandheelkunde	van Breugel.	de Kok C.R. Hilvers A.H. Bär P.R. Frich W B M.	Janus Jongbloed Research Centrum, Research Laboratorium Neurologie, Rijksuniversitet Utrecht, 1992	1992	1-90	"Metingen aan lichtbundels van laagvermogen diode lasers voor de fysiotherapie en de tandheelkunde"	In dir rapport wordt verslag gedaan va een vergelijkend onderzoek ten aanzien van de lichtbundels van therapeutische (diode) lasers zoals die gebruikt worden in defysiotherapie en de tandheelkunde. Tevens zijn een	diode laser fysiotherapie tandheilkunde fundamentale	RE	NL
Dd25	Diagnostic tool in Dentistry	Kutvölgyi I.		Laser Therapy Vol.10, No.2, 79-82, 1998 © LT Publishers, U.K., Ltd.	1998	79-82	"Low level laser therapy as a diagnostic tool in dentistry"	The situation sometimes exists ehre a tooth causes excessive pain to the patient, but the diagnosis cannot be made by the dentist with the traditional methods. In these instances,	oral clinical diagnosis periodontitis hyperaemia	CLIN	GB
Dd26	Oral Bacteria	O' Neill J.F.	Hope C.K. Wilson M.	Lasers in Surgery and Medicine 31:86-90, 2002 © Wiley-Liss, Inc.	2002	86-90	"Oral Bacteria in Multi-Species Biofilms Can Be Killed by Red Light in the Presence of Toluidine Blue"	Oral bacteria can be killed by light in the presence of a suitable photosensitizer, and this could be used in the treatment of oral infections. In these diseases, however, bacteria are present as biofilms, which are refractive to	lethal photosensitizatio n biofilms dental plaque caries periodontitis toluidine blue	VIT	GB
Dd26									HeNe		1

Dd27	Chronic Periodontitis, Lethal Photosensitizatio n	Wilson M.	Sarkar S. Bulman J.S.	Lasers in Medical Science 8:297-303 1993 © Bailliere Tindall	1993	297-303	"Effect of blood on lethal photosensitization of bacteria in Subgingival Plaque from Patients with Chronic Periodontitis"	The purpose of this study was to determine whether bacteria un subgingival plaque samples from patients with chronic periodontitis could be sensitized to killing by low-power laser light in the presence of blood. Toluidine blue 0 was added to the plaque samples which were	photosensitizatio n subgingival	VIT	GB
Dd27									plaque chronic periodontitis toluidine blue HeNe		
Dd28,B	Survival Rate of Gingival Fibroblast Cell Cultures	Kreisler M.	Daubländer M.	Lasers in Surgery and Medicine 28:445-450, 2001 © Wiley-Liss, Inc.	2001	445-450	"Effect of Diode Laser Irradiation on the Survival Rate of Gingival Fibroblast Cell Cultures"	The present study is part of a basic research program investigating the cellular effects of the GaAIAs-diode laser with a wavelength of 810 nm on human periodontal tissues. The aim of	diode laser	VIT	GB
			Willershausen- Zönnchen B. d' Hoedt B.						periodontology human gingival fibroblasts		
Dd28,B									cell death		
Dd29	Tandvåren	Tunér J.		Tandläkartidningen årg 95 nr 2, 2003	2003		"Terapilaser inom tandvåren -historik och litteratur"	Laserteknik har fört med sig många nya möjligheter inom odontologin, både inom klinik och inom diagnostik. De kirurgiska lasrarna används	odontologin	RE	S
Dd30	Periimplantitis- Behandlung	Bach G.		Laser Journal 3, 2002	2002		"Laserunterstützte Periimplantitis- Behandlung und Weichteilmanagemen t an einem strategisch wichtigen Oberkiefereinzelimpla ntat"	Dank verbesserter Operationstechnik, feinerem chirurgischen Instrumentarium und nicht zuletzt modifizierter Implantatoberflächen sind enorale Implantationen sicher und zu einem Standardtherapeutikum geworden. Frühe Komplikationen, wie sie in der	implant	CLIN	D

Dd31	Weisheitszahnke imen und Weisheitszähnen	Bruntsch B.		Dissertation zur Freien Universität Berlin, 1990	1990		"Untersuchung zum Therapieeffekt von Soft-Laserstrahlen nach operativer Entfernung von Weisheitszahnkeimen und Weisheitszähnen"		dissertation weisheitszahkeim en weisheitszähnen infrarat	CLIN	D
Dd32 Dd32	Present Situation of the Dental World regarding the Use of Laser Therapy	Almeida-Lopes L.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 43-48, 2002 © Monduzzi Editore S.p.A.	2002	43-48	"Present Situation of the Dental World Regarding to the Use of Laser Therapy (Brazil)"	The theme of our presentation is to introduce the current status of the Laser Therapy in Brazil. We' ve split the presentation into three blocks, being that on the first one we define the status of	clinical applications	RE	GB
Dd33,P	Pain Control in Dentistry	Yoshida I.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 117-120, 2002 © Monduzzi Editore S.p.A.	2002	117-120	"Pain Control in Dentistry by LLLT. Focusing on the Application of Oriental Medicine"	How much is use frequency in dentistry of LLLT worldwide? In Japan there was a boom about 15 years ago which has faded little. However, dental surgery still has a painful of needles, bone cutting. making incisions. and	oriental medicine	RE	GB
Dd33,P Dd34 Dd34	Dental Hypersensitivity	Brugnera Jr. A.	Garrini A.E. Pinheiro A. Souza Campos D.H. Donamaria E. Magalhaes F.	Laser Therapy Vol. 12, 16- 21, 2000	2000	16-21	"Laser Therapy in the Treatment of Dental Hypersensitivity -A Histological Study and Clinical Application"	Dentinal hypersensitivity has been studied for several years. It is reported as a strikingly painful condition that originates from the exposure of dentinal tubuli when the thickness of the enamel or cement is significantly reduced. Usually the exposed area is	acupuncture dental hypersensitivity pain diode laser odontoblasts dentine tubuli various	CLIN	GB

ENT1	Innenohrerkrank ungen	Wilden L.	Dindinger D.	WALT, Jerusalem, 1996	1996	1-3	"Therapie von chronisch komplexen Innenohrerkrankunge n mit Low-Level- Lasertherapie"	In den letzten Jahren ist eine deulich Zunahme der Innenohrerkrankungen zu verzeichnen. Das akute klinische Bild der Innenohrerkrankungen besteht aus Druck im Ohr, plötzlichem Hörverlust, Tinnitus	inner ear disease HeNe	CLIN	D
ENT2	Diseases of the inner ear	Wilden L.	Dindinger D.	Laser Therapy 8:209-312, 1996© LT Publishers, U.K., Ltd.	1996	209-312	"Treatment of chronic diseases of the inner ear with low level laser therapy (LLLT): Pilot project"	139 patients who presented in a 22 month period were treated with low-reactive level laser therapy LLLT using combined HeNe and infrared diode lasers (632.8nm, 20mW and 830nm 100mW, respectively) for a	inner ear disease	CLIN	GB
ENT2 ENT3	Hörkapazität	Wilden L.	Ellerbrock D.	1999© Laser Evolution	1999	1	"Verbesserung der	Der Energietransfer erfolgte über	audiometry	CLIN	D
ENT3				GmbH			Hörkapazität durch Low-Level-Laser- Licht"	3 Laserdioden mit einer Wellenlänge von 830nm und 3 Dioden von 635nm via meatus	600-690 nm 800-900 nm tinnitus		
ENT4	Tinnitus	Olivier J.	Plath P.	Laser Therapy, 5:137-139, 1993© John Wiley & Sons, Ltd.	1993	137-139	"Combined low power laser therapy and extracts of Ginkgo Biloba in a blind trial of treatment for tinnitus"	Tinnitus is an annoying and often debilitating condition of neuro- otologic origin but of uncertain aetiology. Many treatment methods have been tried, but to date none has been consistently successful. The present preliminary study presents a	biloba extract ginkgo extract	B	GB
ENT4 ENT5	Hörkapazität	Wilden L.	Ellerbrock D.	Lasermedizin 14: 129-138, 1998/99© Urban & Fischer Verlag	1998/9 9	129-138	"Verbesserung der Hörkapazität durch Low-Level-Laser- Licht"	If LLLL is transmitted to the inner ear in sufficiently high dosages, it is possible to obtain and document medicinically	tinnitus audiometry	CLIN	D
ENT5									inner ear cellular		
ENT6	Responses Evoked in Trigeminal Caudal Neurons	Wakabayashi H.	Hamba M. Matsumoto K.	Lasers in Surgery and Medicine 13:605-610, 1993 © Wiley-Liss, Inc.	1993	605-610	"Effect of Irradiation by Semiconductor Laser on Responses Evoked in Trigeminal Caudal Neurons by Tooth Pulp Stimulation"	The effect of irradiation with a gallium-aluminium-arsenide semiconductor laser on responses evoked in trigeminal subnucleus caudal neurons by tooth pulp stimulation was investigated electrophysiologically in Wistar rats anesthetized with urethane plus aplha-chloralose.The pulp of	A-fiber afferents	VIV	GB

			Tachibana H.						suppressive effect		
ENT6									diode laser semiconductor laser		
ENT7	Tinnitus	Shiomi Y.	Takahashi H. Honjo I.	Auris Nasus Larynx 24, 39- 42, 1997 © Elsevier Science Ireland Ltd.	1997	39-42	"Efficacy of transmeatal low power laser irradiation on tinnitus: a preliminary report"	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	tinnitus transmeatal	CLIN	GB
ENT7			Kojima H. Naito Y. Fuiiki N.						diode laser 40 mW 830 nm		
ENT8	Tinnitus	Olivier J.	Plath P.		1992		"Low-Power-Laser und Ginkgo-Extrakt- Kombinationstherapi e bei Tinnitus des Innenohres"	Seit Ende der 70er Jahre hat sich die Therapie mit Lasern niedriger Energie zunächst zur Behandlung con Wundheilungsstörungen, später in Kombination mit Gabe eines	tinnitus	В	D
ENTO									ginkgo-extract	CLIN	
ENTO									therapy		
ENT9	Allergic Rhinitis	Otsuka H.	Kemmotsu O.	Laser Therapy Vol.4, No.3, 117-120, 1992 © John Wiley & Sons, Ltd.	1992	117-120	"The combination of low reactive-level laser therapy (LLLT) and stellate ganglion block for the treatment of allergic rhinitis"	We have applied unilateral stellate ganglion block and low reactive-level laser therapy on the contralateral stellate ganglion as a treatment for allergic rhinitis. At the early stage of treatment, a remarkable improvement in the patient's condition was recognized. It is	allergic rhinitis	CLIN	GB
			lmai M.					condition was recognized. It is	stellate ganglion		
ENT9			Kaseno S.						semiconductor laser		
ENT 10	Allergic Rhinitis	Takeyoshi S.	Takiyama R.	Laser Therapy Vol.8, No.2, 159-164, 1996 © LT Publishers. Ltd	1996	159-164	"Low reactive-level infrared diode laser irradiation of the area over the stellate ganglion, and stellate ganglion block in treatment of allergic rhinitis: a preliminary comparative study"	In the period of approximately 11 years between 1985 and 1995 64 patients suffering from allergic rhinitis visited the Department of Anesthesia, Matsuyama Red Cross Hospital for treatment. From these 64 patients, 32 clinical cases were studied for the case history, type and severity of the AR, and the efficacy of stellate ganglion block and laser irradiation over the stellate ganglion was evaluated.	allergic rhinitis	CLIN	GB

			Tsuno S.						stellate ganglion block		
ENT 10			Saeki N. Hidaka S. Maekawa T.						infrared diode laser GaAlAs		
ENT11	Tinnitus	Tunér J.	Bjorne A.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 167-176, 2002 © Monduzzi Editore S.p.A.	2002	167-176	"What is the Role of the Laser Dentist in the Treatment of Tinnitus?"		tinnitus		GB
									muscular tension		
ENT11	Ma selected a	Deservised A M					WArran Kanadiana adalara		inner ear		0.0
GI	vaginitis	Passeniouk A.M	MIKNAIIOV V.A.	4166, 2000			Application of the low level laser therapy for the treatment of vaginitis"	Vaginitis is the most common female infectious disease. Female suffering from this disorder are annually increasing in number. There are a lot of	chlorhexidine	CLIN	GB
G1									infrared		
Gm1	Laser-licht	Kramer F.		n&j, 3, 9-12, 1999	1999	9-12	"Laser- lichtfaszinierende elektromagnetische Wellen"	Der Laser ist heute in der modernen Medizin nicht mehr wegzudenken. Ob HLL für die Chirurgie oder der LLL für die sanfte Medizin,	akupunktur		D
Gm1									triggerpunkttechn ik		
Gm2	Lasers in Medizin und Technik	Schindl L.		Gamed, 3, 5-6, 1994	1994	5-6	"Laser. Kurze Übersicht über den Einsatz des Lasers in Medizin und Technik"	Kurze Übersicht über den Einsatz des Lasers in Medizin und Technik von L. Schindl.	übersicht		D
Gm3	Arthus Phenomenon	Schindl L.	Baehr R.V. Krause A. Kern H. Schindl M.	Journal of Clinical Laser Medicine & Surgery, Volume 12, Number 1, 31- 33, 1994© Mary Ann Liebert, Inc.	1994	31-33	"Influence of Low- Incident-Energy Laser Irradiation on the Arthus Phenomenon Induced on the Rabbit' s Cornea: A Controlled Study"	This study investigated the effects of low-power laser irradiation on the rabbit cornea. Making use of the immune reaction common in rabbits, the Arthus phenomenon, we injected all rabbits with complete Freund' s adjuvant containing inactivated myobacterium twice	arthus phenomenon cornea rabbits animal study	VIV	GB
Gm3	Leontheresis	Cabindl	Schindl A.	Legertherenic 10,00,00	1000	20.00	"I coarthouse is wit	Fine neue enfeloreiche	HeNe		<u> </u>
GM4	Lasermerapie	Schingi L.		1988	1988	20-22	Low-Power-Laser"	Behandlungsmethode der Physikalischen Medizin Laser =	lasermerapie		

Gm5	Laser- Bioaktiometrie	Prehn H.		Biomedizinische Technik, Band 32, Heft 4, 80-87, 1987	1987	80-87	"Laser-Bioaktiometrie am Menschen"	The action of a conservative IR laser therapy on the neuromusclular system in man	neuromuscular system clonus suppression	CLIN VIV	D
Gm5									photosensitivity		
Gm6 Gm6	Photobiological basics of Low- Level-Laser- Application	Walter H.	Walter A.	Dtsch. Zschr. Akup. 40,2,37-43, 1997	1997	37-43	"Photobiological basics of Low-Level- Laser-Application"	Austria' s long tradition in complimentary medical methods is one reason, that there exist some medical societies, which	coherence radiation parameters clinical application	CLIN	GB
Gm7	Regulationsthera pie	Bergsmann O.		Laser Symp 1994 Wien 1994	1994	1-7	"Regulationstherapie mit dem LPL"	Mit dem Low Power Laser hat die medizinische Wissenschaft, aber auch r praktizierendde Arzt ein neues hochenergetisches Therapiesystem in der Hand,	regulationstherapi e		D
Gm8, A	Resonanz- und Dämpfungsphän omene	Bergsmann O.		DZA 3, 59-69, 1985	1985	59-69	"Über muskuläre Resonanz- und Dämpfungsphänome ne bei Akupunktur und Lasertherapie"	Investigations using computer- assisted surface myography revealed 3 types of resonance phenomena triggered by laser application, electric fields, and acupuncture with mechanical	surface myography	VIV	D
Gm8, A									acupuncture locomotor system		
Gm9 Gm9	Regulationsthera pie	Bergsmann O.		Publikationen Lasertherapie, www.imf.edu/cont_pub_la ser2.htm, 1999	1999	1-10	"Low-Power-Laser (LPL) und Regulationstherapie"	Die biologischen Grundlagen der Behandlung mit LPL und die mit ihr erziehlbaren Ergebnisse bei der Regulationstherapie eröffnen	regulationstherapi e HeNe		D
Gm10	Mitochondrial energy transfer	Wilden L.	Karthein R.	Journal of Clinical Laser Medicine & Surgery, Volume 16, Number 3, 159- 165, 1998© Mary Ann Liebert, Inc.	1998	159-165	"Import of Radiation Phenomena of Electrons and Therapeutic Low- Level Laser in Regard to the Mitochondrial Energy Transfer"	The authors describe a consistent theoretical model of the cellular energy transfer by taking into consideration the radiation phenomena of electrons and therapeutic low level laser. Biochemical models of the cellular energy transfer regard the classical corpuscular	radiation phenomena cells		GB
Gm10									respiratory chain		
Gm11	Patients' survey	Ellerbrock D.	Wilden L.	Lasermedizin 15:139-142, 2000© Urban & Fischer Verlag	2000	139-142	"Patientenbefragung zur Low-Level-Laser- Therapie (LLLT)"	The encouraging results of the survey confirm the significance of the biostimulative effect of the LLLT already observed in earlier	patients' survey inner ear disease	CLIN	D
Gm11									home laser treatment		

Gm12 Gm12	Zellulären Energietransfer	Wilden L.	Karthein R.	Lasermedizin 15:33-39, 1999/2000© Urban & Fischer Verlag	1999/2 000	33-39	"Zur Wirkung von Low Level Laser Strahlung auf den zellulären Energietransfer"	On the basis of biochemical models, a consistent theoretical model of the mitochondrial cellular energy transfer is described by taking into	mitochondria respiratory chain electron electromagnetic radiation		D
Gm13 Gm13	Akupunktur bei Adipositas	Pöntinen P.J.		AKU 23, 4, 240-244, 1995	1995	240-244	"Akupunktur bei Adipositas, eine wissenschaftlich begründbare Behandlung?"	This review shows possibilities to reduce overweight by acupuncture and related stimulation techniques. The possible peripheral and central mechanisms are discussed as well as the selection of patients with favourable prognosis and	phenomena auricular acupuncture hypertension laseracupuncture obesity TENS	CLIN	D
Gm14, B	Proliferation of Keratinocyte Cultures	Grossman N.	Schneid N. Reuveni H. Halevy S. Lubart R.	Lasers in Surgery and Medicine 22:212-218, 1998 © Wiley-Liss, Inc.	1998	212-218	"780nm Low Power Diode Laser Irradiation Stimulates Proliferation of Keratinocyte Cultures: Involvement of Reactive Oxygen Species"	The purpose of this study was to determine irradiation parameters of a 780 nm low power CW diode laser (6.5 mW) leading to enchanced proliferation of cultured normal human keratinocytes (NHK). The possible role of reactive oxygen species (ROS) in this response was evaluated. NHK were	antioxidants keratinocytes proliferation reactive oxygen species diode laser	VIT	GB
<u>B</u> Gm15, U Gm15,	La Peyronie Disease	Longo L.	Curti C. Mancini St. Postiglione M.	Proceedings of the 13th International Congress Laser 97, 181-185, 1997 © Springer	1997	181-185	"Treatment of La Peyronie Disease with Laser Therapy and Surgery"	Induratio penis plastica or La Peyronie Syndrome is a rheumatic pathology which concerns the fascia penis, shows different clinical pictures and has	la peyronie syndrome surgery HeNe CO2 Nd-YAG	CLIN	GB

Gm16	Variation of Erythrocytic and Leukocytic Indices of Human Blood	Siposan D.G.	Lukacs A.	Journal of Clinical Laser Medicine & Surgery Vol 19, No '', 89-103, 2001 © Mary Ann Liebert, Inc.	2001	89-103	"Relative Variation to Received Dose of Some Erythrocytic and Leukocytic Indices of Human Blood as a Result of Low-Level Laser Radiation: An in Vitro Study"	This study investigated the in vitro effects of low-level laser irradiation on selected rheologic constants of the human blood. The variations of CBC parameters to the received dose were determined, as well as of blood viscosity, as a research method for some structural alternation of blood proteins. This was also confirmed by the	erythrocytic and leukocytic indices human blood HeNe	VIT	GB	
Gm17	Penetration of the Laser Light Into the Skin	Kolárová H.	Ditrichová D. Wagner J.	Lasers in Surgery and Medicine 24:231-235, 1999 © Wiley-Liss, Inc.	1999	231-235	"Penetration of the Laser Light Into the Skin In Vitro"	Knowledge of the optical parameters of the skin is important for all kinds of phototherapy. We analyzed	semiconductor laser HeNe skin	VIT	GB	
Gm17 Gm18 Gm18	Cancer or infection diseases	Ovsiannikov V.A.		International Laser Congress, Athens, Greece, 1996	1996		"Analysis of the low- energy laser treatment of some cancer or infection diseases in clinics"	The results of 5 year investigation of low-energy laser therapy for the treatment of some oncological and infection diseases are presented in this report. In our investigations we use special infrared lasers with a	transmittance cancer infection oncological diseases infrared	CLIN	GB	
Gm19 Gm19	Pulmory diseases	Derbenjev V.A.	Mikhailov V.A. Denisov I.N	Proceedings of SPIE Vol. 4166, 2000	2000	323-325	"The use of the low level laser therapy (LLLT) in the treatment of some pulmory diseases (10- years experience)"	The purpose of the present study was to compare the efficacy of the treatment of some pulmory diseases with or without LLLT. 130 patients (49) of them with acute pneumonia, 42-with chronic bronchitis, 39-with chronic bronchial asthma)	bronchial asthma acute pneumonia chronic bronchitis	CLIN	GB	
Gm20	Blood Pressure	Umeda Y.		Laser Therapy Vol.2 No. 2, 59-63, 1990 © John Wiley & Sons, Ltd.	1990	59-63	"Blood pressure controlled by low reactive level diode laser therapy (LLLT)"	The effects of low reactive level laser therapy with an infrared diode laser on blood pressure, particularly the hypotensive effect were studied. Essential or	essential hypertension laser bioactivation hypertension control infrared	CLIN	GB	

Gm20									diode laser		
Gm21	Mamary	Dima F.V.	Vasiliu V.	Laser Therapy Vol.2, No.4,	1990	153-160	"Response of murine	A murine mammary	photodynamic	VIV	GB
	Adenocarcinoma			153-160, 1990 © John			mammary	adenocarcinome was treated with	therapy		
				Wiley & Sons, Ltd.			adenocarcinoma to	intraperitoneal photofrin II and			
							photodynamic	laser. Photofrin II was given			
							therapy and	intraperitoneally 4 h before 30-			
							immunotherapy"	min laser treatment. A total of six			
			Minallescu I.N.						Immunotherapy		
			Dima V S						nhotofrin II		
			Popa A.						HeNe		
			Stirbet M.						murine mammary		
									adenocarcinome		
									immune response		
Gm21									phytohemagglutin		
000					1001	100 175	11D	In educe of the law and in educ	in 		0.0
Gm22	Immune system	Skobelkin U.K.	MICHAIOV V.A.	Laser Therapy Vol.3, No.4,	1991	109-175	Preoperative	In vitro cellular and in vivo		CLIN	GB
				169-175, 1991 © John Wilov & Sons I td			activation of the	animal studies have pointed to	cal reaction		
				Whey a Sons, Eta.			low reactive level	I ow reactive I evel I aser Therapy			
							laser therapy (LLLT)	on the autoimmune system of			
							in oncologic natients:	immunodeficient cancer-			
							a preliminary report"	inoculated animals, resulting in			
								an increase in the expected life-			
								span of the irradiated animals.			
								Following such studies. the			
			Zakharov S.D.						oncology		
									photoimmunoacti		
									vation effect		
									postoperative		
									complications		
									semiconductor		
									laser		
Gm22									HeNe		
Gm23	Pulmonary	Puri M.M.	Myneedu V.P.	Laser Therapy Vol.7, No.3,	1995	123-128	"Nitrogen and Helium-	The failure of drugs in the	nitrogen laser	CLIN	GB
	Tuberculosis,		-	123-128, 1995 © Laser			Neon laser therapy in	treatment of tuberculosis is very	-		
	Drug-Resistant			Therapy, Ltd.			the treatment of drug-	frustrating for the physician. In			
							resistant pulmonary	recent years scientists in Russia			
							tuberculosis"	have reported on and developed			
								a metjod of endocavitary nitrogen			
								laser irradiation of patients	HaNa		
			Jain R.C.						nulmonary		
									pullional y		
Gm23									intravenous		

Gm24 Gm24	Tuberculosis of the Lymph Nodes	Puri MM.	Singla R. Jaiswal A. Gupta K. Jain RC.	Laser Therapy Vol.9, No.2, 55-58, 1997 © LT Publishers, U.K., Ltd.	1997	55-58	"Case reports on the role of laser therapy in the treatment of tuberculosis of the lymph nodes"	Tuberculosis of the lymph nodes is comparatively prevalent in India, and poses many problems in treatment, prticularly due to the unpredictability of the response of the nodes to	tuberculous lymph nodes HeNe adjunctive laser therapy subcutaneous laser therapy ATT	CLIN	GB
Gm25 Gm25	Arteriosclerosis of the Lower Limbs	El-Kashef H.	Attia M.A.	Laser Therapy Vol.11., No.1, 26-29, 1999	1999	26-29	"Low level laser therapy in the treatment of arteriosclerosis of the lower limbs"	Twenty patients with lower limb arteriosclerosis were treated with a 20 mW continuous wave He-Ne laser and a 250 mW continuous diode laser, simultaneously. The laser light was applied to the	arteriosclerosis arteriosclerosis HeNe diode laser scanner	CLIN	GB
Gm26	Female Infertility	Ohshiro T.	Fujii S. Sasaki K. Yasuda S. Chinn K. Obshiro T.	Laser Therapy Vol.11 No.2, 96-102, 1999	1999	96-102	"Laser Therapy as an adjunct treatment for severe female infertility"	It is well accepted that with lasers, there are two modalities of treatment. One is the use of the photobiodestructive effect, as for example, in laser surgery where high reactive level laser	female infertility childbirth adjunctive therapy HeNe diode laser	CLIN	GB
Gm27 Gm27	Skalarwellemstra hlung	Meyl K.		Co Med 06/01, 55-60, 2001	2001	55-60	"Skalarwellenstrahlun g"	Alle technischen Errungenschaften un Erkentnisse reichen nicht aus, um zu erklären, wie die Biologie und der	skalarwellen	RE	D
Gm28	Prevention of Oral Mucositis	Whelan H.T.	Connelly J.F. Hodgson B.D. Barbeau L. Post A.C. Bullard G.	Journal of Clinical Laser Medicine & Surgery Vol. 20, No. 6, 319-324, 2002 © Mary Ann Liebert, Inc.	2002	319-324	"NASA Light-Emitting Diodes for the Prevention of Oral Mucositis in Pediatric Bone Marrow Transplant Patients"	The purpose of this study was to determine the effects of prophylactic near-infrared light therapy from light-emitting diodes in pediatric bone marrow transplant recipients. Oral mucositis is a frequent side effect of chemotherapy that leads to increased morbidity. Near- infrared light has been shown to	LED oral mucositis bone marrow NASA pediatric	CLIN	GB

Gm28 Gm29, G	Treatment of Episiotomies	Kymplova J.	Buchmann E.V. Kane M. Whelan N.T. Warwick A. <u>Margolis D.</u> Navratil L. Knizek J.	Journal of Clinical Laser Medicine & Surgery Vol. 21, No. 1, 35-39, 2003 © Mary Ann Liebert, Inc.	2003	35-39	"Contribution of Phototherapy to the Treatment of Episiotomies"	The purpose of this study was an objective consideration of possible benefits of phototherapy implemented with therapeutic laser or possibly polarized light in treating epixiotomy, which is the most frequent obstetric	bone marrow transplant biostimulation xerostomia pain chemotherapy episiotomy polarized light monochromatic light various wavelengths magnetic field	CLIN	GB
Gm29, G									magnetic field		
Gm30	Pediatrics	Ailioaie C.	Ailioaie L.M.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 1-6, 2002 © Monduzzi Editore S.p.A.	2002	1-6	"Low Level Laser Therapy as a Medical Treatment Modality in Pediatrics - Educacational Lecture"	Medical education has radically changed in Pediatrics, regarding the implementation of new treatment techniques and devices, which are noninvasive and painless. Low Level Laser Therapy represents a new option, very effective in many children' s	children	RE	GB
Gm30									indications		
Gm31	Diabetes Mellitus	Ramdawon P.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 33-42, 2002 © Monduzzi Editore S.p.A.	2002	33-42	"Bioresonance Information Laser Therapy of Diabetes Mellitus The First Clinical Experience of the Hypoglycemic Effect of Low-level Laser Therapy and Its Perspectives "Treated To Live A Normal Life without Exogenous Insulin Or Hypoglycemic Tablets"	Diabetes Mellitus is an extremely devastating disease that gives many serious complications and its definite cure has not been known since it has ever been nosologically classified. In order to have an idea about its propagation around the world, we find that only in the USA, approximately 16 million people are currently suffering from diabetes mellitus. Of these 16 millions, approximately one million have Type I diabetes, 7 millions are diagnosed with type II diabetes, and 8 millions have type II diabetes but have not yet been diagnosed with the disease.	diabetes mellitus HeNe LED infrared	CLIN	GB
Gm31									various wavelengths		

Gm32 Gm32	Preoperative Care and Early Rehabilitation	Pöntinen P.J.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 75-59, 2002 © Monduzzi Editore S.p.A.	2002	75-79	"LEPT for Preoperative Care and Early Rehabilitation"	Peripheral stimulation (EAP, TENS) markedly decreased peri- and postoperative need of analgesics in our earlier clinical trials. Moreover, the incidence of postoperative nausea and	preoperative rehabilitation peripheral stimulation TENS	RE	GB
Gm33	Antitumor Efficacy	Dima V.F.	lonescu M.D. Balotescu C. Dima St. V.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 127-134, 2002 © Monduzzi Editore S.p.A.	2002	127-134	"Enhancement of Antitumor Efficacy in Rat by Chemoimmunotherap y in Conjunction with Helium-Neon Laser Irradiation and Dihematoporphyrin Esther"	The present study was undertaken to evaluate the therapeutic effects of photodynamic therapy combined with chemoimmunotherapy in animals with ascitic peritoneal spread. Experiments were performed on five batches of Wistar inbred rats with Walker- 256 ascites tumor cells receiving i.p. PDT or Cyclophosphamide or	antitumor chemoimmunothe rapy HeNe dihematoporphyri n esther	VIV	GB
<u>Gm33</u> Gm34	Burns with X-ray Injuries	Khachatryan R.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 141-142, 2002 © Monduzzi Editore S.p.A.	2002	141-142	"LLLT of Burns with the X-ray Injuries with the Usage of Drug on the Basis of Silver (Ag), Obtained with the Help of a Laser Photolysis"		animal study silver x-ray injury HeNe	CLIN	GB
Hp1	Superior Nerve Anastomosis	Ochi M.	Osedo M. Ikuta Y.	Lasers in Surgery and Medicine 17:64-73, 1995 © Wiley-Liss, Inc.	1995	64-73	"Superior Nerve Anastomosis Using a Low-output CO2 Laser on Fibrin Membrane"	To date, no procedure of laser- aided nerve anastomosis has yet proved to be consistently superior to suture nerve repair. This study examines a new method for nerve repair using a	fibrin membrane indirect nerve anastomosis morphological analysis tensile strength	VIV	GB

Hp2	Deep Tissue Stimulation	Galletti G.		Journal of Clinical Laser Medicine & Surgery, 179- 184, June 1991			"Low-Energy Density CO2 Laser as Deep Tissue Stimulator: A Comparative Study"	A series of experiments on 12 pigs to verify the tissue penetrating capacity of a LED CO2 laser have been conducted to confront its effects with those of a infrared diode laser. The tissue target was the external	tissue penetration pigs animal study	VIV	GB
Hp2 Hp3	Healing of	Tsai C-L.	Huang L.L.H.	Lasers in Surgery and	1997	172-178	"Effect of CO2 Laser	A new method to improve	meniscal healing	VIT	GB
	Cultured Meniscus			Medicine 20:172-178, 1997 © Wiley-Liss, Inc.			on Healing of Cultured Meniscus''	cartilage repair is clinically important. The enchancement of meniscal healing by low power			
11-0			Kao M-C.						organ culture rabbits animal study		
<u>нрз</u> Нр4	Defocused CO2	Ben Hatit Y.	Lammens J.P.	Laser Therapy Vol.4, No.4, 175-178, 1992 © John Wiley & Sons, Ltd.	1992	175-178	"Laser Therapy with 10600 nm defocused CO2 laser"	Two hundred cases of acute and chronic articular, muscular and spinal pathologies have been treated with a defocused CO2	chronic and acute pathologies	CLIN	GB
									defocused CO2		
Hp4									CO2		
Hp5	Laser-Tissue Interactions	Greenwell T.J.	Wyman A.	Lasers in Medical Science 8:283-287, 1993 © Bailliere Tindall	1993	283-287	"Potentiation of Laser Tissue Interactions of the 805nm Laser with Indocyanine Green"	A high power 805nm diode laser with advantages of compact size, portability and ease of installation and use has recently been introduced. This unit has comparable laser-tissue	laser-tissue interaction	VIT	GB
			Rogers K.						indocyanine green		
Hp5									non-contact 805 nm		
Hp6	Neurofibromatos is Type 1	Algermissen B.	Müller U.	Med. Laser Appl. 16:265- 274, 2001 © Urban & Fischer Verlag	2001	265-274	"CO2 Laser Treatment of Neurofibromas of Patients with Neurofibromatosis Type 1: Five Years Experience"	The Neurofibromatosis type 1 is an autosomal dominant heritable disorder with high variability of clinical expression. The most common disfigurement of the patients is the development of comlpex plexiforme and thousands of dermal	neurofibroma	CLIN	GB
			Katalinic D.						neurofibromatosi s 1		
Hp6			Berlien H.P.						CO2 M. Recklinghausen' s disease		

Нр7	Behavior of Myofibroblasts	De Freaitas A.C.	Pinheiro A.L.B. De Oliveira M.G. Pedreira Ramalho L.M.	Journal of Clinical Laser Medicine & Surgery Vol. 20, No. 4, 221-225, 2002 © Mary Ann Liebert, Inc.	2002	221-225	"Assessment of the Behavior of Myofibroblasts on Scalpel and CO2 Laser Wounds: An Immunohitochemical Study in Rats"	The aims of this study were to quantitative and statistically assess the presence of myofibroblasts on both conventional and CO2 laser wounds. Wound contraction of both traumatic and surgical origin may reduce or limit the function of the tissue.	myofibroblasts laser wounds rats animal study	VIV	GB
Hp7									CO2		
Hp8	Zahnheilkunde	Bach G.		Laser Journal 3, 2002	2002		"Meister des "schnellen Schnitts""	Gas- oder CO2-Laser, wie sie zumeist genannt werden seit Ende der achtziger Jahre des vergangenen Jahrhunderts erfolgreich in der Zahnheilkunde eingesetzt.	CO2	RE	D
Hp9, S Hp9, S	Muscle Lesions	Conforti M.	Benedini M.	Laser & Tecnology Vol.12 N.1, 2002	2002		"High Power Neodymium Laser Therapy in the Treatment of Muscle Lesions Without Hematomas in Athletes"	In a perspective study, which lasted six months, a sample of 40 athletes with Class I and Class II lesions, was evaluated. The class was confirmed by means of ultrasound screening/C.T inspection, carried out with different equipment, with a 7.5 MHz/38 mm linear probe. In all	Nd-YAG-laser muscle lesions manual Vodder drainage Cyriax	CLIN	GB
Hp10	Super Lizer	Ogawa S.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 71-74, 2002 © Monduzzi Editore S.p.A.	2002	71-74	"Super Lizer: Its Properties and Clinical Usage"	Super Lizer, an instrument for irradiation of liner infra-red ray, has been used in the field of Pain Clinic, orthopedics, dematology and etc. Some clinical data concerning the excellent results	super lizer infrared mixed wave continuous wave	RE	GB
Hp10									1800mW		
M1	Epicondylitis	Forrer D.		Diploma, 1999, 1-29	1999	1-29	"Die Therapie der Epicondylitis lateralis mittels Laserbehandlung"	Diplomarbeit für Endexamen der Akademie Physiotherapie "Thim van der Laan" AG, Epicondylitis	epicondylitis diploma	CLIN	D

									literature review		
M1									tennisellbogen		
M2	Quality of research and literature review,	Chow R.T.	Bjordal J. Bensadoun R-J.	Lasers in medicine and dentistry Vol.10 N.3., 2000	2000	9-17	"Improving the quality of research and literature review of low level laser threapy trials"	Over the last 20 years the use of low level laser therapy has emerged as being of potential benefit in a wide range of medical conditions. Especially well known are the studies in	literature review quality of reviews	RE	GB
M2			Pöntinen P.J.						criteria for trials		
М3	100 positive double blind studies	Tunér J.	Hode L.	Proceedings of SPIE vol 4166, 2000	2000	226-232	"100 positive double blind studies - enough or too little?"	A major argument among the opponents of laser therapy has been the absence of scientific documentation. This was a valid	literature review	RE	GB
Μ4	Methods of Testing for Pain Attenuation in Animal Models	Calderhead R.G.					"Scientifically Objective Methods of Tetsing for Pain Attenuation Following Laser Therapy in Animal Models"	Laser therapy for pain attenuation and wound healing has become increasingly popular in both human and animal patients over the past two decades. Pain attenuation in animal subjects is, however, very difficult to quantify and qualify,	pain attenuation	RE	GB
M4									animal models		
N1, B	Regeneration of the rat facial nerve	Anders J.J.	Borke R.C. Woolery S.K.	Lasers in Surgery and Medicine 13:72-82 (1993), ©Wiley-Liss, Inc.	1993	72-82	"Low Power Laser Irradiation Alters the Rate of Regeneration of the Rat Facial Nerve"	Low power laser irradiation has been reported to cause biological effects due to the photochemical and/or photophysical action of the radiation. This study determined quantitatively if	cobalt-glucose oxidasediaminobe nzidine reaction argon laser biostimulation	VIV	GB
			W.P.						biootimatation		
N1, B	Namianat-	Dellin M	Cohuranter M	Neuroeur Des 47: 7.47	1001	7 47	ll F uidence fourthe	The venezated offerstand form	animal study	01.111	0.5
N2	Nervous system	Belkin M.	ischwartz M.	Neurosur. Hev. 17: 7-17, 1994	1994	7-17	existence for the existence of low- energy laser bioeffects on the nervous system"	energy laser irradiationon the nervous system are manifested in alterations in cellular and extracellular biochemical constituents and reactions. as	iow-enregy laser irradiation neural trauma laser bioeffects	VIT	GB
N2									pain relief		

N3	Incomplete peripheral nerve and brachial plexus injuries	Rochkind S.	Alon M.				"Laser Therapy as a New modality in the Treatment of Incomplete Peripheral Nerve and Brachial Plexus Injuries: Prospective Clinical Double.Blind Placebo- Controlled Randomized Study"	This double-blind clinical study indicates that laser therapy enhances the recovery of patients with incomplete peripheral nerve and brachial plexus injuries. The therapeutic results show an objective progressive improvement in nerve function, leading to a significant functional recovery.	low-enregy laser irradiation	DB	GB
			Drory V. Khaigrekht M.						nerve randomized study	CLIN	
N3			Brantwien T. Nissan M.						peripheral nerve brachial plexus		
N4, B	Ischemic damage in hippocampal slices	Iwase I.	Hori N.	Lasers in Surgery and Medicine 19:465-470 (1996), © Wiley-Liss, Inc.	1996	465-470	"Low Power Laser Irradiation Reduced Ischemic Damage in Hippocampal Slices In Vitro"	Low power laser irradiation has been reported to reduce injury, promote regeneration, and produce analgesia. While the mechanism is unknown, one hypothesis is that light produces	brain slice	VII	GB
			Morioka T. Carpenter D.O.						excitability free radicals		
N4 D									hypoglycemia		
<u>N4, B</u> N5	Sciatic Nerve	Nissan M.	Rochkind S.	Lasers in Surgery and Medicine 6:435-438 (1986), © Alan R. Liss, Inc.	1986	435-438	"HeNe Laser Irradiation Delivered Transcutaneously: Its Effect on the Sciatic Nerve of Rats"	For our study of the effect of low energy laser irradiation (LELI) on living tissue we used HeNe laser on rats. The exponental absorption was reaffirmed in the living tissues overlying the sciatic nerve. An optimal range of	nene HeNe	VIV	GB
			Razon N.						LELI		
N5			Bartal A.						nerve animal studv		
N6	Sciatic Nerve, normal and injured	Rochkind S.	Nissan M.	Acta Neurochir (1986) 83: 125-130	1986	125-130	"Electrophysiological Effect of HeNe Laser on Normal and Injured Sciatic Nerve in the Rat"	The effect of low wnergy CW HeNe laser irradiation on normal and dissected nerves in the rat was examined. The methods are described. Results are compared to the laser effect on other living	HeNe	VIV	GB
			Kazon N.						nerve regeneration		
			Schwartz M.						action potential		

			Bartal A.						sciatic nerve		
									rats		
<u>N6</u> N7	Central nervous system transplantation	Rochkind S.		Lasers in Medical Science 1992, 7:143-151, © Baillière Tindall	1992	143-151	"Central Nervous System Transplantation Benefitted by Low- power Laser Irradiation"	The effect of low-power laser irradiation on mammalian central nervous system (CNS) transplantation is reported. Fetal brain allografts were transplanted into the brain (fornix region) of 20 adult rats and spinal	animal study central nervous system	VIV	GB
N7									HeNe		
N8	Tethered spinal cord	Rochkind S.	Alon M. Ouaknine G.E. Weiss S. Avram J. Razon N. Doron A. Lubart R. Friedmann H.	Laser Therapy, 113- 117, 1991, © John Wiley & Sons, Ltd.	1991	113-117	"Intraoperative Clinical Use of LLLT Following Surgical Treatment of the Tethered Spinal Cord"	Based on our previous experimental investigations which indicated that low-level laser irradiation has a significant therapeutic effect and treatment potential on the injured nerve tissue, we began using this	tethered spinal cord surgical treatment electrophysiologi cal recording intraoperative irradiation HeNe 600-690 nm 7 J/cm2 nerve IIII T	CLIN	GB
N9, BD	Peripheral and Central Nervous System	Rochkind S.	Rousso M. Nissan M. Villarreal M. Barr-Nea L. Rees D.G.	Lasers in Surgery and Medicine 9:174-182 (1989), © Alan R. Liss, Inc.	1989	174-182	"Systemic Effects of Low-Power Laser Irradiation on the Peripheral and Central Nervous System, Cutaneous Wounds, and Burns"	In this paper, we direct attention to the systematic effect of low- power helium-neon laser irradiation on the recovery of the injured peripheral and central nervous system, as well as healing of cutaneous wounds and burns. Laser irradiation on only the right side in bilaterally inflicted cutaneous wounds	rushed sciatic nerve HeNe chromatolysis peripheral nervous system central nervous system cutaneous wounds burne	VIV	GB

N10, O	Regeneration of Crushed Peripheral Nerve	Rochkind S.	Nissan M.	Lasers in Surgery and Medicine 28:216-219, 2001© Wiley-Liss, Inc.	2001	216-219	"Effects of Laser Irradiation on the Spinal Cord for the Regeneration of Crushed Peripheral Nerve in Rats"	The purpose of the present study was to examine the recovery of the crushed sciatic nerve of rats after low-power laser irradiation applied to the corresponding segments of the spinal cord. After a crush injury to the sciatic	peripheral nerve injury	VIV	GB
			Shamir M.						compound		
			Salame K.						potentials spinal cord irradiation		
N10, O	Percention of	Shamir M H	Poolskind S	Journal of Pasanatruativa	2001	122 120	"Double Blind	This double blind rendemized	animal study	DB	CP
NII	Regeneration of the Rat Transected Sciatic Nerve	Snamir M.H.	Rochking S.	Microsurgery, Vol 17. No 2, 2001 © Thieme Medical Publishers, Inc.	2001	133-138	Randomized Study Evaluating Regeneration of the Rat Transected Sciatic Nerve after Suturing and Postoperative Low- Power Laser Treatment"	study evaluated the therapeutic effect of low power laser irradiation on peripheral nerve regeneration, after complete transection and direct anastomosis of the rat sciatic nerve. After this procedure, 13 of 24 rats received postoperative LPLI, with a wavelength of 780 nm laser, applied	suturing	DB	GB
			Sandbank J. Alon M.						postoperative sciatic nerve	viv	
<u>N11</u> N12	Migraine	Boetius- Thomsen A.	Niederberger U. Kropp P.	AKU 29, 4, 2001, 223-231	2001	223-231	"Modulation des peripheren Serotoninspiegels durch Laserakupunktur"	The mechanism of action of acupuncture in migraine has not been subjected to extensive research. Though it is known that the neurotrasnmitter. Serotonine, is involved in migraines, there	acupuncture headache	DB	D
N12			Weinschütz T. Bruhn H.D.						migraine plasma-serotonin		
N13	Peripheral and central nervous system	Rochkind S.	Ouaknine G.E.	Neuro Nr36/91: mlr23-10- 91:mr-387	1991	1-10	"New trend in neuroscience: Low- power laser effect on peripheral and central nervous system"	The present review summarizes findings in our continuing study of the use of low-power laser irradiation in the treatment of severly injured peripheral and central nervous systems. The radiation method was proposed	peripheral nerve and spinal cord injury spinal cord and brain transplantation tethered spinal	RE	GB
N13									cord peripheral nerve spinal cord		

N14	Facial paralysis	Brugnera A. Jr.	Ladalardo G.P.	Lasers in Dentistry VI, SPIE Vol. 3910, 2000	2000	68-74	"Low-reactive level laser treatment in facial paralysis"	This study was carried out with a 41-year-old female patient with facial paralysis as a consequence of facial nerve injury during neurosurgery. Low-reactive level laser treatment with a diode laser	facial paralysis	CLIN	GB
			Bologna E.D.						peripheral nerve regeneration		
N14			Garrini A.E.C. Pinheiro A. Campos R.						nerve injury diode laser neurosurgery		
N15	Peripheral and central nervous system	Rochkind S.		Laser & Technology, Vol.1, No.1, 1991© Wichtig Editore	1991	5-10	"New approach for treatment of the peripheral and central nervous sytem by low- power laser irradiation"	The present review summarizes findings in our continuing study of the use of different wavelengths of laser irradiation in the treatment of severly injured peripheral and central nervous systems. The radiation method	peripheral and central nervous system injury regeneration	RE	GB
N16	Human median nerve	Noble J.G.	Lowe A.S. Baxter G.D	Journal of Clinical Laser Medicine & Surgery Vol 19 No 6, 2001 © Mary Ann Liebert, Inc.	2001	291-295	"Monochromatic Infrared Irradiation (890nm): Effect of a Multisource Array upon Conduction in the Human Median Nerve"	Antidromic conduction studies in the human median nerve were used to assess the neurophysiological effects of irradiation of the skin overlying the nerve using a novel treatment unit comprising a multisource monochromatic infrared diode array. Healthy human volunteers	infrared multisource array	В	GB
<u>N16</u> N17,Rr	Tarsal Tunnel Syndrome	Young Jin K.	In Hyung Y	Laser Therapy Vol.4, No.2, 87-89, 1992 © John Wiley & Sons, Ltd.	1992	87-89	"Case report of a tarsal tunnel syndrome treated with low level laser therapy"	At present there is only a little knowledge about the stimulation of nerve regeneration. Recently low level laser therapy has been reported as one of the best tools	median nerve nerve regeneration nerve lesions infrared	CLIN	GB
N18	Facial Paralysis	Bernal G.		Laser Therapy Vol.5, No.2, 79-87, 1993 © John Wiley & Sons, Ltd.	1993	79-87	"Helium neon and diode laser therapy is an effective adjunctive therapy for facial paralysis"	This tsudy presents our six-year experience in laser therapy for rehabilitation of facial paralysis. Mixed laser irradiation using a 904 nm diode GaAs and 632.8 was utilized. Laser irradiation was performed on the range of	facial paralysis trigeminal nerve Bell' s palsy HeNe	CLIN	GB
N18									diode laser	1	
N19 N19	Mental and Lingual Nerves	Midamba E.D.	Haanaes H.R.	Laser Therapy Vol.5, No.2, 89-94, 1993 © John Wiley & Sons, Ltd.	1993	89-94	"Effect of low level laser therapy (LLLT) on inferior alveolar, mental and lingual nerves after traumatic injury in 15 patients. A pilot study"	The therapeutic effect of LLLT on the inferior alveolar, mental and lingual nerves was observed in a group of 15 patients with hort and long-term neurosensory impairment. In six subjects with clinical symptoms of less than 1 year' s duration, improvement of sensitivity increased from 0 to between 40 and 100% as	peripheral nerve injury mental and lingual nerves diode laser infrared	CLIN	GB
------------	------------------------------	--------------	--------------------------	--	------	---------	---	---	---	------	----
N20	Peripheral Nerve	Midamba E.D.	Haanaes H.R.	Laser Therapy 5; 125-129,	1993	125-129	"Low reactive-level	Forty patients with short and	perioral nerve	CLIN	GB
	Regeneration			1993 © John Wiley & Sons,			830 nm GaAlAs diode	long-term neurosensory	injury		
				Liu.			successfully	nerve injuries are presented in			
							accelerates	this study. Assessment of their			
							regeneration of	sensory level was undertaken			
							human"	one of them was a visual analog			
								scale for registration of			
									neural		
									peripheral nerve		
N20									GaAlAs diode laser		
N21	Facial Palsy	Murakami F.	Kemmotsu O.	Laser Therapy 5; 131-135,	1993	131-135	"Diode low reactive	In 52 patients who presented	idiopathic facial	CLIN	GB
				1993 © John Wiley & Sons,			level laser therapy	with peripheral facial paralysis,	palsy		
				Ltd.			and stellate ganglion	26 received stellate ganglion			
							the treatment of facial	infrared diode laser low reactive			
							palsy''	level laser therapy, and 15			
								received a combination of both of			
			Kawano Y. Matsumura C						diode laser Bell' s palsy		
			Kaseno S.						stellate ganglion		
									block		
N21			Imai M.						infrared		
N22	Cerebral Palsy	Asagai Y.	Kanai H.	Laser Therapy, Vol.6, No.4,	1994	195-202	"Application of low	In rehabilitative training and	cerebral palsy	CLIN	GB
				195-202, 1994 © Laser			reactive-level laser	treatment of patients with			
				inerapy, Liu.			functional training of	maintenance of good muscle			
							cerebral palsy	tonicity and suppression of tonic			
							patients"	muscle spasm is crucial.			
								nowever, an effective method			
			Miura Y.						relaxation of		
			Ohshiro T.						muscle spasm rehabilitation		

									functional training		
N22									infrared		
N23	Sympathetic Reflex Dystrophy Syndrome	Giavelli S.	Hartman E. Pisani L. Castronuovo G. Spinoglio L. Zingone A. Fava A.	Laser Therapy Vol.8, No.3, 191-196, 1996 © LT Publishers. Ltd.	1996	191-196	"Efficacy of low level laser therapy for sympathetic reflex dystrophy syndrome in geriatric patients"	Sympathetic reflex dystrophy is a frequent occurrence in geriatric hemiplegic patients, but the pathogenic factors of the disease are not yet clearly defined and are still a matter of debate. Many different diseases may produce SRD; this may frequently occur in	hemiplegia defocused CO2 HeNe rehabilitation sweeping	CLIN	GB
N24,P	Neurogenic Facial Pain	Eckerdal A.	Bastian H.L.	Laser Therapy Vol.8, No.4, 247-252, 1996 © LT Publishers. Ltd.	1996	247-252	"Can low reactive- level laser therapy be used in the treatment of neurogenic facial pain? A double blind, placebo controlled investigation of patients with trigeminal neuralgia"	Neurogenic facial pain has been one of the more difficult conditions to treat, but the introduction of laser therapy now permits a residual group of patients hitherto intreatable to achieve a life free from or with less pain. The present investigation was designed as a double-blind, placebo controlled study to determine whether low reactive-level laser therapy is effective for the treatment of	short and long term results GaAIAs	RCT	GB
N25	Phrenic Nerve Activity	Kohelet D.	Rochkind S. Arbel E. Ouaknine GE.	Laser Therapy Vol.10, No.2, 71-72, 1998 © LT Publishers, U.K., Ltd.	1998	71-72	"Restoration of phrenic nerve activity in a pre-term newborn using laser therapy"	A girl delivered at 29 weeks gestation developed a left-sided pneumothorax which required chest drainage. Electrophysiological studies showed ipsilateral phrenic nerve	phrenic nerve palsy pre-term infant tension oneumothorax HeNe	CLIN	GB
N25									diaphragmatic eventration		

N26	Facial Motor Nuclei	Snyder S.K.	Byrnes K.R. Borke R.C. Sanchez A. Anders J.J.	Lasers in Surgery and Medicine 31:216-222, 2002 © Wiley-Liss, Inc.	2002	216-222	"Quantitation of Calcitonin Gene- Related Peptide mRNA and Neuronal Cell Death in Facial Motor Nuclei Following Axotomy and 633 nm Low Power Laser Treatment"	A persistent increase in calcitonin gene-related peptide immunoreactivity in motoneurons may serve as an indicator for regeneration after peripheral nerve injury. We examined the effects of low power laser treatment on axotomy-induced changes in alpha-CGRP mRNA and long- term neuronal survival in facial	633 nm biostimulation CGRP facial nerve transection PCR quantitation mRNA red light rats animal study HeNe	VIV	GB
N27	Different Areas of Neurology	lvanov G.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 89-96, 2002 © Monduzzi Editore S.p.A.	2002	89-96	"Laser Stimulation on Marginal for the Medicine Cases in Different Areas of Neurology"	Cases-groups. Group 1: Functional disconnections of the spinal cord -4 cases. Group 2: Traumas of the brain -2 cases. Group 3: Post-insult conditions - 5 cases of ischemia and cortex	various wavelengths	CLIN	GB
01	Femoral shaft fracture	Abe T.		Laser Therapy 175-178, 1990, © John Wiley & Sons, Ltd.	1990	175-178	"Diode Laser LLLT- Enhanced Bone Fusion of Femoral Shaft Fracture Complicated By Chronic Osteomyelities: A Case Report"	Low reactive-Level Laser Therapy (LLLT) has been reported in the literature as enhancing bone generation and bone fusion in experimental animal models. This paper presents the application of LLLT for treatment of a fracture in an older patient with added complication of	laser bioactivation 800-900 nm	CLIN	GB
OR2	Arthritis, rheumatoid	Barberis G.	Gamron S. Acevedo G. Cadile I. Juri H. Campana V.	Journal of Clinical Laser Medicine & Surgery, Volume 14, Numer 4, 175- 177, 1996, ©Mary Ann Liebert, Inc.	1996	175-177	"In Vitro Synthesis of Prostaglandin E2 by Synovial Tissue after Helium-neon Laser Radiation in Rheumatoid Arthritis"	This paper reports the effect of helium-neon laser radiation (power of 5 mW and 632.8 nm wavelength) on the synthesis of PGE2 in vitro in synovial tissue of biopsy samples of knee joints in patients with chronic rheumatoid arthritis stages II or III. Twelve patients were studied.	rheumatoid arthritis HeNe arthritis synovial tissue 600-690 nm	VIT	GB

OR2			Castel A. Onetti C.M. Palma J.A.						8 J/cm2 pain relief synthesis of prostaglandin		
O3, M,D	Musculoskeletal and skin disorders	Beckerman H.	de Bie R.A. Bouter L.M. de Cuyper H.J. Oostendrop R.AB.	Physical Therapy/Volume 72. Number 7, 1992	1992	13-21	"The Efficacy of Laser Therapy for Musculoskeletal and Skin Disorders: A Criteria-Based Meta- analysis of Randomized Clinical Trials"	The efficacy of laser therapy for musculoskeletal and skin disorders has been asessed on the basis of the results of 36 randomized clinical trials (RCTs) invloving 1704 patients. For this purpose, a crtiteria-based meta- analysis thet took into account the methodological quality of the individual trials was used. The	laser therapy meta-analysis physical therapy review	CLIN	GB
O3, M,D									skin disorders		
04, A	Schultertrauma	Bringmann W.		Originalia DZA 4/1998	1998	109-120	"Lasertherapie beim chronischen Schultertrauma"	Bereits Anfang der 70er Jahre begann Jnyushin den Softlaser anstelle von Nadeln in der Akupunktur zu verwenden. In den vergangenen drei Jahrzehnten	lasertherapie schultertrauma 700 800 pm	CLIN	D
05, B	Gastrocnemius muscle	Bibikova A.	Belkin V. Oron U.	Anat Embryol (1994) 190:597-602, © Springer- Verlag	1994	597-602	"Enhancement of angiogenesis in regenerating gatrocnemius muscle of the toad (Bufo viridis) by low-energy laser irradiation"	The effect of low-energy laser (HeNe) irradiation on the process of neoformation of blood capillaries during regeneration in the toad (Bufo viridis) gastrocnemius muscle was studied using histomorphometric methods. The injured zones of the experimental toads were	regeneration 600-690 nm	VIV	GB
06	Lombalgia Lumbago	Cazzola M.	Castronuovo G. Giavelli S. Hartmann E. Pisani L.	Laser & Technology, Vol. 1 n. 3, 1991, 109-118, ©Wichtig Editore	1991	109-118	"I laser a HeNe e a GaAs nel trattamento della lombalgia del paziente anziano"	The last years have seen an increasing use of low-power laser for musculoskeletal pain in eldery people. Since the interactive mechanism of electromagnetic radiation for the	laser therapy HeNe GaAs Jumbago	CLIN	Ι
<u>06</u> 07	Shoulder tendonitis	England S.	Fava G. Farrell A.J.	Scand J Rheumatology 18: 427-431, 1989	1989	427-431	"Low Power Laser Therapy of Shoulder Tendonitis"	30 patients with supraspinatus or bicipital tendonitis were randomly allocated to active infrared laser therapy at 904 nm	LLLT laser therapy	CLIN	GB

07			Coppock J.S. Struthers G. Bacon P.A.						shoulder tendonitis infrared >900 nm	В	
OR8 OR8	Therapieresisten ter insertionstendin opathien	Gärtner Ch.		Arthritis + Rheuma 8:27-33 (1986), © Verlag EBM GmbH	1986	27-33	"Behandlung therapieresistenter Insertionstendinopath ien mit Infrarot-Laser"	55 Patienten mit bislang erfolglos behandelten Insertionstendinopathien wurden mit Infrarot-Laser behandelt. Die Aufnahmekriterien waren erfüllt, wenn die Beschwerden	space mid-laser infrarotlaser epicondylitis	CLIN	D
OR9	Rheumatology	Gärtner Ch.		Laser Therapy, 1992; 4: 107-115, © John Wiley & Sons, Ltd.	1992	107-115	"Low Reactive-Level Laser Therapy (LLLT) In Rheumatology: A Review of the Clinical Experience In the Author' s Laboratory"	Advances in the application of low reactive-level laser therapy (LLLT) in the treatment of rheumatologic disease entities are presented from the author's experience in a major rheumatology centre in Cologne, Germany. The literature is reviewed, showing clear	Intractable tendinopathies	CLIN	GB
<u>OR9</u> 010	Osteoarticular diseases	Giavelli S.	Fava G. Galanti A. Hartmann E. Pisani L. Castronuovo G. Spinoglio L.	Laser & technology Vol.5 n.3, 1995, 101-108	1995	101-108	"Low level laser therapy in osteoarticular diseases of geriatric patients"	Laser therapy in the treatment protocol of rehabilitation may include several clinical and technical fators peculiar to geriatric patients. Since it may be that the efficacy of laser	NSAIDs osteoarticular diseases laser therapy elderly people LLLT HeNe CO2 GaAs	CLIN	GB
011	Bone fractures	Glinkowski W.	Rowinski J.	Laser Therapy, 1995; 7: 67- 70, © Laser Therapy, Ltd.	1995	67-70	"Effect of low incident levels of infrared laser energy on the healing of experimental bone fractures"	Adult male BALB/C mice were used to investigate the influence of low level diode laser therapy on tibial fracture healing. Quantifiable and reproducible bone fractures were produced following the method of Borque	laser bioactivation animal study	VIV	GB
OR12	Rheumatoid Arthritis	Goldman J.A.	Chiapella J. Casey H. Bass N. Graham J.	Surgery and Medicine 1:93- 100 (1980), © Alan R. Liss, Inc.	1980	93-100	"Laser Therapy of Rheumatoid Arthritis"	Thirty people with classical or definite rheumatoid arthritis received laser exposure to a Q- switch neodymium laser that	rheumatoid arthritis polyarthritis connective tissue disease immunologic disease	CLIN DB	GB

OR12			McClatchey W.						neodymium laser		
OR13	Gonarthrose	Götte S.	Keyl W. Wirzbach E.	Jatros Orthopädie 10 (1995) 12, 30-34	1995	30-34	"Doppelblindstudie zur Überprüfung der Wirksamkeit und Verträglichkeit einer niederenergetischen Lasertherapie bei Patienten mit aktivierter Gonarthrose"	Die niederenergetische Lasertherapie ist in den letzten Jahren in Deutschland sehr kontrovers diskutiert worden, obwohl einige positive Berichte zu dieser Therapie aus dem In- und Ausland vorliegen. Die positive ergebnisse einer von mir im Jahr 1990 durchgeführen retrospketiven Studie an 760 Patienten konnten jetzt durch die Doppelblindstudie bei aktivierter	lasertherapie gonarthrose	DB	D
OR13									infrarotlaser		
OR14	Skelett- und Bindegewebesys tems	Götte S.		Orthopädie/Traumatologie 5 (1990) 8, 5-6	1995	5-6	"Degenerative und entzündliche Erkrankungen des Skelett- und Bindegewebesystems , Lasetherapie - Reizwort mit magischer Wirkung"	Lasertherapie ist ein Reizwort, bei dem über ausgeprägte Plazebowirkungen berichtet wird und das euphorische erfolgsberichte hervorrufen kann. Wie steht es nun mit Beweisen der therapeutischenWirksamkeit? Handelt es sich noch immer um ein weites Experimentierfeld oder	interview	CLIN	D
OR14		0						.	lasertherapie		_
OR15	MID- Lasertherapie	Gotte S.	Wirzbach E.	Orthopadie/Traumatologie/ Sportzmedizin 7 (1992) 5, 31-32	1992	31-32	"MID-Lasertherapie in der Orthopädie - eine retrospektive Betrachtung der Therapieeffizienz"	Bekanntlicherweise wurde die biostimulatorische Lasertherapie im Rahmen der EBM-Reform von 1988 als Kassenleistung gestrichen. Der Entscheidung zugrunde gelegt wurden zwei Doppelblindstudien aus der Orthopädischen Klinik und der	orthopadie lasertherapie	CLIN	D
016	Epicondylitis and rotatorcuff syndrome	Gudmundsen J.	Vikne J.	Norsk Tidskrift for Idrettsmedisin 1987;2:6	1987	1-6	"Laser Treatment of Epicondylitis Lateralis Humeri and Rotatorcuff Syndrome"	Laser has during the recent years become increasingly popular as a treatment for muscular and skeletal lesions. The lasers in use are Gallium-Arsenide laser	epicondylitis	DB	GB
016									>900 nm	00	
OR17	Rheumatischer Krankheiten	Krohn- Grimberghe B.	Lonauer G.	Rheuma 2/1986, 18-24	1986	18-24	"Erfahrungen bei der Behandlung rhaumatischer Krankheiten mit der MID-Laser-Infrarot- Therapie"	Die vorliegende retrospektive Studie untersucht die Wirkung der MID-Laser-Infrarot-Therapie bei rheumatischen Krankheiten. Das Krankengut umfasst 713 Patienten mit folgende Diagnosen: chronische Polyarthritis, Coxarthrose,	MID-lasertherapie	CLIN	D

OR17									infrarotlaser dupuytren syndrome		
OR18, A OR18,A	Rheumatoider arthritis	Matulis A.A.	Vasilenkojtis V.V. Rajstenskij I.L. Cheremnykh- Alekssenko E.N. Gajgalene B.A.	Rheuma 2/1985	1985	1-6	"Lasertherapie und - punktur bei rheumatoider Arthritis, deformierender Osteoarthrose und Psoriasis- Arthropathie"	External laser treatment of the joints with coherent, monochromatic red light with a strength of 12mWt and a wavelength of 632.8 nm induces an anti-inflammatory, analgesic effect and leads to a normalization of the permeability	osteoarthritis lasertherapie psoriasis- arthropathie 600-690 nm analgesia	CLIN	D
019	Tendinitis	Meier J.L.	Kerkour K.	Médecine et Hygiène 16, 907-911, 1988	1988	907-911	"Traitement laser de la tendinite"	From a survey, with double blind control, of 58 cases of patellar tendinitis and 52 cases of	tendinitis	DB	F
019	Tendinite								HeNe	CLIN	
013 020,P	Lumbago	Ohshiro T.	Shirono Y.	Laser Therapy, 1992; 4:	1992	121-126	"Retroactive Study in	From 1983, out of 4500 pain	herniated disc	CLIN	GB
				121-126, © John Wiley & Sons, Ltd.			524 Patients on the Application of the 830 nm GaAIAs Diode Laser in Low Reactive-Level Laser Therapy (LLLT) for Lumbago"	patients treated at Ohshiro clinic, 1500 has lumbago-related disease entities. From 1987 until the present, a period of 61 monhts, 524 patients with a variety of lumbar diseases received low reactive-level laser therapy, LLLT, using the GaAIAs diode laser (830 nm, 60 mW, continous wave). There were 364			
020, P	Pain attonuation	Toya S	Motogi M	Lacor Thorapy, 1004: 6:	100/	1/2-1/9	"Poport on a	The officiency of infrared diade	800-900 nm	ΠP	GR
U21, P		10ya 3.	Inomata K. Ohshiro T. Maeda T.	143-148 © Laser Therapy, Ltd.	1394	140	Computer- randomized Double Blind Clinical Trial to Determine the Effectiveness of the GaAlAs (830 nm) Diode Laser for Pain Attenuation in Selected Pain Groups''	low reactive-level laser therapy has been reported in a variety of pain complaints. In order to ascertain if LLLT is particularly effective in a given pain group, 115 informed and consenting patients in two institutions were assigned to groups according to the aetiology of their pain condition. Each patients name was placed against a number, and a randomization computer	cervical pain lumbar pain joint pain	CLIN	GD

O21, P									pain attenuation		
022, S 022, S	Tennisellbogen	Palmieri B.				2-5	"Eine Doppel-Blind- Studie, gesichert über Kreuz, an unter Tennisarm" leidenden Amateur-Tennis- Spielern unter Anwendung von Infrarot-Laser- Therapie"	Die therapeutischen Effekte der I.R. Laser-therapie verglichen mit einer "Placebos"- Scheinanwendung (Laser ausgeschaltet) wurden in Doppel- Blind-Cross-over Tests an 30 (15+15) an "Tennisarm" leidenden Patienten untersucht. Die Laser-therapie zeigte rasche Genesung an. Die wohltuenden Wirkungen waren anhaltend und	infrarotlaser lasertherapie tennisellbogen	DB	D
023, PA	Schmerzzuständ en am Bewegungssapp arat	Rossetto M.		Medizinzeitung Nr. 7/Sommerausgabe 97, 1-3	1997	1-3	"Low-Level-Laser- Therapie bei Schmerzzuständen am Bewegungsapparat"	Im Früjahr 1995 haben wir unser Therapieangebot durch die Anschaffung eines Low-Level- Laser_gerätes (Med 2000 der Firma Lasotronic AG, Zug) erweitert. Aufgrund fehlender praktischer Erfahrungen mit	schmerz LLLT epicondylitis	CLIN	D
023, PA									arthritis		
O24, PA O24, PA	Trigger Points Technique	Simunovic Z.		Journal of Clinical Laser Medicine & Surgery, Volume 14, number 4, 163- 167, 1996 © Mary Ann Liebert, Inc.	1996	163-167	"Low Level Laser Therapy with Trigger Points Technique: A Clinical Study on 243 Patients"	Among the various methods of application techniques in low level laser therapy (HeNe 632.8nm visible red or infrared 820-830nm continous wave and 904nm pulsed emission) there	LLLT HeNe trigger point chronic pain	CLIN	GB
025, PA	Epicondylitis, Medial and Lateral	Simunovic Z.	Trobonjaca T. Trobonjaca Z.	Journal of Clinical Laser Medicine & Surgery, Volume 16, Number 3, 145- 151, 1998 © Mary Ann Liebert, Inc.	1998	145-151	"Treatment of Medial and Lateral Epicondylitis-Tennis and Golfer' s Elbow- with Low Level LAser Therapy: A Multicenter Double Blind, Placebo- Controlled Clinical Study on 324 Patients"	Among the other treatment modalities of medial and lateral epicondylitis, low level laser therapy has been promoted as a highly successful method. The aim of this clinical study was to assess the efficacy of LLLT using trigger points (TPs) and scanner application techniques under placebo-controlled conditions. The current clinical study was completed at two Laser Centers as a double-blind, plecebo controlled, crossover clinical study. The patient population.	epicondylitis trigger point	CLIN	GB

O25, PA									infrared GaAlAs HeNe		
O26, P O26, P	Erfahrungen aus der Praxis, Laser- Therapie	Anderes B.	Daniel M. Forster B. Kälin R. Kramer F. Nyffeler T. Rodes W. Weber M.	Physiotherapie 1996, 1-4	1996	1-4	"Laser-Therapie: Erfahrungen aus der Praxis"	Auf der Suche nach Antworten auf die Frage "Wo steht die Low- reactive Level Laser-Therapie LLLT heute?" haben wir sieben Physiotherapien gebeten, uns	physikalische therapie frakturheilung akupunktur triggerpunkte neuraltherapie wundheilung	CLIN	D
027	Bone fracture consolidation	Trelles M.A	Mayayo E	Lasers in Surgery and Medicine 7:36-45, 1987© Alan R. Liss, Inc.	1987	36-45	"Bone Fracture Consolidates Faster With Low-Power Laser"	Low-power laser radiation is currently used in the treatment of pain and osteoarticular inflammation. However, the	osseous regeneration 600-690 nm	VIV	GB
O28, N	Spastic paraparesis	Walker J.B.		Brain Research, 340, 109- 113, 1985 © Elsevier Science Publishers B.V.	1985	109-113	"Temporary Suppression of Clonus in Humans by Brief Photostimulation"	In this double-blind study, 21 subjects with spastic paraparesis due to chronic spinal cord injury received irradiation to the skin overlying the radial, median and saphenous nerves with a helium-	spinal cord injury clonus	DB	GB
<u>O28, N</u> O29 O29	Muscle regeneration in the Gastrocnemius Muscle	Bibikova A.	Oron U.	Lasers in Surgery and Medicine 14:355-361, 1994 © Wiley-Liss, Inc.	1994	355-361	"Attenuation of the Process of Muscle Regeneration in the Toad Gastrocnemius Muscle by Low Energy Laser Irradiation"	The effect of number, frequency and timing of HeNe and GaAs- diode laser irradiations on the process of muscle regeneration at 14 days following cold injury to the toad gastrocnemius muscle was investigated using histomorphometric methods. The volume fraction of monoucleated	HeNe skeletal muscle GaAs	VIV	GB
030	Muscle regeneration	Bibikova A.	Weiss N.	Laser Bologna 92, 87-91, 1992© Monduzzi Editore S.p.A.	1992	87-91	"Enchancement of skeletal muscle regeneration following injury in the toad and rat by He-Ne and Ga-As-diode laser irradiation"	The effect of low-energy laser and GaAs-diode irradiation on the process of skeletal muscle regeneration after cold injury to the gasrocnemius muscle of the toad and partial excision to the same muscle in the rat was studied using quantitative histological and morphometric	skeletal muscle	VIV	GB
O30									regeneration GaAs		

O31	Bone repair	Barushka O.	Yaakobi T. Oron U.	Bone, Vol. 16, No.1, 47-55, 1995© Elsevier Science Inc.	1995	47-55	"Effect of Low-Energy Laser (He-Ne) Irradiation on the Process of Bone Repair in the Rat Tibia"	The effect of low-energy laser irradiation on bone repair in tibia of the rat after hole injury was investigated using biochemical and quantitative histomorphometrical methods.	histomorphometr y HeNe rats	VIV	GΒ
									animal study bone		
O31									repair		
032	Bone repair	Yaakobi T.	Maltz L.	Calcif Tissue Int 59:297- 300, 1996© Springer- Verlag New York Inc.	1996	297-300	"Promotion of Bone Repair in the Cortical Bone of the Tibia in Rats by Low Energy Laser (He-Ne) Irradiation"	The effect of low energy laser irradiation on bone repair in the cortical part of the tibia of the rat was investigated using biochemical and radioactive labeling methods. A fixed round hole was created in the lateral	HeNe	VIV	GB
032			Oron U.						rais		
033	Muscle regeneration	Weiss N.	Oron U.	Anat Embryol 186:497-503, 1992© Springer-Verlag	1992	497-503	"Enhancement of muscle regeneration in the rat gastrocnemius muscle by low energy laser irradiation"	The effect of low-energy laser irradiation on the rate of skeletal muscle regeneration after partial excision of the rat gastrocnemius muscle was studied using quantitative histological morphometric methods.The injured zones of the experimental	skeletal muscle	VIV	GB
O33								··· ,-···· -····· ··· -·· ,-·····	HeNe		
034	Skeletal muscles	Weiss N.	Bibikova A. Keysari A. Oron U.	Lasers in Medical Science 9:167-171, 1994© W.B.Saunders Company Ltd.	1994	167-171	"Expression of Desmin in Normal and Laser (HeNe) Irradiated Regenerating Skeletal Muscles in the Toad (Bufo viridis) and the White Rat"	The expression of desmin was investigated using immunohistochemical methods in normal and low-energy laser irradiated regenerating rat and toad gastrocnemius muscles following partial excision in the former and cold injury in the latter. During the initial stages of	rats toads	VIV	GB
034									HeNe		
035	Cell proliferation and differentiation	Ben-Dov N.	Shefer G. Irinitchev A. Wernig A. Halevy O.	Biochimica et Biophysica Acta 1448, 372-380, 1999© Elsevier Science B.V.	1999	372-380	"Low-energy laser iradiation affects satellite cell proliferation and differentiation in vitro"	Low-energy laser irradiation was found to promote skeletal muscle regeneration in vivo. In this study, its effect on the proliferation and differentiation of satellite cells in vito was evaluated. Primary rat satellite	satellite cell proliferation differentiation cyclin cell cycle	VIT	GΒ

O35									HeNe		
O36	Scar tissue, Myocardial Infarction	Oron U.	Yaakobi T.	Circulation, 103:296-301, 2001, American Heart Association, Inc.	2001	296-301	"Low-Energy Laser Irradiation Reduces Formation of Scar Tissue After Myocardial Infarction in Rats and Dogs"	Low-energy laser irradiation has been found to attenuate various biological processes in tissue culture and experimental animal models. The aim of the present study was to investigate the effect of LELI in the formation of scar tissue in experimentally	myocardial infarction	VIV	GB
			Mordechovitz D.						antioxidants		
			Shofti R. Hayman G. Dror U. Gepstein L.						rats dogs animal study LELI		
			Wolf T. Haudenschild C.						scar tissue infrared		
O36			Ben Haim S.						800-900 nm		
037	Infarct size	Oron U.	Yaakobi T.	Lasers in Surgery and Medicine 18:204-211, 2001© Wiley-Liss, Inc.	2001	204-211	"Attenuation of Infarct Size in Rats and Dogs After Myocardial Infarction by Low-Energy Laser Irradiation"	The aim of the present study was to investigate the possibility that low-energy laser irradiation attenuates infarct size formation after induction of chronic myocardial infarction in small and large experimental animals.	infarct size	VIV	GB
037			Oron A. Hayman G. Gepstein L. Rubin O. Wolf T. Ben Haim S.						heart reduction rats dogs animal study myocardial infarction infrared		
O38, B	Hämatombehand	Nähler S.		Physiotherapie Nr.8 -	1995		"Einsatz des	Das Arbeiten mit dem	gastrocnemius	CLIN	D
O38, B	lung			August 1995			biostimulativen Lasers in der Praxis am Beispiel einer Hämatombehandlung "	biostimulativen Laser setzt nicht nur grosses Interesse für das Fachgebiet voraus, sondern bedarf auch einiger wissenchaftlicher Grundlagen bezüglich Technik und	muscle HeNe infrared		
O39	Bone regeneration	Nagasawa A.	Kato H.	LLLT Original Articles, 1991 © John Wiley & Sons, Ltd.	1991	59-62	"Bone regeneration effect of low level lasers including argon laser"	In the recent medical application of lasers their stimulative effects on biological functions have been especially noticed and many useful therapeutic effects	bone regeneration	CLIN	GΒ
O39			Negishi A.						argon laser alveolar bone diseases		

O40 O40	Healthy Growth Plate	Cheetham M.J	Young S.R. Dyson M.	Laser Therapy Vol.4, No.2, 59-63, 1992 © John Wiley & Sons, Ltd.	1992	59-63	"Histological effects of 820 nm laser irradiation on the healthy growth plate of the rat"	Low level laser therapy has been in clinical use in the United Kingdom for over 15 years. Recently, clinicians have expressed concern that if LLLT is used to treat a lesion adjacent to	bone growth growth plate photobioactivatio n	VIV	GΒ
O41 O41	Herniated Lumbar/Sacral Disc	Abe T.		Laser Therapy Vol.1, No.2, 93-95, 1989 © John Wiley & Sons, Ltd.	1989	93-95	"LLLT using a diode laser in successful treatment of a herniated lumbar/sacral disc, with magnetic resonance imaging (MRI) assessment: a case report"	A 40-year-old woman presented at the Abe Orthopaedic Clinic with a 2-year history of lower back pain and pain in the left hip and leg, diagnosed as a ruptured disc between the 5th lumbar/1st sacral vertebrae. The condition had failed to respond to conventional treatment methods including pelvic traction, non- steroid anti-inflammatory drugs and dural block anaesthetic	diode laser ruptured disc herniated disc MRI magnetic	CLIN	GB
									resonance imaging		
042	Myogenic Torticollis	He J.		Laser Therapy Vol.3, No.1., 41-43, 1991 © John Wiley & Sons, Ltd.	1991	41-43	"154 cases of myogenic torticollis treated with low incident energy combination carbon dioxide and helium neon laser beam"	Secondary myogenic torticollis, or wryneck, results from difficulties during delivery, and is quite common in the neonate in the P.R.O.C. It is easily seen after birth, and can quickly develop into a painful chronic condition involving involuntary spasmodic contractions of the affected	myogenic torticollis wryneck congenital torticollis bioactivation HeNe CO2	CLIN	GB
042	Tendons	Enwemeka C S	Cohen-Kornberg	Laser Therapy, Vol 6, No 4	1004	181-188	"Biomechanical	The calcaneal tendons of 31	scanner tendon healing	VIV	GB
043	1610015	Linweinieka U.S.	E.	181-188, 1994 © Laser Therapy, Ltd.	1334	101-100	effects of three different periods of GaAs laser photostimulation on tenotomized tendons"	rabbits were tenotomized, repaired and immobilized in order to determine the effects of treatment intervention time on stensile strength, tensile stress, energy absorption capacity, and	biostimulation	VIV	GD

O43			Weber D.M. Bodriguez I.M.						collagen synthesis GaAs		
044,P	Tendinitis and Myofascial Pain	Lögdberg- Andersson M.	Mützell S. Hazel Å.	Laser Therapy Vol.9, No.2, 79-86, 1997 © LT Publishers, U.K., Ltd.	1997	79-86	"Low level laser therapy (LLLT) of tendinitis and myofascial pains- a randomized, double- blind, controlled study"	The purpose of this randomized. Double-blind study was to examine the effect of GaAs laser therapy for tendinitis and myofascial pain in a sample from the general population of Åkersberga in the northern part	gaAs	DB	GB
O44,P									myofascial pain		
O45,B	Bone Cell Culture	Luger EJ.	Wollman Y. Rochkind S. Dekel S. Ouaknine GE. Chernihovsky T.	Laser Therapy Vol.10, No.2, 55-58, 1998 © LT Publishers, U.K., Ltd.	1998	55-58	"The effect of low level laser irradiation on bone cell culture"	The effect of low level laser irradiation was studied on cultured clonal bone cells, the RJC line. The bone cells were exposed to laser beams of	bone cell line DNA synthesis various wavelengths cell cultures bone repair B-IC line	VIT	GB
046	Medial Collateral Ligament	Fung D.T.C.	Ng G.Y.F. Leung M.C.P. Tay D.K.C.	Lasers in Surgery and Medicine 31:91-96, 2002 © Wiley-Liss, Inc.	2002	91-96	"Therapeutic Low Energy Laser Improves the Mechanical Strength of Repairing Medial Collateral Ligament"	Low energy laser therapy has been shown to enhance collagen production but its effect on tissue strength is not well reported. We tested the effects of therapeutic laser on the strength of healing medial collateral ligaments (MCLs) in rats. Twenty-	injury tissue biomechanics treatment rat animal study GaAIAs	VIV	GB
047,B	Skeletal Muscle Satellite Cells	Shefer G.	Partridge T.A. Heslop L. Gross J.G. Oron U. Halevy O.	Journal of Cell Science 115, 1461-1469, 2002	2002	1461- 1469	"Low-energy laser irradiation promotes the survival and cell cycle entry of skeletal muscle satellite cells"	The energy laser irradiation has been shown to promote skeletal muscle cell activation and proliferation in primary cultures of satellite cells as well as in myogenic cell lines. Here, we have extended these studies to	apoptosis myofiber proliferation HeNe	VIT	GB

O48 O48	Fibromyalgia	Gür A.	Karakoc M. Nas K. Cevik R. Sarac J. Demir E.	Laser Med Sci 15:57-61, 2002 © Springer-Verlag London Limited	2002	57-61	"Efficacy of Low Power Laser Therapy in Fibromyalgia: A Single-blind, Placebo- controlled Trial"	Low energy lasers are widely used to treat a variety of musculoskeletal conditions including fibromyalgia, despite the lack of scientific evidence to support its efficacy. A randomized, single-blind,	fibromyalgia pain muscle spasm placebo GaAs infrared	В	GB
O49 O49	Congenital Dislocation of the Hip	Asagai Y.	Ohshiro T.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 49-52, 2002 © Monduzzi Editore S.p.A.	2002	49-52	"Application of Low Level Laser Therapy in the Treatment of Congenital Dislocation of the Hip"	In Japan, treatment of hip abducation in flexion in an infant with congenital dislocation of the hip, only guidance for a diaper which prevents the movement of both extremities from being limited as well as its use is	dislocation of the hip infant GaAlAs	RE	GB
O50	Perthes Disease	Asagai Y.	Ohshiro T.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 97-100, 2002 © Monduzzi Editore S.p.A.	2002	97-100	"Application of Infrared Irradiation Therapy To Perthes Disease"	No consensus has been reached about the treatment of Perthes disease, though a number of approaches have been reported including conservative treatment with various orthoses and surgical treatment. In	infrared perthes disease	RE	GB
050 051,M 051,M	Connective Tissue Repair Processes	Enwemeka C.S.	Reddy G.K.	Laser Therapy Vol.12, 22- 30, 2000	2000	22-30	"The Biological Effects of Laser Therapy and Other Physical Modalities on Connective Tissue Repair Processes"	Connective tissue injuries, such as tendon rupture and ligamentous strains, are common. Unlike most soft tissues that require 7-10 days to heal, primary healing of tendons and other dense connective tissues take as much as 6 - 8	1800mW tissue repair therapeutic ultrasound electrical stimulation meta-analysis HeNe GaAs	RE	GB
O52	Bone Defect Healing	Guzzardella G.A.	Fini M. Torricelli P.	Lasers Med Sci 17:216- 220, 2002 © Springer- Verlag London Limited	2002	216-220	"Laser Stimulation on Bone Defect Healing: An In Vitro Study"	The aim of this in vitro study was to evaluate whether low-power laser stimulation can accelerate bone healing. Bone defects of a standard area were created in the	bone healing experiment	VIT	GB

O52			Giavaresi G. Giardino R.						organ culture rats animal study GaAIAs ATP		
053	Bone Repair	Silva Jr. A.N.	Pinheiro A.L.B. Oliveira M.G. Weismann R.	Journal of Clinical Laser Medicine & Surgery Vol. 20, No. 2, 83-87, 2002 © Mary Ann Liebert, Inc.	2002	83-87	"Computerized Morphometric Assessment of the Effect of Low-Level Laser Therapy on Bone Repair: An Experimental Animal Study"	The aim of this study was to evaluate morphometricly the amount of newly formed bone after GaAIAs laser irradiation of surgical wounds created in the femur of rats. Low-level laser therapy has been used in several medical specialties because of its biomodulatory effects on	bone repair animal study GaAIAs	VIV	GB
			Pedreira Ramalho L.M.						biomodulation		
O53			Nicolau R.A.						rats computerized morphometry		
Op1	Choroidal Neovascularizati on	Obana A.	Gohto Y.	Lasers in Surgery and Medicine 30:370-375, 2002 © Wiley-Liss, Inc.	2002	370-375	"Scanning Laser System for Photodynamic Therapy of Choroidal Neovascularization"	In order to improve selectivity of photodynamic therapy to choroidal neovascularization associated with age-related macular degeneration. A laser scanning technique was applied to perform focal laser irradiation	age related macular degeneration photodynamic	VIV	GB
									therapy scanner laser ATX-S10 choroidal vessels		
Op1									indocyanine green		
P1	Radicular pain	Bieglio C.	de Bisschop G.	Laser Medicine & Surgery News and Advances, 22- 25, 1988	1988	22-25	"Physical Treatment for Radicular Pain with Low Power Laser Stimulation"	Nonsurgical use of laser therapy is often a target of criticism, owing to a lack of real scientific studies. Our experience shows such criticism to be unjustified when the technique used and	pain	CLIN	GB
<u>P1</u>									EMG		<u> </u>
P2	Schmerzbehandl ung	Flöter Th.	Rehfisch H.P.	top medizin 4 (1990) 4, 52- 56	1990	52-56	"Schmerzbehandlung mit Laser"	Die Wirksamheit der Bestrahlung mit Lasern im Rot- und Infrarotbereich wird seit langem	lasertherapie	DB	D
P2									rotlaser infrarotlaser myofaszial	CLIN	

P3, B P3, B	Myofascial trigger points	Laakso E.L.	Cramond T. Richardson C. Galligan J.P.	Laser Therapy, 1994; 6: 133-142, ©Laser Therapy, Ltd.	1994	133-142	"Plasma Acth and Beta-Endorphin Levels in Response to Low Level Laser Therapy (LLLT) for Myofascial Trigger Points"	The mechanism by which laser phototherapy (LLLT) induces analgesia in the treatment of chronic pain is not understood. To investigate a possible role for opioids in this treatment, a double-blind, placebo-controlled study was designed to compare	analgesia chronic pain cytokines visible	DB CLIN VIV	GB
P4	Pain attenuation	Shiroto C.	Yodono M. Nakaji S.	Laser Therapy, 1998; 10: 33-40, © LT Publishers, U.K., Ltd.	1998	33-40	"Pain Attenuation With Diode Laser Therapy: A Retrospective Study Of The Long-term LLLT Experience In The Private Clinic Environment"	We report on a 130 month retrospective study of pain entities treated with 830 nm diode laser therapy carried out at the authors' clinic. In 11,139 mostly chronic pain patients (M:F 1:1,5) presenting with a total of 19,275 symptoms, an overall efficacy rate of 82 +/- 5.7% was achieved. The results were recorded under five grades:	chronic pain placebo effect	CLIN	GB
<u>P4</u> P5	Myofascial pain and dysfunction syndromes	Pöntinen P.J.	Airaksinen O.		1994	1-6	"Evaluation of Myofascial Pain and Dysfunction Syndromes and Their Response to Low Level Laser Therapy"	The purpose of this article is to present a method for evaluation and follow-up of myofascial pain and dysfunction syndromes (MPS). Since 1987 our study group has tested various pressure threshold (PTH) and	arthritis myofascial pain TENS	CLIN	GB
P6	Postoperative pain	Moore K.C.	Hira N. Broome I.J. Cruikshank J.A.	Laser Therapy 145-149, 1992, © John Wiley & Sons, Ltd.	1992	145-149	"The Effect of Infra- Red Diode Laser Irradiation on the Duration and Severity of Postoperative Pain: A Double Blind Trial"	This trial was designed to test the hypothesis that LLLT reduces the extent and duration of postoperative pain. Twenty consecutive patients for elective cholecystectomy were randomly allocated for either LLLT or as controls. The trial was double	GaAlAs LLLT infrared 800-900 nm onstancio	CLIN	GB

Ρ7	Chronic Low Back Pain	Soriano F.	Ríos R.	Laser Therapy, 1998. 10: 175-180,© LT Publishers, U.K., Ltd.	1998	175-180	"Gallium Arsenide Laser Treatment of Chronic Low Back Pain: A Prospective, Randomized and Double Blind Study"	Patients of more than 60 years of age and affected by chronic low back pain were randomly assigned to two groups. Group A, consisting of 38 patients, was irradiated with a pulsed GaAs diode laser, 904 nm, pulse width 200 nsec, pulse frequency 10,000Hz, peak power of 20 W,	low back pain GaAs	CLIN	GB
P7									chronic pain		
P8, A P8, A	Myofascial pain and musculoskeletal disorders	Pöntinen P.J.		8. World Congress on Pain, Postcongress Satellite Symposium Presentation, 1996	1996	1-16	"Low Energy Photon Therapy in Treatment of Musculoskeletal Disorders and Particularly in Myofascial Pain and Dysfunction"	Since 1987 our study group has studied the effects of low energy photon therapy (LEPT) on tender spots and trigger points in healthy subjects and in patients suffering from musculoskeletal disorders and myofascial pain and dysfunction syndromes.	musculoskeletal disorders HeNe	CLIN	GB
P9	Chronic pain	Walker J		Neuroscience Letters, 43, 339-344, 1983 © Elsevier Scientific Publishers Ireland Ltd.	1983	339-344	"Relief From Chronic Pain by Low Power Laser Irradiation"	In a double blind study; repeated irradiation with a low-power (1mW) helium-neon laser produced relief in subjects with chronic pain. Analgesia was	serotonin metabolism HeNe	DB CLIN	GB
P9									chronic pain 5- hydroxyindoleacc etic acid		
P10	Herpes Zoster Pain	Otsuka H.	Numazawa R. Okubo K. Enya T. Saito Y. Kemmotsu O.	Laser Therapy, 7:027-032, 1995 © Laser Therapy, Ltd.	1995	27-32	"Effects of helium- neon laser therapy on herpes zoster pain"	The efficacy of HeNe laser therapy for pain attenuation on patients with herpes zoster was evaluated in 33 patients. The HeNe laser was applied with a	HeNe herpes zoster pain postherpetic neuralgia GaAIAs	CLIN	GB
P11	Pain Attenuation	Maeda T.		Laser Therapy Vol.1, No.1, 23-26, 1989 © John Wiley & Sons, Ltd.	1989	23-26	"Morphological demonstration of low reactive laser therapeutic pain attenuation effect of the gallium aluminium arsenide diode laser"	It is possible to increase the volume of mitochondria in certain types of nerve cells with free nerve endings which are sensitive to pain-producing substances. In order to achieve this increase, the substance must be high-density, and be in contact with the cell for a	mitochondria trigeminal nerve	VIV	GB
P11									diode laser		

P12	Pain Attenuation	Shiroto C.	Ono K. Ohshiro T.	Laser Therapy Vol.1, No.1, 41-47, 1989 © John Wiley & Sons, Ltd.	1989	41-47	"Retrospective study of diode laser therapy for pain attenuation in 3635 patients: detailed analysis by questionnaire"	In a 46-month term, 3635 patients presented for pain attenuation with a gallium aluminium arsenide diode laser. The mean age of the patients was 53.8 years. Analysis of subjective treatment assessment over the	GaAIAs diode laser bioactivation pain therapy	CLIN	GB
P13	Post Herpetic Neuralgia	McKibbin L.S.	Downie R.	Laser Therapy Vol.3, No.1., 35-39, 1991 © John Wiley	1991	35-39	"Treatment of post herpetic neuralgia	Thirty nine patients were treated for post-herpetic neuralgia. A	post herpetic neuralgia	CLIN	GB
				& Sons, Ltd.			using a 904nm (infrared) low incident energy laser: a clinical study"	linear analog scale from 0-10 was used to score the results. A 904 nm low energy infrared laser pulsed at 4000 Hz was used. A laser head containing 10 diodes,			
P13									infrared gallium arsenide		
P14	Pain Attenuation of Postherpetic Neuralgia	Kemmotsu O.	Sato K.	Laser Therapy Vol.3, No.2, 71-75, 1991 © John Wiley & Sons, Ltd.	1991	71-75	"Efficacy of low reactive-level laser therapy for pain attenuation of postherpetic neuralgia"	The efficacy of low reactive-level laser therapy for pain attenuation in patients with postherpetic neuralgia was evaluated in 63 patients managed at our pain clinic over the past four years. A	GaAIAs	CLIN	GB
			Furumido H. Harada K. Takigawa C. Kaseno S.						double blind test pain clinic postherpetic neuralgia pain attenuation	DB	
			Yokota S. Hanaoka Y.						diode laser PHN		
P14			Yamamura T.	· · · · · · · · · · · · · · · · · · ·					830 nm	 .	
P15	Pain attenuation	Mizokami I.	Aoki K.	Laser Therapy Vol. 5, No.4, 165-168, 1993 © John Wiley & Sons, Ltd.	1993	165-168	"LLLI (Low reactive level laser therapy) - a clinical study: relationship between pain attenuation and the serotonergic mechanism"	The relationship between pain attenuation and serotonig mechanism by low powered laser have been studied. The subjects of 63 cases, having chronic pain and good pain relief were invetigated and the change ratio of plasma serotonin was analysed. On first time laser	serotonin metabolism	CLIN	GB
			lwabuchi S. Kasai K.						chronic pain pain attenuation		
			Yamazaki Y. Sakurai T.						GaAIAs semiconductor		
P15			Samejima K. Yoshii N.						803 nm 632.8 nm		

P16	Pain Attenuation	Shiroto C.	Nakaji S. Sasaki M. Yodono M.	Laser Therapy Vol. 6, No. 3., 149-156, 1994 © Laser Therapy, Ltd.	1994	149-156	"Extended experience in GaAIAs diode laser therapy for pain attenuation, and the importance of staff education and clinical environment on LLLT efficacy"	The Shiroto Clinic in Goshogawara has been studying the efficacy of low reactive-level laser therapy in pain attenuation using the 830 nm GaAlAs diode laser since 1984, and the authors and colleagues have presented regular updates in this journal and at various national and international congresses, including the last three ILTA	chronic pain diode laser staff education environmental influence patient education	CLIN	GB
P17	Postherpetic Neuralgia	Yamada H.	Ogawa H.	Laser Therapy Vol.7, No.2, 071-074, 1995 © Laser Therapy, Ltd.	1995	71-74	"Comparative study of 60 mW diode laser therapy and 150 mW diode laser therapy in the treatment of postherpetic neuralgia"	Over the past year, eight patients with postherpetic neuralgia were treated with diode low reactive- level laser therapy with an ouput power of 60 mW at 830 nm, while a furthr nine cases of PHN were treated with 830 nm diode LLLT at an output of 150 mW. The data were analyzed to compare the	diode laser	CLIN	GB
P17 P18	Postherpetic Neuralgia	Numazawa R.	Kemmotsu O. Otsuka H. Kakehata J. Hashimoto T. Tamagawa S. Mayumi T.	Laser Therapy Vol.8, No.2, 143-148, 1996 © LT Publishers. Ltd	1996	143-148	"The role of laser therapy in intensive pain management of postherpetic neuralgia"	The role of low reactive-level laser therapy in intensive pain management of postherpetic neuralgia was evaluated in 31 patients with PHN. Patients had severe and/or persistent pain,	post herpetic neuralgia postherpetic neuralgia pain clinic pain management GaAIAs semiconductor laser HeNe scanning	CLIN	GB
P19	Stellate Ganglion	Hashimoto T.	Kemmotsu O.	Laser Therapy Vol.9, No.1, 7-12, 1997 © LT Publishers, U.K., Ltd.	1997	7-12	"Efficacy of laser irradiation on the area near the stellate ganglion is dose- dependent: a double- blind crossover placebo-controlled study"	In the present study we evaluate the effects of laser irradiation on the area near the stellate ganglion on regional skin temperature and pain intensity in patients with postherpetic nauralgia. A double blind, crossover and placebo- controlled study was designed to deny the placebo effect of laser	stellate ganglion	DB	GB

P19			Otsuka H. Numazawa R. Ohta Y.						postherpetic neuralgia crossover placebo- controlled study GaAIAs	RCT	
P20,B	Analgesic Effect	Navratil L.	Dylevsky I.	Laser Therapy Vol.9, No.1, 33-40, 1997 © LT Publishers, U.K., Ltd.	1997	33-40	"Mechanisms of the analgesic effect of therapeutic lasers in vivo"	The analgesic effects in the course of application of therapeutic lasers to affected tissue have been described in a number of works in the literature.	non-invasive laser therapy endorphins analgesic effect	VIV RE	GB
P20,B									nerve transmission rates		
P21	Chronic Pain	Fukuuchi A.	Suzuki H.	Laser Therapy Vol.10, No.2, 59-64, 1998 © LT Publishers, U.K., Ltd.	1998	59-64	"A double-blind trial of low rective-level laser therapy in the treatment of chronic pain"	The utility of low reactive-level GaAIAs semiconductor laser therapy for chronic pain was evaluated in a double-blind clinical trial in 82 patients. Results obtained were also	semiconductor laser	DB	GB
D 21			Inoue K.						chronic pain	CLIN	
P22	Pain Attenuation	Kemmotsu O.		Laser Therapy Vol.10, No.4, 151-152, 1998 © LT Publishers, U.K., Ltd.	1998	151-152	"Laser therapy for pain attenuation of postherpetic neuralgia - a decade of challenge"	We first reported the efficacy of laser therapy for pain attenuation in patients suffering from postherpetic neuralgia in 1991, and we have geeb using laser therapy for many patients with PHN for over a decade. PHN is a	postherpetic neuralgia	RE	GB
P23	Tempomandibula r Joint Pain	Kobayashi M.	Kubota J.	Laser Therapy Vol.11, No.1, 11-18, 1999	1999	11-18	"Treatment of tempomandibular joint pain with diode laser therapy"	Tempomandibular joint pain can be very debilitating for the affected patient, particularly when it is a chronic disorder associated with tempomandibular disorder. Low reactive laser therapy has been	tempomandibular joint disorder trismus diode laser	CLIN	GB
P24	Chronic Back Pain Syndrome	Ruetten S.	Meyer O. Godolias G.	Journal of Clinical Laser Medicine & Surgery Vol. 20, No. 4, 203-206, 2002 © Mary Ann Liebert, Inc.	2002	203-206	"Application of Holmium:YAG Laser in Epiduroscopy: Extended Practicabilities in the treatment of Chronic Back Pain Syndrome"	Minimally invasive and endoscopic techniques offer advantages in the treatment of chronic back pain syndrome and may provide for expanded indications and visualization. Epiduroscopy for the visualization of the epidural space still is burdened with	epiduroscopy chronic back pain	CLIN	GB

P24									YAG-laser		
P25	Topical Anesthesia	Shapiro H.	Harris L. Hetzel F.W. Bar-Or D.	Lasers in Surgery and Medicine 31:252-256, 2002 © Wiley-Liss, Inc.	2002	252-256	"Laser Assisted Delivery of Topical Anesthesia for Intramuscular Needle Insertion in Adults"	Currently there is no safe, effective, and rapid means to eliminate the pain associated with a needle insertion through the skin. It is hypotesized that ablation of the stratum corneum layer using a low energy	YAG-laser laser ablation lidocaine pain stratum corneum needle	DB	GB
R1	Psoriatic arthritis	Ortutay J.	Koo E. Mester A.	Congress Abstract, XIV European League Against Rheumatism Congress, 1999 Glasgow, Scotland	1999	1-2	"Treatment of Psoriatic Arthritis Patients With Low Power Laser Irradiation. A Double Blind Clinical Study"	The study was to evaluate the therapy effects of laser irradiation in patients with psoriatic arthritis. Laser irradiation of psoriatic arthritis resulted true imprvement in objective clinical and partially in	GaAIAs infrared 800-900 pm	DB	GB
R2	Rheumatoid arthritis	Oyamada Y.	Satodate R. Nishida J.	ISLM abstract, 1987, 1	1987	1	"A double blind study of low power He-Ne laser therapy in rheumatoid arthritis"	We have studied the effectiveness of He-Ne laser (8.5mW) in treatment of RA, osteoarthritis, and cervical spondylosis of totally 92 cases. Placebo irradiation was applied	HeNe rheumatoid arthritis 8.5mW	DB CLIN	GB
R3	Cardiopathologic al effects	Yaakov N.	Bdolah A. Wollberg Z. Ben-Haim S.A. Oron U.	Basic Res Cardiol 95:385- 389. 2000 © Steinkopff Verlag	2000	385-389	"Recovery from sarafotoxin-b induced cardiopathological effects in mice following low energy laser irradiation"	Low energy laser irradiation has been shown to accelerate various biological processes, including regeneration of injured tissues. In the present work we studied the effect of low energy laser irradiation on ischemic mice hearts, following administration	venticular dilatation cardioprotective sarafotoxin-b mice diode laser infrared animal study	VIV	GB

R4, B	Skeletal Muscle Cell Activation	Shefer G.	Oron U. Irintchev A. Wernig A. Halevy O	Journal of Cellular Physiology 187:73-80, 2001© Wiley-Liss, Inc.	2001	73-80	"Skeletal Muscle Cell Activation by Low- Energy Laser Irradiation: A Role for the MAPK/ERK Pathway"	Low-energy laser irradiation (LELI) has been shown to promote skeletal muscle regeneration in vivo and to activate skeletal muscle satellite cells enhance their proliferation and inhibit differentiation in vitro	cell activation skeletal muscle MAPK/ERK Pathway	VIT	GB
R5, B	Regeneration in	Bibikova A.	Oron U.	The Anatomical Record	1995	123-128	"Regeneration in	It is known that while denervated	amphibia	VIV	GB
	denervated Toad			241:123-128, 1995 © Wiley-			Denervated Toad	skeletal muscles have the ability			
	Gastrocnemius			Liss, Inc.			(Bufo viridis)	to regenerate, maturation of			
	Muscle						Muscle and the	take place under these			
							Promotion of the	conditions. Denervation also			
							Process by Low	causes elevation of "invasive"			
							Energy Laser	and satellite cells, but the role of these cells in the regeneration			
									skeletal muscle		
R5, B									regeneration denervation histomorphometr y HeNe		
R6, B	Muscle	Bibikova A.	Oron U.	The Anatomical Record	1993	374-380	"Promotion of Muscle	The effect of low-energy laser	amphibia	VIV	GB
	Regeneration			235:374-380, 1993 © Wiley- Liss. Inc.			Regeneration in the Toad (Bufo viridis)	irradiation on the process of skeletal muscle regeneration			
				2100, 110.			Gastrocnemius	after cold injury to the			
							Muscle by Low-	gastrocnemius muscle of the			
							Energy Laser	load (Buto viridis) was studied			
							Indulation	and morphometric methods. The			
								iniured zones in the experimental			
									injury morphomotry		
									HeNe		
									red light		
									promotion		
нь, в									skeletal muscle		

R7 R7	Synovial Membrane Articular Tissue	Calderhead R.G.	Inomata K.	Laser Therapy Vol.4, No.2, 65-68, 1992 © John Wiley & Sons, Ltd.	1992	65-68	"A study on the possible haemorrhagic effects of extended infrared diode laser iradiation on encapsulated and exposed synovial membrane articular tissue in the rat"	Low reactive-level laser therapy has been reported as having a beneficial effect in the therapy of rheumatoid arthritis. Some concerns have been expressed about the possible photothermal damage to articular tissue, for example the synovial membrane, following extended doses of LLLT such as are usually applied. The present study was designed to assess qualitively and auantitatively the possible	photobioactivatio n laser therapy dosimetry infrared diode laser synovial membrane	VIV	GB
R8	Rheumatoid	Asada K.	Yutani Y.	Laser Therapy Vol.1, No3.,	1989	147-151	"Diode laser therapy	Low reactive-level laser therapy	memprane GaAlAs	CLIN	GB
R8	Arthritis		Shimazu A.	147-151, 1989 © John Wiley & Sons, Ltd.	1909	147-151	for rheumatoid arthritis: a clinical evaluation of 102 joints treated with low reactive-level laser therapy (LLLT)"	has been shown to be effective in wound healing, accelerated bone formation and removal of both chronic and acute pain types. Rheumatoid arthritis is a particularly painful condition, gradually causing loss of movement in the affected joints due to the extreme pain caused	diode laser rheumatoid arthritis bioactivation		5
R9	Knee Osteoarthrosis	Trelles M.A.	Rigau J. Sala P. Calderhead G. Ohshiro T.	Laser Therapy Vol.3, No.4, 149-153, 1991 © John Wiley & Sons, Ltd.	1991	149-153	"Infrared diode laser in low reactive-level laser therapy (LLLT) for knee osteoarthrosis"	Degenerative joint disease, in particular in the knee, is difficult to cure successfully at present, often requiring surgical intervention. In addition, the chronic DJD patient often	degenerative joint disease adjunctive photochemothera py infrared diode laser	CLIN	GB
R10	Nail Disorders	Shoji A.	Inoue A.	Laser Therapy Vol.10, No.2, 73-78, 1998 © LT Publishers, U.K., Ltd.	1998	73-78	"Treatment of nail disorders with LLLT (part I)"	Patients with a variety of nail disorders were treated with diode low reactive-level laser therapy. Three representative cases are presented. Case 1 was a 28-year- old Japanese female with	distal interphalangeal arthritis diode laser twenty nail dystrophy	CLIN	GB

R10									green nail Iongitudinal ridges GaAIAs		
R11	Inflammation	Campana V.R.	Gavotto A. Soriano F. Juri H.O. Spitale L.S. Simes J.C. Palma J.A. Mova M	Laser Therapy Vol.11., No.1, 36-42, 1999	1999	36-42	"The relative effects of He-Ne laser and meloxicam on experimentally induced inflammation"	Certain crystals cause synovial tissue inflammation and variability of inflammatory indicators like plasmatic prostaglandin E2, fibrinogen and synovial tissue PGE2. We evaluated Helium-Neon laser	biostimulation inflammation meloxicam synovial tissue HeNe prostaglandin fibringgen	VIV	GB
R12	Early Stages of Rheumatoid Arthritis	Ailioaie C.	Lupusoru-Ailioaie M.L.	Laser Therapy Vol.11 No.2, 79-87, 1999	1999	79-87	"Beneficial effects of laser therapy in the early stages of rheumatoid arthritis onset"	The purpose of this study was to determine the effects of laser therapy in pain reduction and/or recovery of patients at the onset of Rheumatoid Arthritis, comparatively with the traditional	rheumatoid arthritis anti-inflammatory drugs	CLIN	GB
R12 R13	Osteoarthritis of the Hip	Pöntinen P.J.		NAALT 2003 workshop abstract, 2003	2003	1-2	"Osteoarthritis (OA) of the Hip Treated with Laser Therapy"	The most common of painful conditions afecting the joints is osteoarthritis which affects more than 20 million Americans. Patients are typically older than	diode laser osteoarthritis hip GaAlAs 720nm	RE	GB
Rr1	Damaged heart tissue			Biophotonics International, may 2001	2001	10	"Study finds laser treatment helps heal damaged heart tissue"		report	RE	GB
Rr2	Noninvasive Therapeutic Modality	Galletti G.		Laser Therapy Vol.9, No.3, 131-136, 1997 © LT Publishers, U.K., Ltd.	1997	131-136	"Low power laser therapy: a noninvasive higly effective therapeutic modality"	Over the past 15 years the author and his colleagues have treated over 1500 patients with a wide range of pathological conditions using a variety of low power lasers with different wavelengths	homeostasis ulcers wound healing defocused CO2	RE	GB
Rr3	Laser-damaged eyes	Schneider I.		Laser Focus World, Vol. 38, No. 10, 2002	2002	20-26	"LEDs may heal laser- damaged eyes"		eye injury	RE	GB
	I	1	1	l		1	1	I	I	I	I

Rr3 Rr4	Heilende Wirkung des	Müller H.		Raum&Zeit 119, 2002	2002		"Die heilende Wirkung des roten	In russischen Krankenhäusen wird seit einigen Jahren eine	LED mucositis damaged retinal cell biostimulation	RE	D
	roten Lichtes						Lichtes"	iunge und viel versprechende			
Rr5,I	Chronische Lebererkrankung en	Skvorcov V.V.	Nedogoda V.V.	Raum&Zeit 119, 2002	2002	6-12	"Niederleistungs- Lasertherapie gegen chronische Lebererkrankungen"	175 Patienten mit chronischen Lebererkrankungen wurden an der Medizinischen Akademie Wolgograd intravenös mit schwacher monochromatischer Rotbestrahlung als Monotherapie	chronische lebererkrankunge n leberzirrhose hepatitis intravenös linidperoxidase	CLIN	D
									npraporoxidado		
Rr6	Laser-Therapie in der Praxis	Sonntag O.					"Der Einsatz der Low- Level-LASER- Therapie in der Praxis"	Betrachtet man heute den Gerätepark in der medizinischen und naturheilkundlichen Praxis, so verliert sich hier und da	applikationen	RE	D
Rr7	Heilendes Licht	Schwabe V.	Menke M.	Co Med 08/02, 58-62, 2002	2002	58-62	"Heilendes Licht"	Die Erfolgsstory des Lasers ist nicht mehr aufzuhalten. Über 100 Doppelblindstudien haben den Wirksamkeitsnachweis der	basic information	RE	D
Rr7									Laser Therapy		
Rr8	Laser-Tissue Interaction	Reiss S.M.		Biophotonics International, July/August, 40-45, 2001	2001	40-45	"Unlocking the Mysteries of Laser- Tissue Interaction"	The more researchers study the effects of lasers on targeted tissues, the more they are coming to appreciate the variety and complexity of these critical	clinical applications	RE	GB
Rr9, Gm	Chronic Postmastectomy Lymphedema	Piller N.B.	Thelander A.	Lymphology 31, 74-86, 1998	1998	74-86	"Treatment of Chronic Postmastectomy Lymphedema With Low Level Laser Therapy: A 2.5 Year Follow-Up"	Ten women with unilateral arm lymphedema after axillary clearance and radiotherapy for breast cancer received 16 treatment sessions with Low Level Laser Therapy over 10 weeks and seven patients were followed for 36 months. The	arm lymphedema	CLIN	GB
Rr9,									HeNe diode laser		
<u> </u>	Global Scaling in der Heilpraxis	Müller H.		raum&zeit special 1, 122- 126		122-126	"Global Scaling in der Heilpraxis GS-Infrarot beschleunigt Heilprozess"	Gene Roddenberry's Star-Trek- Helden verwendenten Wundheil- Acceleratoren auf dem Raumschiff "Enterprise" bereits Anfang der 70er, als die	heilpraxis qlobal scaling	RE	D
Rr10									infrarot		

Rr11 Rr11	Laser Surgery and Medicine	Atsumi K.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 7-10, 2002 © Monduzzi Editore S.p.A.	2002	7-10	"Past, Present and Future of Laser Surgery and Medicine"	Paradigm shift in future medicine will occur by breakthrough of laser surgery and medicine. Clinical treatment will be changed revolutionally replacing traditional surgery with laser	surgery preventive	RE	GB
Rr12	Future of Laser Therapy	Kubota J.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 11-22, 2002 © Monduzzi Editore S.p.A.	2002	11-22	"The Future of Laser Therapy"	A mere thirty years ago, laser therapy was in its infancy, with only a few isolated pioneers working in the field such as Mester in Hungary, Plogg in Canada and Ohshiro and	future of laser therapy	RE	GB
Rr13	Why Living Body Reacts to Laser Beam	Ohshiro T.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 23-31, 2002 © Monduzzi Editore S.p.A.	2002	23-31	"Why Does a Living Body React To a Laser Beam?"		review	RE	GB
Rr14	Clinical Laser in Japan	Shiroto C.	Nakaji S. Umeda T.	Proceedings of the 4th Congress of the World Association for Laser Therapy, 59-69, 2002 © Monduzzi Editore S.p.A.	2002	59-69	"Current State-of-the- art of the Clinical Laser in Japan"		review history	RE	GB
Br14									indications evaluation		
Rr15	Contraindication s in Noninvasive Laser Therapy	Navratil L.	Kymplova J.	Journal of Clinical Laser Medicine & Surgery Vol. 20, No. 6, 341-343, 2002 © Mary Ann Liebert, Inc.	2002	341-343	"Contraindications in Noninvasive Laser Therapy: Truth and Fiction"	Noninvasive laser therapy is a treatment method employed in many disciplines. This review article points out instances when it appears to be effective to administer such therapy.	contraindications	RE	GB
Rr15									applications		I
S1, T	Sportmedizin	Poloi R.	Beltrami Gf.	Revue de la fédération médecine sportive, 1-11		1-11	"Lasertherapie in der Sportmedizin"	Folgende Verletzungen wurden behandelt: 10 fälle von epicondylitis (Tennisellbogen) Erhebung Gelenkforsatz. 9 Fälle	sportmedizin	CLIN	D
			Coiana L.						epiconayiitis tennisellbogen		
S1, T									achillessehne		<u> </u>
S2	Achilles Tendinopathy	Meersman P.		Laser Therapy Vol.11, No.3, 144-150, 1999	1999	144-150	"Laser pharmacology and achilles tendinopathy"	The achilles tendon, although the largest and strongest tendon in the human body, has been recognized as a weak point since classical times. In the case of	achilles tendinopathy photodynamic therapy	CLIN	GB
S2									various wavelengths		

S4, Hp Pubalgia Miglio D. Algeri G. Laser & Tecnology, Vol.12, N.1, 2002 2002 46-46 "Use of High Power This study refers to the treatment pubalgia according to a protocol in which the use of an protocol in which the use of an in the treatment of association of two high power lasers, Nd: YAG 1064nn and FCZ Laser Service of the first time. Due to the long CLN GB S4, Hp T1 Acute-Phase Asagai Y. Imaktire A. Laser Therapy Vol. 12, 31- 33, 2000 2000 S1-33 "Thermographic Studies of acute phase injury" is generally acute phase injury is generally acute phase injury (CLN GB T1 Acute-Phase Muscl R. Baccalin A. III Glomate Andrologiche Hallene. Bari 13-15 ottobre 1994 © Monduzzi Editore S.p.a. 1994 87-89 "Modificazioni quantitative ed liquido positive de liquido positive ed liquido positive de liquido positalite cronica posintera (PCA) positive de liquido positive de liq	S3 S3	Sports Injuries	Gable P.					"Why LLLT (Laser Therapy) is a Valid Immediate Treatment Tool for Sports Injuries"	Immediate treatment of acute sports injuries is normally through the standard protocols of the application of "RICE" and avoiding "HARM". The use of electrotherapy modalities is rare	acute sports injury ATP	RE	GB
T1 Acute-Phase injury Asagai Y. Imakiire A. Laser Therapy Vol. 12, 31- 33, 2000 2000 31-33 "Thermographic Study of Low Level Laser Therapy for Acute-Phase injury" Acute-phase injury is generally the region, and rarely by the acities use of low level laser therapy (LLT) in Japan. acute-phase injury is generally the region, and rarely by the acities use of low level laser therapy (LLT) in Japan. acute-phase injury is generally acute-phase injury is acute-phase injury acute-phase injury acute	S4, Hp	Pubalgia	Miglio D.	Algeri G.	Laser & Tecnology, Vol.12, N.1, 2002	2002	46-48	"Use of High Power Neodymium YAG Laser and FCZ Laser in the treatment of Pubalgia"	This study refers to the treatment of pubalgia according to a protocol in which the use of an association of two high power lasers, Nd-YAG 1064nm and FCZ 810nm 980nm, was foreseen for the first time. Due to the long	pubalgia Nd-YAG-laser FCZ-laser semiconductor laser	CLIN	GB
T1Image: Constant of the constant of	T1	Acute-Phase Injury	Asagai Y.	Imakiire A. Ohshiro T.	Laser Therapy Vol. 12, 31- 33, 2000	2000	31-33	"Thermographic Study of Low Level Laser Therapy for Acute-Phase Injury"	Acute-phase injury is generally treated by localized cooling of the region, and rarely by the active use of low level laser therapy (LLLT) in Japan. Thermographic studies of acute-	acute-phase injury thermography anke joint sprain	CLIN	GB
U1 Prostatite Cronica Abatterica Strada G. Baccalin A. III Glornate Andrologiche Italiane, Bari 13-15 ottobre 1994 © Monduzzi Editore S.p.a. 1994 87-89 "Modificazioni qualitative del liquido se prostatite cronica abatterica (PCA) dopo esposizione a laser infrarosso veicolato per via transuretrale. Drostatite cronica abatterica (PCA) dopo esposizione a laser infrarosso veicolato per via transuretrale. CLIN I Musci R. Frea B. Meroni T Scardino E. Verweji F. Musci R. Frea B. Infrarosso endouretrale" Infrarosso endouretrale Infrarosso endouretrale Infrarosso endouretrale Infrarosso endouretrale Infrarosso endouretrale Infrarosso endouretrale	T1									semiconductor		
Musci R. Frea B. Meroni T Scardino E. Verweji F.	U1	Prostatite Cronica Abatterica	Strada G.	Baccalin A.	III Glornate Andrologiche Italiane, Bari 13-15 ottobre 1994 © Monduzzi Editore S.p.a.	1994	87-89	"Modificazioni quantitative e qualitative del liquido seminale in corso di prostitate cronica abatterica (PCA) prima e dopo esposizione a laser infrarosso endouretrale"	Vengono descritte le modificazioni quantitative e qualitative del liquido seminale in 30 pz. Affetti da prostatite cronica abatterica (PCA) dopo esposizione a laser infrarosso veicolato per via transuretrale. Vengono riportati I risultati.	prostatite cronica abatterica	CLIN	1
				Musci R. Frea B. Meroni T Scardino E. Verweji F.						infrarosso endouretrale		

U2 U2	Newly Acute Chronic Prostatitis	Strada G.	Baccalin A. Frea B. Scardino E. Musci R. Rocco F.	Urologia Vol 81, 196-197, 1994 Editoriale Urologia	1994	196-197	"Trattamento con laser infrarosso endouretrale delle prostatiti croniche abatteriche riacutizzate"	The authors present a new infrared laser device with endourethral atraumatic optic fiber capable of effectively treating patients with newly acute chronic prostatitis. Costbenefit ratio is excellent and the method	newly acute chronic prostatitis endourethral atraumatic optic fiber infrared abacterial	CLIN	
U3, Hp U3, Hp	Troubles uro- génitaux	Richand P.		Schweiz. Zschr. GanzheitsMedizin 2/93, 82- 96, 1993			"Lasers et troubles uro-génitaux"	La sphère uro-génitale est particulièrement exposée, tant chez l' homme que chez la	CO2 infrared Nd-YAG uro-génitaux	CLIN	F
Ú4 U4	Prostatic Problems	Mazo V.		Laser Therapy, 1994; 6: 203-208, 1994 © Laser Therapy, Ltd.	1994	203-208	"Transrectal Low Level Laser Therapy in the Management of Prostatic Problems: A Pilot Study"	A pilot study is presented on the transrectal application of helium neon laser energy via a specially- designed probe for the treatment of chronic prostatitis in a patient population of 235. Laser therapy was administered at doses from	prostatitis benign prostatic hypertrophy prostatodynia HeNe transrectal	CLIN	GB
U5	Hypertrophie benigne de la prostate	Constancis P.	Paturange F. Andre J-M. Romeo J-M.				"Resultats preliminaires du traitement de l' hypertrophie benigne de la prostate par lasertherapie infrarouge par sonde endo-rectale"	Notre etude repose sur les effets biophysiques des lasers infrarouges: Amelioration de la micro-circulation, augmentation du drainage veineux et lymphatique, action anti- inflammatoire er antalgique. Le protocole consiste en 6 seances de lasertherapie endo-rectale, delivrant 60 joules/cm2.	hyperthrophy prostate infrared	CLIN	F
U6	Male Infertility	Hasan P.	Rijadi S.A. Purnomo S.	Laser Therapy Vol.1, No.1, 49-50, 1989 © John Wiley & Sons, Ltd.	1989	49-50	"The possible application of low reactive level laser therapy (LLLT) in the treatment of male infertility"	The clinical use of low reactive level laser therapy has been reported in several aspects of bioactivation. This study reports an investigation into the possible application of LLLT for the treatment of male infertility. Four	azoospermy oligospermy	CLIN	GB

			Kainama H.						spermatogenesis		
U6									infertile male bioactivation biostimulation		
V1 V1	Lasertherapie und Laserakupunktur in der Veterinär- und Humanmedizin	Petermann U.		Der Akupunkturarzt/Aurikuloth erapeut 2/2000, 3-13	2000	3-13	"Lokale Lasertherapie und Laserakupunktur in der Veterinär- und Humanmedizin"	Vorliegender Artikel gibt eine Übersicht über biophysikalische Grundlagen, Bedeutung und Anwendungsbereiche der Lasertherapie. Darüber hinaus sind Studienergebnisse zur Wirkung von Therapielasern präsentiert. Es werden wichtige	übersicht laserakupunktur	RE	D
V2 V2	Horses with COPD	Petermann U.		Laser & Tecnology Vol.11 N.2-3., 2001, 30-37	2001	30-37	"Laseracupuncture in horses with COPD"	105 horses with extreme COPD were treated exclusively using laser acupuncture. No other	acupuncture horse COPD infrared	CLIN	GB
V3,D	Open Wound Healing of the Teat in Cattle	Ghamsari S.M.	Yamada H. Acorda J.A. Unno N.	Laser Therapy, Vol.6, No.2., 113-118, 1994 1994 © Laser Therapy, Ltd.	1994	113-118	"Evaluation of low level laser therapy on open wound healing of the teat in dairy cattle"	Open wounds on the anterior surface of teats in four dairy cattle were irradiated using low level laser therapy. The laser used was a helium-neon system with an output of 8.5 mW,	dairy cattle teat open wound healing hydroxyproline HeNe	CLIN	GB
V4,D	Teat Wounds in Dairy Cattle	Ghamsari S.M.	Yamada H. Acorda J.A. Taguchi K. Abe N.	Laser Therapy Vol.7, No.2, 081-088, 1995 © Laser Therapy, Ltd.	1995	81-88	"Histopatholigical effects of low level laser therapy on secondary healing of teat wounds in dairy cattle"	Experimentally-induced teat wall wounds in four dairy cattle were subjected to treatment with a helium-neon laser at 632.8 nm wavelength. The 16 teats were divided in a Latin Square design into 4 groups and subjected to different doses of low level laser:	secondary healing histopathology dairy cattle teat wounds	CLIN	GB
V5	LLL-Diagnostic and Therapy in Veterinary Practice	Roesti A.		Proceedings of the 4th Congress of the World Association for Laser Therapy, 81-87, 2002 © Monduzzi Editore S.p.A.	2002	81-87	"LLL-Diagnostic and Therapy in Veterinary Practice"	This definition of life is a Paradigm of me: We are "vacuumised-light emanating- water & salt bags" with a spul and some spirit. Therefore we need first to supply us properly	vacuum water and salt resonance	RE	GB

V5								nogier and bahr frequencies		
(R6,B)	Muscle regeneration	Bibikova A.	Oron U.	Anat. Rec. 235:374-380, 1993	1993	374-380	"Promotion of muscle regeneration following cold injury to the toad (Bufo viridis) gastrocnemius muscle by low energy laser irradiation"	muscles regeneration toads animal study	VIV	GB
(R5,B)	Muscle regeneration	Bibikova A.	Oron U.	Anat. Rec. 241:123-128, 1995	1995	123-128	"Regeneration in denervated toad gastrocnemius muscle and promotion of the process by low energy laser irradiation"	regeneration muscles toads	VIV	GB
	Embryo implantation	Stein A.	Kraicer P. Oron U.	Proceedings of Low Power Light Effects in Biological Systems, Vol.3198, 24-30, 1997	1997	24-30	"Effect of low energy (He-Ne) irradiation on embryo implantation rate in the rat"	embryo rats animal study HeNe	VIV	GB
	Cardioprotective effects	Yaakov N.	Bdolah A. Wolberg Z. Ben Haim S. Oron U.	Basic.res.Cardiol.95:385- 389, 2000	2000	385-389	"Cardioprotective effects of low energy laser irradiation after intoxication of the mouse heart with sarafotoxin from the burrowing asp"	cardioprotective intoxication heart mice animal study	VIV	GB

	Activation of signal transduction pathways	Shefer G.	Oron U.	J.Cell. Physiol. 187:73-80, 2001	2001	73-80	"Low energy laser irradiation activates specific signal transductionpathway s in skeletal muscles"	signal transduction pathways	VIV	GB
			Irintchev A.					skeletal muscle		
			Wernig A. Halevy O.					cells activation		
	Infarction and Reperfusion injury	Yaakobi T.	Ben Haim S.	J. App. Physiol.			"Low energy laser irradiation on infarction and reperfusion injury in the rat heart"	infarction	VIV	GB
			Oron U.					reperfusion heart rats animal study		
(B36) Infarct size	Ad N.	Oron U.	Inter. J. Cardiol.			"The impact of low energy laser irradiation on infarct size in the rat following myocardial infarction"	myocardial infarction	VIV	GB	
								infarct size rats animal study		
	Hypertrophic heart	Oron U.	Yaakov N.	Laser Therapy (accepted to)			"Low power laser irradiation reduces interstitial scarring in isoproternol-induced hypertrophic rat heart"	interstitial scarring	VIV	GB
			Ben Haim S.					heart rats animal study		
	Histopathologica I changes in satellite cells	Oron U.	Shefer G.	Laser Therapy (accepted to)			"Low energy laser irradiation does not cause histopathological changes in satellite cells in culture"	histopatholigical changes	VIT	GB
			Cullen M. Halevi O.					satellite cell cells		

Proliferation and differentiation of osteoblasts	Stein A.	Benayahu D.	Bone (submitted to)	"Effect of low energy lasers on proliferation and differentiation of human osteoblasts in vitro"	proliferation	VIT	GB	
		Maltz L. Oron U.			differentiation osteoblasts			