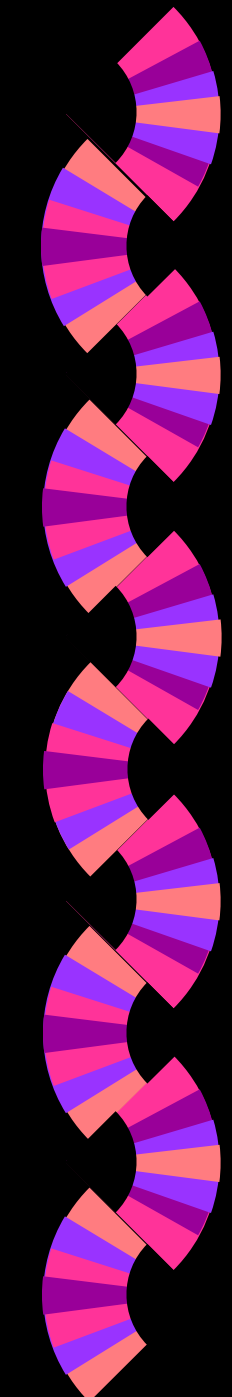


*Evidens-basert medisin
applisert på....
laserbleking*

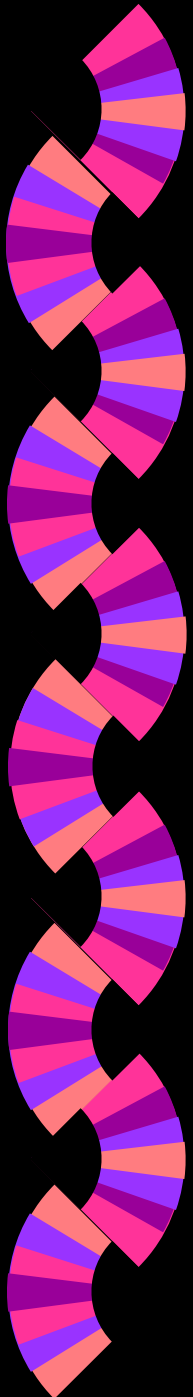
Asbjørn Jokstad

Institutt for klinisk odontologi

Universitetet i Oslo

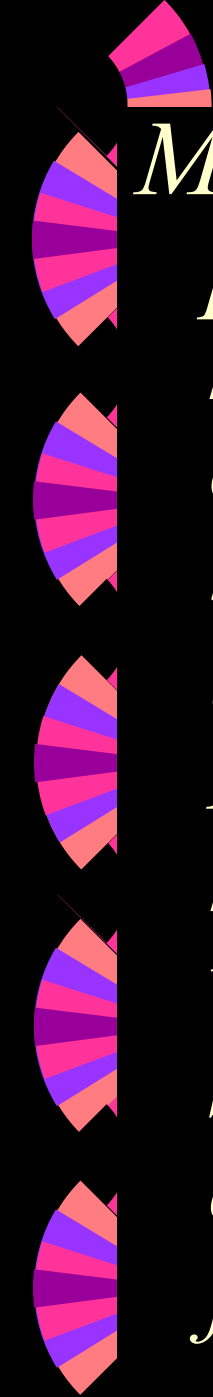


Selv om man kan betegne seg som en faglig dyktig tannlege er det til enhver tid en stor mengde ny informasjon innenfor odontologi som vi er ukjente med.

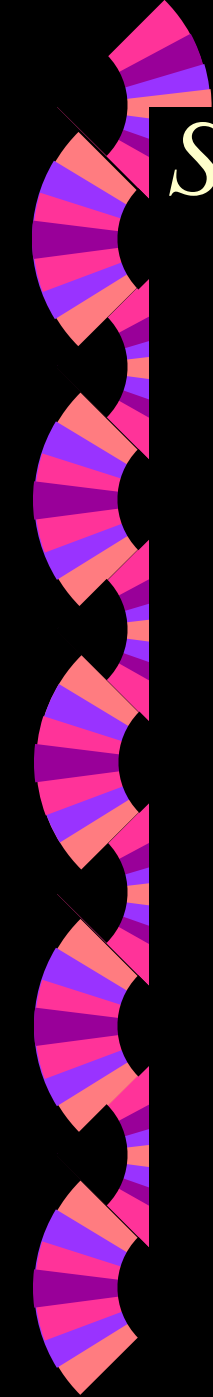


Hypotetiske problemstillinger i en hverdagspraksis

- ◆ Fyllingsmateriale A, K eller Q
- ◆ Fluor i kariesprofylakse
- ◆ Kjeveortopedi på voksne
- ◆ GTR -membraner
- ◆ Laserbleking
- ◆ Endodonti og sepsis/endokarditt
- ◆ Implantater og prognose



Min 18 år gamle datter har tilbrakt et år på high school i California og skal nå komme hjem. Entusiastisk ringer hun og sier at alle hun kjente for tiden fikk bleket tennene sine hos den lokale tannlegen med en ny laserteknikk. Ryktet fortalte at tennene skulle bli så nydelige etter behandlingen. Det var vel umulig å få noe slikt gjort i Skandinavia, så det ville vel være synd å ikke benytte den enestående sjansen før hun reiste hjem?



Siden metoden var helt ny kostet behandlingen ganske mye, faktisk alle pengene hun egentlig skulle bruke til å kjøpe klær og suvenirer for før hun skulle reise hjem om to dager. Det var jo litt synd å prioritere slikt, men jeg var vel enig? Tross alt hadde jeg vært tannlege i mange år, så jeg visste vel såpass om blekemetoder at jeg forsto hvor bra resultatene ble med laser og at dette var en riktig prioritering av henne?



Hva svarer jeg?



Hvordan praktisere EBM?

1. Generere konkrete kliniske problemstillinger

Spørsmål om terapi, prognose og bivirkninger

2. Mest mulig effektivt finne evidens

- Søkning i databaser: teknikker og muligheter
- Identifisere kliniske studier som er relevante

3. Bedømme validitet, resultat og anvendelighet

4. Anvende evidens i daglig praksis



1 - Identifisere informasjonsbehov

- 1. Medfører det mer gavn enn skade for en tenåring å laserbleke sine tenner?*
- 2. Hvor finner jeg informasjon om tannbleking med laser i løpet av 24 timer?*
- 3. Hvordan skal jeg kritisk vurdere denne informasjonen?*
- 4. Hvordan skal jeg på med mitt erfaringsgrunnlag fra klinikken ekstrapolere denne nyervervede kunnskap til beste for min datter ('s økonomi!)?*



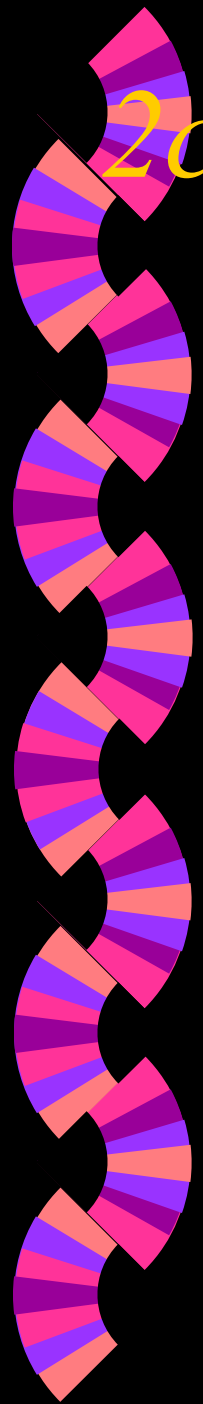
2. Søke informasjon - artikler

Min første kilde for informasjon er å lete gjennom det jeg finner av NTF's tidende. Jeg husker det var skrevet en oversiktsartikkel om bleking en tid tilbake.* Dessverre finner jeg bare noen enkelt eksempplarer av tidende, og de inneholder ikke noe informasjon om bleking.

**Pallesen U. Blegning af tænder: indikation, klinik og biologiske hensyn. Nor Tannlegefor Tid 1993;103:526-36.*

2b. Søke informasjon- lærebøker, kurs

- ◆ Lærebøkene fra egen studietid anser jeg som bortkastet å lete i.*
- ◆ På kurset om bleking jeg deltok på i fjor - (eller var det for to år siden, og hvor ble det egentlig av de notatene og kompendiet jeg fikk utlevert på kurset?) - husker jeg det ble sagt at kontorbleking var bedre enn hjemmebleking, men det ble da ikke sagt noe om laser?*



2c. Søke informasjon - WWW

- ◆ *"tooth", "bleaching" og "laser" på søkeroboter:*
- ◆ *Google,*
- ◆ *Webcrawler*
- ◆ *Yahoo,*
- ◆ *Lycos,*
- ◆ *Altavista,*
- ◆ *Excite,*
- ◆ *FAST,*
- ◆ *o.a.*



Search

[Personalize](#) | [Check Email](#)[Excite Home](#)

Go!

Search for in [Help](#)[More Search](#)Select words
to add to
your search... cosmetic dentistry peels considerably clo dyePlay a [Game!](#) [Solitaire](#) | [Video Poker](#) | [Bingo](#) | [Keno](#) | [Chess](#) | [Crossword](#) | [Spades](#) | [Hearts](#)

DELIVERY WILL BE

FREE DELIVERY
GUARANTEED LOW PRICES
OVER 20,000 ITEMS

OfficeMax.com

[Shop Now At OfficeMax.com](#)

Search Results

Directory

Web Results

[Family](#) > [Family Health](#) > [Dental Health](#) > [Cosmetic Dentistry](#) > [Tooth Whitening](#)Includes: Costs and results of power **bleaching** and **laser bleaching**... Check out the chart comparing cost, time, advantages and...
Fact sheet provided by the Academy of General dentistry...[Family](#) > [Family Health](#) > [Dental Health](#) > [Cosmetic Dentistry](#)

Includes: All but one of the cases is of work done by this esthetic... Tips for selecting a cosmetic dentist and some commonly...

[Family](#) > [Family Health](#) > [Dental Health](#) > [Find a Dentist](#) > [Oklahoma](#)

Includes: Learn about the office's preventive, cosmetic, and emergency care services. Provides a map to the dentistry in Lawton.

Amazon.com

Search for:
[TOOTH + LASER ...](#)

Etronica.com

[Laser](#)

Encyclopedia

Worldprints.com

FREE Wallpaper
[TOOTH + LASER ...](#)

Web Results

Top 10 matches. [\[657 hits. About Your Results\]](#)Show: [Titles only](#) View by: [Web site](#)79% [WhiterTeeth.com - Tooth Whitening Information Page](#) - Facts about tooth whitening, bleaching your teeth, professional and over-the-counter options, and the safest and most effective methods.<http://www.whiterteeth.com/>

[Advanced Search](#) [Preferences](#) [Search Tips](#)

tooth laser bleaching

Google Search

I'm Feeling Lucky

Searched the web for **tooth laser bleaching**. Results 1 - 10 of about 1,180. Search took 0.46 seconds.Categories: [Regional > North America > Canada > Health > Dentistry](#) [Health > Dentistry > Education > Patient](#)

[TOOTH BLEACHING, WHITE SMILE, BLEACHING, LASER BLEACHING](#)

... has become increasingly popular. Learn all about **tooth bleaching** and find the best **bleaching** ... options including information on new **laser bleaching**. ...

www.saveyoursmile.com/ws/whitesmile.html - 8k - [Cached](#) - [Similar pages](#)

[EDWARD B. WALK DMD - Tooth Whitening/Laser Bleaching - ...](#)

... **Tooth whitening** (matrix **bleaching**) is a safe, effective approach to a brighter smile. Dull yellow. ...

www.cosdent.com/white.html - 5k - [Cached](#) - [Similar pages](#)

[greatsmilenow.com -- Teeth Whitening - Laser Bleaching](#)

... more. With the recent development of **laser tooth bleaching** procedures, in just one visit you can now enjoy the benefits of whiter, brighter smiles! "Results in ...

www.greatsmilenow.com/laser.html - 12k - [Cached](#) - [Similar pages](#)

[Laser-bleaching and peroxides](#)

... but as far as I'm aware, ANYONE can open a **tooth-bleaching** parlour and start **laser bleaching** people's teeth. Maybe Ed Phillips will get some competition from ...

www.canaden.com/limeback-4.htm - 26k - [Cached](#) - [Similar pages](#)

[LASER TOOTH WHITENING](#)

... **Laser Power Bleaching** for **tooth** whitening is performed in the office under the direct supervision of a certified BriteSmile **laser** dentist. ...

209.238.182.160/Laser.html - 8k - [Cached](#) - [Similar pages](#)

[Teeth Whitening](#)

... **Laser bleaching** is an new in-office procedure that dramatically gives you whiter ... single visit, even if you've used other methods of **tooth** whitening. ...

www.laserdoc.com/teethwhi.htm - 5k - [Cached](#) - [Similar pages](#)



2c. Søke informasjon - WWW

- ◆ *Ca. 1200 referanser til temaet*
- ◆ *Anslått tid for søking 15 minutter*
- ◆ *Anslått tid for lesing av informasjon på lenkene: 50 timer*
- ◆ *Kvalitet på informasjonen?*

Main Menu

- [Why Bleach Your Teeth?](#)
- [Whitening Options](#)
 - [Tooth Paste](#)
 - [Over-The-Counter](#)
 - [Professional In-Office](#)
 - [Professional Take-Home](#)
 - [Professional Laser](#)
- [Whitening FAQ](#)
- [Before & After](#)
- [Referral Service](#)

- [Customer Services](#)
 - [Professional](#)
 - [Patient Instructions](#)
 - [Patient Questions](#)



Welcome to WhiterTeeth.com

Welcome to WhiterTeeth.com! We are here to offer you information about whitening your smile. We are the manufacturer of a tooth bleaching material that is sold through your dentist. Our aim here is to give you the facts, help you understand your options, answer your questions, and help you take the next step toward a brighter smile.

Are you looking for information on **how to whiten your teeth?**
 The reference information you seek is here:

[Why bleach your teeth?](#) Review the basic idea of whitening your teeth.



Explore the different [tooth whitening options](#) that are currently available to you.

Find answers to the most [frequently asked questions](#) about professional tooth whitening.



Check out some actual [examples](#) of brighter smiles.



[Referral Service](#) Let us help you find a dentist



Cosmetic Dentistry Center

(617) 965 - 7673 NEWTON - BOSTON

Tooth Whitening

Tooth whitening (matrix bleaching) is a safe, effective approach to a brighter smile. Dull yellow

or brown internal stains whiten best. Tetracycline

or deep medicinal stains may require an alternative

treatment such as full cover-ups with porcelain

veneers. Beware of over-bleaching, your teeth

may turn grey.

Look great in your wedding pictures!!! Whiten your teeth.....



A consultation will answer all your bleaching questions

[Next Page](#) [Zoom](#) [About Ed](#) [Home](#)

[Next Page](#)

[Rapid Orthodontics](#)

[Computer Imaging](#)

[Zoom](#)

[Porcelain Veneers](#)

[Black Lines](#)

[About Ed](#)

[Combination Cases](#)

[Tooth Whitening](#)

The Dental Health Centres™

1-888-IMPLANT™ www.1888implant.com

Laser Bleaching



"Whiter teeth in about an hour"

Laser Bleaching Includes:

1. Consultation on your expected results and candidacy for laser bleaching by one of our dentists

Cosmetic
Dentistry
Toronto
Ontario

LASER DENTISTRY

954.941.3003

Family • Cosmetic • Implant
Dentistry



The Technology Behind The Smile

Quite simply, BriteSmile's certified dentists offer the quickest, easiest and most effective deep tooth whitening process available. In the past, some kinds of stains have been resistant to traditional techniques. Now, through the use of FDA cleared laser technology - it is possible to achieve whitening results previously thought unattainable. Coffee, tobacco, tetracycline stains, and darkening due to aging and root canals can now be treated with excellent results.

Brighter Smile, Brighter Image

Your smile. It's one of the first things people notice and one of the first things that says who you are. But many of us are self-conscious about our smile. Now all that can change. BriteSmile's laser tooth whitening process gives you the brilliant smile you've always wanted.

What Happens And Why

The appointment takes approximately two hours and is performed after a brief



PLASTIC SURGERY

COSMETIC LASER DENTISTRY

PERIO - ESTHETIC - LASER DENTISTRY

Cosmetic and Laser Center

A New Kind of Esthetic Practice

Combined Harmony
Esthetic dentistry and plastic surgery

Cosmetic & Laser Dentistry Center

- Teeth Whitening Laser bleaching & or 'at home'
- Cosmetic Bonding bonding porcelain laminates & crowns
- Gum Therapy periodontal laser therapy
- Fresh Breath Treatments analysis & therapy
- Tooth Colored

Plastic Surgery & Laser Therapy Center

- Liposuction - Neck & Body Recontour
- Face, Neck and Eyelid Lift Surgery
- Breast Surgery - augmentation & reduction
- Chemical Peel - Wrinkle Treatment
- Spider Veins Removed, Collagen & Fat Injection
- Skin Cancer,



Dental Zone

www.saveyoursmile.com[Home](#) | [Parent Center](#) | [Canker Sores](#) | [Bad Breath](#) | [White Smiles](#) | [Healthy Gums](#) | [Health Articles](#)

How to Get That Great White Smile



Your smile is the first thing people notice. All of us would love to possess a brilliant movie star calibre smile. Unfortunately, for many, our smiles are anything but dazzling. All is not lost however. In the last decade amazing advances have been made in the area of tooth whitening. Discover how you can restore and preserve a brilliant white smile !

Your Guide to Getting a Great White Smile !

Find out:

- If take home bleaching kits really work
- How much should bleaching cost
- Are there side effects to bleaching
- How to chose a good whitening toothpaste
- How to treat major tooth

(Start)

[1. Why Do Our Teeth Darken ?](#)

[2. Whitening Toothpastes](#)

[3. Tooth Bleaching](#)

[4. Dental Office Bleaching](#)

[5. Take Home Bleaching Systems](#)



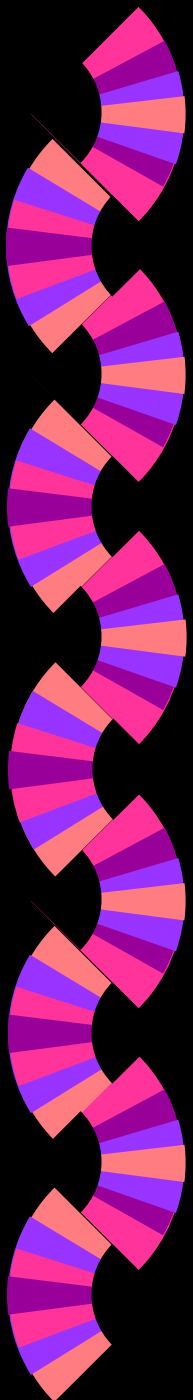
Welcome to the Academy of Laser Dentistry

The Academy of Laser Dentistry is devoted to dental laser education, research and the development of standards and guidelines for the safe and effective use of dental laser technology worldwide. Its members include top clinicians, academicians and researchers in all laser wavelengths as well as commercial manufacturers of lasers, laser accessories and high-tech products. Our new web site is still under development, so please visit us often to view our latest additions. We welcome your input on how we may improve this site to help you learn more about the exciting world of laser dentistry.

WEB SITE CONTENTS

About the Academy	Japanese Chapter of the Academy
About Laser Dentistry	
Annual Conference <small>UpDAteD!</small>	Laser Certification Program <small>UpDAteD!</small>
Advertising Information	Laser Information Network
Board of Directors	Member Directory <small>UpDAteD!</small>
Corporate Member List <small>UpDAteD!</small>	Membership Information
Curriculum Guidelines <small>UpDAteD!</small>	Other Laser Dentistry Resources
Dental Laser Courses <small>UpDAteD!</small>	Other Dentistry Resources
Dental Laser Manufacturers	Patient Information <small>NEW!</small>
Exhibitor Information	Publications/Videos
Find a Laser Dentist <small>UpDAteD!</small>	Suggested Reading - Laser Bibliography <small>NEW!</small>

Academy of Laser Dentistry
 9629 Westview Drive Suite 440
 Coral Springs, Florida 33076 USA
 Phone (954) 346-3776
 Fax (954) 757-2598



American Dental Technologies

BIOLASE Technology, Inc.

Biophotonics International

CeramOptec Inc.

Continuum Biomedical

Future Medical Technology Inc.

Infinity Dental Technologies

Innovative Optics

K Corporation

Kreativ, Inc.

Lares Research

Laser Dental Innovations

LASER Therapeutics

Millennium Dental

Technologies, Inc.

Molelectron Detector, Inc.

OpusDent

Periodontix, Inc.

Premier Laser Systems, Inc.

Schick Technologies, Inc.

Informasjon fra produsentene

- ◆ *BIOLASE Technology, Inc.:*

LazerSmile™ Tooth Whitening system, www.BIOLASE.com

- ◆ *BriteSmile, Inc. (tidl. Ion Laser Technology):*

BriteSmile 2000 Whitening System, <http://BriteSmile.com>

- ◆ *Lares Research:*

*CureStar Argon Ion Curing & Whitening Laser/Gel,
www.laresdental.com*

- ◆ *Premier Laser Systems, Inc.:*

Argon Teeth Whitener www.premierlaser.com

Ingen har henvisninger til vitenskapelige studier som påviser dokumentert effekt



Konklusjoner?



- ◆ *3 timer lesing*
- ◆ *Spennende og mye dekorativ informasjon*
- ◆ *Åpenbart beregnet for publikum og/eller pasienter*
- ◆ *dels*
 - *interessant,*
 - *vanskelig tilgjengelig,*
 - *ikke oppdatert,*
 - *markedsføring av produkter, produsenter og tannlegepraksiser*
 - *sensasjonsjournalistikk.*



How to make your Argon Teeth Whitener Profitable

Revenues:

A. New Patients - Annual

Month 1 - 2	1 patient/week	8 @ \$1,200 =	\$ 9,600
Month 3 - 6	3 patients/week	36 @ \$1,200 =	\$ 43,200
Month 6 +	4 patients/week	125 @ \$ 1,200 =	\$ 150,000
		169	\$ 202,000

B. Current Patients*

Year 1	10% of current base of 1300 patients	130 @ \$ 1,200	\$ 156,000
Year 2	15% of current base of 1300 patients	195 @ \$ 1,200	\$ 234,000
Year 3	20% of current base of 1300 patients	260 @ \$ 1,200	\$ 312,000

Expenses

Laser**	\$ 319 / month or \$ 12.80 / patient / year
Materials per patient	approximately \$ 95
Labor: 2 hours tech time	\$ 150
3/4 hour doctor's time	\$ 180
Overhead	\$ 165

Investment Returns

		Revenue	Expenses
Year 1	New Patients: 169	\$ 201,800	
Year 1	Current Patients: 130	\$ 156,000	
Expenses per patient	299 @ 590		\$ 176,000
Laser			\$ 3,828
Total Revenue Year 1		\$ 363,800	
Total Expense Year 1		\$ <180,228>	
Net Profit		\$ 183,572	

● Payback on Laser: 18 patients

● ROI in 1 year: \$183,572





Author



Title



Journal

Search
Fields

Tools



Combine



Limit

Change
Database

Logoff

#	Search History	Results	Display
1	exp tooth/	37005	Display
2	exp lasers/	19737	Display
3	1 and 2	187	Display
4	exp tooth discoloration/	1521	Display
5	exp tooth bleaching/	684	Display
6	4 or 5	1862	Display
7	2 and 6	13	Display

 Run Saved Search Save Search History Delete All Searches

- ◆ *En laboratoriestudie (på japansk)*
- ◆ *Fire artikler som beskriver at laserbleking nå er kommet på markedet og brukes av tannleger, to editorials, tre leserbrev samt tre oversiktsartikler.*
- ◆ *Ingen kliniske studier*



3. Kritisk analysere litteraturen

Oversiktsartikler

- ◆ *En studie med henvisning til egen kasus-serie beskriver laserbleking meget positivt*

- **Reyto R. Laser tooth whitening. Dental Clinics North America 1998; 42: 755-62, xi**

- ◆ *To andre artikler er avventende*

- **Garber DA. Dentist-monitored bleaching: a discussion of combination and laser bleaching. J Am Dent Assoc 1997; 128 Suppl: 26S-30S.**
- **ADA Council on Scientific Affairs. Laser-assisted bleaching: an update. J Am Dent Assoc 1998; 129: 1484-7.**



3. Kritisk analysere litteraturen

- ◆ *En kontrollert laboratoriestudie ble presentert på verdens største fagmøte (IADR) for tannleger i 1998*
- ◆ *Ingen studier rapportert på IADR i 1999 & 2000*
- ◆ *Informasjonsinnholdet i abstraktet er begrenset, typisk for denne type rapporter.*
 - Jones AH et al . Colorimetric assessment of laser and home bleaching techniques. AADR abs. 229. J Dent Res 1998; 77.
- ◆ *Referanselistene inkluderer laboratorieforsøk, men ingen kliniske studier.*



Hva skal man tro på?

Vitenskapelige studier kan rangeres etter sannsynlighet for at konklusjonene kan være ukorrekte.

Anvend retningslinjer for kritisk analyse av vitenskapelig litteratur



4. Applisere nyervervet kunnskap

- ◆ *Laserbleking har liten eller ingen vitenskapelig dokumentasjon*
- ◆ *Laserbleking har ikke noen nevneverdige fordeler sammenliknet med konvensjonell bleking.*
- ◆ *Prinsippet for blekemekanismen virker tilnærmet identisk med konvensjonell bleking bortsett fra at laserlyset blir brukt til å varme opp ulike patenterte og "hemmelige" blekepastaer*