EVIDENCE BASED MEDICINE

Dr. Szabó Enikő
associate professor

Dr. Varga Eszter
dental specialist

Evidence Based Medicine

Integration of the most reliable scientific evidence into clinical practice, along with clinician's experience and the expectations of the patient

Forrest JL, Miller SA, Evidence-Based Decision Making in Action: Part 2 - Evaluating and Applying the Clinical Evidence, J Contemp Dent Pract 2003 February,(4)1:42-52

Evidence Based Medicine

Evidence Based Dentistry

Evidence Based Practice

Evidence Based Medicine

clinical practice

decision making = complex process

clinical examination

Evidence Based Medicine

integrates

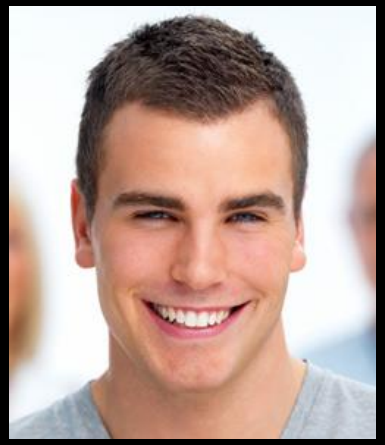
best– strongest– reliable

scientific evidence

patients' expectations and wishes

individual professional experience

Evidence Based Medicine



Result:

- re-establish function
- re-establish esthetics
- patient satisfaction

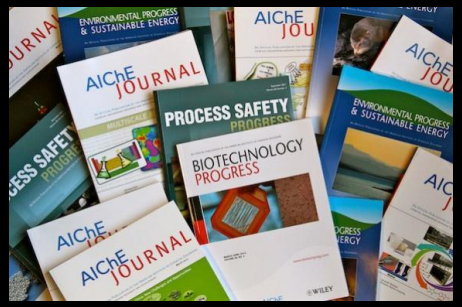
- **longterm success**

Evidence Based Medicine

- targets restoring patient's health
- relies on individual professional experience of clinician
- helps everyday practice of clinician

based on basic and clinical research

Evidence Based Medicine



choosing scientific evidence
from numerous data available

choosing the appropriate data
critical view

apply

Evidence Based Medicine

„best" „strongest" „reliable"

scientific evidence

Evidence Based Medicine

most valuable evidence:

scientific publication

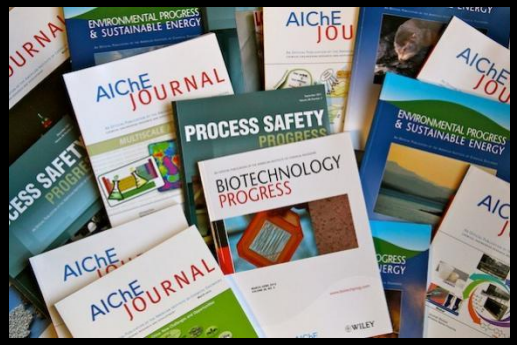
systemic review of
large numbers of
studies, basic and clinical research results

systematic review

meta-analysis

For evidence based medicine you must know :

- value
- level of evidence



scientific database

research, study results

SCIENTIFIC DATABASE

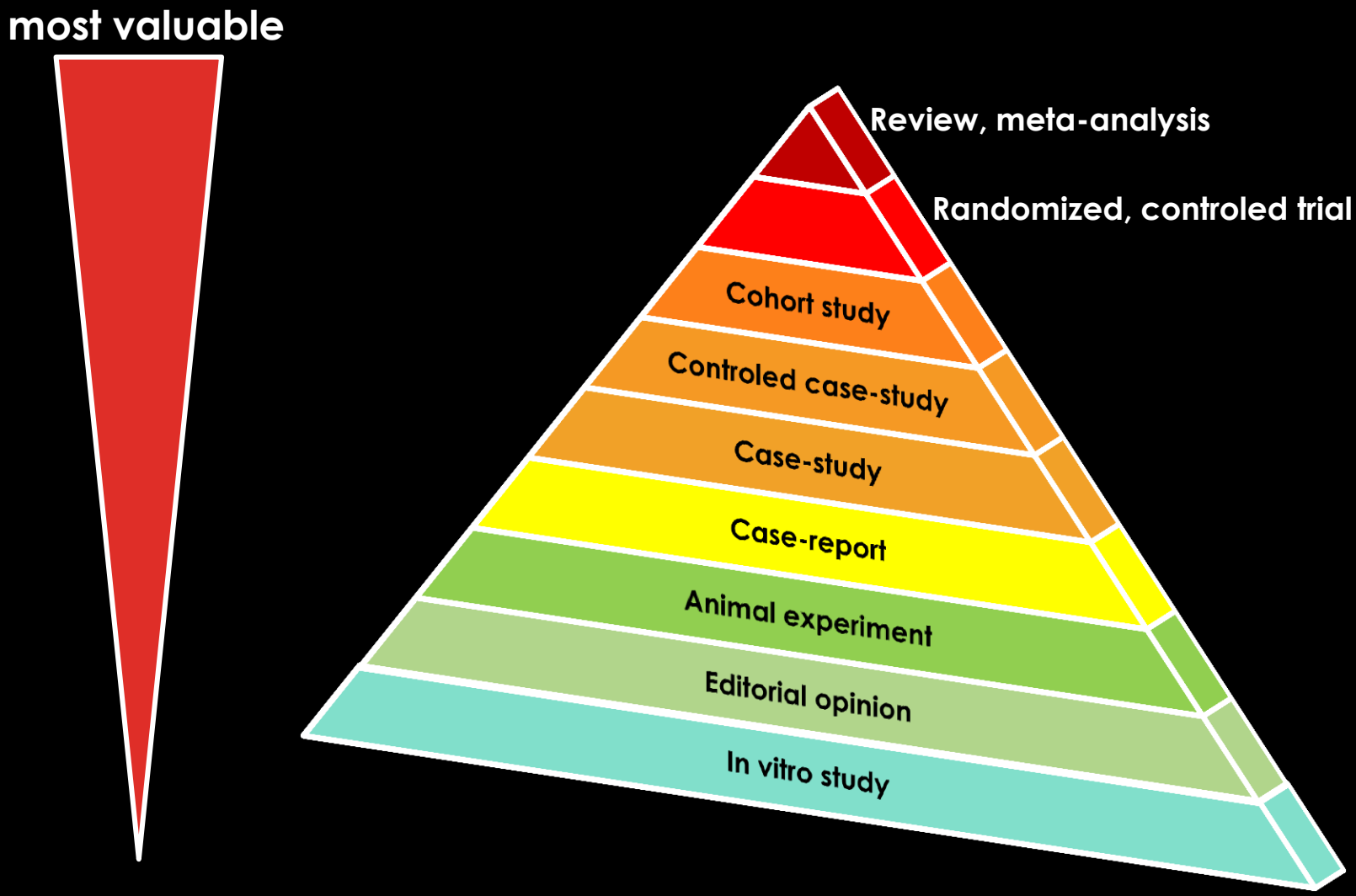
- **Primary scientific source**

original publication of research and study

- **Secondary scientific source**

summary of primary scientific work

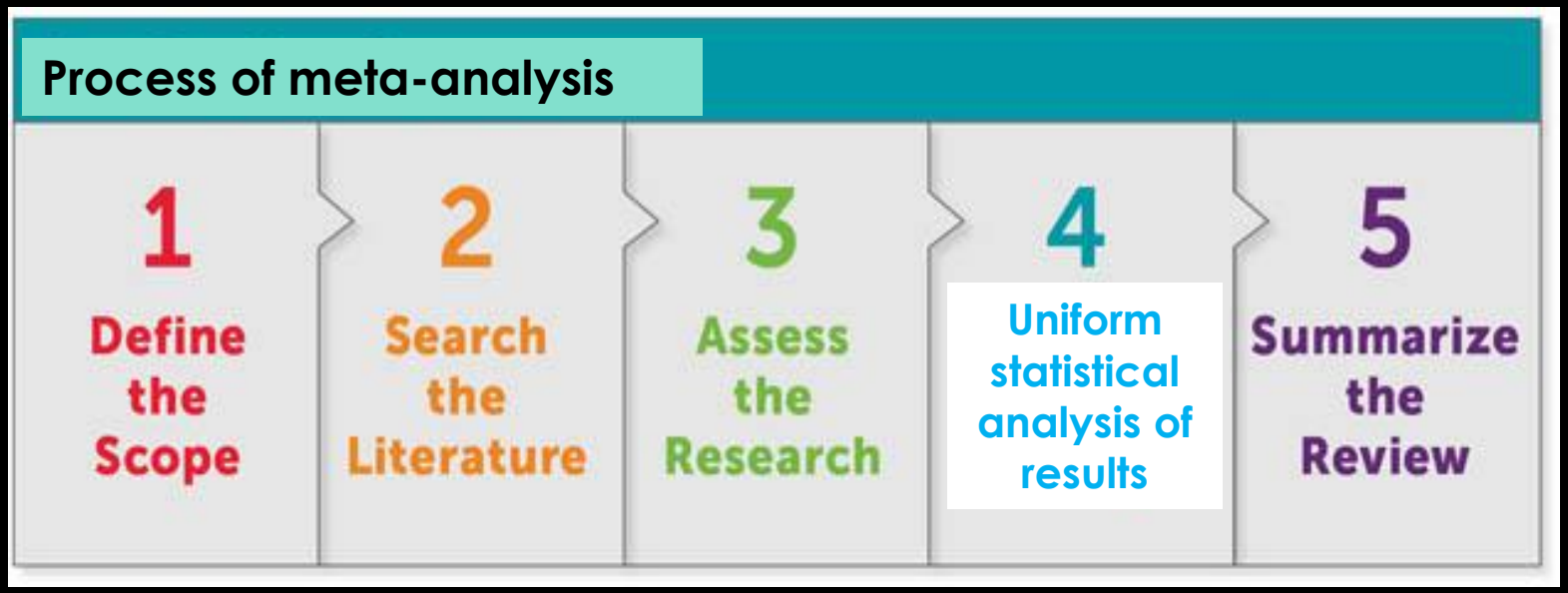
DETERMINING LEVEL OF EVIDENCE



Systemic review

www.mathematica-mpr.com-

META-ANALYSIS



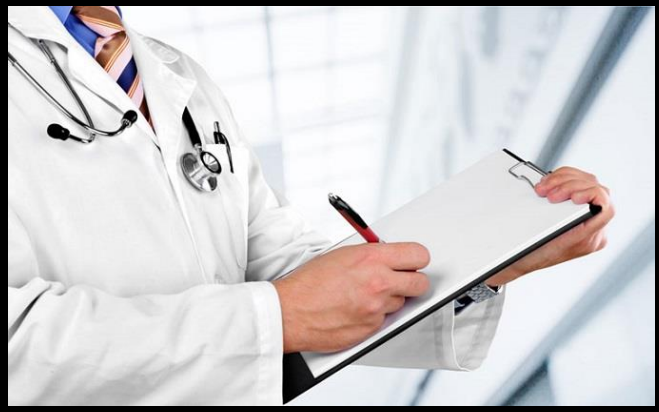
systemic review of articles and
uniform statistical analysis of results found

RANDOMIZED CONTROLED TRIALS

randomly chosen patients

treatment

placebo



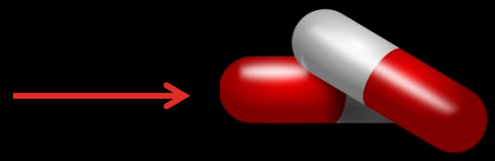
treated vs control

Randomized controlled trial: (RCT) A study in which people are allocated at random (by chance alone) to receive one of several clinical interventions. One of these interventions is the standard of comparison or control. The control may be a standard practice, a placebo ("sugar pill"), or no intervention at all.

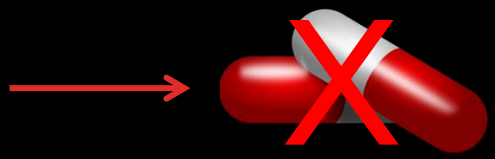
COHORT STUDY

exposed patient

control patient



treatment



no treatment

event

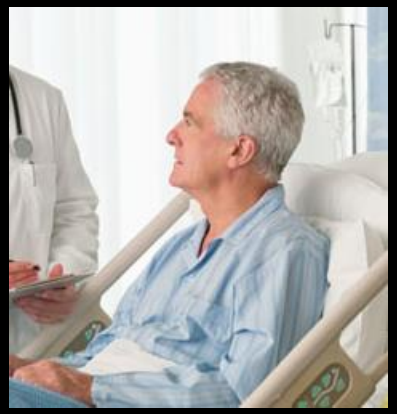
no event

event

no event

Cohort study: For research purposes, a cohort is any group of people who are linked in some way. For instance, a birth cohort includes all people born within a given time frame. Researchers compare what happens to members of the cohort that have been exposed to a particular variable to what happens to the other members who have not been exposed.

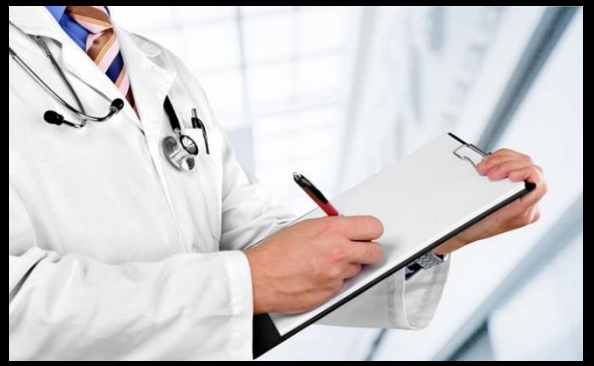
CASE CONTROL STUDY



MRONJ patients

control

RCT of chr apic. period.



patient vs control

Case control study: Here researchers identify people with an existing health problem ("cases") and a similar group without the problem ("controls") and then compare them with respect to exposure.

CASE REPORT

patient

treatment

results

Case report: an article that describes and interprets an individual case. Case reports often describe: unique cases that cannot be explained by known diseases or syndromes, cases that show an important variation of a disease or condition, cases that show unexpected events that may yield new or useful information, cases in which one patient has two or more unexpected diseases or disorders

METHOD OF DETERMINING THE LEVEL OF EVIDENCE

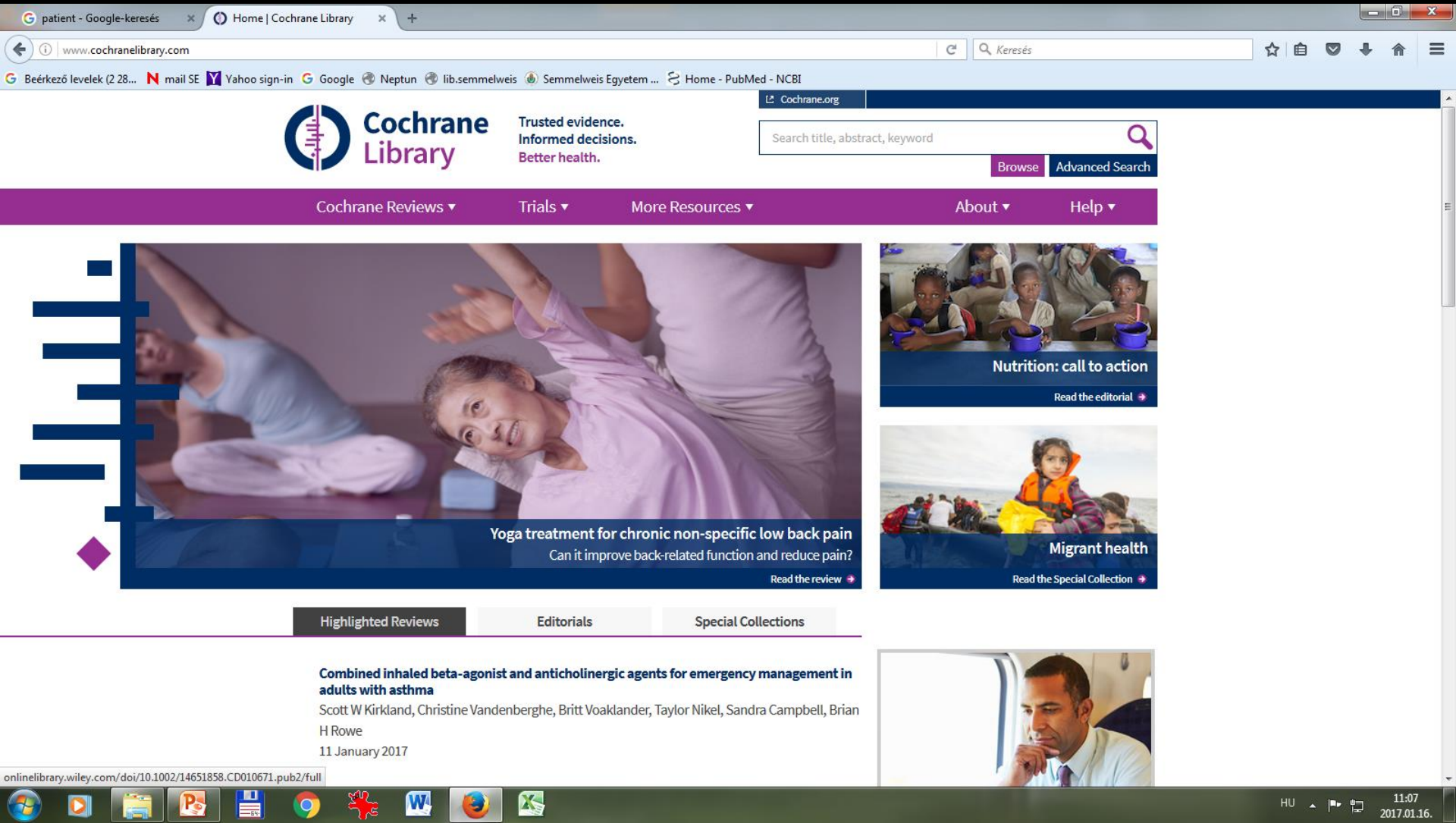
Ref: based on Oxford Centre for Evidence-Based Medicine. 2009.

1a	reviews, meta-anlysis, meta-anlysis of RCT	randomized control trials (RCT)
1b	good quality cohort studies	randomized control trials (RCT)
2a	good quality controled studies	homogen cohort studies
2b	cohort studies	
3	case controled studies	
4	case reports	professional opinions

SCIENTIFIC DATABASE

ONLINE DATABASE

www.**cochranelibrary**.com/



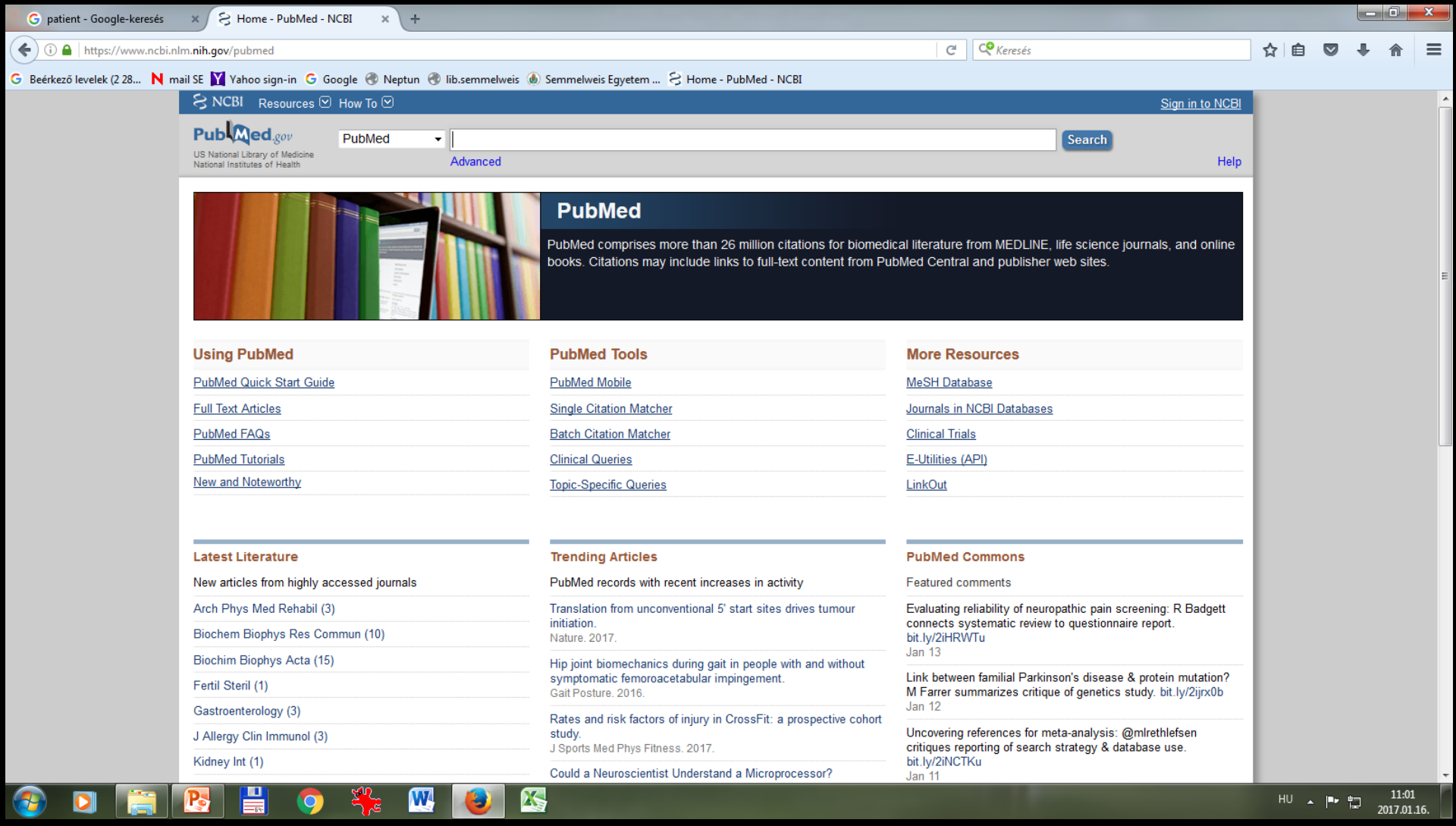
www.**cochranelibrary**.com/

The *Cochrane Library* is a collection of high-quality, independent evidence to inform healthcare decision-making. Systemic reviews and meta-analysis

preparation and maintenance of systematic reviews. There are more than 50 CRGs, based in research institutions worldwide, each focused on a specific topic of health research.

To produce high-quality, relevant, up-to-date systematic reviews and other synthesized research evidence to inform health decision making.

https://www.ncbi.nlm.nih.gov/**pubmed**



*https://www.ncbi.nlm.nih.gov/**pubmed***

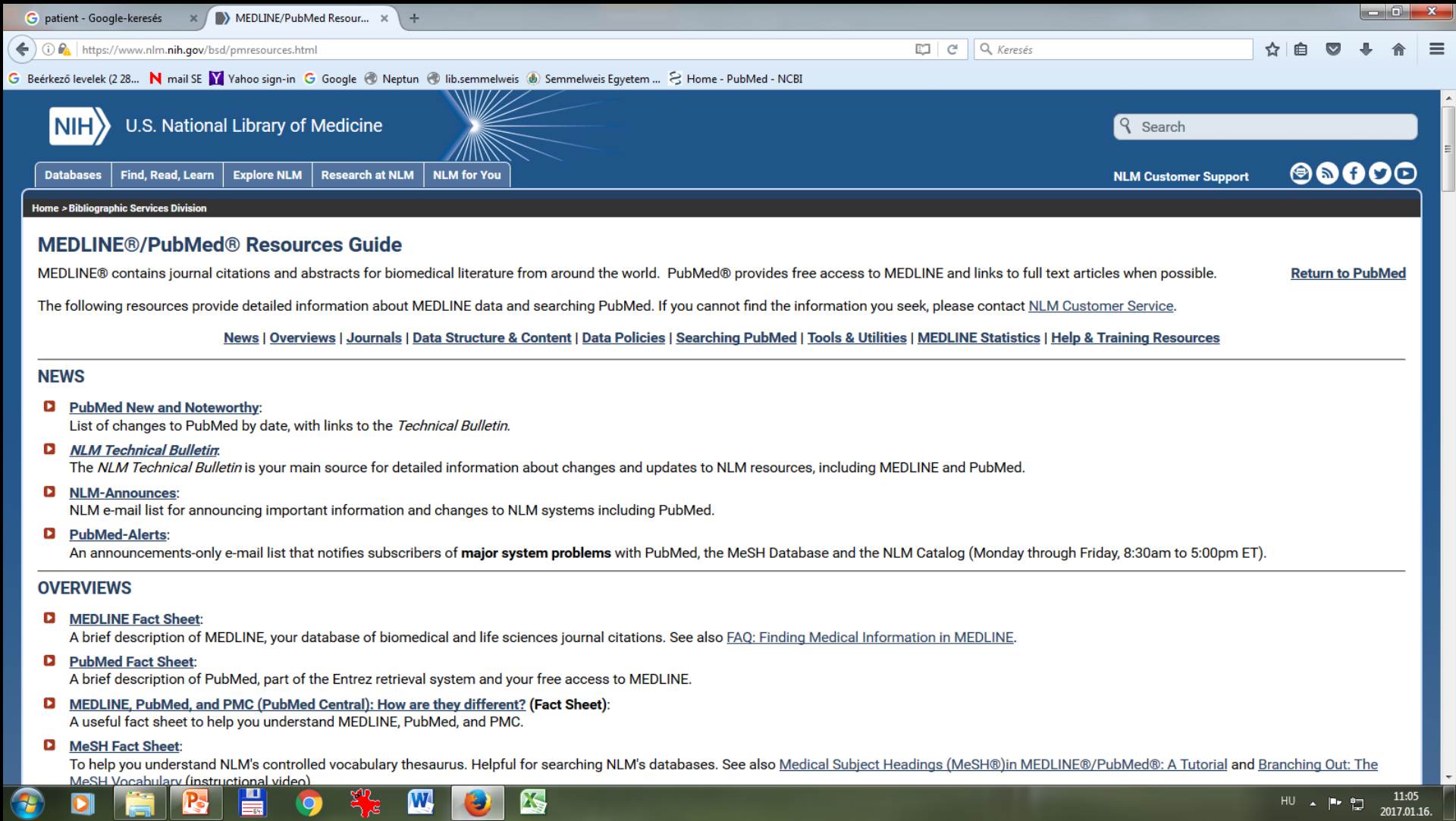
PubMed comprises more than 26 million citations for biomedical literature from MEDLINE, life science journals, and online books.

https://www.ncbi.nlm.nih.gov › NCBI › Literature

PubMed Central® (PMC) is a free full-text archive of biomedical and life sciences journal literature at the U.S. National Institutes of Health's National Library of .

medline:

https://www.nlm.nih.gov/bsd/pmresources.html

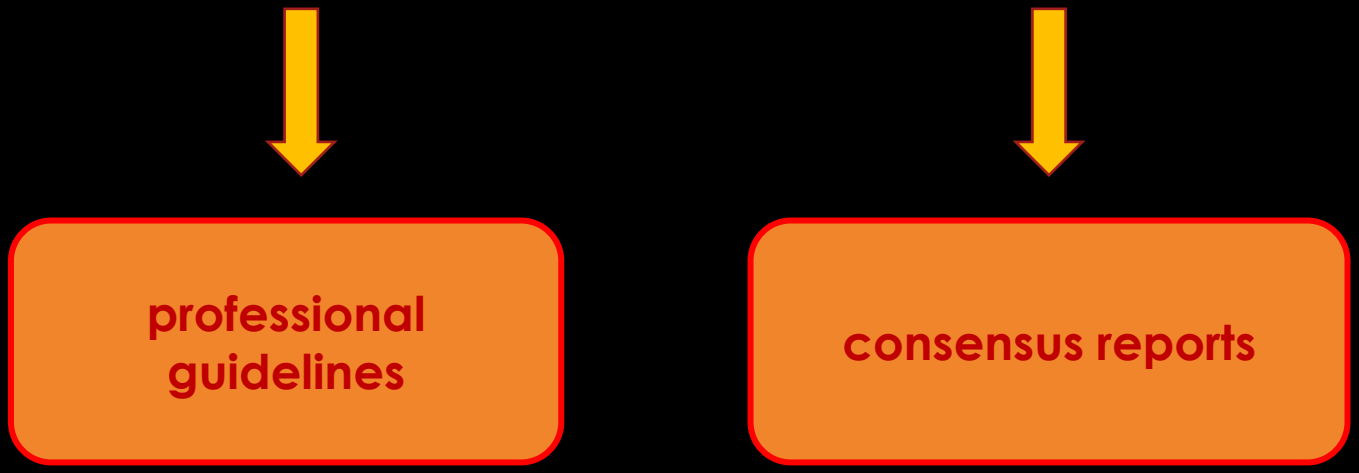


https://www.nlm.nih.gov/bsd/pmresources.html

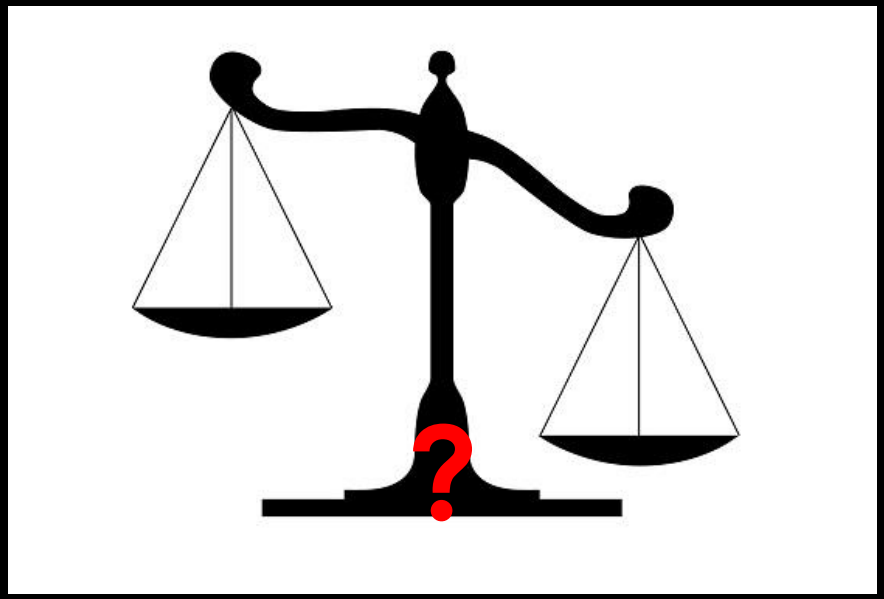
MEDLINE® contains journal citations and abstracts for biomedical literature from around the world.

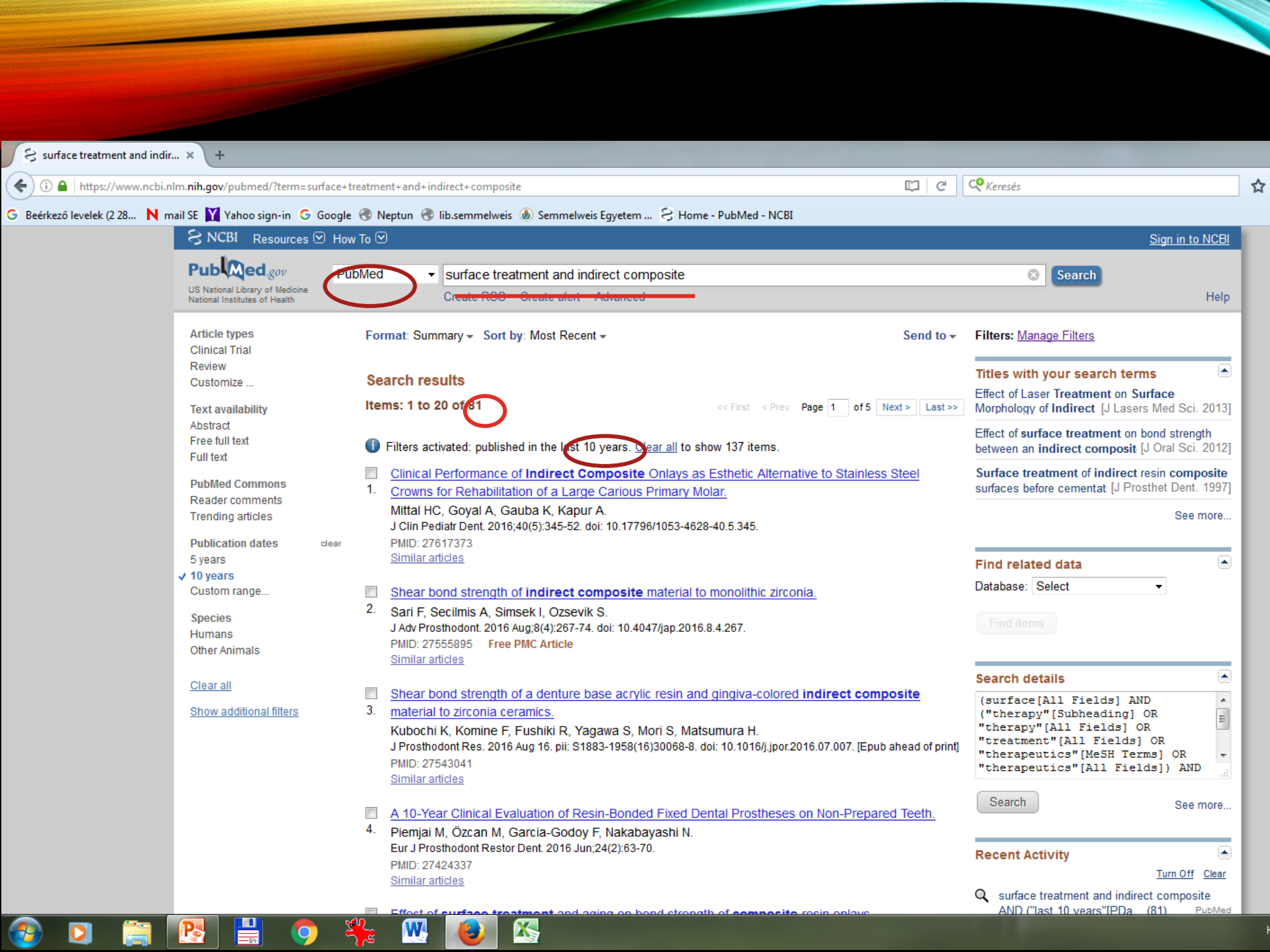
Evidence Based Practice

systemic reviews
meta-analysis
high level evidence publications



Which surface treatment gives better results when cementing indirect composite restorations?




surface treatment and indir...
https://www.ncbi.nlm.nih.gov/pubmed/?term=surface+treatment+and+indirect+composite
Keresés
Beérkező levelek (2 28...
mail SE
Yahoo sign-in
Google
Neptun
lib.semmelweis
Semmelweis Egyetem ...
Home - PubMed - NCBI
NCBI
Resources
How To
Sign in to NCBI
PubMed.gov
US National Library of Medicine
National Institutes of Health
PubMed
surface treatment and indirect composite
Search
Create RSS
Create alert
Advanced
Help
Article types
Clinical Trial
Review
Customize ...
Text availability
Abstract
Free full text
Full text
PubMed Commons
Reader comments
Trending articles
Publication dates
clear
5 years
10 years
Custom range...
Species
Humans
Other Animals
Clear all
Show additional filters
Format: Summary
Sort by: Most Recent
Send to
Search results
Items: 1 to 20 of 81
<< First
< Prev
Page 1 of 5
Next >
Last >>
Filters activated: published in the last 10 years. Clear all to show 137 items.
1. Clinical Performance of Indirect Composite Onlays as Esthetic Alternative to Stainless Steel Crowns for Rehabilitation of a Large Carious Primary Molar.
Mittal HC, Goyal A, Gauba K, Kapur A.
J Clin Pediatr Dent. 2016;40(5):345-52. doi: 10.17796/1053-4628-40.5.345.
PMID: 27617373
Similar articles
2. Shear bond strength of indirect composite material to monolithic zirconia.
Sari F, Secilmis A, Simsek I, Ozsevik S.
J Adv Prosthodont. 2016 Aug;8(4):267-74. doi: 10.4047/jap.2016.8.4.267.
PMID: 27555895 Free PMC Article
Similar articles
3. Shear bond strength of a denture base acrylic resin and gingiva-colored indirect composite material to zirconia ceramics.
Kubochi K, Komine F, Fushiki R, Yagawa S, Mori S, Matsumura H.
J Prosthodont Res. 2016 Aug 16. pii: S1883-1958(16)30068-8. doi: 10.1016/j.jpor.2016.07.007. [Epub ahead of print]
PMID: 27543041
Similar articles
4. A 10-Year Clinical Evaluation of Resin-Bonded Fixed Dental Prostheses on Non-Prepared Teeth.
Piemjai M, Özcan M, Garcia-Godoy F, Nakabayashi N.
Eur J Prosthodont Restor Dent. 2016 Jun;24(2):63-70.
PMID: 27424337
Similar articles
Filters: Manage Filters
Titles with your search terms
Effect of Laser Treatment on Surface Morphology of Indirect [J Lasers Med Sci. 2013]
Effect of surface treatment on bond strength between an indirect composit [J Oral Sci. 2012]
Surface treatment of indirect resin composite surfaces before cementat [J Prosthet Dent. 1997]
See more...
Find related data
Database: Select
Find items
Search details
(surface[All Fields] AND ("therapy"[Subheading] OR "therapy"[All Fields] OR "treatment"[All Fields] OR "therapeutics"[MeSH Terms] OR "therapeutics"[All Fields]) AND
Search
See more...
Recent Activity
Turn Off
Clear
surface treatment and indirect composite AND ("last 10 years"[PDa ... (81) PubMed

Effect of **surface treatment** and aging on bond strength of **composite** resin onlays.
Cura M, González-González I, Fuentes V, Ceballos L.
J Prosthet Dent. 2016 Sep;116(3):389-96. doi: 10.1016/j.prosdent.2016.02.016.

Effect of **indirect composite treatment** microtensile bond strength of self-adhesive resin cements.
Fuentes MV, Escribano N, Baracco B, Romero M, Ceballos L.
J Clin Exp Dent. 2016 Feb 1;8(1):e14-21. doi: 10.4317/jced.52754.

Effects of different **surface** treatments on bond strength of an **indirect composite** to bovine dentin.
Poskus LT, Meirelles RS, Schuina VB, Ferreira LM, da Silva EM, Guimarães JG.
Indian J Dent Res. 2015 May-Jun;26(3):289-94. doi: 10.4103/0970-9290.162884.

Shear bond strength of a self-etched resin cement to an **indirect composite**: effect of different **surface** treatments.
Harorli OT, Barutcugil C, Kirmali O, Kapdan A.
Niger J Clin Pract. 2015 May-Jun;18(3):405-10. doi: 10.4103/1119-3077.151783.
PMID: 25772927

indirect composite resin bonding: effect of various **surface** treatments.
Kirmali O, Barutcugil C, Harorli O, Kapdan A, Er K.
Scanning. 2015 Mar-Apr;37(2):89-94. doi: 10.1002/sca.21183.

Effects of **surface** treatment on micro shear bond strength of two **indirect composites**.
Moezizadeh M, Ansari ZJ, Fard FM.
Journal of Conservative Dentistry. 2012; 15(3):228-232

Further research in the bibliography of the articles found:

Evaluation of new methods for composite repair.
Swift EJ Jr, LeValley BD, Boyer DB.
Dental Materials. 1992; 8(6):362-5

Effect of a silane couplimg agent on composite repair strengths.
Swift EJ Jr, Cloe BC, Boyer DB.
Am J Dent. 1994; 7(4):200-2

Surface treatment of indirect resin composite surfaces before cementation.
Hummel SK, Marker V, Pace L, Goldefogle M.
J Prosth Dent. 1997

Effects of grit blasting and silanization on bond strength of a resin luting cement to Belle GlassHP indirect composite.
Ellakwa AE, Shortall AC, Burke FJ, Marquis PM.
Am J Dent. 2003

Surface conditioning of a composite used for inlay/onla restorations:effect on muTBS to resin cement.
Valandro LF, Pelogia F, Galhano G, Bottino MA, Mallman A.
J Adhes Dent. 2007

Effect of three surface treatments on the adhesive properties of indirect composite restorations.
D'Arcangelo C, Vanini L.
J Adhes Dent. 2007

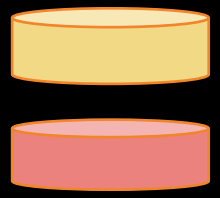
Effect of hydrofluoric acid etching on shear bond strength of an indirect resin composite to an adhesive cement.
Hori S, Minami H, Minesaki Y, Matsumura H, Tanaka T.
Dental Mat J. 2008

Only those articles were excluded, where only the abstract was available

WHICH SURFACE TREATMENT GIVES BETTER RESULTS WHEN CEMENTING INDIRECT COMPOSITE RESTORATIONS?

Effects of **surface** treatment on micro shear bond strength of two **indirect composites**.
Moezizadeh M, Ansari ZJ, Fard FM.
Journal of Conservative Dentistry. 2012; 15(3):228-232

Study protocol:
Gradia/SignumPlus **composite** discs were bound to Panavia (etch&rinse) dual-curing **composite cement**. Shear bond strength was studied.



Gradia **Signum Plus**	**37% Ph + silane**	**Al_2O_3 50µm 2mm 80PSI 10 sec + silane**	**ErCrYSGG 0/5W 25mJ 140 µsec 20Hz**	**ErCrYSGG 1W 50mJ 140 µsec 20Hz**	**ErCrYSGG 2W 100mJ 140 µsec 20Hz**

Gradia	**Al_2O_3 + silane**
Signum Plus	**ErCrYSGG/1W/50mJ**

Why is there a difference? Possibly the difference is in filler content, but does not say.

WHICH SURFACE TREATMENT GIVES BETTER RESULTS WHEN CEMENTING INDIRECT COMPOSITE RESTORATIONS?

Effects of different **surface** treatments on bond strength of an **indirect composite** to bovine dentin.

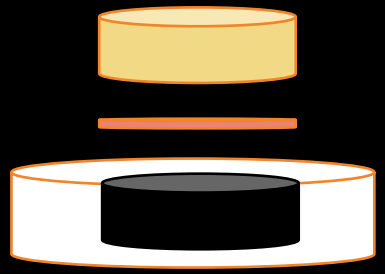
Poskus LT, Meirelles RS, Schuina VB, Ferreira LM, da Silva EM, Guimarães JG. Indian J Dent Res. 2015 May-Jun;26(3):289-94. doi: 10.4103/0970-9290.162884.

Study protocol:

150 **dentin** discs were prepared from bovine teeth. Cavity was prepared thena semi-direct **composite** disc was made into the cavity. Final polimerization was carried out in photopolimerizating chamber.

Dentin discs were tretaed: 37% orthophosphoric acid 15 sec, then application of **activator, then primer, then catalyst.**

The composite discs were cemented in the cavity by RelyX Arc dual-curing cement.



No treat-ment	Al_2O_3 50µm 20mm 2 Bar 10 sec	=	Al_2O_3 50µm 20mm 2 Bar 10 sec + silane	10% HF 90 sec	<	10% HF 90 sec + silane	Al_2O_3 + 10% HF	Al_2O_3 + 10% HF + silane

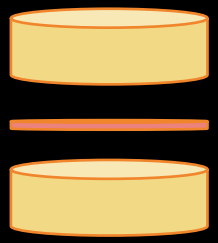
96% ethanol	ethanol + silane	Al_2O_3 + ethanol	Al_2O_3 + ethanol + silane	24% H_2O_2	H_2O_2 + silane	Al_2O_3 + H_2O_2	Al_2O_3 + H_2O_2 + silane

- silane after air abrasion does not significantly change adhesion
- silane after HF significantly changes adhesion
- HF treatment does not increase shear bond strength, it softens matrix
- % is important, 10% here is too much
- ethanol, H_2O_2 treatment of air abraided surface increases adhesion

WHICH SURFACE TREATMENT GIVES BETTER RESULTS WHEN CEMENTING INDIRECT COMPOSITE RESTORATIONS?

Effect of **surface treatment** and aging on bond strength of **composite** resin onla
Cura M, González-González I, Fuentes V, Ceballos L.
J Prosthet Dent. 2016 Sep;116(3):389-96. doi: 10.1016/j.prosdent.2016.02.016.

Study protocol:
Filtek Z250 **composite** discs were cemented to each other by RelyX Ultimate dual-curing composite **cement**. Surface treatment was preformed only on one disc. Shear bond stength was determined between composite disc and cement after 24h and 6 months aging.



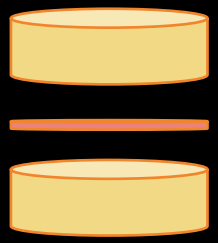
Al_2O_3 27µm 10mm 0,25MPa 10 sec + adhesive	Al_2O_3 27µm 10mm 0,25MPa 10 sec + silane + adhesive	Al_2O_3 27µm 10mm 0,25MPa 10 sec + adhesive w/silane	Triboche-mical silicate treatment + adhesive	Triboche-mical silicate treatment + silane + adhesive	Triboche-mical silicate treatment + adhesive w/silane
24h	**Al_2O_3 + adhesive**		**Al_2O_3 + adhesive w/silane**		
6 months	**Al_2O_3 + adhesive w/silane**		**Tribochemical + adhesive w/silane**		

Adhesive w/ silane: authors think that success is not due to silane, but MDP monomernek. A monomer, that inhibits the degredation of hybrid layer.

WHICH SURFACE TREATMENT GIVES BETTER RESULTS WHEN CEMENTING INDIRECT COMPOSITE RESTORATIONS?

Effect of hydrofluoric acid etching on shear bond strength of an indirect resin composite to an adhesive cement.
Hori S, Minami H, Minesaki Y, Matsumura H, Tanaka T.
Dental Mat J. 2008

Study protocol:
Estenia C&B **composite** discs were cemented to each other with dual-curing Panavia composite **cement**. Surface treatment was preformed on both discs. Shear bond strength was determined between both discs and cement after 24h aging.

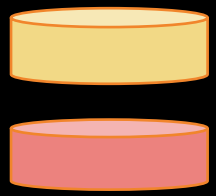


no treatment	**Al_2O_3 50µm ?mm 0,2MPa 5 sec**	**Al_2O_3 50µm ?mm 0,2MPa 5 sec + silane**	**1% HF 30 sec**	**1% HF 5 min**	**1% HF 10 min**	**1% HF 5 min + silane**

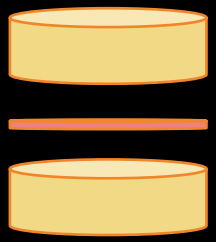
<

According to authors an only 1% HF treatment for 5 min is better than air abrasion. Reason is that in glass filled composites deeper porus are created by acid etch, than by abrasion. Silane treatment did not significantly increase bond strength.

SUMMARY OF RESULTS FOUND

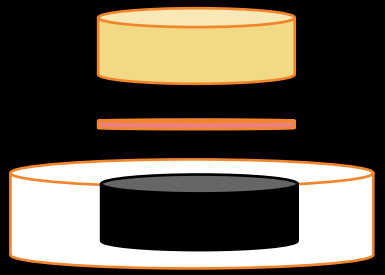


Al_2O_3 + S
ErCrYSGG 1W/50mJ



Al_2O_3 + adh	Al_2O_3 + S adh	Tribo + S adh

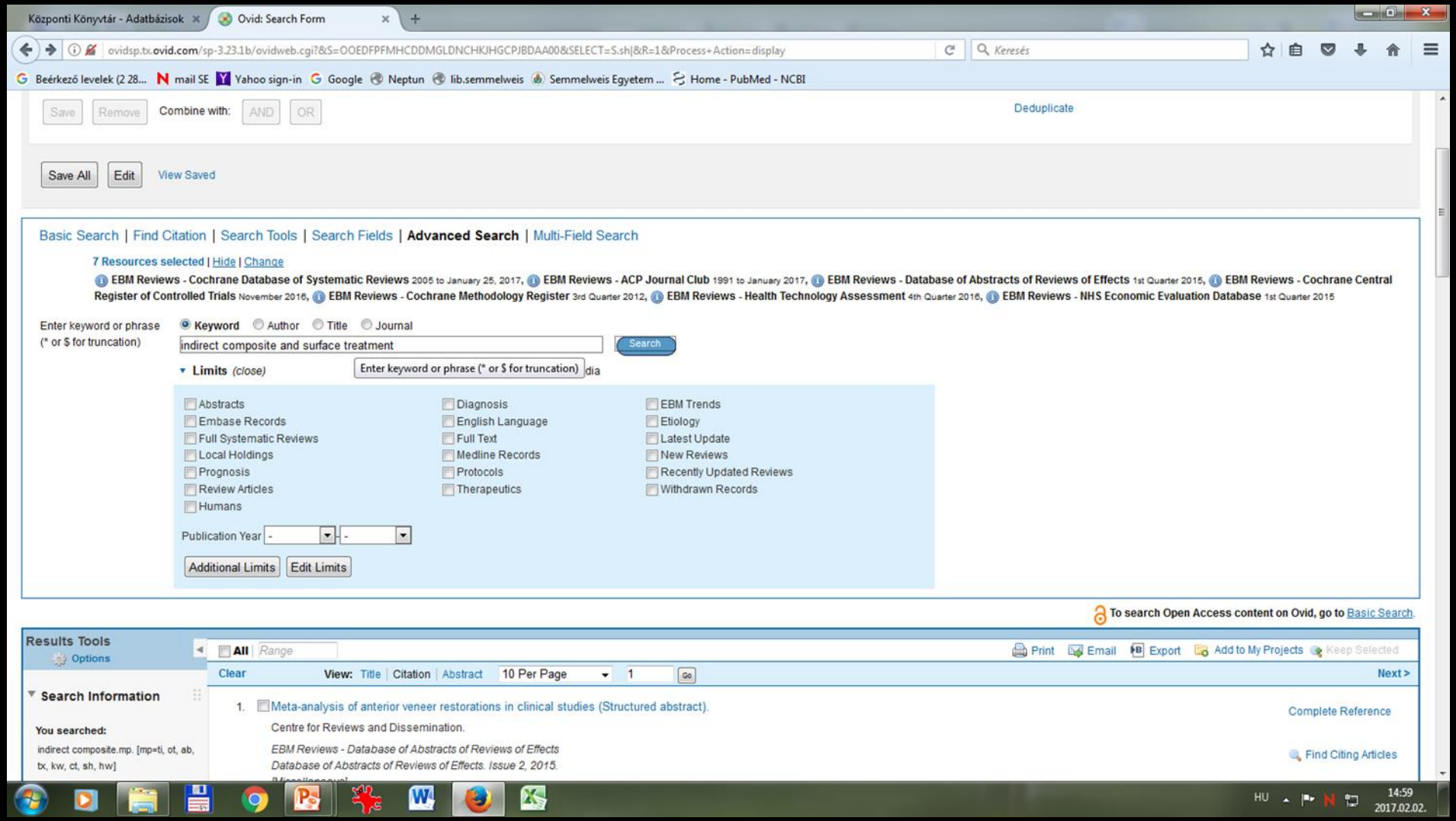
1% HF
5 min

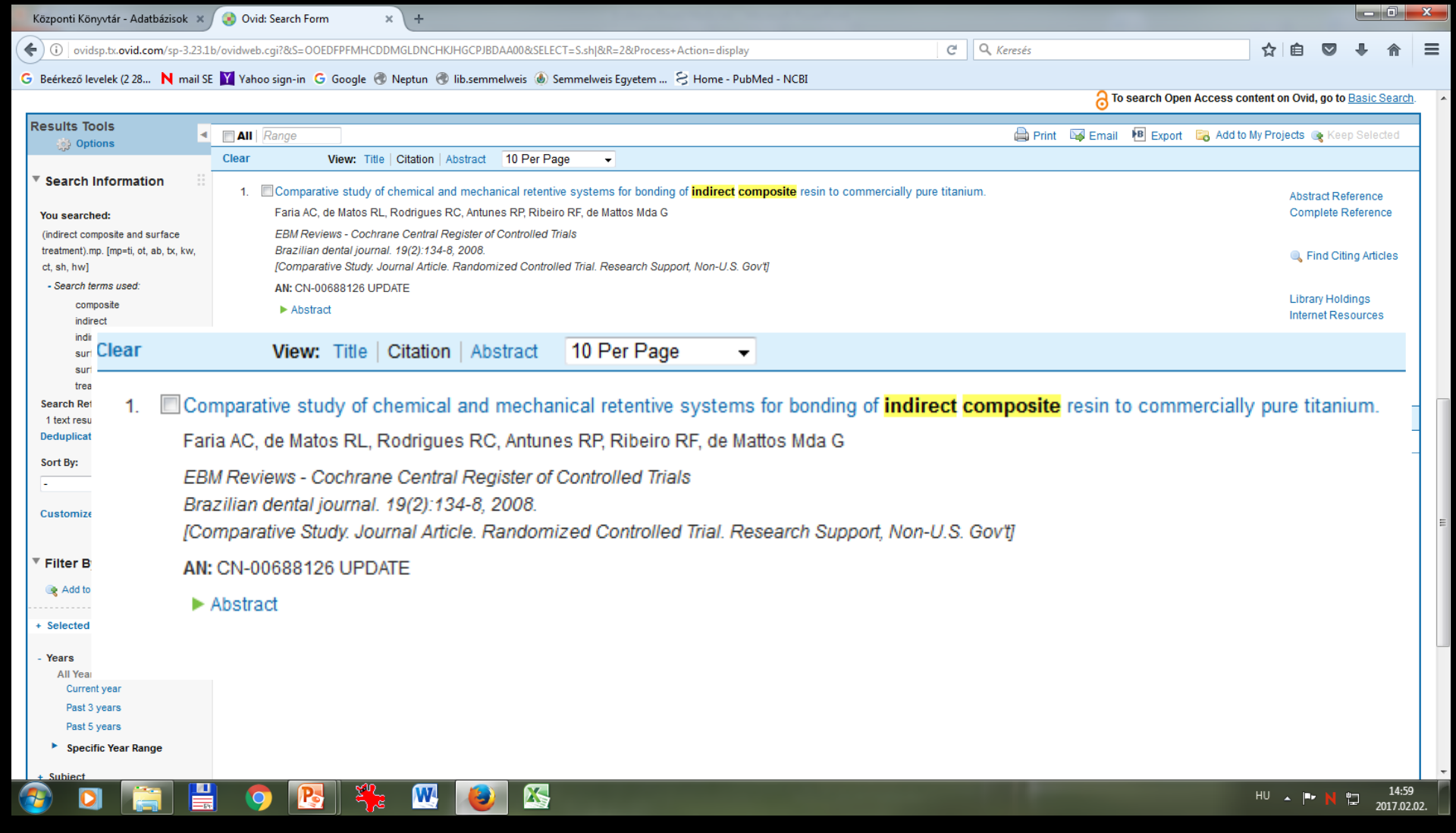


Al_2O_3 + eth	Al_2O_3 + eth + S	Al_2O_3 + H_2O_2 + S

CONCLUSION

- studied surfaces are not the same: composite-composite/dentin-composite
- used adhesive technique is not same: etching time, adhesive type
- articles mostly use one type of composite
- filler types are not distinquished
- microporus is made by:
    - airabrasion - removes matrix
    - HF acid - removes glass and ceramic filler particles
    - tribochemical treatment - creates silicate coating
- these are *in vitro studies*: evidence level is low
- more meticulously planned studies and clinical studies are needed


Központi Könyvtár - Adatbázisok
Ovid: Search Form
ovidsp.tx.ovid.com/sp-3.23.1b/ovidweb.cgi?&S=OOEDFPFMHCDDMGLDNCHKJHGCPJBDAA00&SELECT=S.sh|&R=1&Process+Action=display
Keresés
Beérkező levelek (2 28...
mail SE
Yahoo sign-in
Google
Neptun
lib.semmelweis
Semmelweis Egyetem ...
Home - PubMed - NCBI
Save
Remove
Combine with:
AND
OR
Deduplicate
Save All
Edit
View Saved
Basic Search | Find Citation | Search Tools | Search Fields | Advanced Search | Multi-Field Search
7 Resources selected | Hide | Change
EBM Reviews - Cochrane Database of Systematic Reviews 2005 to January 25, 2017, EBM Reviews - ACP Journal Club 1991 to January 2017, EBM Reviews - Database of Abstracts of Reviews of Effects 1st Quarter 2015, EBM Reviews - Cochrane Central Register of Controlled Trials November 2016, EBM Reviews - Cochrane Methodology Register 3rd Quarter 2012, EBM Reviews - Health Technology Assessment 4th Quarter 2016, EBM Reviews - NHS Economic Evaluation Database 1st Quarter 2015
Enter keyword or phrase (* or $ for truncation)
Keyword
Author
Title
Journal
indirect composite and surface treatment
Search
Limits (close)
Enter keyword or phrase (* or $ for truncation)
dia
Abstracts
Embase Records
Full Systematic Reviews
Local Holdings
Prognosis
Review Articles
Humans
Diagnosis
English Language
Full Text
Medline Records
Protocols
Therapeutics
EBM Trends
Etiology
Latest Update
New Reviews
Recently Updated Reviews
Withdrawn Records
Publication Year
Additional Limits
Edit Limits
To search Open Access content on Ovid, go to Basic Search.
Results Tools
Options
Search Information
You searched:
indirect composite.mp. [mp=ti, ot, ab, tx, kw, ct, sh, hw]
All
Range
Print
Email
Export
Add to My Projects
Keep Selected
Clear
View: Title | Citation | Abstract
10 Per Page
1
Go
Next >
1. Meta-analysis of anterior veneer restorations in clinical studies (Structured abstract).
Centre for Reviews and Dissemination.
EBM Reviews - Database of Abstracts of Reviews of Effects
Database of Abstracts of Reviews of Effects. Issue 2, 2015.
Complete Reference
Find Citing Articles
HU
14:59
2017.02.02.


Központi Könyvtár - Adatbázisok
Ovid: Search Form
ovidsp.tx.ovid.com/sp-3.23.1b/ovidweb.cgi?&S=OOEDFPFMHCDDMGLDNCHKJHGCPJBDAA00&SELECT=S.sh|&R=2&Process+Action=display
Keresés
Beérkező levelek (2 28...
mail SE
Yahoo sign-in
Google
Neptun
lib.semmelweis
Semmelweis Egyetem ...
Home - PubMed - NCBI
To search Open Access content on Ovid, go to Basic Search.
Results Tools
Options
Search Information
You searched:
(indirect composite and surface treatment).mp. [mp=ti, ot, ab, tx, kw, ct, sh, hw]
- Search terms used:
composite
indirect
Search Ref
1 text resu
Deduplicat
Sort By:
Customize
Filter B
Add to
+ Selected
- Years
All Yea
Current year
Past 3 years
Past 5 years
Specific Year Range
+ Subject
All
Range
Print
Email
Export
Add to My Projects
Keep Selected
Clear
View: Title | Citation | Abstract
10 Per Page
1. Comparative study of chemical and mechanical retentive systems for bonding of indirect composite resin to commercially pure titanium.
Faria AC, de Matos RL, Rodrigues RC, Antunes RP, Ribeiro RF, de Mattos Mda G
EBM Reviews - Cochrane Central Register of Controlled Trials
Brazilian dental journal. 19(2):134-8, 2008.
[Comparative Study. Journal Article. Randomized Controlled Trial. Research Support, Non-U.S. Gov't]
AN: CN-00688126 UPDATE
Abstract
Abstract Reference
Complete Reference
Find Citing Articles
Library Holdings
Internet Resources
Clear
View: Title | Citation | Abstract
10 Per Page
1. Comparative study of chemical and mechanical retentive systems for bonding of indirect composite resin to commercially pure titanium.
Faria AC, de Matos RL, Rodrigues RC, Antunes RP, Ribeiro RF, de Mattos Mda G
EBM Reviews - Cochrane Central Register of Controlled Trials
Brazilian dental journal. 19(2):134-8, 2008.
[Comparative Study. Journal Article. Randomized Controlled Trial. Research Support, Non-U.S. Gov't]
AN: CN-00688126 UPDATE
Abstract
HU
14:59
2017.02.02.

THANK YOU FOR YOUR ATTENTION!