

# Dentale Implantater, kliniske studier

Asbjørn Jokstad  
Institutt for klinisk odontologi  
Universitetet i Oslo

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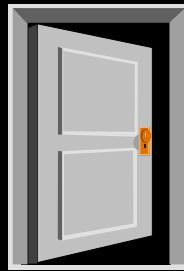
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..en EBM  
tilnærming



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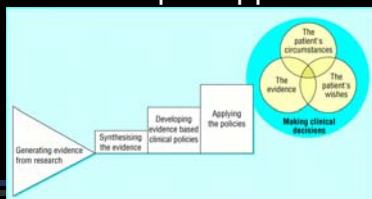
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## En evidens-basert tilnærming

1. Akseptere og anvende retningslinjer som er baserte på evidens-baserte prinsipper



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## En evidens-basert tilnærming

1. Akseptere og anvende kliniske retningslinjer som er baserte på evidens-baserte prinsipper
2. Søke og anvende evidens-baserte sammendrag utarbeidet av andre.
  1. Fagtidsskrift som kritisk evaluerer primærstudier

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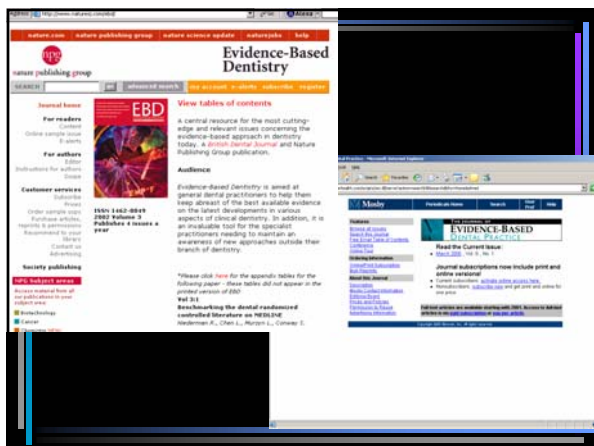
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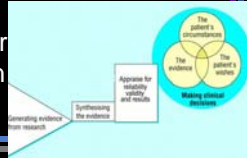
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## En evidens-basert tilnærming

1. Akseptere og anvende kliniske retningslinjer som er baserte på evidens-baserte prinsipper
2. Søke og anvende evidens-baserte sammendrag utarbeidet av andre.
  1. Fagtidsskrift som kritisk evaluerer primærstudier
  2. Systematiske oversikter
    - Cochrane Collaboration




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## Cochrane systematic reviews

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|--|-------------------------------|
| Zygomatic implants   | 0 RCT                         |
| Hyperbaric oxygen therapy                                    | 0 RCT                         |
| Use of prophylactic antibiotics                              | 0 RCT                         |
| Perimplantitis   | 1 RCT (kinesisk)              |
| Preprosthetic surgery vs implants                            | 1 RCT with 60 participants    |
| Bone augmentation techniques                                 | 4 RCTs with 95 participants   |
| Surgical techniques Immediate, early or conventional loading | 4 RCTs with 190 participants  |
| Maintenance  | 5 RCTs with 124 participants  |
| Various implant characteristics/systems                      | 5 RCTs with 127 participants  |
|  | 12 RCTs with 512 participants |

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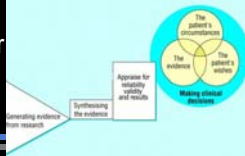
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## En evidens-basert tilnærming

1. Akseptere og anvende kliniske retningslinjer som er baserte på evidens-baserte prinsipper
2. Søke og anvende evidens-baserte sammendrag utarbeidet av andre.

1. Fagtidsskrift som kritisk evaluerer primærstudier
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- Cochrane Collaboration
  - Nat. Health Serv. R&D



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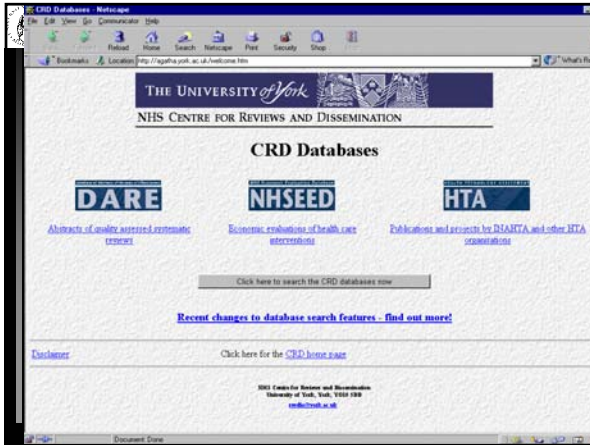
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## En evidens-basert tilnærming

1. Akseptere og anvende kliniske retningslinjer som er baserte på evidens-baserte prinsipper
2. Søke og anvende evidens-baserte sammendrag utarbeidet av andre.
  1. Fagtidsskrift som kritisk evaluerer primærstudier
  2. Systematiske oversikter
    - Cochrane Collaboration
    - Nat. Health Serv. R&D
    - Annen litteratur

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## En evidens-basert tilnærming

1. Akseptere og anvende kliniske retningslinjer som er baserte på evidens-baserte prinsipper
2. Søke og anvende evidens-baserte sammendrag utarbeidet av andre.
3. Selv lære kritisk analyse
  - Bøker
  - Seminarer
  - Internett
    - Online link-lister
    - Online kurs
    - Online ressurser

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**Informasjonskilder**

- Artikler

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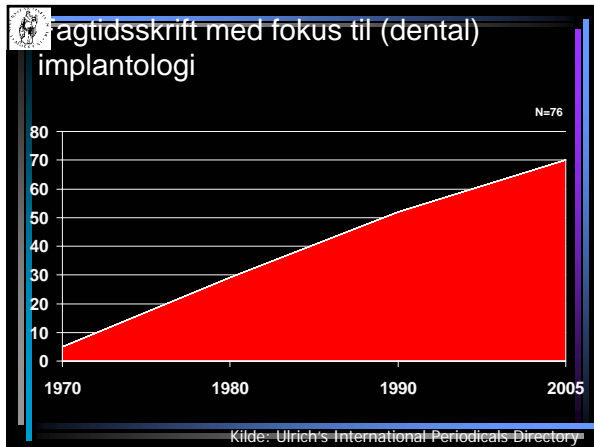
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**Elektroniske tidsskrifter**

Les bruk av elektroniske tidsskrifter

Bibliotek for medisin og helsefag

- ABCDEFGHIJKLMNOPQRSTUVWXYZÆØÅ
- A
  - Acta Odontologica Scandinavica
  - Acta Odontologica Scandinavica
  - ADA News Today
  - Advances in Dental Research
  - American Journal of Forensic Medicine and Pathology
  - American Journal of Orthodontics and Dentofacial Orthodontics 1990
  - Biometrics as a journal for IAO
  - Jorntein Tidsskrift 2000
  - American Journal of Physical Anthropology
  - Anatomia
  - The Anatomical Record
  - Anna Orthodontia
  - Applied and Environmental Microbiology
  - Archives of Oral Biology
  - Australian Dental Journal
- B
  - Biochemical Education
  - Biochemistry and Molecular Biology Education 2000
  - Biochemistry and Molecular Biology Education 2000-2001
  - Biological Therapies in Dentistry

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# Informasjonskilder

- Artikler
- Bøker

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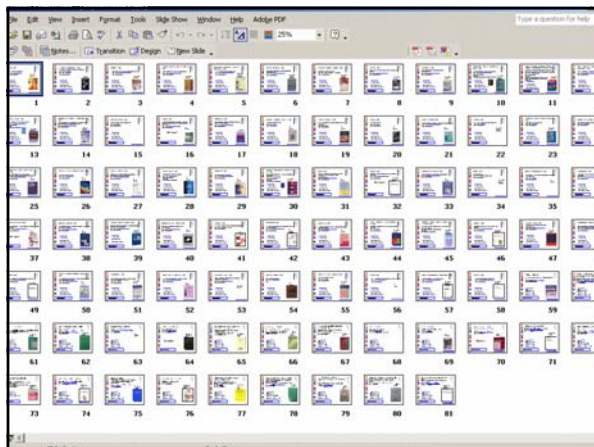
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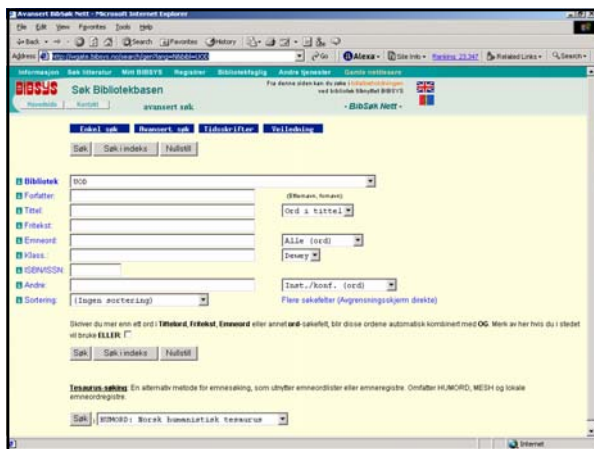
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# Informasjonskilder

- Artikler
- Bøker
- Siste forskningsresultater

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International Association of Dental Research - Microsoft Internet Explorer

Address: http://www.iadrresearch.org

INTERNATIONAL ASSOCIATION OF DENTAL RESEARCH & AMERICAN ASSOCIATION FOR DENTAL RESEARCH

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Online Abstracts Submission Now Open for Upcoming Division Meetings

South Division

Meeting Registration, Hotels Now Available!

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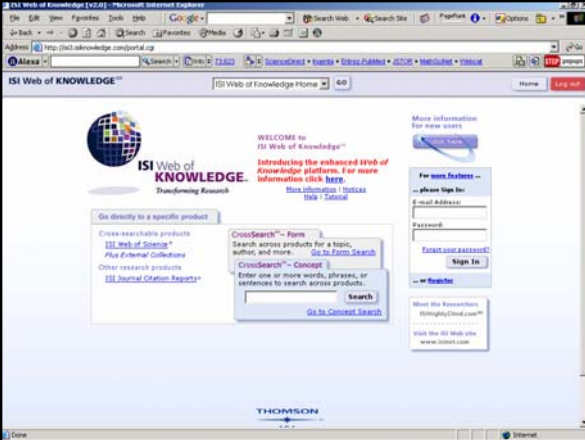
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ISI Web of Knowledge [v.2.0] - Microsoft Internet Explorer

Address: http://hoj.kbknowledge.com/portal.asp

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# Informasjonskilder

- Artikler
- Bøker
- Siste forskningsresultater
- Internett – “webmedisin”

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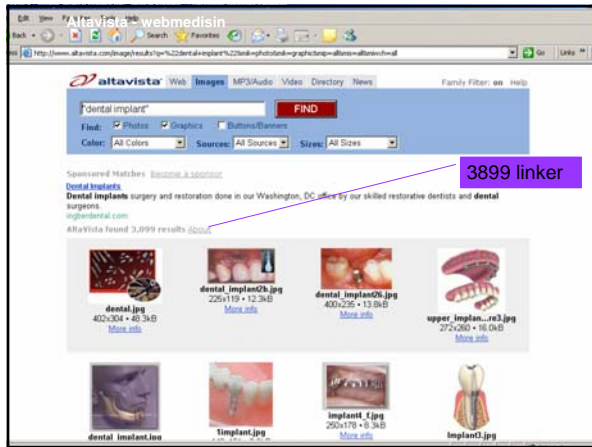
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Altavista - webmedisin

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Dental Implants  
Dental implants surgery and restoration done in our Washington, DC office by our skilled restorative dentists and dental surgeons.  
impldental.com

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 dental.jpg 402x304 • 45.3 KB <a href="#">More info</a>	 dental_implant01.jpg 226x119 • 12.3 KB <a href="#">More info</a>	 dental_implant01.jpg 400x295 • 13.8 KB <a href="#">More info</a>	 upper_implant_rest.jpg 272x260 • 16.0 KB <a href="#">More info</a>
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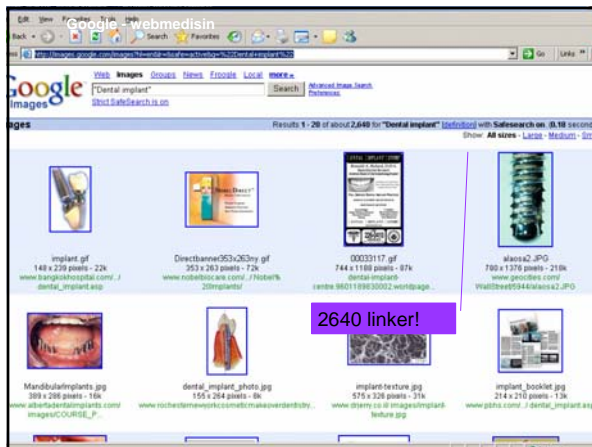
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Google - webmedisin

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Find:

Results: 1 - 28 of about 2,640 for "dental implant" [Link to this page](#) with SafeSearch on. 0.18 seconds

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 implant.gif 148 x 229 pixels • 23k <a href="#">www.bangkokhospital.com/.../dental_implant.asp</a>	 Directbaner953x263ny.gif 353 x 263 pixels • 72k <a href="#">www.robotics.com/~7626r8/20implants/</a>	 00033117.gif 744 x 1168 pixels • 87k <a href="#">dental implants centre 980119903002.wordpress.com</a>	 diana2.JPG 730 x 1376 pixels • 216k <a href="#">www.gnc-bars.com/WallStreet944/diana2.JPG</a>
 Mandibularimplants.jpg 389 x 288 pixels • 11k <a href="#">www.abdnadentalimplants.com/images/COURSE_P...</a>	 dental_implant_photo.jpg 153 x 254 pixels • 8k <a href="#">www.rochesterdental.com/rochestermakeoverdentistry.com</a>	 implantlecture.jpg 575 x 328 pixels • 31k <a href="#">www.dnrm.co.uk/images/implant_lecture.jpg</a>	 implant_booklet.jpg 214 x 210 pixels • 13k <a href="#">www.gnrl.com/~dental_implant/implant_booklet.jpg</a>

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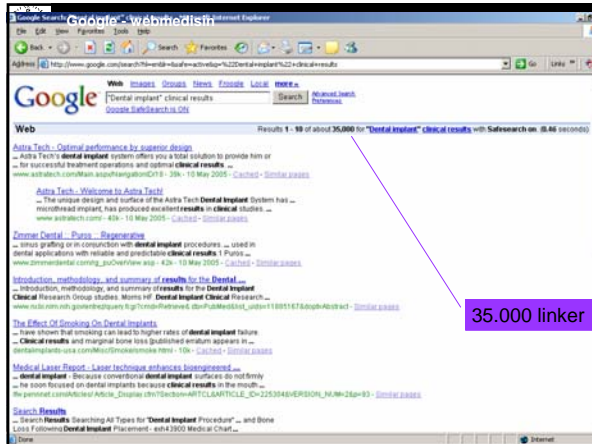
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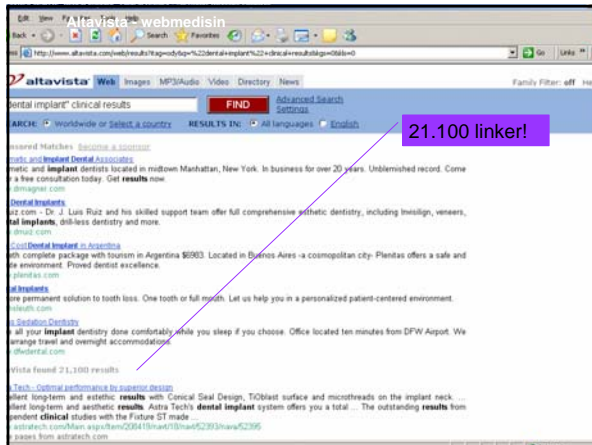
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**Internett- "webmedisin"**

- Medisinsk informasjon - "webmedisin"
- Medisinske metabaser
- Medisinsk forskningslitteratur, databaser

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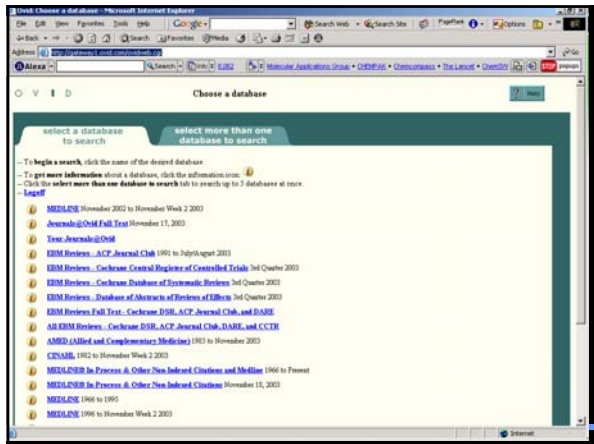
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**Internett**

- Medisinsk informasjon - "webmedisin"
- Medisinske metabaser
- Medisinsk forskningslitteratur, databaser
- Medline

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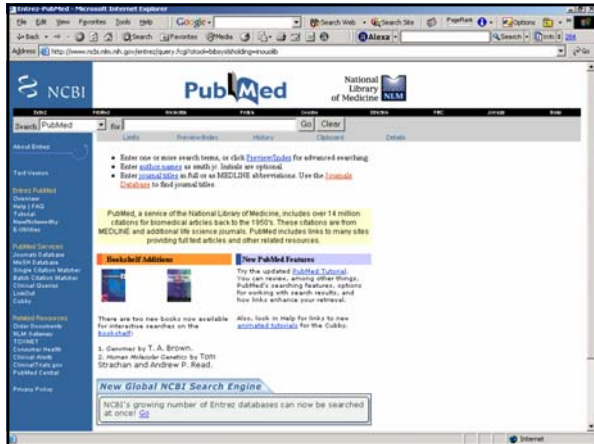
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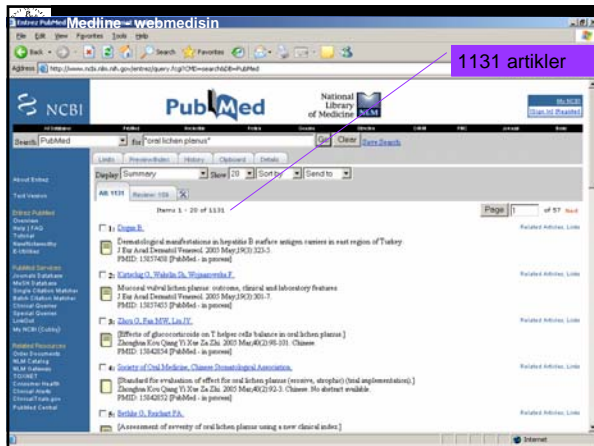
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Validitet, resultat og anvendelighet av en rapport: Tre hovedspørsmål

1. Er studien gyldig (valid)?
2. Hva er resultatene?
3. Er resultatene relevante for mitt problem?

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1. Er studien gyldig (valid)?

1. Er problemstillingen klart beskrevet?
2. Er det brukt et relevant studiedesign til å besvare problemstillingen?
3. Er studien korrekt utført?
4. Kan du forstå hva forfatterne gjorde?

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 2. Hva er resultatene ?

1. Er resultatene presentert klart og enkelt?
2. Er konklusjonen klar?
3. Er resultatene viktige fra et klinisk ståsted?

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 3. Er resultatene anvendelige for meg?

1. Er deltakerne i studien tilnærmet like mine?
2. Er det realistisk at jeg kan applisere resultatene fra studien til mine pasienter?

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 Studiedesign mht terapi, profylaksetiltak eller opplæring

Når en ny intervensjon gjør mer nytte enn skade sammenlignet med den rådende, og samtidig er verdt kostnadene og arbeidsinnsatsen



Krav til evidens:

- Randomisert kontrollert studie
- Relevant observasjonstid pasienter, målekriterier, setting
- N & 80% oppslutning
- Korrekt statistikk

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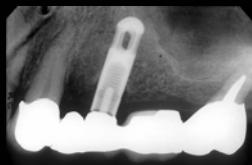
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## Studiedesign mht vurdering av prognose

...når det er vist at den sannsynlige utvikling over tid er til det bedre og/eller de mest sannsynlige komplikasjoner er færre eller enklere sammenlignet med den rådende



### Krav til evidens:

- Prospektiv kohort-studie
- Representative pasienter
- Relevant observasjonstid
- N & 80% oppslutning
- Korrekt statistikk

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## Studiedesign mht ny kunnskap/ pasientinformasjon om etiologi, skadefekter og årsaksammenheng

Når nye etiologiske årsaks-mekanismer i relasjon til ulike plager/ sykdom/ problem blir sannsynliggjort.



### Krav til evidens:

- Randomisert klinisk studie > Klinisk studie > kasus-kontrol > tverrsnittstudier > singlekasus
- Dobbel- / Single-blind studiedesign
- Maksimal N
- Korrekt statistikk

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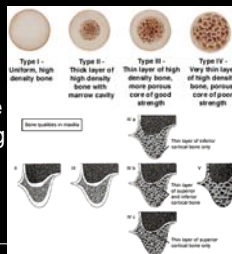
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## Studiedesign mht nye kliniske undersøkelses-rutiner

Når nye rutiner gir forbedret identifikasjon av de mest relevante funn fra en klinisk undersøkelse og pasienthistorikk og/eller disse funnene blir fortolket på en mer korrekt måte



### Krav til evidens

- Klart definerte grupper sammenlignet (én symptomfri)
- Testet mot objektiv diagnostisk standard eller klinisk standard med reproduerbare kriterier
- Høy sensitivitet og spesifisitet
- Korrekt statistikk

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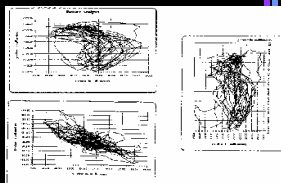
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## Studiedesign mht innføring av ny en diagnostisk test

Når en ny test utviser en akseptabel presisjon, god pasientakseptans, og er nøyaktig, sikker, og kostnads-effektiv



Krav til evidens ( I tillegg til forrige bilde)

- Dokumentert økt gevinst mht sensitivitet og spesifisitet i forhold til eksisterende test ("gullstandard")
- Den nye testen må relateres til sykdomsprevalens
- Korrekt utførte og rapporte kvalitative studier
- Korrekt statistikk

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## Tannimplantater og kvalitet

## Er et implantat av "god kvalitet" når..

- vi har klinisk data etter 3 år? ...5år? ...10år?
- implantatet er laget av cpTi grad 2 ...3? ...4?
- implantatet er rufset ...rillet ...gjenget ...avrundet ...intern låsning ...sandblåst?
- produsenten følger ISO9001?
- en spandabel og trivelig selger har sagt så?
- en av vår lokale guruer har sagt så?
- vitenskapelige kliniske studier kan gi et svar?

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Kunne muligens besvares hvis noen:

*Identifiserte og vurderte all data om temaet fra kliniske studier som tilfredsstillende et minstekrav til god studie-metodologi og –rapportering*

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To systematiske oversiktsarbeider

1. FDI World Dental Federation
2. Cochrane Collaboration

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FDI prosjektet "Quality of implants", prosess:

1. Prosjekt opprettet av FDI's Vitenskapskommisjon
2. Prosjektleder oppnevnt (AJ)
3. Ekspert identifisert – Ikke tilknyttet industrien (Belgia, Sveits, Sverige, USA)
4. Rapport sammenfattet
5. Rapport godkjent av FDI's Vitenskapskommisjon
6. Rapport sent til industrien for kommentarer (3i, Astra, Friadent, NobelBiocare & Straumann)
7. Kommentarer vurdert og inkorporert
8. Rapport sent til eksterne refereres
9. Publisert i International Dental Journal

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2004: 82 produsenter fremstiller 235 ulike implantatmerker

## Kvaliteten på tannimplantater

Jokstad A, Brägger U, Brunski JB, Carr AB, Naert I, Wennerberg A. Quality of Dental Implants. *Int Dent J*, 2003; 53 Sup 2: 409-33. & *Int J Prosthodontics* 2004; 17: 607-641




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## Hva vi gjorde:

- Systematisk søk i literatur og på Internet for å finne påstander om overlegne implantat-egenskaper samt identifisere dokumentasjonen for påstandene
- Kritisk analyse av denne dokumentasjonen for å vurdere vitenskapelig gyldighet
- Evaluere de rapporterte behandlingsresultat som funksjon av implantat-karakteristika

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## Påstander om klinisk gevinst pga implantatets karakteristika

- + 1. Letter plassering/håndtering eller initiell immobilitet
- 2. Osseointegrasjon (hastighet/ forutsigbarhet)
- 3. Estetikk
- 4. Peri-implantat mukositt
- 5. Marginalt benfeste
- 6. Mekaniske problem mellom implantat/ distanse/ suprastruktur -forbindelsene
- 7. Mekanisk defekt i implantatet

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Maskineringsprosess	Overflate-topografi	Eksempel
Acid etched surface (The surface is usually etched in a two-step procedure)	Isotrop overflate med høy forekomst av irregulariteter	HCl/ H <sub>2</sub> SO <sub>4</sub> (Osseotite®, 3i Implant innovations)
Blasted surface (The surface is blasted with hard particles.)	Isotrop overflate	TiO <sub>2</sub> particles (Tioblast®, Astra Tech AB)
Blasted + acid etched surface (The surface is first blasted and then acid etched)	Isotrop overflate	1. Large size Al <sub>2</sub> O <sub>3</sub> particles & HCl & H <sub>2</sub> SO <sub>4</sub> (SLA®, Straumann) 2. Tricalcium phosphate & HF & NO <sub>3</sub> (MTX®, Centerpulse Dental)
Hydroxyapatite coated surface	Generelt, en relativt ru og isotrop overflate	Sustain® (Lifecore Biomedical Inc.)
Oxidized surface (Increased thickness of the oxidized layer)	Isotrop overflate med forekomst av kraterstrukturer	TiUnite® (Nobel Biocare AB)
Titanium Plasma Sprayed (TPS) surface	En relativt ru isotrop overflate	ITI® TPS (Straumann AG)
Turned surface	Skjæremarker produserer en orientert Anisotrop overflate	Brånemark System® MKIII (Nobel Biocare)

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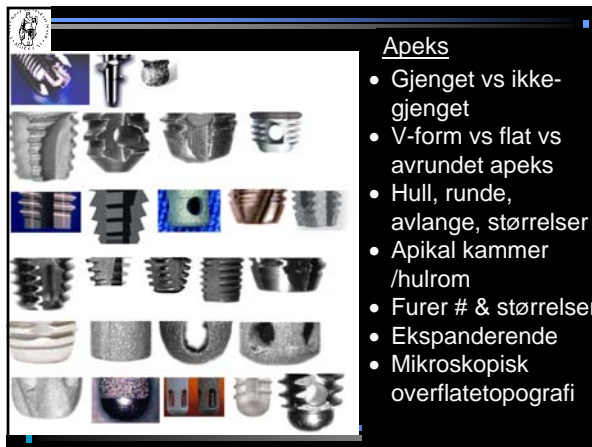
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2004: 82 produsenter fremstiller 235 ulike implantatmerker

Oppsummering av rapporten

...implantater fremstilt i titan og titanlegeringer fungerer klinisk tilfredsstillende uavhengig av små variasjoner i fasonger...

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2004: 82 produsenter fremstiller 235 ulike implantatmerker

Oppsummering av rapporten

...implantater fremstilt i titan og titanlegeringer fungerer klinisk tilfredsstillende uavhengig av små variasjoner i fasonger...

...den vitenskapelige dokumentasjonen om den kliniske betydningen av materiale, geometri og overflatetopografi er begrenset og generelt svak studiemetodologisk...

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2004: 82 produsenter fremstiller 235 ulike implantatmerker

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Implantater fremstilt i titan og titanlegeringer fungerer klinisk tilfredsstillende uavhengig av små variasjoner i fasonger...

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**..de fleste kliniske studier fokuserer kun på peri-implantat kriterier over kort tid...**

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..de fleste kliniske studier fokuserer kun på peri-implantat kriterier over kort tid...

**..slike kriterier kan bare betraktes som surrogatmål og av liten betydning fra et pasient- og samfunnsperspektiv**

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Objectives

*1. To test the null hypothesis of no difference in the success, function and patient satisfaction between conventional prostheses and oral implants against the alternative hypothesis of a difference.*

Date of most recent: 09 February 2009

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Objectives

1. To test the null hypothesis of no difference in the success, function and patient satisfaction between conventional prostheses and oral implants against the alternative hypothesis of a difference.
2. To test the null hypothesis of no difference in the long term success, morbidity, function and patient satisfaction between different oral implant characteristics and techniques against the alternative hypothesis of a difference.

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Method of a Cochrane review –

1. Search for papers

1. Search of the Cochrane Oral Health Group specialist register, using key words (e.g. prosthesis, bridge, implant\*). Based on handsearch of journals

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Method of a Cochrane review –

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2. Search for RCT trials in Medline

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**Method of a Cochrane review –**  
**1. Search for papers**

1. Search of the Cochrane Oral Health Group specialist register, using key words (e.g. prosthesis, bridge, implant\*). Based on handsearch of journals .
2. Search for RCT trials in Medline
3. Search of the bibliographies of identified RCTs, reviews and personal references
4. Letters to first named authors of identified RCTs for further information about trials and attempts to identify unpublished studies

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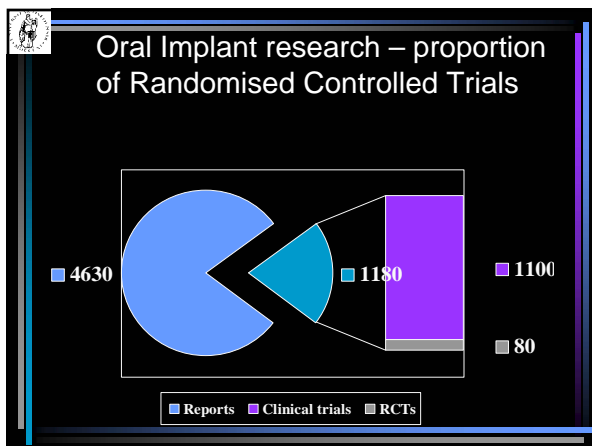
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Method of a Cochrane review –  
2. Initial data synthesis

1. Two reviewers work independently, and in duplicate

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Method of a Cochrane review –  
2. Initial data synthesis

1. 2 reviewers work independently, and in duplicate
2. The relevance of each potentially interesting article appraised non-blinded with regard to the types of intervention

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Method of a Cochrane review –  
2. Initial data synthesis

1. 2 reviewers work independently, and in duplicate
2. The relevance of each potentially interesting article appraised non-blinded with regard to the types of intervention
3. Recordings of article ownership, affiliation, year of publication and journal

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**Method of a Cochrane review –**

**2. Initial data synthesis**

- 1. 2 reviewers work independently, and in duplicate
- 2. The relevance of each potentially interesting article appraised non-blinded with regard to the types of intervention
- 3. Recordings of article ownership, affiliation, year of publication and journal

**4. Identification of funding source (commercial or independent) clinical setting (university or non-university) study design (parallel, split-mouth or cross-over) and sample size**

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**Method of a Cochrane review –**

**2. Initial data synthesis**

- 1. Two reviewers work independently, and in duplicate
- 2. The relevance of each article appraised non-blinded with regard to the types of intervention
- 3. Recordings of article ownership, affiliation, year of publication and journal
- 4. Identification of funding source, clinical setting, study design and sample size

**5. Quality assessment of RCTs trials with sample sizes:  $\geq 10$  for parallel trials &  $\geq 5$  for split-mouth and cross-over studies**

A sensitivity analysis conducted if appropriate.

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**Method of a Cochrane review –**

**3. Quality assessment**

- A) Was a sample size calculation undertaken?
- B) Randomization and allocation concealment method
- C) Were inclusion/exclusion criteria clearly defined?
- D) Was reason for withdrawal specified by study group?
- E) Were the control and treatment groups comparable at entry for important prognostic factors?
- F) Was there any attempt at blinding (for example, independent assessor)?
- G) Was the statistical analysis appropriate?

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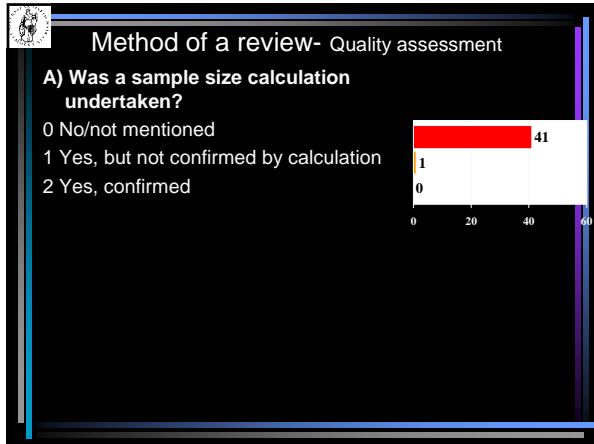
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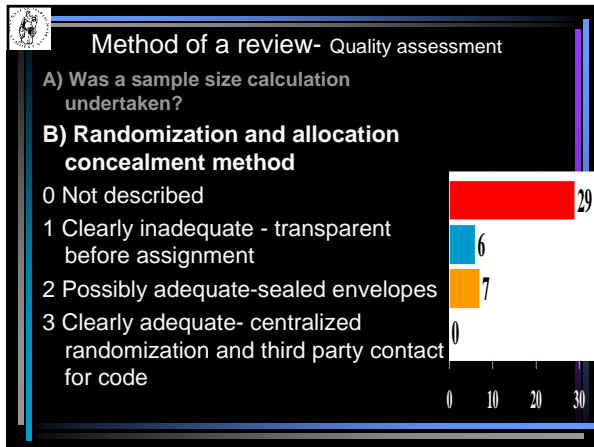
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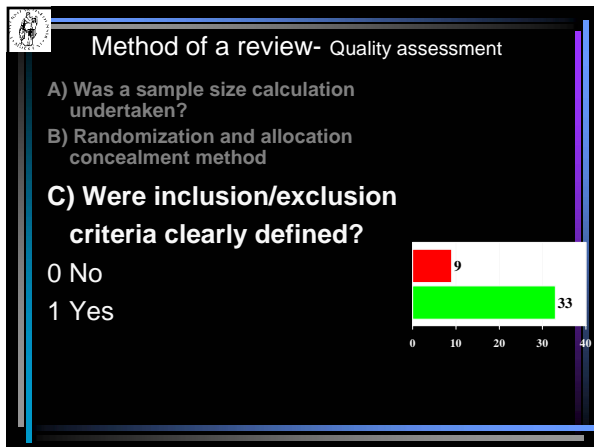
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**Method of a review- Quality assessment**

A) Was a sample size calculation undertaken?

B) Randomization and allocation concealment method

C) Were inclusion/exclusion criteria clearly defined?

**D) Was reason for withdrawal specified by study group?**

0 No/not mentioned

1 Yes, or not applicable as no withdrawals

Response	Count
0	9
1	33

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**Method of a review- Quality assessment**

A) Was a sample size calculation undertaken?

B) Randomization and allocation concealment method

C) Were inclusion/exclusion criteria clearly defined?

D) Was reason for withdrawal specified by study group?

**E) Were the control and treatment groups comparable at entry for important prognostic factors?**

0 No

1 Unclear

2 Yes

Response	Count
0	6
1	16
2	20

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**BASELINE CHARACTERISTICS, e.g.**

- Age
- Allergy
- Angle occlusal classification
- Diet
- Gender
- General health
- Medication
- Smoking
- Xerostomia signs
- Abutment teeth periodontal involvement
- Adjacent teeth restoration state
- Bruxism signs
- Caries activity
- Number of remaining teeth
- Oral hygiene level
- Pulp vitality / endodontically treated teeth /posts
- Tooth mobility

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**Quality Assessment of Randomized Controlled Trials of Oral Implants**

Marco Esposito, DDS, PhD/Paul Coulthard, BDS, MFCDP, MDS, FDSRCS, PhD/  
Helen V. Worthington, BSc, MSc, PhD, FRCR/Ashbjørn Jørgensen, DDS, PhD

The aim of this study was to assess the quality of randomized controlled trials (RCTs) concerned with the effectiveness of oral implants and to create a trial register. A multilayered search strategy was used to identify all RCTs published by the end of 1999 in any language. The Cochrane Oral Health Group specialist register, PubMed, and personal libraries were searched. Seventy-four RCTs were identified. Forty-three articles, not presenting the same patient material, were independently assessed by 3 researchers using a specially designed form. A statistician assessed all trials for the appropriateness of statistics. The quality of each study was assessed on 7 items, including 3 key domains. Randomization and concealment allocation procedures were not described in 30 articles (70%). Reasons for withdrawals were not given in 10 reports (23%). No attempt at blinding was reported in 31 studies (72%). The quality of RCTs of oral implants is generally poor and needs to be improved. (INT J ORAL MAXILLOFAC IMPLANTS 2001;16:783-792)

**Key words:** dental implants, randomized controlled trial, registries, research design, review literature

IJOMI 2001; 16: 783-92

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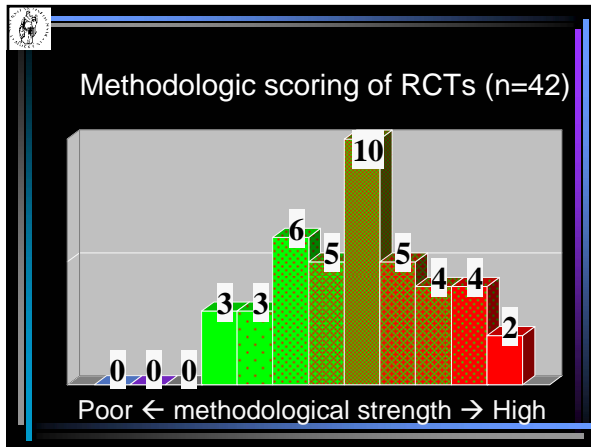
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**Key words:** dental implants, randomized controlled trial, registries, research design, review literature

The quality of RCTs of oral implants is generally poor and needs to be improved

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 Method of a Cochrane review –  
4. Data synthesis

1. Two reviewers work independently, and in duplicate

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 Method of a Cochrane review –  
4. Data synthesis

1. 2 reviewers work independently, and in duplicate

2. Appraise:

- patient age
- withdrawals by group
- reasons for withdrawals.
- primary outcomes for all time points mentioned in the study report.

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 Study aims - implant characteristics

Implant location  
Wide vs minimised spaces

Implant number  
2 vs 4 implants supporting overdenture

Implant type  
Self-tapping vs standard  
Rough vs smooth surface  
Titanium vs Hydroxyapatite  
Staple vs 2 & 4 implants

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### Which outcome criteria?

Interventions comparing oral implants with different materials, shapes and surface properties

- 1) Implant mobility and implant removal of stable implants dictated by progressive marginal bone loss
- 2) Implant fracture and other mechanical complications that do not allow the use of the implants
- 3) Radiographic marginal bone level changes on standardised intra-oral radiographs

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### Which outcome criteria?

- 1) Plaque
- 2) Marginal bleeding
- 3) Probing pocket depth
- 4) Probing "attachment" level
- 5) Radiographic marginal bone level changes on standardised intra-oral radiographs

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## THE EFFICACY OF DENTAL IMPLANTS: AN EVIDENCE-BASED OVERVIEW

From 10 Cochrane reviews on osseointegrated dental implants

Updated up to November 2004

<http://www.cochrane.org>

<http://www.cochrane-oral.man.ac.uk>

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## Various implant characteristics/systems

Is a surface modification, an implant shape or material more effective than the others?

Last literature search: June 2004

12 RCTs with 512 participants and 12 different implant systems (19 RCTs were excluded). 4 RCTs with a 5-year follow-up

Minor significant differences in marginal bone loss and in the occurrence of periimplantitis. No statistically significant difference in failure rates. We do not know whether any implant system is superior to the others. **It does not mean that they are all the same!**

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Which criteria when comparisons between:

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## Study aims - Prosthesis characteristics

Prosthesis type

Stress-breaker vs non-stress breaker

Splinted vs unsplinted connection

Implant-prosthesis connection

Fixed vs overdentures

Hybrid versus ball-attachment

Different overdenture attachments

Laser-welded vs cast Ti-framework

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### Study aims

- Conventional versus implant prosthodontics
- Prosthesis characteristics
- Implant-prosthesis connection characteristics
- Implant characteristics
- Implant surgery techniques
- Guided bone regeneration
- Maintenance

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### The most relevant outcome criteria?

- Plaque, marginal bleeding, probing pocket depth, probing attachment level, radiographic marginal bone level, bone changes on standardised intra-oral radiographs....
- Implant mobility and implant removal of stable implants dictated by progressive marginal bone loss
- Implant fracture and other mechanical complications

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### The most relevant outcome criteria?

#### Perceived/self reported:

- Adaptation to prosthesis (satisfaction)
- Appearance
- Function (chewing, speech)
- Dietary significance (intake, selection)
- Health
- Quality of life (psyche, well-being, self esteem)
- Social activity

#### Observed:

- Appearance
- Function (bite force, tracking)
- Diet survey
- Health indices
- HRQL indices
- Social activity

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There is a need

To define the most relevant criteria for treatment outcomes when implant based prostheses are compared to alternative treatments

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A. Psychological impact

1. Patient satisfaction with treatment
2. Patient satisfaction with aesthetics
3. Patient satisfaction with function (chewing, dietary changes, speech)
4. Reported changes of social activity
5. Quality of life/health measure
6. Patient preference for prosthesis

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A. Psychological impact

1. Patient satisfaction with treatment, 2. aesthetics & 3. function (chewing, dietary changes, speech)
4. Reported changes of social activity
5. Quality of life/health measure
6. Patient preference for prosthesis

Longevity/survival

7. Cumulative survival of prosthesis and implant - actual function period
8. Cumulative survival of prosthesis and implant - defined success criteria
9. Time to retreatment

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**A. Psychological impact**  
 1. Patient satisfaction with treatment, 2. aesthetics & 3. function (chewing, dietary changes, speech), 4. Reported changes of social activity, 5. Quality of life/health measure, 6. Patient preference for prosthesis

Longevity/survival  
 7. Cumulative survival of prosthesis and implant - actual function period & 8. defined success criteria, 9. Time to retreatment

**Biological complications: Incidence and/or severity**  
 10. Surgical and post-operative complications  
 11. Pain  
 12. Neurological disturbances  
 13. Degenerative changes (e.g. alveolar bone loss)  
 14. Adverse biological consequences in case of prosthesis failure

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**A. Psychological impact**  
 1. Patient satisfaction with treatment, aesthetics & function (chewing, dietary changes, speech)  
 4. Reported changes of social activity  
 5. Quality of life/health measure  
 6. Patient preference for prosthesis

Longevity/survival  
 7. Cumulative survival of prosthesis and implant - actual function period & defined success criteria.  
 9. Time to retreatment

**Biological complications: Incidence and/or severity**  
 10. Surgical and post-operative complications  
 11. Pain  
 12. Neurological disturbances  
 13. Degenerative changes (e.g. alveolar bone loss)  
 14. Adverse biological consequences in case of prosthesis failure

**Mechanical complications: Incidence and/or severity**  
 15. Adjustments/maintenance  
 16. Prosthesis failure

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**A. Psychological impact**  
 1. Patient satisfaction with treatment, 2. aesthetics & 3. satisfaction with function (chewing, dietary changes, speech). 4. Reported changes of social activity, 5. Quality of life/health measure & 6. Patient preference for prosthesis

Longevity/survival  
 7. Cumulative survival of prosthesis and implant - actual function period & 8. defined success criteria, 9. Time to retreatment

**Biological complications: Incidence and/or severity**  
 10. Surgical and post-operative complications, 11. Pain, 12. Neurological disturbances, 13. Degenerative changes (e.g. alveolar bone loss), 14. Adverse biological consequences in case of prosthesis failure

**Mechanical complications: Incidence and/or severity**  
 15. Adjustments/maintenance, 16. Prosthesis failure

**B. Physiologic impact**  
 17. Prosthesis retention/mobility  
 18. Operator-evaluation of function (chewing, bite-force, speech)

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**A. Psychological impact**

1. Patient satisfaction with treatment, 2. aesthetics & 3. satisfaction with function (chewing, dietary changes, speech), 4. Reported changes of social activity, 5. Quality of life/health measure & 6. Patient preference for prosthesis

Longevity/survival

7. Cumulative survival of prosthesis and implant - actual function period & 8. defined success criteria, 9. Time to retreatment

Biological complications: Incidence and/or severity

10. Surgical and post-operative complications - 11. Pain, 12. Neurological disturbances, 13. Degenerative changes (e.g. alveolar bone loss), 14. Adverse biological consequences in case of prosthesis failure

Mechanical complications: Incidence and/or severity

15. Adjustments/maintenance, 16. Prosthesis failure

**B. Physiologic impact**

17. Prosthesis retention/mobility, 18. Operator-evaluation of function (chewing, bite-force, speech)

**C. Economic impact, Direct, maintenance or indirect costs:**

19. Service utilisation or resource use with or without link to outcomes
20. Clinician contact, including number of office and/or maintenance visits
21. Prosthesis/internal fixation device costs
22. Need for additional diagnostic investigations

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The screenshot shows a PDF document with the following text:

**SSRD**

**Program Committee**  
 Urs Erägger Switzerland  
 Urs Bähler, Switzerland  
 Aisgård Jøkestad, Norway

**Organizing Committee (SSRD)**  
 Urs Erägger  
 Regina Mészáros  
 Philippe Dubied

**Conference Secretary**  
 Beatrice Gerber  
 University of Bern  
 School of Dental Medicine  
 Freiburgstrasse 7  
 3010 Bern  
 Switzerland

**EUROPEAN WORKSHOP on Reconstructive Dentistry:**  
 On what level of evidence do we provide therapy?

Dear Colleagues

For the European Workshop on Reconstructive Dentistry (EWRD), the Swiss Society of Reconstructive Dentistry (SSRD) has received an educational grant from the Straumann Company, Waldenburg, Switzerland. Furthermore, the Society has set apart resources for such a EWRD to discuss the evidence on which reconstructive dentistry is based.

The 1<sup>st</sup> EWRD takes place Nov 18 - 20, 2006, in the Castle of Hünigen near Bern, Switzerland.

In a first round, I would like to invite some opinion leaders in Switzerland, tie you to internationally recognized European prosthodontists and thus, get the process started.

This first letter addresses just 8 people. For the final invitation, the

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**WORKSHOP ON THE STATE OF THE SCIENCE OF IMPLANT DENTISTRY.**

**Chicago August 2006**

The logo for the Academy of Osseointegration features a stylized green 'A' and 'O' intertwined. Below the logo, the text reads "Academy of Osseointegration" and "Advancing the Vision of Implant Dentistry".

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