

IS IT GOOD ENOUGH TO BE BEST *IN NORWAY ??*

**Baromedical and Environmental Physiology, NTNU
(BAREN)**

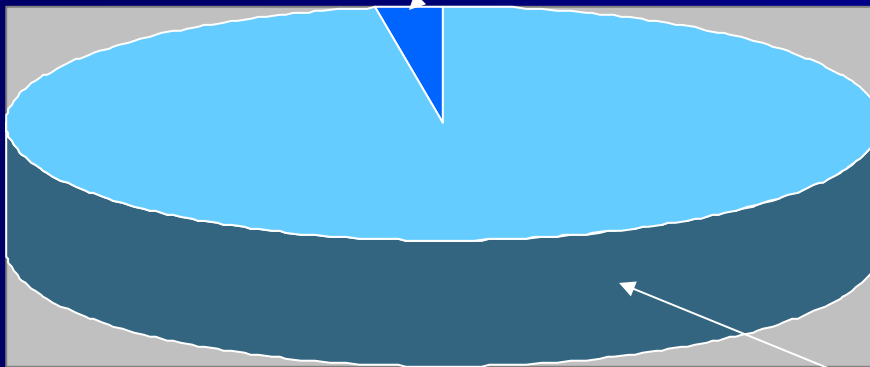


**Office of Naval Research
USNavy**

**Alf O. Brubakk and Matthew Swiergosz
Bergen November. 2009**

Air dives SurDO2 SNSC 1992

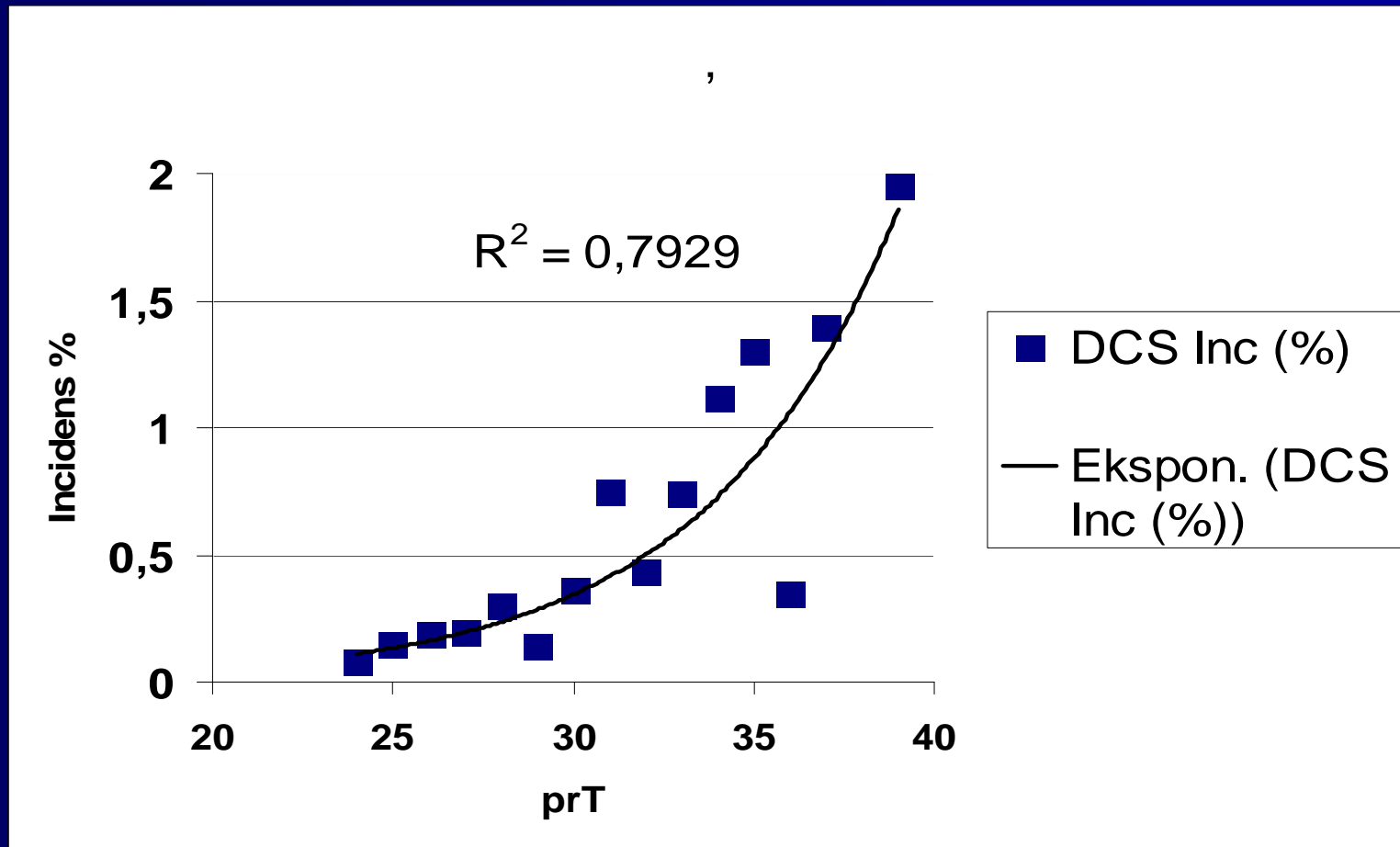
DCS incidence 17%



- <27 msw, <80 min prT <33.1
- >27 msw, >80 min prT >33.1

DCS incidence 0%

Effect of prT on the incidence of DCS (HSE 1996)



Dette verdenskart
viser de
**Viktigste Opdagelses
reiser**
(til 1522)



Kolumbus reiser (uttur) 1492, 1493, 1498, 1502 - er nummerert 1 til 4.
Kuster europeiske sjøfarere hadde besøkt opptil 1522 (året da Magellans ekspedisjon kom hjem igjen)





Office of Naval Research 2008

- Current focus
 - Decompression illness (DCI)
 - Basal and applied research on mechanisms
 - Advanced applications in DCI mitigation
 - Nonrecompression prevention and treatment
 - Oxygen toxicity
 - Basic and applied research on mechanisms
 - Advanced application of mitigation
 - Short and long term health and performance threats
 - Basic and applied research
 - Advanced application of risk management

Undersea Medicine Program: Alternative Funding Opportunities



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ONR Global

- **Office of Naval Research Global**
 - General Contact Information
 - <http://www.onr.navy.mil/ONRG.asp>
- **Collaboration Opportunities**
 - Visiting Scientist Program (VSP)
 - <http://www.onrglobal.navy.mil/vsp.asp>
 - Conference Support Program (CSP)
 - <http://www.onrglobal.navy.mil/csp.asp>
 - Naval International Cooperative Opportunities in Science and Technology Program (NICOP)
 - <http://www.onrglobal.navy.mil/nicop.asp>

COMPETENCE PROGRAM DIVING

(StaoilHydro – PhilipsConoco)

2007-2011

MAIN OBJECTIVE

The program shall ensure sufficient expertise in hyperbaric related questions. It shall further develop procedures and methods in diving that contribute to a high level of safety and that protect the divers against possible adverse effects that may reduce their quality of life, both short and long term. Expertise is maintained through research where senior personnel have central roles both as scientists and as supervisors and by co-operation between the institutions involved.

Can we do this allone???

Can we let the USNavy do the research ?

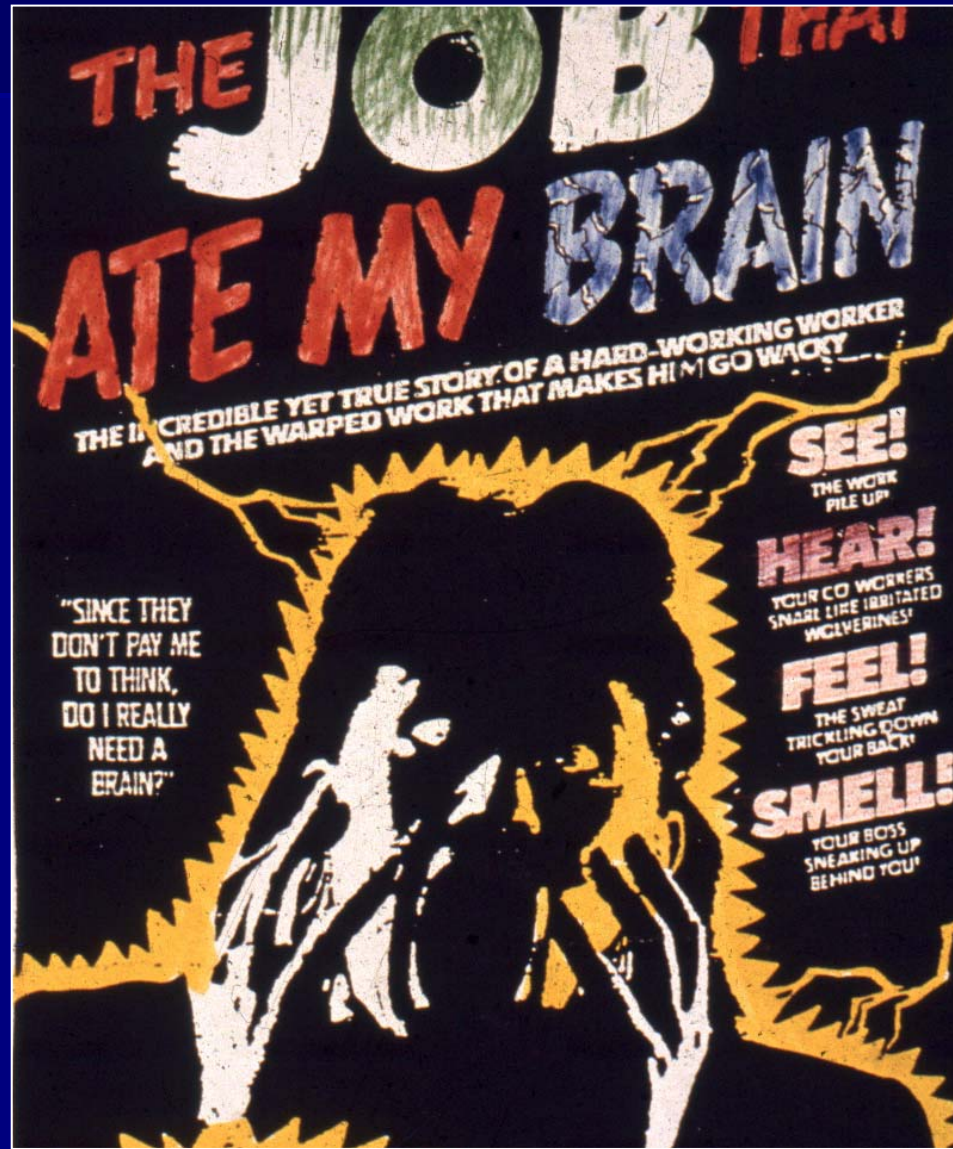
- All important information is in the books and the papers

However

- Evaluation of results / procedures is required, how are the results applicable to us ?
- Internal reports contain the information we need, what about quality control ?
- Where do we get our own experts ??

BAREN

- Aim:
 - **Procedures** that reduce the risk for injury to the **central nervous system**.
 - Reducing bubble formation
 - Reducing the effect of bubbles on the organism.
- How:
 - Improve understanding of the underlying mechanisms.



Nordesjødykkerne.no

Lawsuits 2008 ++

- Long term injury ?
- Total cost around NOK 500.000.000
- Can it happen again
 - Or can it be prevented ??



We do not understand well enough !!

Nr4 2003 - Årgang 32


UTPOSTEN

BLAD FOR ALLMENN- OG SAMFUNNSMEDISIN

Vær klar over at man kan få trykkfallssyke selv om alle prosedyrer er fulgt. Ca halvparten av de som blir behandlet i Bergen har dykket "innenfor tabell" og uten at vi finner noen sikker forklaring.

Jan Risberg

Vær deg selv – nok !




VECTOR THEATER CONSERVATORY PRESENTS

Henrik Ibsen's
Peer Gynt

Adapted by Jeffrey Lee Freeman — Music by Jef Laber
Directed by Jeffrey Ehr & Peter Meyers

April 11–13, 7:00 p.m.
Marin Center, Showcase Theater

Tickets (pre-sale & at the door): \$8.00 adults
\$5.00 students (under 18)



To purchase tickets, call the Marin Center
Box Office: 415-472-5300

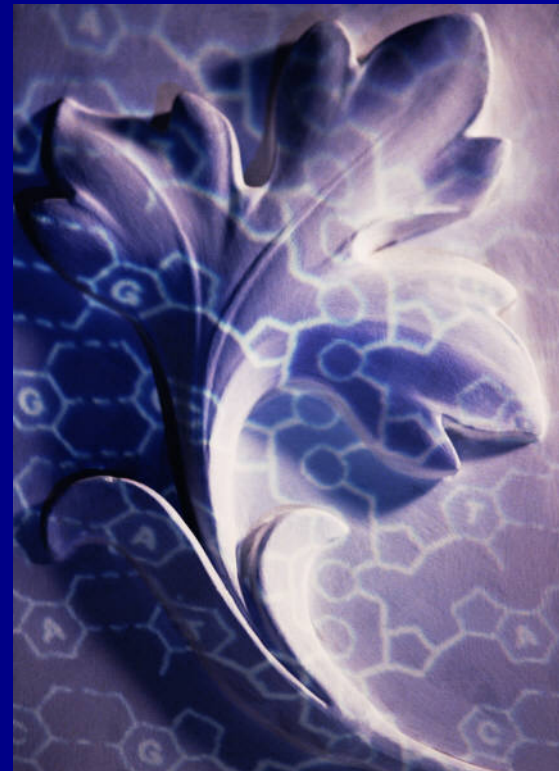
Diving, a global activity

- International cooperation will lead to
 - Cost effectiveness
 - Increased funding
 - Application of results



Why international cooperation ?

- **What is in it for us**
- Maybe it can solve our problems ??
 - Small research field
 - Limited number of researchers
 - Limited funding



We have to be attractive

- Why would anyone want to cooperate with us ?
 - Money
 - Climate
 - Environment
 - Probably not alcohol prices
 - **Science**

Some examples of international cooperation

- Univ. of Split (*Bubble detect, animal experiments*)
 - Exercise and diving
 - Evaluation of dive procedures
- Standard for dive computers (*Evaluation of decompression*)
 - USNavy
 - Smithsonian Institution
- Decompression procedure testing (*Copernicus, bubble detect*)
 - Swedish Navy
- Office of Naval research (ONR) (*Research group, young scientists*)
- HDIP (*Student program*)
- International PhD program (*Split / Trondheim*)
 - Mayo Clinic, Med College Wisconsin
- NASA, Univ. of Texas (*Exercise Physiol, Decompression, Aging*)

How ??

- Problem :Availability, good leaders are few and far apart, experience from Karolinska (Linnarsson) and Buffalo (Lundgren)
- An alternative approach, the “Copenhagen model”
 - Short term commitment (six months), at least two top researchers who want to work together.
 - We supply the infrastructure, they supply the expertise.
- International symposia

終身之計莫如樹人
十年之計莫如樹木
一年之計莫如樹穀

When planning for a year—
sow rice

When planning for a decade—
plant trees

When planning for life—
train and educate men.

—Kuan-tzu
3rd Century B.C.