



# The “NORWEGIAN DIVER 2011”:

## Why occupational inshore divers end their diving career

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## Introduction

The mean duration of diving career among former North Sea divers is 16.8 years.

The aim of the present study was to investigate why occupational divers discontinue their diving career.

This is part of a comprehensive cross-sectional study at The Norwegian Centre of Diving Medicine:

The “NORWEGIAN DIVER 2011”.

# The Norwegian Labour Inspection's Diving Register

- comprises all occupational inshore divers who have ever held a certificate since 1980.

Of the 6151 divers, 89.8% could be identified with The National identification number, providing their home addresses.

## Questionnaire

- A comprehensive questionnaire was sent to all identified divers, together with a stamped return envelop.
- One additional reminder was sent.
- 48.7% divers returned the questionnaire.

The 2663 male divers were categorized into:

- previous divers (1588)
- present divers (595)
- references with minor diving experience (480)



haukeland

# Why divers ended their diving career

About 90% had listed at least one reason why they had discontinued diving.

- 38.0% - got a better job
- 34.2% - took a new education
- 17.7% - health issues
- 13.2% - dissatisfied with working conditions
- 8.5% - certificate of medical fitness could not be renewed
- 4.7% - anxiety due to diving
- 1.4% - dismissed

## Categorization of the previous divers

- **Chose to retire** - got a better job or took new education (n=867)
- **Forced to retire** - former divers who answered at least one of the other questions regarding why they retired (n=514)

# Diving exposure

	Forced (median)	Chose (median)
Age by retirement as a diver (year)	38.0	31.0
Total number of dives	1705	814
Number of years as occupational diver	10.0	5.0

# Highest education

	Forced (%)	Chose (%)
Primary school	6.3	4.1
Technical college	36.7	27.0
High school	16.2	14.8
University college	27.6	34.5
University	13.0	19.6
Total	100	100

# Occupational situation today

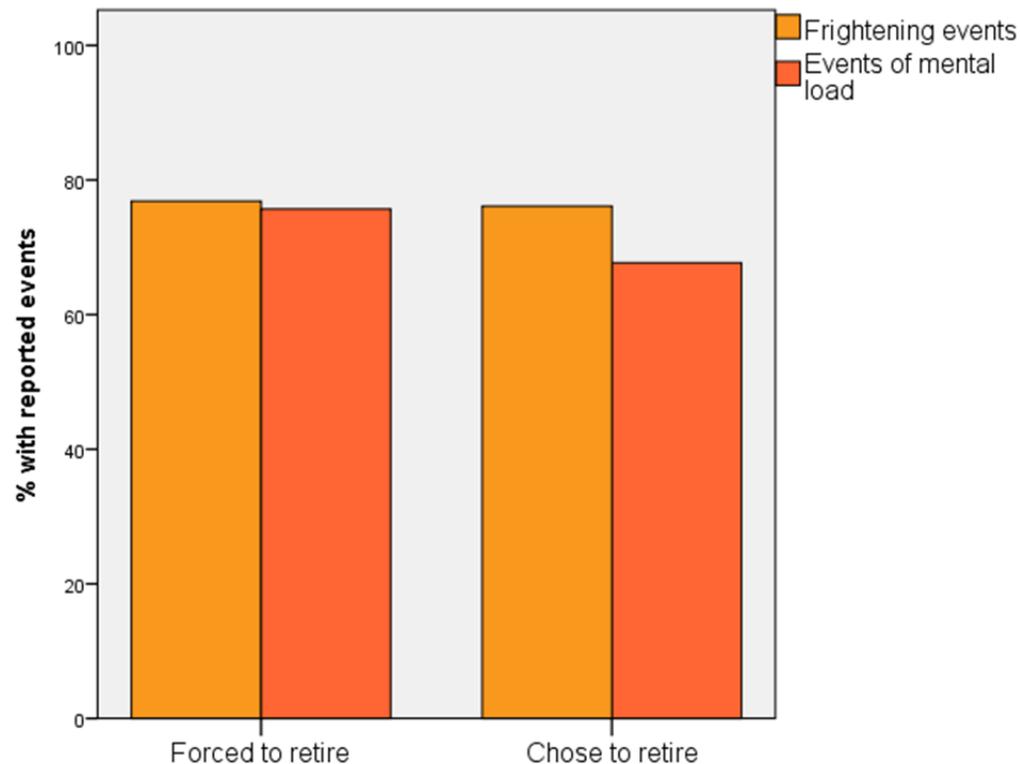
	Reason for retirement	
	Forced n (%)	Chose n (%)
Work within diving logistics	42 (11.9)	43 (6.3)
Hold a different job	289 (72.6)	724 (88.5)
On sick leave	28 (9.2)	24 (3.8)
Receive disability pension	87 (25.1)	22 (3.4)
Retired (old age pension)	71 (21.3)	40 (6.1)
Student	8 (2.7)	46 (7.1)

## Certificates

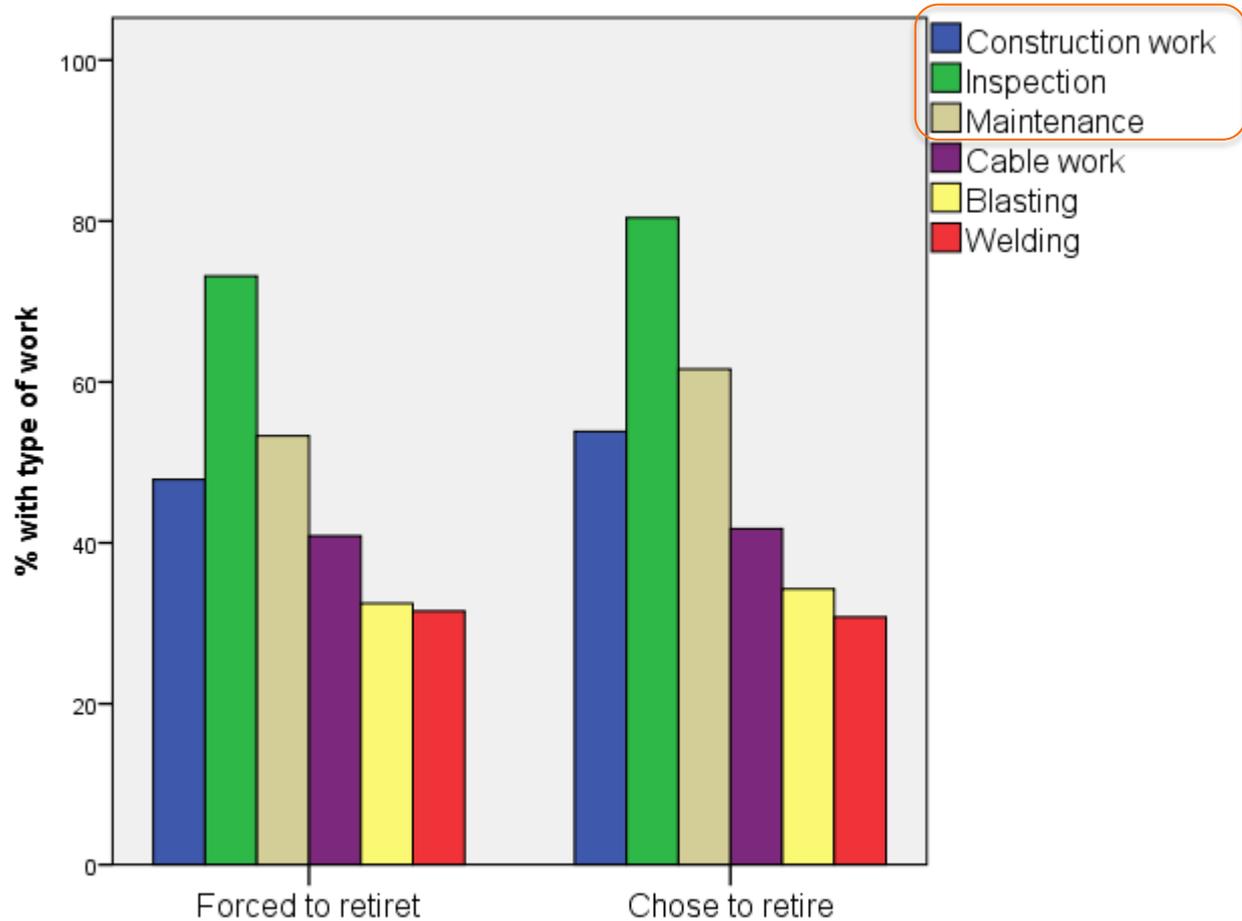
For most types of certificates 30-40% were forced to discontinue.

For rescue divers 60%

## Reported frightening events or events of mental load



# Previous diving jobs



## Health related quality of life (SF12)

- Based on 12 questions
- Scored into 8 scales, from physical functioning to mental health
- Expected values could be calculated from Norwegian norms
- A high score indicates high quality

Sum scores of

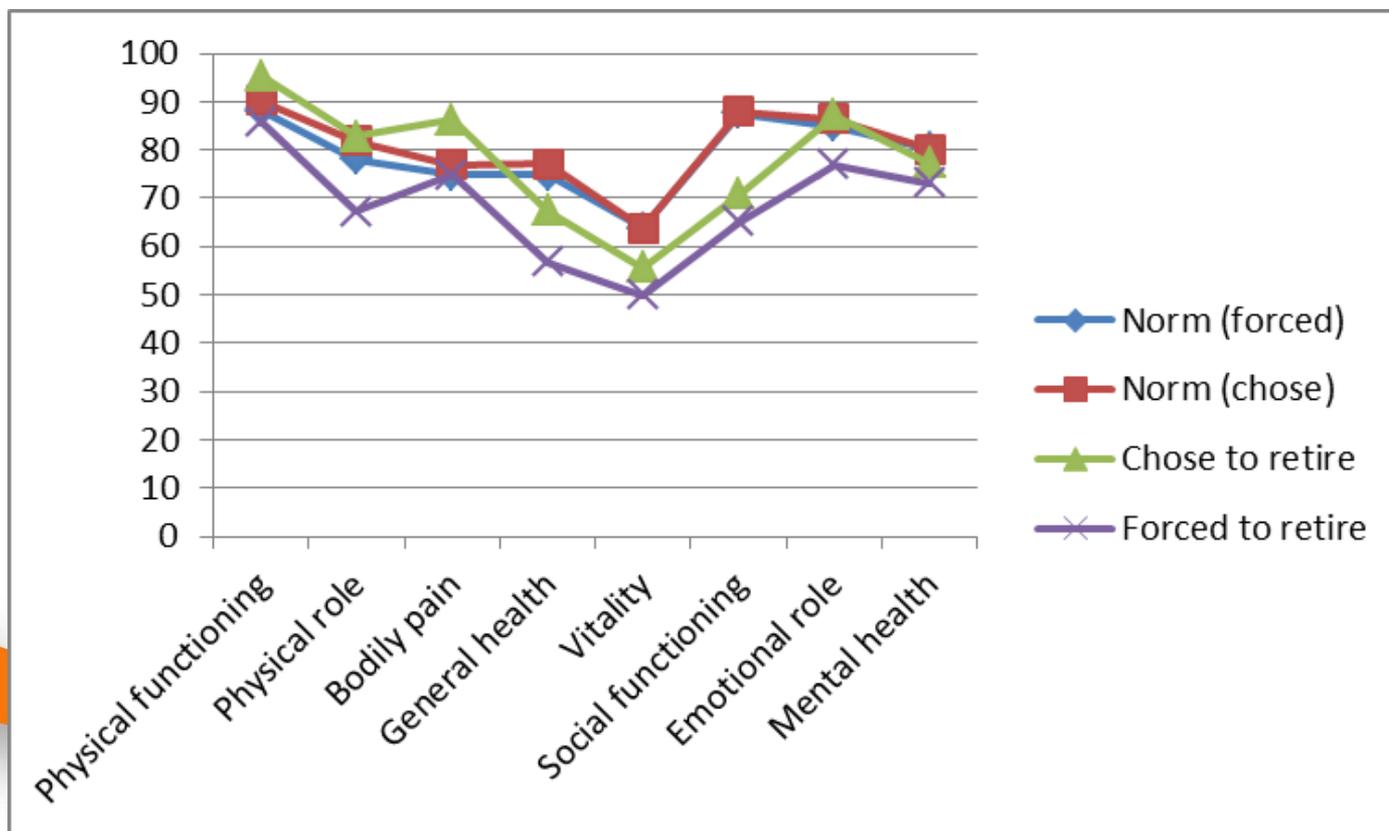
**Physical and Mental health**

were significantly lower for divers forced to retire compared to divers who chose to retire.

( $P < 0.001$  and  $P = 0.001$  respectively).

# SF-12

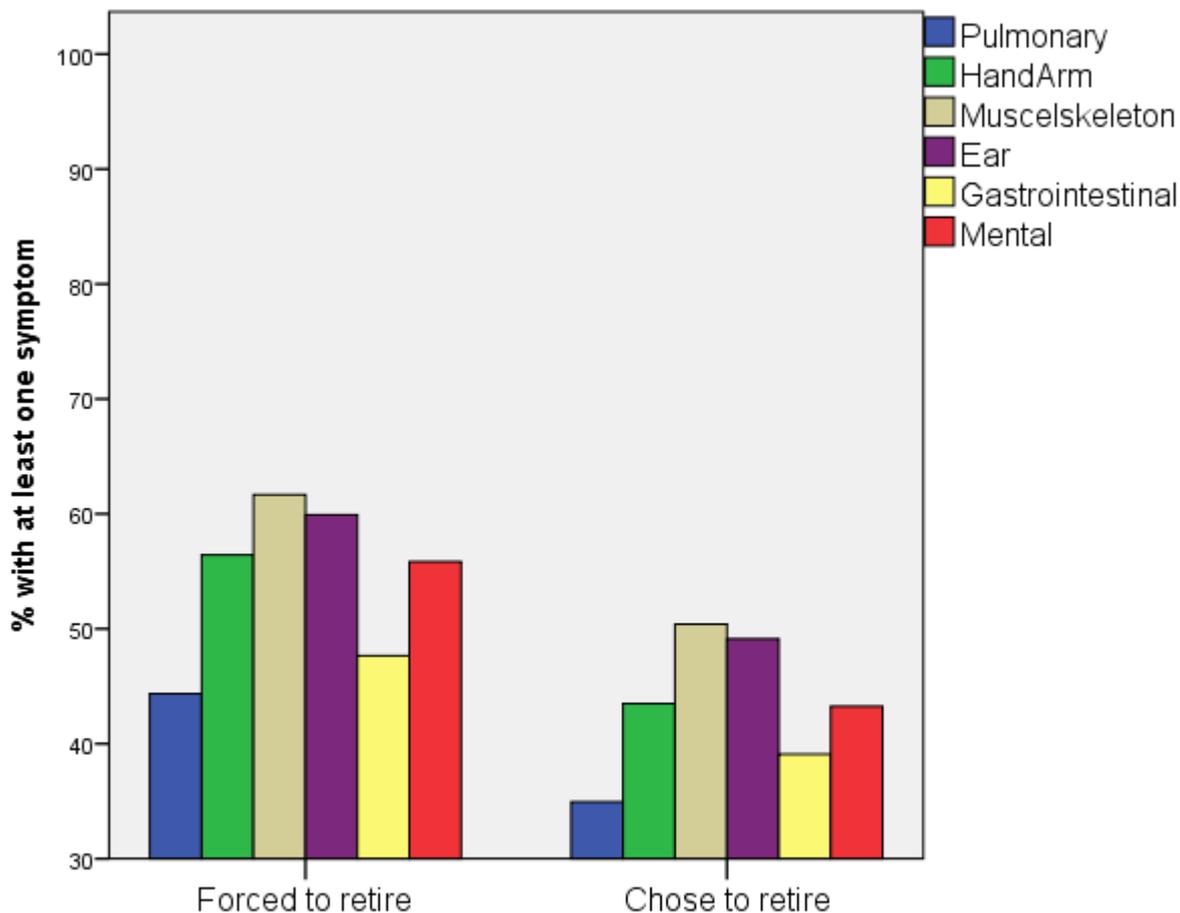
## Health related quality of life



## Complaints /Symptoms today

- Several questions were asked within each group of symptoms
  - Pulmonary
  - Hand, Arm
  - Musculoskeletal
  - Ear
  - Gastrointestinal
  - Mental - attention problems, irritable, forgetfulness, problems with planning, anxiety or depression
- A symptom was present if 'yes' was answered to one or more of the questions in a group of symptoms

# Complaints / symptoms among previous divers



# Health among **all** previous divers

Regardless of why (forced or chose)  
they discontinued their diving career

# Is present health related to length of diving career?

- Health outcomes
  - Sum score of Mental Health and Physical Health
  - Symptoms
- Present sum score of Physical health was reduced by 0.11 per diving year ( $P=0.001$ ).
- No association was not seen for Mental health.

Analyzed by linear regression analysis with adjustment for age.

# Present symptoms:

	Length of diving career (year)	Odds ratio	95% C.I.		Linear trend
			Lower	Upper	<i>P</i>
<b>Pulmonary</b>	1-3	1			ns
	4-7	1.07	0.75	1.51	
	8-14	0.85	0.59	1.23	
	15+	1.23	0.84	1.78	
<b>Hand Arm</b>	1-3	1			0.03
	4-7	1.31	0.94	1.84	
	8-14	1.34	0.94	1.90	
	15+	1.53	1.06	2.20	
<b>Musceloskeletal</b>	1-3	1			0.04
	4-7	1.22	0.89	1.68	
	8-14	1.35	0.96	1.89	
	15+	1.50	1.05	2.13	

Analyzed by logistic regression analysis with adjustment for age.

# Present symptoms:

	Length of diving career (year)	Odds ratio	95% C.I.		Linear trend
			Lower	Upper	<i>P</i>
<b>Ear</b>	1-3	1			ns
	4-7	1.04	0.74	1.45	
	8-14	1.17	0.83	1.67	
	15+	1.23	0.85	1.78	
<b>Gastrointestinal</b>	1-3	1			ns
	4-7	1.03	0.74	1.45	
	8-14	1.10	0.78	1.56	
	15+	1.06	0.73	1.52	
<b>Mental</b>	1-3	1			0.008
	4-7	1.32	0.95	1.85	
	8-14	1.33	0.94	1.89	
	15+	1.68	1.17	2.41	

## Conclusion

Divers who chose to retire had:

- Lower age at the end of diving career
- Fewer dives and years of diving
- At present a higher occupational level
- Higher quality of life
- Less symptoms/complaints
- Same number of type of previous diving jobs
- Same occurrence of frightening events and events of mental load

compared to divers forced to retire

## Conclusion

A high number of years of diving is associated with:

- Reduced physical health
- Increased risk of musculoskeletal symptoms
- Increased risk of hand/arm symptoms
- Increased risk of mental symptoms (attention problems, irritable, forgetfulness, problems with planning, anxiety or depression)

Further diving exposure variables will be studied.