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# Application of the ICF in Cochrane Reviews

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Institute for Health and Rehabilitation Sciences

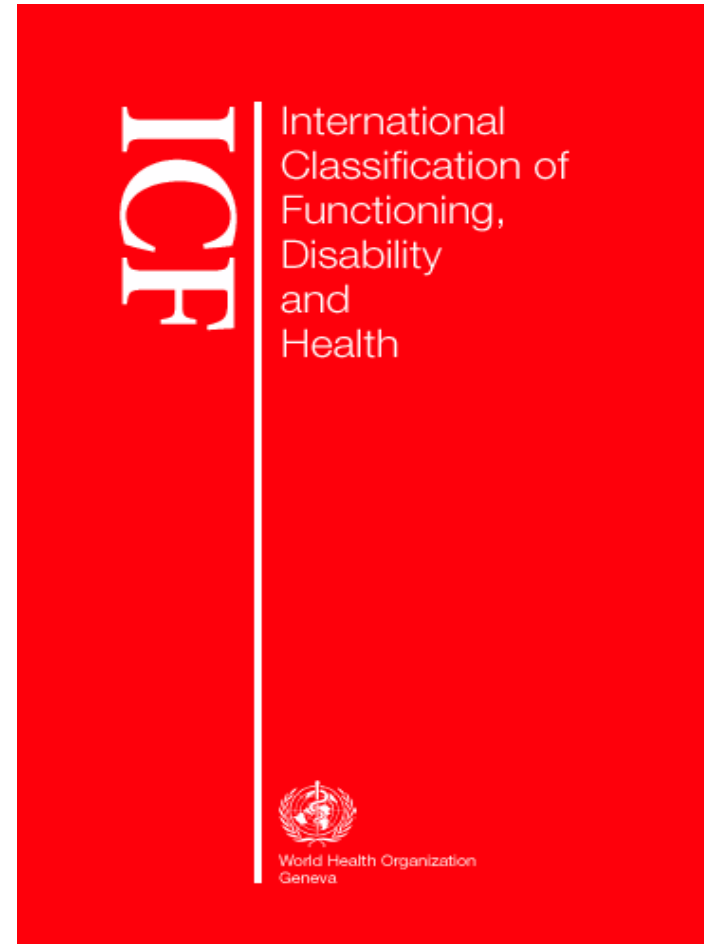
ICF Research Branch Collaborating Center for WHO

Ludwig-Maximilian University





**THE COCHRANE  
COLLABORATION®**



# Contents

- The International Classification of Functioning Disability and Health (ICF)
- Possible application of the ICF in Cochrane Reviews
- The ICF as reference for outcome measures

# Terms used in the literature to address functioning

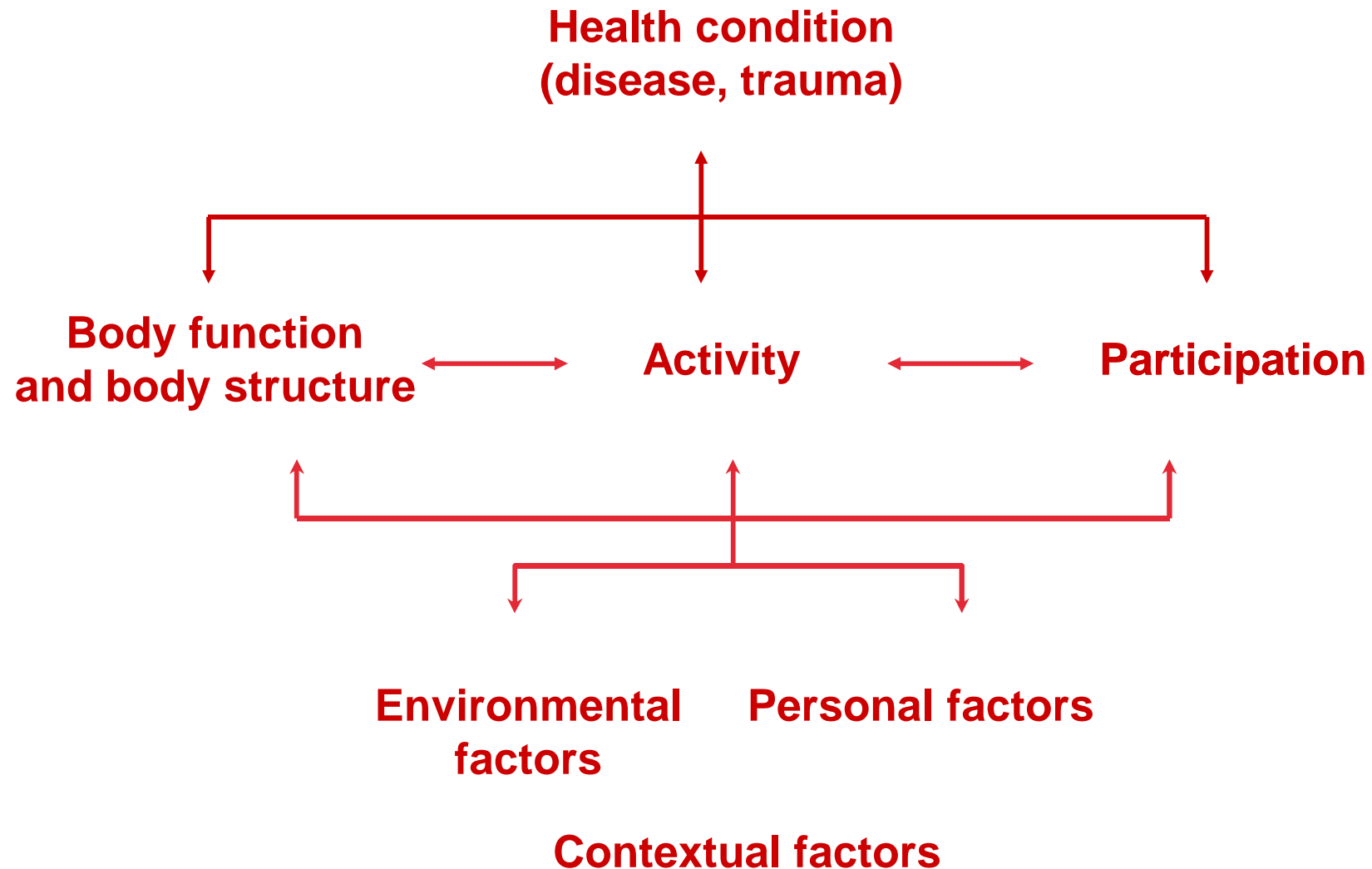
- “Function”
- “Physical functioning”
- “Physical disability”
- “Health status”
- “Health state”
- “Functioning”
- “Health-related quality of life”



# **The International Classification of Functioning, Disability and Health ICF**

**Approved by the World Health Assembly in May 2001**

# The integrative model of **functioning** and **disability**



## Activities & Participation

- Manipulating objects
- Taking care of others

## Body Functions

- Mobility and stability of joints

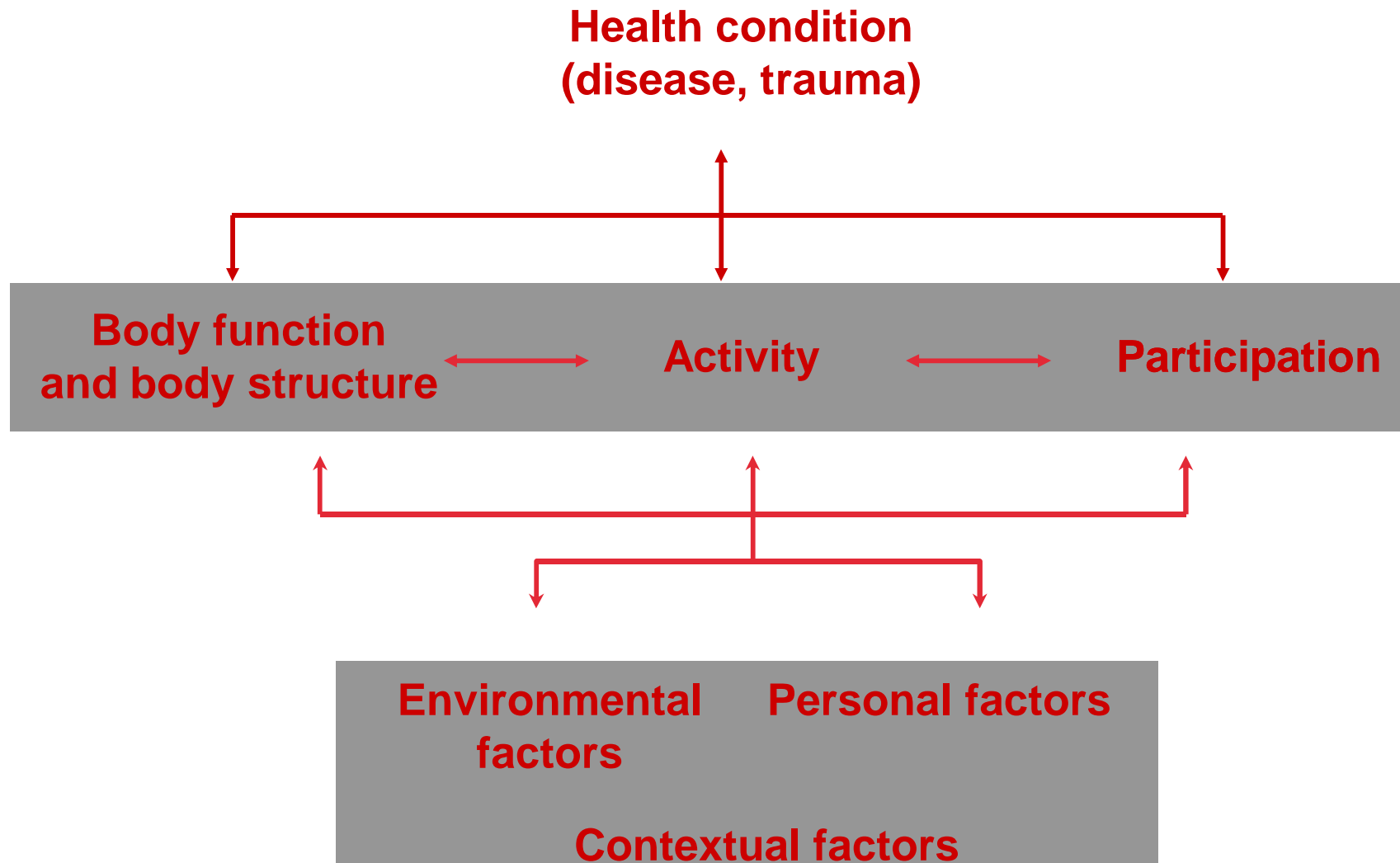
## Body Structures

- Joints
- Ligaments
- Tendons

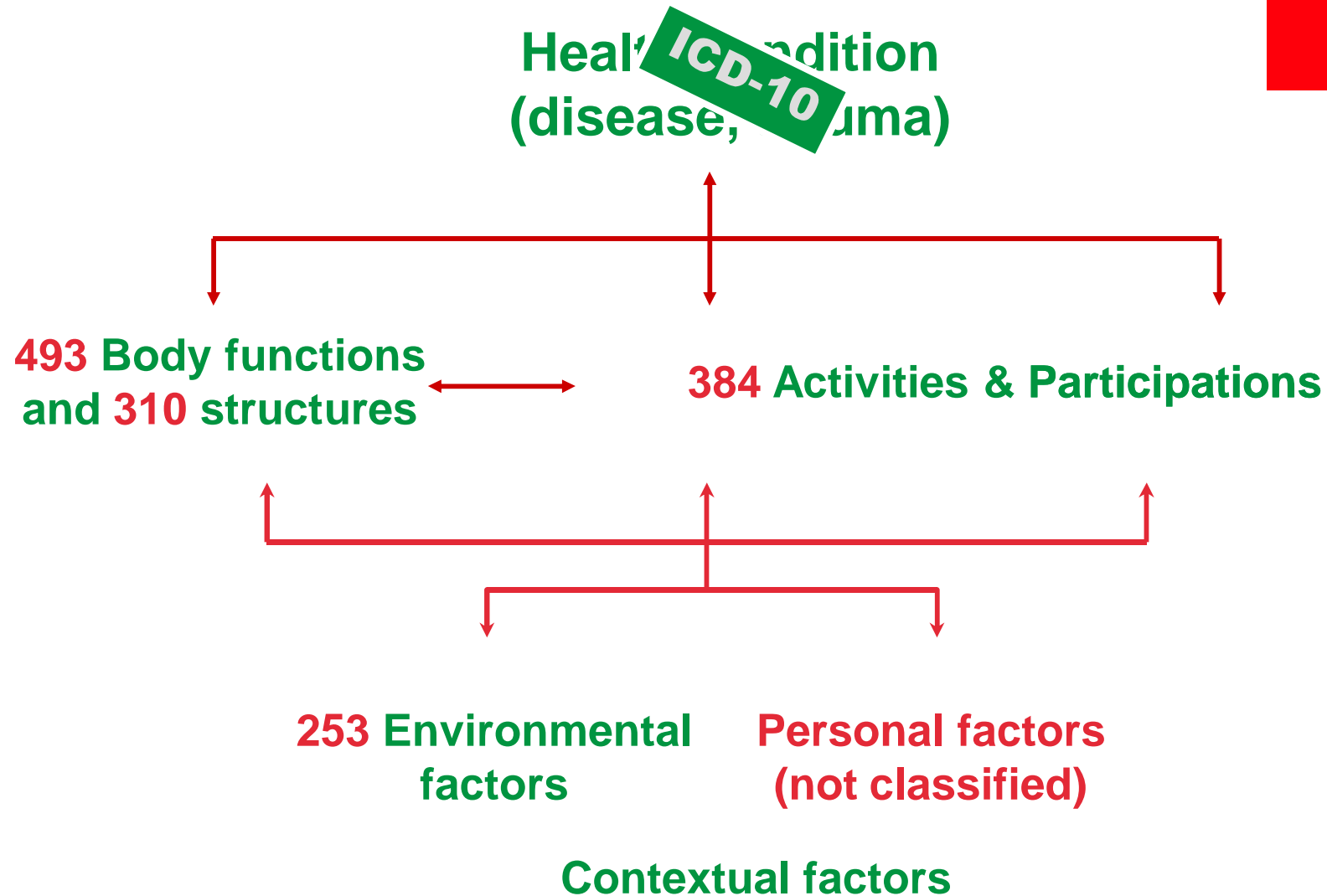
# Functioning



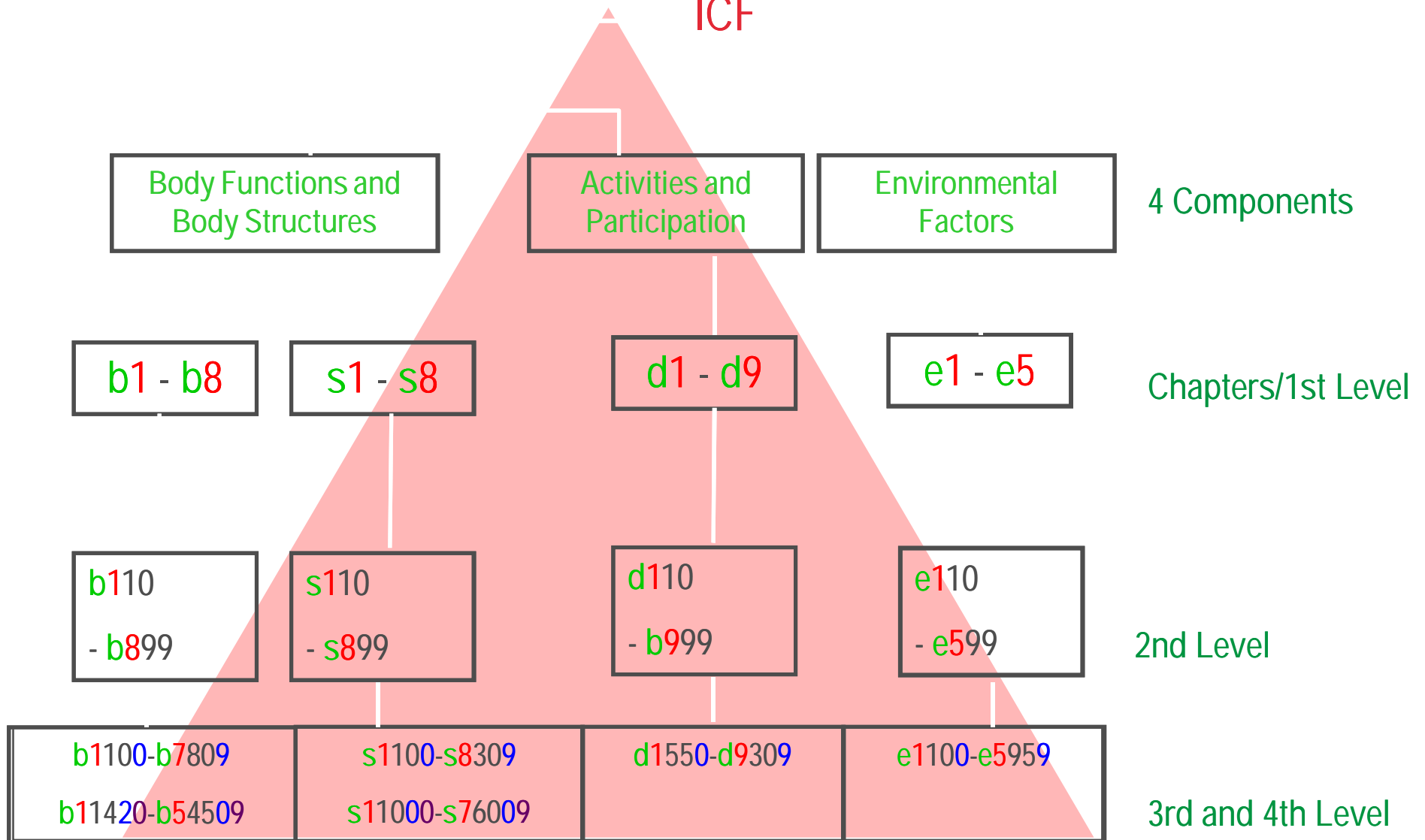
# The integrative model of **functioning** and **disability**



# ICF Categories



# ICF



# ICF categories

Example

b1 Mental functions

1st level

b134 Sleep functions

2<sup>nd</sup> level

3<sup>rd</sup> level

b1340 Amount of sleep

b1341 Onset of sleep

b1342 Maintenance of sleep

b1343 Quality of sleep

b1344 Functions involving the sleep cycle

## b134 Sleep functions

General mental functions of periodic, reversible and selective physical and mental disengagement from one's immediate environment accompanied by characteristic physiological changes.

*Inclusions: functions of amount of sleeping, and onset, maintenance and quality of sleep; functions involving the sleep cycle ...*



s299  
s710  
s720  
s730  
s73001  
s73011

d170  
d230  
d360  
d410  
d415  
d430

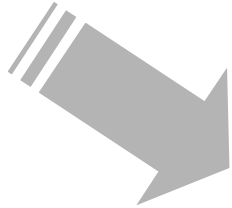
e110  
e115  
e120  
e125  
e135  
e150

1454

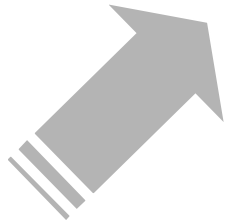
# Disability

Nordic Sleep Questionnaire

Q1. Have you had any difficulties in falling asleep?



**b134 Sleep functions**



What was your level of need for help with not sleeping well?

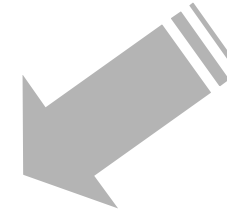
Supportive Care Needs Survey

# Needs

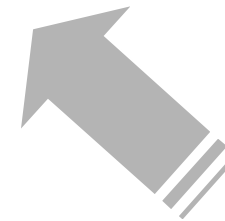
# QoL / Satisfaction

WHOBREF-BREF

F3.3 How satisfied are you with your sleep?



**b134 Sleep functions**



I didn't lose any sleep, but I needed tablets.

Aberdeen Low Back Pain Scale

# Dependency

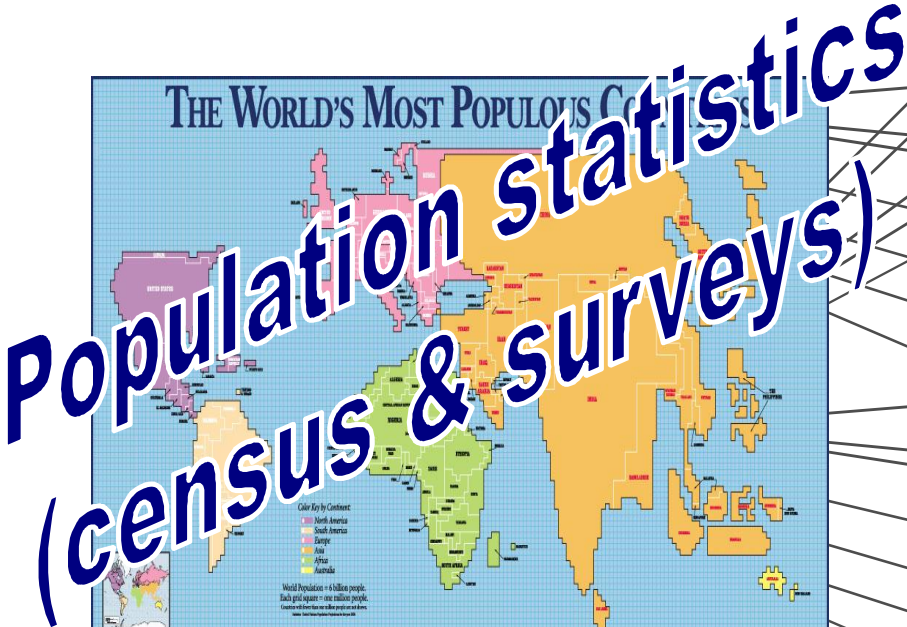
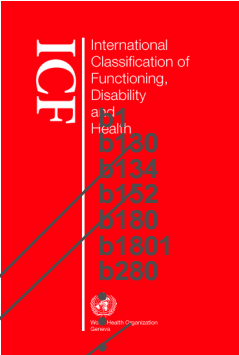
# Generic scale (qualifier)

- 0 NO problem (none, absent, negligible,...)
- 1 MILD problem (slight, low,...)
- 2 MODERATE problem (medium, fair...)
- 3 SEVERE problem (high, extreme,...)
- 4 COMPLETE problem (total,...)

# ICF Core Set

Kodierung	Titel	0	1	2	3	4
b130	Funktionen der psychischen Energie und des Antriebs					
b280	Sensation of pain					
b710	Mobility of joint functions					
b730	Muscle power functions					
s750	Structure of lower extremity					
s730	Structure of upper extremity					
s770	Additional musculoskeletal structures related to movement					
d450	Walking					
d540	Dressing					
d445	Hand and arm use					
e310	Immediate family					
e115	Products and technology for personal use in daily living					
e580	Health services, systems and policies					
e150	Design, construction and building products and technology of buildings for public use					

# The ICF as the semantic reference framework



s299  
s710  
s720  
s730  
s73001  
s73011

d170  
d230  
d360  
d410  
d415  
d430

e110  
e115  
e120  
e125  
e135  
e150

1454

# Washington group questions for disability census

## Core Questions:

1. **b210 Seeing functions**  
Do you have difficulty seeing even if wearing glasses?
2. **b230 Hearing functions**  
Do you have difficulty hearing even if using a hearing aid?
3. **d450 Walking / d 455 Moving around**  
Do you have difficulty walking or climbing stairs?
4. **b140 Attention functions / b144 Memory functions**  
Do you have difficulty remembering or concentrating?

## Additional Questions:

5. **d 510 Washing oneself / d 540 Dressing**  
Do you have difficulty with (self-care such as) washing all over or dressing?
6. **d3 Communicating**  
Because of a physical, mental, or emotional health condition, do you have difficulty communicating (for example understanding others or others understanding you)?

# The ICF as the semantic reference framework

## Patient Reported Outcomes

- b420 Blood pressure functions
- b410 Heart functions
- b 730 Muscle power functions

RAQoL



question, please give the best answer you can.

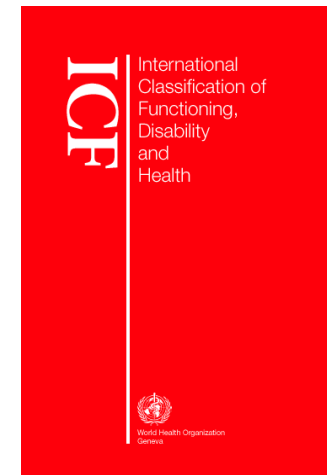


- s299
- s710
- s720
- s730
- s73001
- s73011
- ...
- d170
- d230
- d360
- d410
- d415
- d430
- ...
- e110
- e115
- e120
- e125
- e135
- e150
- ...

1454

# Translation

Information



SPECIAL REPORT

# LINKING HEALTH-STATUS MEASUREMENTS TO THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY AND HEALTH

Alarcos Cieza, Thomas Brockow , Thomas Ewert, Edda Amman, Barbara Kollerits, Somnath Chatterj , T. Berdihan Üstün and Gerold Stucki

*From the Department of Physical Medicine and Rehabilitation, University of Munich, Munich, Spa Medicine Research Institute, Bad Elster, Germany and Classification, Assessment, Surveys and Terminology Team, World Health Organization, Switzerland.*

J Rehabil Med 2005; 37: 212–218

SPECIAL REPORT

## ICF LINKING MULTIPLE ASPECTS OF HEALTH: LESSONS LEARNED

Alarcos Cieza, Silvia Cieza, Somnath Chatterji,<sup>2</sup> Nenad Kostanjsek,<sup>2</sup> Bedirhan Üstün<sup>2</sup> and Gerold Stucki<sup>1,3</sup>

*From the <sup>1</sup>ICF Research Group, WHO CC (DIMDI), Institute for Health and Rehabilitation Sciences, Ludwig-Maximilians-University Munich, Munich, Germany, <sup>2</sup>Classification, Assessment, Surveys and Terminology Team, World Health Organization, Geneva, Switzerland and <sup>3</sup>Department of Physical Medicine and Rehabilitation, University Hospital Munich*

> 50 publications

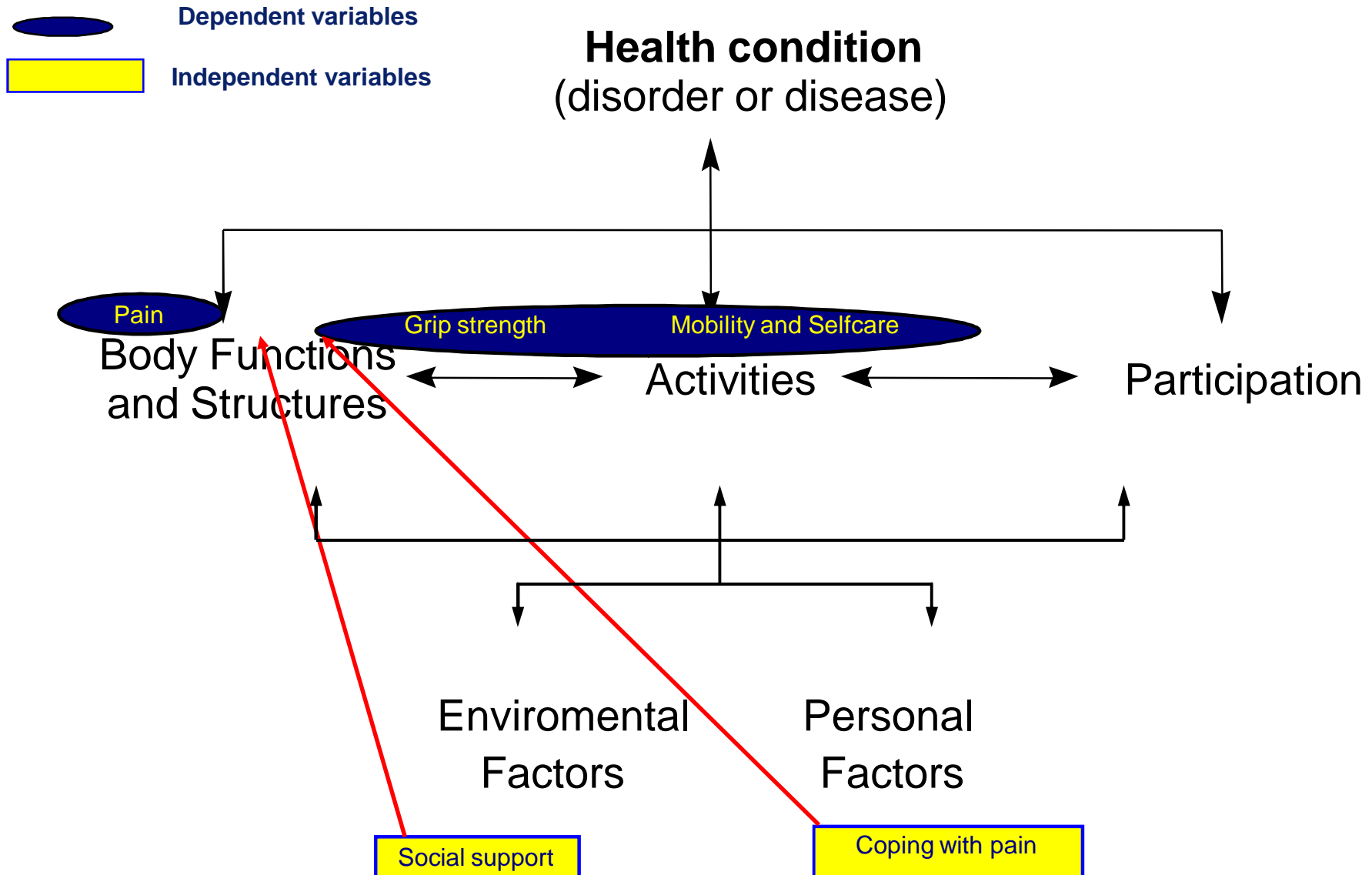


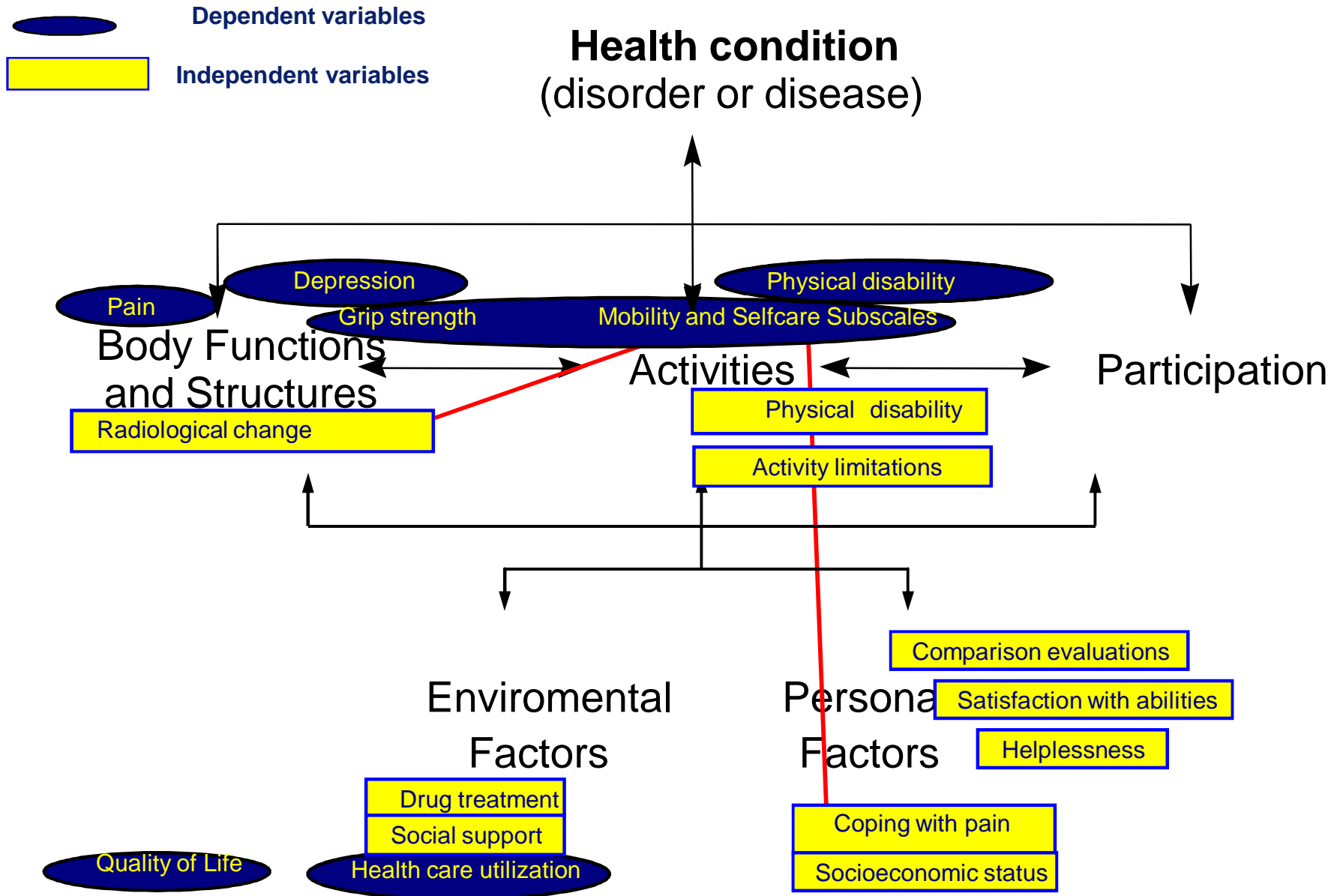
# **Use of the linking rules for performing qualitative reviews**

Evers et al. *Behaviour Research and Therapy* 2003; 41: 1295-1310

# What explains disability in rheumatoid Arthritis ?

„Pain coping and social support as predictors of long-term functional disability and pain in early RA“





# Conclusions

- Studies focus on Activity
  - There are no studies studying functioning from a comprehensive perspective
- Comprehensive models are rare
  - Most studies take just **one perspective**, often according to the **professional perspective** of the main investigator
  - Therefore, the true relevance of identified determinants in relation to not covered variables remains unclear

# Conclusions

- The ICF model is a valuable tool because shows where the gaps in evidence are and where further researcher could be done

# Cochrane review

## Patient education for adults with rheumatoid arthritis

Riemsma RP, Kirwan JR, Rasker HJJ

# Patient education for adults with rheumatoid arthritis

## Objectives

To assess the effectiveness of patient education interventions on health status in patients with rheumatoid arthritis.

## Selection criteria

Randomised controlled trials (RCT's)

## Patient education Interventions

“Information only”

“Counselling”

“Behavioral treatment”

## Outcome measures

Disability

Joint pain/tenderness

joint swelling

pain

patient and physician global assessment

psychological status, anxiety, depression

# Patient education for adults with rheumatoid arthritis

## Studies

- 50 studies included in the review
- Data were obtained from 24 studies

# Patient education for adults with rheumatoid arthritis

## Disability assessed by:

Health Assessment Questionnaire (HAQ)

Arthritis Impact Measurement Scales (AIMSII)

Sickness Impact Profile 68 (SIP68)

Multidimensional Health Questionnaire (MHQ)

Disease Activities Questionnaire (DAQ)

Hannover Functional Ability Questionnaire (HFAQ)

Short Form – 36 (SF-36)

# Patient education for adults with rheumatoid arthritis

## Results

significant effects of patient education at first follow-up for scores on disability

(SMD = -0.17 [95% CI: -0.25, -0.09]; Z = 3.97, P = 0.00007; N = 2275)

# Patient education for adults with rheumatoid arthritis

## Results

### Sensitivity analyses using

- only high quality studies

(SMD = -0.20 [95% CI: -0.35, -0.05]; Z = 2.55, P = 0.01; N = 1586)

- only large studies (N > 80)

(SMD = -0.15 [95% CI: -0.25, -0.05]; Z = 2.88, P = 0.004; N = 1514)

also show a significant effect of patient education for scores of disability

?

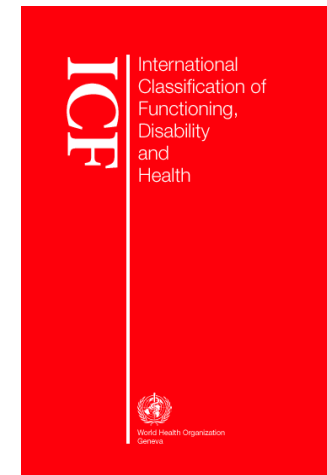
**What do these results tell us regarding the effect patient education in adults with RA?**

**Patient education** → **Disability**  
?



# Linking method

Items of questionnaires



# The Fundamental Idea

After having translated different outcome measures into **the same language (ICF)** **one obtains an overview of what has really been measured**

# Example

Health Assessment Questionnaire (HAQ)

Arthritis Impact Measurement Scales (AIMSII)

# Example

Are you able to **dress** yourself?

**d540 Dressing**

How often did your **pain** make it difficult for you to **sleep**?

**b280 Sensation of pain**

**b134 Sleep functions**

# Content Comparison – Component Level

**ICF-Component**

**AIMSII**

**HAQ**

**Body Functions**

**x**

**Body Structures**

**Activities & Participation**

**x**

**x**

**Environmental Factors**

**X**

**X**

## 2nd Level – Body Functions

ICF Category	AIMSII	HAQ
<b>b130</b> Energy and drive functions	<b>X</b>	
<b>b134</b> Sleep functions	<b>X</b>	
<b>b152</b> Emotional functions	<b>X</b>	
<b>b280</b> Sensation of pain	<b>X</b>	
<b>b780</b> Sensations related to muscles and movement functions	<b>X</b>	

# 2nd Level – Activities and Participation

ICF Category	AIMSII	HAQ
d360 Using communication devices and techniques	X	
d410 Changing basic body position	X	X
d440 Fine hand use	X	X
d445 Hand and arm use	X	X
d450 Walking	X	X
d455 Moving around	X	X
d470 Using transportation	X	
d475 Driving motorized vehicles	X	

# d440 Fine hand use

ICF Category	AIMSII	HAQ
d440 Fine hand use		
<b>d4400</b> Picking up		<b>X</b>
<b>d4401</b> Grasping		<b>X</b>
<b>d4402</b> Manipulating	<b>X</b>	<b>X</b>
<b>d4403</b> Releasing		<b>X</b>

# Cochrane review

## Patient education for adults with rheumatoid arthritis

Riemsma RP, Kirwan JR, Rasker HJJ

It is important to specify what is behind a term like disability in a systematic review

# Patient education for adults with rheumatoid arthritis

Sensitivity analyses, using only the two most widely used instruments:

Health Assessment Questionnaire (HAQ)  
Arthritis Impact Measurement Scales (AIMSII)

“At first follow-up the HAQ showed a trend in favour of patient education”

(WMD = -0.19 [95% CI: -0.39, 0.01])

The AIMSII does not show an effect of patient education

# Conclusions

- The ICF can be used as reference in qualitative reviews when summarizing the results of studies addressing functioning and disability
- The ICF is useful to look into the “black box” of outcome measures