

# QUALITY OF LIFE INPATIENT WITH TYPE 2 DIABETES USING EQ5D

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# INTRODUCTION

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## DIABETES MELLITUS

A metabolic disease characterized by high blood glucose levels caused by abnormalities in insulin secretion, insulin action or both which can cause long-term damage, dysfunction of several body organs such as eyes, kidneys, nerves, heart and blood vessels (ADA, 2010)



# DM prevalence in the world

(Diabetes care, 2004: IDF, 2011)

## Diabetes is a global disease

Estimated global prevalence of diabetes



**171 million<sup>1</sup>**  
**2000**



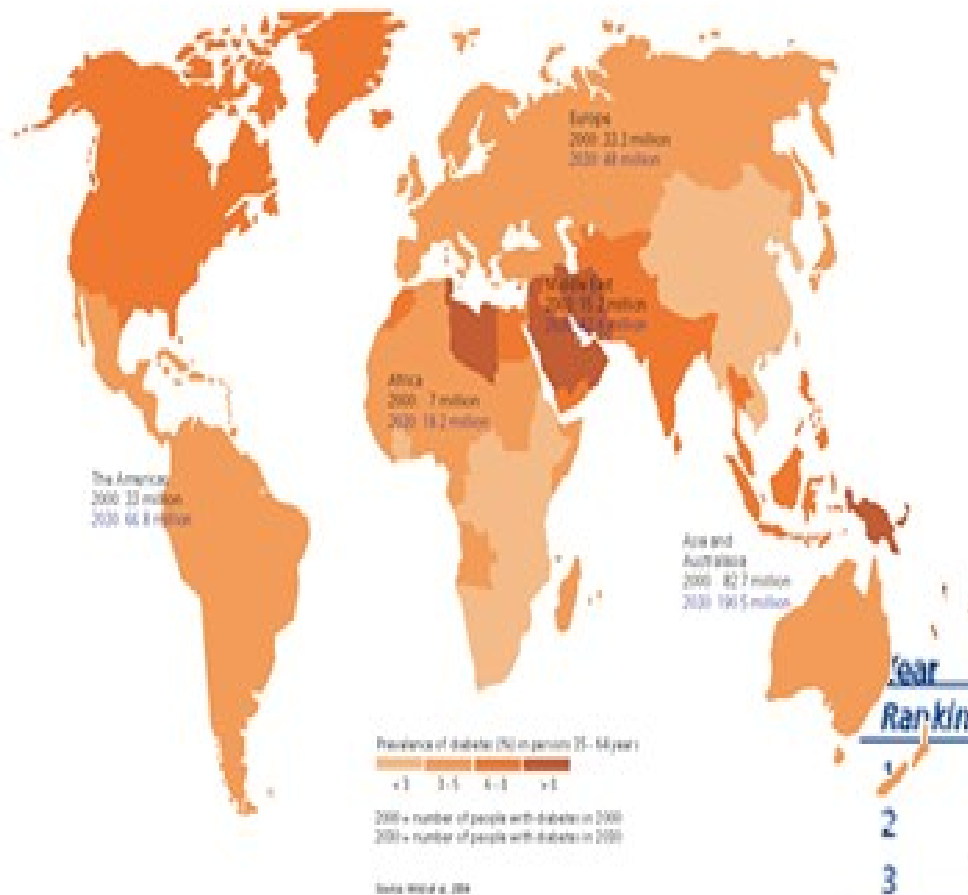
**366 million<sup>2</sup>**  
**2011**



**552 million<sup>2</sup>**  
**2030**

1. Wild. *Diabetes Care*. 2004. 27:1047-1053.
2. International Diabetes Federation. *IDF Diabetes Atlas*. Fifth Edition. 2011

## DM in Indonesia is ranked number 4 after India, China and the US



The top 10 countries, in numbers of people with diabetes, are:

- India
- China
- USA
- Indonesia
- Japan
- Pakistan
- Russia
- Brazil
- Italy
- Bangladesh

Year	Ranking	Country	2000	2030
	1	India	31.7	79.4
	2	China	20.8	42.3
	3	United States of America	17.7	30.3



# DM Symptoms





# COMPLICATIONS OF DM

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## ACUTE

- Hyperglycemia: Blood Glucose increases suddenly
- Hypoglycemia: decreased Blood Glucose (<50 mgdl)

## CRONIC

- Retinopathy (eyes)
- Coronary Heart
- Nephropathy (kidneys)
- Neuropathy (nerves)

# DM RISK FACTORS



# Physical Exercise on DM

- Is an activity that uses physical movements carried out by the body's muscles and supporting systems
- regularly 2-3 times a week
- About 30- 60 minute
- Expected effect-----control blood glucose and HbA1C





# Research Design

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- Longitudinal eksperimental quasi study
- Divided into 2 groups:
- Physical exercise group
- Non physical exercise group
- Blood Glucose and HbA1C compared

# Inclusion Criteria

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- Have blood glucose and HbA1C data when taken as research subjects more or less the same as the last 3 months before the study was carried out.
- Able to do sports activity



# Exclusion Criteria

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- Not with DMT2
  - unable to do physical exercise
  - Not willing to be the subject of research.

# Sample Selection

DM type 2

inklusion dan exclusion Criteria

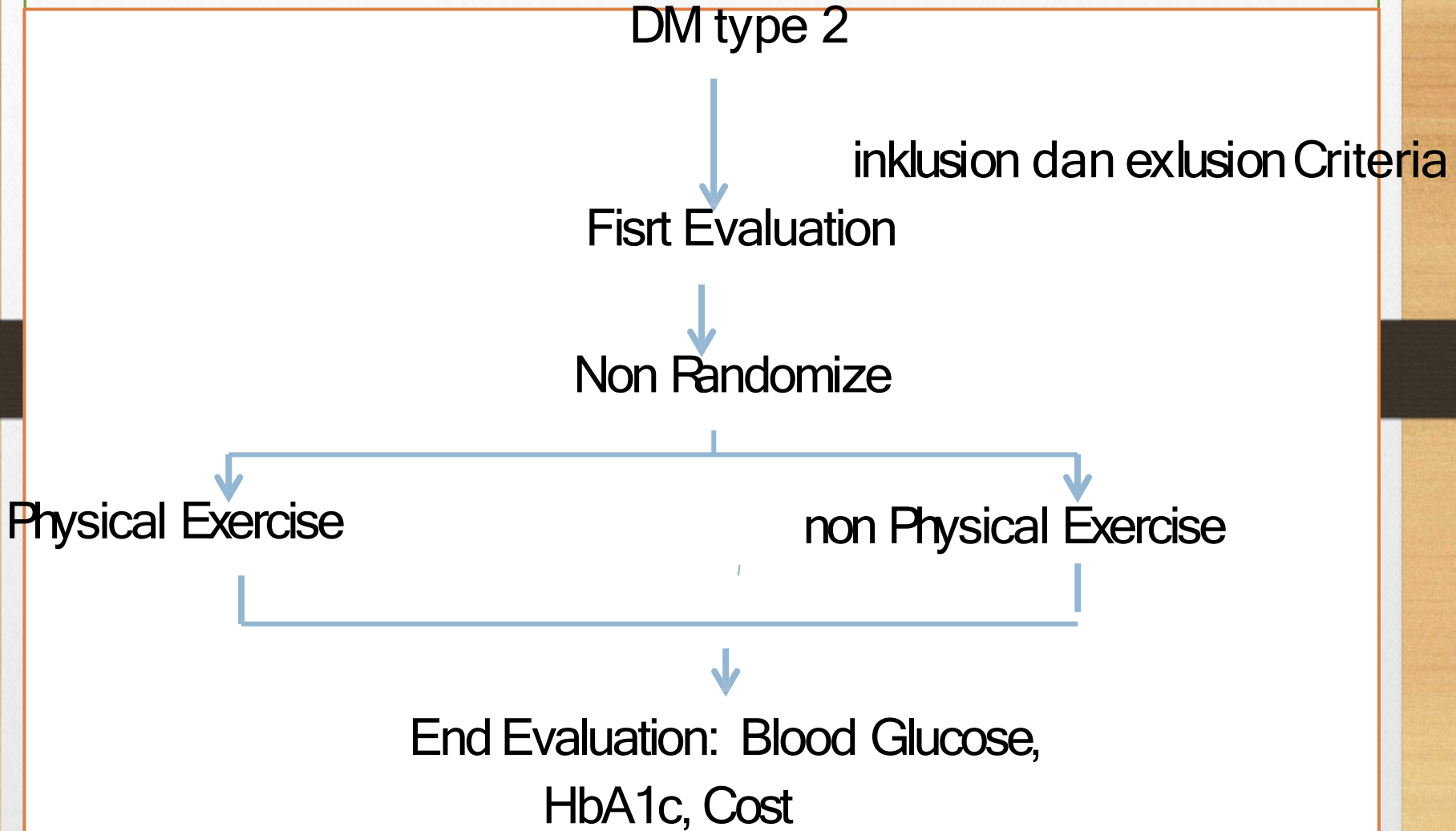
Fisrt Evaluation

Non Randomize

Physical Exercise

non Physical Exercise

End Evaluation: Blood Glucose,  
HbA1c, Cost





# OUTCOMES

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- Controlled blood Glucose
- Controlled HbA1C
- Differences in blood glucose levels between two groups
- Differences HbA1C between two groups

## HbA1C levels in the Physical Exercise and not do physical exercise Groups

Groups	Early (before intervention)	End (After intervention)	Percentage (%)
<b>Physical Exercise (n =34)</b>			
Controlled (<7%)	4	28	82,4
Uncontrolled(>7%)	30	6	17,6
<b>Not do Physical Exercise (n=38)</b>			
Controlled (<7%)	2	4	10,5
Uncontrolled (>7%)	36	34	89,5



# European Quality of Life-5 Dimension (EQ-5D)

1. *Mobility*
2. *Self care*
3. *Usual activity (*
4. *Pain / Discomfort*
5. *Anxiety / Depression*

Each dimension has 5 answer levels:

1. No problems
2. Slight problems
3. Moderate problems
4. Severe problems
5. Extreme problems/  
unable

# European Quality of Life-5 Dimension (EQ-5D)

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- A generic instrument for measuring health-related quality of life, designed for respondent self-completion
  - In the form of a questionnaire covering 5 dimensions: mobility, self-care, usual activities, pain/discomfort, anxiety/depression
  - Each dimension has 5 answer levels



**Figure 1: EQ-5D-5L (UK English sample version)**

Under each heading, please tick the **ONE** box that best describes your health **TODAY**

**MOBILITY**

- I have no problems in walking about
- I have slight problems in walking about
- I have moderate problems in walking about
- I have severe problems in walking about
- I am unable to walk about

**SELF-CARE**

- I have no problems washing or dressing myself
- I have slight problems washing or dressing myself
- I have moderate problems washing or dressing myself
- I have severe problems washing or dressing myself
- I am unable to wash or dress myself

**USUAL ACTIVITIES** (e.g. work, study, housework, family or leisure activities)

- I have no problems doing my usual activities
- I have slight problems doing my usual activities
- I have moderate problems doing my usual activities
- I have severe problems doing my usual activities
- I am unable to do my usual activities

**PAIN / DISCOMFORT**

- I have no pain or discomfort
- I have slight pain or discomfort
- I have moderate pain or discomfort
- I have severe pain or discomfort
- I have extreme pain or discomfort

**ANXIETY / DEPRESSION**

- I am not anxious or depressed
- I am slightly anxious or depressed
- I am moderately anxious or depressed
- I am severely anxious or depressed
- I am extremely anxious or depressed



# Value Set Malaysia

## Economic Study Eritropoetin

### 2004-2005

VALUE IN HEALTH 15 (2012) 585-590

589

**Table 5 – Predicted and observed health state values.**

Health state	Observed mean VAS	VAS model's predictor				Observed mean TTO	TTO model's prediction			
		D1 model	AE	N3 model	AE		D1 model	AE	N3 model	AE
11112	0.666	0.804	0.062	0.851	0.015	0.813	0.735	0.078	0.812	0.001
11113	0.753	0.761	0.008	0.731	0.022	0.671	0.696	0.025	0.690	0.019
11121	0.848	0.842	0.006	0.879	0.031	0.732	0.707	0.024	0.773	0.041
11122	0.768	0.775	0.007	0.798	0.029	0.824	0.685	0.139	0.722	0.102
11131	0.677	0.723	0.046	0.690	0.013	0.530	0.605	0.074	0.593	0.063
11133	0.511	0.613	0.102	0.604	0.092	0.453	0.544	0.091	0.550	0.097
11211	0.855	0.797	0.058	0.879	0.024	0.785	0.712	0.073	0.833	0.048
11312	0.587	0.639	0.051	0.614	0.027	0.631	0.656	0.025	0.642	0.011
12111	0.823	0.791	0.032	0.836	0.012	0.785	0.729	0.055	0.802	0.017
12121	0.787	0.762	0.024	0.782	0.005	0.629	0.680	0.051	0.712	0.083
12211	0.717	0.717	0.001	0.782	0.066	0.773	0.684	0.089	0.772	0.001
12222	0.643	0.622	0.021	0.647	0.005	0.601	0.613	0.012	0.632	0.031
12223	0.567	0.579	0.012	0.527	0.040	0.570	0.574	0.004	0.510	0.061
13212	0.530	0.567	0.037	0.522	0.008	0.563	0.615	0.052	0.560	0.007
13311	0.536	0.542	0.014	0.535	0.022	0.483	0.604	0.120	0.610	0.127
13332	0.268	0.327	0.059	0.326	0.058	0.466	0.429	0.037	0.419	0.047
21111	0.843	0.792	0.050	0.848	0.006	0.787	0.731	0.056	0.824	0.037
21133	0.464	0.534	0.070	0.519	0.055	0.459	0.518	0.059	0.511	0.052
21222	0.633	0.623	0.010	0.660	0.027	0.587	0.615	0.027	0.653	0.066
21232	0.485	0.503	0.019	0.471	0.014	0.450	0.512	0.062	0.473	0.024
21312	0.532	0.560	0.028	0.529	0.003	0.586	0.630	0.045	0.603	0.017
21323	0.522	0.488	0.034	0.471	0.051	0.507	0.542	0.034	0.521	0.014
22112	0.630	0.646	0.016	0.670	0.040	0.696	0.681	0.014	0.712	0.016
22121	0.687	0.684	0.003	0.697	0.011	0.560	0.654	0.094	0.673	0.113
22122	0.633	0.617	0.016	0.616	0.017	0.657	0.632	0.026	0.622	0.035
22222	0.524	0.543	0.019	0.563	0.039	0.571	0.587	0.015	0.593	0.021
22233	0.426	0.380	0.045	0.369	0.057	0.577	0.445	0.131	0.420	0.156
22323	0.374	0.408	0.034	0.374	0.000	0.523	0.514	0.009	0.460	0.063
22331	0.390	0.399	0.009	0.386	0.003	0.492	0.472	0.020	0.453	0.039
22332	0.367	0.340	0.027	0.310	0.057	0.437	0.437	0.000	0.391	0.047
23113	0.351	0.354	0.003	0.364	0.013	0.547	0.517	0.030	0.528	0.019
23321	0.412	0.435	0.023	0.397	0.015	0.588	0.528	0.060	0.481	0.107
30211	0.348	0.516	0.169	0.475	0.128	0.467	0.591	0.124	0.562	0.096
32223	0.373	0.378	0.004	0.336	0.038	0.525	0.480	0.045	0.430	0.095
32232	0.362	0.301	0.061	0.267	0.095	0.363	0.416	0.054	0.372	0.009
32313	0.325	0.315	0.011	0.321	0.005	0.438	0.496	0.058	0.509	0.071
32331	0.291	0.277	0.015	0.279	0.012	0.506	0.405	0.101	0.412	0.094
33212	0.260	0.366	0.106	0.331	0.070	0.475	0.527	0.047	0.489	0.015
33232	0.263	0.218	0.045	0.203	0.060	0.422	0.370	0.052	0.349	0.072
33321	0.264	0.313	0.048	0.290	0.025	0.451	0.461	0.010	0.410	0.041
33323	0.239	0.203	0.037	0.203	0.036	0.433	0.400	0.034	0.397	0.036
33333	0.122	0.083	0.039	0.130	0.008	0.314	0.297	0.017	0.347	0.032
MAE			0.093		0.092			0.051		0.049

AE, absolute error; MAE, mean absolute error; TTO, time trade-off; VAS, visual analogue scale.

## The results of the different test analysis with post Hoc Wilcoxon

VAS	Groups	N	Mean $\pm$ sd	P-Value
(Before Intervention)	Physical Exercise	34	0,823 $\pm$ 0,045	0,024
	Not do Physical Exercise	38	0,722 $\pm$ ,096	
(After Intervention)	Physical Exercise	34	0,845 $\pm$ 0,031	
	Not do Physical Exercise	38	0,735 $\pm$ 0,096	



The interpretation of the calculation results in the table above is:

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VAS value before intervention vs after intervention p value =  $0.024 < 0.05$ , meaning that the VAS value before the intervention was different from the VAS value after the intervention.

# CONCLUSION

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- Quality of life of type 2 DM patients who perform physical activity is better than the group that does not do physical activity
- Physical activity can be the main choice in increasing life expectancy for people with type 2 diabetes.



THE END



Source image: [www.michellecederberg.com](http://www.michellecederberg.com)

