

PICO 7&8: Spørgsmål 7: Er der evidens for større effekt af superviseret aerob- og styrketræning i 10 uger eller længere varighed sammenlignet med kortere varighed ved type 2 diabetes? Spørgsmål 8 Er der evidens for større effekt af superviseret aerob- og styrketræning tre gange om ugen sammenlignet med to gange?

Methods

Criteria for considering studies for this review

Types of outcome measures

Primary outcomes

HbA1c \geq 1 år - kritisk

Fysisk kapacitet (VO_2 max) efter endt forløb - kritisk

Secondary outcomes

Følgende outcomes er vurderet vigtige:

BMI \geq 1 år

BMI $<$ 1 år

Vægt \geq 1 år

HbA1c $<$ 1 år

Komplikationer \geq 1 år

Hjertekarsygdom \geq 1 år

Fysisk kapacitet (VO_2 max) - længste follow-up

QoL - længste follow-up

Characteristics of studies

Characteristics of included studies

Balducci 2010 (12 month)

Methods	
Participants	
Interventions	
Outcomes	
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Unclear risk	Unclear

Church 2010 (9 month)

Methods	
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Cuff 2003 (3.5 month)

Methods	
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Other bias	Unclear risk	Unclear

deOliveira 2012 (3 month)

Methods
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Interventions
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Notes

Risk of bias table

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Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Unclear risk	Unclear
Incomplete outcome data (attrition bias)	Unclear risk	Unclear

Selective reporting (reporting bias)	Low risk
Other bias	Unclear risk

Hordern 2008 (1 month)

Methods
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Random sequence generation (selection bias)	Low risk	
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Lambers 2008 (3 month)

Methods	
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Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Low risk	

Loimaala 2009 (24 month)

Methods	
Participants	
Interventions	
Outcomes	
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Unclear
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding of participants and personnel (performance bias)	Unclear risk	Unclear
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Sigal 2007 (6 month)

Methods
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Incomplete outcome data (attrition bias)	Low risk	

Selective reporting (reporting bias)	High risk
Other bias	Unclear risk

Tan 2012 (6 month)

Methods	
Participants	
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Outcomes	
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Unclear risk	Unclear
Other bias	Unclear risk	Unclear

Footnotes

Characteristics of excluded studies

Footnotes

Characteristics of studies awaiting classification

Footnotes

Characteristics of ongoing studies

Footnotes

Summary of findings tables

Additional tables

References to studies

Included studies

Balducci 2010 (12 month)

Balducci S, Zanuso S, Nicolucci A, De Feo P, Cavallo S, Cardelli P, et al. - Italian Diabetes Exercise Study (IDES) Investigators. Effect of an intensive exercise intervention strategy on modifiable cardiovascular risk factors in subjects with type 2 diabetes mellitus: a randomized controlled trial: the Italian Diabetes and Exercise Study (IDES). Arch Intern Med 2010 Nov 8;170(20):1794-1803 2010;170(20):1794-1803.

Church 2010 (9 month)

Church TS, Blair SN, Cooreham S, Johannsen N, Johnson W, Kramer K, et al. Effects of aerobic and resistance training on hemoglobin A1c levels in patients with type 2 diabetes: a randomized controlled trial. JAMA 2010;304(20):2253-62..

Cuff 2003 (3.5 month)

Cuff DJ, Meneilly GS, Martin A, Ignaszewski A, Tildesley HD, Frohlich JJ. Effective exercise modality to reduce insulin resistance in women with type 2 diabetes. *Diabetes Care* 2003 Nov;26(11):2977-2982. 2003;26(11):2977-82.

deOliveira 2012 (3 month)

de Oliveira VN, Bessa A, Jorge ML, Oliveira RJ, de Mello MT, De Agostini GG, et al. The effect of different training programs on antioxidant status, oxidative stress, and metabolic control in type 2 diabetes. *Appl Physiol Nutr Metab* 2012;37(2):334-44.

Hordern 2008 (1 month)

Hordern MD, Cooney LM, Beller EM, Prins JB, Marwick TH, Coombes JS. Determinants of changes in blood glucose response to short-term exercise training in patients with Type 2 diabetes. *Clin Sci (Colch)* 2008;115(9):273-81.

Lambers 2008 (3 month)

Lambers S, Van Laethem C, Van Acker K, Calders P. Influence of combined exercise training on indices of obesity, diabetes and cardiovascular risk in type 2 diabetes patients. *Clin Rehabil* 2008;22(6):483-92.

Loimaala 2009 (24 month)

Loimaala A, Groundstroem K, Rinne M, Nenonen A, Huhtala H, Parkkari J, et al.. Effect of long-term endurance and strength training on metabolic control and arterial elasticity in patients with type 2 diabetes mellitus. *Am J Cardiol* 2009;103(7):972-7.

Sigal 2007 (6 month)

Sigal RJ, Kenny GP, Boule NG, Wells GA, Prud'homme D, Fortier M, et al.. Effects of aerobic training, resistance training, or both on glycemic control in type 2 diabetes: a randomized trial. *Ann Intern Med* 2007;147(6):357-69.

Tan 2012 (6 month)

Tan S, Li W, Wang J. Effects of six months of combined aerobic and resistance training for elderly patients with a long history of type 2 diabetes. *J Sports Sci Med* 2012;11(3):495-501.

Excluded studies

Studies awaiting classification

Ongoing studies

Other references

Additional references

Other published versions of this review

Data and analyses

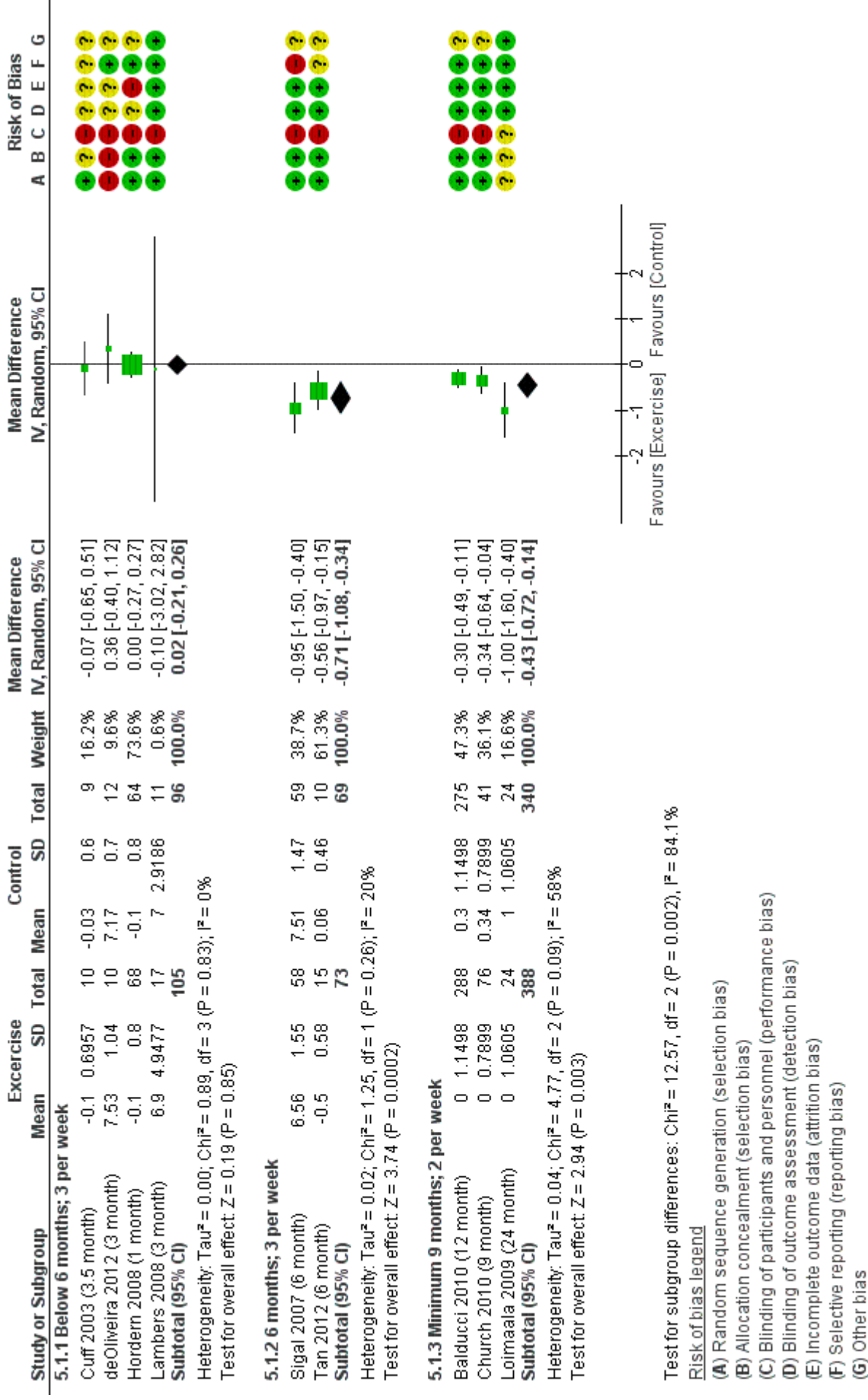
5 Exercise vs control [Duration&Frequency]

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
5.1 HbA1c	9		Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1.1 Below 6 months; 3 per week	4	201	Mean Difference (IV, Random, 95% CI)	0.02 [-0.21, 0.26]
5.1.2 6 months; 3 per week	2	142	Mean Difference (IV, Random, 95% CI)	-0.71 [-1.08, -0.34]
5.1.3 Minimum 9 months; 2 per week	3	728	Mean Difference (IV, Random, 95% CI)	-0.43 [-0.72, -0.14]
5.2 BMI	9		Mean Difference (IV, Random, 95% CI)	Subtotals only
5.2.1 Below 6 months; 3 per week	4	173	Mean Difference (IV, Random, 95% CI)	-0.51 [-0.92, -0.09]
5.2.2 6 months; 3 per week	2	152	Mean Difference (IV, Random, 95% CI)	0.14 [-0.52, 0.80]
5.2.3 Minimum 9 months; 2 per week	3	612	Mean Difference (IV, Random, 95% CI)	-0.65 [-1.00, -0.29]
5.3 Physical capacity Vo2 ML/kg min	9		Mean Difference (IV, Random, 95% CI)	Subtotals only
5.3.1 Below 6 months; 3 per week	4	145	Mean Difference (IV, Random, 95% CI)	0.11 [-4.20, 4.42]
5.3.2 6 months; 3 per week	2	139	Mean Difference (IV, Random, 95% CI)	1.94 [1.48, 2.40]
5.3.3 Minimum 9 months; 2 per week	3	728	Mean Difference (IV, Random, 95% CI)	2.25 [1.06, 3.44]

	9			Mean Difference (IV, Random, 95% CI)	Subtotals only
5.4 Quality of Life physical					
5.4.1 Below 6 months; 3 per week	4	28		Mean Difference (IV, Random, 95% CI)	6.80 [-86.02, 99.62]
5.4.2 6 months; 3 per week	2	109		Mean Difference (IV, Random, 95% CI)	0.60 [-2.00, 3.20]
5.4.3 Minimum per months; 2 per week	3	615		Mean Difference (IV, Random, 95% CI)	5.85 [1.45, 10.26]
5.5 Quality of Life mental	9			Mean Difference (IV, Random, 95% CI)	Subtotals only
5.5.1 Below 6 months; 3 per week	4	28		Mean Difference (IV, Random, 95% CI)	-7.10 [-54.99, 40.79]
5.5.2 6 months; 2 per week	2	109		Mean Difference (IV, Random, 95% CI)	-7.20 [-10.70, -3.70]
5.5.3 Minimum 9 months; 2 per week	3	615		Mean Difference (IV, Random, 95% CI)	3.96 [-1.32, 9.24]

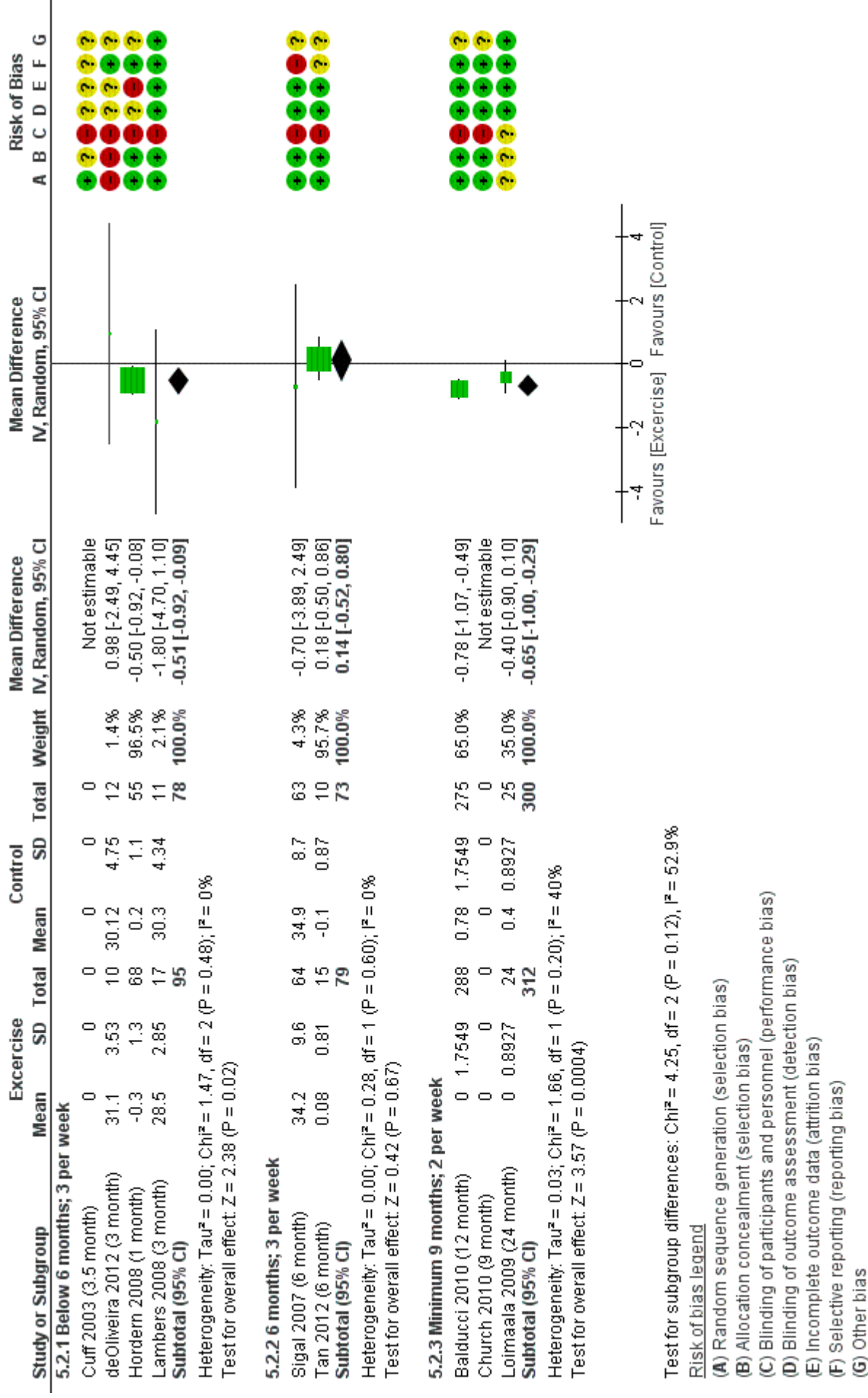
Figures

Figure 1 (Analysis 5.1)



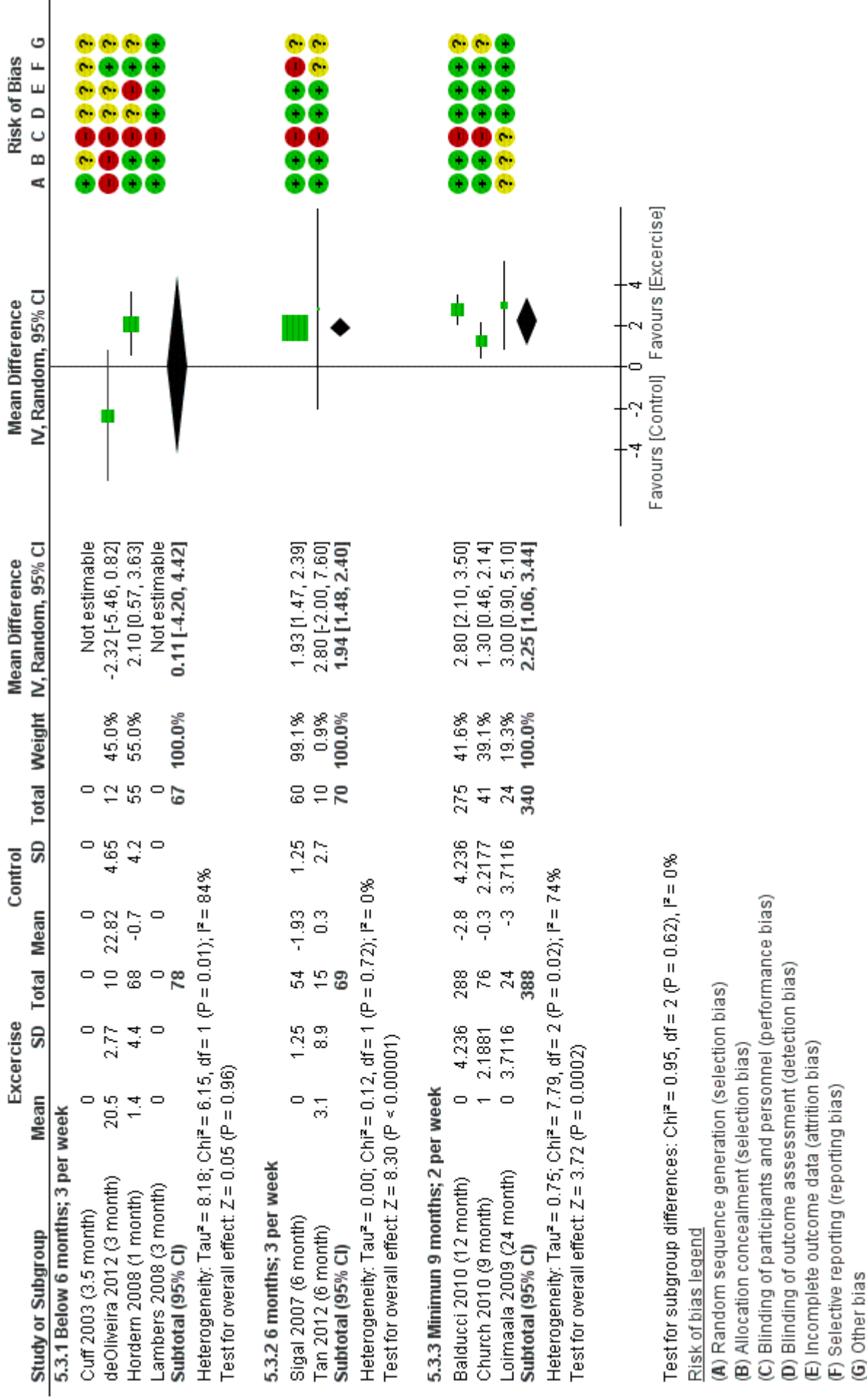
Forest plot of comparison: 5 Exercise vs control [Duration&Frequency], outcome: 5.1 HbA1c.

Figure 2 (Analysis 5.2)



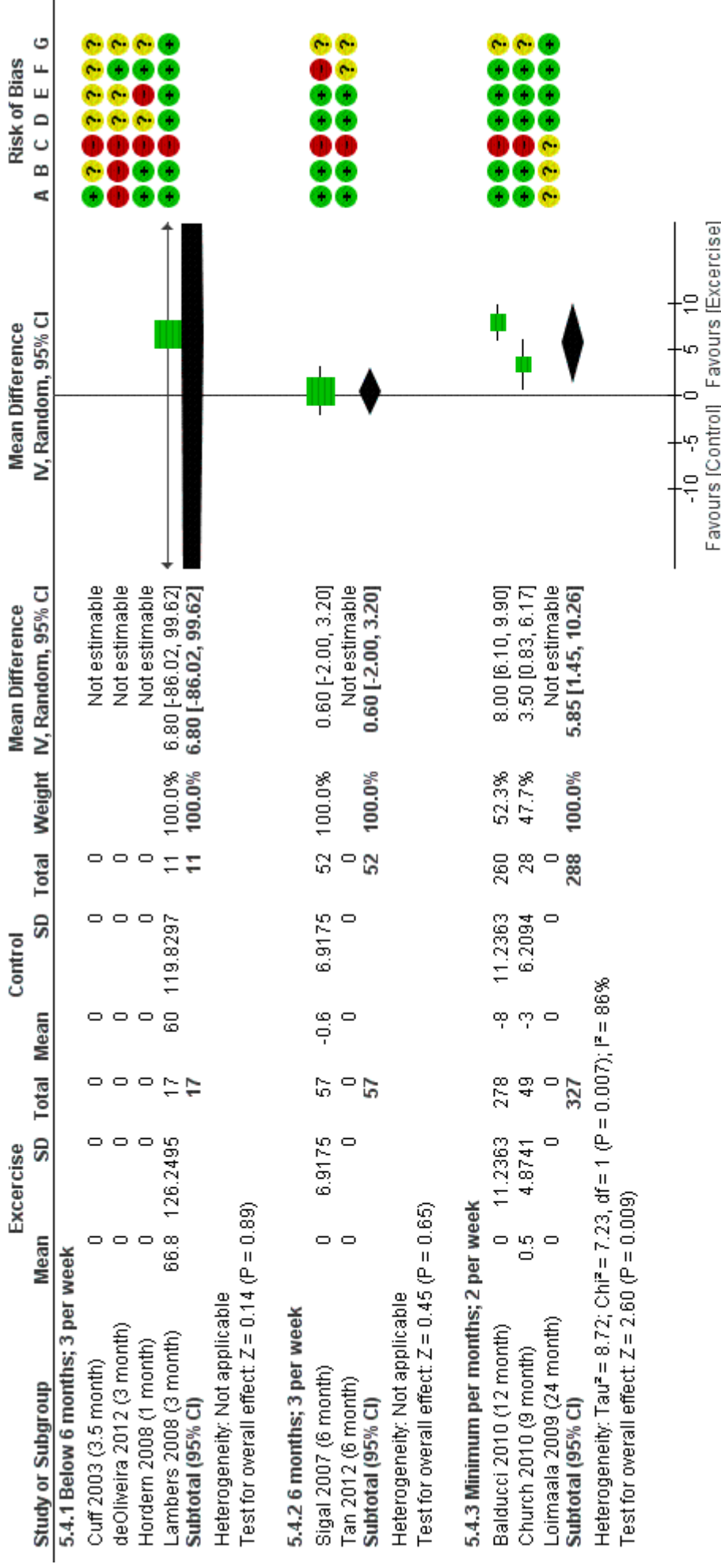
Forest plot of comparison: 5 Exercise vs control [Duration&Frequency], outcome: 5.2 BMI.

Figure 3 (Analysis 5.3)



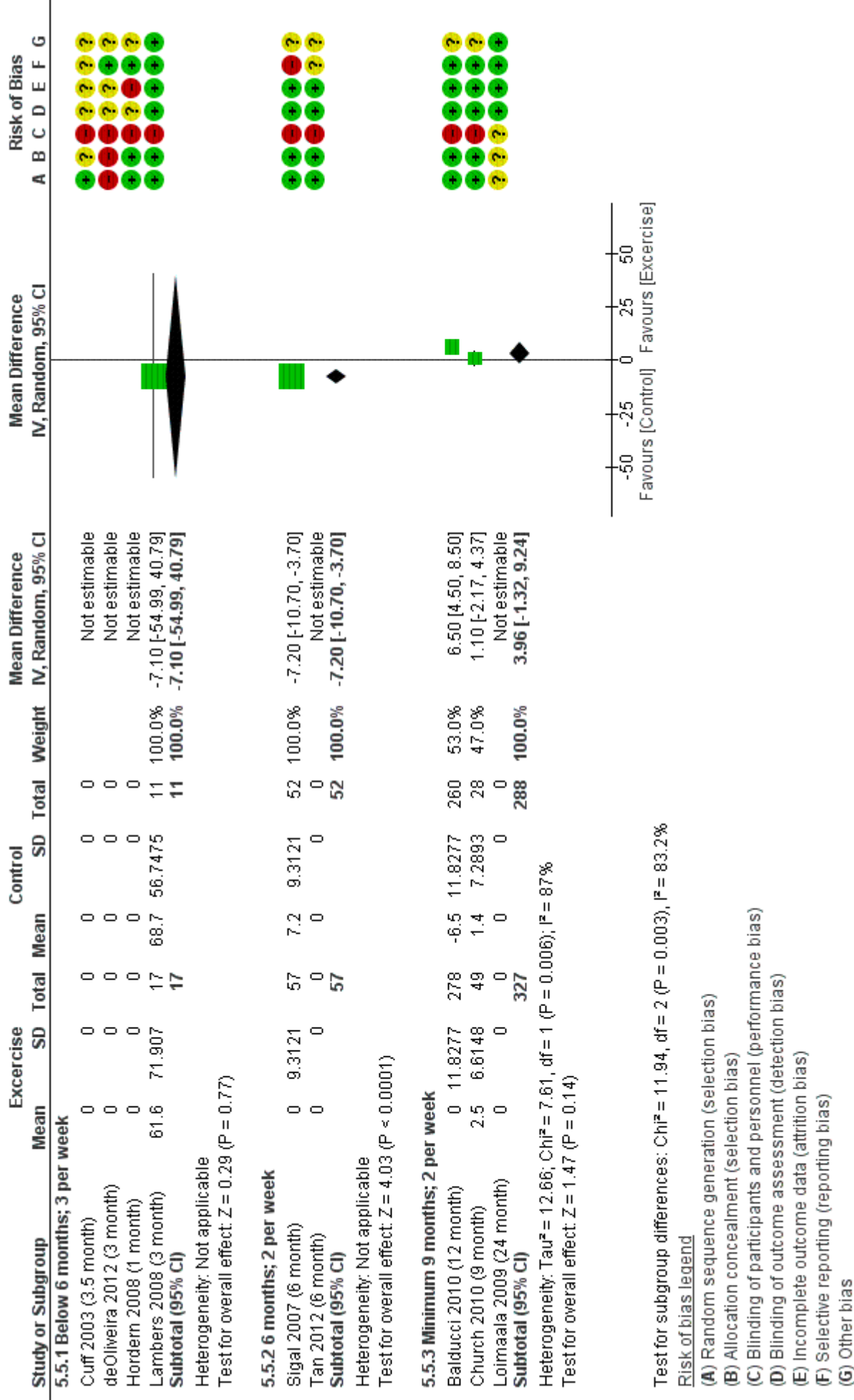
Forest plot of comparison: 5 Exercise vs control [Duration&Frequency], outcome: 5.3 Physical capacity Vo2 ML/kg min.

Figure 4 (Analysis 5.4)



Forest plot of comparison: 5 Exercise vs control [Duration&Frequency], outcome: 5.4 Quality of Life physical.

Figure 5 (Analysis 5.5)



Forest plot of comparison: 5 Exercise vs control [Duration&Frequency], outcome: 5.5 Quality of Life mental.