評価対象論文リスト(要因:身体活動、アウトカム:早産・低出生体重児・在胎不当過小児)

評価判定日:2023/9/29

1	Teede HJ, Bailey C, Moran LJ, et al. Association of antenatal diet and physical activity–based interventions with gestational weight gain and pregnancy outcomes: a systematic review and meta-analysis. JAMA Intern Med. 2022;182(2):106. doi:10.1001/jamainternmed.2021.6373
2	Davenport MH, Meah VL, Ruchat SM, et al. Impact of prenatal exercise on neonatal and childhood outcomes: a systematic review and meta-analysis. Br J Sports Med. 2018;52(21):1386-1396. doi:10.1136/bjsports-2018-099836
3	Kahn M, Robien K, DiPietro L. Maternal leisure-time physical activity and risk of preterm birth: a systematic review of the literature. Journal of Physical Activity and Health. 2016;13(7):796-807. doi:10.1123/jpah.2015-0495
4	Aune D, Schlesinger S, Henriksen T, Saugstad O, Tonstad S. Physical activity and the risk of preterm birth: a systematic review and meta‐analysis of epidemiological studies. BJOG. 2017;124(12):1816-1826. doi:10.1111/1471-0528.14672
5	Takito MY, Benício MHD, Neri LDCL. Atividade física de gestantes e desfechos ao recém-nascido: revisão sistemática. Rev Saúde Pública. 2009;43(6):1059-1069. doi:10.1590/S0034-89102009005000074
6	Di Mascio D, Magro-Malosso ER, Saccone G, Marhefka GD, Berghella V. Exercise during pregnancy in normal-weight women and risk of preterm birth: a systematic review and meta-analysis of randomized controlled trials. American Journal of Obstetrics and Gynecology. 2016;215(5):561-571. doi:10.1016/j.ajog.2016.06.014
7	Wen J, Xun P, Chen C, et al. Non-occupational physical activity during pregnancy and the risk of preterm birth: a meta-analysis of observational and interventional studies. Sci Rep. 2017;7(1):44842. doi:10.1038/srep44842
8	Van Beukering MDM, Van Melick MJGJ, Mol BW, Frings-Dresen MHW, Hulshof CTJ. Physically demanding work and preterm delivery: a systematic review and meta-analysis. Int Arch Occup Environ Health. 2014;87(8):809-834. doi:10.1007/s00420-013-0924-3
9	Chen Y, Ma G, Hu Y, et al. Effects of maternal exercise during pregnancy on perinatal growth and childhood obesity outcomes: a meta-analysis and meta-regression. Sports Med. 2021;51(11):2329-2347. doi:10.1007/s40279-021-01499-6
10	Beetham KS, Giles C, Noetel M, Clifton V, Jones JC, Naughton G. The effects of vigorous intensity exercise in the third trimester of pregnancy: a systematic review and meta-analysis. BMC Pregnancy Childbirth. 2019;19(1):281. doi:10.1186/s12884-019-2441-1
11	Thangaratinam S, Rogozinska E, Jolly K, et al. Effects of interventions in pregnancy on maternal weight and obstetric outcomes: meta-analysis of randomised evidence. BMJ. 2012;344(may16 4):e2088-e2088. doi:10.1136/bmj.e2088
12	Davenport MH, Meah VL, Ruchat SM, et al. Impact of prenatal exercise on neonatal and childhood outcomes: a systematic review and meta-analysis. Br J Sports Med. 2018;52(21):1386-1396. doi:10.1136/bjsports-2018-099836
13	Cai C, Vandermeer B, Khurana R, et al. The impact of occupational activities during pregnancy on pregnancy outcomes: a systematic review and metaanalysis. American Journal of Obstetrics and Gynecology. 2020;222(3):224-238. doi:10.1016/j.ajog.2019.08.059
14	Da Silva SG, Ricardo LI, Evenson KR, Hallal PC. Leisure-time physical activity in pregnancy and maternal-child health: a systematic review and meta-analysis of randomized controlled trials and cohort studies. Sports Med. 2017;47(2):295-317. doi:10.1007/s40279-016-0565-2
15	Adesegun D, Cai C, Sivak A, Chari R, Davenport MH. Prenatal exercise and pre-gestational diseases: a systematic review and meta-analysis. Journal of Obstetrics and Gynaecology Canada. 2019;41(8):1134-1143.e17. doi:10.1016/j.jogc.2018.10.007

16	Bonzini M, Coggon D, Palmer KT. Risk of prematurity, low birthweight and pre-eclampsia in relation to working hours and physical activities: a systematic review. Occup Environ Med. 2007;64(4):228-243. doi:10.1136/oem.2006.026872
17	Mottola MF, Nagpal TS, Bgeginski R, et al. Is supine exercise associated with adverse maternal and fetal outcomes? A systematic review. Br J Sports Med. 2019;53(2):82-89. doi:10.1136/bjsports-2018-099919
18	Pastorino S, Bishop T, Crozier S, et al. Associations between maternal physical activity in early and late pregnancy and offspring birth size: remote federated individual level meta‐analysis from eight cohort studies. BJOG. 2019;126(4):459-470. doi:10.1111/1471-0528.15476
19	Chen Y, Ma G, Hu Y, et al. Effects of maternal exercise during pregnancy on perinatal growth and childhood obesity outcomes: a meta-analysis and meta-regression. Sports Med. 2021;51(11):2329-2347. doi:10.1007/s40279-021-01499-6
20	Teede HJ, Bailey C, Moran LJ, et al. Association of antenatal diet and physical activity–based interventions with gestational weight gain and pregnancy outcomes: a systematic review and meta-analysis. JAMA Intern Med. 2022;182(2):106. doi:10.1001/jamainternmed.2021.6373

(PTB)

■ランダム化比較試験のメタ解析

Reference			Study subjects					Category	Relative risk (95% CI or p)	**Magnitude of association**
Author	Title	Year	Study Period	Type and source	Definition	Number of cases	Number of controls			
Teede HJ, Bailey C, Moran LJ, Bahri Khomami M, Enticott J, Ranasinha S, Rogozinska E, Skouteris H, Boyle JA, Thangaratinam S, Harrison CL.	Association of Antenatal Diet and Physical Activity-Based Interventions With Gestational Weight Gain and Pregnancy Outcomes: A Systematic Review and Meta-analysis	2022	2017-2020		Phycsical activiteis	1544/3057	177/3242	Phycsical activiteis	OR: 1.03(0.81-1.29)	-
					Routine care			Routine care		

Referene			Study subjects	Category		Number among cases	Relative risk (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
Author	Title	Year	Number of subjects							
Chen Y, Ma G, Hu Y, Yang Q, Deavila JM, Zhu MJ, Du M.	Effects of Maternal Exercise During Pregnancy on Perinatal Growth and Childhood Obesity Outcomes: A Meta-	2021	76,132	Normal weight	exercise only	40417	0.85 (0.72, 1.01)	0.06		-
			1,415	Normal weight	exercise &confounders	1411	0.62 (0.35, 1.10)	0.1		-
			3,050	Overweight	exercise only	2211	0.67 (0.49, 0.93)	0.01		↓

■系統的レビューとメタ解析

Reference			Design / Category	Relative risk (95% CI or p)	**Magnitude of association**
Author	Title	Year			
Aune D, Schlesinger S, Henriksen T, Saugstad OD, Tonstad S.	Physical activity and the risk of preterm birth: a systematic review and meta-analysis of epidemiological studies	2017	pooled analysis of 20 RCT studies	0.91 (0.72-1.15)	-
			pooled analysis of 8 cohort studies	0.86 (0.78-0.95)	↓
Wen J, Xun P, Chen C, Quan M, Wang R, Liu Y, He K.	Non-occupational physical activity during pregnancy and the risk of preterm birth: a meta-analysis of observational and interventional studies	2017	pooled analysis of 9 interventional studies	1.14 (0.81, 1.62)	−

(LBW)

■系統的レビューとメタ解析

Referene			Study subjects	Subject & Category		Number among cases	SMD (95%CI or p)	P for trend
Author	Title	Year	Number of subjects					
Chen Y, Ma G, Hu Y, Yang Q, Deavila JM, Zhu MJ, Du M.	Effects of Maternal Exercise During Pregnancy on Perinatal Growth and Childhood Obesity Outcomes: A Meta-analysis and Meta-regression	2021	235725	Normal weight	exercise only	98,919	-0.09 (-0.19, 0.01)	0.08
			5461	Normal weight	exercise &confounders	2,238	0.19 (-0.01, 0.39)	0.07
			4,479	overweight	exercise only	2,269	-0.15 (-0.33, 0.02)	0.08
			765	overweight	exercise &confounders	290	0.01 (-0.10, 0.21)	0.47
Pastorino S, Bishop T, Crozier SR, et al.,	Associations between maternal physical activity in early and late pregnancy and offspring birth size: remote federated individual level meta-analysis from eight cohort studies	2019	72694	physical activity late pregnancy	leisure time physical activity		-2.22 (-5.54,1.0)	
					moderate-vigorous LTPA		-6.43 (-9.12, -3.74)	P<0.001
					vigorous LTPA (VPA)		-22.0 (-31.3, -12.7)	P<0.001
					LTPAEE (met-hours/week)		-0.93 (-1.43, -0.42)	

Reference			Design	Category	Effect size (95% CI or p)
Author	Title	Year			
Shana G. da Silva, Ricardo LI, Evenson KR, Hallal PC.	Leisure-Time Physical Activity in Pregnancy and Maternal-Child Health: A Systematic Review and Meta-Analysis of Randomized Controlled Trials and Cohort Studies	2017	pooled analysis of 23 RCT studies		-31.09 (-69.91, 7.73)
			pooled analysis of 12 cohort studies		-1.05 (-1.49, -0.62)

（SGA）

■系統的レビューとメタ解析

Referene			Study subjects	Subject & Category		Number among cases	SMD (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
Author	Title	Year	Number of subjects							
Chen Y, Ma G, Hu Y, Yang Q, Deavila JM, Zhu MJ, Du M.	Effects of Maternal Exercise During Pregnancy on Perinatal Growth and Childhood Obesity Outcomes: A Meta-analysis and Meta-regression	2021	92,351	Normal weight	exercise only	45593	0.83 (0.71, 0.98)	0.02		↓
			3565	Normal weight	exercise &confounders	1837	0.98 (0.76, 1.27)	0.89		-
			3,909	overweight	exercise only	2765	0.73 (0.50, 1.05)	0.09		-
			763	overweight	exercise &confounders	239	0.70 (0.36, 1.38)	0.31		-
Pastorino S, Bishop T, Crozier SR et al.,	Associations between maternal physical activity in early and late pregnancy and offspring birth size: remote federated individual level meta-analysis from eight cohort studies	2019	72,694	physical activity late pregnancy	LTPA (hours/week)	?	0.99 (0.97, 1.01)			-
					MVPA (hours/week)		1.01 (0.97, 1.03)			-
					VPA (hours/week)		1.06 (0.96, 1.17)			-
					LTPAEE (met-hours/week)		0.99 (0.99, 1.00)			-

■ランダム化比較試験のメタ解析

Reference			Study subjects					Category	Relative risk (95% CI or p)	**Magnitude of association**
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Teede HJ, Bailey C, Moran LJ, Bahri Khomami M, Enticott J, Ranasinha S, Rogozinska E, Skouteris H, Boyle JA, Thangaratinam S, Harrison CL.	Association of Antenatal Diet and Physical Activity-Based Interventions With Gestational Weight Gain and Pregnancy Outcomes: A Systematic Review and Meta-analysis	2022	2017-2020		Phycsical activiteis	43/561	65/704		OR: 0.74(0.48-1.15)	-