

Table S1: Risk of low birth weight and pattern of occupational activity

Authors (date)	Outcome	Numbers in analysis	RR (95% CI)		Exposure		Higher potential for		Incomplete reporting	
					Comparison	Timing	Bias	Confounding*		
WEEKLY WORKING HOURS										
Cohort studies										
Hatch M (1997) ¹⁶	LBW	188	1.2	(0.5 - 2.3)	>40 vs ≤20		Trimester 1	No	No	No
Hatch M (1997) ¹⁶	LBW	148	1.1	(0.4 - 3.2)	>40 vs ≤20		Trimester 2	No	No	No
Hatch M (1997) ¹⁶	LBW	122	1.7	(0.6 - 5.0)	>40 vs ≤20		Trimester 3	No	No	No
Tuntiseranee P (1998) ⁵⁰	LBW	886	1.2	(0.6 - 2.3)	≥61 vs ≤50		15 - 28 weeks	No	Yes	No
Cross-sectional studies										
Bodin L (1999) ⁸	LBW	1685	1.5	(0.7 - 3.1)	≥36 vs 21-35		Trimester 2	No	No	No
McDonald AD (1988) ²⁸	LBW	unclear	1.24	P<0.05	≥46 vs <46		Not stated	No	No	No
Peoples-Sheps MD (1991) ³⁵	LBW	2379	1.7	(1.03 - 2.68)	≥40 vs 21-39		Not stated	No	Yes	No
Saurel-Cubizolles MJ (1987) ⁴¹	LBW	2375	0.96	(0.42 - 1.95)	≥42 vs <42		Trimester 1	No	Yes	Yes
Savitz DA (1996) ⁴⁴	MLB	768	0.9	(0.8 - 1.1)	≥40 vs no paid work		5 months	No	No	No
Savitz DA (1996) ⁴⁴	VLB	696	0.9	(0.7 - 1.0)	≥40 vs no paid work		5 months	No	No	No
SHIFT WORK										
Cohort studies										
Xu X (1994) ⁵³	LBW	887	2.1	(1.1 - 4.1)	Rotating shift work (yes vs no)		Not stated	No	No	No
Zhu JL (2004) ⁵⁴	LBW	35662	1.02	(0.68 - 1.51)	Rotating shift work vs daytime work		Trimesters 1 & 2	No	No	No
Cross-sectional studies										
Bodin L (1999) ⁸	LBW	1685	1.9	(0.6 - 5.8)	Night vs day		Trimester 2	No	No	No
McDonald AD (1988) ²⁸	LBW	unclear	1.38	P<0.01	Changing shift vs not		Not stated	No	No	No
Saurel-Cubizolles MJ (1987) ⁴¹	LBW	2392	1.28	(0.4 - 3.21)	Night vs day		Trimester 1	No	Yes	Yes
LIFTING										
Cohort studies										
Ahlborg GJ (1990) ⁵	LBW	3389	0.7	(0.29 - 1.68)	≥12 kg >50 x/wk vs none		Not stated	No	No	No
Hatch M (1997) ¹⁶	LBW	569	0.6	(0.3 - 1.1)	High vs low		Trimester 1	No	No	No
Hatch M (1997) ¹⁶	LBW	513	1.1	(0.6 - 2.1)	High vs low		Trimester 2	No	No	No

Authors (date)	Outcome	Numbers in analysis	RR (95% CI)		Exposure		Higher potential for		Incomplete reporting	
					Comparison	Timing	Bias	Confounding*		
Hatch M (1997) ¹⁶	LBW	479	1.3	(0.7 - 2.6)	High vs low	Trimester 3	No	No	No	
Tuntiseranee P (1998) ⁵⁰	LBW	1108	0.5	(0.2 - 1.2)	>12 kg, 1-10 x/d vs none	15 - 28 weeks	No	Yes	No	
Case-control studies										
Schramm WF (1996) ⁴⁵	MLB	1582	0.92	(0.8 - 1.14)	Carrying of loads >9 kg on most days (yes vs no)	'On most days'	No	Yes	No	
Schramm WF (1996) ⁴⁵	VLB	1560	0.85	(0.69 - 1.04)	Carrying of loads (>9 kg on most days (yes vs no)	'On most days'	Yes	Yes	No	
Cross-sectional studies										
McDonald AD (1988) ²⁸	LBW	unclear	1.26	P<0.01	Lifting heavy weights ≥15 vs <15x/d	Not stated	No	No	No	
Saurel-Cubizolles MJ (1987) ⁴¹	LBW	2391	1.13	(0.74 - 1.71)	Carrying of heavy loads (yes vs no)	Trimester 1	No	Yes	Yes	
Wergeland E (1998) ⁵²	LBW	1542	2.4	(1.3 - 4.4)	Lifting heavy loads (10-20 kg) (yes vs no)	Trimester 1	No	No	No	
STANDING										
Cohort studies										
Hatch M (1997) ¹⁶	LBW	569	0.7	(0.3 - 1.3)	≥8 vs <8 h/d	Trimester 1	No	No	No	
Hatch M (1997) ¹⁶	LBW	511	0.7	(0.3 - 1.6)	≥8 vs <8 h/d	Trimester 2	No	No	No	
Hatch M (1997) ¹⁶	LBW	477	0.7	(0.3 - 1.6)	≥8 vs <8 h/d	Trimester 3	No	No	No	
Teitelman AM (1990) ⁴⁹	LBW	708	1.58	(0.51 - 4.94)	Standing still >3 h/d vs continuous active motion	Trimester 1 (mostly)	No	No	No	
Tuntiseranee P (1998) ⁵⁰	LBW	1121	1.6	(0.8 - 16.5)	≥5 vs ≤4 h/d	15 - 28 weeks	No	Yes	No	
Case-control studies										
Meyer BA (1985) ³⁰	LBW	5822	1.19	(0.96 - 1.48)	Standing vs sitting	Not stated	No	Yes	No	
Schramm WF (1996) ⁴⁵	MLB	1582	1.06	(0.86 - 1.31)	>3 vs ≤3 h/d	'On most days'	No	Yes	No	
Schramm WF (1996) ⁴⁵	VLB	1560	1.01	(0.82 - 1.24)	>3 vs ≤3 h/d	'On most days'	Yes	Yes	No	
Cross-sectional studies										
McDonald AD (1988) ²⁸	LBW	-	1.02	P>0.05	Standing ≥8 vs <8 h/d	Not stated	No	No	No	
Saurel-Cubizolles MJ (1987) ⁴¹	LBW	2400	1.13	(0.73 - 1.72)	Standing (yes vs no)	Trimester 1	No	Yes	Yes	
Wergeland E (1998) ⁵²	LBW	1542	0.5	(0.3 - 1.0)	Standing/walking (yes vs no)	Trimester 1	No	No	No	

PHYSICAL ACTIVITY

Authors (date)	Outcome	Numbers in analysis	RR (95% CI)	Exposure		Higher potential for		Incomplete reporting	
				Comparison	Timing	Bias	Confounding*		
Cohort studies									
Tuntiseranee P (1998) ⁵⁰	LBW	346	1.1 (0.5 - 5.0)	High vs low		15 - 28 weeks	No	Yes	No
Cross-sectional studies									
Homer CJ (1990) ¹⁸	LBW	773	2.7 (1.5 - 4.8)	High vs low exertion job		Not stated	No	No	No
McDonald AD (1988) ²⁸	LBW	unclear	1.02 P>0.05	Great physical effort (Yes vs No)		Not stated	No	No	No
Peoples-Sheps MD (1991) ³⁵	LBW	502	0.6 (0.1 - 2.2)	High vs low strength requirement		Not stated	No	Yes	Yes
Saurel-Cubizolles MJ (1985) ⁴⁰	LBW	587	1.64 (0.65 - 3.79)	Activity score (2/3 vs 0/1 strenuous items)		Not stated	No	Yes	No
Saurel-Cubizolles MJ (1987) ⁴¹	LBW	2389	1.95 (1.1 - 3.34)	Activity score (3/4 items vs none)		Trimester 1	No	Yes	Yes

LBW - low birth weight

MLB - moderately low birth weight

VLB - very low birth weight

RR – measure of relative risk

* As described in the text, risk estimates were classified as having a higher potential for confounding if they did not take account both of smoking and at least one of: socioeconomic status, maternal height, or pre-pregnancy weight. Additionally, outcomes in this table do not allow for gestational age.

Table S2: Mean differences in birth weight by pattern of occupational activity

Authors (date)	Numbers in analysis	Mean difference (grams) (95% CI)	Exposure		Higher potential for		Incomplete reporting	
			Comparison	Timing	Bias	Confounding*		
WEEKLY WORKING HOURS								
Cohort studies								
Hatch M (1997) ¹⁶	188	-70.8 (-201.7 to 60.1)	>40 vs ≤20		Trimester 1	No	No	No
Hatch M (1997) ¹⁶	148	-57 (-203.2 to 89.2)	>40 vs ≤20		Trimester 2	No	No	No
Hatch M (1997) ¹⁶	122	-82.2 (-238 to 73.6)	>40 vs ≤20		Trimester 3	No	No	No
Cross-sectional studies								
Bodin L (1999) ⁸	1685	-60 (-112 to -8)	≥36 vs 21 - 35)		Trimester 2	No	No	No
Klebanoff MA (1990) ²⁰	989	-32 -	residents (>100 h) vs others		Any	No	Yes	No
Wergeland E (1998) ⁵²	3159	-84 (-124 to -44)	≥35 vs <35		Trimester 1	No	Yes	No
SHIFT WORK								
Cohort studies								
Xu X (1994) ⁵³	887	-79 (-161 to 3)	Rotating shift vs not		Not stated	No	Yes	No
Zhu JL (2004) ⁵⁴	35662	10 (-8 to 28)	Rotating shift work vs daytime work		Trimesters 1 & 2	No	Yes	No
Cross-sectional studies								
Axelsson G (1989) ⁶	52	-312 (-705 to 81)	Rotating shift vs days, birth order 2 non-smokers		Trimesters 2 & 3	No	Yes	Yes
Axelsson G (1989) ⁶	67	195 (-169 to 559)	Rotating shift vs days, birth order 1 non-smoker		Trimesters 2 & 3	No	Yes	Yes
Axelsson G (1989) ⁶	25	-421 (-1043 to 202)	Rotating shift vs days, birth order 2 smokers		Trimesters 2 & 3	No	Yes	Yes
Axelsson G (1989) ⁶	58	-438 (-996 to 90)	Rotating shift vs days, birth order 1 smoker		Trimesters 2 & 3	No	Yes	Yes
Bodin L (1999) ⁸	1685	36 (-46 to 119)	Night vs day shift		Trimester 2	No	No	No
Bodin L (1999) ⁸	1685	39 (-45 to 123)	Three shifts vs day		Trimester 2	No	No	No

Authors (date)	Numbers in analysis	Mean difference (grams) (95% CI)	Exposure		Higher potential for		Incomplete reporting
			Comparison	Timing	Bias	Confounding*	
LIFTING							
Cohort studies							
Florack E (1995) ¹²	128	-21 (-209 to 167)	≥1 vs <1 h/d	Pre-pregnancy	No	No	Yes
Hatch M (1997) ¹⁶	569	18.9 (-69.8 to 107.7)	High vs low	Trimester 1	No	No	No
Hatch M (1997) ¹⁶	513	-44.8 (-147.1 to 57.5)	High vs low	Trimester 2	No	No	No
Hatch M (1997) ¹⁶	479	-23.6 (-135.7 to 88.5)	High vs low	Trimester 3	No	No	No
Cross-sectional studies							
Wergeland E (1998) ⁵²	3274	11 (-34 to 56)	Lifting heavy loads (10 - 20 kg) (yes vs no)	Trimester 1	No	Yes	No
STANDING							
Cohort studies							
Brink-Henriksen T (1995) ⁹	4249	-40 (-107 to 27)	≥4 vs <4 h/d uninterrupted	16 weeks	No	No	No
Brink-Henriksen T (1995) ⁹	4249	-49 (-108 to 10)	>5 vs ≤2 h/d	16 weeks	No	No	No
Hatch M (1997) ¹⁶	569	1.8 (-98.4 to 102)	≥8 vs <8 h/d	Trimester 1	No	No	No
Hatch M (1997) ¹⁶	511	-0.8 (-123.5 to 121.9)	≥8 vs <8 h/d	Trimester 2	No	No	No
Hatch M (1997) ¹⁶	477	-30.7 (-149.5 to 88.1)	≥8 vs <8 h/d	Trimester 3	No	No	No
Klebanoff MA (1990) ²¹	7101	-32 -	≥8 vs 0 h/d	1 - 5 months	No	No	No
Teitelman AM (1990) ⁴⁹	708	-24.7 (-111.6 to -62.2)	Standing still >3 h/d vs continuous active motion	Trimester 1 (mostly)	No	No	No
Cross-sectional studies							
Wergeland E (1998) ⁵²	3284	20 (-20 to 60)	Standing/walking (yes vs no)	Trimester 1	No	Yes	No
Zuckerman (1986) ⁵⁵	942	2 -	Standing at work (yes vs no)	Trimester 3	No	Yes	Yes
PHYSICAL ACTIVITY							
Cohort studies							
Florack E (1995) ¹²	128	-60 (-256 to 136)	High vs low intensity score	6 - 22 wks	No	No	Yes
Florack E (1995) ¹²	118	-58 (-236 to 120)	High vs low intensity score	23 - 30 wks	No	No	Yes
Florack E (1995) ¹²	98	-67 (-265 to 131)	High vs low intensity score	31 - 40 weeks	No	No	Yes
Hatch M (1997) ¹⁶	569	-49.6 (-177.4 to 78.2)	High vs low	Trimester 1	No	No	No
Hatch M (1997) ¹⁶	511	-21.6 (-179.6 to 136.4)	High vs low	Trimester 2	No	No	No

Authors (date)	Numbers in analysis	Mean difference (grams) (95% CI)	Exposure		Higher potential for		Incomplete reporting
			Comparison	Timing	Bias	Confounding*	
Hatch M (1997) ¹⁶	477	-51.7 (-216.3 to 112.9)	High vs low	Trimester 3	No	No	No
Klebanoff MA (1990) ²¹	7100	51 -	Heavy work vs not	1 - 5 months	No	No	No
Magann EF (1996) ²⁵	531	183 (40 to 326)	>2900 vs <2300 kcal/d energy expenditure	16 - 18 weeks	No	Yes	No
Rao S (2003) ³⁸	433	-111 (-155 to -67)	High vs low activity (farming)	18 weeks	No	Yes	No
Cross-sectional studies							
Homer CJ (1990)	773	-160 (-230 to -89)	High vs low exertion	Not stated	No	No	No
Tafari N (1980) ⁴⁸	41	-204 (-424 to 16)	Hard vs light work, maternal wt <49 kg	Not stated	No	Yes	Yes
Tafari N (1980) ⁴⁸	61	-164 (-344 to 16)	Hard vs light work, maternal wt 49 - 58 kg	Not stated	No	Yes	Yes
Tafari N (1980) ⁴⁸	28	-216 (-605 to 173)	Hard vs light work, maternal wt >58 kg	Not stated	No	No	Yes

* As described in the text, risk estimates were classified as having a higher potential for confounding if they did not take account both of smoking and at least one of: socioeconomic status, maternal height, or pre-pregnancy weight. Additionally, we sought evidence that account was taken of gestational age.

Rabkin et al³⁶ also considered group differences in mean birth weight, but presented their findings graphically as a series of adjusted mean birth weights with 95%CI. Comparisons included hours of paid work (none, <7, 7-8.4, >8.5), usual work posture (including standing and sitting), and estimated energy expenditure. Data were available for exposures at 17, 28 and 36 weeks of pregnancy. Confidence intervals overlapped with no significant differences between groups. The authors concluded that these exposures had little discernable association with birth weight.

Comment:

In most comparisons the exposed group had a lower mean birth weight, although 95%CI for mean difference usually straddled zero grams. Large effect sizes (mean difference >100 gms) were only found in three studies,^{6,38,48} two of which were assessed as of lower quality.