Table 1. Regulating factors of BMR and GDM

Factor	Specific Factor	Effect on BMR	Reference studies	Effect on GDM	Reference studies
Age	Age	↓	24, 26	↑	128, 130
Biomarkers	Triiodothyronine (T_3)	↑	10, 56, 57	↓	173
		-	22, 58		
	Thyroxine (T_4)	↑ [M]	15	↓	172, 173
		↓	57		
	Cortisol	↓	11	-	152, 168
				↑ [1]	171
	Adiponectin	↓ [2]	62	↓ [3]	162-164
		- [4]	64	-	165
	Leptin	-	15, 60	-	165, 167
		- [2]	61	↑ [3]	164, 166
	Insulin	↑	66	↑	154, 155
				-	153
	Insulin-like Growth Factor-1 (IGF-1)	↑	10, 67	↓	169, 170
	Fasting plasma glucose (FPG)	↓ [5]	68	↑	152, 153
	Sex hormone binding globulin (SHBG)	No studies found		↓	158, 159
	Iron deficiency (serum ferritin and total body iron)	No studies found		↓	174
	C-reactive protein	↑	69, 70	↑	158, 168
		-	71		
	Tumor necrosis factor alpha (TNF-α)	- [6]	23	↑	161, 162
	Adipocyte fatty acid-binding protein (AFABP)	No studies found		↑	162
Body composition	Fat-free mass	↑	10, 15, 21	↓	142
	Fat mass	↑	10, 15, 21	↑	142
	Body composition*	↓[2]	23	↑	141, 142, 143
Body weight	Gestational body weight	↑	9, 10, 11	↑	142
	Gestational weight gain (GWG)	↑	12	↑	1, 107, 141
				↑ - [7]	109
		-	20	-	108
	Pregestational body weight	↓	10	↑	120
	Weight gain[R]	↓	17	↑	141
Medication	Sympathomimetic medication	↑ [2]	90	↑	151
Nutrition	Caffeine	↑ [2]	87		
				- [8]	154

Table 1. (continued) Regulating factors of BMR and GDM

Factor	Specific Factor	Effect on BMR	Reference studies	Effect on GDM	Reference studies
Physical activity	Endurance exercise training in normal altitude	-	78,79	No studies found	
	Endurance exercise training in high altitude	↑	80	No studies found	
	Physically active women with increased BMI	No studies found		↓	1
	Higher levels of physical activity	↑[2]	82	↓	146, 147
Psychological factors	Stressful events	No studies found		↑	148
	Bipolar disorder	No studies found		-	149
	Current major depressive disorder	No studies found		-	149
Race/Ethnicity	African-American	↓	37 – 40	↑	134
	Sub-Saharan Africans	↓	36	↑[9]	133
	Caucasian	↑	35	↓[10]	129
Sleep restriction	Sleep restriction	↓	44	↑[12]	150
		↓[11]	87		
		-	88		
Socio-economic status	Lower socioeconomic status	↓	91, 92	↑	129
Type 2 diabetes Mellitus (T2DM)	T2DM in various ethnicities, after adjustment for FM and FFM age and sex	↑	83, 84, 85	↑[R]	125, 127

Positive (↑), negative (↓) or lack of correlation (-) of each factor with either BMR or GDM. The inverse relationship (the effect of BMR or GDM on the factor) is marked with [R] and the lack of studies describing the association is indicated by "No studies found". BMI: body mass index; BMR: basal metabolic rate; FFM: free fatty mass; FM: fat mass; GDM: gestational diabetes mellitus. [M]: in men, but not in women; *: referring to a higher pregestational BMI; [R]: reverse relationship; [1]: after daily cortisol infusion in ewes; [2]: effect on/associated with RMR, not BMR; [3]: in early pregnancy; [4]: correlation with energy expenditure, not BMR; [5]: in mice; [6]: in obese women; [7]: ↑ in the first and ↓ in the second trimester; [8]: a non-significant negative effect was reported; [9]: slightly elevated risk compared with non-Hispanic white women; [10]: in direct association dictated by lower insulin resistance; [11]: statistically non-significant; [12]: not significant though after controlling for age and BMI.