

Reviewer #1.

1. I upgraded the language quality of my manuscript in nice cooperation with Paul Kretchmer, the managing Director of the San Francisco Edit group.

2. I deleted from the text the terms ‘glucose effectiveness’ and ‘insulin sensitivity’ for easier reading.

3. I inserted in the interest of clarity in reviewed manuscript:

A: paragraph 3: lines 5 to 11: Calculation of.....unsaturation index.

B: paragraph 5: lines 2 to 6: an increase insee Table 2, Ref. 3).

lines 7 to 12: to a markedthe cell membrane,

C: paragraph 6: lines 2 to 5: type 2 diabetes.....insulin molecules.

lines 5 to 12: fusion of.....into the β -cell but

D: paragraph 7: lines 1 to 11: Up to now.....type 2 diabetes.

E: paragraph 8: lines 1 to 9: Thereforeto metformin

Xu *et al.* used the HOMAs model to evaluate β -cell function and insulin resistance, and does not involve the study of its mechanism. This model is based on the presence of a glucose-insulin axis. However, the main consequence of the results of the Takematsu *et al.* group points in the direction of a FFA-glucose-glucose-insulin axis. The results indicate that important information for the treatment of pediatric type 2 diabetes among Chinese children is stored in the unsaturation index. An example is given in a study of Koehrer *et al.* (Table 1).

Table 1

Membrane flexibility of erythrocyte acyl chain phospholipids of control individuals, individuals with impaired glucose tolerance, gestational diabetes, or individuals with type 2 diabetes.

Biochemical characteristics	IGT		GDM		Type 2 diabetes		
	Control <i>n</i> = 42	IGT <i>n</i> =28	Control <i>n</i> =61	GDM <i>n</i> =53	Control <i>n</i> =18	T2D ret- <i>n</i> =14	T2D ret+ <i>n</i> =46
Total SFAs (%)	42	45	34	38	42	44	47
Total MUFA (%)	23	25	16	18	19	22	21
Total PUFAs (%)	31	26	38	32	38	32	29
UI	130	113	163	137	155	134	123

Ex-post UI calculations are based on the original data listed by Koehrer *et al.* IGT: Impaired glucose tolerance; GDM: Gestational diabetes mellitus; ret: retinopathy; UI: unsaturation index; SFA: saturated fatty acid; MUFA: mono-unsaturated fatty acid; PUFA: poly-unsaturated fatty acid. A key feature of the prediabetic and diabetic phase is an essential reduction, compared to healthy controls, in the percentage of phospholipid poly-unsaturated acyl chains, including UI.

1. Koehrer P, et al. Erythrocyte phospholipid and polyunsaturated fatty acid composition in diabetic retinopathy. PLOS ONE 2004; 9: e106912. [DOI: 10.1371/journal.pone.0106912]

Reviewer #2

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E: paragraph 8: lines 1 to 9: Thereforeto metformin

Regarding your remark, 'insulin resistance' has been widely recognized, I would like to bring the following to your attention. Xu *et al.* used the HOMAs model to evaluate β -cell function and insulin resistance. This model is based on the presence of a glucose-insulin axis. However, the main consequence of the results of the Takematsu *et al.* group points in the direction of a FFA-glucose-insulin axis. The results indicate that important information for the treatment of pediatric type 2 diabetes among Chinese children is stored in the unsaturation index. Thus, the determination of this index is a step forward in their treatment. An example is given in a study of Koehrer *et al.* (Table 1.)

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