

CORRIGENDUM

Percentile reference values for anthropometric body composition indices in European children from the IDEFICS study

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International Journal of Obesity (2016) 40, 1604–1605; doi:10.1038/ijo.2016.119**Correction to:** *International Journal of Obesity* (2014) 38, S15–S25; doi:10.1038/ijo.2014.131

Following the publication of the anthropometric reference values for children¹ the authors were notified of a mistake in calculating the fat mass index (FMI). Erroneously FMI was calculated with percent body fat instead of absolute body fat mass. Body fat mass (BFM) was calculated according to the Slaughter formula.² This formula returns body fat in percent and not in kg and we missed to convert body fat percent into absolute body fat mass in kg. The correct calculation of FMI is as follows: $((\text{weight in kilograms}) \times (\text{fat mass percentage}/100)) / (\text{height in metres})^2$. All corrected text passages, tables and figures are listed below with reference to the page numbers of the original publication:

The last sentence of the section of body fat mass on page S17 was misleading: 'The FMI was calculated by dividing BFM by the square of height in metres.' We would like to clarify this point as follows: 'The FMI was calculated according to the following formula: $[(\text{weight in kilograms}) \times (\text{fat mass percentage}/100)] / (\text{height in metres})^2$ '

The paragraph on fat mass index in the results section on page S18, 'The smoothed percentile curves of FMI for girls and boys are shown in Table 4; Figure 3. FMI showed a continuously negative

age trend both in girls and boys the latter having constantly lower values. However, in boys a slight increase in the upper percentiles (97th and 99th) was observed from the age of 9.5 years onwards. The 50th and 99th percentiles in 4.5- to < 5.0-year-old children were 13.8 and 20.7 in girls and 12.0 and 18.9 in boys; and 9.6 and 16.1, and 7.9 and 16.0 in 10.5–10.9-year-old girls and boys respectively' is wrong. The correct version is the following: 'The smoothed percentile curves of FMI for girls and boys are shown in the amended Table 4 and the amended Figure 3. FMI showed a continuous positive age trend from the age of 6 years onwards in both boys and girls, the former having constantly lower values from the age of 3.0 years onwards. The 50th and the 99th percentiles in 4.5- to < 5.0-year-old children were 2.5 and 3.9 in girls and 2.2 and 3.7 in boys; and 3.3 and 6.5 and 2.8 and 6.0 in 10.5–10.9-year-old girls and boys, respectively. Percentile curves and tables of FMI including underweight, normal, overweight and obese children are available online (amended supplementary Table H and amended supplementary Figure H).'

The sentences on page S21 in the first paragraph 'There are numerous national anthropometric reference values for WC,^{18,20–24,50} waist-to-height ratio,⁵¹ skinfold thicknesses,^{15,16,52} sum of skinfolds,⁵³ BFM^{54,55} and FMI.^{7,56} As these data are based on samples including underweight, overweight, as well as obese

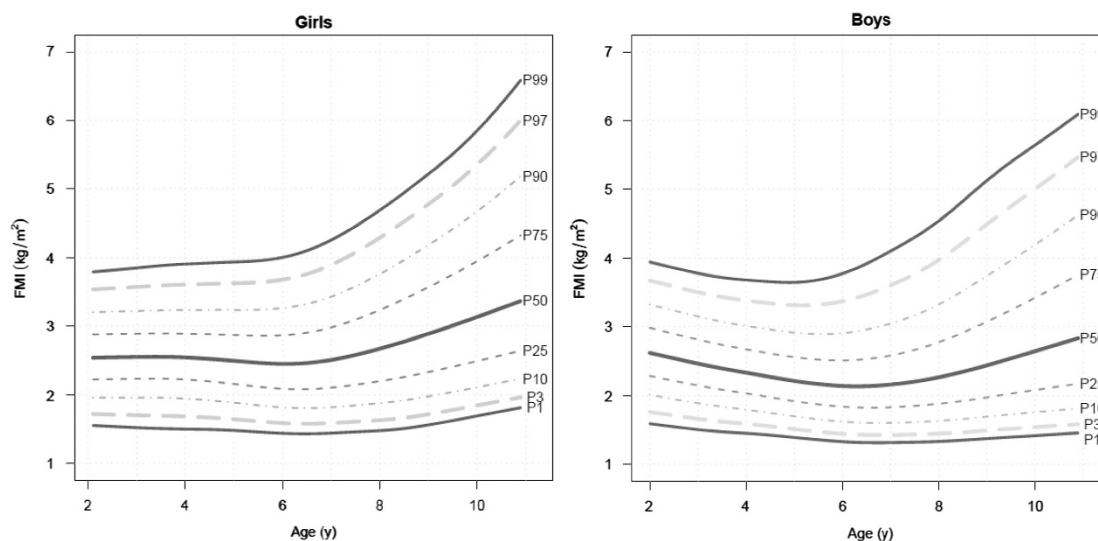


Figure 3. Percentile curves of fat mass index in normal-weight European girls and boys.

Table 4. Percentile curves of fat mass index calculated with GAMLSS in normal-weight children

Percentile for girls										Percentile for boys									
Age (years)	1 st	3 rd	10 th	25 th	50 th	75 th	90 th	97 th	99 th	Age (years)	1 st	3 rd	10 th	25 th	50 th	75 th	90 th	97 th	99 th
2.0– < 2.5	1.6	1.7	2.0	2.2	2.5	2.9	3.2	3.5	3.8	2.0– < 2.5	1.6	1.7	2.0	2.3	2.6	2.9	3.3	3.6	3.9
2.5– < 3.0	1.5	1.7	2.0	2.2	2.6	2.9	3.2	3.6	3.8	2.5– < 3.0	1.5	1.7	1.9	2.2	2.5	2.9	3.2	3.6	3.8
3.0– < 3.5	1.5	1.7	2.0	2.2	2.6	2.9	3.2	3.6	3.9	3.0– < 3.5	1.5	1.6	1.9	2.1	2.4	2.8	3.1	3.5	3.8
3.5– < 4.0	1.5	1.7	2.0	2.2	2.6	2.9	3.2	3.6	3.9	3.5– < 4.0	1.5	1.6	1.8	2.1	2.4	2.7	3.0	3.4	3.7
4.0– < 4.5	1.5	1.7	1.9	2.2	2.5	2.9	3.2	3.6	3.9	4.0– < 4.5	1.4	1.6	1.8	2.0	2.3	2.6	3.0	3.4	3.7
4.5– < 5.0	1.5	1.7	1.9	2.2	2.5	2.9	3.2	3.6	3.9	4.5– < 5.0	1.4	1.5	1.7	2.0	2.2	2.6	2.9	3.3	3.7
5.0– < 5.5	1.5	1.6	1.9	2.1	2.5	2.9	3.2	3.6	3.9	5.0– < 5.5	1.4	1.5	1.7	1.9	2.2	2.5	2.9	3.3	3.7
5.5– < 6.0	1.5	1.6	1.8	2.1	2.5	2.9	3.3	3.7	4.0	5.5– < 6.0	1.3	1.5	1.6	1.9	2.2	2.5	2.9	3.3	3.7
6.0– < 6.5	1.4	1.6	1.8	2.1	2.5	2.9	3.3	3.7	4.0	6.0– < 6.5	1.3	1.4	1.6	1.8	2.1	2.5	2.9	3.4	3.8
6.5– < 7.0	1.4	1.6	1.8	2.1	2.5	2.9	3.4	3.8	4.2	6.5– < 7.0	1.3	1.4	1.6	1.8	2.2	2.6	3.0	3.5	4.0
7.0– < 7.5	1.5	1.6	1.8	2.1	2.5	3.0	3.5	4.0	4.4	7.0– < 7.5	1.3	1.4	1.6	1.8	2.2	2.6	3.1	3.7	4.2
7.5– < 8.0	1.5	1.6	1.9	2.2	2.6	3.2	3.7	4.2	4.6	7.5– < 8.0	1.3	1.4	1.6	1.9	2.2	2.7	3.2	3.9	4.4
8.0– < 8.5	1.5	1.7	1.9	2.2	2.7	3.3	3.9	4.4	4.8	8.0– < 8.5	1.3	1.5	1.7	1.9	2.3	2.8	3.4	4.1	4.7
8.5– < 9.0	1.5	1.7	2.0	2.3	2.8	3.5	4.1	4.7	5.1	8.5– < 9.0	1.4	1.5	1.7	2.0	2.4	3.0	3.6	4.4	5.0
9.0– < 9.5	1.6	1.8	2.0	2.4	3.0	3.7	4.3	4.9	5.4	9.0– < 9.5	1.4	1.5	1.7	2.0	2.5	3.2	3.9	4.6	5.3
9.5– < 10.0	1.7	1.8	2.1	2.5	3.1	3.9	4.5	5.2	5.7	9.5– < 10.0	1.4	1.5	1.7	2.1	2.6	3.3	4.1	4.9	5.5
10.0– < 10.5	1.7	1.9	2.1	2.5	3.2	4.1	4.8	5.5	6.0	10.0– < 10.5	1.4	1.6	1.8	2.1	2.7	3.5	4.3	5.1	5.8
10.5– < 10.9	1.8	2.0	2.2	2.6	3.3	4.3	5.1	5.9	6.5	10.5– < 10.9	1.5	1.6	1.8	2.2	2.8	3.7	4.6	5.4	6.0

children, they cannot be directly compared with our results. Due to the restriction of our sample to normal-weight children, generally the upper percentiles of the present study tend to fall below those of above-mentioned reference studies whereas the lower percentiles tend to exceed them.' has to be completed with the following comment: 'In the case of FMI it is notable that the values published by Wells *et al.*⁷ are considerably higher, especially in the upper percentiles as compared with our results. One possible explanation for this difference is that overweight and obese children were not excluded and body composition was calculated by a sophisticated 4-component model in the study of Wells *et al.*⁷

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

- 1 Nagy P, Kovacs E, Moreno LA, Veidebaum T, Tornaritis M, Kourides Y *et al.* Percentile reference values for anthropometric body composition indices in European children from the IDEFICS study. *International Journal of Obesity* 2014; **38** (Suppl 2): S15–S25.
- 2 Slaughter MH, Lohman TG, Boileau RA, Horswill CA, Stillman RJ, van Loan MD *et al.* Skinfold equations for estimation of body fatness in children and youths. *Hum Biol* 1988; **60**: 709–723.



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