

소아재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

## **P 3-24**

### **Normal weight obesity and low skeletal muscle mass in teenagers with disabilities**

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#### **Introduction**

Growth and development are important processes in children. Depending on the age or region, problems associated with development and growth can occur in a variety of ways, ranging from nutritional deficiency and low growth rate to nutritional excess, obesity, and metabolic syndrome. Moreover, more attention needs to be given to children with disabilities in regard to growth and development, which can be studied indirectly through body composition indices. The aim of this study was to measure and analyze the growth and body composition indices of children with disabilities and compare them to those of typically developing children in Korea.

#### **Subjects and Methods**

Students from two elementary schools and one special school were recruited. Growth was measured with height and body weight (BW). Fat mass (FM), fat-free mass (FFM), skeletal muscle mass (SMM), and percentage body fat (PBF) were measured with body composition analyzers (Inbody). The mean values of the body composition indices and the proportions of 'under range', 'within range', and 'over range' in both typically developing children and children with disabilities groups were analyzed.

#### **Results**

In total, 355 typically developing children and 73 children with disabilities participated. As shown in Table 1, SMM was significantly lower in children with disabilities than in typically developing children. BW showed a significant difference in the proportion of 'under range', 'within range' and 'over range' between typically developing children and children with disabilities (Fig. 1). In addition, the proportions of over-range PBF were 70% and 60% and of under-range SMM were 55% and 60% in children without disabilities and those with disabilities, respectively. As shown in Table 2, The percentage of high PBF in normal or low BMI was 144/297 (48.5%) and 28/61 (46.9%) in children without disability and in those with disabilities.

## Conclusion

As a result of our study, we found that normal weight obesity showing high PBF with normal or low BMI was found to be frequent in both children with disabilities and typically developing children. We need to be aware of the high proportion of normal weight obesity in teenagers. In addition, the percentage of underweight children with disabilities was high, which might be due to the decrease in SMM. Therefore, for both health and functional improvement, efforts to identify normal weight obesity are needed, and intervention to increase physical activity is also crucial.

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Table 1. The mean difference in body composition indices between typically developing children and children with disabilities (5th and 6th grades).

Variable	Typically developing children	Children with disabilities	P value
Height (cm)	148.54 ± 7.54	145.32 ± 7.56	0.182
Body Weight (kg)	45.49 ± 12.06	39.59 ± 8.54	0.054
Fat Mass (kg)	13.35 ± 7.48	10.34 ± 5.12	0.113
Fat Mass index (kg/m <sup>2</sup> )	5.95 ± 0.16	4.94 ± 0.64	0.165
Fat Free Mass (kg)	32.14 ± 5.82	29.24 ± 5.18	0.051
Fat Free Mass index (kg/m <sup>2</sup> )	14.45 ± 08	13.88 ± 0.48	0.157
Skeletal Muscle Mass (kg)	16.92 ± 3.48	15.13 ± 3.09	0.043*
Body Mass Index (kg/m <sup>2</sup> )	20.39 ± 4.12	18.74 ± 3.79	0.114
Percentage Body Fat (%)	27.63 ± 8.83	25.41 ± 8.64	0.325

Table 2. The number and percentage of students with a high percentage of body fat (PBF) according to their body mass index (BMI).

		Low BMI	Normal BMI	High BMI
Number of high PBF/Total number (%)	Typically developing children (5-6 <sup>th</sup> grades)	23/130 (17.7)	121/167 (72.5)	58/58 (100)
	Children with disability (5-6 <sup>th</sup> grades)	4/12 (33.3)	5/5 (100)	1/1 (100)
	Children with disability (all grades)	8/32 (25)	20/29 (69.0)	12/12 (100)

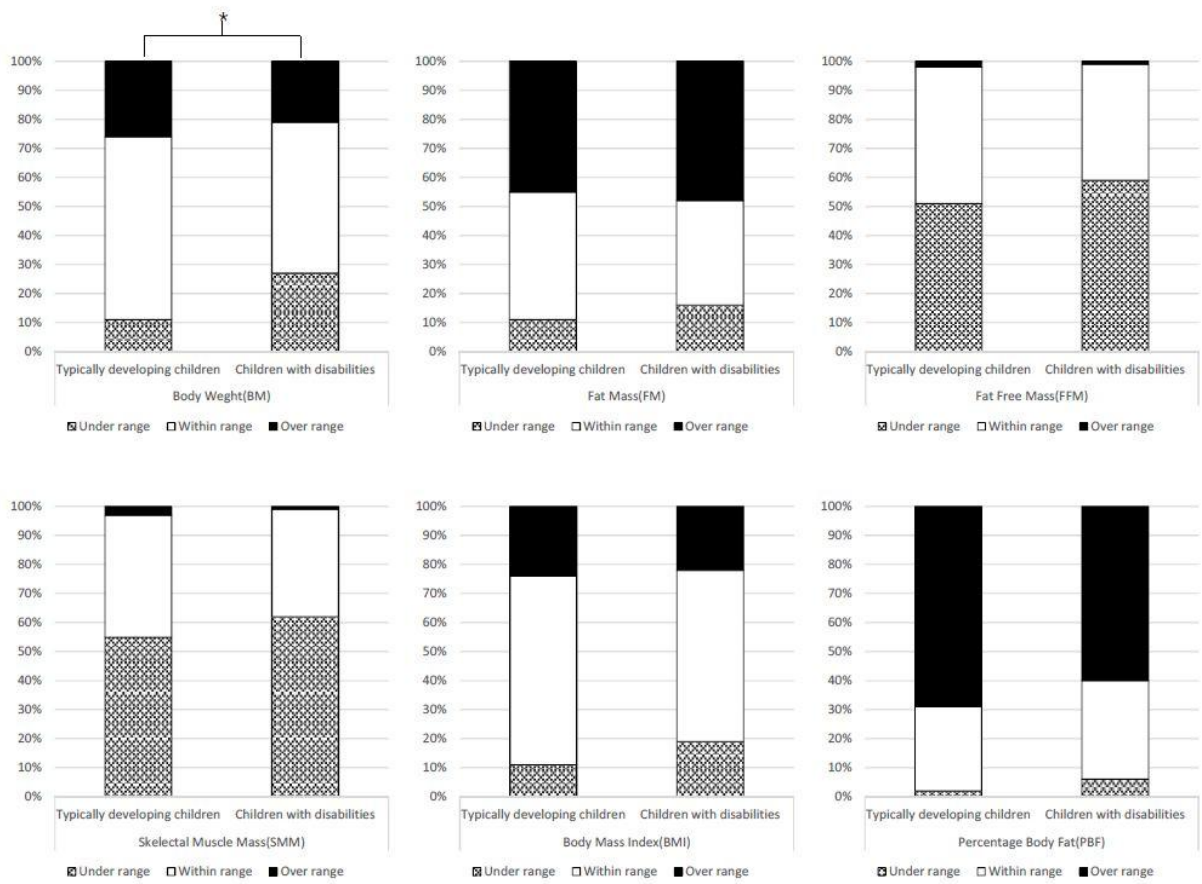


Figure 1. Proportion of body composition indices that are 'under range', 'within range' and 'over range' between typically developing children and children with disabilities.