



**GROWTH-AND-OBESITY PROFILES OF CHILDREN OF  
KARACHI USING BOX-INTERPOLATION METHOD:  
GROWTH PROFILE OF Z. L. Z.**

**SGPP-KHI-20001126-02**

*Syed Arif Kamal, Syed Firdous and Shah Jamal Alam*



**Additional File 2**

**کراچی یونیورسٹی**

*University of Karachi*

**THE NGDS PILOT PROJECT**

The Sibling Growth Pilot Project



GROWTH-AND-IMAGING LABORATORY

*Authenticity:* No handwritten notes except original signatures. This report becomes official only after bearing signatures of Project Director.

NATIONAL GROWTH AND DEVELOPMENTAL STANDARDS (NGDS) FOR  
THE PAKISTANI CHILDREN

THE SIBLING GROWTH PILOT PROJECT (SGPP)

GROWTH PROFILE OF Z. L. Z.

The SGPP Case Number: SGPP-KHI-20001126-02 (AHS)

Date of Report: January 6, 2003

Date Format: All dates are in the format (*year-month-day*)

You are welcome to discuss these results with the Project  
Director on: MONDAY, January 6, 2003 at 1800h (6 p. m.)

**BASIC INFORMATION**

- Father's Name: W/H (W/H: Withheld to protect the privacy of family members)
- Father's Education: B. E.
- Father's Occupation: Government Service
- Mother's Name: W/H
- Mother's Education: B. A.
- Mother's Occupation: Housewife

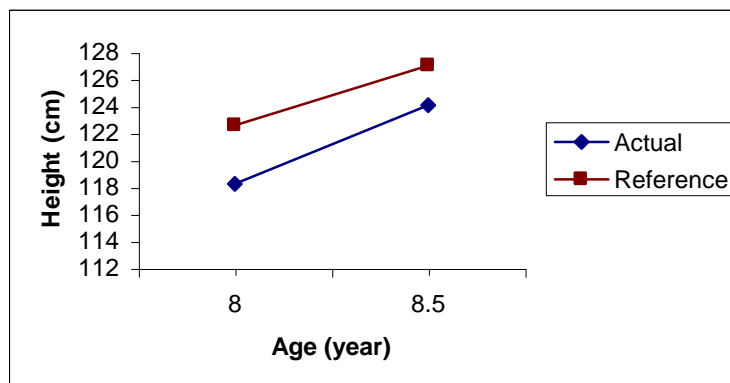


Fig. 1. Height profile in graphical form

Authorized Signatures \_\_\_\_\_

January 6, 2003

Page 1 of 7



Growth Profile of Z. L. Z. (Contd.)

- g) Paper Mail (Mailing Address): W/H
- h) e-mail: W/H
- i) Telephone Number: W/H
- j) Best Time-Slot to Call: 1700h-2000h
- k) Class: II
- l) School: W/H
- m) Gender: Female
- n) Date of Birth: 1994-05-19
- o) Father's NIC: W/H
- p) Mother's NIC: W/H

GROWTH PARAMETERS

*Adult-MP (Target) Height [MP stands for 'mid-parental']*

Your child's adult-MP (target) height is 159.6 cm, which is equivalent to 5 feet 2.8 inches.

*Adult-MP Mass (Weight) [corresponding to adult-MP height]*

Your child's adult-MP mass is 53.58 kg, which corresponds to a adult-MP weight of 118 lb 2.1 oz.

*CDC-Growth-Curve Percentile [corresponding to MP height]*

28.75

GROWTH PROFILE BETWEEN THE FIRST AND THE SECOND CHECKUP

*Height-for-Age Profile*

Your child is 5.85 cm SHORT for age, which is equivalent to 2.30 inches. Your child is STUNTED, in technical terms.

*Height Velocity-for-Age Profile*

Your child's height velocity is 1.95 cm/year MORE than the reference value, which is equivalent to 0.77 inch/year. Your child is growing FAST.

*Height Prediction*

121.94 cm, which is equivalent to 4 feet 0.008 inches at 8 years 6 months.

Table 1: Actual growth parameters  
(interpolated at reference ages)

<i>Age</i>	<i>8 years</i>	<i>8 years 6 months</i>
Height [cm]	118.25	122.60
Height [feet-inches]	3 feet 10.6 inches	4 feet 0.3 inches
Percentile-of-height	4.75	9.32
Mass [kg]	18.31	19.57
Weight [lb-oz]	40 lb 5.9 oz	43 lb 2.3 oz
Percentile-of-weight	<3	<3



Growth Profile of Z. L. Z. (Contd.)

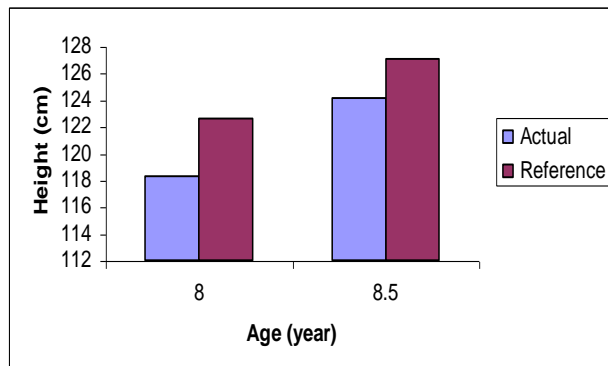


Fig. 2. Height profile in bar-chart form

**Mass-for-Age (Weight-for-Age) Profile**

Your child has 5.06 kg LESSER mass for age.  
Your child is UNDERWEIGHT for age by 11 lb 2.8 oz.

**Rate-of-Mass-Gain-for-Age (Weight-Gain-for-Age) Profile**

Rate of mass gain is 2.24 kg/year MORE than the reference value, which is equivalent to a rate of weight gain of 4.95 lb/year. Rates of mass and weight gain are HIGH.

**Mass (Weight) Prediction**

21.04 kg, which is equivalent to a weight of 46 lb 6.2 oz at 8 years 6 months.

**Obesity Profile**

Your child's body-mass index (BMI) is 1.17 kg/m<sup>2</sup> LESSER than the reference value.  
Your child tends to be LEAN.

**Mass-for-Height (Weight-for-Height) Profile**

Your child has 1.63 kg LESSER mass for height. Your child is UNDERWEIGHT for height by 3 lb 9.5 oz. Your child is WASTED, in technical terms. DO NOT confuse with everyday meaning of 'waste'.

**GROWTH PROFILE BETWEEN THE SECOND AND THE THIRD CHECKUP**

**Height-for-Age Profile**

Your child is 4.43 cm SHORT for age, which is equivalent to 1.74 inches.  
Your child is STUNTED.

**Rate-of-Mass-Gain-for-Age (Weight-Gain-for-Age) Profile**

Rate of mass gain is 2.05 kg/year LESS than the reference value, which is

Table 2: Reference growth parameters

Age	8 years	8 years 6 months
Height [cm]	124.1	127.03
Mass [kg]	23.38	24.45



Growth Profile of Z. L. Z. (Contd.)

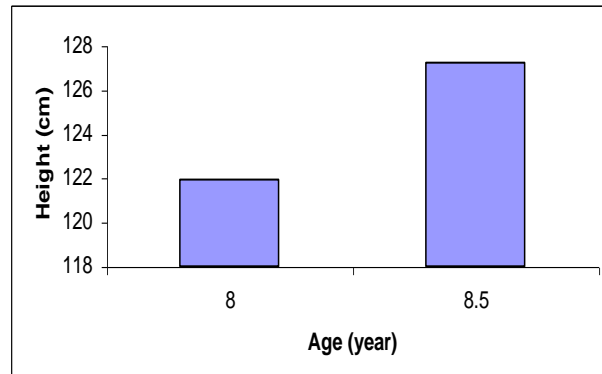


Fig. 3. Height Prediction

equivalent to a rate of weight gain of 4.52 *lb/year*. Rates of mass and weight gain are LOW.

*Mass (Weight) Prediction*

20.24 *kg*, which is equivalent to a weight of 44 *lb* 10.1 *oz* at 9 years.

*Obesity Profile*

Your child's body-mass index (*BMI*) is 1.45 *kg/m<sup>2</sup>* LESSER than the reference value. Your child tends to be LEAN.

*Mass-for-Height (Weight-for-Height) Profile*

Your child has 2.30 *kg* LESSER mass for height. Your child is UNDERWEIGHT for height by 5 *lb* 1.2 *oz*. Your child is WASTED.

Table 3: Growth profile

$\Delta$ (Growth Parameter) = Reference Value - Actual Value	Between 1 <sup>st</sup> & 2 <sup>nd</sup> Checkup	Between 2 <sup>nd</sup> & 3 <sup>rd</sup> Checkup
$\Delta$ Height-for-age [ <i>cm</i> ]	- 5.85	- 4.43
$\Delta$ Height-for-age [ <i>inch</i> ]	- 2.30	- 1.74
Status	<b>STUNTED</b>	<b>STUNTED</b>
$\Delta$ Height-velocity-for-Age [ <i>cm/year</i> ]	+ 1.95	+ 3.67
$\Delta$ Height-Velocity-for-Age [ <i>inch/year</i> ]	+ 0.77	+ 1.44
Status	<b>Growing FAST</b>	<b>Growing FAST</b>
$\Delta$ Mass-for-age [ <i>kg</i> ]	- 5.07	- 4.88
$\Delta$ Weight-for-age [ <i>lb-oz</i> ]	- 11 <i>lb</i> 2.8 <i>oz</i>	- 10 <i>lb</i> 12.3 <i>oz</i>
Status	<b>UNDERWEIGHT</b>	<b>UNDERWEIGHT</b>
$\Delta$ Rate-of-mass-gain-for-age [ <i>kg/year</i> ]	+ 2.24	- 2.05
$\Delta$ Rate-of-weight-gain-for-age [ <i>lb/year</i> ]	+ 4.95	- 4.52
Status	<b>Rates HIGH</b>	<b>Rates LOW</b>
$\Delta$ Body-mass index [ <i>kg/m<sup>2</sup></i> ]	- 1.17	- 1.45
Status	LEAN	LEAN
$\Delta$ Mass-for-height [ <i>kg</i> ]	- 1.63	- 2.30
$\Delta$ Weight-for-height [ <i>lb-oz</i> ]	- 3 <i>lb</i> 9.5 <i>oz</i>	- 5 <i>lb</i> 1.2 <i>oz</i>
Status	<b>WASTED</b>	<b>WASTED</b>



Growth Profile of Z. L. Z. (Contd.)

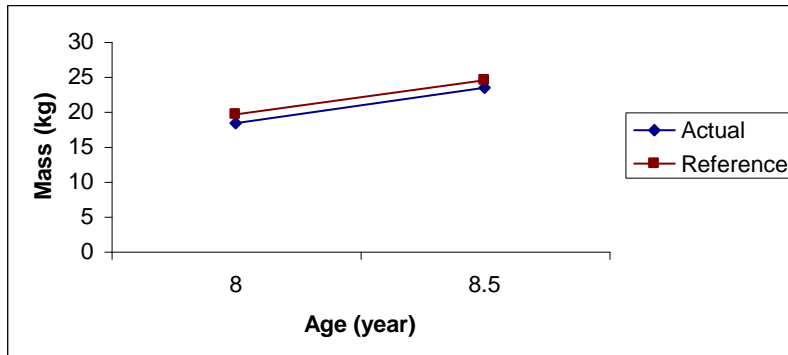


Fig. 4. Mass Profile (Graphical)

*Height Velocity-for-Age Profile*

Your child's height velocity is 3.67 *cm/year* MORE than the reference value, which is equivalent to 1.44 *inches/year*. Your child is growing FAST.

*Height Prediction*

127.22 *cm*, which is equivalent to 4 feet 2.1 *inches* at 9 years.

*Mass-for-Age (Weight-for-Age) Profile*

Your child has 4.88 *kg* LESSER mass for age. Your child is UNDERWEIGHT for age by 10 *lb* 12.3 *oz*.

SUMMARY OF FINDINGS

- a) Gap between the reference and the actual heights is DECREASING.
- b) The child is growing FASTER and the height velocity has further INCREASED.
- c) The child, however, remains EXTREMELY UNDERWEIGHT. Her weight is BELOW the 3<sup>rd</sup> *percentile*, and the prediction at age 9 years remains the same.
- d) The rate of weight gain has decreased from HIGH to LOW.
- e) The child is wasted, the situation WORSENERD from the previous checkup.
- f) *BMI* is lesser, the situation WORSENERD from the previous checkup.
- g) The child is showing signs of TRUNK DEFORMITY.

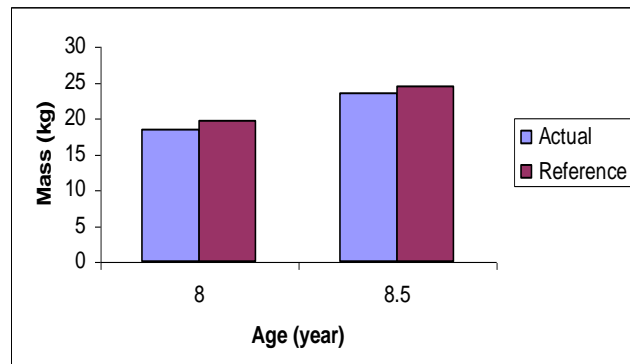


Fig. 5. Mass Profile (Bar Chart)

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January 6, 2003

Page 5 of 7



Growth Profile of Z. L. Z. (Contd.)

Table 4: Growth prediction  
(Extrapolated at the Reference Ages)

Age	8 years 6 months	9 years
Height [cm]	121.94	127.22
Height [feet-inches]	4 feet 0.008 inches	4 feet 2.1 inches
Percentile-of-height	8.24	17.38
Mass [kg]	21.04	20.24
Weight [lb-oz]	46 lb 6.2 oz	44 lb 10.1 oz
Percentile-of-weight	5.18	<3

IMPLICATIONS

A constant low weight may, a) affect vital organs, b) cause diabetes and c) hamper to achieve the desired final height. The child is, already, showing signs of trunk deformity.

RECOMMENDATIONS

The child should be put under the care of pediatrician/nutritionist. A program must be chalked out to increase weight of the child.

Notes

- Please refer to the SGPP Case Number in all future correspondence.
- For appointments/rescheduling/discussion of results:  
e-mail: sakamal@uok.edu.pk
- Please e-mail during the last week of March 2003 for the next appointment.
- Please check the accuracy and the completeness of your child's data and e-mail us back any corrections/omissions.
- These results were processed manually.

Thanks for your interest and your coöperation.

*Privacy Considerations*

Child's initials do not correspond to first letters in her name (as per confidentiality)

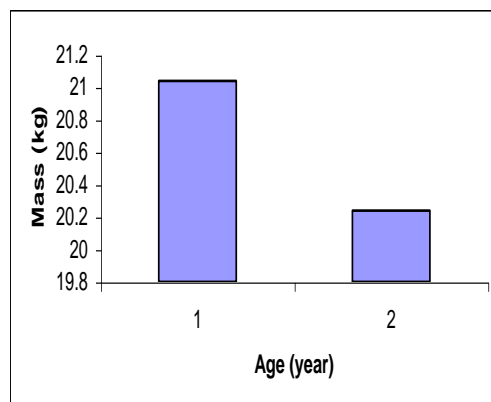


Fig. 6. Mass Prediction



Growth Profile of Z. L. Z. (Contd.)

standards). Same is true about case numbers appearing in the main and the auxiliary documents. They are not the ones, which are used to classify patient record and appear on the reports issued to patients. However, the NGDS Team can, immediately, track the actual cases from the coded numbers included in this document.

**Prof. Dr. Syed Arif Kamal**

PROJECT DIRECTOR

The NGDS Pilot Project

University of Karachi

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Best time to call: <http://www.ngds-ku.org/kamal/contact.htm#Best>

End of Report

*Web Address of the main document:*

**AN INVESTIGATION OF GROWTH PROFILES OF THE PAKISTANI CHILDREN**

<http://www.ngds-ku.org/Papers/J26.pdf>

*Web address of this document:*

**Additional File 2: Growth Profile of Z. L. Z.**

[http://www.ngds-ku.org/Papers/J26/Additional\\_File\\_2.pdf](http://www.ngds-ku.org/Papers/J26/Additional_File_2.pdf)

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January 6, 2003

Page 7 of 7