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**ANTHROPOLOGICAL CHARACTERISTICS,
INTERNAL ORGANS MEASUREMENTS, AND
FOOD CONSUMPTION OF INDONESIAN
PEOPLE, 1989-1993**

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Abstract

This study has been conducted to obtain, assess and interpret data on morphological, anatomical, chemical and metabolic characteristics of Indonesian population of all ages for establishing an Indonesian Reference Man. The paper presents age and sex specific data on physical anthropometric measurements, and on weights and dimensions of internal organs of normal and healthy Indonesian people. In addition, the content of selected elements in main organs and foodstuff, and the data of daily food consumption of well nourished individuals in three different regions of Indonesia are also presented.

Approximately 804 people of all ages were measured to obtain the physical/anthropometric data. The people chosen were from 3 Indonesian regions representing the middle class socio-economic population. The average body weight and total body height of the age group 20-39 years were found to be 53.5 kg (range: 40-70 kg) and 160.4 cm (range: 147.3-179.8 cm) for males and 48.9 kg (range: 32.7-79.5 kg) and 150.9 cm (range: 141.8-167.3 cm) for females.

The weights and dimensions of internal organs data were collected in Jakarta from about 155 sudden death victims. The weight of most male organs was generally about 1% to 19% larger than those of females. However, the female thyroid was 5.6% larger than the males.

The age specific food consumption were obtained in three regions of Indonesia. The content of elements in the selected foodstuffs are also included in this report. The results show that rice is consumed three times a day by most subjects. Milk and eggs are widely consumed and the intake tends to be higher in the younger age groups. Among the meat group, beef is the most popular and consumed with the highest frequency, followed by chicken both in popularity and quantity consumed. Vegetables, particularly the colored vegetables, are used daily in high amounts.

INTRODUCTION

Specific data for Asian countries were excluded in the ICRP Report on Reference Man (Publication 23, 1975) needed for the radiation protection purposes and dose estimation. This study was conducted to compile data necessary to characterize Reference Asian Man, and provide the ICRP Reference Man Task Group with information on the characteristics of the

Asian population for revision of ICRP Publication 23. The main objective of the study has been to obtain, assess and interpret data on morphological, anatomical, chemical and metabolic characteristics of Indonesian population of all ages for establishing an Indonesian Reference Man in particular and an Asian Reference Man in general.

Most of the data obtained in the study were collected from the people of Jakarta, where the highest degree of urbanization and most ethnic intermarriages have taken place. The study covered males and females from newborn to more than 60 years old. These measurements are expected to represent a "cross section" of the Indonesian population. The Indonesian people live throughout the 5 main islands in the country including a large number of tribes and ethnic groups.

This paper reports age and sex specific data on physical anthropometric measurements, and on weights and dimensions of internal organs of normal and healthy Indonesian people. In addition, the content of selected elements in main organs and foodstuff, and the data of daily food consumption of well nourished individuals in three different regions of Indonesia are also presented.

MATERIAL AND METHOD

Approximately 804 people (43% male, 57% female) of all ages were measured to obtain the physical/anthropometric data. The people chosen were from North Sumatra (west Indonesia), Jakarta (middle Indonesia), and East Timor (east Indonesia) representing the middle class socio-economic level. All of them were healthy and free from hereditary and chronic diseases. The methods used for these measurements have been reported in detail in the previous report.

The weights and dimensions of internal organs data were collected in Jakarta from about 155 sudden death victims (77% male and 23% female) in a range from 10 to 72 years old. The autopsy data dealt with unnatural deaths of subjects who were believed to be living normal daily lives until shortly before their deaths. The autopsies were conducted by standard procedures in Indonesia, and organs were weighted and measured after being cleaned. In addition, the elemental content in the organs was analyzed using Atomic Absorption Spectrometry. The samples were taken from 20 males of ages 19-52 years.

The daily food consumption data of healthy and different age groups were carried out in three different regions of Indonesia (west Indonesia, middle Indonesia and east Indonesia). The dietary data were collected by interviews using the pretested, guided questionnaires. The average intake of food is expressed in grams/person/day per age group of raw but edible material. Furthermore, the content of elements in several foodstuffs was analyzed by Atomic Absorption Spectrometry. The frequency of consumption of the various foodstuff presenting the pattern of Jakarta people was calculated and expressed in percentage.

RESULT AND DISCUSSION

Sex specific data on 24 physical/anthropometric parameters of normal Indonesian people in 9 age groups are presented in Table 1 and Figures 1-4. The number of samples in the age groups < 12 months, 1-3, 4-6, and 7-9 years, is small but still reported. Based on the present work, the average body weight and total body height of the age group 20-39 years are respectively 53.5 kg (range: 40-70 kg) and 160.4 cm (range: 147.3-179.8 cm) for males and 48.9 kg (range: 32.7-79.5 kg) and 150.9 cm (range: 141.8-167.3 cm) for females. The data compiled are not sufficient to represent the whole population of Indonesian people. These

Text cont. on p.93

BODY HEIGHT (cm)

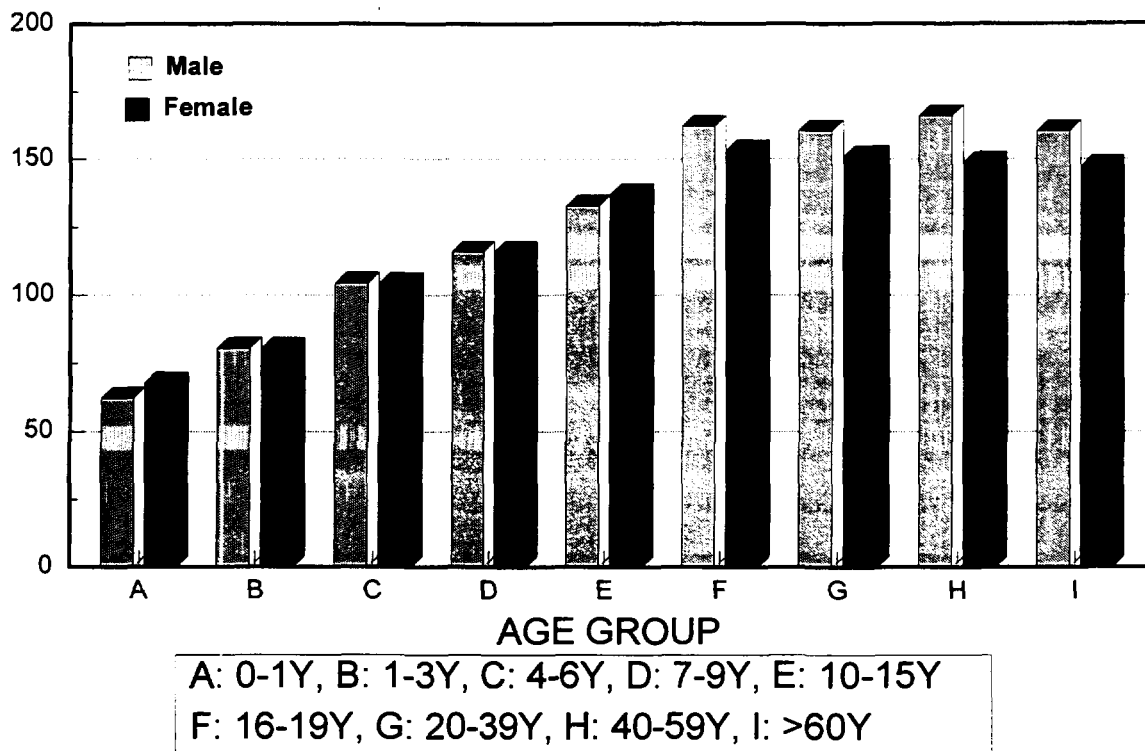


FIG. 1. Body height by age group.

BODY WEIGHT (kg)

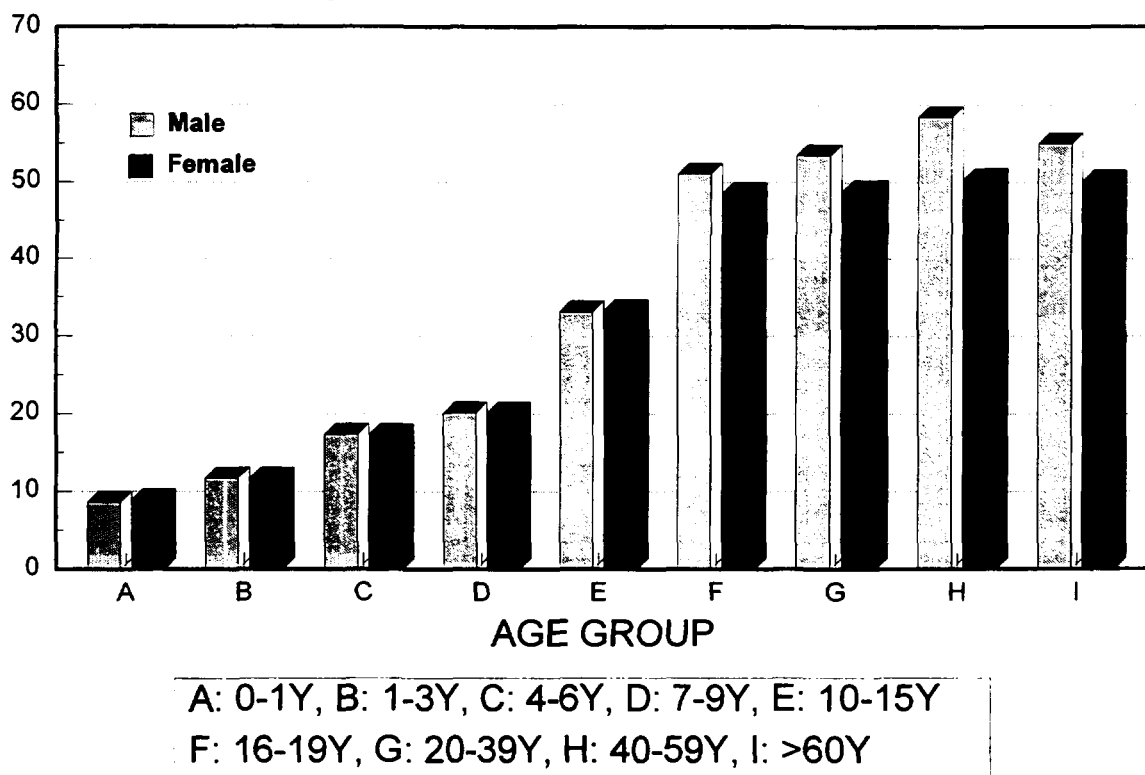
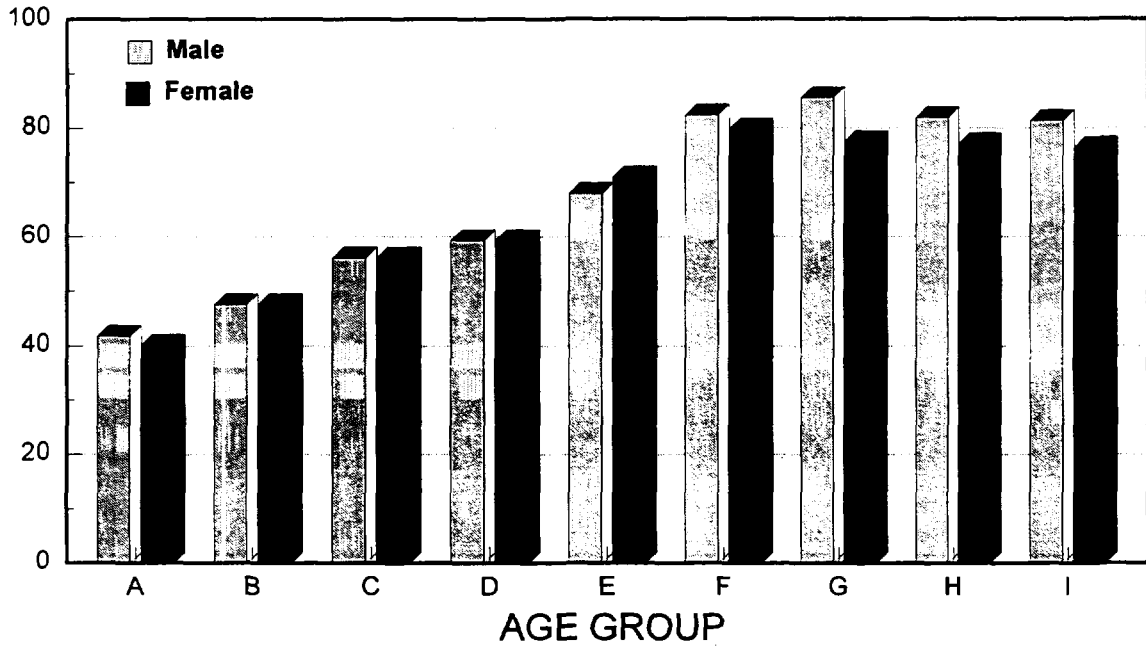


FIG. 2. Body weight by age group.

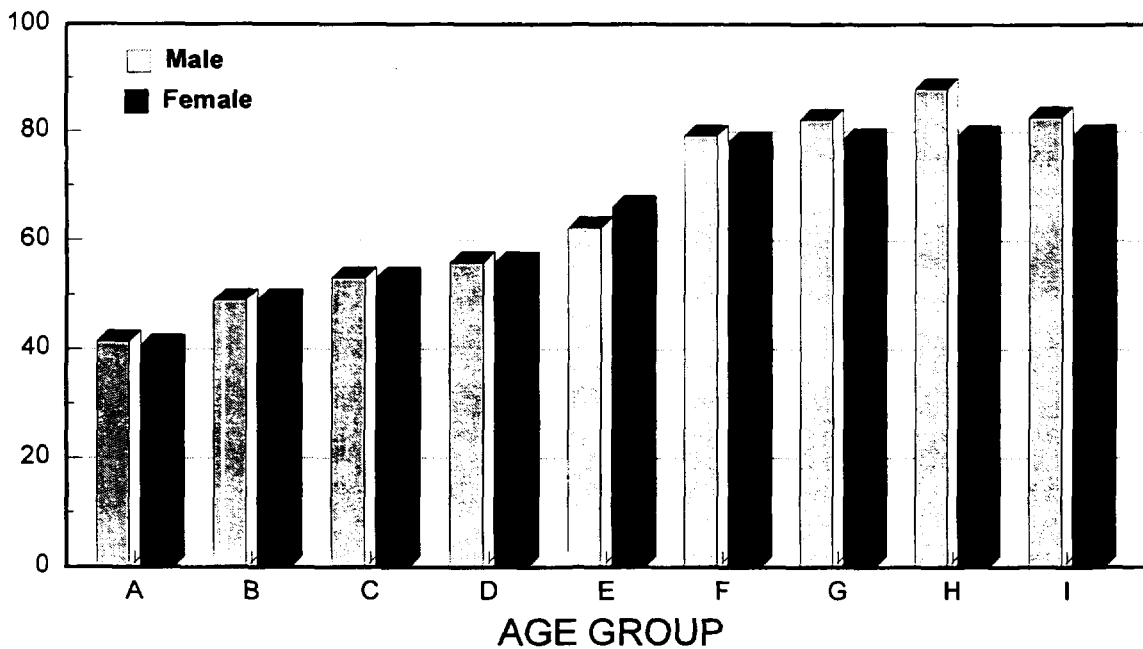
SITTING HEIGHT (cm)



A: 0-1Y, B: 1-3Y, C: 4-6Y, D: 7-9Y, E: 10-15Y
 F: 16-19Y, G: 20-39Y, H: 40-59Y, I: >60Y

FIG. 3. Sitting height by age group.

CHEST CIRCUMFERENCE (cm)



A: 0-1Y, B: 1-3Y, C: 4-6Y, D: 7-9Y, E: 10-15Y
 F: 16-19Y, G: 20-39Y, H: 40-59Y, I: >60Y

FIG. 4. Chest circumference by age group.

TABLE I. AGE AND SEX SPECIFIC ANTHROPOMETRIC MEASUREMENTS OF INDONESIAN POPULATION SAMPLE

No.	Age (yrs)	Sex (n)	Body weight (kg) (range)	Total body height (cm) (range)	Sitting height (cm) (range)	Height of head and neck (cm) (range)	Height of head (cm) (range)	Head circumference (cm) (range)
1.	< 12 months	M (3)	8.6 (5.0-11.0)	62.2 (59.0-77.5)	41.7 (38.6-45.5)	15.2 (13.4-18.4)	-	42.4 (41.0-47.5)
		F (4)	8.9 (5.5-10.0)	67.8 (62.0-70.6)	40.1 (37.4-44.5)	16.8 (15.5-18.0)	-	42.1 (40.1-43.5)
2.	1 - 3	M & F (10)	11.7 (6.0-15.5)	80.4 (58.1-98.4)	47.5 (43.2-51.2)	20.4 (13.6-26.0)	11.4 (9.2-13.0)	44.6 (40.0-47.0)
3.	4 - 6	M & F (20)	17.3 (12.0-21.7)	104.2 (85.6-138.8)	56.1 (48.2-61.4)	20.7 (12.5-24.5)	14.3 (9.2-16.0)	48.6 (44.0-51.0)
4.	7 - 9	M & F (20)	20.1 (16.0-28.0)	115.8 (107.8-131.3)	59.3 (48.0-66.9)	22.9 (20.0-25.5)	15.0 (13.0-16.8)	50.5 (47.5-52.5)
5.	10 - 15	M (72)	33.1 (16.0-56.0)	132.8 (107.8-160.0)	67.9 (57.5-86.0)	25.8 (20.5-30.1)	13.6 (13.0-15.8)	51.9 (47.5-56.3)
		F (83)	33.3 (17.3-49.1)	137.0 (114.8-158.6)	71.0 (57.1-85.0)	26.4 (20.9-29.0)	13.7 (13.1-15.8)	51.6 (49.0-55.0)
6.	16 - 19	M (58)	51.1 (36.3-68.7)	162.0 (143.6-179.8)	82.4 (73.3-92.8)	31.6 (24.9-36.5)	14.6 (14.2-15.2)	55.1 (53.0-59.1)
		F (65)	48.6 (32.4-62.0)	153.0 (141.7-168.0)	79.8 (71.8-91.1)	29.2 (24.2-33.1)	14.1 (13.6-15.2)	53.5 (42.7-57.0)
7.	20 - 39	M (190)	53.5 (40.6-70.0)	160.4 (147.3-179.8)	85.5 (46.2-95.4)	31.1 (28.0-36.5)	14.7 (14.2-15.2)	54.7 (35.2-59.4)
		F (198)	48.9 (32.7-79.5)	150.9 (141.8-167.3)	77.5 (41.5-89.6)	28.6 (25.0-33.8)	-	53.9 (42.7-58.0)
8.	40 - 59	M (83)	58.4 (32.5-99.0)	165.9 (147.0-172.0)	81.9 (73.9-89.1)	29.3 (24.9-33.8)	13.9 (13.1-14.7)	55.3 (51.0-58.5)
		F (60)	50.4 (31.2-76.1)	148.6 (137.9-158.8)	77.1 (69.7-87.1)	27.2 (20.3-30.6)	14.0 (13.2-15.1)	53.8 (51.0-57.1)
9.	> 60	M (18)	55.0 (41.3-72.7)	160.3 (143.8-169.4)	81.3 (72.3-85.6)	29.6 (27.2-32.0)	15.0 (14.4-15.5)	53.7 (36.8-56.5)
		F (20)	50.2 (34.0-64.7)	147.1 (129.5-160.5)	76.4 (72.1-81.8)	26.9 (25.0-29.6)	15.0 (13.8-15.7)	54.7 (49.2-65.0)

TABLE I. AGE AND SEX SPECIFIC ANTHROPOMETRIC MEASUREMENTS OF INDONESIAN POPULATION SAMPLE (CONT.)

No.	Age (yrs)	Sex (n)	Length of head (cm) (range)	Head width (cm) (range)	Neck circumference (cm) (range)	Chest depth (cm) (range)	Chest width (cm) (range)	Mesosterna chest circumference (cm) (range)
1.	< 12 months	M (3)	-	12.2 (11.6-13.0)	25.0 (24.5-25.5)	-	-	41.4 (40.0-45.5)
		F (4)	-	11.6 (11.2-12.0)	25.4 (21.3-31.8)	-	-	40.7 (39.1-43.0)
2.	1 - 3	M & F (10)	15.4 (14.2-16.0)	13.5 (12.2-14.0)	24.3 (21.2-27.0)	12.6 (12.0-14.3)	15.8 (13.8-16.5)	49.0 (45.0-52.0)
3.	4 - 6	M & F (20)	16.1 (15.0-16.8)	14.0 (12.8-15.0)	25.7 (23.0-29.2)	12.9 (11.5-14.5)	17.2 (14.8-19.5)	53.1 (49.0-63.5)
4.	7 - 9	M & F (20)	15.3 (13.0-17.5)	13.5 (12.8-15.0)	25.0 (23.3-27.8)	13.0 (12.4-14.0)	17.8 (15.0-19.5)	55.9 (50.0-62.0)
5.	10 - 15	M (72)	15.5 (13.5-17.0)	14.3 (13.0-15.3)	27.6 (23.5-35.5)	14.0 (12.4-16.6)	20.0 (17.0-25.5)	62.3 (55.0-77.2)
		F (83)	16.5 (15.4-17.2)	14.3 (12.5-15.3)	27.4 (23.0-30.5)	13.3 (12.0-15.5)	18.2 (16.4-21.5)	66.1 (53.5-82.4)
6.	16 - 19	M (58)	17.4 (15.1-18.3)	14.7 (13.8-15.3)	32.9 (28.5-51.1)	15.8 (15.0-19.8)	24.8 (23.2-26.0)	79.2 (69.1-89.8)
		F (65)	15.2 (12.1-17.9)	14.5 (13.6-15.7)	30.2 (26.5-35.5)	15.9 (15.0-16.4)	23.5 (20.0-25.0)	78.0 (65.5-87.5)
7.	20 - 39	M (190)	17.1 (16.0-18.3)	14.9 (12.4-17.3)	33.1 (30.2-38.6)	17.3 (16.5-18.2)	25.7 (24.9-26.3)	82.2 (70.8-107)
		F (198)	16.4 (15.0-18.4)	15.1 (13.5-16.6)	29.9 (20.2-37.7)	15.8 (14.5-17.1)	24.5 (22.0-29.0)	78.6 (66.3-93.8)
8.	40 - 59	M (83)	16.4 (14.4-18.5)	14.2 (12.2-15.1)	33.8 (28.5-41.0)	20.3 (16.2-14.5)	26.9 (24.3-29.5)	88.0 (72.0-109)
		F (60)	17.8 (17.5-18.5)	14.7 (13.6-15.8)	30.2 (25.7-34.6)	17.5 (15.0-20.0)	24.1 (22.0-30.0)	79.2 (66.0-100)
9.	> 60	M (18)	18.1 (17.2-18.5)	15.1 (13.8-16.3)	36.8 (27.2-40.4)	18.2 (16.4-20.5)	25.8 (22.8-27.5)	82.7 (66.9-96.0)
		F (20)	17.5 (16.5-18.0)	14.2 (13.6-15.5)	30.8 (28.1-35.0)	16.9 (14.0-18.0)	24.6 (20.0-27.0)	79.3 (65.3-97.5)

TABLE I. AGE AND SEX SPECIFIC ANTHROPOMETRIC MEASUREMENTS OF INDONESIAN POPULATION SAMPLE (CONT.)

No.	Age (yrs)	Sex (n)	Length of arm (cm) (range)	Max. upper arm circumference (cm) (range)	Middle arm circumference (cm) (range)	Length of leg (cm) (range)	Max. thigh circumference (cm) (range)	Length of foot (cm) (range)
1.	< 12 months	M (3)	27.4 (25.2-30.2)	15.1 (14.8-16.0)	13.5 (12.0-14.5)	28.0 (25.5-29.5)	25.1 (24.5-26.0)	10.4 (8.6-12.8)
		F (4)	25.4 (21.5-27.5)	14.1 (13.6-15.4)	13.2 (13.0-13.8)	27.8 (24.5-30.0)	24.3 (22.4-25.0)	10.9 (10.2-11.8)
2.	1 - 3	M & F (10)	34.3 (29.0-38.0)	16.0 (13.4-18.0)	14.7 (12.8-16.0)	39.8 (31.0-47.0)	27.2 (25.0-33.0)	13.8 (11.0-16.0)
3.	4 - 6	M & F (20)	41.8 (33.0-39.0)	16.8 (15.0-19.5)	15.6 (14.0-19.0)	48.2 (37.0-57.0)	31.3 (24.5-37.5)	16.5 (12.5-19.5)
4.	7 - 9	M & F (20)	50.1 (44.5-57.0)	18.1 (16.4-21.2)	16.4 (14.2-19.0)	59.6 (52.0-72.5)	36.4 (32.2-38.6)	18.1 (15.1-20.0)
5.	10 - 15	M (72)	58.6 (44.5-89.3)	21.4 (15.7-29.0)	19.7 (14.8-28.0)	68.3 (55.0-88.5)	39.5 (31.0-51.0)	21.7 (16.0-26.0)
		F (83)	62.2 (49.7-87.0)	21.8 (12.1-31.1)	19.7 (12.3-25.0)	71.2 (41.1-82.2)	43.1 (26.0-57.0)	21.6 (17.8-26.7)
6.	16 - 19	M (58)	73.0 (64.2-89.3)	26.2 (19.4-29.0)	24.2 (18.4-28.0)	82.6 (66.4-91.6)	48.9 (39.6-58.2)	24.9 (22.0-26.5)
		F (65)	66.8 (46.7-82.0)	26.1 (18.5-30.0)	23.5 (19.0-28.5)	77.2 (67.1-88.9)	50.8 (40.1-59.2)	23.0 (20.2-27.5)
7.	20 - 39	M (190)	73.2 (64.1-80.7)	27.5 (22.6-38.7)	25.9 (21.7-35.0)	80.5 (68.2-91.8)	47.9 (42.4-68.2)	24.3 (21.2-27.5)
		F (198)	66.4 (54.0-85.6)	25.6 (20.7-32.9)	24.0 (17.7-32.4)	74.9 (65.2-90.7)	50.1 (40.1-66.7)	22.7 (18.7-26.6)
8.	40 - 59	M (83)	73.1 (65.7-83.4)	29.1 (21.0-42.0)	26.9 (20.5-35.0)	80.7 (67.2-95.5)	48.8 (37.0-68.0)	24.7 (21.6-27.9)
		F (60)	66.0 (58.0-74.5)	26.5 (20.6-36.2)	24.5 (20.0-32.1)	73.4 (65.7-84.5)	49.4 (40.3-64.3)	22.7 (17.4-31.5)
9.	> 60	M (18)	69.7 (67.0-75.8)	27.1 (24.5-32.0)	26.1 (22.5-31.5)	84.7 (78.3-90.0)	49.1 (40.1-61.1)	25.7 (22.8-34.6)
		F (20)	64.8 (59.0-74.0)	27.6 (20.0-33.4)	25.4 (19.0-30.8)	76.7 (65.5-86.3)	49.8 (41.5-59.0)	23.0 (21.8-25.0)

TABLE I. AGE AND SEX SPECIFIC ANTHROPOMETRIC MEASUREMENTS OF INDONESIAN POPULATION SAMPLE (CONT.)

No.	Age (yrs)	Sex (n)	Ankle circumference (cm) (range)	Triceps skinfold (mm) (range)	Biceps skinfold (mm) (range)	Sub-scapular skinfold (mm) (range)	Abdominal skinfold (mm) (range)	Suprailiacal skinfold (mm) (range)
1.	< 12 months	M (3)	12.1 (10.5-13.7)	9.1 (7.2-12.0)	5.8 (4.4-12.8)	7.6 (6.0-9.4)	6.8 (5.4-9.0)	7.1 (5.0-11.0)
		F (4)	12.7 (11.8-13.5)	8.7 (6.2-9.8)	4.5 (5.4-6.2)	6.2 (5.2-7.4)	4.1 (3.2-5.1)	6.7 (4.8-11.6)
2.	1 - 3	M & F (10)	14.7 (12.8-16.0)	9.4 (7.6-13.0)	6.7 (3.6-10.4)	6.1 (5.0-8.0)	6.6 (4.4-10.2)	7.6 (4.4-11.6)
3.	4 - 6	M & F (20)	15.8 (13.5-20.0)	8.6 (5.0-16.0)	6.4 (3.6-15.0)	6.4 (4.4-10.8)	6.2 (3.8-12.2)	6.2 (3.2-11.8)
4.	7 - 9	M & F (20)	17.5 (13.9-21.5)	7.9 (6.0-12.0)	5.2 (3.0-7.4)	5.4 (4.0-6.8)	5.7 (3.0-10.4)	5.5 (2.5-9.0)
5.	10 - 15	M (72)	19.8 (14.1-24.1)	7.4 (4.0-20.0)	4.5 (2.5-10.0)	7.0 (3.0-13.0)	6.6 (3.5-13.0)	6.4 (2.5-16.0)
		F (83)	19.8 (12.4-23.7)	9.9 (5.0-21.0)	5.8 (2.5-11.8)	9.6 (3.8-30.0)	9.5 (3.2-28.0)	13.5 (3.0-24.0)
6.	16 - 19	M (58)	21.8 (18.2-26.5)	8.6 (4.8-18.4)	4.8 (2.4-9.0)	8.9 (4.0-20.0)	9.8 (4.6-25.4)	8.8 (2.8-24.2)
		F (65)	21.0 (13.5-29.5)	15.0 (8.8-33.9)	7.8 (4.0-16.0)	15.0 (8.0-28.0)	17.2 (8.2-32.9)	15.3 (8.0-32.0)
7.	20 - 39	M (190)	20.6 (17.4-26.5)	9.4 (2.8-27.0)	5.9 (2.0-20.0)	12.2 (5.6-38.8)	12.63 (4.0-40.0)	9.9 (4.0-38.2)
		F (198)	19.6 (16.5-26.0)	15.8 (4.4-37.0)	7.3 (2.5-32.9)	17.2 (5.4-40.0)	18.3 (5.2-43.0)	14.6 (4.0-42.0)
8.	40 - 59	M (83)	21.8 (17.0-29.8)	13.2 (4.0-28.0)	7.5 (2.0-21.2)	16.8 (3.2-40.0)	17.3 (4.2-40.0)	13.8 (3.6-43.0)
		F (60)	19.8 (16.0-25.0)	16.0 (5.1-34.0)	7.9 (2.0-29.0)	18.6 (7.0-40.0)	19.1 (7.0-47.8)	16.5 (4.0-39.0)
9.	> 60	M (18)	22.1 (16.5-24.0)	9.5 (3.0-18.1)	5.8 (2.0-12.0)	14.5 (6.4-36.2)	14.1 (4.4-39.2)	9.9 (2.3-20.6)
		F (20)	21.0 (17.8-23.8)	15.7 (3.2-31.0)	7.5 (2.0-15.2)	13.1 (4.8-30.4)	18.7 (4.2-30.2)	15.6 (5.4-30.4)

TABLE II. WEIGHT AND DIMENSION OF BRAIN STEM

Age (years)	Male				Female			
	n	Body height (cm)	Body weight (kg)	Brain stem (g)	n	Body height (cm)	Body weight (kg)	Brain stem (g)
10-12	4	140. ± 12.	22.5 ± 2.1	27.8 ± 8.1	1	125.	25.0	15.1
13-15	3	148. ± 17.	46.7 ± 26.6	17.8 ± 3.2		NA	NA	NA
16-19	9	159. ± 9.8	60.8 ± 8.2	35.1 ± 12.1	3	165. ± 7.5	53.0 ± 16.1	25.9 ± 4.8
20-39	80	162. ± 6.0	55.2 ± 7.6	32.2 ± 11.4	27	155. ± 5.9	48.4 ± 7.1	27.7 ± 9.8
40-59	21	161. ± 6.2	56.6 ± 10.6	34.6 ± 15.0	3	149. ± 8.0	53.0 ± 9.9	36.0 ± 3.2
60-72	5	157. ± 11.8	50.0 ± 12.8	56.7 ± 26.3	1	148.	45.0	18.0

TABLE III. WEIGHT AND DIMENSION OF CEREBRUM

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	2	1220. ± 178.	18.5 ± 0.7	15.5 ± 2.1	7.75 ± 0.35	1	1191.	18.2	14.3	7.00
13-15	2	1187. ± 35.	19.8 ± 1.8	15.4 ± 3.8	7.00 ± 0.71		NA	NA	NA	NA
16-19	8	1163. ± 129.	18.9 ± 1.9	14.6 ± 1.2	6.75 ± 0.77	3	1196. ± 42.	19.2 ± 1.6	14.4 ± 1.4	9.0 ± 3.1
20-39	70	1176. ± 119.	18.5 ± 1.9	14.6 ± 1.6	7.25 ± 2.11	23	1048. ± 138.	18.0 ± 1.4	13.6 ± 1.1	6.6 ± 0.6
40-59	19	1190. ± 122.	18.9 ± 1.6	14.6 ± 1.4	6.95 ± 1.34	2	1073. ± 239.	18.8 ± 1.8	15.2 ± 3.9	6.6 ± 1.3
60-72	5	1137. ± 56.	18.4 ± 0.8	13.9 ± 0.2	7.20 ± 0.57	1	1122.	20.0	16.0	4.50

TABLE IV. WEIGHT AND DIMENSION OF CEREBELLUM

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	2	140. ± 2.	12.5 ± 0.7	6.50 ± 0.7	3.50 ± 0.	1	142.	11.6	6.4	2.8
13-15	2	151. ± 30.	12.0 ± 1.4	6.20 ± 1.1	2.25 ± 1.1		NA	NA	NA	NA
16-19	8	138. ± 22.	11.1 ± 1.0	6.29 ± 1.4	3.00 ± 0.8	3	132. ± 11.	11.2 ± 1.2	6.30 ± 0.61	3.7 ± 0.3
20-39	70	137. ± 17.	11.4 ± 1.1	5.89 ± 0.9	3.15 ± 0.7	23	127. ± 13.	11.1 ± 1.0	6.03 ± 0.75	3.1 ± 0.5
40-59	19	144. ± 17.	11.2 ± 1.4	6.04 ± 1.2	3.06 ± 0.6	2	132. ± 7.	11.2 ± 1.1	6.05 ± 0.92	3.2 ± 0.4
60-72	5	136. ± 10.2	10.6 ± 1.1	5.68 ± 0.3	3.28 ± 0.6	1	119.	9.5	6.0	3.02

TABLE V. WEIGHT AND DIMENSION OF SALIVARY GLAND

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	4	42.9 ± 17.7	11.1 ± 3.4	4.33 ± 0.31	1.20 ± 0.20	1	36.5	13.50	4.2	1.5
13-15	3	69.3 ± 25.4	15.1 ± 1.8	5.20 ± 2.89	1.50 ± 0.87		NA	NA	NA	NA
16-19	8	90.7 ± 27.5	17.9 ± 4.0	4.76 ± 1.25	1.63 ± 0.64	3	93. ± 36.	22.7 ± 3.2	5.0 ± 0.9	1.3 ± 0.3
20-39	77	78.4 ± 14.9	20.2 ± 2.9	4.56 ± 0.82	1.53 ± 0.49	27	65.8 ± 13.6	19.4 ± 2.0	4.6 ± 1.2	1.4 ± 0.4
40-59	21	92.7 ± 33.1	22.6 ± 3.5	4.83 ± 0.98	2.06 ± 1.29	3	70.2 ± 46.3	17.7 ± 3.6	3.8 ± 1.2	1.3 ± 0.4
60-72	5	70.1 ± 15.6	19.1 ± 2.1	4.48 ± 1.36	1.00 ± 0.41	1	81.	22.5	5.5	1.5

TABLE VI. WEIGHT AND DIMENSION OF THYROID

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	4	6.6 ± 3.7	4.4 ± 1.6	1.8 ± 0.4	0.7 ± 0.5	1	15.0	4.40	1.9	1.5
13-15	3	11.7 ± 5.5	4.0 ± 1.3	2.5 ± 1.7	1.2 ± 0.4		NA	NA	NA	NA
16-19	9	14.0 ± 4.6	4.9 ± 0.7	3.7 ± 1.0	1.3 ± 0.6	3	23.7 ± 12.4	4.5 ± 0.4	4.3 ± 0.8	1.6 ± 0.8
20-39	78	16.8 ± 6.8	4.8 ± 0.1	3.1 ± 1.3	1.4 ± 0.8	27	17.8 ± 6.2	4.4 ± 0.7	2.8 ± 1.1	1.5 ± 0.6
40-59	21	19.6 ± 7.8	5.1 ± 1.2	3.0 ± 1.1	1.7 ± 1.0	3	14.5 ± 5.8	7.3 ± 3.2	4.4 ± 2.5	1.5 ± 0.4
60-72	4	14.8 ± 3.3	4.5 ± 0.6	3.5 ± 1.3	1.8 ± 0.2	1	40.5	6.00	3.6	1.8

TABLE VII. WEIGHT AND DIMENSION OF HEART

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	4	120. ± 36.	9.4 ± 2.4	7.5 ± 1.5	3.9 ± 0.2	1	98.5	6.6	5.8	4.5
13-15	3	208. ± 80.	10.3 ± 1.9	8.9 ± 2.9	4.9 ± 0.5		NA	NA	NA	NA
16-19	9	235 ± 28.	12.1 ± 2.8	9.2 ± 1.6	4.4 ± 0.6	3	224. ± 90.	11.2 ± 1.8	9.3 ± 1.8	4.4 ± 1.2
20-39	80	254. ± 36.	11.8 ± 2.9	9.8 ± 1.9	4.4 ± 1.6	27	217. ± 35.	12.1 ± 2.8	10.0 ± 2.3	4.2 ± 1.1
40-59	21	282. ± 51.	12.5 ± 2.5	10.0 ± 1.5	4.4 ± 0.9	3	292. ± 60.	12.0 ± 2.3	10.8 ± 2.1	4.6 ± 0.5
60-72	4	315. ± 49.	11.5 ± 1.3	9.6 ± 2.0	4.2 ± 0.9	1	340.	12.5	11.5	5.0

TABLE VIII. WEIGHT AND DIMENSION OF LUNG

Age (years)		Male					Female				
		n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	Right	4	163. ± 69.	15.80 ± 1.3	11.8 ± 0.8	5.1 ± 1.6	1	164.	15.6	10.0	3.6
	Left	4	147. ± 45.	15.3 ± 1.5	12.3 ± 2.5	5.0 ± 1.0	1	135.	15.0	13.2	3.7
13-15	Right	2	431. ± 9.9	20.5 ± 0.7	14.5 ± 0.7	9.2 ± 3.2		NA	NA	NA	NA
	Left	2	324. ± 6.4	20.5 ± 0.7	14.8 ± 4.6	7.5 ± 2.1		NA	NA	NA	NA
16-19	Right	8	395. ± 98.	22.4 ± 2.1	13.4 ± 2.6	6.0 ± 1.0	3	358. ± 183.	19.9 ± 3.7	14.7 ± 1.5	8.5 ± 0.9
	Left	7	361. ± 103.	21.3 ± 2.3	13.4 ± 2.6	5.5 ± 1.2	3	295. ± 132.	18.2 ± 2.5	14.6 ± 2.7	6.7 ± 1.9
20-39	Right	79	437. ± 178.	22.6 ± 2.2	15.5 ± 2.8	7.3 ± 6.0	25	399. ± 138.	21.5 ± 2.5	15.0 ± 2.7	7.3 ± 2.6
	Left	75	390. ± 125.	21.5 ± 2.4	14.9 ± 3.0	6.1 ± 2.4	25	341. ± 110.	20.1 ± 2.3	14.3 ± 3.0	6.3 ± 2.5
40-59	Right	19	422. ± 140.	23.6 ± 2.6	16.0 ± 2.5	7.1 ± 2.9	3	487. ± 362.	24.8 ± 3.2	15.2 ± 0.3	8.7 ± 3.8
	Left	18	364. ± 126.	22.4 ± 2.8	15.2 ± 2.6	6.1 ± 2.7	3	341. ± 104.	20.8 ± 1.4	14.5 ± 1.5	7.2 ± 3.4
60-72	Right	4	517. ± 207.	25.3 ± 0.6	16.9 ± 2.8	3.2 ± 1.3	1	387.	26.0	14.0	6.0
	Left	4	398. ± 109.	25.8 ± 1.8	17.5 ± 0.7	4.2 ± 0.4	1	276.	25.0	13.0	5.0

TABLE IX. WEIGHT AND DIMENSION OF TESTIS

Age (years)	Right Testis					Left Testis				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	2	6.50 ± 6.4	3.3 ± 1.0	1.9 ± 0.8	1.2 ± 0.6	2	6.75 ± 6.7	2.8 ± 0.3	1.9 ± 0.8	1.2 ± 0.6
13-15	3	11.8 ± 6.9	4.1 ± 1.6	2.5 ± 0.6	1.7 ± 1.2	3	11.8 ± 6.9	3.2 ± 0.3	2.5 ± 0.6	1.7 ± 1.1
16-19	9	13.9 ± 4.1	3.8 ± 0.8	2.5 ± 0.4	1.4 ± 0.4	9	13.7 ± 4.3	3.7 ± 0.6	2.4 ± 0.4	1.6 ± 0.5
20-39	74	13.3 ± 3.5	4.0 ± 1.0	2.6 ± 0.6	1.5 ± 0.4	74	13.1 ± 3.4	3.9 ± 0.9	2.6 ± 0.6	1.5 ± 0.4
40-59	20	14.2 ± 4.4	4.2 ± 1.5	2.8 ± 1.1	1.6 ± 0.9	20	13.4 ± 3.9	4.1 ± 1.3	2.7 ± 1.1	1.6 ± 1.0
60-72	3	16.9 ± 2.7	4.4 ± 0.4	2.1 ± 0.6	1.3 ± 0.5	3	15.8 ± 3.6	4.3 ± 0.4	2.7 ± 0.0	1.2 ± 0.4

TABLE X. WEIGHT AND DIMENSION OF LIVER

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	4	666. ± 57.	25.3 ± 2.5	15.0 ± 2.3	5.5 ± 1.3		NA	NA	NA	NA
13-15	3	874. ± 187.	25.3 ± 1.2	14.9 ± 2.2	4.6 ± 0.5		NA	NA	NA	NA
16-19	9	1110. ± 190.	28.7 ± 2.9	16.0 ± 2.2	5.7 ± 1.1	3	1100. ± 295.	29.7 ± 4.2	15.0 ± 1.0	6.8 ± 1.6
20-39	76	1120. ± 298.	27.5 ± 3.3	16.6 ± 3.1	5.8 ± 1.4	27	1120. ± 237.	28.7 ± 3.2	17.2 ± 3.1	5.4 ± 1.4
40-59	20	1130. ± 279.	28.5 ± 5.7	17.0 ± 2.4	5.9 ± 1.5	3	919. ± 152.	26.8 ± 5.5	16.8 ± 1.3	5.0 ± 1.0
60-72	5	1060. ± 246.	28.8 ± 1.9	16.2 ± 2.1	5.3 ± 1.0	1	945.	28.0	17.0	6.0

TABLE XI. WEIGHT AND DIMENSION OF SPLEEN

Age (years)	Male					Female				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	4	73.1 ± 17.4	10.0 ± 0.9	5.9 ± 0.8	1.8 ± 0.7	1	70.0	12.1	5.7	1.5
13-15	2	83.8 ± 37.1	12.0 ± 1.4	6.8 ± 2.5	1.8 ± 0.4		NA	NA	NA	NA
16-19	9	177. ± 86.	13.2 ± 2.6	8.0 ± 1.4	2.1 ± 0.9	3	109. ± 81.8	13.7 ± 2.1	7.2 ± 2.0	2.3 ± 0.3
20-39	76	113. ± 57.	11.4 ± 1.6	7.1 ± 1.2	2.2 ± 0.9	27	104. ± 28.3	11.9 ± 1.7	6.9 ± 1.2	2.2 ± 0.7
40-59	21	117. ± 50.	12.0 ± 2.1	7.4 ± 1.8	2.1 ± 0.6	2	59.0 ± 12.1	10.3 ± 0.4	6.6 ± 0.9	1.6 ± 1.3
60-72	4	75.8 ± 32.0	10.2 ± 2.4	7.9 ± 1.2	2.5 ± 0.9	1	73.0	13.0	6.5	2.1

TABLE XII. WEIGHT AND DIMENSION OF PROSTATE AND UTERUS

Age (years)	Prostate					Uterus				
	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	2	9.75 ± 4.6	3.0 ± 1.1	2.4 ± 0.8	1.0 ± 0.1	1	NA	3.5	3.3	0.6
13-15	2	17.0 ± 4.2	5.0 ± 1.4	3.4 ± 0.6	1.7 ± 0.3		NA	NA	NA	NA
16-19	9	19.5 ± 4.4	4.1 ± 0.8	2.7 ± 0.5	1.7 ± 0.4	2	40.5 ± 0.0	7.5 ± 0.7	5.0 ± 0.0	2.5 ± 0.0
20-39	73	19.1 ± 10.9	4.5 ± 1.1	3.3 ± 0.9	1.9 ± 0.6	25	58.5 ± 29.8	8.0 ± 2.2	5.6 ± 1.3	2.8 ± 0.5
40-59	17	18.9 ± 3.0	4.5 ± 1.0	3.6 ± 0.6	1.7 ± 0.6	2	97.4 ± 80.0	6.4 ± 1.9	6.0 ± 2.1	3.4 ± 1.5
60-72	3	20.0 ± 2.0	5.4 ± 0.9	3.6 ± 0.5	1.9 ± 0.5		NA	NA	NA	NA

TABLE XIII. WEIGHT AND DIMENSION OF KIDNEY

Age (years)		Male					Female				
		n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	Right	4	56.2 ± 13.1	8.53 ± 1.5	4.8 ± 0.7	2.4 ± 0.1	1	48.5	8.7	4.4	2.2
	Left	3	58.6 ± 12.0	8.67 ± 0.8	4.9 ± 0.8	2.5 ± 0.0	1	53.4	8.2	4.2	2.4
13-15	Right	3	96.0 ± 30.1	9.83 ± 1.9	5.0 ± 2.2	2.6 ± 0.5		NA	NA	NA	NA
	Left	3	98.3 ± 26.1	9.63 ± 1.3	4.5 ± 1.5	2.5 ± 0.5		NA	NA	NA	NA
16-19	Right	9	106. ± 15.3	11.0 ± 1.4	5.8 ± 0.5	2.5 ± 0.4	3	105. ± 18.12	10.7 ± 0.6	6.0 ± 0.5	2.9 ± 0.2
	Left	9	100. ± 14.9	9.81 ± 1.0	5.3 ± 0.6	2.3 ± 0.5	3	99.2 ± 4.80	10.7 ± 0.3	6.3 ± 1.2	2.2 ± 0.4
20-39	Right	79	102. ± 21.1	9.94 ± 1.6	5.4 ± 1.0	2.5 ± 0.6	27	96.0 ± 24.49	12.4 ± 18.2	5.1 ± 1.0	5.1 ± 1.5
	Left	79	105. ± 21.7	9.90 ± 2.0	5.2 ± 1.0	2.7 ± 2.0	27	96.0 ± 22.14	9.8 ± 2.2	5.1 ± 1.0	5.5 ± 0.5
40-59	Right	19	109. ± 19.6	10.7 ± 1.3	5.6 ± 0.7	2.5 ± 0.6	2	90.0 ± 26.87	10.0 ± 0.8	5.3 ± 0.3	3.0 ± 0.9
	Left	20	110. ± 25.1	10.8 ± 1.4	5.4 ± 1.1	2.6 ± 0.8	3	71.9 ± 14.33	10.0 ± 0.5	5.5 ± 0.5	2.7 ± 0.2
60-72	Right	5	88.3 ± 9.1	10.5 ± 1.7	5.2 ± 1.0	1.8 ± 0.2	1	80.5	12.0	5.5	2.5
	Left	5	91.1 ± 10.2	10.0 ± 2.2	5.2 ± 0.5	2.2 ± 0.2	1	85.5	11.0	5.5	2.5

TABLE XIV. WEIGHT AND DIMENSION OF ADRENAL

Age (years)		Male					Female				
		n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	n	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)
10-12	Right	4	2.88 ± 0.48	4.27 ± 0.64	2.80 ± 0.20	0.30 ± 0.10	1	3.00 ± 0.00	4.70 ± 0.00	3.20 ± 0.00	0.30 ± 0.00
	Left	4	2.50 ± 0.41	4.53 ± 0.61	2.40 ± 0.79	0.33 ± 0.15	1	2.00 ± 0.00	5.20 ± 0.00	1.70 ± 0.00	0.30 ± 0.00
13-15	Right	3	4.33 ± 0.58	4.33 ± 1.15	2.47 ± 0.46	0.40 ± 0.00		NA	NA	NA	NA
	Left	3	4.17 ± 0.76	4.47 ± 1.60	2.33 ± 0.28	0.37 ± 0.06		NA	NA	NA	NA
16-19	Right	9	5.43 ± 2.18	5.50 ± 1.08	3.00 ± 0.66	0.40 ± 0.19	3	6.00 ± 1.76	5.33 ± 0.58	3.33 ± 0.58	0.37 ± 0.21
	Left	9	5.22 ± 2.11	5.28 ± 0.83	2.79 ± 0.90	0.42 ± 0.13	3	5.63 ± 1.52	5.83 ± 1.04	3.17 ± 1.15	0.47 ± 0.21
20-39	Right	77	5.71 ± 1.88	5.09 ± 0.74	2.95 ± 0.68	0.41 ± 0.18	27	4.84 ± 1.53	4.81 ± 0.96	2.90 ± 0.90	0.56 ± 0.61
	Left	77	5.59 ± 1.82	5.14 ± 0.99	2.73 ± 0.84	0.42 ± 0.19	27	4.83 ± 1.69	4.85 ± 0.91	2.71 ± 0.86	0.47 ± 0.22
40-59	Right	21	6.78 ± 2.84	5.40 ± 1.19	3.15 ± 0.73	0.41 ± 0.10	3	3.57 ± 1.40	4.70 ± 1.59	2.77 ± 0.31	0.30 ± 0.00
	Left	21	6.59 ± 2.75	5.08 ± 1.06	2.73 ± 0.79	0.41 ± 0.13	2	2.20 ± 1.70	3.85 ± 2.19	2.10 ± 1.13	0.30 ± 0.00
60-72	Right	5	5.76 ± 2.38	4.90 ± 0.58	3.30 ± 0.24	0.43 ± 0.10	1	5.50 ± 0.00	5.00 ± 0.00	3.50 ± 0.00	0.60 ± 0.00
	Left	5	5.34 ± 2.45	4.93 ± 0.43	2.98 ± 0.46	0.45 ± 0.06	1	4.00 ± 0.00	4.00 ± 0.00	3.01 ± 0.00	0.50 ± 0.00

TABLE XV. ELEMENTAL CONTENT OF INTERNAL ORGANS

Organs/tissues	n	Na (mg/g)		K (mg/g)		Ca (mg/g)		Mg (mg/g)	
		range	average \pm SD	range	average \pm SD	range	average \pm SD	range	average \pm SD
Heart	20	0.93 - 1.56	1.22 \pm 0.22	0.24 - 2.25	1.57 \pm 0.63	0.001 - 0.070	0.022 \pm 0.021	0.03 - 0.16	0.10 \pm 0.05
Cerebrum	20	0.12 - 2.73	1.49 \pm 0.73	1.28 - 3.70	2.56 \pm 0.77	0.001 - 0.040	0.021 \pm 0.014	0.01 - 0.15	0.08 \pm 0.05
Liver	18	0.09 - 2.00	1.19 \pm 0.53	1.25 - 2.93	1.93 \pm 0.59	0.001 - 0.677	0.119 \pm 0.229	0.02 - 0.24	0.13 \pm 0.07
Lung	20	0.14 - 2.93	1.81 \pm 0.77	0.74 - 2.15	1.38 \pm 0.44	0.004 - 0.064	0.029 \pm 0.023	0.02 - 0.17	0.07 \pm 0.05
Muscle	20	0.05 - 1.52	0.80 \pm 0.41	1.26 - 3.61	2.72 \pm 0.75	0.001 - 0.030	0.013 \pm 0.008	0.02 - 0.23	0.13 \pm 0.08
Rib bone	20	0.21 - 4.00	2.29 \pm 1.32	0.29 - 6.89	1.92 \pm 1.95	0.944 - 40.8	13.6 \pm 12.0	0.07 - 0.79	0.34 \pm 0.25
Bladder	20	0.60 - 2.15	1.24 \pm 0.60	0.34 - 1.05	0.68 \pm 0.31	0.005 - 1.37	0.231 \pm 0.441	0.03 - 1.55	0.26 \pm 0.49
Testis	20	0.16 - 4.08	2.01 \pm 1.02	0.88 - 1.74	1.47 \pm 0.29	0.003 - 0.092	0.041 \pm 0.034	0.03 - 0.80	0.14 \pm 0.25
Spleen	20	0.13 - 3.27	1.33 \pm 0.87	1.66 - 3.66	2.49 \pm 0.67	0.002 - 0.309	0.057 \pm 0.097	0.04 - 0.16	0.09 \pm 0.04

TABLE XV. (CONTINUED)

Organs/tissues	n	Mn (μ g/g)		Fe (μ g/g)		Cu (μ g/g)		Zn (μ g/g)	
		range	average \pm SD	range	average \pm SD	range	average \pm SD	range	average \pm SD
Heart	20	0.21 - 0.67	0.43 \pm 0.17	34.8 - 89.0	46.8 \pm 16.9	0.11 - 4.27	2.28 \pm 1.12	13.2 - 91.4	23.8 \pm 25.4
Cerebrum	20	0.28 - 0.59	0.41 \pm 0.12	28.6 - 97.9	51.5 \pm 27.8	0.23 - 5.18	2.75 \pm 1.71	8.57 - 15.5	10.9 \pm 2.33
Liver	18	0.86 - 1.90	1.33 \pm 0.35	20.8 - 374.	113. \pm 115.	0.36 - 24.7	12.2 \pm 7.93	19.4 - 73.2	50.9 \pm 16.6
Lung	20	0.27 - 0.61	0.42 \pm 0.12	46.6 - 200.	115. \pm 46.4	0.04 - 5.48	1.24 \pm 1.64	6.31 - 19.1	11.0 \pm 3.48
Muscle	20	0.06 - 0.99	0.36 \pm 0.30	19.4 - 115.	45.6 \pm 28.9	0.16 - 3.10	1.04 \pm 0.84	18.0 - 57.6	43.4 \pm 14.8
Rib bone	20	0.32 - 3.55	1.03 \pm 0.98	6.81 - 89.8	49.6 \pm 28.0	0.17 - 1.93	1.10 \pm 0.61	4.34 - 56.6	27.7 \pm 15.6
Bladder	20	0.21 - 1.59	0.84 \pm 0.55	8.29 - 73.8	34.8 \pm 24.5	0.09 - 18.8	3.24 \pm 5.89	6.83 - 32.9	14.5 \pm 7.78
Testis	20	0.11 - 0.67	0.31 \pm 0.18	8.02 - 50.6	22.7 \pm 13.5	0.14 - 1.23	0.79 \pm 0.33	7.52 - 10.8	8.43 \pm 1.11
Spleen	20	0.14 - 0.55	0.38 \pm 0.13	35.4 - 245	155. \pm 71.8	0.09 - 1.66	0.91 \pm 0.59	9.19 - 21.3	14.5 \pm 3.24

TABLE XVI. CONTENT OF ELEMENTS IN SELECTED FOODSTUFFS

Foodstuff	n	Na (mg/g)	K (mg/g)	Ca (mg/g)	Mg (mg/g)	Fe (mg/g)	Zn (mg/g)	Mn (mg/g)	Cu (mg/g)
Rice	26	0.17 ± 0.21	1.57 ± 2.36	0.09 ± 0.04	0.32 ± 0.21	5.05 ± 2.02	21.8 ± 16.2	6.45 ± 1.43	2.73 ± 1.16
Soybean	7	0.28 ± 0.25	23.6 ± 12.7	1.35 ± 0.96	1.57 ± 1.09	37.6 ± 27.1	20.6 ± 14.2	15.2 ± 10.9	5.23 ± 3.76
Spinach	7	1.95 ± 0.78	41.6 ± 29.3	10.7 ± 0.04	4.25 ± 2.95	30.9 ± 65.1	18.6 ± 25.4	49.6 ± 84.3	2.02 ± 2.49
Egg	7	7.66 ± 5.71	4.66 ± 1.71	1.69 ± 0.79	0.40 ± 0.09	57.5 ± 38.8	82. ± 102.	0.97 ± 0.56	3.77 ± 4.19
Water spinach	7	6.58 ± 3.72	55.3 ± 40.0	3.92 ± 4.66	1.00 ± 1.13	65.2 ± 124.	9.1 ± 12.1	29.4 ± 41.9	2.51 ± 2.83
Corn	13	0.13 ± 0.11	2.56 ± 1.75	0.09 ± 0.08	0.75 ± 0.59	11.9 ± 6.6	15.5 ± 9.7	3.47 ± 2.13	1.87 ± 1.15
Cabbage	7	1.02 ± 0.35	16.1 ± 10.9	4.36 ± 3.15	1.40 ± 0.70	11.4 ± 16.0	13.4 ± 12.4	31.0 ± 47.4	1.94 ± 1.39

TABLE XVII. AVERAGE DAILY FOOD CONSUMPTION (g/person/day) OF AGE GROUPS IN WEST INDONESIA (NORTH SUMATRA)

Food	Age (years)						
	1 - 3	4 - 6	7 - 9	10 - 12	20 - 39	40 - 59	> 60
Cereals & prod.	393.	26.0	119.	90.0	510.	366.	305.
Nuts & seed	NA	NA	NA	NA	NA	346.	NA
Pulses	NA	100.	NA	NA	410.	NA	600.
Potatoes & starches	225.	174.	300.	NA	238.	271.	175.
Sugar	NA	NA	NA	NA	54.6	156.	45.7
Confectioneries	NA	NA	NA	NA	NA	NA	NA
Fats & oils	25.0	20.0	45.0	25.0	103.	111.	71.7
Fruits	150.	NA	88.3	75.0	93.8	70.0	70.0
Vegetables	50.0	100.	75.0	40.0	212.	251.	165.
Fish	108.	50.0	26.0	30.0	123.	163.	148.
Meat	NA	NA	NA	NA	210.	150.	50.0
Eggs	NA	NA	NA	NA	66.8	60.0	75.0
Milk & products	NA	NA	NA	NA	49.2	17.1	25.0

TABLE XVIII. AVERAGE DAILY FOOD CONSUMPTION (g/person/day) OF AGE GROUPS IN MIDDLE INDONESIA (JAKARTA)

Food	Age (years)							
	1 - 3	4 - 6	7 - 9	10 - 12	16 - 19	20 - 39	40 - 59	> 60
Cereals & prod.	102.	104.	138.	88.3	152.	171.	181.	179.
Nuts & seed	6.70	32.0	43.8	54.1	48.6	46.5	27.8	29.2
Pulses	33.2	32.4	77.5	22.4	59.3	66.5	90.4	109.
Potatoes & starches	47.2	22.4	50.6	39.9	64.6	113.	76.0	114.
Sugar	36.6	37.8	32.6	25.8	37.0	35.7	39.2	17.6
Confectioneries	20.5	19.7	19.5	6.00	31.9	17.2	20.0	21.6
Fats & oils	20.9	9.00	21.2	16.5	30.6	29.3	37.4	24.0
Fruits	121.	33.0	87.4	64.8	159.	156.	183.	164.
Vegetables	112.	16.0	69.8	57.4	62.7	75.4	15.7	138.
Fish	10.0	80.0	32.0	23.3	39.4	50.1	49.9	69.3
Meat	57.6	90.0	48.9	39.2	105.	64.6	53.1	79.9
Eggs	73.3	NA	54.6	42.5	45.8	46.2	22.6	50.5
Milk & products	267.	293.	48.6	240.	118.	147.	174.	116.

TABLE XIX. AVERAGE DAILY FOOD CONSUMPTION (g/person/day) OF AGE GROUPS IN EAST INDONESIA (EAST NUSA TENGGARA)

Food	Age (years)								
	1 - 3	4 - 6	7 - 9	10 - 11	12 - 15	16 - 19	20 - 39	40 - 59	> 60
Cereals & prod.	107.	241.	262.	266.	283.	209.	362.	315.	305.
Nuts & seed	124.	66.2	168.	98.2	146.	158.	268.	358.	328.
Pulses	210.	210.	254.	73.1	130.	26.3	362.	77.2	87.6
Potatoes & starches	4.7	70.0	58.9	100.	100.	138.	89.8	200.	NA
Sugar	NA	NA	NA	NA	25.0	NA	20.2	NA	24.7
Confectioneries	40.0	41.9	75.0	24.7	20.0	NA	85.0	NA	NA
Fats & oils	NA	47.3	46.3	134.	114.	NA	98.2	98.8	81.0
Fruits	73.3	364.	NA	146.	210.	188.	361.	411.	NA
Vegetables	378.	264.	373.	423.	486.	432.	1106.	79.0	NA
Fish	66.6	61.8	47.7	46.9	52.3	34.0	121.	58.8	43.0
Meat	52.7	57.4	115.	64.1	45.8	62.5	103.	85.6	NA
Eggs	NA	36.0	NA	40.0	NA	NA	41.2	NA	NA
Milk & products	10.0	23.3	NA	NA	20.0	NA	15.00	NA	NA

TABLE XX. FAMILY CONSUMPTION FREQUENCY OF FOODSTUFF (% , n = 50, often = 1-3x/week, rare = 1-2x/month, very rare = 1x/month)

No.	Food item	3x/day	2x/day	1x/day	often	rare	very rare	never	blank
1.	Rice	60	40	-	-	-	-	-	-
2.	Rice noodle	-	-	2	24	20	32	-	22
3.	Glutinous rice	-	-	2	14	16	34	10	24
4.	Bread	2	2	20	50	8	12	2	4
5.	Wheat noodle	-	4	4	32	22	20	2	16
6.	Potato	-	-	2	48	12	14	-	24
7.	Sweet potato	-	-	2	22	32	28	2	14
8.	Cassava	-	2	2	24	30	30	2	10
9.	Taro, yam	-	-	-	4	10	40	22	24
10.	Casava noodle	-	-	-	12	12	42	4	30
11.	Sugar	6	44	30	4	-	4	-	12
12.	Milk	2	12	22	26	4	8	20	6
13.	Cheese	-	-	-	14	2	44	24	16
14.	Eggs	-	4	18	64	8	2	2	2
15.	Beef	-	2	4	56	20	12	-	6
16.	Mutton	-	-	-	10	6	36	26	2
17.	Pork	-	-	-	14	6	8	44	28
18.	Chicken	2	2	4	66	12	6	-	4
19.	Fish	-	6	8	52	16	6	6	6
20.	Shrimp	-	-	-	28	14	34	12	12
21.	Cuttle fish/squid	-	-	-	14	10	44	20	12
22.	Crab	-	-	-	-	4	42	34	20
23.	Shellfish	-	-	-	2	-	30	26	42
24.	Soybean curd	6	18	18	48	2	4	-	4
25.	Ferm. soyb. press. cake	6	18	18	48	2	4	-	4
26.	Oncom	-	-	4	22	12	30	14	18
27.	Peanut	-	-	-	49	18	20	-	14
28.	Green bean	4	4	2	54	14	20	-	2
29.	Kidney bean	-	-	-	38	22	18	6	16
30.	Bambara ground nut	-	-	-	2	18	34	16	30
31.	Vegetables (green, yellow, red)	10	34	12	34	2	-	-	8
32.	Vegetables (white)	2	14	-	44	18	8	4	10
33.	Fruit	-	26	24	18	4	2	-	26
34.	Butter	-	-	-	-	2	12	14	72
35.	Animal fat	-	-	2	10	14	10	6	58
36.	Margarine	-	-	10	42	12	14	4	18
37.	Vegetable oil	2	20	8	4	6	16	2	42
38.	Mayonnaise	-	-	-	-	4	12	26	58

data were obtained only from Jakarta, North Sumatra and East Timor. Considering that the goal of the study is to establish the standard value for Indonesian people, more samples from other parts of Indonesia are essential. More data are still required to support the accuracy of the reported data.

The data of weights and dimensions of internal organs of Indonesian people were obtained from the people of Jakarta who died in accidents, due to homicide or suicide. These people are considered to be physically healthy and representative of normal individuals. The data are shown in Tables 2 to 14. The data cover only the age range from 10 to 72 years. Data for ages less than 10 is not available since autopsies on children are very rare. The number of sudden deaths of young people is relatively low and, if any, most parents do not allow an autopsy to be done. The number of samples of all age groups except the 20-39 years group is very small, so that most of the data for other age groups are not representative. The priority of this work was placed on acquiring data for males and females of ages 20-39 for comparison with the ICRP Reference Man adult data.

Weights of organs of males and females in this age group were compared. As shown in the Tables, the weight of most male organs was generally about 1% to 19% larger than those of females. However, the female thyroid was 5.6% larger than the males. Additionally, this work reports the distribution of several elements in selected internal organs/tissues taken from the forensic autopsies (Table 15).

The age specific food consumption observed in the three regions of Indonesia can be seen in Tables 16-18. The results were collected from a very few samples and are not representative due to certain difficulties and limited budget. The content of elements in the selected foodstuffs are also included in this report and presented in Table 19. Family and individual food patterns are pictured by the frequency of consumption of the various foodstuff expressed in percentage as shown in Tables 20 and 21. The data indicate that rice is consumed three times a day by most subjects. Milk and eggs are widely consumed and the intake tends to be higher in the younger age groups. Among the meat group, beef is the most popular and consumed with the highest frequency, followed by chicken both in popularity and quantity consumed. Vegetables, particularly the colored ones are used daily in high amounts.

The surveys were carried out during different seasons in the three different regions. In Jakarta and North Sumatra, the nutrition surveys were done in the wet season while in East Nusa Tenggara in the peak of the dry season. Even though there is a slightly different need in the food supply between the dry and wet seasons, and more surveys are essentially required to overcome these discrepancies. Beside the social cultural diversity among ethnic groups and tribes throughout Indonesia, the economic level of the people is not the same. The way of life and habits of Jakarta people from a middle class socio-economic level are different from those of North Sumatra from the same class, due to the difference in the progress of economic development. Also, manufactured foods are not usually consumed by the people in rural areas. It is certainly understood that people living in Jakarta (the capital city) with a fixed place to live are usually more prosperous than the same class of people living in more remote places in the country. Therefore, the present study is incomplete and more work is required to increase the number of samples and expand the observed areas.

CONCLUSION

The work presented in this report is far from being complete enough to properly characterize a Reference Indonesian Man which would, in turn, contribute to establishing Reference Man for Asia. However, the data on physical/anthropometric measurements on normal Indonesian people of both sexes and above 10 years was determined hopefully consistent with the principles of ICRP Reference Man revision. The normal values of the

anthropometric parameters for younger people, and of the weights and dimensions of internal organs of various ages and both sexes need to be added. Also, much more time and effort is needed to get reliable information on daily food consumption of Indonesian people. Up to now, the number of samples and observed areas is neither sufficient nor representative of the population and area of Indonesia because of various problems including limited equipment and insufficient funding.

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