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**REPLACES: N 122**

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[CEN/TC 122/WG 1/TG 1](#)

Anthropometric data of children

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Secretariat: DIN

**CEN/TR xxx 'Demands and Availability of anthropometric data of children' -  
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**CEN TC 122 Technical Report  
on the "Demands and  
Availability of  
anthropometric data of  
children in Europe"**

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## EUROPEAN FOREWORD

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This document (prCEN/TR xxx:2019) has been prepared by Technical Committee CEN/TC 122 “Ergonomics”, the secretariat of which is held by DIN.

This document is a working document.

## INTRODUCTION

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The European Committee for Standardization (CEN) has carried out, within CEN/TC 122 “Ergonomics” a project to acquire anthropometric and strength data of children in Europe, initiated by the lack of published data. These data have to be actual and reliable being the basis for the safety, comfort and usability of products used for or with children. From the economic point of view, they are the prerequisite for a successful position of European stakeholders on the international market.

At present, there is no sufficient knowledge neither on the existing anthropometric data and its availability nor on the specific demand of data from the relevant stakeholders. Therefore, the project has been divided in two phases. This technical report is a consequence of the results of the first phase of the project entitled “Analysis of the Demand and Availability of anthropometric data of children in Europe”. This first phase of the project included an extensive research on the demands, necessity and existence of Anthropometric and Strength data of European population under 18 years old. Background information and summary of this research project is provided in clauses 2 to 6 of this Technical Report.

## 1. SCOPE OF THE TECHNICAL REPORT

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This document contains guidance on identifying current (since 2000) reliable anthropometric and strength data sources for European population under the age of 18 years.

It is intended that this Technical Report will give guidance to the stake holders such as the standard makers, designers and manufacturers of products for children on how to identify which currently available anthropometric data sources that are relevant to their needs in terms of age/gender groupings, types of anthropometric data. This technical report can also indicate the lack of data for specific applications hence implicitly indicating caution for the stake holders

This document also provides information about the anthropometric data sources listed within it. This information includes:

- Date of survey
- Organisation who carried out the survey
- Geographic limitations of the survey
- Size and gender of the population measured or scanned
- Types of anthropometric measurements included in them

This Technical Report has two annexes

- Annex A: Definition of body measurements
- Annex B: Existing data sources

## 2. BACKGROUND OF THE PROJECT

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Experts involved in the several CEN Technical Committees (CEN/TC) and working for the standardization projects related to childcare products, toys and articles used by and for children have identified and emphasized the need of having precise and relevant up-to-date anthropometric data, related to the use of this kind of products.

Availability of correct anthropometric data and the use of updated data is important due to the changes in body measures and physical strengths of children along the past 30 years and no European-wide collection of data has been recently conducted to fill the gap in this population.

## 3. DESCRIPTION OF THE PROJECT

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In order to describe the current scenario of anthropometric data of children in Europe, the first phase of the project comprises the following aims:

1. Research on the existence, quality and availability of anthropometric data of children in Europe.
2. Research on the demands from relevant stakeholders on anthropometric data of children with regard to the application of anthropometric data.
3. Comparison of the existence / availability of, and the demands for anthropometric data in order to identify the gap between available data and demands concerning their application.

## 4. ANTHROPOMETRIC DATA NEEDED BY THE STAKE HOLDERS

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The demands on anthropometric data has been explored using an *on-line questionnaire* that has been sent to a long list of stakeholders with needs of children anthropometric and strength data. The stakeholders that have answered the questionnaire were distributed along different groups whose professional activity is related with the design, evaluation and/or commercialization of products for children. A set of *workshops* and individual *interviews* were also performed in order to obtain more detailed information about the demands on children anthropometry and strengths.

Finally, **251 participants from 204 organizations, institutions and companies** answered the questionnaire and **20 participants from 18 organizations, institutions and companies** have participated in the workshops and interviews.

The charts below show the profile of the **participants in the questionnaires**. Figure 1 shows the number of participants in the survey shorted by professional profile. The stakeholders that have filled out the questionnaire mainly belong to the areas of **industry** (designer/product developer and quality expert), **standardization** and **research**. In addition, some participants belong to other areas of industry (marketing, sales, and management) and the areas of laboratories, representative bodies of sector (industrial associations) and consumer associations.

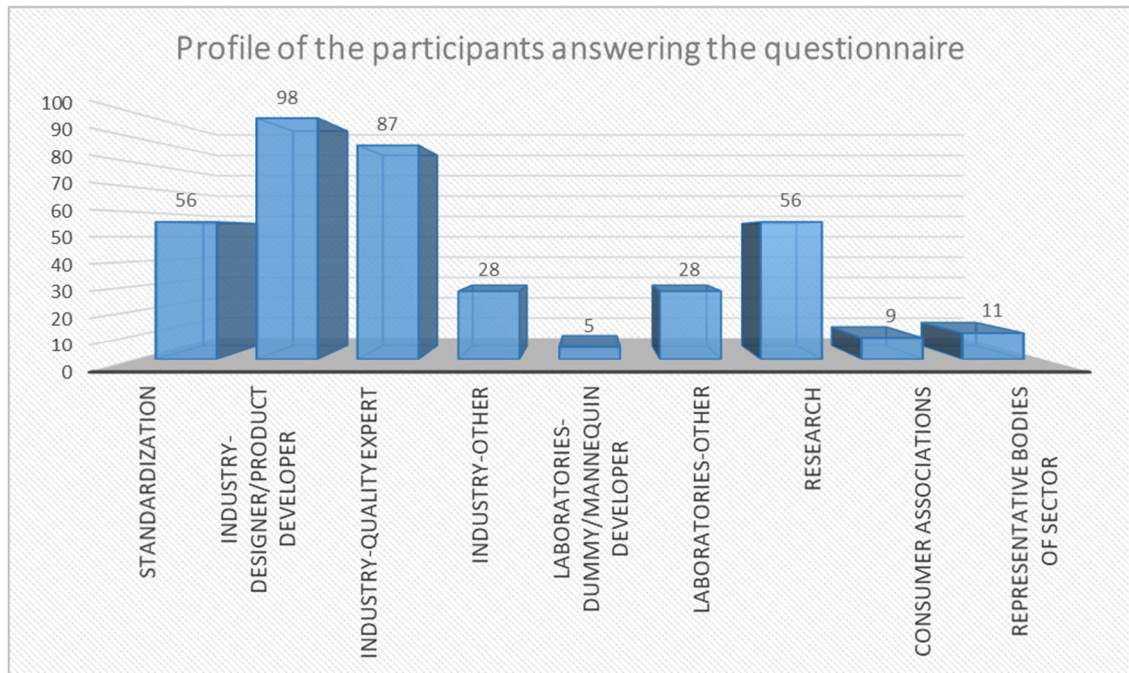


Figure 1. Profile of the participants in the questionnaire.

Figure 2 shows the percentage of participants by sector that have answered the questionnaire. In 'Other', sectors such as personal protective equipment and consumer goods are included. **73% of participants were from Standardization Technical Committees.**

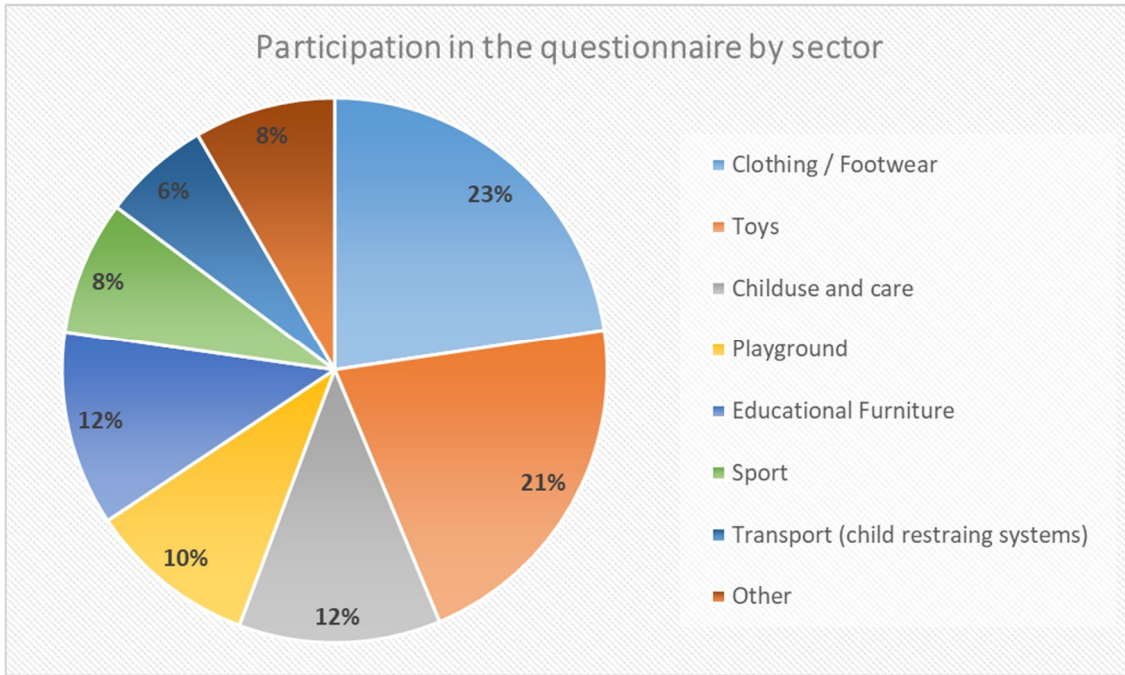


Figure 2. On-line questionnaire: Participation by sector.

The **28 participants in the workshops and interviews** are mainly from areas of the Industry (Designer/Product developer) and Research laboratories/Universities (21%), but also others from the Standardization and Consumer associations (6%), R&D departments or associations of the Industry (3%) and Certification laboratories (4%) have participated.

Figure 3 shows the percentage of participants by sector that have participated in the workshops and interviews.

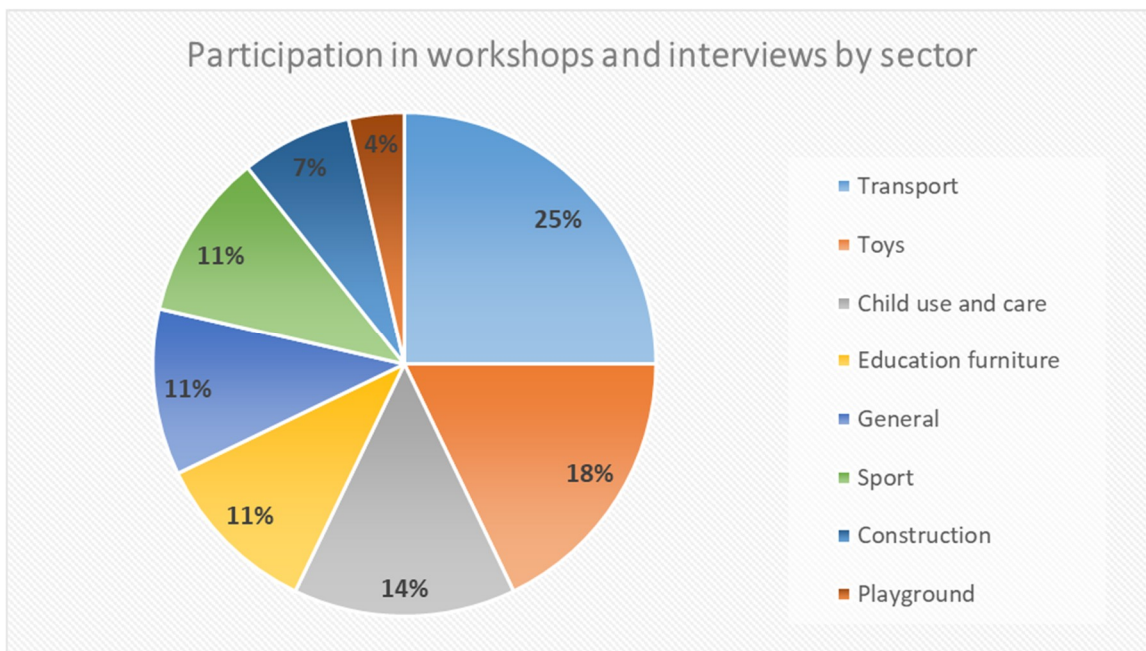


Figure 3. Workshops & Interviews: Participation by sector.

The measurements, sorted by sector and kind of measurement or part of the body, that are relevant for the participants in the questionnaires, workshops and interviews are shown in the following sections.

The colour of the cell is related with the importance of the measurement for the sector. Therefore:

- Measurements in **green** colour are highlighted by 50% of the respondents of the questionnaires and the participants in the workshops consider them **highly relevant**.
- Measurements in **yellow** colour are highlighted by 25% of the respondents of the questionnaires and the participants in the workshops consider them **relevant**.
- Measurements in **white** colour were not mentioned as relevant or necessary for the sector.

The description and illustrations of the measurements are included in the **Annex A**.



## 4.1 HEAD MEASUREMENTS

HEAD	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Head breadth	R	HR	R	HR	HR	R	HR	HR	HR
2 Ear-to-ear (bitragion) breadth		R							R
3 Face breadth (bizygomatic or cheekbones)									
4 Face breadth (brow ridges)									
5 Eye separation (Interpupilar distance)									
6 Bitragion arc of the head									
7 Neck circumference / Neck girth	R	HR	HR		HR	HR	R	R	HR
8 Neck-base girth	R		R			R		R	R
9 Neck breadth	R	HR	R		R	R	R	HR	HR
10 Jaw breadth									
11 Head length		HR	R		R	R	HR		HR
12 Head circumference / Head girth	R	HR	HR		HR	HR		R	HR
13 Maximum head diameter (chin to back of head)		HR	HR		HR				HR
14 Head height (7th Cervicale)			R			R	R	R	R
15 Head height (Vertex to chin)	R	HR	HR	HR		R	R	R	HR
16 Face height									
17 Face length (menton-sellion)									
18 Sagittal arc of the head		R		R		R			R
19 Mouth breadth			HR						HR
20 Mouth opening (between incisors)	R		HR						HR

## 4.2 HAND MEASUREMENTS

HAND	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Hand breadth at metacarpals	R	HR	R	R	HR	R		HR	HR
2 Hand circumference at palm	R	R	HR	HR	HR	R		R	HR
3 Thumb breadth at distal joint		R	HR	HR	HR	R		R	HR
4 Index finger breadth, distal		R	HR	HR	HR			HR	HR
5 Index finger breadth, proximal		R	R	HR	R			R	HR
6 Middle finger breadth at distal joint			HR	HR	HR			HR	HR
7 Middle finger breadth at middle joint			R	HR	R			R	HR
8 Third finger breadth at distal joint			HR	HR	HR			HR	HR
9 Third finger breadth at middle joint			R	HR	R			R	HR
10 Little finger breadth at distal joint		R	HR	HR	HR			HR	HR
11 Little finger breadth at middle joint		R	R	HR	R			R	HR
12 Middle finger length (distal joint to tip)		R	HR	HR	HR			HR	HR
13 Middle finger length (middle joint to distal joint)			R		HR			R	HR
14 Hand length (to thumb crotch)		R	R		R			HR	HR
15 Thumb length					HR	R		R	HR
16 Index finger length	R				HR	R		R	HR
17 Middle finger length	R	HR			HR	R		R	HR
18 Third finger length					HR	R		R	HR
19 Little finger length					HR	R		R	HR
20 Hand length (stylion to wrist crease)	R	R	R	R	R	R	R	R	R
21 Palm length perpendicular				R		R		R	R
22 Hand breadth at thumb	R	HR	HR	HR	R	R	R	HR	HR

HAND	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
23 Hand depth	R	R	HR	HR	R		R	R	HR
24 Hand clearance (maximum aperture)	R	R		HR	R			R	HR
25 Middle finger depth at distal joint				HR	R				HR
26 Middle finger depth at middle joint				HR	R			R	HR
27 Fist depth	R	R	R	HR	R			R	HR
28 Fist circumference			R		R				R
29 Middle finger length (knuckle to middle joint, hand clenched)	R								R
30 Fist breadth	R	R	HR	HR	R			HR	HR
31 Maximum grip diameter (between thumb and index finger)		HR	HR	HR	HR		R	R	HR
32 Maximum grip diameter (between thumb and middle finger)	R	HR	R	HR	HR			R	HR
33 Grip length (middle finger to thumb)	R	HR	R					R	HR
34 Thumb diameter (minimum aperture)		R	R	HR	HR			R	HR
35 Index finger diameter (minimum aperture)	R	R	HR	HR	HR			HR	HR
36 Middle finger diameter (minimum aperture)	R	R	HR	HR	HR			R	HR
37 Little finger diameter (minimum aperture)		HR	HR	HR	HR			R	HR

### 4.3 FOOT MEASUREMENTS

FOOT	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Foot breadth	R	HR	R	HR	HR	R	R	HR	HR
2 Distance heel – 1 <sup>st</sup> metatarsal						R			R
3 Distance heel – 5 <sup>th</sup> metatarsal								R	R
4 Toes width								HR	HR
5 Toes girth									
6 Ball girth			R			R			R
7 Instep girth						R			R
8 Minimum leg girth						R			R
9 Ankle height	R					R		R	R
10 Ankle breadth	R	HR				R			HR
11 Ankle circumference		R				R			R
12 Heel breadth		R				R			R
13 Foot height		HR		HR	HR	R		HR	HR
14 Foot length	R	HR	R	HR	HR	HR	R	HR	HR
15 Forefoot length		R	R						R
16 Height of 1 <sup>st</sup> toe		R	R	HR				HR	HR
17 Height of 1 <sup>st</sup> metatarsal		R	R		HR			HR	HR
18 Instep height			R			R		HR	HR
19 Heel height									
20 Heel to instep girth						R			R
21 Height of lateral malleolus		R						HR	HR
22 Height of 5 <sup>th</sup> metatarsal								HR	HR
23 Height of 5 <sup>th</sup> toe								HR	HR

## 4.4 STANDING MEASUREMENTS

STANDING	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Body length / Stature	R	HR	HR	HR	HR	HR	HR	HR	HR
2 Diagonal trunk girth / Trunk circumference						R			R
3 Back neck height / Cervicale height	R	HR			HR		R		HR
4 Trunk length / Torso height						HR	R		HR
5 Chin height		R		HR					HR
6 Eye height (from floor)					HR		R	R	HR
7 Upper arm length						HR	R		HR
8 Centre trunk length					HR	HR			HR
9 Arm length to acromion/ Outer arm length						HR	R		HR
10 Cervical height (contour) / Back neck point to ground (contoured)						R		R	R
11 Cervical to knee hollow / Back neck point to knee								R	R
12 Arm length to neck back (7th Cervicale) / Back neck point to wrist length						HR	R		HR
13 Back waist length (Cervicale to waist) / Back neck point to waist						HR	R		HR
14 Buttock height at gluteal furrow	R	R			R		R	R	R
15 Shoulder height from floor	R	R	HR		HR		R	R	HR
16 Bust points around neck						R			R
17 Bust width						R			R
18 Waist breadth (at navel)			HR		HR			R	HR
19 Crotch height	R	HR			R	HR	R		HR
20 Chest height at armpit					R				R
21 Front waist length / Side neck point to waist level						R			R
22 Chest breadth at nipples							R	R	R

STANDING	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
23 Waist circumference						HR			HR
24 Iliac spine height, standing						R			R
25 Waist height		R							R
26 Neck shoulder point to breast point/Side neck point to bust point						R			R
27 Chest circumference / Bust girth						HR		R	HR
28 Mid-riff girth						R			R
29 Waist to hip (trochanter) / Side waist to hip						R			R
30 Hip circumference (trochanter)			HR			HR	R	R	HR
31 Chest girth (at axilla)						HR			HR
32 Underbust girth						HR			HR
33 Hip breadth (trochanter)		HR	HR				R	R	HR
34 Hip height at trochanter						R		R	R
35 Hip circumference (buttock) / Hip girth			HR			HR	R		HR
36 Waist to hips (trochanter)						HR			HR
37 Top hip height						R			R
38 Buttock height at maximum depth / Maximum hip girth height						R			R
39 Upper hip height						R			R
40 Front width (armpit level)						R			R
41 Chest breadth at armpit						R			R
42 Chest breadth, standing (mesosternal level)									
43 Upper arm depth						R			R
44 Armscye girth						R			R
45 Lower arm breadth								R	R
46 Wrist breadth						R			R
47 Upper arm circumference at armpit		R				HR		R	HR

STANDING	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
48 Upper arm circumference / Upper arm girth		R				HR			HR
49 Elbow girth		R				HR			HR
50 Lower arm circumference		R				R			R
51 Wrist circumference		R	R			HR			HR
52 Under arm length						R		R	R
53 Wrist depth						R			R
54 Outside leg length						HR	R	R	HR
55 Thigh length						HR	R		HR
56 Upper thigh circumference / Thigh circumference						HR			HR
57 Knee height (midpatella), standing	R	R			R	HR			HR
58 Tibiale height	R	R				R			R
59 Maximum depth of the body, standing (bust or abdomen) / Body depth, standing			R			R			R
60 Abdomen/hip depth						R		R	R
61 Thorax depth at nipple / Bust depth (nipples level)			R			R			R
62 Cervical to breast point / Back point to bust point						R			R
63 Cervical to waist / Back neck point to waist level						R			R
64 Body rise / Straight body rise						HR			HR
65 Total crotch length						HR			HR
66 Crotch length (back)						HR			HR
67 Crotch length (front)						HR			HR
68 Elbow-wrist length					HR	R			HR
69 Forearm-fingertip length	R	R			HR		R	R	HR
70 Upper thigh depth						R			R
71 Calf height (at maximum circumference)						R			R
72 Calf depth									

STANDING	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
73 Calf circumference		R				R			R
74 Knee circumference / Knee girth		R				HR			HR
75 Lower knee circumference / Lower knee girth		R				R			R
76 Shoulder breadth (bideltoid)	R	HR					R	R	HR
77 Shoulder breadth (biacromial)						R			R
78 Shoulder slope					HR	R			HR
79 Shoulder width / Back shoulder width						R			R
80 Shoulder length						HR			HR
81 Back width (armpit level)					R	R			R
82 Back width / Across back width						R			R
83 Scye depth						R			R
84 Elbow to elbow breadth		R			HR		R	R	HR
85 Chest depth, standing			R			R			R
86 Elbow height (from floor)					HR				HR
87 Mid-thigh circumference / Mid-thigh girth						R			R



## 4.5 SUPINE MEASUREMENTS

Measurements in supine posture are a specific set of the standing measurements that are taken in children under 24 months and only before they can stand up.

SUPINE	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Body length, crown to sole (Supine) /recumbent length	R	HR	HR		HR	R	HR	HR	HR
2 Shoulder height (supine)		HR	R		R	R	HR		HR
3 Elbow height (supine)		R	R		R	R	R		R
4 Hip depth (supine)		R	R		HR	R	R	R	HR
5 Mid-thigh circumference (supine)		R				R	R		R
6 Buttock to popliteal length (supine)	R	R	R		R		R		R
7 Mid-thigh depth (supine)		R			HR		R		HR
8 Lower leg length, knee to sole (supine)		R			R	R	R	R	R
9 Lower leg length, popliteal to sole (supine)		R	R		R	R	R		R
10 Sitting height / Crown to rump (supine)		HR	HR		HR	R	HR	HR	HR
11 Leg length, buttock to sole (supine)	R	HR	R		HR	R	HR	R	HR
12 Waist breadth (in infants)		HR	HR		HR	R	HR	R	HR
13 Waist circumference (maximum in infants)		R	R		HR	R	R		HR
14 Hip breadth, standing (maximum in infants)	R	HR	HR		HR	R	HR	R	HR

## 4.6 SITTING MEASUREMENTS

SITTING	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Shoulder height, sitting			HR		HR	R			HR
2 Hip breadth, sitting (maximum when seated)	R	HR	R		HR	R	HR	HR	HR
3 Thigh breadth (maximum when seated)					HR		R		HR
4 Knee breadth, sitting					HR		R		HR
5 Sitting height	R	HR	HR		HR	R	HR	HR	HR
6 Eye height, sitting			R		HR		HR		HR
7 Cervical height, sitting / Back neck height, sitting	R				HR	R			HR
8 Shoulder- elbow length		R	R		HR	R	HR		HR
9 Elbow height, sitting					HR	R	R	R	HR
10 Abdominal depth, sitting					HR	R	HR		HR
11 Buttock – abdomen depth, sitting		R			HR	R	HR	HR	HR
12 Buttock to popliteal length, sitting (seat depth)	R	R	HR		HR		HR		HR
13 Buttock to knee length, sitting	R	R	R		HR		R	R	HR
14 Thigh clearance, (depth) sitting			R		HR	R	HR		HR
15 Knee height, sitting	R	HR	R		HR	R	HR	R	HR
16 Popliteal height, sitting	R	HR	HR		HR		HR	R	HR

## 4.7 REACH MEASUREMENTS

REACH	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Span	R	HR	HR		R			HR	HR
2 Elbow span		R			R		R	R	R
3 Sideways reach to grip (standing)		HR			HR			HR	HR
4 Knuckle height (from floor)		R			HR			R	HR
5 Middle finger tip height (from floor)					R			R	R
6 Wall-acromion distance		R							R
7 Fist (grip axis) height		R						R	R
8 Arm length to fingertip	R	R	HR		HR		R	HR	HR
9 Arm length to grip		HR			HR				HR
10 Forward reach to grip (standing) / Grip reach, standing	R	HR			HR			HR	HR
11 Elbow height (from floor)	R	R			HR			HR	HR
12 Elbow – grip length		R						R	R
13 Step height	R	HR	HR		HR			HR	HR
14 Overhead reach to grip (standing)	R	HR	R	HR	HR		R	R	HR
15 Overhead reach to grip (sitting)		HR	R		HR		R	HR	HR
16 Forward reach to grip (sitting)		R	HR		HR		R	R	HR
17 Forward reach to grip (stretching and seated)		R	HR		R			R	HR
18 Forward reach to fingertip (stretching and seated, legs outstretched)		R			R			R	R
19 Leg length, buttock to sole (sitting)		HR			HR		R		HR
20 Overhead reach to fingertip (on tiptoes)		HR		HR	R				HR
21 Overhead reach to fingertip (jumping)		HR							HR

## 4.8 STRENGTH MEASUREMENTS

HAND STRENGTH	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Finger Push	R	R	HR		HR		R	HR	HR
2 Pinch (finger tips)	R	R	HR		HR		HR	R	HR
3 Pinch (lateral)	R		R		HR		R		HR
4 Pinch-Pull	R	R	HR	HR	HR		R	R	HR
5 Hand Grip	R	HR	R		HR				HR
6 Hand pushing	R	R	HR		HR				HR
7 Hand Pulling	R	HR	HR	HR	HR				HR
8 Shear			R		HR				HR
WRIST STRENGTHS	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Twisting (With hand)	R	R	HR	HR	HR			HR	HR
2 Twisting (finger tips)			HR		HR			R	HR
3 Opening			R		HR			R	HR
LEG/ FEET STRENGTHS	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Press with the foot	R		R	R	HR			HR	HR
2 Feet pushing forwards				R	HR			R	HR
3 Lift with the foot	R	HR		R	HR			R	HR
MOUTH STRENGTHS	TOYS	PLAYGROUND	CHILD USE AND CARE	SPORT	EDUCATIONAL FURNITURE	CLOTHING	RESTRAINT TRANSPORT	CONSTRUCTION	GLOBAL
1 Biting	R		HR		HR		R		HR

2 Lip strength			R					R	R
<b>UPPER BODY/ TRUNK STRENGTHS</b>	<b>TOYS</b>	<b>PLAYGROUND</b>	<b>CHILD USE AND CARE</b>	<b>SPORT</b>	<b>EDUCATIONAL FURNITURE</b>	<b>CLOTHING</b>	<b>RESTRAINT TRANSPORT</b>	<b>CONSTRUCTION</b>	<b>GLOBAL</b>
1 Pushing Forwards	R	R	HR	R	HR			HR	HR
2 Pushing downwards	R	R	HR	R	HR			HR	HR
3 Pushing sideways		R	R	R	HR			R	HR
4 Pulling	R	R	HR	R	HR			HR	HR
5 Lifting		R	HR	R	HR			R	HR
6 Hitting force	R	R	R	R	R			R	R
7 Pushing with the shoulder		R			HR			R	HR
8 Hanging by the arms	R	R			R			R	R
9 Chair push-up		R	R		HR				HR

## 5. EXISTING DATA SOURCES

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An exhaustive search on the existing anthropometric and strength data of children relevant for the design of safety and ergonomic products has been carried out in the project, identifying all the relevant information required to analyse the scope, representability and availability of data.

### 5.1 METHODOLOGY

The search of data has been performed on an exhaustive set of scientific, technical and commercial literature between June and December of 2015. New studies that have been identified after this date are included in the set of existing data. The review has explored different sources of information to generate the resulting databases:

- **Scientific search engines:** Web of science, Scopus, ScienceDirect, Medline (PubMed), Plos One and Google Scholar.
- **Scientific online networks:** Researchgate. The citations of identified publications were also screened for additional resources.
- Network of contacts of CEN-TC122 members, including technological centers, research organizations and companies.
- Information provided by experts from different CEN Technical Committees.
- Standards related to anthropometry or children products.
- Those stakeholders participating in the online survey developed in WP2, “Demands on anthropometric data”, who have informed that they have their own anthropometric database of children.
- **Google engine:** For commercial and research websites that are not published on scientific sources.

The parameters that were considered for the inclusion of data in the results of the present research are explained hereafter:

- **Geographical scope.** The review is focused on studies considering population from the EU-28, Switzerland, Turkey, Norway, Russia and Belarus.
- **Year of generation of the database.** The review has been focussed on data acquired in the year 2000 or later. Previous data could be affected by secular changes.
- **Demographic aspects.** The review includes databases of children from 0 to 18 years old of both genders. Those studies focused on pathologies have not been considered. In the case of strength review, studies focused on children involved in sport activities have not been considered.
- **Sample size.** It represents the number of children measured to generate the database. No limitation was applied to identify existing databases.
- **Acquisition procedure.** Regarding the anthropometric surveys, the review includes references involving both traditional acquisitions based on the use of instruments such as stadiometers or measuring tapes and 3D acquisitions obtained through 3D scanners or similar. Regarding strength surveys, the review includes studies involving both measurements of isometric (static) forces and isokinetic (dynamic) forces as well as other methods.

## 5.2 CHARACTERIZATION OF DATABASES

Table of the existing data is shown in two tables in the Annexe B. Both tables have complementary information and some coincident parameters. Table B.1 contains information about the generation of the database (author, organization, year of publication, ...) and Table B.2 describes the contents of the databases regarding the kind of measurements and measurement protocols. Some parameters are repeated in table B.1 and table B.2 because they are useful to link both tables and to understand the contents and description of each database. The rows per page of both tables are completely aligned, so as they can be printed and physically overlapped in order to consult all the information about each data source.

The parameters of both tables are described in the sections hereafter.

### A. Identification of the database

#### 1. CODE OF THE DATABASE

The databases are named with an exclusive identifier including the following information in the codification:

- *Country*: the codification of the country is based in the system of three letters of the standard ISO 3166-1 alfa-3 (A3).
- *Year of publication*.
- *Year of the survey*. When the measurements have been taken.  
*Part of the body. The codification is shown in*
- Table 1.
- *Single identifier*. A number of two figures is used to distinguish databases that share the same previous parameters.

Parts of the body				
<b>A0</b> Full body	<b>B0</b> Head & neck	<b>C0</b> Trunk	<b>D0</b> Upper limbs	<b>E0</b> Lower limbs
	<b>B1</b> Head	<b>C1</b> Thorax	<b>D1</b> Shoulder and upper arm	<b>E1</b> Hip & Thigh
		<b>C2</b> Abdomen	<b>D2</b> Elbow and forearm	<b>E2</b> Knee & leg
<b>B2</b> Neck	<b>C3</b> Pelvis	<b>D3</b> Wrist and hand	<b>E3</b> Ankle & foot	

*Table 1. Codification of parts of the body.*

#### 2. STUDY NAME (Title)

This is the title of the publication (paper, thesis, web name, etc.) where the study is described and some results are published.

#### 3. NAME OF THE DATABASE/STUDY

In case that the database or the study has been named with a proper name, it is included in this parameter.

#### 4. AUTHOR AND ORGANIZATION

Name of the first author of the publication and the organization he or she belonged to when the study was published.

#### B. Context of the database

#### 5. YEAR OF PUBLICATION

This is the year of the publication.

#### 6. YEAR OF THE SURVEY

This is the year (or years) when the survey was performed.

#### 7. COUNTRY

This is the country where the study was performed.

#### 8. AREA OF EUROPE

The areas of Europe have been defined *ad hoc* for the project as it follows:

- *Northern Europe*: Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden, United Kingdom. Non-EU: Iceland, Norway.
- *Western Europe*: Austria, Belgium, France, Germany, Luxembourg, Netherlands. Non-EU: Switzerland.
- *Southern Europe*: Croatia, Cyprus, Greece, Italy, Malta, Portugal, Slovenia, Spain. Non-EU: Turkey, Albania, Macedonia, Serbia, Kosovo, Bosnia-Herzegovina, Montenegro.
- *Eastern Europe*: Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia. Non-EU: West Russia, Belarus, Moldova and Ukraine.
- *General*: Studies that include population from different countries.

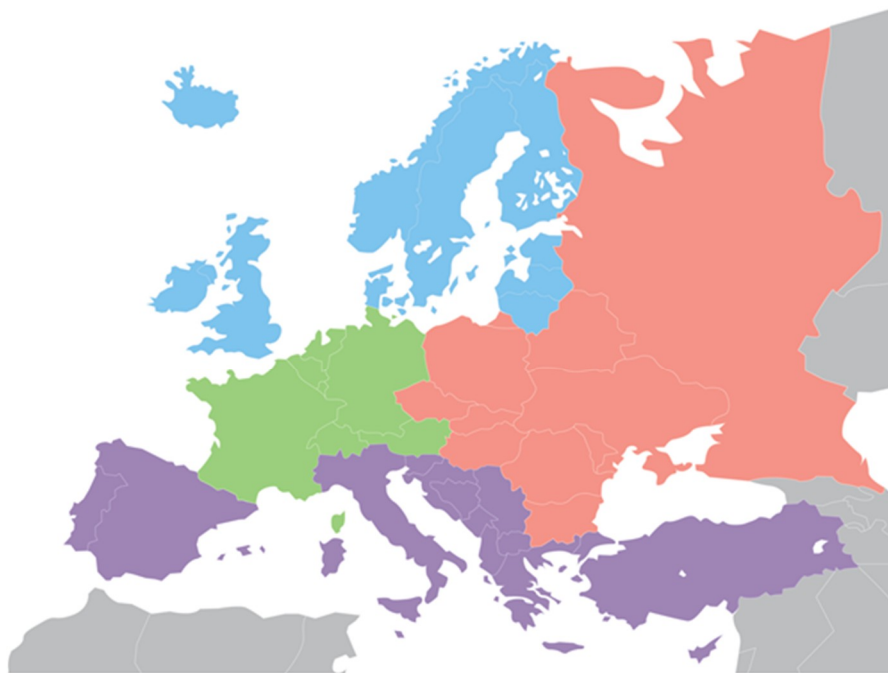




Figure 4. Regions of Europe. Blue: Northern Europe; Red: Eastern Europe; Green: Western Europe; Purple: Southern Europe.

## C. Description of the sample

### 9. AGE RANGE

Minimum and maximum ages of the population measured in the study.

### 10. GENDER

It is referred to the gender of the population measured in the study:

- M: Only males
- F: Only females
- M&F: Both males and females have been measured in the study.

### 11. BOYS SAMPLE SIZE

Number of males measured in the study of all age groups.

### 12. GIRLS SAMPLE SIZE

Number of females measured in the study of all age groups.

## D. Characterization of the measurement protocol

### 13. CATEGORY

This parameter is related with the kind of dimensions considered in the scope of the study and the number of measurements taken in the survey. Seven categories have been defined in order to represent the potential of these databases in terms of kind of data and number of acquired body measurements:

- *Ant-Basic*: It includes Height and Weight and some of the following measurements: Waist circumference, Hip circumference, Head circumference, Arm circumference, Forearm circumference, Arm span and Hand breadth.
- *Ant-Reduced*: The number of anthropometric measurements is between 7 and 15 measurements, including the Basic set.
- *Ant-Mid-extended*: The number of anthropometric measurements is between 16 and 25.
- *Ant-Extended*: The number of measurements is between 26 and 60.
- *Ant-Full extended*: The number of measurements is higher than 75.
- *Ant-Body part*: Databases that are focused on gathering the anthropometry of some part of the body.
- *Strengths*: Studies that are focused on strengths, that they usually include between 1 and 12 measurements.

### 14. MEASUREMENT METHOD

This parameter is about the measurement method that was used to gather the measurements of the population:

- *Traditional*: Anthropometric data measured using manual or traditional instruments.

- *3D Scanner*: Anthropometric measurements obtained from a 3D representation of the body, registered with a 3D scanner.
- *3D Scanner & Traditional*: The database includes measurements taken with both of the previous methods.
- *Images*: Anthropometric measurements taken from images of the body or a part of the body.
- *Images & Traditional*: The database includes anthropometric measurements taken from images and also using traditional instruments.
- *Others (anthropometry)*: Other methods different than the previous ones have been used to take anthropometric measurements.
- *Isometric*: Static forces (they do not involve the movement of the body).
- *Isometric & Isokinetic*: Both static and dynamic forces.
- *Eurofit test battery*: Studies that have measured the set of the Eurofit test battery.
- *Isometric & Others*: Both static and other kind of forces (but not dynamic forces).
- *Others (strengths)*: Other methods different than the previous ones have been used to take strength measurements.

## 15. PART OF THE BODY

This parameter is about the part of the body that has been measured or that is related with the measurements taken in the study:

- *Full body*: Both anthropometric or strength measurements that are related with the full body.
- *Head*: Anthropometric measurements of the head.
- *Hand*: Anthropometric measurements of the hand.
- *Foot & ankle*: Anthropometric measurements of feet or ankles.
- *Arms/Upper body*: Strengths performed with the arms or the upper part of the body.
- *Legs/feet*: Strengths performed with the legs or feet.
- *Hand/ Wrist*: Strengths performed with the hand or the wrist.
- *Wrist*: Strengths performed with the wrist.
- *Fingers*: Strengths performed with the fingers.

### E. Kind of measurements

The parameters included in this section show the kind of measurements included in the database. There are two sets of measurements and the possible values of those parameters are only three: *Yes* when this kind of data is included in the database. *Unknown* when there is a suspicion about the presence of these measurements in the database but it cannot be confirmed. *Blank* if this kind of data is not included in the database.

The two sets of parameters are the following:

- *Anthropometric measurements*. They refer to the measurements described in sections 1 to 7 of the Annex A.
  - *Basic measurements*. The database includes the basic set of anthropometric measurements (i.e. Height and Weight and some of the following measurements: Waist circumference, Hip circumference, Head circumference, Arm circumference, Forearm circumference, Arm span and Hand breadth.)
  - *Hand dimensions*.
  - *Foot dimensions*.

- *Head dimensions.*
  - *Seated dimensions.*
  - *Standing / Supine dimensions.*
  - *Reach dimensions.*
- *Strength measurements.* They refer to the measurements described in section 8 of the Annex A.
- *Grip strength.* This measurement is the most frequent in the studies about strengths, therefore it has been created a specific category.
  - *Measurements related to physical fitness tests,* such as explosive strength, endurance, flexibility.
  - *Hand strength.* They are related to more than one hand strength, such as grip, pinch, etc.
  - *Muscle strength.* They are related to more than one individual muscle group strength, such as elbow flexion and extension, knee flexion and extension, etc.
  - *Wrist strength.* Strength that are performed with the wrist and the hand does not have a significant role.
  - *Strength related to actions.* They are related to specific actions, such as pushing, opening, biting, etc.
  - *Trunk strength.* Strength that are performed with the trunk and the arms and hands do not play a significant role.
  - *Fingers' strength.* When the measured forces are of specific movements of the fingers.

The summary of the existing data in four age groups and organized by kind of data as it follows:

- Anthropometric data:
  - Basic dimensions
  - Standing/Supine
  - Seated
  - Reaches
  - Head
  - Hand
  - Foot
- Strengths

Age range	0-2 years old	2-4 years old	5-10 years old	11-18 years old
<b>Basic anthropometric dimensions</b>	Databases in Northern (2db), Southern (3db), Western (3db) and Eastern Europe (1db). Statistics only in Southern and Northern Europe.	Databases in Southern (8db), Western (6db), Northern (5db) and Eastern Europe (2db) Statistics in all regions.	Databases in Eastern (5db), Northern (22db), Southern (24db) and Western (22db) Europe. Statistics in all regions.	Databases in Southern (32db), Northern (19db), Western (22db) and Eastern (10db) Europe. Statistics in all regions.
<b>Standing /supine</b>	Databases in Northern (1db), Southern (3db), Western (3db) and Eastern Europe (1db). Statistics only in Southern and Northern Europe.	Databases in Southern Europe (4db) and Western Europe (7db) and uncompleted databases in Northern (4db) and Eastern Europe (1db). Traditional and 3D scanner measurements and statistics in all regions. Raw data in Western Europe and avatars in Northern and Western Europe.	Databases in: Eastern (5db): Statistics, Graphs and Avatars Northern (6db): Statistics & Avatars Southern (16db): Statistics, Graphs, Avatars & raw data Western (8db): Statistics & raw data	Databases in: Eastern (5db): Statistics, Graphs and Avatars. Southern (12db): Statistics, Graphs, Avatars & raw data. Uncompleted databases: Northern (5db): Statistics & Avatars. Western (5db): Statistics & raw data
<b>Seated</b>	No existing data.	Uncompleted databases in Western, Northern and Southern Europe. Published statistics only of traditional data of Western and Northern Europe.	Databases in Southern (11db) and Western (3db) Europe and uncompleted databases in Northern (3db), Eastern (2db) Europe (uncertainty).	Databases in: Southern (7db) and Western (1db) Europe and uncompleted databases in Northern (3db) and Eastern (2db) Europe.
<b>Reaches</b>	No existing data.	Uncompleted databases in all regions of Europe. Statistics only in Northern and Eastern Europe.	Databases in Southern (5db) Europe and uncompleted databases in Eastern (3db), Northern (3db) and Western (2db) Europe. Statistics in all regions except Northern Europe.	Uncompleted databases in Southern (3db), Eastern (3db), Northern (3db) Europe.
<b>Head</b>	Uncompleted database (1db) in Western Europe (3D and traditional).	Uncompleted databases with statistics in Western (3db), Southern (2db), Eastern (1db) and Northern (1db) Europe.	Databases in Western (2db), Southern (1db) and Northern (3db) Europe. 3D scanner measurements from the Northern (1db) and Western (1db) databases. Images from the same three regions. No data in Eastern Europe.	Uncompleted data in Northern (2db) Europe.
<b>Hand</b>	No existing data.	Uncompleted databases in Northern and Southern Europe.	Databases in Southern (2db), Northern (6db) and Western (2db) Europe.	Uncompleted database in Northern (4db), Southern (4db), and Western (2db) Europe.
<b>Foot</b>	Uncompleted database in Southern and Western Europe.	Databases in Southern & Western Europe from 3D scanners.	Databases in Northern (1db), Southern (1db) and Western (1db) Europe. All data comes from 3D scanners. Statistics only published in Southern Europe. No data in Eastern Europe.	Uncompleted databases in Southern (1db) and Western (1db) Europe. Data from 3D scanners.
<b>Strengths</b>	No existing data.	Uncompleted databases in Northern (Arms/Upper body) and Western Europe (hand, fingers and legs-feet).	Uncompleted data in: Northern (11db): Hand, Legs-feet and full body Southern (9db): Hand and Full body Western (12db): Hand, fingers, wrist, legs-feet and Full body	Databases in: Northern (9db): Hand, legs-feet and arms-upper body and full body. Southern (15db): Hand, arms-upper body and full body Western (12db): Hand, wrist, fingers, legs-feet and full body.

Table 2. Summary of the existing data.

## 6. INFORMATION ON DATA GAPS

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The summary of the main gaps regarding the existence of anthropometric and strength data of European children are listed in the table below, considering the existence of 2D-3D anthropometric databases.

The summary of the gaps among the databases is also organized in four age groups and by kind of data as it follows:

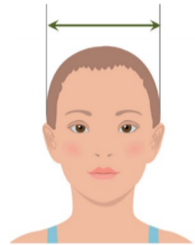
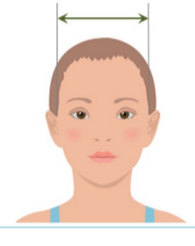
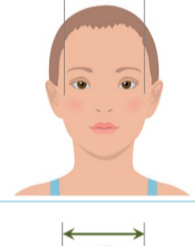
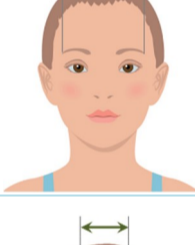
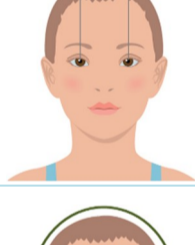
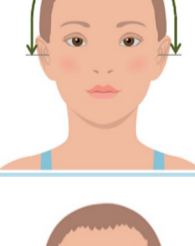
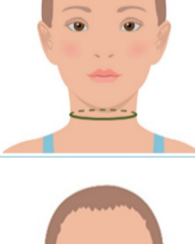
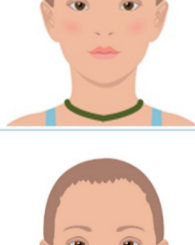
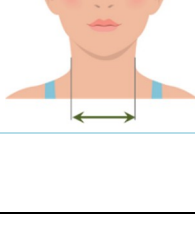
- Anthropometric data:
  - Basic dimensions
  - Standing/Supine
  - Seated
  - Reaches
  - Head
  - Hand
  - Foot
- Strengths

Age range	0-2 years old	2-4 years old	5-10 years old	11-18 years old
<b>Basic anthropometric dimensions</b>	Missing statistics in Eastern and Western Europe.	No lack of data.	No lack of data.	No lack of data.
<b>Standing /supine</b>	Missing statistics in Eastern and Western Europe.	Northern: Missing age groups. Eastern: Missing sample and age groups. Western and Southern: No lack of data.	Eastern, Western and Northern: Missing age groups. Southern: No lack of data.	Eastern, Southern: No lack of data. Northern: Missing age groups. Western: Not enough information to conclude.
<b>Seated</b>	Missing data in all regions of Europe.	Eastern Europe: Missing data. Western: Not enough information to conclude. Southern and Northern: Missing age groups.	Eastern: Missing age groups. Northern: Missing age groups and sample.	Eastern: Missing age groups. Northern: Missing age groups.
<b>Reaches</b>	Missing data in all regions of Europe.	Southern and Eastern: Missing age groups and set of measurements. Northern and Western: Missing data.	Eastern: Traditional and 3Dscanner. Northern: Missing sample size. Southern and Western: No lack of data.	Eastern: Missing age groups and sample. Southern: Missing age groups and sample. Northern and Western: Missing data.
<b>Head</b>	Missing data in Southern, Northern and Eastern Europe.	Western Europe: Missing sample size. Southern, Northern and Eastern: Missing age groups.	Northern: Missing age groups. Southern: Missing age groups and sample. Western: Missing age groups of traditional or 3Dscanner. Easter: Missing data.	Missing data in all regions of Europe.
<b>Hand</b>	Missing data in all regions of Europe.	Western and Eastern Europe: Missing data Southern Europe: Missing age groups. Northern Europe: Missing sample size and measurements.	Northern: Missing sample and age groups. Western: Missing sample. Eastern: Missing data.	Missing data in Eastern Europe. Missing age groups and sample in other regions.
<b>Foot</b>	Missing age groups in Southern and Western Europe and missing data in Northern and Eastern Europe.	Missing data in Northern and Eastern Europe.	Northern Europe: Missing age groups. Eastern Europe: Missing data.	Missing data in Eastern and Northern Europe. Southern and Western Europe: Missing age groups.
<b>Strengths</b>	Missing data in all regions of Europe.	Western and Northern Europe: Missing age groups and set of measurements. Southern and Eastern regions: Missing data.	Missing data in Eastern Europe.	Missing data in Eastern Europe.

## ANNEX A (INFORMATIVE) DEFINITION OF BODY MEASUREMENTS

Tables A.1 to A.8 provide information on the definition of body parts for which anthropometric data is provided in one or more data sources listed in Table B.1. Where available, references to the international anthropometric definitions in ISO 7250 and/or ISO 8559 are made for each body dimension.

**TABLE A.1 HEAD**

HEAD		
1	<p><b>Head breadth (ISO 7250-1: 6.3.10) &amp; Childata: 8</b></p> <p>Maximum breadth of head above the level of the ears, measured perpendicular to the midsagittal plane. Position of head has no influence on the measurement.</p> <p><i>Instrument:</i> Spreading caliper</p>	
2	<p><b>Ear to ear (bitracion) breadth (Childata: 13)</b></p> <p>The distance from the right to the left tracion (the cartilaginous or fleshy projection in front of the entrance to the ear). The subjects sit erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides.</p> <p><i>Instrument:</i> Sliding caliper.</p>	
3	<p><b>Face breadth (bizygomatic or cheekbones) (Childata: 14)</b></p> <p>The maximum horizontal breadth of the face between the cheekbones (the zygomatic arches) The subjects sits erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides.</p>	
4	<p><b>Face breadth (brow ridges) (Childata: 15)</b></p> <p>The horizontal distance across the bony ends of the brow ridges. The subjects sit erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides.</p>	
5	<p><b>Eye separation (Interpupilar distance) (Childata: 21)</b></p> <p>The horizontal distance between the centres of the pupils of the eyes with the subject looking straight ahead.</p>	
6	<p><b>Bitracion arc of the head (ISO 7250-1: 6.3.14)</b></p> <p>Arc from one tracion over the crown of the head to the other tracion perpendicular to the Frankfurt and sagittal arc. Tape measure is held on the tracion of one side of the head and led over the crown to the tracion on the other side. Hair shall be included in the measurement.</p> <p><i>Instrument:</i> Tape measure.</p>	
7	<p><b>Neck circumference (ISO 7250-1 (2017): 6.4.9) – Neck girth (ISO 8559-1: 5.2.2)</b></p> <p>Girth of the neck at a point just below the bulge at the thyroid cartilage (Adam’s apple), and measured perpendicular to the longitudinal axis of the neck. Subject sits or stands erect with head in the Frankfurt plane.</p> <p><i>Instrument:</i> Tape-measure.</p>	
8	<p><b>Neck-base girth (ISO 8559-1: 5.2.3)</b></p> <p>Girth of the base of the neck measured over Cervicale, the neck shoulder points, and the medial superior borders of the left and right clavicles. Subject sits or stands erect with head in the Frankfurt plane.</p> <p><i>Instrument:</i> Tape-measure, or Chainette and scale.</p>	
9	<p><b>Neck breadth (Childata: 25)</b></p> <p>The breadth at the mid-point of the neck perpendicular to the long axis of the neck is measured. The subject sits erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides.</p>	

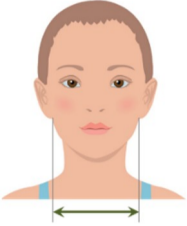
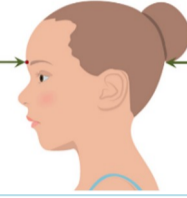

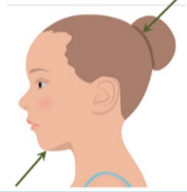
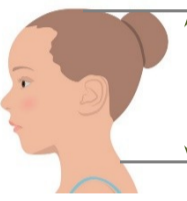


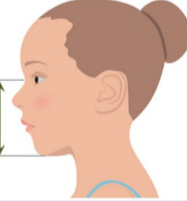
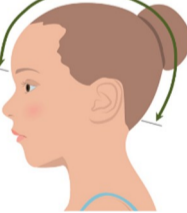
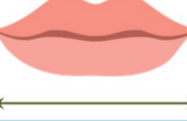

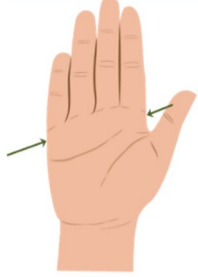
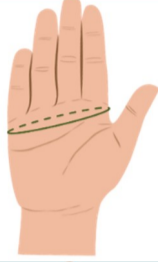
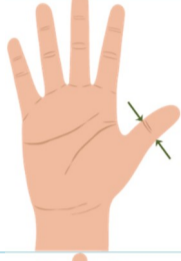

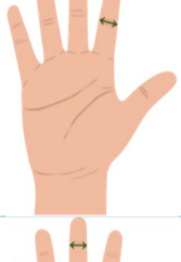
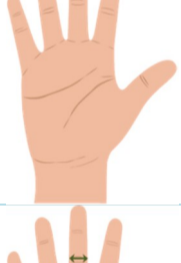
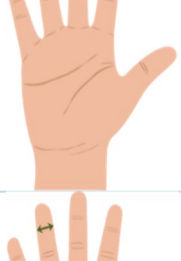
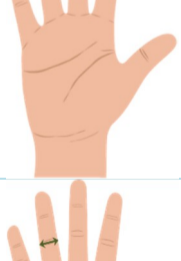

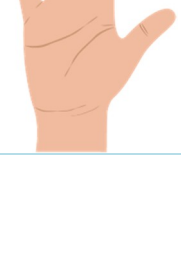
10	<p><b>Jaw breadth (Childata: 16)</b></p> <p>The maximum breath at the lowest and widest points on the jaw bone (mandible) is measured (between the left and right gonion). The subject is placed or held in seated position.</p>	
11	<p><b>Head length (ISO 7250-1: 6.3.9) – Childata: 9</b></p> <p>The distance along a straight line from the most anterior protrusion of the forehead (glabella) to the most posterior point on the back of the head (opisthocranium). Position of head has no influence on the measurement.</p> <p><i>Instrument: Spreading calliper</i></p>	
12	<p><b>Head circumference (ISO 7250-1: 6.3.12) / Head girth (ISO 8559-1: 5.2.1) – Childata: 10</b></p> <p>Maximum, approximately horizontal, girth of head measured above glabella and crossing the rearmost point of the head. Hair shall be included in the measurement. Subject sits or stands erect with head in the Frankfurt plane.</p> <p><i>Instrument: Tape-measure.</i></p>	
13	<p><b>Maximum head diameter (chin to back of head) (Childata: 12)</b></p> <p>The rectilinear distance from the chin to the crown of the head. The subjects stand erect with head in the Frankfurt plane and jaws closed.</p> <p><i>Instrument: Spreading calliper.</i></p>	
14	<p><b>Head height (7<sup>th</sup> Cervicale)</b></p> <p>The height of the head from the vertex (top of the head) to the 7<sup>th</sup> Cervicale. The subjects sit erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides.</p>	
15	<p><b>Head height (Childata: 11)</b></p> <p>The height of the head from the vertex (the top of the head) to the menton (bottom of the chin). The subjects sit erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides.</p> <p><i>Instrument: Sliding caliper</i></p>	
16	<p><b>Face height (Childata: 17)</b></p> <p>The vertical distance of the face from the crinion (the top of the brow) to the menton (the bottom of the chin). The subjects sit erect with head oriented in the Frankfurt plane (looking straight ahead) and arms hanging at sides. <i>Instrument: Sliding caliper</i></p>	
17	<p><b>Face length (menton-sellion) (ISO 7250-1: 6.3.11) – Childata: 18</b></p> <p>Distance between sellion and menton. Subject keeps mouth closed. Head is oriented in the Frankfurt plane.</p> <p><i>Instrument: Sliding caliper</i></p>	
18	<p><b>Sagittal arc of the head (ISO 7250-1: 6.3.13)</b></p> <p>Arc from the glabella over the skull to the nuchale. Tape measure is held on the glabella and led over the head so as to pass over the rearmost point of the skull to the nuchale. Hair shall be compressed.</p> <p><i>Instrument: Tape measure</i></p>	
19	<p><b>Mouth breadth (Childata: 22)</b></p> <p>With the mouth relaxed the horizontal distance between the angles of the mouth at the point where the mucous membrane joins the skin.</p>	
20	<p><b>Mouth opening (between incisors) (Childata: 23)</b></p> <p>The maximum vertical distance measured between the incisors (front teeth) with the jaws open as wide as possible.</p>	

TABLE A.2 HAND

HAND



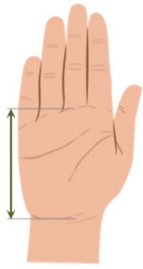
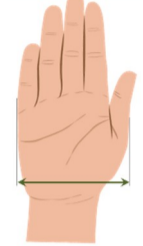

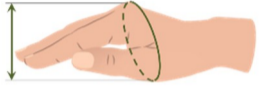
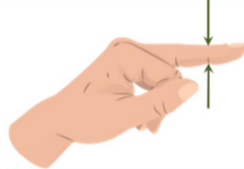
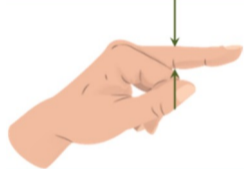
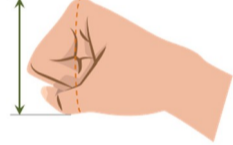
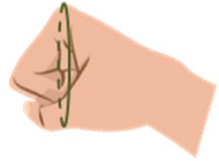

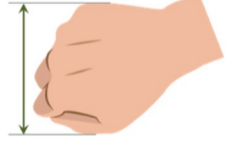
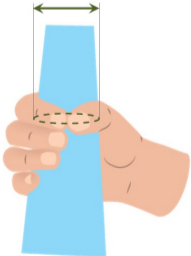
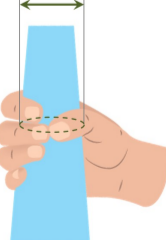
## HAND

<b>1</b>	<p><b>Hand breadth at metacarpals (ISO 7250-1 6.3.3)</b>            Projected distance between radial and ulnar metacarpals at the level of the metacarpal heads from the second to the fifth metacarpal. Subject holds forearm horizontal with hand stretched out flat, palm up.  <i>Instrument: Sliding caliper</i></p>	
<b>2</b>	<p><b>Hand circumference at palm (ISO 8559-1: 5.4.1)</b>            The maximum girth over the knuckles (metacarpals). Subject holds forearm horizontal with hand outstretched, fingers extended, and thumb abducted.  <i>Instrument: Tape-measure</i></p>	
<b>3</b>	<p><b>Thumb breadth at distal joint (Childata: 85)</b>            The maximum breadth measured across the distal joint of the thumb.</p>	
<b>4</b>	<p><b>Index finger breadth, distal (ISO 7250-1: 6.3.6)</b>            Maximum distance between medial and lateral surfaces of the second finger in the region of the joint between middle and distal phalanges. Subject holds the forearm horizontal with hand stretched out flat and fingers spread, palm up.  <i>Instrument: Sliding caliper</i></p>	
<b>5</b>	<p><b>Index finger breadth, proximal (ISO 7250-1: 6.3.5)</b>            Maximum distance between medial and lateral surfaces of the second finger in the region of the joint between middle and proximal phalanges. Subject holds forearm horizontal with hand stretched out flat and fingers spread, palm up.  <i>Instrument: Sliding caliper.</i></p>	
<b>6</b>	<p><b>Middle finger breadth at distal joint (Childata: 97)</b>            The maximum breadth measured across the distal (end or furthest) joint of the middle finger.</p>	
<b>7</b>	<p><b>Middle finger breadth at middle joint (Childata: 98)</b>            The maximum breadth measured across the middle joint of the middle finger.</p>	
<b>8</b>	<p><b>Third finger breadth at distal joint (Childata: 103)</b>            The maximum breadth measured across the distal (furthest) joint of the third finger.</p>	
<b>9</b>	<p><b>Third finger breadth at middle joint (Childata: 104)</b>            The maximum diameter measured across the middle joint of the third finger.</p>	
<b>10</b>	<p><b>Little finger breadth at distal joint (Childata: 106)</b>            The maximum diameter measured across the distal joint of the little finger.</p>	

HAND

<p>11</p>	<p><b>Little finger breadth at middle joint (Childata: 107)</b> The maximum breadth measured across the proximal joint of the little finger.</p>	
<p>12</p>	<p><b>Middle finger length (distal joint to tip) (Childata: 94)</b> The distance from the center of the distal (end or furthest) joint to the tip of the middle finger, measured on the back of the hand with the hand fully extended.</p>	
<p>13</p>	<p><b>Middle finger length (middle joint to distal joint) (Childata: 95)</b> The distance from the centre of the middle joint to the centre of the distal (end or furthest) joint of the middle finger, measured on the back of the hand with the hand fully extended.</p>	
<p>14</p>	<p><b>Hand length (to thumb crotch) (Childata: 72)</b> The distance from the crotch of the thumb to the tip of the middle finger. The subject extends the right hand with the palm up and thumb away (abducted) from hand.</p>	
<p>15</p>	<p><b>Thumb length (Childata: 85)</b> The distance from the skin crease at the base of the thumb to the tip of the thumb parallel to the long axis of the thumb. The subject extends the right hand and fingers with the palm facing up and the thumb away (abducted) from hand.</p>	
<p>16</p>	<p><b>Index finger length (ISO 7250-1: 6.3.4)</b> The distance from the skin crease at the base of the index finger to the tip of the index finger parallel to the long axis of the index finger. The subject extends the right hand and fingers with the palm facing up. <i>Instrument: Sliding caliper</i></p>	
<p>17</p>	<p><b>Middle finger length (Childata: 93)</b> The distance from the skin crease at the base of the middle finger to the tip of the middle finger parallel to the long axis of the middle finger. The subject extends the right hand and fingers with the palm facing up.</p>	
<p>18</p>	<p><b>Third finger length (Childata: 102)</b> The distance from the skin crease at the base of the third finger to the tip of the third finger parallel to the long axis of the third finger. The subject extends the right hand and fingers with the palm facing up.</p>	
<p>19</p>	<p><b>Little finger length (Childata: 105)</b> The distance from the skin crease at the base of the little finger to the tip of the little finger parallel to the long axis of the little finger. The subject extends the right hand and fingers with the palm facing up.</p>	
<p>20</p>	<p><b>Hand length (to wrist crease) (ISO 7250-1: 6.3.1 – ISO 8559-1: 5.4.2)</b> The distance from the tip of the middle finger, along its long axis, to a line connecting the radial and ulnar styloid processes. Subject holds the forearm horizontal with hand stretched out flat, palm up. The point of measurement at the styloid process corresponds approximately to the middle skin furrow of the wrist. <i>Instrument: Sliding caliper.</i></p>	

HAND

<p>21</p>	<p><b>Palm length perpendicular (ISO 7250-1: 6.3.2 – ISO 8559-1: 5.4.3)</b>                  The distance from the midpoint of the proximal crease at the base of the middle finger to the most distal wrist crease. Subject holds forearm horizontal with hand stretched out flat, palm up.  <i>Instrument: Sliding caliper.</i></p>	
<p>22</p>	<p><b>Hand breadth at thumb (Childata: 75)</b>                  The maximum distance across the hand and thumb at the level of the middle joint of the thumb. The subject extends the hand and the thumb and is held against the side of the palm.</p>	
<p>23</p>	<p><b>Hand depth (Childata: 76)</b>                  The maximum distance between the palm of the hand and the back of the hand at the level of the metacarpal joint (the first or largest knuckle) of the middle finger.</p>	
<p>24</p>	<p><b>Hand clearance (maximum aperture) (Childata: 78)</b>                  The subject extends the right hand and holds the fingers together to form its narrowest configuration. With a hand measurement board, the smallest diameter through which the hand can just pass without forcing it.</p>	
<p>25</p>	<p><b>Middle finger depth at distal joint (Childata: 99)</b>                  The maximum depth of the middle finger at the distal joint measured from the front to the back of the finger.</p>	
<p>26</p>	<p><b>Middle finger depth at middle joint (Childata: 100)</b>                  The maximum depth of the middle joint of the middle finger, measured from the back of the hand to the palm of the hand.</p>	
<p>27</p>	<p><b>Fist depth (Childata: 83)</b>                  The maximum depth of the fist of the hand between the (largest) knuckles and thumb. The subject forms a fist with the right hand with the thumb lying across the fingers.</p>	
<p>28</p>	<p><b>Fist circumference (Childata: 84)</b>                  The maximum circumference of the fist by passing a tape over the thumb and across the knuckles. The subject forms a fist the right hand with the thumb lying across the fingers.</p>	
<p>29</p>	<p><b>Middle finger length (knuckle to middle joint, hand clenched) (Childata: 96)</b>                  The subject makes a fist with the right hand and the maximum distance from the furthest edge of the middle joint to the furthest edge of the largest knuckle of the middle finger.</p>	
<p>30</p>	<p><b>Fist breadth (Childata: 82)</b>                  The maximum breadth across the fist of the hand at the level of the first (or largest) knuckles of the hand and thumb. The subject forms a fist with the right hand with the thumb lying across the fingers.</p>	
<p>31</p>	<p><b>Maximum grip diameter (between thumb and index finger) (Childata: 79)</b>                  The circumference of the cone at the level of the tip of the thumb and index finger. The subject grips a graduated cone and slides the hand down the cone until the maximum diameter that can be gripped (with thumb and index finger touching) is reached.</p>	
<p>32</p>	<p><b>Maximum grip diameter (between thumb and middle finger) (Childata: 80)</b>                  The diameter of the cone at the level of the tip of the thumb and middle finger. The subject grips a graduated cone and slides the hand down the cone until the maximum diameter that can be gripped (with thumb and middle finger touching) is reached.</p>	

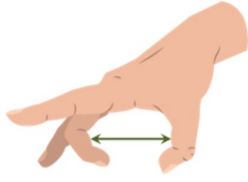




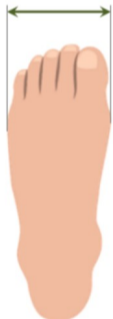

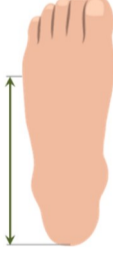


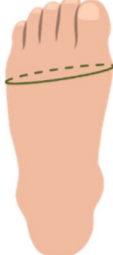

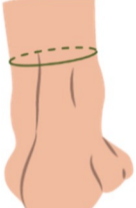
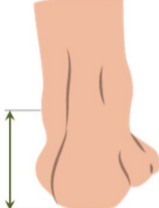
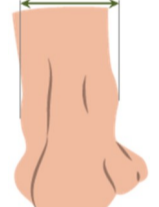
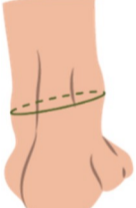
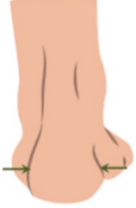


HAND		
33	<p><b>Grip length (middle finger to thumb) (Childata: 81)</b></p> <p>The distance between the middle portion of the middle finger and thumb keeping the middle portions of these digits' parallel is measure. The subject grasps the faces of a grasping gauge with the right hand and the measurement is taken in the step of the gauge where the child is able to hold it comfortably.</p>	
34	<p><b>Thumb diameter (minimum aperture) (Childata: 87)</b></p> <p>With a finger measurement board, the greatest diameter through which the end or furthest joint of the thumb cannot pass. The subject extends the thumb of the right hand.</p>	
35	<p><b>Index finger diameter (minimum aperture) (Childata: 91)</b></p> <p>With a finger measurement board, the maximum diameter through which the distal joint of the index finger cannot pass. The subject extends the index finger of the right hand.</p>	
36	<p><b>Middle finger diameter (minimum aperture) (Childata:101)</b></p> <p>With a finger measurement board, the maximum diameter through which the distal joint of the middle finger cannot pass. The subject extends the middle finger of the right hand.</p>	
37	<p><b>Little finger diameter (minimum aperture) (Childata: 108)</b></p> <p>With a finger measurement board, the maximum diameter through which the distal (furthest) joint of the little finger can just pass. The subject extends the little finger of the right hand.</p>	

TABLE A.3 FOOT

FOOT		
1	<p><b>Foot breadth (ISO 7250-1: 6.3.8)</b></p> <p>Maximum distance between medial and lateral surfaces of the foot perpendicular to the longitudinal axis of the foot. Subject stands with weight equally distributed on both feet. <i>Instrument:</i> Spreading caliper.</p>	
2	<p><b>Distance heel – 1<sup>st</sup> metatarsal</b></p> <p>Distance, along the longitudinal axis of the foot, from the rear of the heel to the head of the first metatarsal. Subject stands with weight equally distributed on both feet.</p>	
3	<p><b>Distance heel – 5<sup>th</sup> metatarsal</b></p> <p>Distance, along the longitudinal axis of the foot, from the rear of the heel to the head of the fifth metatarsal. Subject stands with weight equally distributed on both feet.</p>	
4	<p><b>Toes width</b></p> <p>The distance between medial and lateral surfaces of the toes, perpendicular to the longitudinal axis of the foot. Subject stands with weight equally distributed on both feet. <i>Instrument:</i> Spreading caliper.</p>	

FOOT

<p>5</p>	<p><b>Toes girth</b> Girth of the foot measured around the toes of the foot. Subject stands erect with legs slightly apart, and weight equally distributed on both feet. <i>Instrument:</i> Tape measure.</p>	
<p>6</p>	<p><b>Ball girth (ISO 8559-1: 5.4.7)</b> Maximum girth of the foot measured around the ball of the foot. Subject stands erect with legs slightly apart, and weight equally distributed on both feet. <i>Instrument:</i> Tape measure</p>	
<p>7</p>	<p><b>Instep girth</b> Girth of the foot measured around the instep of the foot. Subject stands erect with legs slightly apart, and weight equally distributed on both feet. <i>Instrument:</i> Tape measure</p>	
<p>8</p>	<p><b>Minimum leg girth (ISO 8559-1: 5.2.20)</b> Minimum horizontal girth of the lower leg just above the ankle bones. Subject stands erect. <i>Instrument:</i> Tape measure.</p>	
<p>9</p>	<p><b>Ankle height (ISO 8559-1: 5.1.12)</b> The vertical distance from the floor to the underside of the sphyrion on the right leg, (the protrusion on the inner side of the ankle) is measured. The subject stands erect with feet apart and weight evenly distributed. <i>Instrument:</i> Height gauge.</p>	
<p>10</p>	<p><b>Ankle breadth (Childata: 130)</b> The minimum breadth of the right ankle above the malleoli (the protrusions on the inside and outside of the ankle). The subject stands erect with feet together and weight evenly distributed. <i>Instrument:</i> Spreading caliper.</p>	
<p>11</p>	<p><b>Ankle circumference (ISO 8559-1: 5.2.21)</b> The circumference of the leg measured at the level of the centre of the anklebone with the subject standing upright. <i>Instrument:</i> Tape measure.</p>	
<p>12</p>	<p><b>Heel breadth (Childata: 135)</b> The maximum horizontal distance measured across the back of the heel. <i>Instrument:</i> Spreading caliper.</p>	
<p>13</p>	<p><b>Foot height (Childata:132)</b> The maximum vertical distance from the surface underneath the foot to the top of the instep, at the junction of the lower leg and foot. <i>Instrument:</i> Height gauge.</p>	
<p>14</p>	<p><b>Foot length (ISO 7250-1: 6.3.7 – ISO 8559: 5.4.5)</b> Maximum horizontal distance from rear of the heel to tip of the longest (first or second) toe, measured parallel to the longitudinal axis of the foot. Subject stands with weight equally distributed on both feet. <i>Instrument:</i> Anthropometer.</p>	

FOOT




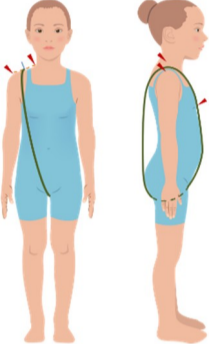
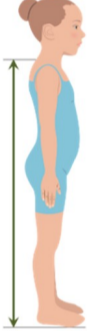
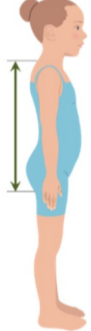
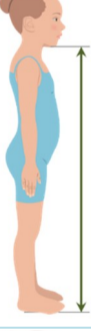
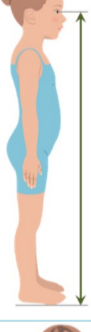
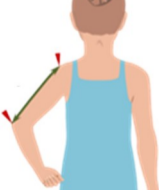
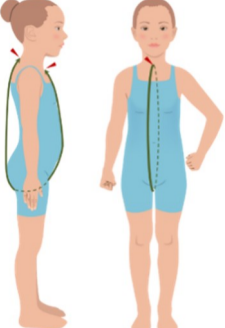
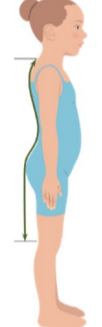

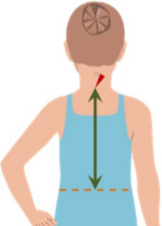
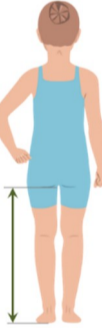
<p>15</p>	<p><b>Forefoot length</b> The horizontal distance from the tip of the longest toe (first or second) to the top of the instep, at the junction of the lower leg and foot, measured parallel to the longitudinal axis of the foot. Subject stands with weight equally distributed on both feet. <i>Instrument:</i> Anthropometer.</p>	
<p>16</p>	<p><b>Height of 1<sup>st</sup> toe</b> The vertical distance from the top of the distal joint of the big toe to the ground. Subject stands with weight equally distributed on both feet.</p>	
<p>17</p>	<p><b>Height of 1<sup>st</sup> metatarsal</b> The vertical distance from the top of the head of first metatarsal to the ground. Subject stands with weight equally distributed on both feet.</p>	
<p>18</p>	<p><b>Instep height</b> The vertical distance from the top of the instep to the ground. Subject stands with weight equally distributed on both feet.</p>	
<p>19</p>	<p><b>Heel height</b> The vertical distance from the insertion of the Achilles tendon into the calcaneus to the ground. Subject stands with weight equally distributed on both feet.</p>	
<p>20</p>	<p><b>Heel to instep girth</b> Girth of the foot passing across the top of the instep and the most rear point of the heel in the foot plant. Subject stands with weight equally distributed on both feet. <i>Instrument:</i> Tape measure.</p>	
<p>21</p>	<p><b>Height of lateral malleolus</b> The vertical distance from the most prominent point of the lateral malleolus to the ground. Subject stands with weight equally distributed on both feet.</p>	
<p>22</p>	<p><b>Height of 5<sup>th</sup> metatarsal</b> The vertical distance from the top of the head of fifth metatarsal to the ground. Subject stands with weight equally distributed on both feet.</p>	
<p>23</p>	<p><b>Height of 5<sup>th</sup> toe</b> The vertical distance from the top of the proximal joint of the fifth toe to the ground. Subject stands with weight equally distributed on both feet.</p>	

TABLE A.4 STANDING


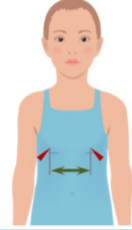
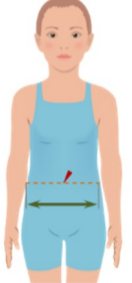
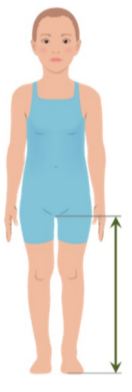
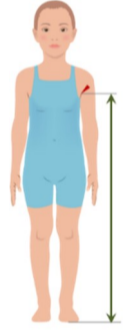
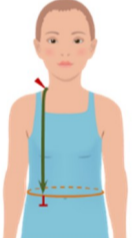
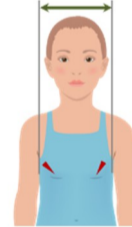

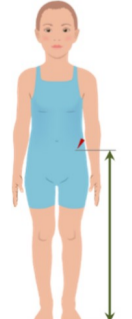
STANDING	
0	<p><b>Body mass (Weight) (ISO 7250-1: 6.1.1 – ISO 8559-1: 5.6.1)</b>                      Total mass (weight) of the body.  <i>Method:</i> Subject stands on a weighing scale  <i>Instrument:</i> Weighing scale</p>
1	<p><b>Stature (ISO 7250-1: 6.1.2 – ISO 8559: 5.1.1)</b>                      Vertical distance from the highest point of the head (vertex) to the ground.  <i>Method:</i> Subject stands erect with feet together and the head in the Frankfurt plane.  <i>Instrument:</i> Anthropometer</p> 
2	<p><b>Diagonal trunk girth (ISO 8559-1: 5.3.27)</b>                      Distance from the shoulder line, midway between the side neck point and the shoulder point, down the back between the legs, over the bust point to the starting point, avoiding constriction at the crotch and the bust. The tape measure touches the body at the waistline at the front and back of the body.  <i>Position:</i> Subject stands erect with legs shoulder width apart, and arms hanging freely downward.  <i>Instrument:</i> Tape measure.</p> 
3	<p><b>Back neck height (ISO 8559-1: 5.1.5)</b>                      Vertical distance from the back-neck point to the ground.  <i>Position:</i> Subject stands erect with feet together and the head in the Frankfurt plane.  <i>Instrument:</i> Anthropometer.</p> 
4	<p><b>Torso height (ISO 8559-1: 5.7.3)</b>                      Vertical distance from back neck point to the inside leg level.  <i>Calculation:</i> Back neck height (ISO 8559: 5.1.5) minus inside leg height (ISO 8559: 5.1.15)</p> 
5	<p><b>Chin height (ISO 8559-1: 5.1.3)</b>                      Vertical distance from the lowest point of the chin to the ground.  <i>Position:</i> Subject stands erect with feet together and the head in the Frankfurt plane.  <i>Instrument:</i> Anthropometer</p> 
6	<p><b>Eye height (from floor) (ISO 7250-1: 6.1.3)</b>                      Vertical distance from the floor to the outer corner of the eye (ectocanthus).  <i>Method:</i> Subject stands fully erect with feet together. Head is oriented in the Frankfurt plane.  <i>Instrument:</i> Anthropometer.</p> 
7	<p><b>Upper arm length (shoulder to elbow, elbow bent) (ISO 8559-1: 5.4.14)</b>                      Distance from the shoulder point to the elbow point (olecranon).  <i>Position:</i> Subject stands erect with the shoulders relaxed and fist placed on the hip bone.  <i>Instrument:</i> Tape measure.</p> 

STANDING

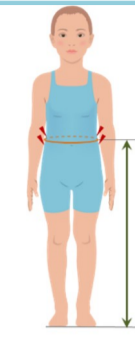





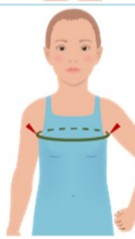


<p>8</p>	<p><b>Centre trunk length (ISO 8559-1: 5.3.28)</b>                  Distance from back neck point through crotch to the centre of the front neck point.  <i>Position:</i> Subject stands erect with legs shoulder width apart and arms hanging freely downward.  <i>Instrument:</i> Tape measure.</p>	
<p>9</p>	<p><b>Outer arm length (ISO 8559-1: 5.7.8)</b>                  (*) Distance from the shoulder point, over the elbow (olecranon), to the wrist point (the far end of the prominent wrist bone at the little finger side), following the surface.  <i>Calculation:</i> Back neck point to wrist length (ISO 8559-1: 5.4.17) minus 50% of the shoulder width (through back neck point)                  (*) This definition is an adaptation to provide a more accurate description of the measurement itself, instead of using indirect methods to calculate it.</p>	
<p>10</p>	<p><b>Back neck point to ground (contoured) (ISO 8559-1: 5.4.23)</b>                  Distance from back neck point, following the contour of the spinal column to the hip level, then vertically to the ground.  <i>Position:</i> Subject stands erect with feet together, arms hanging freely downward, and head in the Frankfurt plane.  <i>Instrument:</i> Tape measure.</p>	
<p>11</p>	<p><b>Back neck point to knee (ISO 8559-1: 5.7.2)</b>                  Distance from back neck point following the contour of the spinal column to the hip level and vertical level of the center of knee-cap.  <i>Calculation:</i> Back neck point to ground length (contoured) (5.4.23) minus knee height (5.1.6).</p>	
<p>12</p>	<p><b>Back neck point to wrist length (ISO 8559-1: 5.4.17)</b>                  Distance across the shoulder and down the arm from the back-neck point over the shoulder point and the elbow point to the wrist point. Subject stands erect with the arms hanging freely downward.  <i>Instrument:</i> Tape measure.</p>	
<p>13</p>	<p><b>Back neck point to waist (ISO 8559-1: 5.4.5)</b>                  Distance from back neck point to waist level. Subject stands erect with arms hanging freely downward and shoulder relaxed. Head is in the Frankfurt plane.  <i>Instrument:</i> Tape-measure</p>	
<p>14</p>	<p><b>Buttock height at gluteal furrow (Childata: 52)</b>                  The vertical distance from the standing surface to the lowest point at which the buttock curve and the back of the right thigh join. The subject stands erect with feet together and weighty evenly distributed.</p>	
<p>15</p>	<p><b>Shoulder height (ISO 7250-1: 6.1.4)</b>                  Vertical distance from the floor to the acromion. Subject stands fully erect with feet together. Shoulders are relaxed, with arms hanging freely.  <i>Instrument:</i> Anthropometer</p>	



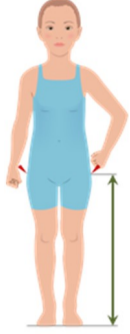

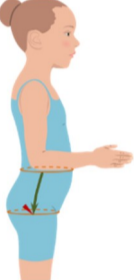
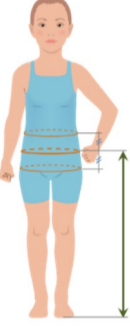
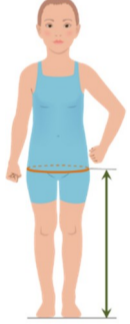
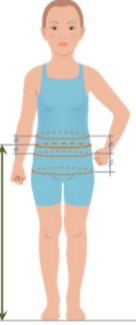

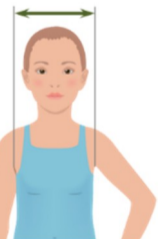

STANDING

<p>16</p>	<p><b>Bust points around neck</b> The distance from the right nipple, passing around through the neck shoulder points, to the left nipple. <i>Instrument:</i> Tape-measure</p>	
<p>17</p>	<p><b>Bust point width (ISO 8559-1: 5.2.3)</b> Distance between the bust points. Subject stands erect with feet together and arms hanging freely downwards. <i>Instrument:</i> Tape-measure.</p>	
<p>18</p>	<p><b>Waist breadth (at navel) (Childata: 80)</b> The horizontal breadth of the torso at the level of the umbilicus (navel). Subject stands erect, with feet together, weight evenly distributed and arms hanging at sides.</p>	
<p>19</p>	<p><b>Crotch height / Inside leg height (ISO 7250-1: 6.1.7 – ISO 8559-1: 5.1.15)</b> Vertical distance from the inside leg level to the ground. Subject stands with legs shoulder width apart. <i>Instrument:</i> Anthropometer</p>	
<p>20</p>	<p><b>Chest height at armpit (Childata: 32)</b> The vertical distance from the standing surface to the right axilla (armpit). The subject stands erect, with feet together, weight evenly distributed, arms initially raised then lowered when instrument is in place.</p>	
<p>21</p>	<p><b>Side neck point to waist level (ISO 8559-1: 5.4.11)</b> Distance from the side neck point, over the bust point, then vertically straight to the waist level. Subject stands erect with arms hanging freely downward, shoulders are relaxed head in the Frankfurt plane. <i>Instrument:</i> Tape-measure</p>	
<p>22</p>	<p><b>Chest breadth at nipples (Childata: 34)</b> The horizontal breadth of the chest at the level of the nipples.</p>	
<p>23</p>	<p><b>Waist circumference (ISO 7250-1: 6.4.11 – Waist girth (ISO 8559-1: 5.3.10)</b> Horizontal circumference of the trunk at a level midway between the lowest ribs and the upper iliac crest. Subject stands fully erect with feet together and is asked to relax the abdominal muscles. <i>Instrument:</i> Tape-measure</p>	
<p>24</p>	<p><b>Iliac spine height, standing (ISO 7250-1: 6.1.6)</b> Vertical distance from the floor to the most downward-directed point of the iliac crest (iliospinale arterius). Subject stands fully erect with feet together. <i>Instrument:</i> Anthropometer</p>	

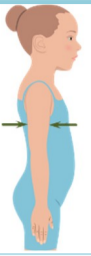


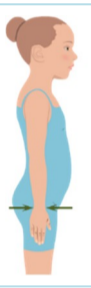






STANDING

<p>25</p>	<p><b>Waist height (ISO 8559-1: 5.1.10)</b>          Vertical distance from the waist level (midway between the lowest rib point and the highest point of the hip bone at the side of the body) to the ground. Subject stands erect with feet together and abdomen relaxed.  <i>Instrument: Anthropometer</i></p>	
<p>26</p>	<p><b>Side neck point to bust point (ISO 8559-1: 5.4.10)</b>          Distance from the neck point to the bust point. Subject stands erect with arms hanging freely downward, head in the Frankfurt plane.  <i>Instrument: Tape-measure</i></p>	
<p>27</p>	<p><b>Chest circumference (ISO 7250-1: 4.4.9) - Bust girth (6.4.10 - ISO 8559-1: 5.3.4)</b>          Horizontal girth measured at the bust point level. Subject stands erect with arms hanging freely downward.  <i>Instrument: Tape-measure</i></p>	
<p>28</p>	<p><b>Mid-riff girth (ISO 8559-1: 5.3.9)</b>          Horizontal girth of the body measured at the midriff level (midway between the under-bust and waist levels). Subject stands erect with the abdomen relaxed.  <i>Instrument: Tape-measure.</i></p>	
<p>29</p>	<p><b>Side waist to hip (ISO 8559-1: 5.4.21)</b>          Distance down the side of the body from the waist level to the hip level (level of the greatest projection at the back of the body – buttocks) following the surface of the body. Subject stands erect with feet together, arm abducted to form a 20° angle with the side of the body and abdomen relaxed.  <i>Instrument: Tape-measure.</i></p>	
<p>30</p>	<p><b>Hip circumference (trochanter) (ISO 8559-1 (1989): 2.1.12)</b>          Horizontal girth of the body measured at the hip level (level of the greatest projection at the back of the body – buttocks). Subject stands erect with feet together with the abdomen relaxed.  <i>Instrument: Tape-measure</i></p>	
<p>31</p>	<p><b>Chest girth (at axilla) (ISO 8559-1: 5.3.6)</b>          Horizontal girth of the torso measured at axilla. Subject stands erect with arms hanging freely downward.  <i>Instrument: Tape-measure.</i></p>	
<p>32</p>	<p><b>Underbust girth (ISO 8559-1: 5.3.8)</b>          Horizontal girth of the body at the under bust level (level directly below breast). Subject stands erect with arms hanging freely downwards.  <i>Instrument: Tape-measure.</i></p>	
<p>33</p>	<p><b>Hip breadth (trochanter) (Childata: 47)</b>          The horizontal distance between the right and left greater trochanter landmarks (the bony protrusions at the top of the hip bone). The subject stands erect, with feet together, weight evenly distributed</p>	



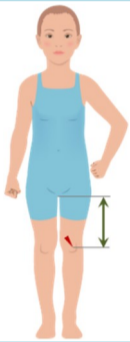




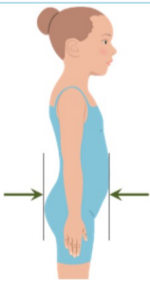
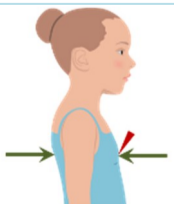
STANDING

<p>34</p>	<p><b>Hip height at trochanter (ISO 8559-1 (1989): 2.2.4) – (Childata: 45)</b>                  The vertical distance from the trochanteric projections (the bony process at the top of the femur or thigh bone) to the ground. The subjects stand erect with feet together and weight evenly distributed.  <i>Instrument: Anthropometer</i></p>	
<p>35</p>	<p><b>Hip circumference (buttock) / Hip girth (ISO 8559-1 (2017): 5.3.13)</b>                  Horizontal girth of the body measured at the hip level (level of the greatest projection at the back of the body – buttocks). Subject stands erect with feet together with the abdomen relaxed.  <i>Instrument: Tape-measure</i></p>	
<p>36</p>	<p><b>Waist to hips (trochanter) (ISO 8559-1 (1989): 2.2.17)</b>                  The distance along the side of the body from the natural waist level to the hips at the level of the greatest trochanteric projection, following the hip contour. Subject stands erect with feet together, and abdomen relaxed.  <i>Instrument: Tape-measure.</i></p>	
<p>37</p>	<p><b>Top hip height (ISO 8559-1: 5.1.12)</b>                  Vertical distance from the top hip height (midway between the waist and hip levels) to the ground. Subject stands fully erect with feet together.  <i>Instrument: Anthropometer</i></p>	
<p>38</p>	<p><b>Maximum hip girth height (ISO 8559-1: 5.1.14) – Buttock height at maximum depth (Childata: 51)</b>                  Vertical distance from the level of maximum hip girth to the ground. Subject stands fully erect with feet together.  <i>Instrument: Anthropometer</i></p>	
<p>39</p>	<p><b>Upper hip height (ISO 8559-1: 5.1.11)</b>                  Vertical distance from the upper hip level (midway between the top-hip and waist level) to the ground. Subject stands fully erect with feet together.  <i>Instrument: Anthropometer</i></p>	
<p>40</p>	<p><b>Front width (armpit level)</b>                  The distance across the chest from the right to the left axilla (armpit). The subject stands erect, with feet together, weight evenly distributed, arms initially raised then lowered when instrument is in place. <i>Instrument: Tape-measure</i></p>	
<p>41</p>	<p><b>Chest breadth at armpit (Childata: 33)</b>                  The horizontal breadth of the chest at the level of the axilla (armpit). The subject stands erect, with feet together, weight evenly distributed, arms initially raised then lowered when instrument is in place.</p>	
<p>42</p>	<p><b>Chest breadth, standing (ISO 7250-1: 6.1.11)</b>                  Horizontal breadth of the torso measured at the level of mesosternale. Subject stands fully erect with feet together and arms hanging freely downwards.  <i>Instrument: Large sliding caliper.</i></p>	

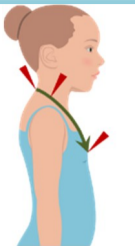
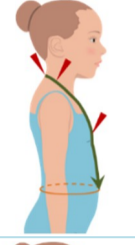
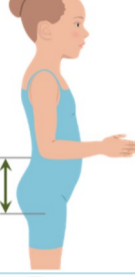




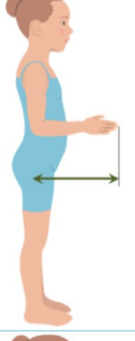

STANDING

43	<p><b>Upper arm depth (Childata: 56)</b>                  The horizontal depth (anterior-posterior or front to back) of the right arm, midway between the shoulder and elbow. The subject stands erect, arms hanging at sides with palms in.  <i>Instrument:</i> Sliding caliper</p>	
44	<p><b>Arm-scye girth (ISO 8559-1: 5.3.15)</b>                  Girth of the arm scye measured from, and to, the shoulder point passing under the arm. Subject stands erect with the arms hanging freely downward.  <i>Instrument:</i> Tape-measure.</p>	
45	<p><b>Lower arm breadth (Childata: 65)</b>                  The maximum breadth of the right forearm at the level of the maximum circumference. The subject stands erect, arms hanging at sides with palms in.</p>	
46	<p><b>Wrist breadth (Childata: 67)</b>                  The maximum breadth of the wrist across the level of the ends of the forearm bones (the ulna and radius).</p>	
47	<p><b>Upper arm circumference at armpit (Childata: 58)</b>                  The circumference of the arm at the level of the armpit is measured such that the plane of the circumference is horizontal when the arm hangs relaxed. The subject stands erect with arms hanging at sides. <i>Instrument:</i> Tape-measure.</p>	
48	<p><b>Upper arm girth (ISO 8559-1: 5.3.16) – (Childata: 57)</b>                  Girth of the upper arm measured midway between the shoulder point and elbow point. Subject stands erect with arms abducted to form a 20° angle with the side of the body.  <i>Instrument:</i> Tape-measure.</p>	
49	<p><b>Elbow girth (ISO 8559-1: 5.3.17)</b>                  Girth of the arm at the elbow point. Subject stands erect with the arms hanging freely downward.  <i>Instrument:</i> Tape-measure.</p>	
50	<p><b>Lower arm circumference (Childata: 66)</b>                  The maximum circumference of the right forearm. The subject stands erect, arms hanging at sides.</p>	
51	<p><b>Wrist circumference (ISO 7250-1: 6.4.12 – ISO 8559-1: 5.3.19)</b>                  Minimum circumference of wrist at the level of the radial styloid, with the hand outstretched. The tape passes just distal to the ulnar styloid. Subject holds forearm horizontal with hand outstretched and fingers extended.  <i>Instrument:</i> Tape-measure.</p>	
52	<p><b>Underarm length (ISO 88559-1: 5.4.16)</b>                  Distance between the armpit front fold point and palm side of the wrist at a level of the wrist point. Subject sands erect with the arm abducted to form a 20° angle with the side of the body with the palm facing the body.  <i>Instrument:</i> Tape-measure</p>	




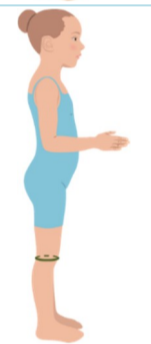

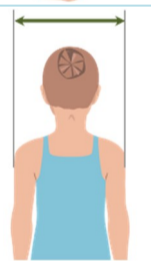
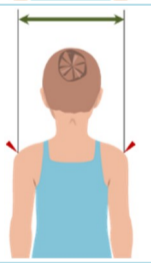
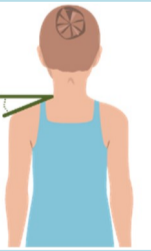
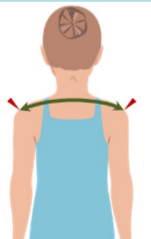
STANDING

<p>53</p>	<p><b>Wrist depth (Childata: 68)</b> The minimum horizontal depth (medio-lateral or front to back) of the right wrist above the protrusion of the wrist (the distal ulna styloid process). The subject stands erect, arms hanging at sides with palms in.</p>	
<p>54</p>	<p><b>Outside leg length (ISO 8559-1: 5.4.22)</b> Distance down the side of the body from the waist level following the contour to the hip level, the vertically to the ground. Subject stands erect with feet together and arms abducted to form a 20° angle with the side of the body. <i>Instrument: Tape-measure.</i></p>	
<p>55</p>	<p><b>Thigh length (ISO 8559-1: 5.7.5)</b> Vertical distance between the inside leg level and the center point of knee cap. <i>Calculation: Inside leg height (5.1.15) minus knee height (5.1.6)</i></p>	
<p>56</p>	<p><b>Thigh circumference (ISO 7250-1: 6.4.13) – Thigh girth (ISO 8559-1: 5.3.20)</b> Maximum horizontal circumference of the thigh. Subject stands erect with legs slightly apart. Measurement is taken by passing the tape horizontally around the thigh immediately below the gluteal fold. <i>Instrument: Tape-measure.</i></p>	
<p>57</p>	<p><b>Knee height, standing (ISO 8559-1: 5.1.16)</b> Vertical distance from the center point of the knee cap to the ground. Subject stands erect with feet together. <i>Instrument: Anthropometer</i></p>	
<p>58</p>	<p><b>Tibiale height (ISO 7250-1: 6.1.8)</b> Vertical distance from the floor to the tibiale. Subject stands fully erect with feet together. <i>Instrument: Anthropometer</i></p>	
<p>59</p>	<p><b>Body depth, standing (ISO 7250-1: 6.1.10)</b> Maximum horizontal depth of the body. Subject stands erect against a wall with feet together and arms hanging freely downwards. <i>Instrument: Anthropometer</i></p>	
<p>60</p>	<p><b>Abdomen/hip depth (ISO 8559-1: 5.2.7)</b> Maximum horizontal depth between the maximum anterior protrusion of the abdomen and the maximum prominence of the buttock. Subject stands erect with the abdomen relaxed and rear most point of the buttock touching the surface of a vertical plane. Distance is measured from the vertical plane to the maximum protrusion of the abdomen. <i>Instrument: Large sliding caliper</i></p>	
<p>61</p>	<p><b>Thorax depth (ISO 7250-1 (2017): 6.2.15) - Bust depth (ISO 8559-1 (2017): 5.2.6)</b> Maximum horizontal depth of the thorax at the level of the bust point. Subject stands erect with arms hanging freely downwards. <i>Instrument: Large sliding calliper.</i></p>	

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<p>62</p>	<p><b>Back neck point to bust point (ISO 8559-1: 5.4.12)</b>                  Distance from back neck point along neck base line to side neck point, then to bust point. Subject stands erect with arms hanging freely downward, head in the Frankfurt plane.  <i>Instrument:</i> Tape-measure.</p>	
<p>63</p>	<p><b>Back neck point to waist level (ISO 8559-1: 5.4.13)</b>                  Distance from back neck point along the neck base line to the side neck point, over the bust point, then straight to the waist level. Subject stands erect with arms hanging freely downward. Head is held in the Frankfurt plane.  <i>Instrument:</i> Tape-measure</p>	
<p>64</p>	<p><b>Straight body rise (ISO 8559-1: 5.7.4)</b>                  Vertical distance between the waist level and the inside leg level. Subject stands fully erect with feet together.  <i>Calculation:</i> Wasit height (5.1.10) minus inside leg height (5.1.15)</p>	
<p>65</p>	<p><b>Total crotch length (ISO 8559-1: 5.4.18)</b>                  Distance from the center of the waist level at the front of the body, through the crotch (inside leg level), to the center of the back-waist level. Avoid any constriction at the crotch. Subject stands erect with legs shoulder apart.  <i>Instrument:</i> Tape-measure.</p>	
<p>66</p>	<p><b>Back crotch length (ISO 8559-1: 5.4.20)</b>                  Distance from the center of the back at the waist level, to the center of the inside of the thigh at the height of the inside leg level. Subject stands erect with legs shoulder width apart and arms abducted to form a 20° angle with the side of the body.  <i>Instrument:</i> Tape measurement.</p>	
<p>67</p>	<p><b>Front crotch length (ISO 8559-1: 5.4.19)</b>                  Distance from the center of the front waist level, to the center of the inside of the thigh at the height of the inside leg level. Subject stands erect with legs shoulder width apart and arms abducted to form a 20° angle with the side of the body.  <i>Instrument:</i> Tape measurement.</p>	
<p>68</p>	<p><b>Elbow – wrist length (ISO 7250-1: 6.4.3)</b>                  Horizontal distance from olecranon to ulnar stylium. Subject sits or stands erect, with the upper arms hanging freely downwards, and the forearms horizontal.  <i>Instrument:</i> Large sliding caliper</p>	
<p>69</p>	<p><b>Forearm-fingertip length (ISO 7250-1: 6.4.6)</b>                  Horizontal distance from olecranon (back of the elbow) to the tip of the middle finger, with the elbow bent at right angles. Subject sits or stands erect with upper arm hanging downwards, forearm horizontal and hand extended.  <i>Instrument:</i> Large sliding caliper.</p>	
<p>70</p>	<p><b>Upper thigh depth (Childata: 116)</b>                  The horizontal depth (anterior-posterior or front to back) of the right thigh at the level of the gluteal furrow (the lowest curve of the bottom). The subject stands erect, with feet together, weight evenly distributed.</p>	

STANDING

<p>71</p>	<p><b>Calf height (at maximum circumference) (Childata: 126)</b> The vertical distance from the standing surface to the right calf at the level of the calf circumference measurement. The subject stands erect with feet together and weight evenly distributed.</p>	
<p>72</p>	<p><b>Calf depth (Childata: 127)</b> The horizontal depth (anterior-posterior or front to back) of the right calf at the level of the maximum circumference measured. The subject stands erect with feet together, weight evenly distributed.</p>	
<p>73</p>	<p><b>Calf circumference (ISO 7250-1: 6.4.14 – ISO 8559-1: 5.3.24)</b> Maximum horizontal circumference of the calf. The subject stands erect. Measurement is taken by passing the tape horizontally around the maximum circumference of the calf. <i>Instrument: Tape-measure.</i></p>	
<p>74</p>	<p><b>Knee girth (ISO 8559: 5.3.22)</b> Horizontal girth of the knee at the level of the centre point of knee-cap. Subject stands erect with feet shoulder width apart. <i>Instrument: Tape-measure.</i></p>	
<p>75</p>	<p><b>Lower knee girth (ISO 8559-1: 5.3.23)</b> Horizontal girth of the lower leg just below the patella (knee-cap). Subject stands erect with legs shoulder width apart. <i>Instrument: Tape-measure</i></p>	
<p>76</p>	<p><b>Shoulder breadth (bideloid) (ISO 7250-1: 6.2.8)</b> Horizontal distance across the maximum lateral protrusions of the right and left deltoid muscles. Subject sits or stands fully erect with shoulders relaxed. <i>Instrument: Large sliding caliper or large spreading caliper.</i></p>	
<p>77</p>	<p><b>Shoulder breadth (biacromial) (ISO 7250-1: 6.2.7) – (Childata: 31)</b> Distance along a straight line from acromion to acromion. The subject sits or stands fully erect, with shoulders relaxed. <i>Instrument: Large sliding caliper or large spreading caliper.</i></p>	
<p>78</p>	<p><b>Shoulder slope (ISO 8559-1: 5.6.2)</b> The value, in degrees, of the angle of inclination measured with the inclinometer placed on the shoulder following a line joining the shoulder point and the neck shoulder point. Subject stands erect with the arms hanging freely downward. <i>Instrument: Inclinometer</i></p>	
<p>79</p>	<p><b>Back shoulder width (ISO 8559-1: 5.4.2)</b> Distance between the right and left shoulder points following the surface. Subject stands erect with shoulders relaxed. <i>Instrument: Tape-measure.</i></p>	

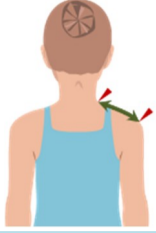
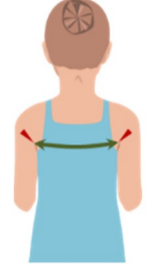
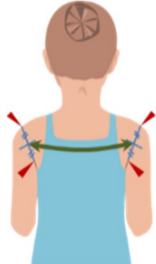
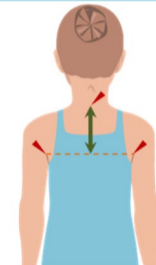
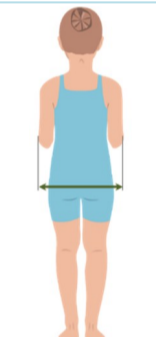
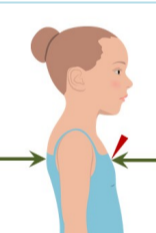
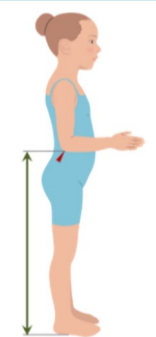

STANDING		
80	<p><b>Shoulder length (ISO 8559-1: 5.4.1)</b> Distance from the side neck point to the shoulder point. Subject sits or stands erect with shoulders relaxed. <i>Instrument:</i> Tape-measure.</p>	
81	<p><b>Back width (armpit level)</b> The horizontal length across the back between the left and right armscye lines. The level of the measure is at the back point of axilla in surface length. Subject sits or stands erect with shoulders relaxed. <i>Instrument:</i> Tape-measure.</p>	
82	<p><b>Across back width (ISO 8559-1: 5.4.4)</b> Distance across the back between the left and right armscye lines. The level of the measure is midway between the shoulder point and the armpit back fold point. Subject sits or stands erect with shoulders relaxed. <i>Instrument:</i> Tape-measure</p>	
83	<p><b>Scye depth length (ISO 8559-1: 5.4.6)</b> Distance, measured vertically on the body from back neck point to the upper edge of a tape-measure passing horizontally under the arms at axilla. Subject stands erect with arms hanging freely downward. Head is held in Frankfurt plane. <i>Instrument:</i> Tape-measure</p>	
84	<p><b>Elbow to elbow breadth (ISO 7250-1: 6.2.9)</b> Maximum horizontal distance between the lateral surfaces or the elbow region. The subject sits or stands erect with shoulders relaxed and upper arms hanging down. The upper portions of the upper arms are in contact with the sides of the body. Forearms are extended horizontally and parallel to each other and the floor. Measurement is taken without pressing into the flesh at the elbows. <i>Instrument:</i> Large sliding caliper or large spreading caliper</p>	
85	<p><b>Chest depth, standing (ISO 7250-1: 6.1.9 – ISO 8559-1: 5.2.5)</b> Maximum horizontal depth of the torso measured in the midsagittal plane at the level of the mesosternale. Subject stands fully erect with feet together. Arms hanging freely downwards. <i>Instrument:</i> Large sliding caliper with curved arms.</p>	
86	<p><b>Elbow height (ISO 7250-1: 6.1.5)</b> Vertical distance from the floor to the lowest bony point of the bent elbow. Subject stands fully erect with feet together. Upper arms hang freely downwards, with forearm flexed at right angles to it. <i>Instrument:</i> Anthropometer</p>	
87	<p><b>Mid-thigh girth (ISO 8559-1: 5.3.21)</b> Horizontal girth of the thigh measured midway between the inside leg level and the centre of knee cap. Subject stands erect with legs shoulder width apart. <i>Instrument:</i> Tape-measure</p>	

TABLE A.5 SUPINE

SUPINE	
0	<p><b>Body mass (Weight) (ISO 7250-1: 6.1.1 – ISO 8559-1: 5.6.1)</b> Total mass (weight) of the body. <i>Method:</i> Subject stands on a weighing scale <i>Instrument:</i> Weighing scale</p>



**SUPINE**

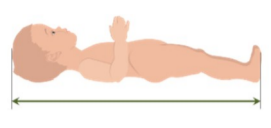
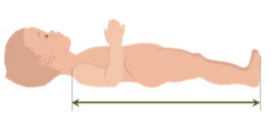
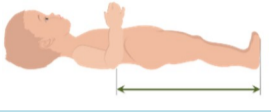
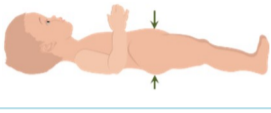
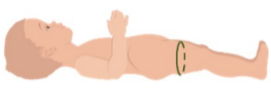
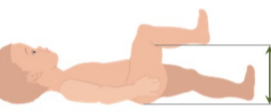
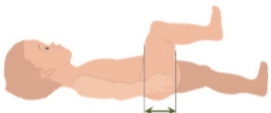
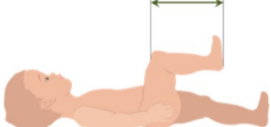
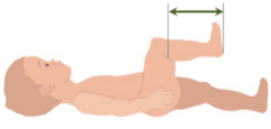
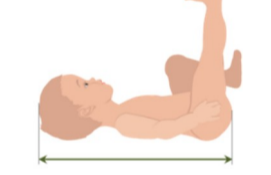
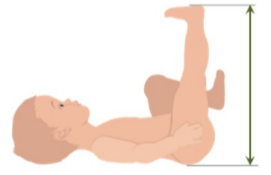
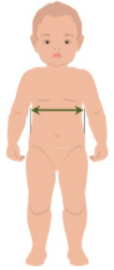
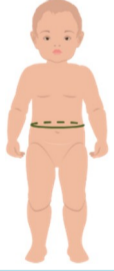
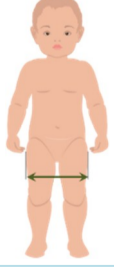
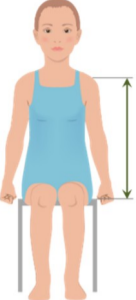




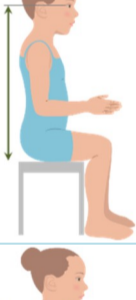



<b>1</b>	<p><b>Body length, crown to sole (supine) Recumbent length (ISO 8559-1: 5.1.2)</b>                  Horizontal distance from the vertical plate to which the soles touch to the crown of the head in the median line. Subject lies on a table with the soles touching a vertical plate. Frankfurt plane is perpendicular to the laying surface.  <i>Instrument: Anthropometer</i></p>	
<b>2</b>	<p><b>Shoulder height (supine) (ISO 7250-1: 6.1.4*)</b>                  The distance from the shoulder level to the soles. Subject lies on a table with the soles touching a vertical plate. Frankfurt plane is perpendicular to the laying surface.  <i>Instrument: Anthropometer</i>                  *Adaptation to the supine posture.</p>	
<b>3</b>	<p><b>Elbow height (supine) (Childata: 60)</b>                  Distance from the sole of the foot to the inferior surface (the underside) of the elbow. The subject lies on their back with their arms at sides and the elbows held at 90 degrees.</p>	
<b>4</b>	<p><b>Hip depth (supine) (Childata: 49)</b>                  The depth of the hips (front to back) is measured just below the iliac crests (top of the hip bones) and at the level of the maximum hip breadth. The subject lies supine (on back) with legs fully outstretched.</p>	
<b>5</b>	<p><b>Mid-thigh girth (ISO 8559-1: 5.3.21*)</b>                  Horizontal girth of the thigh measured midway between the inside leg level and the centre of knee cap. Subject stands erect with legs shoulder width apart.  <i>Instrument: Tape-measure</i>                  *Adaptation to the supine posture.</p>	
<b>6</b>	<p><b>Buttock to popliteal length (supine) (ISO 7250-1: 6.4.7*)</b>                  Horizontal distance from the hollow of the knee to the rearmost point of the buttock. The subject lies on their back with the right leg raised and the hip and knee at 90 degrees.                  *Adaptation to the supine posture.</p>	
<b>7</b>	<p><b>Mid-thigh depth (supine) (Childata: 117)</b>                  The depth (anterior-posterior or front to back) of the right leg midway between the abdomen-thigh crease and the knee is measured. The subject lies on their back with knee and hip at right angles.</p>	
<b>8</b>	<p><b>Lower leg length, knee to sole (supine) (Childata: 124)</b>                  The distance from the superior (top) surface of the right knee to the heel of the right foot is measured. The subject lies on their back with the right leg raised and the hip and knee at 90 degrees.</p>	
<b>9</b>	<p><b>Lower leg length, popliteal to sole (supine) (Childata: 125)</b>                  The distance between the sole of the foot and the inferior (underside) surface of the thigh at the posterior (rear) crease of the knee. The subject lies on their back with the right leg raised and the hip and knee at 90 degrees.</p>	
<b>10</b>	<p><b>Sitting height (supine) / Crown to rump (supine) (Childata: 5)</b>                  The distance from the vertex (top of the head) to a buttocks reference plane (or the surface of the right buttocks in infants). The subject lies on their back with the head in the Frankfurt plane with the right leg raised and the hip flexed approximately 90 degrees to the torso. The arms are placed at the sides.  <i>Instrument: Anthropometer</i></p>	
<b>11</b>	<p><b>Leg length, buttock to sole (supine) (Childata: 110)</b>                  The distance from the posterior (rear) surface of the right buttock to the sole of the right foot is measured. The subject lies on their left side with hips flexed 90 degrees to the torso and the right leg fully extended.</p>	
<b>12</b>	<p><b>Waist breadth (in infants) (Childata: 39)</b>                  The breadth of the waist just below the level of the iliac crest (the top of the thigh bone) and above the level of the greater trochanter (the top of the thigh bone).</p>	
<b>13</b>	<p><b>Waist circumference (maximum in infants) (Childata: 42)</b>                  The circumference of the torso just below the level of the iliac crest (the top of the hip bone) and above the level of the greater trochanter (the top of the thigh bone) is measured. Infants are measured supine (lying on their back).</p>	
<b>14</b>	<p><b>Hip breadth (maximum in infants) (Childata: 46)</b>                  Maximum horizontal distance across the hips. Subject lies on their back with their legs fully extended. Measurement is taken without pressing into the flesh of the hips.</p>	

TABLE A.6 SITTING

SITTING		
1	<p><b>Shoulder height, sitting (ISO 7250-1: 6.2.4)</b>                      Vertical distance from a horizontal sitting surface to the acromion. Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other. Shoulders are relaxed, with upper arms hanging freely.  <i>Instrument: Anthropometer.</i></p>	
2	<p><b>Hip breadth, sitting (ISO 7250-1: 6.2.10)</b>                      Breadth of the body measured across the widest portion of the hips. Subject sits fully erect with the feet supported so that the femora are horizontal, but the feet and knees are together. Measurement is taken without pressing into the flesh of the hips.  <i>Instrument: Large sliding caliper.</i></p>	
3	<p><b>Thigh breadth (maximum when seated) (Childata: 114)</b>                      The maximum breadth across the thighs parallel to the seated surface is measured. The subject sits erect with knees together and at 90 degrees.</p>	
4	<p><b>Knee breadth, sitting (Childata: 122)</b>                      The distance across the right knee at the level of the condyles of the upper leg is measured. The subject sits erect with hips and knees at right angles.</p>	
5	<p><b>Sitting height (ISO 7250-1: 6.2.1)</b>                      Vertical distance from a horizontal sitting surface to the highest point of the head (vertex). Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other. Head is oriented in the Frankfurt plane.  <i>Instrument: Anthropometer</i></p>	
6	<p><b>Eye height, sitting (ISO 7250-1: 6.2.2)</b>                      Vertical distance from a horizontal sitting surface to the outer corner or the eye (ectocanthus). Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other. Head is oriented in the Frankfurt plane.  <i>Instrument: Anthropometer</i></p>	
7	<p><b>Cervical height, sitting (ISO 7250-1: 6.2.3) – Back neck height, sitting (ISO 8559-1: 5.1.18)</b>                      Vertical distance from a horizontal sitting surface to the Cervicale. Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other. The head is oriented in the Frankfurt plane.  <i>Instrument: Anthropometer</i></p>	
8	<p><b>Shoulder- elbow length (ISO 7250-1: 6.2.6)</b>                      Vertical distance from acromion to the bottom of the elbow bent at a right angle with the forearm horizontal. Subject stands, or sits erect with the feet supported so that the femora are horizontal and parallel to each other. Upper arms hang freely downwards and forearms are horizontal.  <i>Instrument: Large sliding caliper</i></p>	
9	<p><b>Elbow height, sitting (ISO 7250-1: 6.2.5)</b>                      Vertical distance from a horizontal sitting surface to the lowest bony point of the elbow bent at a right angle with the forearm horizontal. Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other. Upper arms hang freely downwards and forearms are horizontal.  <i>Instrument: Anthropometer</i></p>	

SITTING

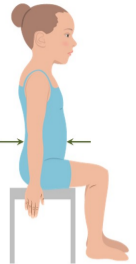
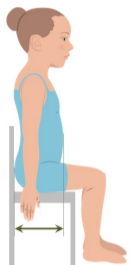
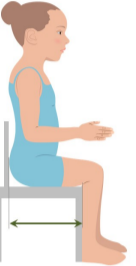




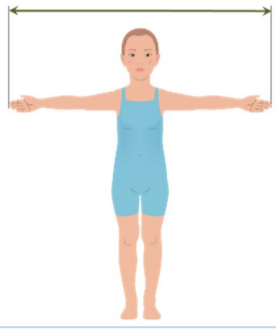

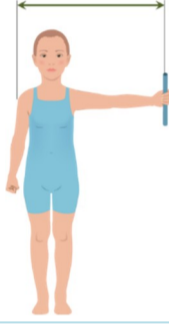
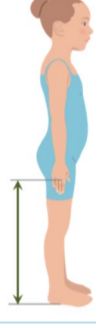
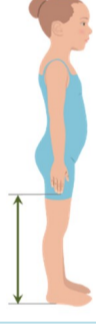
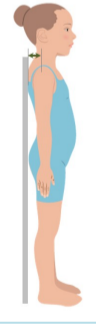
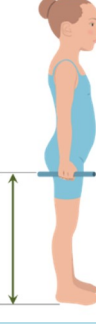


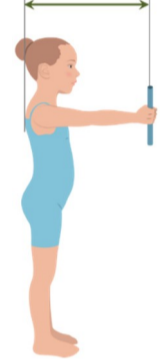
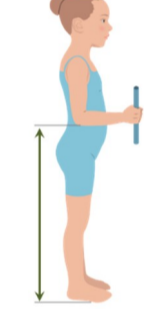
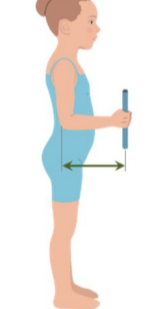
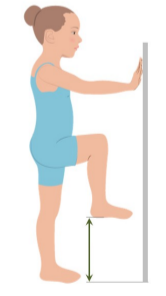
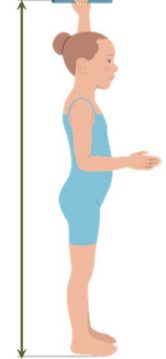
<p>10</p>	<p><b>Abdominal depth, sitting (ISO 7250-1: 6.2.14)</b>                  Maximum depth of the abdomen whilst sitting. Subject sits fully erect, with the feet supported so that the femora are horizontal and parallel to each other and with the muscles of the abdomen relaxed.  <i>Instrument: Large sliding caliper</i></p>	
<p>11</p>	<p><b>Buttock – abdomen depth, sitting (ISO 7250-1: 6.2.16)</b>                  Projected maximum horizontal depth of the lower torso between the maximum anterior protrusion of the abdomen and the maximum posterior protrusion of the buttock. Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other with the rearmost point of the buttocks touching the surface of a vertical panel. Distance is measured from the vertical panel to the maximum anterior protrusion of the abdomen.  <i>Instrument: Anthropometer</i></p>	
<p>12</p>	<p><b>Buttock-popliteal length, sitting (seat depth) (ISO 7250-1: 6.4.7)</b>                  Horizontal distance from the hollow of the knee to the rearmost point of the buttock. Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other and the sitting surface extending as far as possible into the hollow of the knee. The position of the rearmost point of the buttock is vertically projected onto the sitting surface by means of a measuring cube which touches the buttocks. Distance is measured from the measuring block to the forward edge of the sitting surface.  <i>Instrument: Anthropometer, measuring block.</i></p>	
<p>13</p>	<p><b>Buttock to knee length, sitting (ISO 7250-1: 6.4.8)</b>                  Horizontal distance from the foremost point of the knee-cap to the rearmost point of the buttock. Subject sits fully erect with the feet supported so that the femora are horizontal and parallel to each other. The position of the rearmost point of the buttock is vertically projected onto the sitting surface by means of a measuring block which touches the buttock. Distance is measured from the measuring block to the foremost point of the knee-cap.  <i>Instrument: Anthropometer, measuring block.</i></p>	
<p>14</p>	<p><b>Thigh clearance, (depth) sitting ((ISO 7250-1: 6.4.12 - Childdata: 115)</b>                  The vertical distance from the sitting surface to the highest point on the superior (top) surface of the thigh. Subject sits erect with knees bent at right angles, supporting the feet flat on the floor.  <i>Instrument: Anthropometer.</i></p>	
<p>15</p>	<p><b>Knee height, sitting (ISO 7250-1: 6.2.13)</b>                  Vertical distance from the floor to the highest point of the superior border of the patella (suprapatella, sitting). Subject sits erect with knees bent at right angles, supporting the feet flat on the floor.  <i>Instrument: Anthropometer.</i></p>	
<p>16</p>	<p><b>Popliteal height, sitting (ISO 7250-1: 6.2.11)</b>                  Vertical distance from the foot-rest surface to the lower surface or the thigh immediately behind the knee, bent at right angles. Subject sits with the foot placed on a raised platform so the thigh and lower legs are at angles during measurement. The movable arm or the measuring instrument is pushed gently against the tendon of the relaxed biceps femoris muscle.  <i>Instrument: Anthropometer.</i></p>	

TABLE A.7 REACH

REACH		
1	<p><b>Span (Childata: 145)</b></p> <p>The maximum horizontal distance between the fingertips when both arms are stretched out sideways.</p>	
2	<p><b>Elbow span (Childata: 146)</b></p> <p>The distance between the tips of the elbow is measured. The subject stretches out both upper limbs sideways and flexes the elbows so that the fingertips touch the chest.</p>	
3	<p><b>Sideways reach to grip (standing) (Childata: 144)</b></p> <p>The horizontal distance from the wall to the most distal point on the handle of the grip device (away from the body) is measured. The subject stands erect with feet together, left shoulder against the wall, grasping the handle of the grip device in the right hand and abducts (lifts to the side of the body) the extended right arm to maximum lateral or sideways horizontal grip reach.</p>	
4	<p><b>Knuckle height (from floor) (Childata: 70)</b></p> <p>The vertical distance from the floor to the proximal (first or largest) knuckle of the middle finger is measured while the subject stands erect with arms at the sides.</p>	
5	<p><b>Middle fingertip height (from floor) (Childata: 92)</b></p> <p>The vertical distance from the floor to the tip of the middle finger (dactylion) is measured while the arm is held at the side of the body.</p>	
6	<p><b>Wall-acromion distance (ISO 7250-1: 6.4.1)</b></p> <p>Horizontal distance from a vertical surface to the acromion. Subject stands with shoulder blades in firm contact with a vertical surface, and arms hanging relaxed at the side. Reliable results may be difficult to obtain, especially in cases of large buttocks, or much muscle mass or body fat on the back. <i>Instrument: Anthropometer</i></p>	
7	<p><b>Fist (grip axis) height (ISO 7250-1: 6.4.5)</b></p> <p>Vertical distance from the floor to the grip axis of the fist. Subject stands fully erect with feet together, shoulders relaxed, arms hanging freely downwards. Hand holds the measuring rod in the sagittal plane with grip axis horizontal. <i>Instrument: Anthropometer, 20 mm diameter rod</i></p>	

REACH

<p>8</p>	<p><b>Arm length to fingertip (Childata: 53)</b></p> <p>The distance from the acromion (the most lateral edge of the spine of the scapula) to the fingertip with the elbow and wrist straight/extended.</p>	
<p>9</p>	<p><b>Arm length to grip (Childata: 54)</b></p> <p>The distance from the acromion (the most lateral edge of the spine of the scapula) to the center of an object gripped in the hand, arm held out straight in front of the body and with the elbow and wrist straight.</p>	
<p>10</p>	<p><b>Grip reach, (standing) (ISO 7250-1: 6.4.2) – (Childata: 140)</b></p> <p>Horizontal distance from a vertical surface to the grip axis of the hand while the subject leans both shoulder blades against the vertical surface. Subject stands fully erect with shoulder blades firmly against the vertical surface, arm fully extended horizontally. Hand holds measuring rod with grip axis vertical. Reliable results may be difficult to obtain, especially in cases of large buttocks, or much muscle mass or body fat on the back. <i>Instrument: Anthropometer, 20mm diameter rod.</i></p>	
<p>11</p>	<p><b>Elbow height (from floor) (ISO 7250-1: 6.1.5)</b></p> <p>Vertical distance from the floor to the lowest bony point of the bent elbow. Subject stands fully erect with feet together. Upper arm hangs freely downwards, with forearm flexed at right angle to it. <i>Instrument: Anthropometer</i></p>	
<p>12</p>	<p><b>Elbow – grip length (ISO 7250-1: 6.4.4) – (Childata: 64)</b></p> <p>The horizontal distance from olecranon (back of the elbow) to grip axis. The subject stands with arms at sides and elbows flexed to 90 degrees. <i>Instrument: Large sliding caliper, 20 mm diameter rod for determining grip axis.</i></p>	
<p>13</p>	<p><b>Step height (Childata: 147)</b></p> <p>The maximum distance from the floor to the ball of the foot. The subject stands erect facing a wall with palms of hands resting lightly against the wall at shoulder level for balance. The subject raises the right foot to the maximum possible height from the floor.</p>	
<p>14</p>	<p><b>Overhead reach to grip (standing) (Childata: 136)</b></p> <p>The distance from the floor to the centre of the grip device is measured. The subject stands erect with feet together and with their right side against a wall. The right arm is extended to maximum vertical reach while grasping the handle of a grip device in the right hand.</p>	

REACH

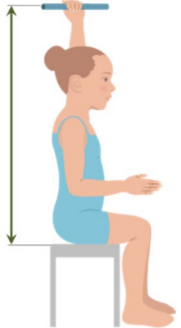


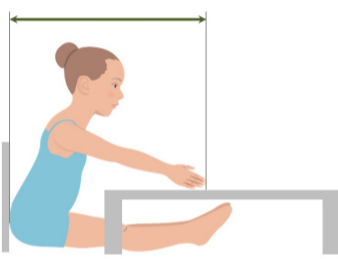
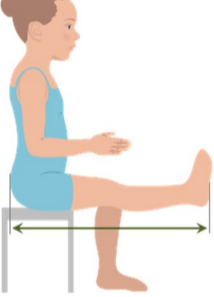
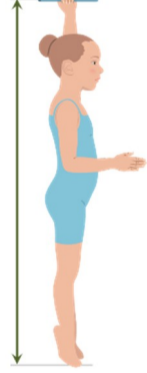
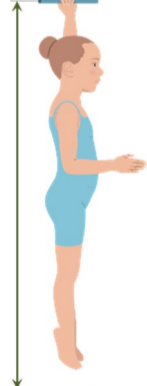





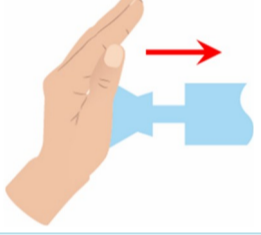
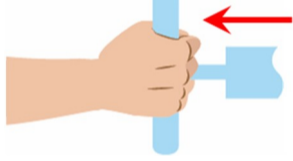

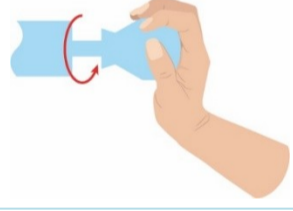
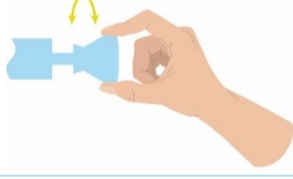
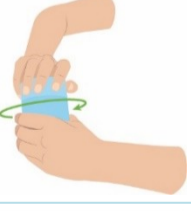
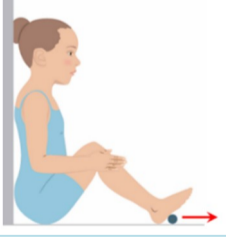

<p>15</p>	<p><b>Overhead reach to grip (sitting) (Childata: 137)</b></p> <p>The distance from the sitting surface to the centre of the grip device. The subject sits so that the hips and knees are at 90 degrees. The subject grasps the handle of a grip device in the right hand extending the right arm to maximum vertical reach.</p>	
<p>16</p>	<p><b>Forward reach to grip (sitting) (Childata: 141)</b></p> <p>The horizontal distance from the backrest to the center of the grip device is measured. The subject sits erect with feet together, hips and knees at right angles and with back supported. Grasping the handle of the grip device in the right hand the right arm is extended to maximum horizontal grip reach while the shoulder blades are held against the backrest.</p>	
<p>17</p>	<p><b>Forward reach to grip (stretching and seated) (Childata: 142)</b></p> <p>The distance from the backrest to the mid-point on the handle of the grip device. The subject sits so that the hips and knees are at 90 degrees, with feet supported on the ground. The subject grasps the handle of a grip device in the right hand, extending the right arm and moving upper torso forwards (without moving the buttocks or knees) to maximum forward reach.</p>	
<p>18</p>	<p><b>Forward reach to fingertip (stretching and seated, legs outstretched) (Childata: 143)</b></p> <p>The maximum distance reached and held for 1 second on the fourth reach is recorded. The subject sits on the floor with legs extended, with hands palms down on top of each other, on top of the bench. The subject reaches forward as far as possible sliding both hands along the top of the bench.</p>	
<p>19</p>	<p><b>Leg length, buttock to sole (sitting) (Childata: 109)</b></p> <p>The distance from the most rearward part of the buttocks (against the backrest) to the sole of the right foot. The subject sits erect with thighs supported, right leg extended and foot at right angles to the leg.</p>	
<p>20</p>	<p><b>Overhead reach to fingertip (on tiptoes) (Childata: 138)</b></p> <p>The vertical distance to the maximum overhead reach with the fingertips is measured with the subject with the both feet on the floor, standing on tiptoe and stretching up with the left arm only.</p>	
<p>21</p>	<p><b>Overhead reach to fingertip (jumping) (Childata: 139)</b></p> <p>The vertical difference between the maximum standing overhead reach (to fingertip) and the maximum height that can be reached with one hand in one jump without stepping.</p>	


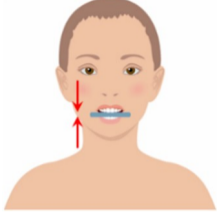
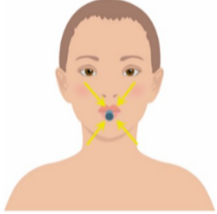
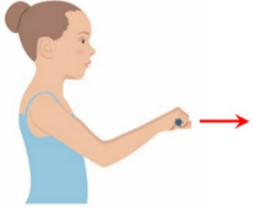
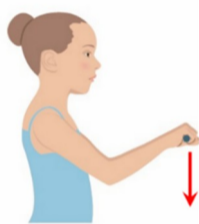

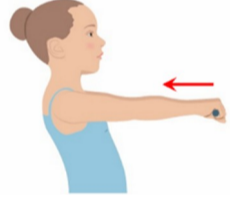
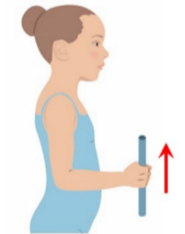
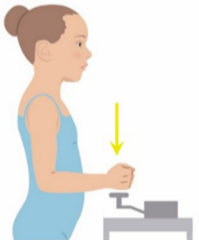
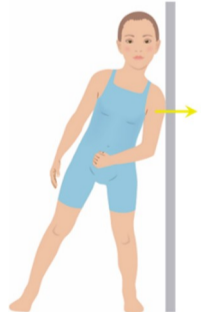
TABLE A.8 STRENGTH

STRENGTHS

STRENGTHS

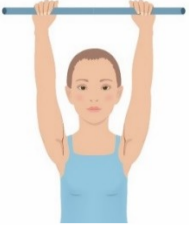

Hand	1	<p><b>Finger Push</b></p> <p>The maximum static force that be exerted in a forward direction with one finger against a variety of objects, placed at a height to allow that the arm is flexed approximately 90° in the elbow and controlling the influence of arms and body.</p>	
	2	<p><b>Pinch (finger tips) (Childata: 158)</b></p> <p>The maximum static force that be exerted on an object placed in the hand by squeezing together the pad of the thumb in opposition to the pads of either the index finger, the index and middle finger or all four fingers.</p>	
	3	<p><b>Pinch (lateral) (Childata: 160)</b></p> <p>The force exerted between the thumb and the medial side of the index finger (the side nearest the thumb) at the level of the distal (end or furthest) joint.</p>	
	4	<p><b>Pinch-Pull</b></p> <p>The maximum static force that be exerted by pulling towards the body with the fingers, against a variety of objects.</p>	
	5	<p><b>Hand Grip</b></p> <p>Force applied by the hand to pull on or suspend from objects and is a specific part of hand strength.</p>	
	6	<p><b>Hand pushing</b></p> <p>The maximum static force that can be exerted in a forward's direction with either the palm against a variety of objects, placed at a height to allow that the arm is flexed approximately 90° in the elbow and controlling the influence of arms and body.</p>	
	7	<p><b>Hand Pulling</b></p> <p>The maximum static force that can be exerted by pulling towards the body with either the palm, against a variety of objects, placed at a height to allow that the arm is flexed approximately 90° in the elbow and controlling the influence of arms and body.</p>	
	8	<p><b>Shear (Childata: 161)</b></p> <p>Ability to resist a pulling force caused by removing a smooth metal cylinder held by all four fingers and the thumb, drawing the cylinder away along the long axis of the hand.</p>	
Hand Wrist	1	<p><b>Twisting (With hand) (Childata: 155)</b></p> <p>The maximum static force that be exerted on an object by twisting an object with one hand in either direction. Usually measured as the force with which a circular knob can be turned.</p>	
	2	<p><b>Twisting (finger tips)</b></p> <p>The maximum static force that be exerted on an object by twisting an object with the fingers in either direction. Usually measured as the force with which a circular knob can be turned</p>	
	3	<p><b>Opening (Childata: 156)</b></p> <p>The maximum static force that be exerted in trying to open the lid of a screw top jar or bottle</p>	
Leg/Feet	1	<p><b>Press with the foot (Childata: 162)</b></p> <p>The maximum static force that be exerted by both feet on a horizontal bar whilst seated and with the back against a support.</p>	
	2	<p><b>Feet pushing forwards</b></p> <p>Maximum static strength when pressing with the foot on a bar and a pedal, whilst standing, and using one (dominant) foot. The pedal and bar were positioned at instep height.</p>	

**STRENGTHS**

	3	<p><b>Lift with the foot</b> Maximum static strength when lifting with the foot on a bar and a pedal, whilst standing, and using one (dominant) foot. The pedal and bar were positioned at instep height.</p>	
Mouth	1	<p><b>Biting (Childata: 163)</b> The maximum force that can be exerted on an object placed between the teeth</p>	
	2	<p><b>Lip strength (Childata: 164)</b> The force exerted between lips</p>	
Upper body/trunk	1	<p><b>Pushing Forwards (Childata: 148)</b> The maximum static force that be exerted in a forwards direction with one or two hands and against a variety of objects</p>	
	2	<p><b>Pushing downwards (Childata: 149)</b> The maximum static force that can be exerted in a downwards direction by one hand on a variety of objects</p>	
	3	<p><b>Pushing sideways (Childata: 150)</b> The maximum static force that can be exerted sideways, either to the left or right, with one hand on a vertical handle.</p>	
	4	<p><b>Pulling (Childata: 151)</b> The maximum static force that be exerted by pulling towards the body with one or two hands and against a variety of objects.</p>	
	5	<p><b>Lifting (Childata: 152)</b> The maximum static force that be exerted by pulling up with one hand on a variety of objects</p>	
	6	<p><b>Hitting force (Childata: 154)</b> Striking force with the fist at various positions and in different directions</p>	
	7	<p><b>Pushing with the shoulder</b> The maximum static force that can be exerted in a forwards direction with the shoulder and against a variety of objects.</p>	



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	8	<b>Hanging by the arms (Childdata: 153)</b> The maximum length of time that children are able to hang by the hands from an overhead horizontal bar with feet off the ground and arms either straight or bent.	
	9	<b>Chair push-up</b> Maximum weight of a chair that a child can lift when getting up from it.	

## ANNEX B (INFORMATIVE) EXISTING DATA SOURCES

The data sources listed in Annex B are the ones which are considered to be recent, in other words associated surveys having been carried out since 2000. These data sources were assessed during the course of the research project entitled “Analysis of the Demand and Availability of anthropometric data of children in Europe” and they were considered to be reliable.

Table B.1 provides information on the characteristics of the data source such as the name and author of the study, year of the survey, geographical region, age/gender of children, sample size and type measurement method.

Table B.2 provides information on what anthropometric body dimensions each individual data source provides. It is intended that cross referencing between Tables B.1 and B.2 would enable the stakeholders to identify the appropriate data sources which are more relevant to their needs and the information on how to access these data bases.

**TABLE B.1 DESCRIPTION OF THE EXISTING ANTHROPOMETRIC AND STRENGTH DATA SOURCES**

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
1 ALB-2009-A0-01	Blood pressure and anthropometric measurements in Albanian versus Turkish children and adolescents		2009	2007	Borici, S. (Department of Cardiology, Marmara University School of Medicine, Istanbul)	Albania	Southern Europe	11-12 and 15-17 y.o.	M&F	82	109	Ant-Basic	Traditional	Full body
2 AUT-2010-A0-01	Körperbaulicher Status der 10- bis 12-jährigen Schüler und Schülerinnen der Sportmittelschulen Wien im Zeitraum von 2004 - 2006	SPORTMITTELSCHULEN WIEN 2004-2006	2010	2004-2006	Dr. Alena Kos (Institute of Medical and Sports Science Consulting)	Austria	Western Europe	10-12 y.o.	M&F	1652	566	Ant-Basic	Traditional	Full body
3 AUT-2012-A0-01	Normal Weight Estonian Prepubertal Boys Show a More Cardiovascular-Risk-Associated Adipose Tissue Distribution than Austrian Counterparts		2012	Inaccessible	S, J. Wallner-Liebmann (Center of Molecular Medicine, Institute of Pathophysiology and Immunology, Medical University of Graz, Graz)	Austria	Western Europe	10-12 y.o.	M	280	0	Ant-Basic	Traditional	Full body
4 BEL-2012-A0-01	Smartfit: Belgian anthropometric research	Smartfit (2012-2016)	2014	2012-2016	Cools, J. (University College Ghent, HoGent)	Belgium	Western Europe	3-18 y.o.	M&F	225	551	Ant-Full Extended	3D scanner & Traditional	Full body
5 BEL-2004-A0-01	GROWTH CHARTS Flanders 2004	GROWTH CHARTS Flanders 2004	2004	2001-2004	M. Roelants & R. Hauspie, (Laboratorium voor Antropogenetica, Vrije Universiteit Brussel)	Belgium	Western Europe	0-20 y.o.	M&F	7920	8176	Ant-Basic	Traditional	Full body
6 BGR-2009-A0-01	Waist circumference percentile curves for Bulgarian children and adolescents aged 6-18 years		2009	2007	Sonya V. Galcheva (Department of Paediatrics and Medical Genetics, University Hospital “St. Marina”, Varna)	Bulgaria	Eastern Europe	5,5-18,5 y.o.	M&F	2052	1758	Ant-Basic	Traditional	Full body
7 BGR-2005-A0-01	Anthropometric and Cardiopulmonary Parameters in Bulgarian and Romany Children: Cross-sectional Study		2005	2004	Stoika Mandadzhieva (Medical University of Plovdiv)	Bulgaria	Eastern Europe	10-11 y.o.	M&F	103	107	Ant-Basic	Traditional	Full body
8 BGR-2010-A0-01	Comparison of the body mass index to other methods of body fat assessment in Bulgarian children and adolescent		2010	2008-2009	M. Nikolova & Sl. Tineshev (Faculty of Biology, Department of Human Anatomy and Physiology, Medical University of Plovdiv “Paisii Hilendarski”, Plovdiv)	Bulgaria	Eastern Europe	7-17 y.o.	M&F	1114	1155	Ant-Mid Extended	Traditional	Full body
9 BGR-2005-A0-02	Body composition of children and adolescents from Plovdiv (2005)		2005	Inaccessible	M. Nikolova (Faculty of Biology, Department of Human Anatomy and Physiology, Medical University of Plovdiv “Paisii Hilendarski”, Plovdiv)	Bulgaria	Eastern Europe	8-13 y.o.	M&F	299	321	Ant-Extended	Traditional	Full body

<sup>1</sup> Inaccessible: Data exists but it cannot be accessed and the data is not verified.

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
10 CHE-2010-A0-01	Estimation of percentage body fat in 6- to 13-year-old children by skinfold thickness, body mass index and waist circumference		2010	2005	Susi Kriemler (Institute of Social and Preventive Medicine at Swiss Tropical and Public Health Institute, University of Basel, Basel)	Switzerland	Western Europe	6-13 y.o.	M&F	178	194	Ant-Basic	Others (anthropometry)	Full body
11 CHE-2011-A0-01	Waist circumference and waist-to-height ratio percentiles in a nationally representative sample of 6–13 year old children in Switzerland		2011	2007	Isabelle Aeberli (Human Nutrition Laboratory, Institute of Food, Nutrition and Health, Swiss Federal Institute of Technology, Zurich)	Switzerland	Western Europe	6-13 y.o.	M&F	1128	1175	Ant-Basic	Traditional	Full body
12 CHE-2004-A0-01	Overweight and obesity in 6–12 year old children in Switzerland		2004	1999	Michael B. Zimmermann (Laboratory for Human Nutrition, Institute for Food Science and Nutrition, Swiss Federal Institute of Technology, Zurich)	Switzerland	Western Europe	6-12 y.o.	M&F	1196	1235	Ant-Basic	Traditional	Full body
13 CHE-2012-A0-01	A composite score combining waist circumference and body mass index more accurately predicts body fat percentage in 6- to 13-year-old children		2012	2007	Isabelle Aeberli (Human Nutrition Laboratory, Institute of Food, Nutrition and Health, Swiss Federal Institute of Technology, Zurich)	Switzerland	Western Europe	6-13 y.o.	M&F	1128	1176	Ant-Basic	Traditional	Full body
14 CHE-2014-A0-01	Paediatric adiposity stabilized in Switzerland between 1999 and 2012		2014	2012	Stefanie B. Murer (Human Nutrition Laboratory, Institute of Food, Nutrition and Health, Swiss Federal Institute of Technology, Zurich)	Switzerland	Western Europe	6-13 y.o.	M&F	1498	1463	Ant-Basic	Traditional	Full body
15 CYP-2001-A0-01	Reference Growth Curves for Cypriot Children 6 to 17 Years of Age		2001	1999-2000	Savvas C. Savva (Research and Education Foundation of Child Health, Nicosia)	Cyprus	Southern Europe	6-17 y.o.	M&F	1214	1258	Ant-Basic	Traditional	Full body
16 CZE-2013-A0-01	Children anthropometry in relation to school furniture / The importance of methodology evaluation of school furniture for Czech children with mobility disability in relation to children's anthropometry		2013	2012	Martin Zach (Expert Engineering Department, Institute of Lifelong Learning, Mendel University in Brno)	Czech Republic	Eastern Europe	4-18 y.o.	M&F	186	180	Ant-Extended	Traditional	Full body
17 CZE-2004-A0-01	The 6th nationwide anthropological survey of children and adolescents in the Czech republic in 2001	NAS2001	2004	2001-2002	Kobzová J. (Department of Biology, Pedagogical Faculty, University of South Bohemia)	Czech Republic	Eastern Europe	0-19 y.o.	M&F	Inaccessible	Inaccessible	Ant-Reduced	Traditional	Full body
18 CZE-2011-A0-01	Long-term changes in prevalence of overweight and obesity in Czech 7-year-old children: evaluation of different cut-off criteria of childhood obesity	COSI - WHO	2011	2008	M. Kunesová (Obesity Unit, Institute of Endocrinology, Prague)	Czech Republic	Eastern Europe	7 y.o.	M&F	778	753	Ant-Basic	Traditional	Full body
19 DEU-2008-E3-01	Do the feet of German and Australian children differ in structure? Implications for children's shoe design	3D Feet Germany	2008	2005	Marlene Mauch (Medical Clinic, Department of Sports Medicine, University of Tuebingen)	Germany	Western Europe	3-12 y.o.	M&F	958	1008	Ant-Body part	3D scanner	Foot & Ankle
20 DEU-2007-A0-01	Body measurements of children and adolescents in Germany. Results of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) - Körpermaße bei Kindern und Jugendlichen in Deutschland	KiGGS	2007	2003-2006	H. Stolzenberg (Robert Koch-Institut, Berlin)	Germany	Western Europe	0-17 y.o.	M&F	8985	8656	Ant-Reduced	Traditional	Full body
21 DEU-2012-A0-01	The LIFE child study: a life course approach to disease and health	LIFE Child Health study	2012	2011-2014	Mirja Quante (LIFE Leipzig Research Centre for Civilization Diseases, University of Leipzig)	Germany	Western Europe	0-6 y.o.	M&F	Inaccessible	Inaccessible	Ant-Reduced	3D scanner & Traditional	Full body
22 DEU-2008-A0-01	First reference curves of waist circumference for German children in comparison to international values: the PEP Family Heart Study	PEP 2008	2008	1994-2003	Peter Schwandt (Arteriosklerose-Präventions-Institut Munich–Nuremberg & Ludwig-Maximilians Universität Munich)	Germany	Western Europe	3-11 y.o.	M&F	1788	1743	Ant-Basic	Traditional	Full body

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
23 DEU-2009-A0-01	Size Germany	Size GERMANY	2009	2007-2008	Mr. Simone Morlock (Hohenstein Institute, Bönningheim) and Mr. Rainer Trieb (Human Solutions GmbH, Kaiserslautern)	Germany	Western Europe	6-18 y.o.	M&F	Inaccessible	Inaccessible	Ant-Full Extended	3D scanner	Full body
24 DNK-2013-A0-01	The 2014 Danish references from birth to 20 years for height, weight and body mass index	COPENHAGEN Puberty Study	2013	1987-2002	Jeanette Tinggaard (Department of Growth and Reproduction, Rigshospitalet, University Hospital of Copenhagen, Copenhagen)	Denmark	Northern Europe	0-20 y.o.	M&F	7152	4600	Ant-Basic	Traditional	Full body
25 ESP-2011-A0-02	Curvas y Tablas de crecimiento (Estudios Longitudinal y transversal)	ORBEGOZO	2000, 2004, 2011	2000, 2004, 2011	B. Sobradillo (Fundación Faustino Orbeagozo Eizaguirre, Bilbao)	Spain	Southern Europe	0-18 y.o.	M&F	3496	2947	Ant-Basic	Traditional	Full body
26 ESP-2013-A0-01	Estudio de vigilancia del crecimiento, alimentación, actividad física, desarrollo infantil y obesidad en España. (2011 y 2013)	COSI - ALADINO	2011, 2013	2011, 2013	Rosa M. Ortega Anta (Universidad Complutense de Madrid - Grupo de Investigación UCM-VALORNUT. Departamento de Nutrición, Universidad Complutense de Madrid, Madrid)	Spain	Southern Europe	6-9 y.o.	M&F	5530	5562	Ant-Basic	Traditional	Full body
27 ESP-2008-A0-01	Estudio transversal español de crecimiento 2008. Parte II: valores de talla, peso e índice de masa corporal desde el nacimiento a la talla adulta	CURVAS de CRECIMIENTO España (2008)	2008	2000-2004	A. Carrascosa Lezcano (Servicio de Pediatría y Endocrinología Pediátrica. Hospital Universitario Vall d'Hebron. Barcelona. Universidad Autónoma de Barcelona, Barcelona)	Spain	Southern Europe	0-18 y.o.	M&F	15213	15033	Ant-Basic	Traditional	Full body
28 ESP-2003-E3-01	Development of a new type of advanced early walking shoe.	ARCHIBALD_ESP	2003	2003	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	1-4 y.o.	M&F	228	228	Ant-Body part	3D scanner	Foot & Ankle
29 ESP-2016-A0-01	Estudio longitudinal (No publicado)	Estudio longitudinal catalán	2016	2000-2015*?	A. Carrascosa Lezcano (Servicio de Pediatría y Endocrinología Pediátrica. Hospital Universitario Vall d'Hebron. Barcelona. Universidad Autónoma de Barcelona, Barcelona)	Spain	Southern Europe	0-19 y.o.	M&F	760	760	Ant-Basic	Traditional	Full body
30 ESP-2015-A0-01	Development of a new extended product-service to overcome size assignment and fitting barriers for children fashion on-line market addressing customer needs	AEI Child (2013-2015)	2015	2013-2015	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	3-12 y.o.	M&F	391	400	Ant-Extended	3D scanner	Full body
31 ESP-2015-A0-02	Development of a new extended product-service to overcome size assignment and fitting barriers for children fashion on-line market addressing customer needs	AEI Baby (2013-2015)	2015	2013-2015	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	0-3 y.o.	M&F	185	171	Ant-Mid Extended	Traditional	Full body
32 ESP-2008-A0-02	3D Body Databases of the Spanish Population and its Application to the Apparel Industry	INC women standing	2008	2007-2008	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	11-18 y.o.	F	0	2380	Ant-Full Extended	3D scanner	Full body
33 ESP-2008-A0-03	Anthropometric Survey of the Spanish Female Population Aimed at the Apparel Industry	INC women sitting	2008	2007-2008	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	12-18 y.o.	F	0	678	Ant-Extended	3D scanner	Full body
34 ESP-2008-D3-01	Anthropometric Survey of the Spanish Female Population Aimed at the Apparel Industry	INC women hand	2008	2007-2008	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	12-18 y.o.	F	0	599	Ant-Body part	Images	Hand & Wrist
35 ESP-2014-A0-04	3D Body Databases of the Spanish Population and its Application to the Apparel Industry	SIZING men	2014	2013-2014	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	11-18 y.o.	M	298	0	Ant-Full Extended	3D scanner	Full body

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36 ESP-2017-D3-01	Estudio de las características antropométricas de la población infantil europea para mejorar la seguridad, ergonomía y psicomotricidad de productos para la infancia. Aplicación a los sectores: juguete, puericultura, parques infantiles, deporte y socio sanitario.	EHF-hand	2017	2016-2017	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	4-14 y.o.	M&F	561	557	Ant-Body part	Images & Traditional	Hand & Wrist
37 ESP-2017-E3-01	Estudio de las características antropométricas de la población infantil europea para mejorar la seguridad, ergonomía y psicomotricidad de productos para la infancia. Aplicación a los sectores: juguete, puericultura, parques infantiles, deporte y socio sanitario.	EHF-foot	2017	2016-2017	Juan Carlos González (Instituto de Biomecánica de Valencia - IBV, Valencia)	Spain	Southern Europe	4-14 y.o.	M&F	518	527	Ant-Body part	3D scanner	Foot & Ankle
38 EST-2012-A0-01	Normal Weight Estonian Prepubertal Boys Show a More Cardiovascular-Risk-Associated Adipose Tissue Distribution than Austrian Counterparts (2012)		2012	Inaccessible	S, J. Wallner-Liebmann (Medical University of Graz, Graz)	Estonia	Northern Europe	10-12 y.o.	M	273	0	Ant-Basic	Traditional	Full body
39 EST-2006-A0-01	Tracking of Anthropometric Parameters and Bioelectrical Impedance in Pubertal Boys and Girls		2006	2002	Leppik, A. (Centre of Behavioural and Health Sciences, University of Tartu, Tartu)	Estonia	Northern Europe	10-11 y.o.	M&F	324	386	Ant-Extended	Traditional	Full body
40 EST-2008-A0-02	Somatotype in 6–11-year-old Italian and Estonian schoolchildren		2008	2004	A.R. Ventrella (Department of Evolutionary and Experimental Biology, Area of Anthropology, University of Bologna, Bologna)	Estonia	Northern Europe	6-11 y.o.	M&F	181	185	Ant-Basic	Traditional	Full body
41 EU-2016-A0-01	WHO European Childhood Obesity Surveillance Initiative.	COSI Childhood Obesity Surveillance Initiative	2016	2007-2011	Wijnhoven, T.& Mr. Dr João Breda (Physical activity and Obesity, WHO Regional Office for Europe)	Several countries	General	6-10 y.o.	M&F	Inaccessible	Inaccessible	Ant-Basic	Traditional	Full body
42 FIN-2007-A0-01	Are the desks and chairs at school appropriate?		2007	Inaccessible	L. Saarni (Tampere School of Public Health, Tampere)	Finland	Northern Europe	12-14 y.o.	M&F	45	57	Ant-Reduced	Traditional	Full body
43 FRA-2010-A0-03	Child pedestrian anthropometry: evaluation of potential impact points during a crash		2010	2010	Thierry Serre (Laboratoire de Biomécanique Appliquée, Université de la Méditerranée, Faculté de Médecine Nord, Marseille)	France	Western Europe	3-15 y.o.	M&F	941	972	Ant-Reduced	Traditional	Full body
44 FRA-2011-A0-01	Anthropometric data of the 3 and 6 year-old child regarding the position of the safety belt (2011)		2011	Inaccessible	Thierry Serre (Laboratoire de Biomécanique Appliquée, Université de la Méditerranée, Faculté de Médecine Nord, Marseille)	France	Western Europe	3-6 y.o.	M&F	46	25	Ant-Extended	Traditional	Full body
45 FRA-2006-A0-01	Campagne Nationale de Mensuration	Campagne Nationale de Mensuration	2006	2003-2005	Mr. Lauren Houlliont (IFTH -L'Institut Français du Textile et de l'Habillement)	France	Western Europe	6-18 y.o.	M&F	Inaccessible	Inaccessible	Ant-Full Extended	3D scanner & Traditional	Full body
46 FRA-2010-A0-01	3D CHILD French Measurement Campaign	3D CHILD French Measurement Campaign	2010	2006-2008	Mr. Lauren Houlliont (IFTH -L'Institut Français du Textile et de l'Habillement)	France	Western Europe	0-2 y.o.	M&F	607	623	Ant-Basic	Traditional	Full body
47 FRA-2010-A0-02	3D CHILD French Measurement Campaign	3D CHILD French Measurement Campaign	2010	2006-2008	Mr. Lauren Houlliont (IFTH -L'Institut Français du Textile et de l'Habillement)	France	Western Europe	2,5-6 y.o.	M&F	464	483	Ant-Full Extended	3D scanner	Full body

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48 FRA-2002-A0-01	Body mass index in 7 – 9-y-old French children: frequency of obesity, overweight and thinness		2002	2000	M-F Rolland-Cachera (Unité de Surveillance et d'Epidémiologie Nutritionnelle, Institut de Veille Sanitaire (InVS) Conservatoire National des Arts et Métiers, CNAM, Paris)	France	Western Europe	7-9 y.o.	M&F	786	796	Ant-Basic	Traditional	Full body
49 GBR-2011-A0-01	National children-swear survey	The Shape GB Phase I	2011	2010	Richard Barnes & Mrs. Lorren Wyatt (Select Research)	United Kingdom	Northern Europe	4-17 y.o.	M&F	Inaccessible	Inaccessible	Ant-Full Extended	3D scanner	Full body
50 GBR-2012-A0-01	Shape GB Babies & Toddlers Sizing Report	The Shape GB Phase II	2012	2011	Richard Barnes & Mrs. Lorren Wyatt (Select Research)	United Kingdom	Northern Europe	0-4 y.o.	M&F	Inaccessible	Inaccessible	Ant-Inaccessible	Traditional	Full body
51 GBR-2013-E3-01	Inaccessible	England 3D feet	2013	2013	Richard Barnes (Select Research)	United Kingdom	Northern Europe	7-10 y.o.	M&F	Inaccessible	Inaccessible	Ant-Body part	3D scanner	Foot & Ankle
52 GBR-2001-A0-01	The UK Anthropometric Survey of School Children 2001	UK Anthropometric Survey of School Children 2001	2001	2001	Ms. Beverly Norrys & Ms. Sara Atkinson (University of Nottingham)	United Kingdom	Northern Europe	4-16 y.o.	M&F	727	666	Ant-Reduced	Traditional	Full body
53 GBR-2015-A0-01	Acceptability, Precision and Accuracy of 3D Photonic Scanning for Measurement of Body Shape in a Multi-Ethnic Sample of Children Aged 5-11 Years: The SLIC Study	SLIC_2015	2015	2011-2012,2014	Jonathan C. K. Wells (Childhood Nutrition Research Centre, UCL Institute of Child Health, London)	United Kingdom	Northern Europe	5 and 11 y.o.	M&F	Inaccessible	Inaccessible	Ant-Reduced	3D scanner & Traditional	Full body
54 GBR-2008-A0-02	Statistical Modelling of Body Composition in Children and their Parents	The Gateshead Millennium Study (GMS)	2008	1999-2015	María Franco Villoria (Department of Statistics, University of Glasgow, Glasgow)	United Kingdom	Northern Europe	6-7 y.o.	M&F	1008	1039	Ant-Reduced	Traditional	Full body
55 GBR-2001-C2-01	The development of waist circumference percentiles in British children aged 5-16,9 years old		2001	1988	HD McCarthy (School of Health and Sports Science, The University of North London, London)	United Kingdom	Northern Europe	5-16,9 y.o.	M&F	3585	4770	Ant-Basic	Traditional	Full body
56 GBR-2001-D3-01	GETTING STUCK – THE ANTHROPOMETRY OF YOUNG CHILDREN’S FINGERS		2001	2001	Mic L. Porter (School of Design, University of Northumbria at Newcastle, Newcastle-upon-Tyne)	United Kingdom	Northern Europe	6 months to 7,5 y.o.	M&F	Inaccessible	Inaccessible	Ant-Body part	Traditional	Hand & Wrist
57 GBR-2011-B1-01	Three- dimensional gender differences in facial form of children in the North East of England		2011	2011	Iman Bugaighis (Arab Medical University, Benghazi, Libya)	United Kingdom	Northern Europe	8-12 y.o.	M&F	39	41	Ant-Body part	3D scanner & Traditional	Head
58 GRC-2004-A0-01	Classroom furniture dimensions and anthropometric measures in primary school (2004)		2004	Inaccessible	Georgia Panagiotopoulou (Ergophysiology Laboratory, Department of Physical Education and Sports Science, Aristotle University of Thessaloniki, Salónica)	Greece	Southern Europe	7-12 y.o.	M&F	90	90	Ant-Reduced	Traditional	Full body
59 GRC-2006-A0-01	Match between school furniture dimensions and children’s anthropometry (2006)		2006	Inaccessible	M.K. Gouvali (Sport Biomechanics Laboratory, Department of Sport Medicine and Biology of Physical Activity, Faculty of Physical Education and Sport Science, University of Athens)	Greece	Southern Europe	6-18 y.o.	M&F	Inaccessible	Inaccessible	Ant-Reduced	Traditional	Full body
60 GRC-2006-A0-02	Design and descriptive results of the "Growth, Exercise and Nutrition Epidemiological Study In pre-Schoolers": The GENESIS Study	GENESIS Study	2006	2003-2004	Yannis Manios (Department of Nutrition & Dietetics, Harokopio University of Athens)	Greece	Southern Europe	1-5 y.o.	M&F	1218	1156	Ant-Reduced	Traditional	Full body
61 GRC-2010-A0-02	The Effects of Age and Gender on the Weight and Use of Schoolbags		2010	2004-2010	Eleftherios Kellis (Laboratory of Neuromechanics, Department of Physical Education and Sports Sciences at Serres, Aristotle University of Thessaloniki, Salónica)	Greece	Southern Europe	6-14 y.o.	M&F	744	706	Ant-Basic	Traditional	Full body

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62 GRC-2010-A0-01	Ergonomic evaluation and redesign of children bicycles based on anthropometric data	Greek Somatometric Institute	2010	2003-2005	Lambros Laios (Ergonomics Research Group, Department of Industrial Management, University of Piraeus)	Greece	Southern Europe	7-14 y.o.	M&F	Inaccessible	Inaccessible	Ant-Reduced	Traditional	Full body
63 HRV-2004-A0-01	Relationships between muscular strength, anthropometric characteristics and motor abilities in children 11-12 years of age		2004	2001	Aleksandra Pejčić (Teacher Training College, University of Rijeka, Rijeka)	Croatia	Southern Europe	11-12 y.o.	M&F	540	518	Ant-Basic	Traditional	Full body
64 HRV-2006-A0-01	Croatian anthropometric system meeting the European Union	HAS project	2006	2004-2005	Darko Ujevic (Department of Clothing Technology, Faculty of Textile Technology of University of Zagreb, Zagreb)	Croatia	Southern Europe	0-18 y.o.	M&F	10741	9870	Ant-Extended	Traditional	Full body
65 HRV-2003-A0-01	Gender-Specific Growth Patterns for Stature, Sitting Height and Limbs Length in Croatian Children and Youth (3 to 18 Years of Age)		2003	1997, 2000-2001	Miroslav Živičnjak (Institute for Anthropological Research, Zagreb)	Croatia	Southern Europe	3-18 y.o.	M&F	2564	2591	Ant-Basic	Traditional	Full body
66 HRV-2008-A0-01	Gender-Specific Growth Patterns of Transversal Body Dimensions in Croatian Children and Youth (2 to 18 Years of Age)		2008	1997, 2000-2001	Miroslav Živičnjak (Institute for Anthropological Research, Zagreb)	Croatia	Southern Europe	2-18 y.o.	M&F	2612	2648	Ant-Reduced	Traditional	Full body
67 HRV-2008-E0-01	Classroom Furniture Design – Correlation of Pupil and Chair Dimensions / The Design of Contemporary School Furniture as a Prerequisite for Maintenance of Pupils' Health (doctoral thesis)		2008	2004-2005	Danijela Domljan (Department for Furniture and Wood Product, Faculty of Forestry, University of Zagreb, Zagreb)	Croatia	Southern Europe	7-14 y.o.	M&F	293	268	Ant-Mid Extended	Traditional	Full body
68 HRV-2013-A0-01	Development of a Sizing System for Girls Aged 6 to 12 Years in Croatia	HRŽENJAK, R. et al. (2013)	2013	Inaccessible	Hrěnjak, Renata (Faculty of Textile Technology, Department of Clothing Technology, University of Zagreb, Zagreb)	Croatia	Southern Europe	6-12 y.o.	F	0	4200	Ant-Reduced	Traditional	Full body
69 HRV-2015-A0-01	Sizing system for girls aged 13-20 years based on body types	HRŽENJAK, R. et al. (2015)	2015	Inaccessible	Hrěnjak, Renata (Faculty of Textile Technology, Department of Clothing Technology, University of Zagreb, Zagreb)	Croatia	Southern Europe	13-20 y.o.	F	0	4071	Ant-Mid Extended	Traditional	Full body
70 EU-2011-A0-01	IDEFICS STUDY (2011)	IDEFICS study	2011	2007-2008	Wolfgang Ahrens (Bremen Institute for Prevention and Social Medicine, University of Bremen, Bremen)	Several countries	General	2-9 y.o.	M&F	8260	7964	Ant-Basic	Traditional	Full body
71 HUN-2015-A0-01	Overview of the Hungarian National Youth Fitness Study & Health-related physical fitness in Hungarian youth: Age, sex and regional profiles (2015)	NETFIT	2015	2012-2013	Csányi, T. (Hungarian School Sport Federation, Eötvös Loránd University, Budapest)	Hungary	Eastern Europe	10-18 y.o.	M&F	1301	1301	Ant-Inaccessible	Traditional	Full body
72 IRL-2014-A0-01	The childhood obesity surveillance initiative (COSI) in the Republic of Ireland: Findings from 2008, 2010 and 2012	COSI	2014	2008,2010,2012	Mirjam Heinen (National Nutrition Surveillance Centre NNSC, Dublin)	Ireland	Western Europe	6-11 y.o.	M&F	5087	5401	Ant-Basic	Traditional	Full body
73 ITA-2004-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3–6 years	EC project STOP II	2015	2002-2004	Zuzana Obertová (Laboratorio di Antropologia e Odontologia Forense, Sezione di Medicina Legale, Università degli Studi di Milano, Milan)	Italy	Southern Europe	3-6 y.o.	M&F	123	90	Ant-Body part	Traditional	Head
74 ITA-2004-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3–6 years	EC project STOP II	2015	2002-2004	Zuzana Obertová (Laboratorio di Antropologia e Odontologia Forense, Sezione di Medicina Legale, Università degli Studi di Milano, Milan)	Germany	Western Europe	3-6 y.o.	M&F	129	106	Ant-Body part	Traditional	Head
75 ITA-2004-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3–6 years	EC project STOP II	2015	2002-2004	Zuzana Obertová (Laboratorio di Antropologia e Odontologia Forense, Sezione di Medicina Legale, Università degli Studi di Milano, Milan)	Lithuania	Northern Europe	3-6 y.o.	M&F	110	123	Ant-Body part	Traditional	Head

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76 ITA-2008-A0-01	Somatotype in 6–11-year-old Italian and Estonian schoolchildren		2008	2004	A.R. Ventrella (Department of Evolutionary and Experimental Biology, Area of Anthropology, University of Bologna, Bologna)	Italy	Southern Europe	6-11 y.o.	M&F	380	382	Ant-Reduced	Traditional	Full body
77 ITA-2006-A0-01	Growth and Secular Trend in School-Children from Cento, Ferrara, Italy		2006	2001-2002	Stefania Toselli (Department of Evolutionary Experimental Biology, Unit of Anthropology, University of Bologna, Bologna)	Italy	Southern Europe	6-9 y.o.	M&F	149	149	Ant-Reduced	Traditional	Full body
78 ITA-2008-A0-02	Waist-to-Height Ratio, a Useful Index to Identify High Metabolic Risk in Overweight Children		2008	2003-2004	Claudio Maffei (Obesity study group of the Italian society of pediatric endocrinology and diabetology, Department of Mother and Child, Biology Genetics, Section of Pediatrics, University of Verona, Verona)	Italy	Southern Europe	5-15 y.o.	M&F	740	739	Ant-Basic	Traditional	Full body
79 ITA-2014-A0-01	Size ITALY	Size ITALY	2014	2012-2013	Mr. Rainer Trieb (Human Solutions GmbH, Kaiserslautern) and several partners from the Italian apparel industry and Sistemi Assyst	Italy	Southern Europe	6-18 y.o.	M&F	Inaccessible	Inaccessible	Ant-Full Extended	3D scanner	Full body
80 LTU-2014-A0-01	Growth surveillance study of Lithuanian children: results and changes (2008–2013)	COSI - LTU	2014	2013	Aušra Petrauskienė (Faculty of Public Health, Faculty of Medicine, Lithuanian University of Health Sciences, Kaunas)	Lithuania	Northern Europe	6-9 y.o.	M&F	Inaccessible	Inaccessible	Ant-Basic	Traditional	Full body
81 LTU-2007-A0-01	Physical status of preschool children: body size, proportions and body composition. / Trends in Body Mass Index, Prevalence of Overweight and Obesity in Preschool Lithuanian Children, 1986–2006.		2007	2003-2006	Jakimaviciene E.M. (Department of Anatomy, Histology and Anthropology, Faculty of Medicine, Vilnius University, Vilnius)	Lithuania	Northern Europe	3-6 y.o.	M&F	612	647	Ant-Extended	Traditional	Full body
82 LTU-2015-A0-01	Prevalence of overweight/obesity in relation to dietary habits and lifestyle among 7–17 years old children and adolescents in Lithuania		2015	2008-2010	Smetanina N. (Institute of Endocrinology, Medical Academy, Lithuanian University of Health Sciences, Kaunas)	Lithuania	Northern Europe	7-17 y.o.	M&F	Inaccessible	Inaccessible	Ant-Basic	Traditional	Full body
83 LTU-2012-B1-01	Can facial proportions taken from images be of use for ageing in cases of suspected child pornography? A pilot study		2012	2002-2007	Cristina Cattaneo (Laboratorio di Antropologia e Odontologia Forense(LABANOF), Sezione di Medicina Legale, Università degli Studi di Milano, Milan)	Lithuania, Germany, Italy	General	6, 10, 14 and 18 y.o.	M&F	20	353	Ant-Body part	Images	Head
84 LTU-2014-B1-01	Permanent teeth emergence time and growth of the face and jaws of Lithuanian children (data of 4-16 years old children, residents of Vilnius city)		2014	2004-2011	Rūta Almonaitienė (Biomedical Sciences, Odontology, Vilnius University, Vilnius)	Lithuania	Northern Europe	4-16 y.o.	M&F	1793	1824	Ant-Body part	Traditional	Head
85 LTU-2015-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3-6 years		2015	2002-2007	Janina Tutkuvienė (Department of Anatomy, Histology and Anthropology, University of Vilnius, Vilnius)	Lithuania, Germany, Italy	General	3-6 y.o.	M&F	362	319	Ant-Body part	Images	Head
86 LVA-2013-A0-01	A cross sectional research on the height, weight and body mass index of children aged 5-6 years in Latvia and its secular changes during the last century.		2013	2007-2009	Helena Karkliņa (University of Latvia, Riga)	Latvia	Northern Europe	5-6 y.o.	M&F	253	283	Ant-Basic	Traditional	Full body
87 MLT-2009-A0-01	Body mass index estimation in a school-entry aged cohort in Malta		2009	2007	Victor Grech (Department of Paediatrics, Mater Dei Hospital, Msida)	Malta	Southern Europe	5-6 y.o.	M&F	1792	1669	Ant-Basic	Traditional	Full body
88 MLT-2011-A0-01	Comparison of body mass index of a national cohort of Maltese children over a 3-year interval		2011	2008	Victoria Farrugia Sant'Angelo (Primary Child Health and Immunisation Unit, Primary Health Directorate)	Malta	Southern Europe	7-9 y.o.	M&F	1755	1680	Ant-Basic	Traditional	Full body



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89 NLD-2015-B1-01	Analysis of a 3D Anthropometric Data Set of Children for Design Applications	DELFT HEAD goto (2015)	2015	2013	Mr. Johan Molenbroek & Lyè Goto (Industrial Design Engineering, Delft University of Technology)	Netherlands	Western Europe	0,5-7 y.o.	M&F	174	110	Ant-Body part	3D scanner & Traditional	Head
90 NLD-2009-A0-01	Increase in Prevalence of Overweight in Dutch Children and Adolescents: A Comparison of Nationwide Growth Studies in 1980, 1997 and 2009		2009	2009	TNO Netherlands Organisation for Applied Scientific Research. Child Health, Leiden	Netherlands	Western Europe	0-21 y.o.	M&F	5811	6194	Ant-Basic	Traditional	Full body
91 NLD-2003-E3-01	Development of a new type of advanced early walking shoe	ARCHIBALD_NLD	2003	2003	TNO Netherlands Organisation for Applied Scientific Research	Netherlands	Western Europe	1-4 y.o.	M&F	242	201	Ant-Body part	3D scanner	Foot & Ankle
92 NOR-2009-A0-01	Growth charts for Norwegian children	Bergen Growth Study	2009	2003-2006	Júlíusson PB. (Section for Endocrinology and Metabolism Department of Paediatrics - Haukeland University Hospital and Institute for Clinical Medicine Section for Paediatrics University of Bergen)	Norway	Northern Europe	0-19 y.o.	M&F	3756	3535	Ant-Basic	Traditional	Full body
93 NOR-2011-A0-01	Measuring physical fitness in children who are 5 to 12 years old with a test battery that is functional and easy to administer		2011	Inaccessible	Ingunn Fjørtoft, PhD (Faculty of Arts, Folk Culture and Teacher Education, Telemark University College, Notodden)	Norway	Northern Europe	5-12 y.o.	M&F	94	101	Ant-Basic	Traditional	Full body
94 POL-2010-A0-01	Percentile distributions of waist circumference for 7–19-year-old Polish children and adolescents		2010	2002-2005	L. Ostrowska Nawarycz (Department of Biophysics Chair of Basic and Pre-clinical Sciences, Medical University in Lodz)	Poland	Eastern Europe	7-18 y.o.	M&F	2779	2884	Ant-Basic	Traditional	Full body
95 POL-2005-A0-01	Obesity and Overweight Prevalence in Polish 7-to 9-Year-Old Children		2005	2001	Ewa Malecka-Tendera (Department of Paediatric Endocrinology and Diabetes, Silesian University School of Medicine, Katowice)	Poland	Eastern Europe	7-9 y.o.	M&F	1471	1445	Ant-Basic	Traditional	Full body
96 POL-2012-A0-01	The association of the FTO RS9939609 polymorphism with obesity and metabolic risk factors for cardiovascular diseases in Polish children.		2012	2009-2011	Luczynski W. (Department of Paediatrics, Endocrinology and Diabetes with a Cardiology Unit, Medical University of Białystok, Białystok)	Poland	Eastern Europe	14-18 y.o.	M&F	521	447	Ant-Basic	Traditional	Full body
97 POL-2015-A0-01	Anthropometry and Body Composition of Adolescents in Cracow, Poland		2015	2012-2013	Wiesława Klimek-Piotrowska and Mateusz Koziej (Department of Anatomy, Collegium Medicum Jagiellonian University, Cracow)	Poland	Eastern Europe	14-18 y.o.	M&F	456	514	Ant-Basic	Traditional	Full body
98 POL-2006-A0-01	Nutritional status evaluation of 16-18 years old adolescents from the Kuiavia-Pomerania region.		2006	Inaccessible	Roman Cichon (Department of Nutrition and Dietetic, Collegium Medicum University of Nicolaus Copernicus Bydgoszcz)	Poland	Eastern Europe	16-18 y.o.	M&F	137	155	Ant-Basic	Traditional	Full body
99 POL-2011-A0-01	Polish 2010 growth references for school-aged children and adolescents	OLAF study (PL0080)	2011	2007-2009	Zbigniew Kułaga (The Children's Memorial Health Institute, Warsaw)	Poland	Eastern Europe	6-19 y.o.	M&F	8270	9010	Ant-Basic	Traditional	Full body
100 POL-2013-A0-01	Polish 2012 growth references for preschool children	OLAF study (N R13 000206)	2013	2010-2012	Zbigniew Kułaga (The Children's Memorial Health Institute, Warsaw)	Poland	Eastern Europe	2,5-6,5 y.o.	M&F	2437	2504	Ant-Basic	Traditional	Full body
101 PRT-2002-A0-01	Collection of Anthropometric Data From Primary Schoolchildren	Froufe T. et al. (2002)	2002	Inaccessible	Froufe T. et al. (Ergonomics Laboratory, Technical University of Lisbon)	Portugal	Southern Europe	5-14 y.o.	M&F	734	738	Ant-Extended	3D scanner	Full body
102 PRT-2010-A0-01	Ergonomic Design of School Furniture: Challenges for the Portuguese Schools		2010	Inaccessible	Ignacio Castellucci (Ergonomics Laboratory, School of Engineering University of Minho - Guimaraes)	Portugal	Southern Europe	7-10 y.o.	M&F	216	216	Ant-Reduced	Traditional	Full body
103 ROU-2007-A0-01	Corelația unor indici antropometrici cu vârsta și sexul, în adolescența timpurie		2007	2004-2005	Bagiu R. (Universitatea de Medicină și Farmacie "Victor Babeș" Timișoara, Disciplina Igienă)	Roumania	Eastern Europe	11-14 y.o.	M&F	Inaccessible	Inaccessible	Ant-Basic	Traditional	Full body

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
104 ROU-2011-A0-01	Anthropometric data for Romanian children	Anthropometric data for Romanian children	2011	2009-2011	Mrs. Claudia Nicolescu & Mrs. Carmen Ghituleasa (National Research & Development Institute for Textiles and Leather-INCOTP)	Roumania	Eastern Europe	6-19 y.o.	M&F	1291	1331	Ant-Full Extended	3D scanner	Full body
105 RUS-2010-A0-01	Several		Several	2002-2016	Elena Godina (Anuchin Research Institute and Museum of Anthropology, Lomonosov Moscow State University, Moscow)	Russia	Eastern Europe	7-17 y.o.	M&F	6344	6420	Ant-Mid Extended	Traditional	Full body
106 SVN-2004-A0-01	Relationships between muscular strength, anthropometric characteristics and motor abilities in children 11-12 years of age.		2004	2001	Aleksandra Pejčić (Teacher Training College, University of Rijeka, Croatia)	Slovenia	Southern Europe	11-12 y.o.	M&F	540	518	Ant-Basic	Traditional	Full body
107 SVN-2011-A0-01	Tracking excess weight and obesity from childhood to young adulthood: a 12-year prospective cohort study in Slovenia // Is there a rationale for stablishing Slovenian body mass index references of school-aged children and adolescents?		2011	1997, 2008	Starč, G. (Faculty of Sport, University of Ljubljana)	Slovenia	Southern Europe	7-18 y.o.	M&F	2470	2413	Ant-Mid Extended	Traditional	Full body
108 SWE-2010-A0-01	Overweight and obesity in a representative sample of schoolchildren – exploring the urban–rural gradient in Sweden		2010	2008	A. Sjöberg (Department of Public Health and Community Medicine, Public Health Epidemiology Unit, Sahlgrenska Academy, University of Gothenburg, Gothenburg)	Sweden	Northern Europe	7-9 y.o.	M&F	2371	2167	Ant-Basic	Traditional	Full body
109 SWE-2014-A0-01	Stable prevalence of obesity in Swedish schoolchildren from 2008 to 2013 but widening socio-economic gap in girls	COSI	2014	2008, 2010, 2013	Lotta Moraeus (Public Health Epidemiology Unit, Department of Public Health and Community Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg)	Sweden	Northern Europe	7-9 y.o.	M&F	1797	1695	Ant-Basic	Traditional	Full body
110 SWE-2005-A0-01	Physical performance and body mass index in Swedish children and adolescents		2005	2001	Eklom Örjan (Astrand Laboratory of Work Physiology, University College of Physical Education and Sports (GIH), and Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm)	Sweden	Northern Europe	10, 13 and 16 y.o.	M&F	Inaccessible	Inaccessible	Ant-Basic	Traditional	Full body
111 TUR-2009-A0-01	Blood pressure and anthropometric measurements in Albanian versus Turkish children and adolescents		2009	2007	Borici, S. (Department of Cardiology, Marmara University School of Medicine, Istanbul)	Turkey	Southern Europe	11-12 and 15-17 y.o.	M&F	95	121	Ant-Basic	Traditional	Full body
112 TUR-2015-A0-01	The Determination of the Anthropometrical Measurements of 5-7 Ages Depending on the New Education System in Trabzon, Turkey		2015	2012	Şebnem Ertaş (Department of Interior Architecture, Karadeniz Technical University, Trabzon)	Turkey	Southern Europe	5-7 y.o.	M&F	135	153	Ant-Reduced	Traditional	Full body
113 TUR-2010-A0-01	Anthropometric risk factors for elevated blood pressure in adolescents in Turkey aged 11–17		2010	2005	M. M. Mazicioglu (H. B. Ustunbas School of Medicine, Department of Family Medicine, Erciyes University, Kayseri)	Turkey	Southern Europe	11-17 y.o.	M&F	1140	1098	Ant-Basic	Traditional	Full body
114 TUR-2008-C2-01	Waist circumference percentiles for 7- to 17-year-old Turkish children and adolescents. DAMTCA (Determination of Anthropometric Measures of Turkish Children and Adolescents)	DAMTCA	2008	2005	Nihal Hatipoglu (Department of Pediatric Endocrinology, Erciyes University Faculty of Medicine, Kayseri)	Turkey	Southern Europe	7-17 y.o.	M&F	2337	2433	Ant-Basic	Traditional	Full body
115 TUR-2007-A0-01	Growth reference centiles and secular changes in Turkish children and adolescents		2007	2005	Başak Koca Özer (Department of Anthropology, Faculty of Letters, Ankara University)	Turkey	Southern Europe	6-17 y.o.	M&F	709	718	Ant-Basic	Traditional	Full body

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
116 TUR-2006-A0-01	Anthropometric Evaluation of the Crèches Children Furniture in Turkey		2006	2001-2002	Önder Barli (Faculty of Economics and Administrative Sciences, Ataturk University, Erzurum)	Turkey	Southern Europe	3-5 y.o.	M&F	154	132	Ant-Mid Extended	Traditional	Full body
117 TUR-2002-A0-01	Anthropometric evaluation of kindergarten children in Turkey		2002	2002	Önder Barli (Faculty of Economics and Administrative Sciences, Ataturk University, Erzurum)	Turkey	Southern Europe	6 y.o.	M&F	144	144	Ant-Mid Extended	Traditional	Full body
118 TUR-2003-A0-01	Static anthropometric characteristics of 12-15 aged students living in Ankara/Turkey		2003	2003	Erol Burdurlu (Department of Wood Products Industrial Engineering, Gazi University, Ankara)	Turkey	Southern Europe	12-15 y.o.	M&F	329	336	Ant-Mid Extended	Traditional	Full body
119 TUR-2006-A0-02	The Determination of Subcutaneous Body Fat Percentage by Measuring Skinfold Thickness in Teenagers in Turkey		2006	Inaccessible	Vatan Kavak (Faculty of Medicine, Dept of Anatomy, University of Dicle, Diyarbakır)	Turkey	Southern Europe	10-15 y.o.	M&F	597	521	Ant-Basic	Traditional	Full body
120 BEL-2001-SG-01	Grip strength in children		2001	Inaccessible	De Smet L. (Department of Orthopaedic Surgery, University Hospital Pellenberg, Pellenberg)	Belgium	Western Europe	5-15 y.o.	M&F	Inaccessible	Inaccessible	Strengths	Isometric	Hand
121 DEU-2002-SG-01	Muscle Analysis by Measurement of Maximal Isometric Grip Force: New Reference Data and Clinical Applications in Paediatrics		2002	Inaccessible	Frank Rauch (Research Institute for Child Nutrition, Dortmund)	Germany	Western Europe	6-19 y.o.	M&F	148	157	Strengths	Isometric	Hand
122 DEU-2002-SP-01	Physical Fitness Percentiles of German Children Aged 9–12 Years: Findings from a Longitudinal Study		2015	2006-2009	Kathleen Golle (Division of Training and Movement Sciences, Research Focus Cognition Sciences, University of Potsdam, Potsdam)	Germany	Western Europe	9-12 y.o.	M&F	152	88	Strengths	Others (strength)	Full body
123 ESP-2006-SG-01	Hand Span Influences Optimal Grip Span in Male and Female Teenagers		2006	Inaccessible	Vanesa España-Romero (Department of Physiology, School of Medicine, University of Granada, Granada)	Spain	Southern Europe	13-18 y.o.	M&F	100	106	Strengths	Isometric	Hand
124 ESP-2008-SG-01	Hand Span Influences Optimal Grip Span in Boys and Girls Aged 6 to 12 Years		2008	Inaccessible	Vanesa España-Romero (Department of Physiology, School of Medicine, University of Granada, Granada)	Spain	Southern Europe	6-12 y.o.	M&F	123	70	Strengths	Isometric	Hand
125 ESP-2009-SG-01	Dinamometría en niños y jóvenes de entre 6 y 18 años: valores de referencia, asociación con tamaño y composición corporal.		2009	2006	M.D. Marrodán Serrano (Departamento de Zoología y Antropología Física, Facultad de Biología, Universidad Complutense de Madrid, Madrid)	Spain	Southern Europe	6-18 y.o.	M&F	1176	552	Strengths	Isometric	Hand
126 ESP-2009-SG-02	Elbow Position Affects Handgrip Strength in Adolescents: Validity and Reliability of Jamar, DynEx, and TKK Dynamometers		2009	2007	Vanesa España-Romero (Department of Physiology, School of Medicine, University of Granada, Granada)	Spain	Southern Europe	12-16 y.o.	M&F	31	35	Strengths	Isometric	Hand
127 ESP-2009-SP-01	Percentile Values for Muscular Strength Field Tests in Children Aged 6 to 17 Years: Influence of Weight Status		2009	Inaccessible	José Castro-Piñero (Department of Physical Education, School of Education, University of Cádiz, Puerto Real)	Spain	Southern Europe	6-17 y.o.	M&F	1513	1265	Strengths	Others (strength)	Full body
128 ESP-2010-SP-01	Secular trends in health-related physical fitness in Spanish adolescents: The AVENA and HELENA Studies	AVENA 2001-2002	2010	2001-2002	D. Moliner-Urdiales (Growth, Exercise, Nutrition, and Development (GENUD) Research Group, Universidad de Zaragoza, Zaragoza)	Spain	Southern Europe	12,5–17,5 y.o.	M&F	208	184	Strengths	Others (strength)	Full body
129 ESP-2010-SP-02	Secular trends in health-related physical fitness in Spanish adolescents: The AVENA and HELENA Studies	HELENA-CSS 2006-2007	2010	2006-2007	D. Moliner-Urdiales (Growth, Exercise, Nutrition, and Development (GENUD) Research Group, Universidad de Zaragoza, Zaragoza)	Spain	Southern Europe	12,5–17,5 y.o.	M&F	206	186	Strengths	Others (strength)	Full body
130 EST-2007-SH-01	The influence of anthropometric characteristics to the handgrip and pinch strength in 6-10-year old children		2007	Inaccessible	Semproli S. (Department Biologia Evoluzionistica Sperimentale, University of Bologna, Bologna)	Estonia	Northern Europe	6-10 y.o.	M&F	215	246	Strengths	Isometric	Hand

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
131 EST-2009-SG-01	Relationship of handgrip strength with anthropometric and body composition variables in prepubertal children		2008	Inaccessible	Jurimae T. (Faculty of Exercise and Sport Sciences, Centre of Behavioural and Health Sciences, University of Tartu, Tartu)	Estonia	Northern Europe	8-11 y.o.	M&F	27	37	Strengths	Isometric	Hand
132 FRA-2012-SM-01	Stature is an essential predictor of muscle strength in children		2012	Inaccessible	Jean-Yves Hogrel (Institut de Myologie, Paris)	France	Western Europe	5-17 y.o.	M&F	49	47	Strengths	Isometric	Legs/Feet
133 FRA-2015-SG-01	Grip strength measured by high precision dynamometry in healthy subjects from 5 to 80 years		2015	Inaccessible	Jean-Yves Hogrel (Institut de Myologie, Paris)	France	Western Europe	5-18 y.o.	M&F	Inaccessible	Inaccessible	Strengths	Isometric	Hand
134 FRA-2015-SW-01	Wrist flexion and extension torques measured by highly sensitive dynamometer in healthy subjects from 5 to 80 years		2015	2006-2008	Valérie Decostre (Institut de Myologie, Paris)	France	Western Europe	5-18 y.o.	M&F	28	29	Strengths	Isometric	Wrist
135 GBR-2000-SA-01	STRENGTH DATA FOR DESIGN SAFETY Phase 1		2000	Inaccessible	Product Safety and Testing Group, Institute for Occupational Ergonomics and Division of Manufacturing, Engineering and Operations Management, University of Nottingham, Nottingham)	United Kingdom	Northern Europe	2-20 y.o.	M&F	34	37	Strengths	Isometric	Arms/Upper body
136 GBR-2002-SA-01	STRENGTH DATA FOR DESIGN SAFETY Phase 2		2002	Inaccessible	Product Safety and Testing Group, Institute for Occupational Ergonomics and Division of Manufacturing, Engineering and Operations Management, University of Nottingham, Nottingham)	United Kingdom	Northern Europe	2-20 y.o.	M&F	36	27	Strengths	Isometric	Arms/Upper body
137 GBR-2010-SG-01	Handgrip strength in English schoolchildren		2010	2006-2011	Cohen D.D. (Department of Biological Sciences, University of Essex, Colchester)	United Kingdom	Northern Europe	10-15,9 y.o.	M&F	3426	1837	Strengths	Isometric	Hand
138 GBR-2011-SP-01	Ten-year secular changes in muscular fitness in English children		2011	2008	Cohen D.D. (Department of Biological Sciences, University of Essex, Colchester)	United Kingdom	Northern Europe	10-10,9 y.o.	M&F	151	164	Strengths	Isometric & Others	Full body
139 GRC-2009-SP-01	Physical Fitness and Developmental Coordination Disorder in Greek Children		2009	Inaccessible	Georgia D. Tsiotra (Center for Research and Technology, Thessaly)	Greece	Southern Europe	10-12 y.o.	M&F	97	80	Strengths	Isometric & Others	Full body
140 GRC-2013-SP-01	Endurance, explosive power, and muscle strength in relation to body mass index and physical fitness in Greek children aged 7-10 years		2013	Inaccessible	Tambalis K.D. (Department of Nutrition and Dietetics , Harokopio University , Athens)	Greece	Southern Europe	7-10 y.o.	M&F	71996	69173	Strengths	Others (strength)	Full body
141 GRC-2015-SP-01	Physical fitness normative values for 6-18-year-old Greek boys and girls, using the empirical distribution and the lambda, mu, and sigma statistical method.		2015	2014	Tambalis K.D. (Department of Nutrition and Dietetics , Harokopio University , Athens)	Greece	Southern Europe	6-18 y.o.	M&F	216407	207921	Strengths	Others (strength)	Full body
142 HRV-2004-SP-01	Relationships between muscular strength, anthropometric characteristics and motor abilities in children 11-12 years of age		2004	Inaccessible	Aleksandra Pejčić (Teacher Training College, University of Rijeka, Rijeka)	Croatia	Southern Europe	11-12 y.o.	M&F	540	518	Strengths	Others (strength)	Full body
143 HRV-2013-SP-01	Quantitative sex differentiations of motor abilities in children aged 11-14		2013	Inaccessible	Katić R. (University of Split, Faculty of Kinesiology, Split)	Croatia	Southern Europe	11-14 y.o.	M&F	453	566	Strengths	Others (strength)	Full body
144 ITA-2002-SG-01	The impact of gender, body dimension and body composition on hand-grip strength in healthy children		2002	Inaccessible	A. Sartorio (Laboratory for Experimental Endocrinological Research (LSRE), Istituto Auxologico Italiano, IRCCS, Milan)	Italy	Southern Europe	5-15 y.o.	M&F	167	111	Strengths	Isometric	Hand

CODE OF DATABASE <sup>1</sup>	Study name (Title)	NAME of the Database/ Study	Year of publication	Year of the survey	Author/Organization	Country	Area of Europe	Age range	Gender	Boys sample size	Girls sample size	Category	Measurement method	Part of the body
145 ITA-2004-ST-01	Trunk muscular strength in pre-pubertal children with and without back pain		2004	Inaccessible	Giampiero Merati (Centro di Medicina dello Sport, Fondazione Don C. Gnocchi and Institute of Physical Exercise, Health and Sport, Faculty of Exercise Science, University of Milan, Milan)	Italy	Southern Europe	11,9 ± 0,3 y.o.	M&F	77	67	Strengths	Isometric & Isokinetic	Arms/Upper body
146 ITA-2006-SG-01	Growth and Secular Trend in School-Children from Cento, Ferrara, Italy		2006	2001-2004	Stefania Toselli (Department of Evolutionary Experimental Biology, Unit of Anthropology, University of Bologna, Bologna)	Italy	Southern Europe	6-14 y.o.	M&F	1755	1654	Strengths	Isometric & Others	Hand
147 NLD-2001-SM-01	Reference values of maximum isometric muscle force obtained in 270 children aged 4–16 years by hand-held dynamometry		2001	Inaccessible	Beenakker E.A. (Department of Neurology, University Hospital Groningen, Groningen)	Netherlands	Western Europe	4-16 y.o.	M&F	139	131	Strengths	Isometric	Legs/Feet
148 NLD-2008-SG-01	Age-specific reliability of two grip-strength dynamometers when used by children		2008	Inaccessible	H.M. (Ties) Molenaar (Department of Plastic and Reconstructive Surgery and Hand Surgery, Erasmus MC, University Medical Center, and Department of Rehabilitation Medicine, Erasmus MC, University Medical Center, Rotterdam)	Netherlands	Western Europe	4-12 y.o.	M&F	45	59	Strengths	Isometric	Hand
149 NLD-2009-SG-01	Growth Diagrams for Grip Strength in Children	Rotterdam Normative data hand strength	2009	2008-2010	H.M. (Ties) Molenaar (Department of Plastic and Reconstructive Surgery and Hand Surgery, Erasmus MC, University Medical Center, and Department of Rehabilitation Medicine, Erasmus MC, University Medical Center, Rotterdam)	Netherlands	Western Europe	4-12 y.o.	M&F	110	115	Strengths	Isometric	Hand
150 NLD-2009-SM-01	Is grip strength a predictor for total muscle strength in healthy children, adolescents, and young adults?		2009	2000	Anne E. (Department of Pediatric Physical Therapy and Exercise Physiology, University Hospital for Children and Youth 'Wilhelmina Children's Hospital', University Medical Center Utrecht, Utrecht)	Netherlands	Western Europe	8-20 y.o.	M&F	132	252	Strengths	Isometric	Legs/Feet
151 NLD-2010-SH-01	Growth Diagrams for Individual Finger Strength in Children Measured with the RIHM	Rotterdam Normative data hand strength	2010	2008-2010	H.M. (Ties) Molenaar (Department of Plastic and Reconstructive Surgery and Hand Surgery, Erasmus MC, University Medical Center, and Department of Rehabilitation Medicine, Erasmus MC, University Medical Center, Rotterdam)	Netherlands	Western Europe	4-12 y.o.	M&F	49	52	Strengths	Isometric	Fingers
152 NLD-2015-SG-01	The Influence of Hand Preference on Grip Strength in Children and Adolescents; A Cross-Sectional Study of 2284 Children and Adolescents		2015	Inaccessible	Ann M. Hepping (Department of Rehabilitation Medicine, University Medical Center Groningen, University of Groningen, Groningen)	Netherlands	Western Europe	4-17 y.o.	M&F	1130	1154	Strengths	Isometric	Hand
153 NOR-2007-SM-01	A normative sample of isotonic and isokinetic muscle strength measurements in children 7 to 12 years of age		2007	Inaccessible	I. Holm (Department of Rehabilitation Hospital, Rikshospitalet University Hospital, Oslo)	Norway	Northern Europe	7-12 y.o.	M&F	185	191	Strengths	Isometric & Isokinetic	Legs/Feet
154 PRT-2010-SG-01	Força da preensão da mão numa amostra de crianças dos 11 aos 14 anos	CRASH	2010	2008	Helena Carreira (Faculdade de Ciências da Nutrição e Alimentação. Universidade do Porto, Oporto)	Portugal	Southern Europe	11-14 y.o.	M&F	104	91	Strengths	Isometric	Hand
155 SWE-2002-SG-01	Norms for grip strength in children aged 4–16 years		2002	2000-2001	C Häger-Ross (Department of Community Medicine and Rehabilitation, Section for Physiotherapy, Umea University, Umea)	Sweden	Northern Europe	4-16 y.o.	M&F	267	263	Strengths	Isometric	Hand
156 SWE-2005-A0-01	Physical performance and body mass index in Swedish children and adolescents		2005	2001	Ekblom Örjan (Astrand Laboratory of Work Physiology, University College of Physical Education and Sports (GIH) and Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm)	Sweden	Northern Europe	10, 13 and 16 y.o.	M&F	Inaccessible	Inaccessible	Strengths	Eurofit test battery	Full body

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157 SWE-2006-SM-01	Isometric muscle torque in children 5 to 15 years of age: normative data		2006	Inaccessible	Eek M.N. (Department of Paediatrics, Queen Silvia Children's Hospital, Göteborg University, Göteborg)	Sweden	Northern Europe	5-15 y.o.	M&F	76	73	Strengths	Isometric	Legs/Feet
158 SWE-2008-SG-01	Grip strength in children: Test-retest reliability using Grippit		2008	Inaccessible	Svensson E. (Department of Community Medicine and Rehabilitation, Section for Physiotherapy, Umea University, Umea)	Sweden	Northern Europe	6, 10, 14 y.o.	M&F	26	32	Strengths	Isometric	Hand
159 TUR-2010-SP-01	Talent selection in Sports and assessment of the physical characteristics and some performance profiles of female children between 8-10 years old in guidance to sports (Ankara sample)		2010	Inaccessible	Vedat Ayan (Makale Daha Önce "10. Uluslararası Spor Bilimleri Kongresi, Bolu, 20-23. Ekim 2008" Bildiri Olarak Sunulmuştur)	Turkey	Southern Europe	8-10 y.o.	F	0	1777	Strengths	Others (strength)	Full body

**TABLE B.2 CONTENTS OF THE EXISTING ANTHROPOMETRIC AND STRENGTH DATA SOURCES**

CODE OF DATABASE <sup>2</sup>	Study name (Title)	NAME of the Database/ Study	Category	Measurement method	Part of the body	Basic measurements	Hand dimensions	Foot dimensions	Head dimensions	Seated dimensions	Standing/ Supine dimensions	Reach dimensions	Grip strengths	Physical fitness tests	Hand strengths	Muscle strengths	Wrist Strengths	Strengths related to actions	Trunk Strengths	Fingers' strength
1 ALB-2009-A0-01	Blood pressure and anthropometric measurements in Albanian versus Turkish children and adolescents		Ant-Basic	Traditional	Full body	Yes														
2 AUT-2010-A0-01	Körperbaulicher Status der 10- bis 12-jährigen Schüler und Schülerinnen der Sportmittelschulen Wien im Zeitraum von 2004 - 2006	SPORTMITTELSCHULEN WIEN 2004-2006	Ant-Basic	Traditional	Full body	Yes														
3 AUT-2012-A0-01	Normal Weight Estonian Prepubertal Boys Show a More Cardiovascular-Risk-Associated Adipose Tissue Distribution than Austrian Counterparts		Ant-Basic	Traditional	Full body	Yes														
4 BEL-2012-A0-01	Smartfit: Belgian anthropometric research	Smartfit (2012-2016)	Ant-Full Extended	3D scanner & Traditional	Full body						Yes									
5 BEL-2004-A0-01	GROWTH CHARTS Flanders 2004	GROWTH CHARTS Flanders 2004	Ant-Basic	Traditional	Full body	Yes														
6 BGR-2009-A0-01	Waist circumference percentile curves for Bulgarian children and adolescents aged 6-18 years		Ant-Basic	Traditional	Full body	Yes														
7 BGR-2005-A0-01	Anthropometric and Cardiopulmonary Parameters in Bulgarian and Romany Children: Cross-sectional Study		Ant-Basic	Traditional	Full body	Yes														
8 BGR-2010-A0-01	Comparison of the body mass index to other methods of body fat assessment in Bulgarian children and adolescent		Ant-Mid Extended	Traditional	Full body						Yes									
9 BGR-2005-A0-02	Body composition of children and adolescents from Plovdiv (2005)		Ant-Extended	Traditional	Full body					Inaccessible	Yes	Inaccessible								
10 CHE-2010-A0-01	Estimation of percentage body fat in 6- to 13-year-old children by skinfold thickness, body mass index and waist circumference		Ant-Basic	Others (anthropometry)	Full body	Yes														

<sup>2</sup> \*Inaccessible: Data exists but it cannot be accessed and the data is not verified.

CODE OF DATABASE <sup>2</sup>	Study name (Title)	NAME of the Database/ Study	Category	Measurement method	Part of the body	Basic measurements	Hand dimensions	Foot dimensions	Head dimensions	Seated dimensions	Standing/ Supine dimensions	Reach dimensions	Grip strengths	Physical fitness tests	Hand strengths	Muscle strengths	Wrist Strengths	Strengths related to actions	Trunk Strengths	Fingers' strength
11 CHE-2011-A0-01	Waist circumference and waist-to-height ratio percentiles in a nationally representative sample of 6–13 year old children in Switzerland		Ant-Basic	Traditional	Full body	Yes														
12 CHE-2004-A0-01	Overweight and obesity in 6–12 year old children in Switzerland		Ant-Basic	Traditional	Full body	Yes														
13 CHE-2012-A0-01	A composite score combining waist circumference and body mass index more accurately predicts body fat percentage in 6- to 13-year-old children		Ant-Basic	Traditional	Full body	Yes														
14 CHE-2014-A0-01	Paediatric adiposity stabilized in Switzerland between 1999 and 2012		Ant-Basic	Traditional	Full body	Yes														
15 CYP-2001-A0-01	Reference Growth Curves for Cypriot Children 6 to 17 Years of Age		Ant-Basic	Traditional	Full body	Yes														
16 CZE-2013-A0-01	Children anthropometry in relation to school furniture / The importance of methodology evaluation of school furniture for Czech children with mobility disability in relation to children's anthropometry		Ant-Extended	Traditional	Full body						Yes	Yes								
17 CZE-2004-A0-01	The 6th nationwide anthropological survey of children and adolescents in the Czech republic in 2001	NAS2001	Ant-Reduced	Traditional	Full body	Yes														
18 CZE-2011-A0-01	Long-term changes in prevalence of overweight and obesity in Czech 7-year-old children: evaluation of different cut-off criteria of childhood obesity	COSI - WHO	Ant-Basic	Traditional	Full body	Yes														
19 DEU-2008-E3-01	Do the feet of German and Australian children differ in structure? Implications for children's shoe design	3D Feet Germany	Ant-Body part	3D scanner	Foot & Ankle			Yes												
20 DEU-2007-A0-01	Body measurements of children and adolescents in Germany. Results of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) - Körpermaße bei Kindern und Jugendlichen in Deutschland	KiGGS	Ant-Reduced	Traditional	Full body	Yes					Yes									
21 DEU-2012-A0-01	The LIFE child study: a life course approach to disease and health	LIFE Child Health study	Ant-Reduced	3D scanner & Traditional	Full body						Yes									
22 DEU-2008-A0-01	First reference curves of waist circumference for German children in comparison to international values: the PEP Family Heart Study	PEP 2008	Ant-Basic	Traditional	Full body	Yes														
23 DEU-2009-A0-01	Size Germany	Size GERMANY	Ant-Full Extended	3D scanner	Full body					Yes	Yes	Inaccessible								



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24 DNK-2013-A0-01	The 2014 Danish references from birth to 20 years for height, weight and body mass index	COPENHAGEN Puberty Study	Ant-Basic	Traditional	Full body	Yes														
25 ESP-2011-A0-02	Curvas y Tablas de crecimiento (Estudios Longitudinal y transversal)	ORBEGOZO	Ant-Basic	Traditional	Full body	Yes														
26 ESP-2013-A0-01	Estudio de vigilancia del crecimiento, alimentación, actividad física, desarrollo infantil y obesidad en España. (2011 y 2013)	COSI - ALADINO	Ant-Basic	Traditional	Full body	Yes														
27 ESP-2008-A0-01	Estudio transversal español de crecimiento 2008. Parte II: valores de talla, peso e índice de masa corporal desde el nacimiento a la talla adulta	CURVAS de CRECIMIENTO España (2008)	Ant-Basic	Traditional	Full body	Yes														
28 ESP-2003-E3-01	Development of a new type of advanced early walking shoe	ARCHIBALD_ESP	Ant-Body part	3D scanner	Foot & Ankle			Yes												
29 ESP-2016-A0-01	Estudio longitudinal (No publicado)	Estudio longitudinal catalán	Ant-Basic	Traditional	Full body	Yes														
30 ESP-2015-A0-01	Development of a new extended product-service to overcome size assignment and fitting barriers for children fashion on-line market addressing customer needs	AEI Child (2013-2015)	Ant-Extended	3D scanner	Full body						Yes									
31 ESP-2015-A0-02	Development of a new extended product-service to overcome size assignment and fitting barriers for children fashion on-line market addressing customer needs	AEI Baby (2013-2015)	Ant-Mid Extended	Traditional	Full body						Yes									
32 ESP-2008-A0-02	3D Body Databases of the Spanish Population and its Application to the Apparel Industry	INC women standing	Ant-Full Extended	3D scanner	Full body						Yes									
33 ESP-2008-A0-03	Anthropometric Survey of the Spanish Female Population Aimed at the Apparel Industry	INC women sitting	Ant-Extended	3D scanner	Full body					Yes										
34 ESP-2008-D3-01	Anthropometric Survey of the Spanish Female Population Aimed at the Apparel Industry	INC women hand	Ant-Body part	Images	Hand & Wrist		Yes													
35 ESP-2014-A0-04	3D Body Databases of the Spanish Population and its Application to the Apparel Industry	SIZING men	Ant-Full Extended	3D scanner	Full body						Yes									

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36 ESP-2017-D3-01	Estudio de las características antropométricas de la población infantil europea para mejorar la seguridad, ergonomía y psicomotricidad de productos para la infancia. Aplicación a los sectores: juguete, puericultura, parques infantiles, deporte y socio sanitario.	EHF hand	Ant-Body part	Images & Traditional	Hand & Wrist	Yes	Yes													
37 ESP-2017-E3-01	Estudio de las características antropométricas de la población infantil europea para mejorar la seguridad, ergonomía y psicomotricidad de productos para la infancia. Aplicación a los sectores: juguete, puericultura, parques infantiles, deporte y socio sanitario.	EHF foot	Ant-Body part	3D scanner	Foot & Ankle	Yes		Yes												
38 EST-2012-A0-01	Normal Weight Estonian Prepubertal Boys Show a More Cardiovascular-Risk-Associated Adipose Tissue Distribution than Austrian Counterparts (2012)		Ant-Basic	Traditional	Full body	Yes														
39 EST-2006-A0-01	Tracking of Anthropometric Parameters and Bioelectrical Impedance in Pubertal Boys and Girls		Ant-Extended	Traditional	Full body					Yes	Yes									
40 EST-2008-A0-02	Somatotype in 6–11-year-old Italian and Estonian schoolchildren		Ant-Basic	Traditional	Full body	Yes														
41 EU-2016-A0-01	WHO European Childhood Obesity Surveillance Initiative.	COSI Childhood Obesity Surveillance Initiative	Ant-Basic	Traditional	Full body	Yes														
42 FIN-2007-A0-01	Are the desks and chairs at school appropriate?		Ant-Reduced	Traditional	Full body	Yes				Yes	Yes									
43 FRA-2010-A0-03	Child pedestrian anthropometry: evaluation of potential impact points during a crash		Ant-Reduced	Traditional	Full body						Yes									
44 FRA-2011-A0-01	Anthropometric data of the 3 and 6 year-old child regarding the position of the safety belt (2011)		Ant-Extended	Traditional	Full body					Yes	Yes									
45 FRA-2006-A0-01	Campagne Nationale de Mensuration	Campagne Nationale de Mensuration	Ant-Full Extended	3D scanner & Traditional	Full body	Yes					Yes									
46 FRA-2010-A0-01	3D CHILD French Measurement Campaign	3D CHILD French Measurement Campaign	Ant-Basic	Traditional	Full body	Yes														
47 FRA-2010-A0-02	3D CHILD French Measurement Campaign	3D CHILD French Measurement Campaign	Ant-Full Extended	3D scanner	Full body					Inaccessible	Yes	Inaccessible								

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48 FRA-2002-A0-01	Body mass index in 7 – 9-y-old French children: frequency of obesity, overweight and thinness		Ant-Basic	Traditional	Full body	Yes														
49 GBR-2011-A0-01	National children swear survey	The Shape GB Phase I	Ant-Full Extended	3D scanner	Full body					Inaccessible	Yes	Inaccessible								
50 GBR-2012-A0-01	Shape GB Babies & Toddlers Sizing Report	The Shape GB Phase II	Ant-Inaccessible	Traditional	Full body						Yes									
51 GBR-2013-E3-01	Inaccessible	England 3D feet	Ant-Body part	3D scanner	Foot & Ankle			Yes												
52 GBR-2001-A0-01	The UK Anthropometric Survey of School Children 2001	UK Anthropometric Survey of School Children 2001	Ant-Reduced	Traditional	Full body	Yes				Yes	Yes									
53 GBR-2015-A0-01	Acceptability, Precision and Accuracy of 3D Photonic Scanning for Measurement of Body Shape in a Multi-Ethnic Sample of Children Aged 5-11 Years: The SLIC Study	SLIC_2015	Ant-Reduced	3D scanner & Traditional	Full body						Yes									
54 GBR-2008-A0-02	Statistical Modelling of Body Composition in Children and their Parents	The Gateshead Millennium Study (GMS)	Ant-Reduced	Traditional	Full body						Yes									
55 GBR-2001-C2-01	The development of waist circumference percentiles in British children aged 5-16,9 years old		Ant-Basic	Traditional	Full body	Yes														
56 GBR-2001-D3-01	GETTING STUCK – THE ANTHROPOMETRY OF YOUNG CHILDREN’S FINGERS		Ant-Body part	Traditional	Hand & Wrist		Yes													
57 GBR-2011-B1-01	Three- dimensional gender differences in facial form of children in the North East of England		Ant-Body part	3D scanner & Traditional	Head				Yes											
58 GRC-2004-A0-01	Classroom furniture dimensions and anthropometric measures in primary school (2004)		Ant-Reduced	Traditional	Full body	Yes				Yes										
59 GRC-2006-A0-01	Match between school furniture dimensions and children’s anthropometry (2006)		Ant-Reduced	Traditional	Full body	Yes				Yes										
60 GRC-2006-A0-02	Design and descriptive results of the "Growth, Exercise and Nutrition Epidemiological Study In pre-schoolers": The GENESIS Study	GENESIS Study	Ant-Reduced	Traditional	Full body	Yes														
61 GRC-2010-A0-02	The Effects of Age and Gender on the Weight and Use of Schoolbags		Ant-Basic	Traditional	Full body	Yes														

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62 GRC-2010-A0-01	Ergonomic evaluation and redesign of children bicycles based on anthropometric data	Greek Somatometric Institute	Ant-Reduced	Traditional	Full body						Yes									
63 HRV-2004-A0-01	Relationships between muscular strength, anthropometric characteristics and motor abilities in children 11-12 years of age		Ant-Basic	Traditional	Full body	Yes														
64 HRV-2006-A0-01	Croatian anthropometric system meeting the European Union	HAS project	Ant-Extended	Traditional	Full body						Yes									
65 HRV-2003-A0-01	Gender-Specific Growth Patterns for Stature, Sitting Height and Limbs Length in Croatian Children and Youth (3 to 18 Years of Age)		Ant-Basic	Traditional	Full body	Yes														
66 HRV-2008-A0-01	Gender-Specific Growth Patterns of Transversal Body Dimensions in Croatian Children and Youth (2 to 18 Years of Age)		Ant-Reduced	Traditional	Full body	Yes														
67 HRV-2008-E0-01	Classroom Furniture Design – Correlation of Pupil and Chair Dimensions / The Design of Contemporary School Furniture as a Prerequisite for Maintenance of Pupils' Health (doctoral thesis)		Ant-Mid Extended	Traditional	Full body					Yes	Yes									
68 HRV-2013-A0-01	Development of a Sizing System for Girls Aged 6 to 12 Years in Croatia	HRŽENJAK, R. et al. (2013)	Ant-Reduced	Traditional	Full body						Yes									
69 HRV-2015-A0-01	Sizing system for girls aged 13-20 years based on body types	HRŽENJAK, R. et al. (2015)	Ant-Mid Extended	Traditional	Full body						Yes									
70 EU-2011-A0-01	IDEFICS STUDY (2011)	IDEFICS study	Ant-Basic	Traditional	Full body	Yes														
71 HUN-2015-A0-01	Overview of the Hungarian National Youth Fitness Study & Health-related physical fitness in Hungarian youth: Age, sex and regional profiles (2015)	NETFIT	Ant-Inaccessible	Traditional	Full body	Yes														
72 IRL-2014-A0-01	The childhood obesity surveillance initiative (COSI) in the Republic of Ireland: Findings from 2008, 2010 and 2012	COSI	Ant-Basic	Traditional	Full body	Yes														
73 ITA-2004-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3–6 years	EC project STOP II	Ant-Body part	Traditional	Head				Yes											
74 ITA-2004-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3–6 years	EC project STOP II	Ant-Body part	Traditional	Head				Yes											
75 ITA-2004-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3–6 years	EC project STOP II	Ant-Body part	Traditional	Head				Yes											

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76 ITA-2008-A0-01	Somatotype in 6–11-year-old Italian and Estonian schoolchildren		Ant-Reduced	Traditional	Full body	Yes														
77 ITA-2006-A0-01	Growth and Secular Trend in School-Children from Cento, Ferrara, Italy		Ant-Reduced	Traditional	Full body						Yes									
78 ITA-2008-A0-02	Waist-to-Height Ratio, a Useful Index to Identify High Metabolic Risk in Overweight Children		Ant-Basic	Traditional	Full body	Yes														
79 ITA-2014-A0-01	Size ITALY	Size ITALY	Ant-Full Extended	3D scanner	Full body					Inaccessible	Yes	Inaccessible								
80 LTU-2014-A0-01	Growth surveillance study of Lithuanian children: results and changes (2008–2013)	COSI - LTU	Ant-Basic	Traditional	Full body	Yes														
81 LTU-2007-A0-01	Physical status of preschool children: body size, proportions and body composition. / Trends in Body Mass Index, Prevalence of Overweight and Obesity in Preschool Lithuanian Children, 1986–2006.		Ant-Extended	Traditional	Full body	Yes					Yes									
82 LTU-2015-A0-01	Prevalence of overweight/obesity in relation to dietary habits and lifestyle among 7–17 years old children and adolescents in Lithuania		Ant-Basic	Traditional	Full body	Yes														
83 LTU-2012-B1-01	Can facial proportions taken from images be of use for ageing in cases of suspected child pornography? A pilot study		Ant-Body part	Images	Head				Yes											
84 LTU-2014-B1-01	Permanent teeth emergence time and growth of the face and jaws of Lithuanian children (data of 4-16 years old children, residents of Vilnius city)		Ant-Body part	Traditional	Head				Yes											
85 LTU-2015-B1-01	Age- and sex-related growth patterns of the craniofacial complex in European children aged 3-6 years		Ant-Body part	Images	Head				Yes											
86 LVA-2013-A0-01	A cross sectional research on the height, weight and body mass index of children aged 5-6 years in Latvia and its secular changes during the last century.		Ant-Basic	Traditional	Full body	Yes														
87 MLT-2009-A0-01	Body mass index estimation in a school-entry aged cohort in Malta		Ant-Basic	Traditional	Full body	Yes														
88 MLT-2011-A0-01	Comparison of body mass index of a national cohort of Maltese children over a 3-year interval		Ant-Basic	Traditional	Full body	Yes														

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89 NLD-2015-B1-01	Analysis of a 3D Anthropometric Data Set of Children for Design Applications	DELFT HEAD goto (2015)	Ant-Body part	3D scanner & Traditional	Head				Yes											
90 NLD-2009-A0-01	Increase in Prevalence of Overweight in Dutch Children and Adolescents: A Comparison of Nationwide Growth Studies in 1980, 1997 and 2009		Ant-Basic	Traditional	Full body	Yes														
91 NLD-2003-E3-01	Development of a new type of advanced early walking shoe	ARCHIBALD_NLD	Ant-Body part	3D scanner	Foot & Ankle			Yes												
92 NOR-2009-A0-01	Growth charts for Norwegian children	Bergen Growth Study	Ant-Basic	Traditional	Full body	Yes														
93 NOR-2011-A0-01	Measuring physical fitness in children who are 5 to 12 years old with a test battery that is functional and easy to administer		Ant-Basic	Traditional	Full body	Yes														
94 POL-2010-A0-01	Percentile distributions of waist circumference for 7–19-year-old Polish children and adolescents		Ant-Basic	Traditional	Full body	Yes														
95 POL-2005-A0-01	Obesity and Overweight Prevalence in Polish 7-to 9-Year-Old Children		Ant-Basic	Traditional	Full body	Yes														
96 POL-2012-A0-01	The association of the FTO RS9939609 polymorphism with obesity and metabolic risk factors for cardiovascular diseases in Polish children.		Ant-Basic	Traditional	Full body	Yes														
97 POL-2015-A0-01	Anthropometry and Body Composition of Adolescents in Cracow, Poland		Ant-Basic	Traditional	Full body	Yes														
98 POL-2006-A0-01	Nutritional status evaluation of 16-18 years old adolescents from the Kuyavia-Pomerania region.		Ant-Basic	Traditional	Full body	Yes														
99 POL-2011-A0-01	Polish 2010 growth references for school-aged children and adolescents	OLAF study (PL0080)	Ant-Basic	Traditional	Full body	Yes														
100 POL-2013-A0-01	Polish 2012 growth references for preschool children	OLAF study (N R13 000206)	Ant-Basic	Traditional	Full body	Yes														
101 PRT-2002-A0-01	Collection of Anthropometric Data From Primary Schoolchildren	Froufe T. et al. (2002)	Ant-Extended	3D scanner	Full body					Yes	Yes									
102 PRT-2010-A0-01	Ergonomic Design of School Furniture: Challenges for the Portuguese Schools		Ant-Reduced	Traditional	Full body					Yes	Yes									
103 ROU-2007-A0-01	Corelația unor indici antropometrici cu vârsta și sexul, în adolescența timpurie		Ant-Basic	Traditional	Full body	Yes														

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104 ROU-2011-A0-01	Anthropometric data for Romanian children	Anthropometric data for Romanian children	Ant-Full Extended	3D scanner	Full body					Inaccessible	Yes	Inaccessible								
105 RUS-2010-A0-01	Several		Ant-Mid Extended	Traditional	Full body						Yes									
106 SVN-2004-A0-01	Relationships between muscular strength, anthropometric characteristics and motor abilities in children 11-12 years of age.		Ant-Basic	Traditional	Full body	Yes														
107 SVN-2011-A0-01	Tracking excess weight and obesity from childhood to young adulthood: a 12-year prospective cohort study in Slovenia // Is there a rationale for establishing Slovenian body mass index references of school-aged children and adolescents?		Ant-Mid Extended	Traditional	Full body					Inaccessible	Yes	Inaccessible								
108 SWE-2010-A0-01	Overweight and obesity in a representative sample of schoolchildren – exploring the urban–rural gradient in Sweden		Ant-Basic	Traditional	Full body	Yes														
109 SWE-2014-A0-01	Stable prevalence of obesity in Swedish schoolchildren from 2008 to 2013 but widening socio-economic gap in girls	COSI	Ant-Basic	Traditional	Full body	Yes														
110 SWE-2005-A0-01	Physical performance and body mass index in Swedish children and adolescents		Ant-Basic	Traditional	Full body	Yes														
111 TUR-2009-A0-01	Blood pressure and anthropometric measurements in Albanian versus Turkish children and adolescents		Ant-Basic	Traditional	Full body	Yes														
112 TUR-2015-A0-01	The Determination of the Anthropometrical Measurements of 5-7 Ages Depending on the New Education System in Trabzon, Turkey		Ant-Reduced	Traditional	Full body					Yes	Yes	Yes								
113 TUR-2010-A0-01	Anthropometric risk factors for elevated blood pressure in adolescents in Turkey aged 11–17		Ant-Basic	Traditional	Full body	Yes														
114 TUR-2008-C2-01	Waist circumference percentiles for 7- to 17-year-old Turkish children and adolescents. DAMTCA (Determination of Anthropometric Measures of Turkish Children and Adolescents)	DAMTCA	Ant-Basic	Traditional	Full body	Yes														
115 TUR-2007-A0-01	Growth reference centiles and secular changes in Turkish children and adolescents		Ant-Basic	Traditional	Full body	Yes														
116 TUR-2006-A0-01	Anthropometric Evaluation of the Crèches Children Furniture in Turkey		Ant-Mid Extended	Traditional	Full body					Yes	Yes	Yes								

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117 TUR-2002-A0-01	Anthropometric evaluation of kindergarten children in Turkey		Ant-Mid Extended	Traditional	Full body					Yes	Yes	Yes								
118 TUR-2003-A0-01	Static anthropometric characteristics of 12-15 aged students living in Ankara/Turkey		Ant-Mid Extended	Traditional	Full body					Yes	Yes	Yes								
119 TUR-2006-A0-02	The Determination of Subcutaneous Body Fat Percentage by Measuring Skinfold Thickness in Teenagers in Turkey		Ant-Basic	Traditional	Full body	Yes														
120 BEL-2001-SG-01	Grip strength in children		Strengths	Isometric	Hand								Yes							
121 DEU-2002-SG-01	Muscle Analysis by Measurement of Maximal Isometric Grip Force: New Reference Data and Clinical Applications in Paediatrics		Strengths	Isometric	Hand	Yes							Yes							
122 DEU-2002-SP-01	Physical Fitness Percentiles of German Children Aged 9–12 Years: Findings from a Longitudinal Study		Strengths	Others (strength)	Full body	Yes								Yes						
123 ESP-2006-SG-01	Hand Span Influences Optimal Grip Span in Male and Female Teenagers		Strengths	Isometric	Hand		Yes						Yes							
124 ESP-2008-SG-01	Hand Span Influences Optimal Grip Span in Boys and Girls Aged 6 to 12 Years		Strengths	Isometric	Hand		Yes						Yes							
125 ESP-2009-SG-01	Dinamometría en niños y jóvenes de entre 6 y 18 años: valores de referencia, asociación con tamaño y composición corporal.		Strengths	Isometric	Hand	Yes							Yes							
126 ESP-2009-SG-02	Elbow Position Affects Handgrip Strength in Adolescents: Validity and Reliability of Jamar, DynEx, and TKK Dynamometers		Strengths	Isometric	Hand								Yes							
127 ESP-2009-SP-01	Percentile Values for Muscular Strength Field Tests in Children Aged 6 to 17 Years: Influence of Weight Status		Strengths	Others (strength)	Full body	Yes								Yes						
128 ESP-2010-SP-01	Secular trends in health-related physical fitness in Spanish adolescents: The AVENA and HELENA Studies	AVENA 2001-2002	Strengths	Others (strength)	Full body	Yes								Yes						
129 ESP-2010-SP-02	Secular trends in health-related physical fitness in Spanish adolescents: The AVENA and HELENA Studies	HELENA-CSS 2006-2007	Strengths	Others (strength)	Full body	Yes								Yes						
130 EST-2007-SH-01	The influence of anthropometric characteristics to the handgrip and pinch strength in 6-10-year old children		Strengths	Isometric	Hand	Yes	Yes								Yes					
131 EST-2009-SG-01	Relationship of handgrip strength with anthropometric and body composition variables in prepubertal children		Strengths	Isometric	Hand	Yes	Yes						Yes							



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132 FRA-2012-SM-01	Stature is an essential predictor of muscle strength in children		Strengths	Isometric	Legs/Feet	Yes										Yes				
133 FRA-2015-SG-01	Grip strength measured by high precision dynamometry in healthy subjects from 5 to 80 years		Strengths	Isometric	Hand	Yes	Yes						Yes							
134 FRA-2015-SW-01	Wrist flexion and extension torques measured by highly sensitive dynamometer in healthy subjects from 5 to 80 years		Strengths	Isometric	Wrist	Yes	Yes										Yes			
135 GBR-2000-SA-01	STRENGTH DATA FOR DESIGN SAFETY Phase 1		Strengths	Isometric	Arms/Upper body	Yes	Yes					Yes						Yes		
136 GBR-2002-SA-01	STRENGTH DATA FOR DESIGN SAFETY Phase 2		Strengths	Isometric	Arms/Upper body	Yes	Yes					Yes						Yes		
137 GBR-2010-SG-01	Handgrip strength in English schoolchildren		Strengths	Isometric	Hand	Yes							Yes							
138 GBR-2011-SP-01	Ten-year secular changes in muscular fitness in English children		Strengths	Isometric & Others	Full body	Yes								Yes						
139 GRC-2009-SP-01	Physical Fitness and Developmental Coordination Disorder in Greek Children		Strengths	Isometric & Others	Full body	Yes								Yes						
140 GRC-2013-SP-01	Endurance, explosive power, and muscle strength in relation to body mass index and physical fitness in Greek children aged 7-10 years		Strengths	Others (strength)	Full body	Yes								Yes						
141 GRC-2015-SP-01	Physical fitness normative values for 6-18-year-old Greek boys and girls, using the empirical distribution and the lambda, mu, and sigma statistical method.		Strengths	Others (strength)	Full body									Yes						
142 HRV-2004-SP-01	Relationships between muscular strength, anthropometric characteristics and motor abilities in children 11-12 years of age		Strengths	Others (strength)	Full body	Yes								Yes						
143 HRV-2013-SP-01	Quantitative sex differentiations of motor abilities in children aged 11-14		Strengths	Others (strength)	Full body									Yes						
144 ITA-2002-SG-01	The impact of gender, body dimension and body composition on hand-grip strength in healthy children		Strengths	Isometric	Hand	Yes							Yes							
145 ITA-2004-ST-01	Trunk muscular strength in pre-pubertal children with and without back pain		Strengths	Isometric & Isokinetic	Arms/Upper body	Yes													Yes	

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146 ITA-2006-SG-01	Growth and Secular Trend in School-Children from Cento, Ferrara, Italy		Strengths	Isometric & Others	Hand	Yes				Yes			Yes							
147 NLD-2001-SM-01	Reference values of maximum isometric muscle force obtained in 270 children aged 4–16 years by hand-held dynamometry		Strengths	Isometric	Legs/Feet	Yes										Yes				
148 NLD-2008-SG-01	Age-specific reliability of two grip-strength dynamometers when used by children		Strengths	Isometric	Hand								Yes							
149 NLD-2009-SG-01	Growth Diagrams for Grip Strength in Children	Rotterdam Normative data hand strength	Strengths	Isometric	Hand	Yes							Yes							
150 NLD-2009-SM-01	Is grip strength a predictor for total muscle strength in healthy children, adolescents, and young adults?		Strengths	Isometric	Legs/Feet	Yes										Yes				
151 NLD-2010-SH-01	Growth Diagrams for Individual Finger Strength in Children Measured with the RIHM	Rotterdam Normative data hand strength	Strengths	Isometric	Fingers															Yes
152 NLD-2015-SG-01	The Influence of Hand Preference on Grip Strength in Children and Adolescents; A Cross-Sectional Study of 2284 Children and Adolescents		Strengths	Isometric	Hand								Yes							
153 NOR-2007-SM-01	A normative sample of isotonic and isokinetic muscle strength measurements in children 7 to 12 years of age		Strengths	Isometric & Isokinetic	Legs/Feet	Yes										Yes				
154 PRT-2010-SG-01	Força da preensão da mão numa amostra de crianças dos 11 aos 14 anos	CRASH	Strengths	Isometric	Hand	Yes							Yes							
155 SWE-2002-SG-01	Norms for grip strength in children aged 4–16 years		Strengths	Isometric	Hand								Yes							
156 SWE-2005-A0-01	Physical performance and body mass index in Swedish children and adolescents		Strengths	Eurofit test battery	Full body									Yes						
157 SWE-2006-SM-01	Isometric muscle torque in children 5 to 15 years of age: normative data		Strengths	Isometric	Legs/Feet	Yes										Yes				

CODE OF DATABASE <sup>2</sup>	Study name (Title)	NAME of the Database/ Study	Category	Measurement method	Part of the body	Basic measurements	Hand dimensions	Foot dimensions	Head dimensions	Seated dimensions	Standing/ Supine dimensions	Reach dimensions	Grip strengths	Physical fitness tests	Hand strengths	Muscle strengths	Wrist Strengths	Strengths related to actions	Trunk Strengths	Fingers' strength
158 SWE-2008-SG-01	Grip strength in children: Test-retest reliability using Grippit		Strengths	Isometric	Hand	Yes	Yes						Yes							
159 TUR-2010-SP-01	Talent selection in Sports and assessment of the physical characteristics and some performance profiles of female children between 8-10 years old in guidance to sports (Ankara sample)		Strengths	Others (strength)	Full body	Yes								Yes						

## BIBLIOGRAPHY

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- [1] Analysis of the Demand and Availability of anthropometric data of children in Europe, 2016-11-28
- [2] ISO 7250-1:2017-08, *Basic human body measurements for technological design – Part 1: Body measurement definitions and landmarks*
- [3] ISO 8559-1:2017-03, *Size designation of clothes – Part 1: Anthropometric definitions for body measurements.*
- [4] ISO 8559-1:1989, *Garment construction and anthropometric surveys – Body dimensions.*
- [5] CHILDATA. *The Handbook of Child Measurements and Capabilities.* Norris B. and Wilson J.R. 1995. Department of Trade and Industry. ISBN: 0-9522 571-1-4