Description of DaLiAc Database

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OBJECTIVE DaLiAc (Daily Life Activities) can be used as a benchmark database for the classification of daily life activities based on inertial data. 13 activities of 19 participants are available.

ACTIVITIES DaLiAc contains the following activities.

Table 1: **List of studied activities, abbreviations, durations, and intensities expressed in Metabolic Equivalent of Task (MET).**

Activity	Duration [min]	Intensity [MET]
Sitting	1	1.3
Lying	1	1.0
Standing	1	1.3
Washing dishes	2	2.5
Vacuuming	1	3.3
Sweeping	1	3.3
Walking	n.a.*	3.5
Ascending stairs	n.a.**	5.0
Descending stairs	n.a.**	3.5
Treadmill running	2	9.0
Bicycling on ergometer (50 W	2	3.5
Bicycling on ergometer (100 W	2	6.8
Rope jumping	n.a.***	8.8

* All subjects had to walk on the university campus from one building to another building.
**All subjects had to climb stairs to the third floor and then back again.
***All subjects had to perform 5 trials with at least 5 jumps each.

STUDY DESIGN 19 healthy subjects (8 female and 11 male, age 26 ± 8 years, height 177 ± 11 cm, weight 75.2 ± 14.2 kg, mean ± standard deviation (SD))) participated in the study. All subjects gave written informed consent (for more information, see PAR-Q).

SENSOR SETUP Four sensor nodes were placed on right hip, chest, right wrist and left ankle. Each sensor node consisted of three accelerometer axes (A1, A2, A3) and three gyroscope axes (G1, G2, G3). The range of the accelerometer was ± 6 g. The range of the gyroscopes was ± 500 deg/s for the sensor nodes wrist, chest, hip and ± 2000 deg/s for the sensor node on the ankle. The sampling rate was set to 204.8 Hz. Figure 1 shows the coordinate axes of each sensor node.

FILE FORMAT Each of the 19 datasets is structured as shown in Figure 2. Sensor data is stored column by column separated by comma. The last column contains the label L of the activities. Table 2 lists the thirteen activities and the corresponding label.

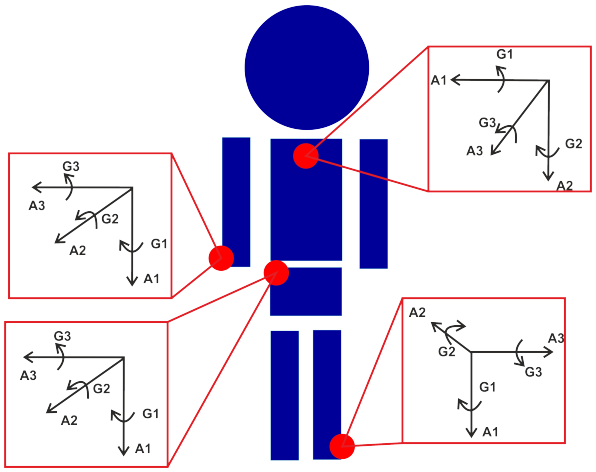

Figure 1: **Coordinate axes of each sensor node.**
A1: Accelerometer axis 1, A2: accelerometer axis 2, A3: accelerometer axis 3, G1: gyroscope axis 1, G2: gyroscope axis 2, G3: gyroscope axis 3, L: label.

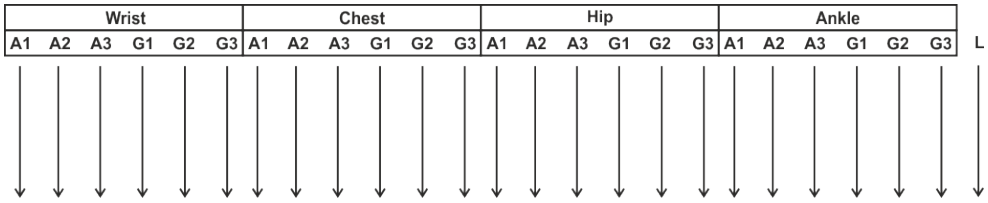

Figure 2: **File structure.**
ID: ID of subject, L: label, A1: accelerometer axis 1, A2: accelerometer axis 2, A3: accelerometer axis 3, G1: gyroscope axis 1, G2: gyroscope axis 2, G3: gyroscope axis 3.

Table 2: **Activities and corresponding label L**

Activity	**Label L**
Sitting	1
Lying	2
Standing	3
Washing dishes	4
Vacuuming	5
Sweeping	6
Walking	7
Ascending stairs	8
Descending stairs	9
Treadmill running	10
Bicycling on ergometer (50 W)	11
Bicycling on ergometer (100 W)	12
Rope jumping	13