ESMAC survey

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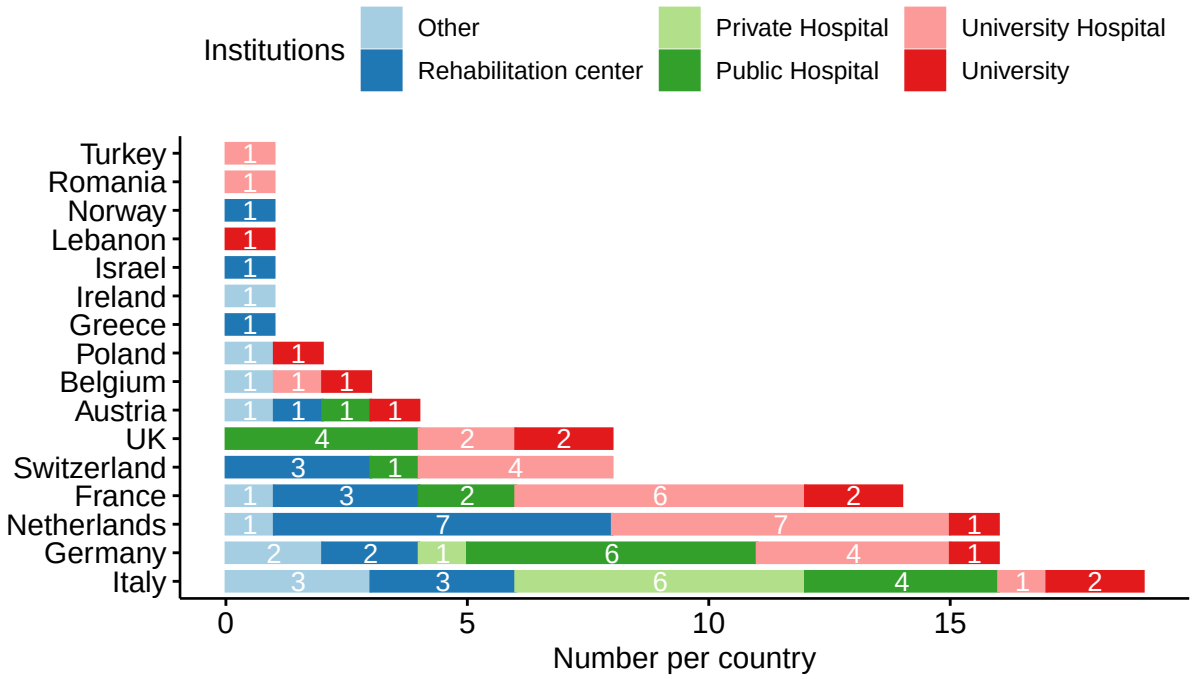
1 Introduction

This document summarises the results of the survey which was conducted by ESMAC. The html page was generated with R markdown from one Excel document.

2 General Information and Management

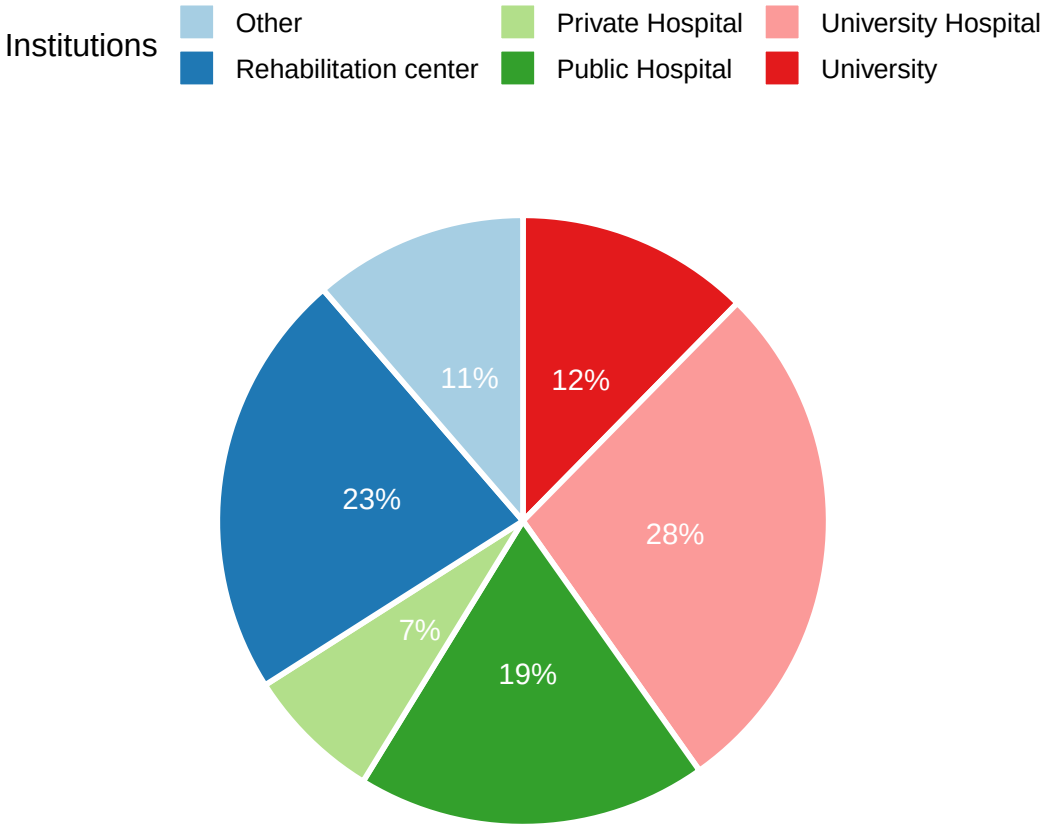
2.1 Respondents countries Q2

The countries of origin of the respondents. Additional grouping depending on the type of institutions.



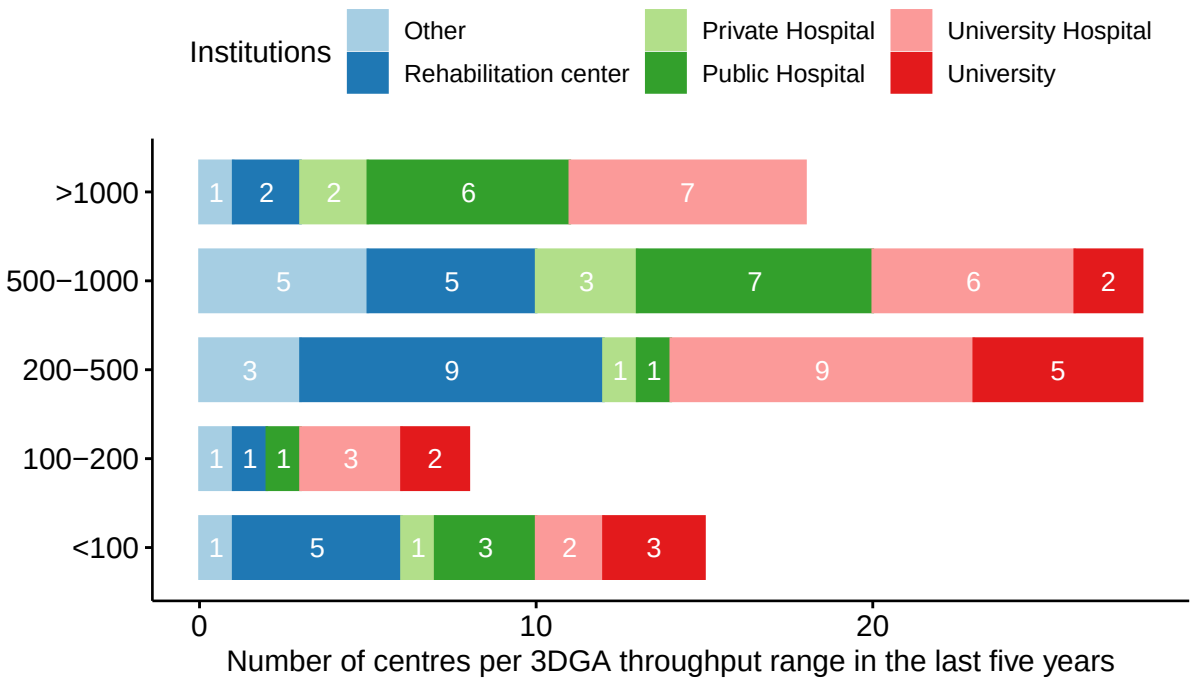
2.2 Type of institution Q4

The type of institutions of the respondents.



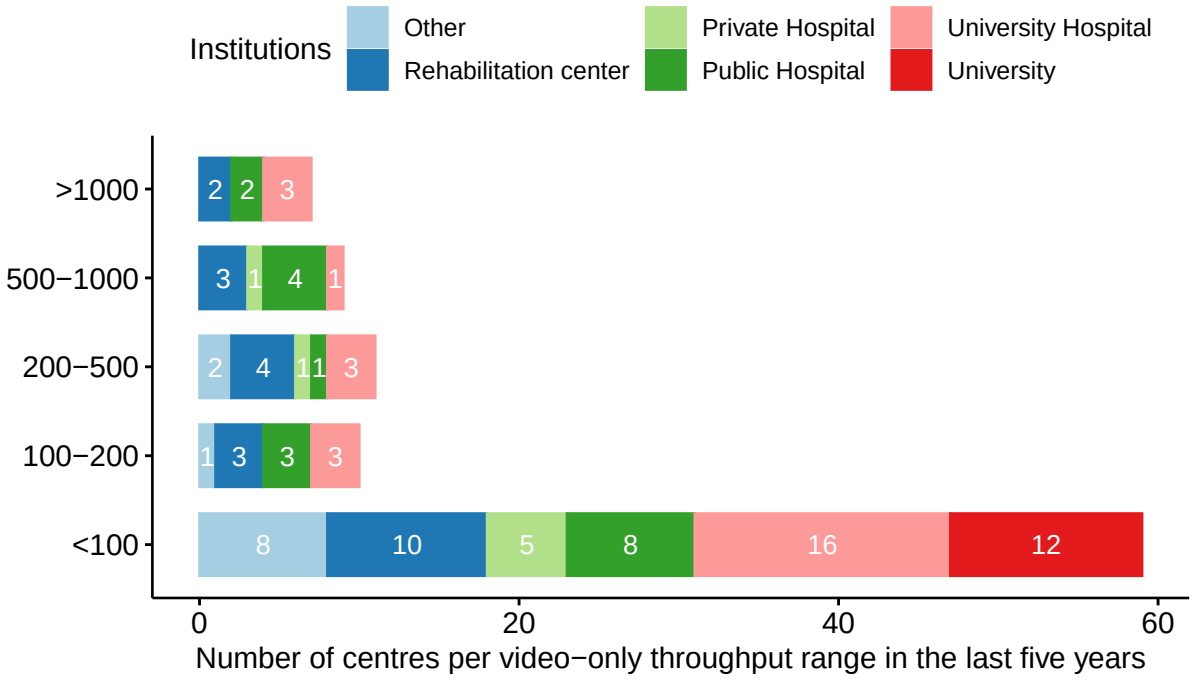
2.3 3DGA patient throughput Q5

The subjects or patients throughput for each type of institutions. This is for instrumented (i.e. 3DGA) gait analysis in the last five years.



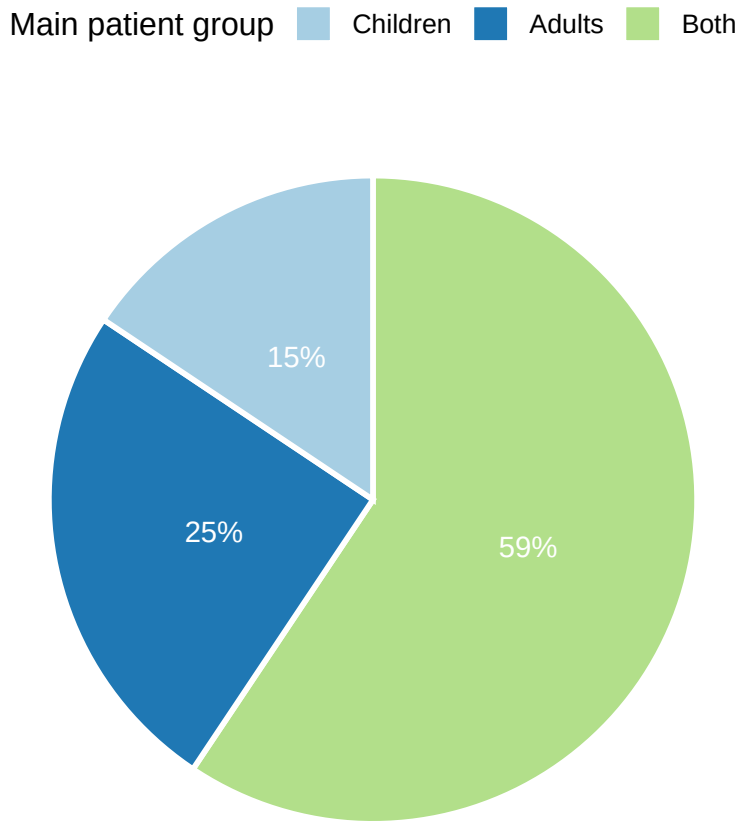
2.4 Video patient throughput Q6

The subjects or patients throughput for each type of institutions. This is for video only assessment in the last five years.



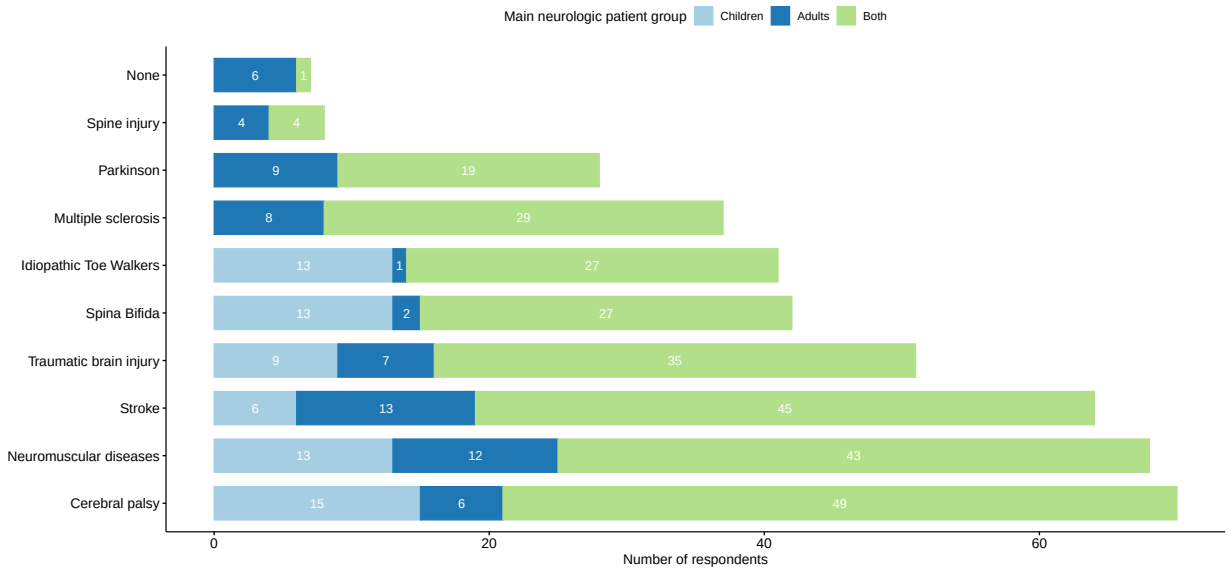
2.5 Main age of patients Q7

The main age categories of subjects or patients seen by the respondents (overall).



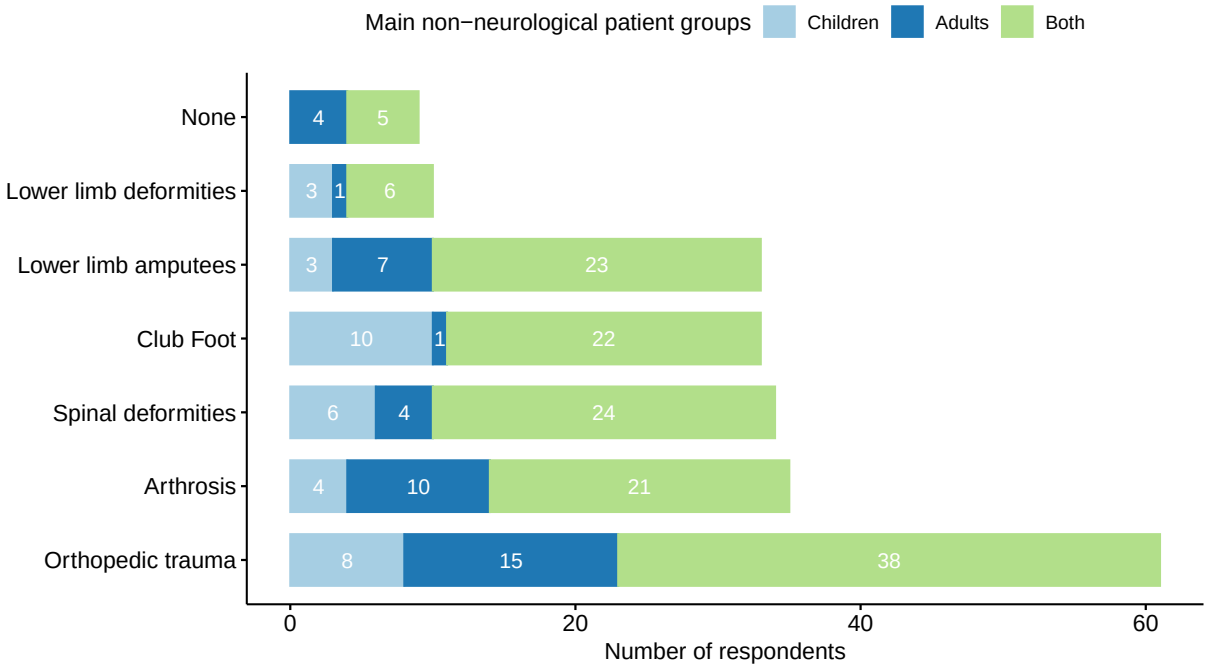
2.6 Main categories, neurological Q8

The main categories of patients with a neurological diagnosis (multiple choices possible).



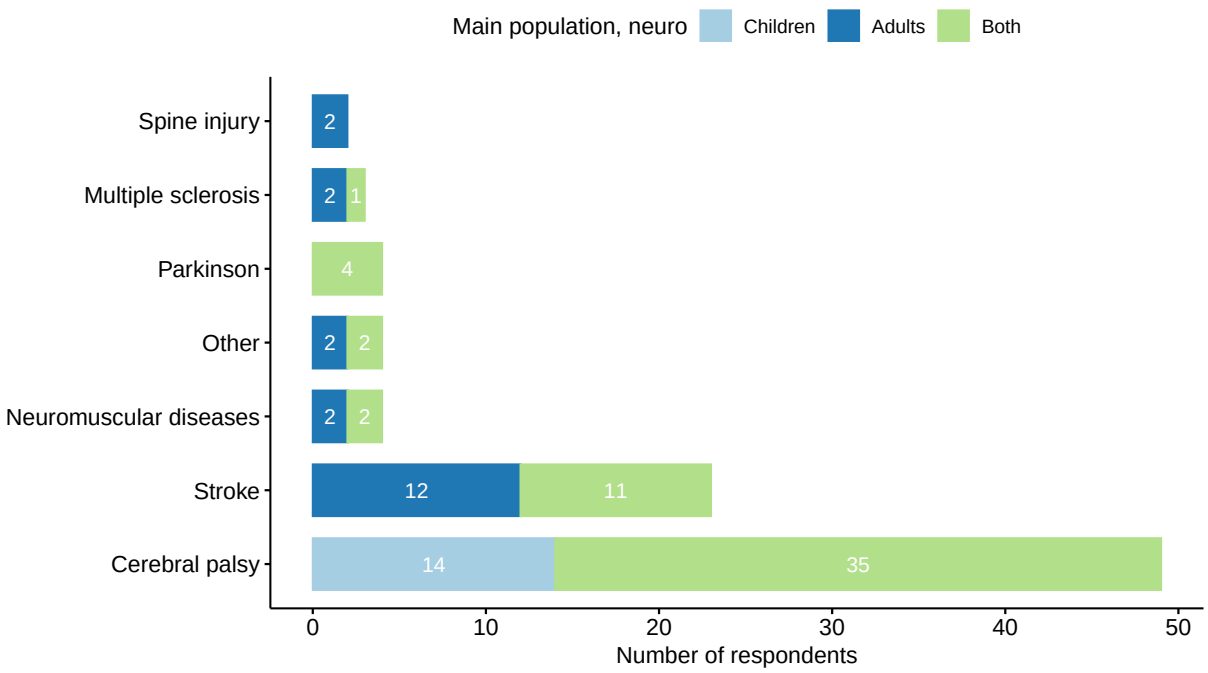
2.7 Main categories, non-neurological Q9

The main categories of patients with a non-neurological diagnosis (multiple choices possible).



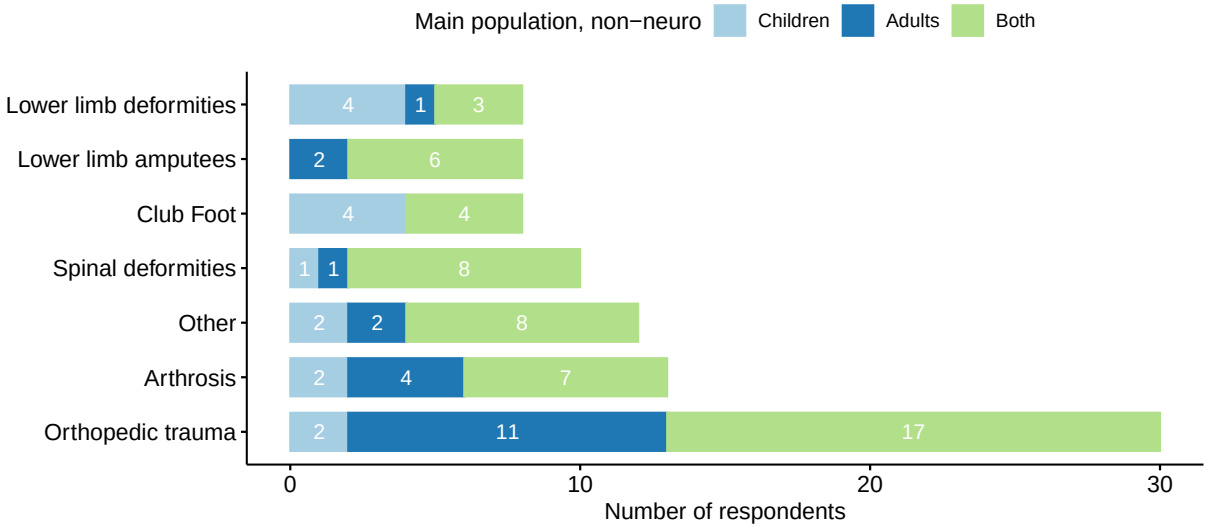
2.8 Main population, neurological Q10

Main categories, but only one choice of diagnosis (neuro) possible.



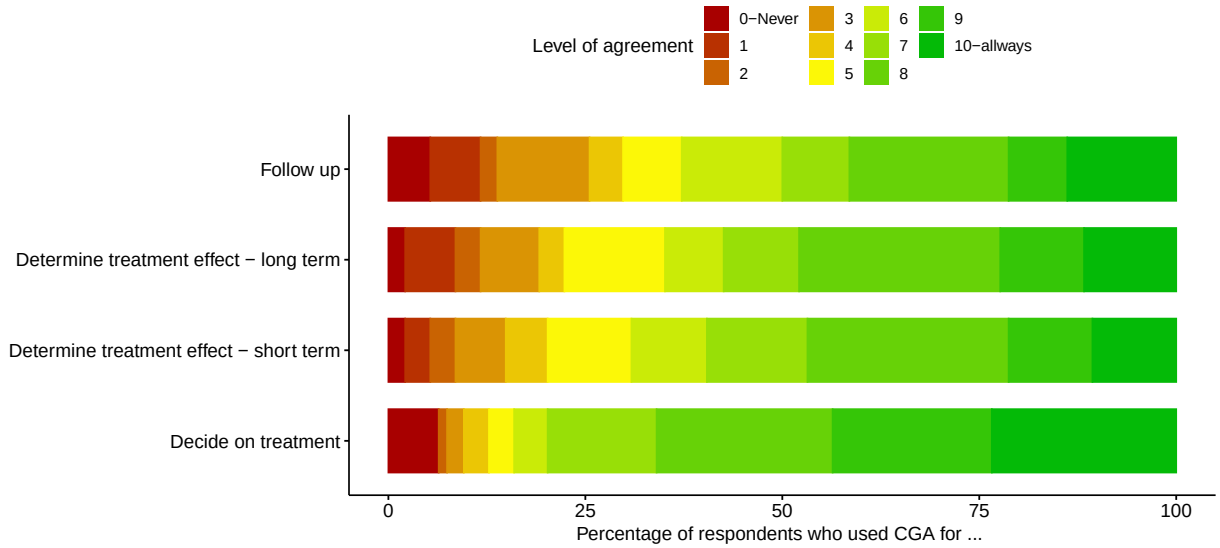
2.9 Main population, non-neurological Q11

Main categories, but only one choice of diagnosis (non-neuro) possible.



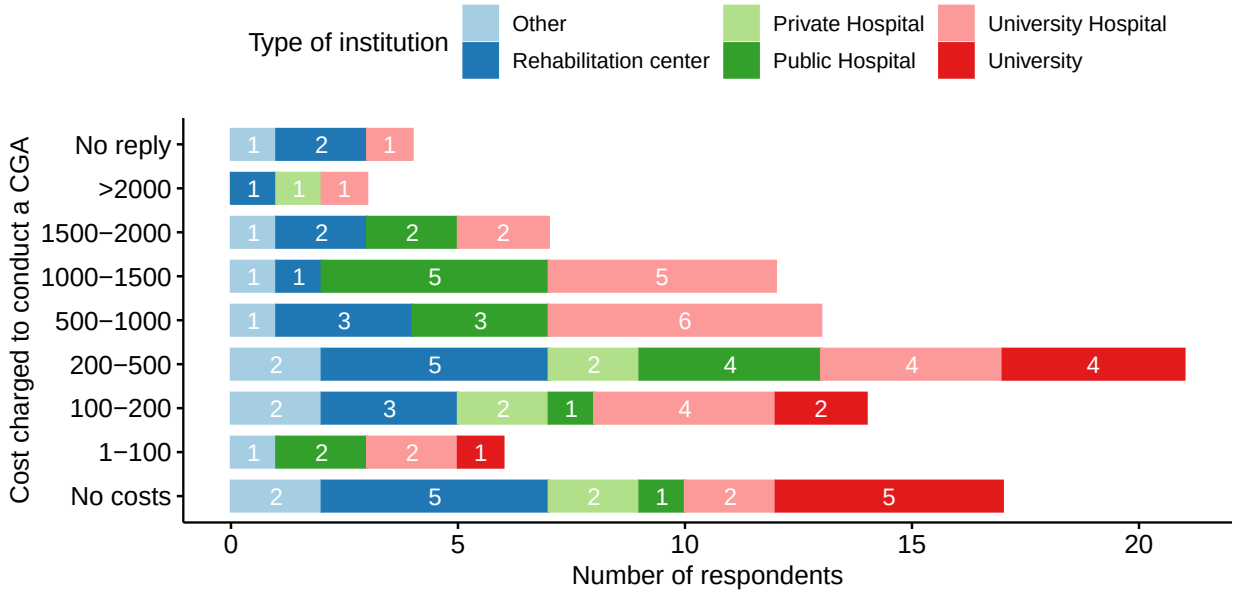
2.10 Reason to use CGA Q12

Level of agreement of the respondents with the use of 3DGA for the following four reasons to conduct a gait analysis.



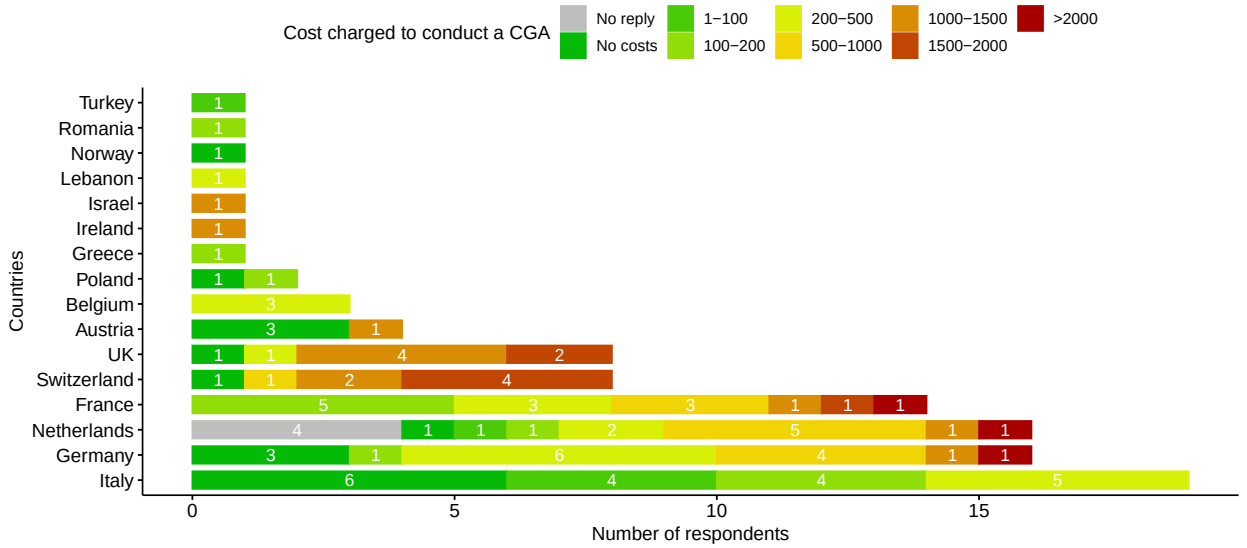
2.11 Cost of CGA Q13, per type of institutions

Approximate cost charged for 3DGA, sub-grouped per type of institutions.



2.12 Cost of CGA Q13, per countries

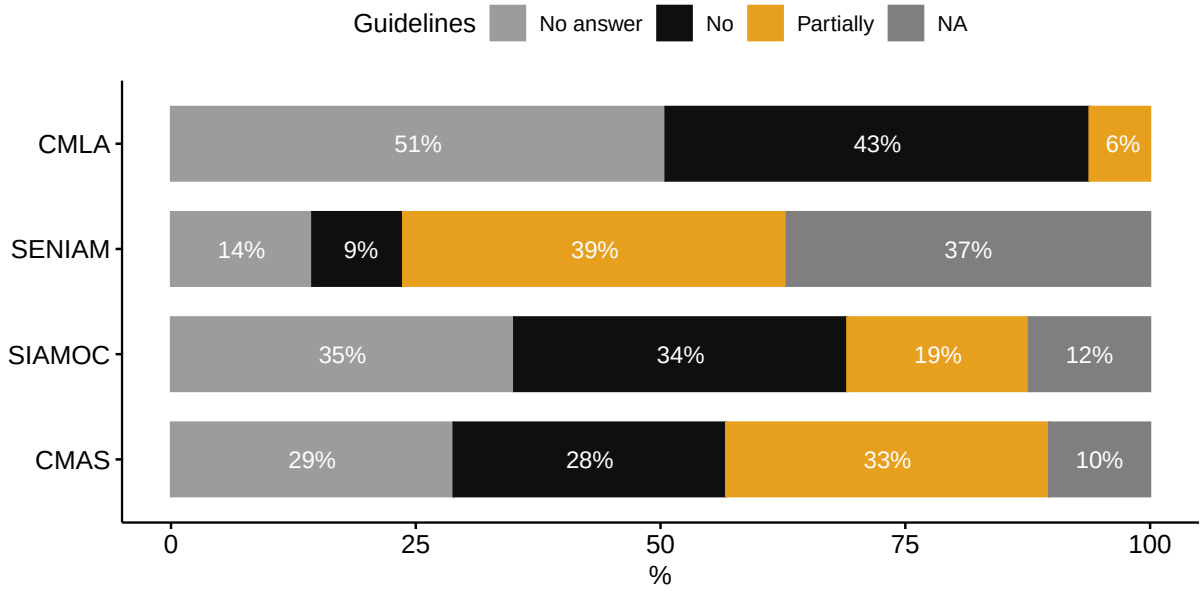
Approximate cost charged for 3DGA, sub-grouped per country.



2.13 Use of published guidelines Q14

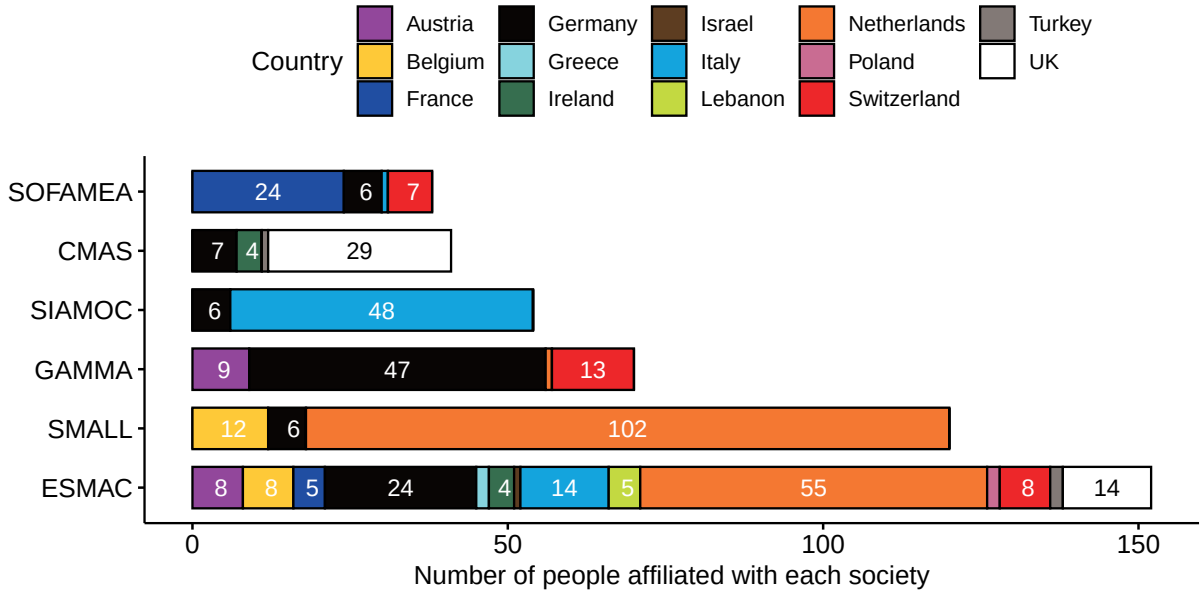
Do the respondents observe existing published guidelines or accreditation process. The four guidelines were:

- CMLA: Commission for Motion Laboratory Accreditation (USA)
- SENIAM: Surface EMG for non-invasive assessment of muscles (EU)
- SIAMOC: Position paper on gait analysis in clinical practice (Italy)
- CMAS: Clinical Movement Analysis Society (UK)



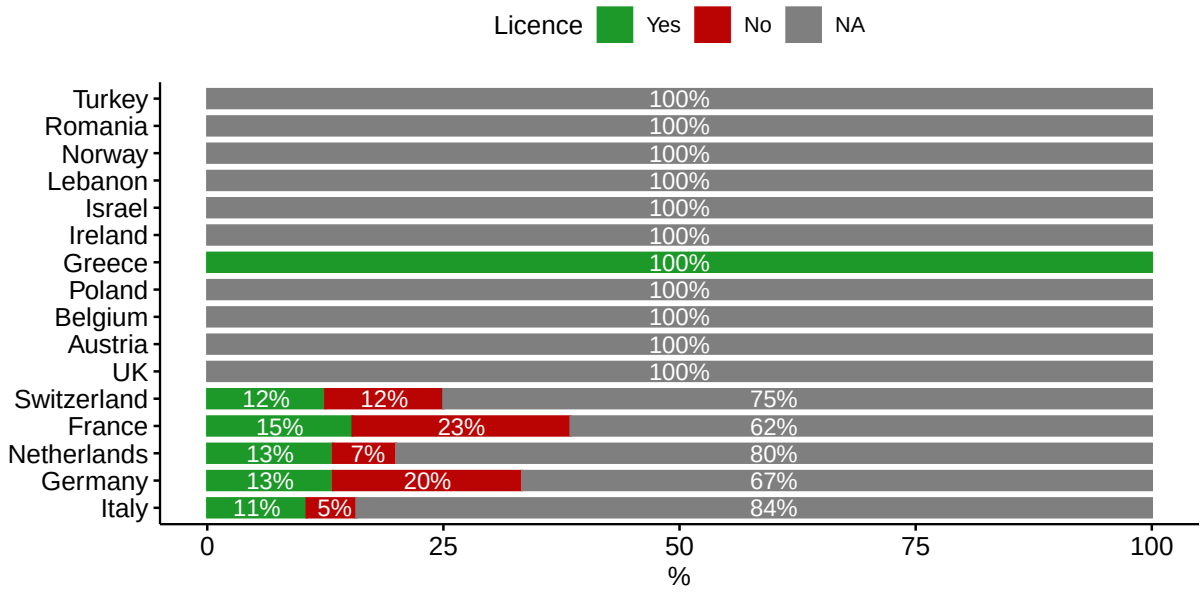
2.14 Societies and people Q15

Country of work of the persons in the laboratory and the scientific societies there are affiliated.

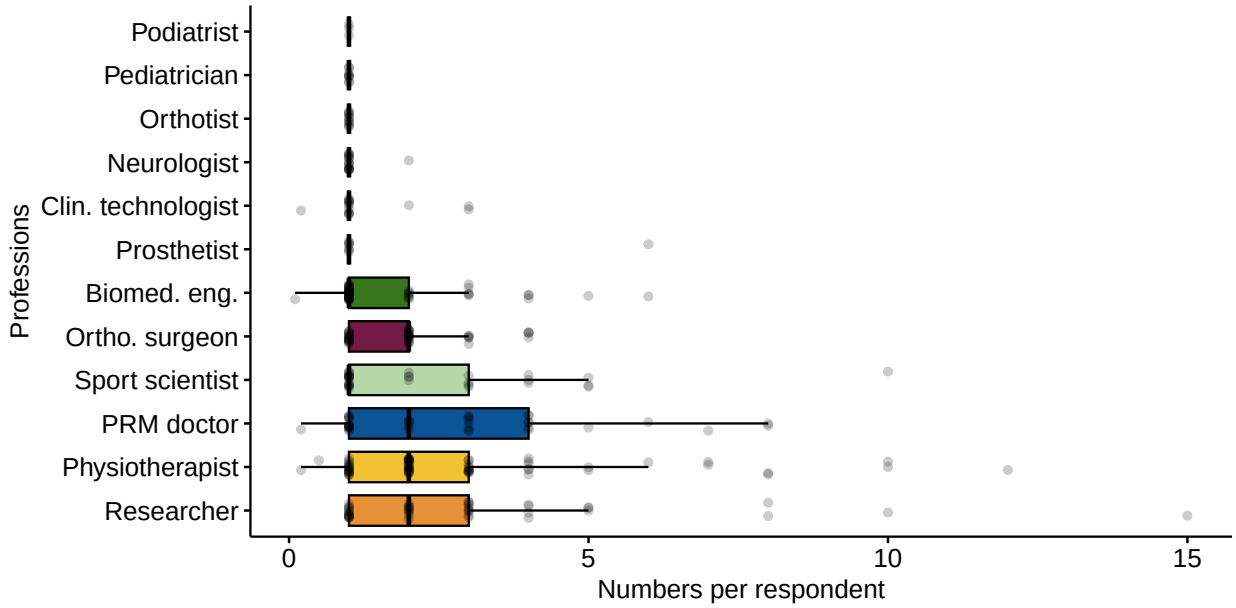


2.15 License to conduct CGA Q16

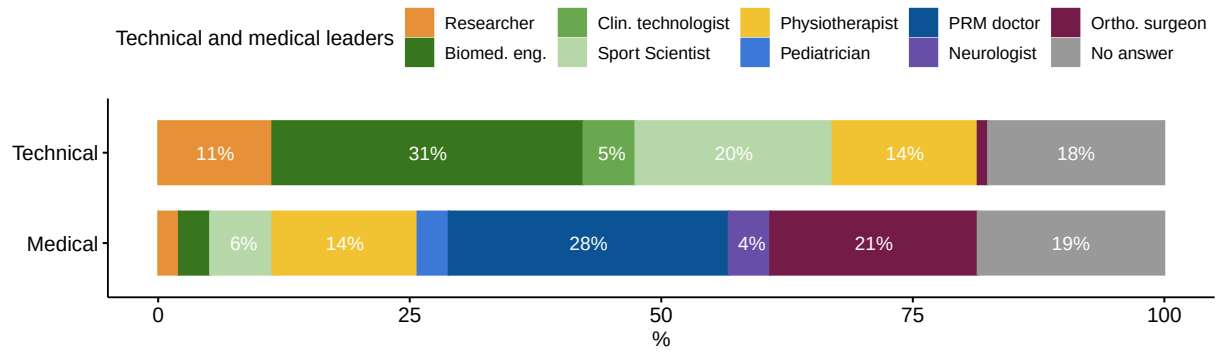
Is there a need for a special professional license to conduct 3DGA in the countries of the respondents



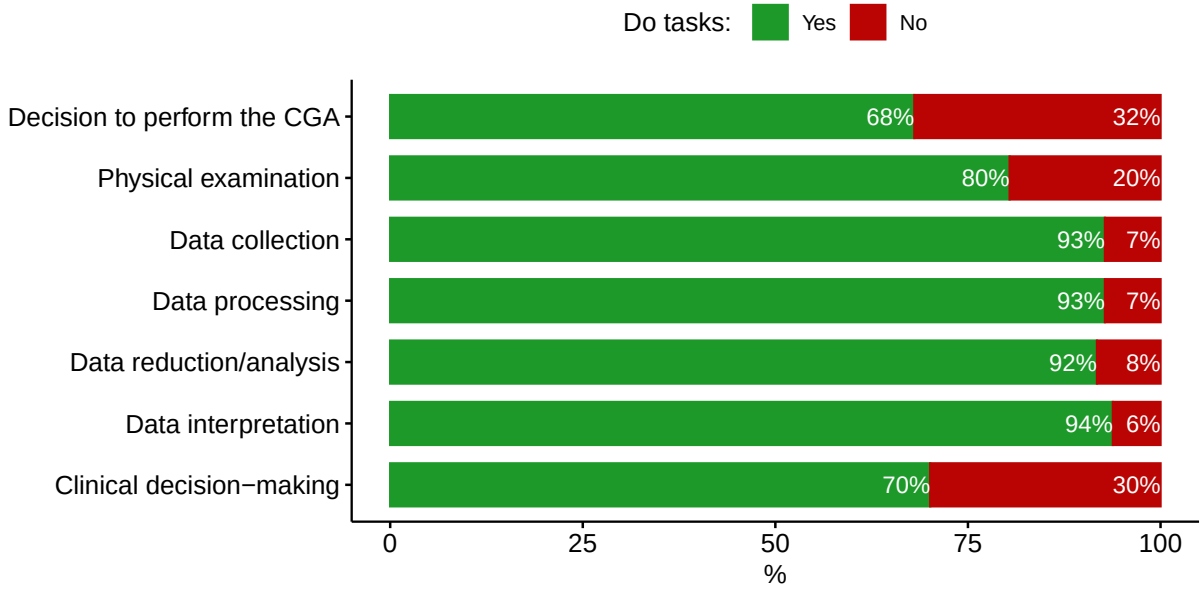
2.16 People and disciplines Q17



2.17 Head of lab CGA Q18

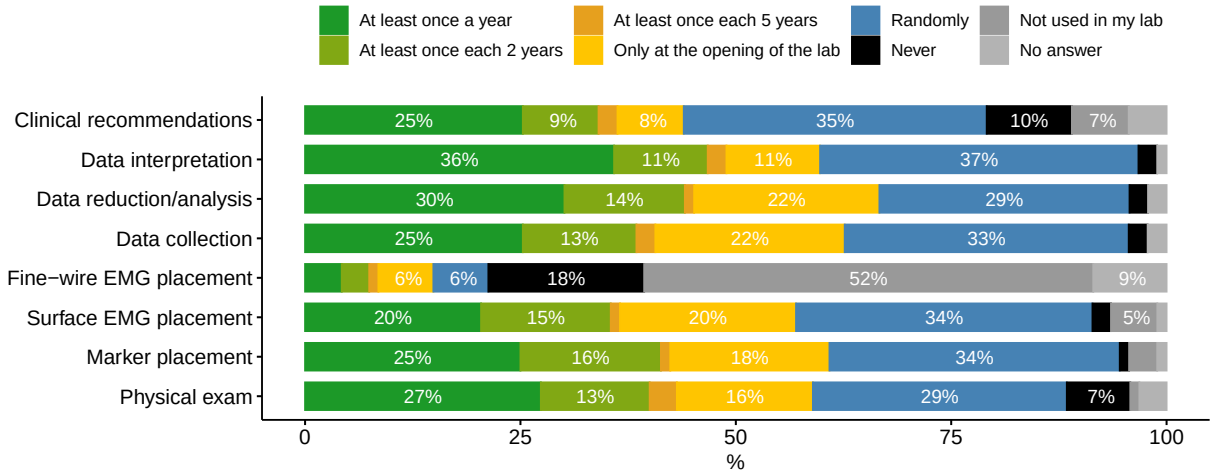


2.18 Gait lab staff involved in the task of Q19



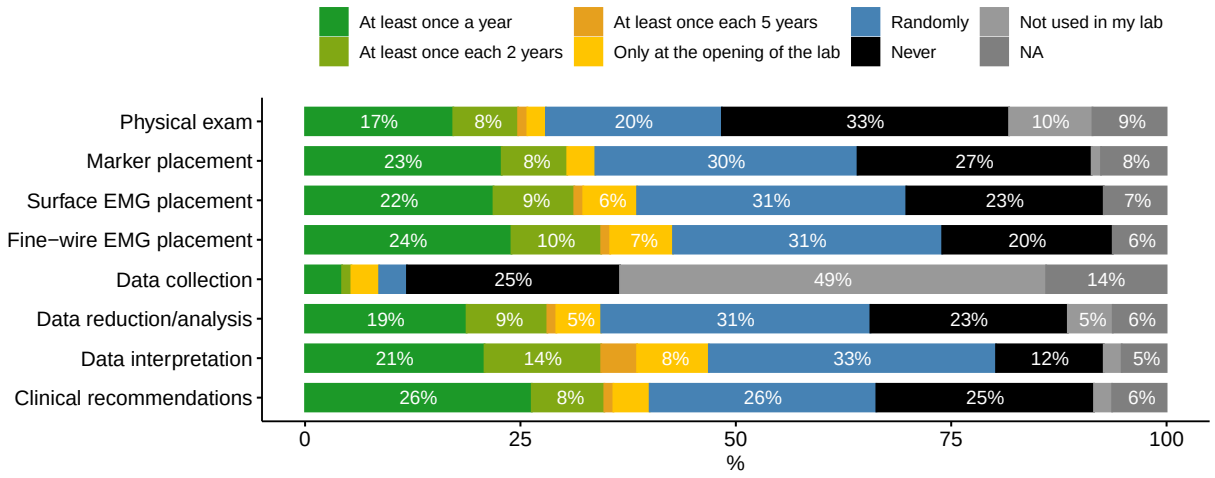
2.19 Frequency of training Q20

How often do staff receive training in the following tasks?



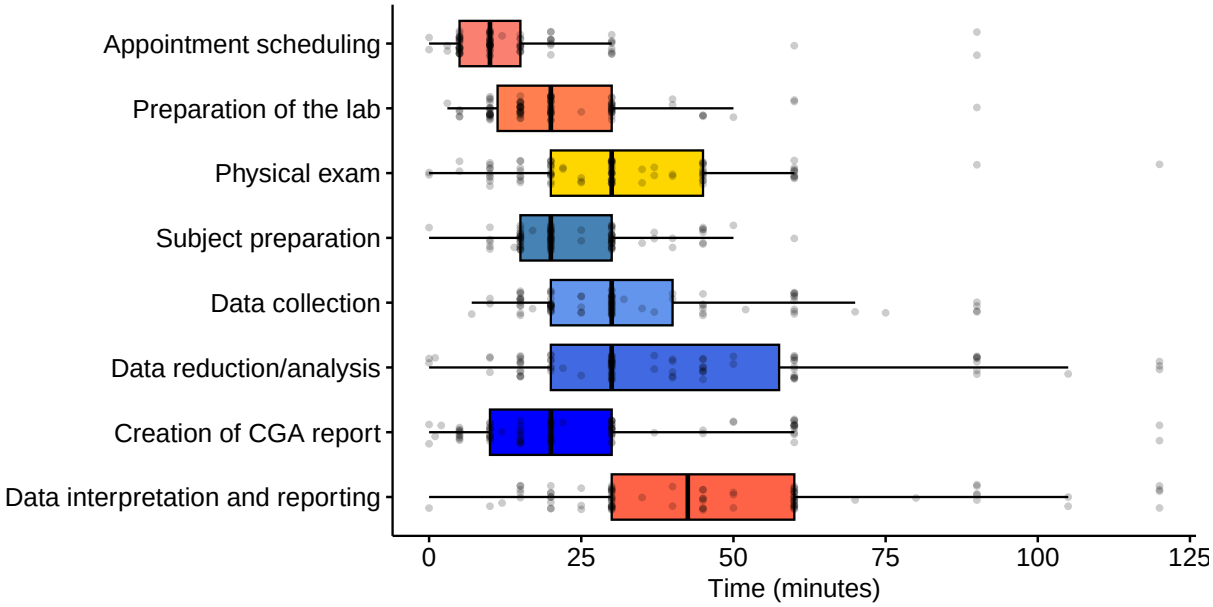
2.20 Testing consistency Q21

How often do you test within and between consistency of the personnel for the following tasks?



2.21 Time to conduct CGA Q22

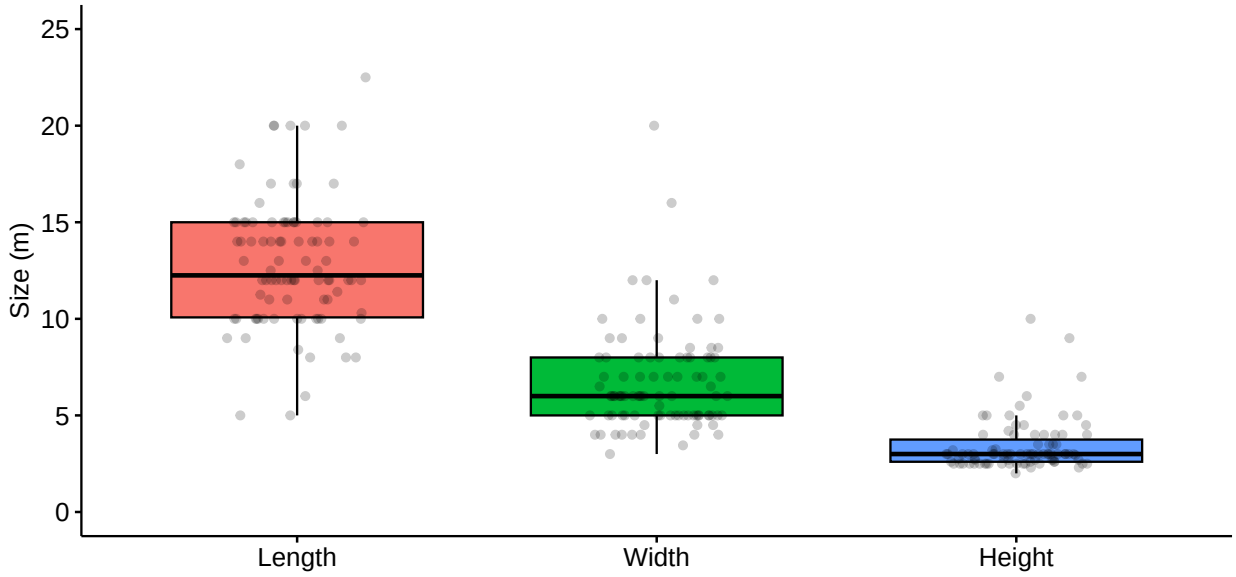
What time (in minutes) allocation do you allow for the following tasks related to the CGA?



3 Facility and Instrumentation

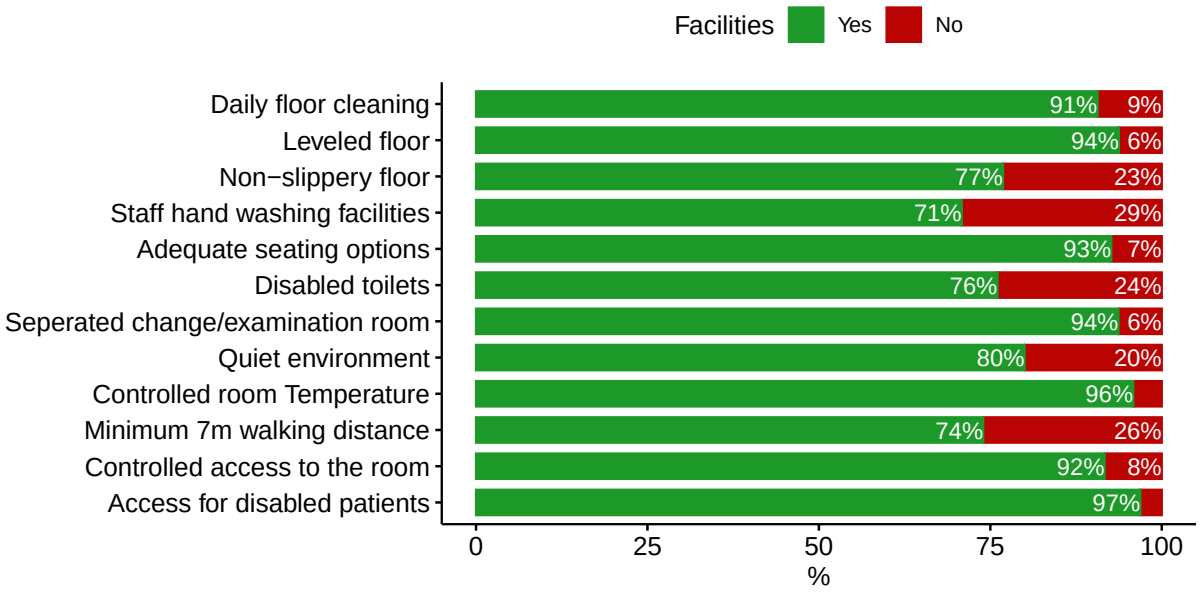
3.1 Physical dimensions of the lab Q23

What are the physical dimensions of your gait lab? Size of room (in metres)



3.2 Facilities of the lab Q24

Do your gait lab facilities include the following?

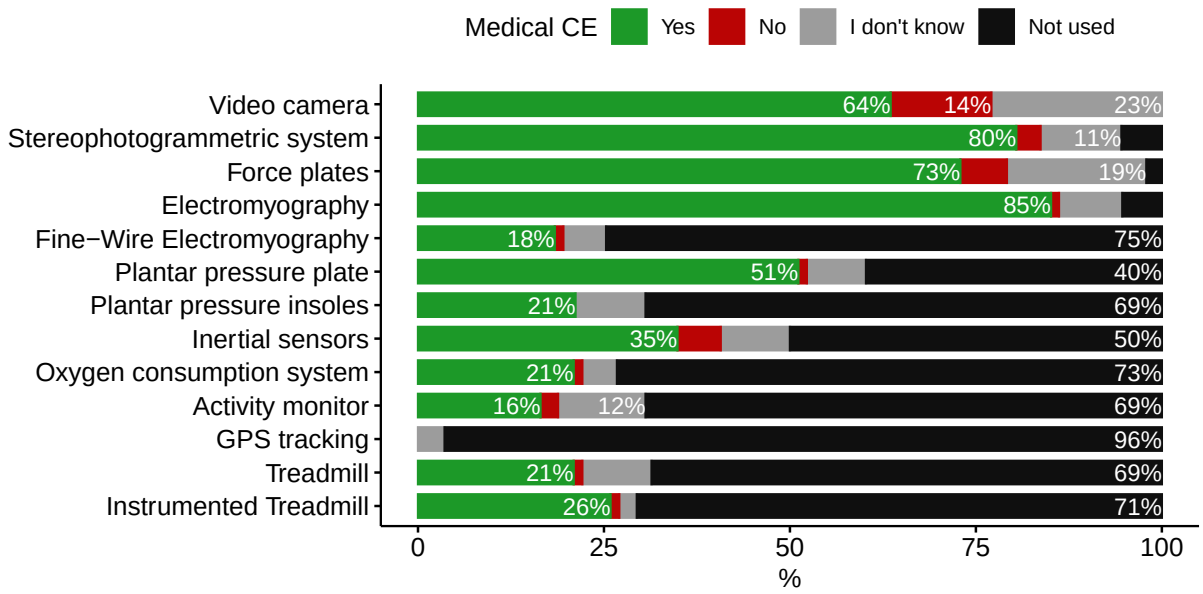


3.3 CGA equipment Q25

Which equipment do you use for CGA and how much of each device do you use in your lab? Please type 0 if none. (The answers to this question were text only and no graphics were created.)

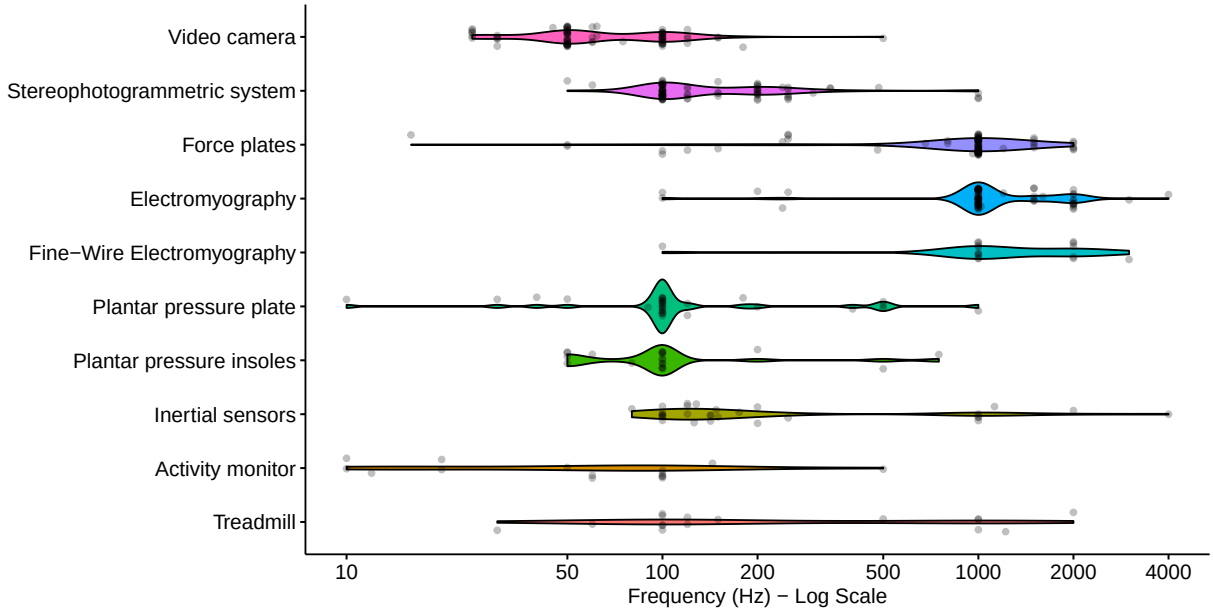
3.4 CE medical marking Q26

Which equipment used in your lab for CGA has a medical CE marking?



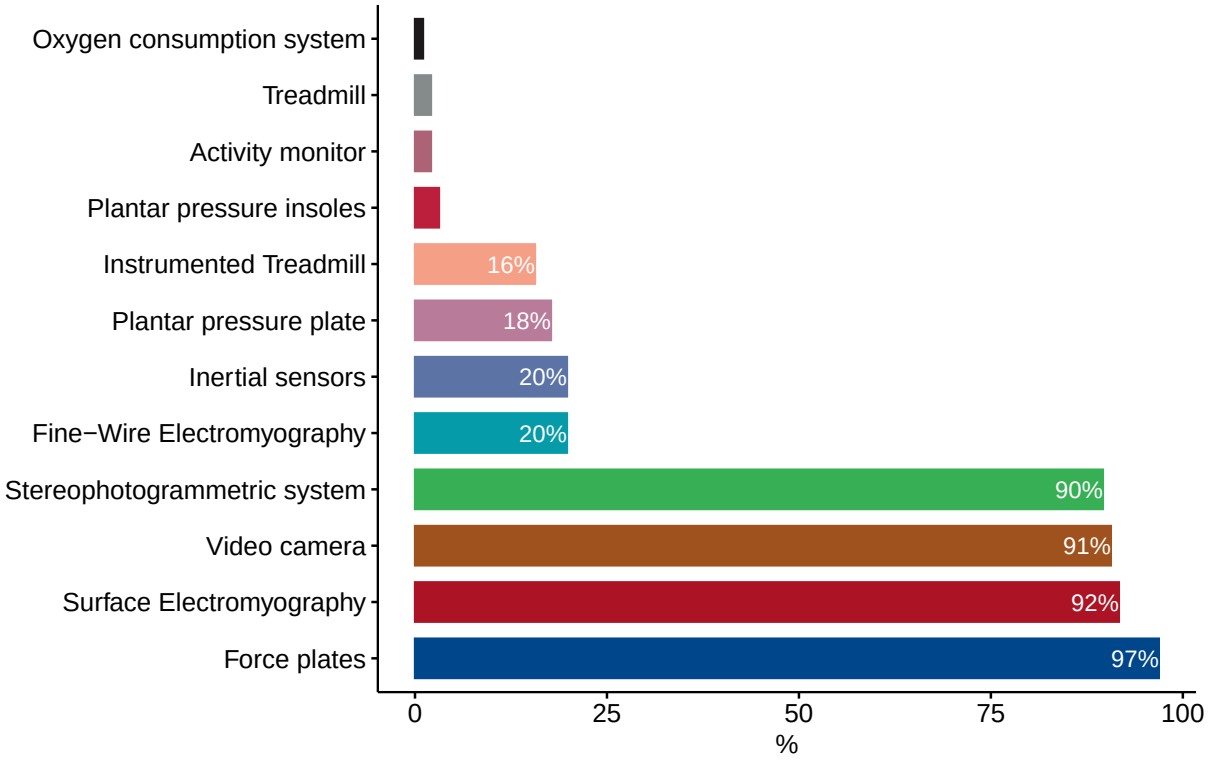
3.5 Measure Frequency of device Q27

What is the measurement frequency in Hertz of acquisition of the equipment that you use in your lab for CGA? Please type 0 if not used in my lab.



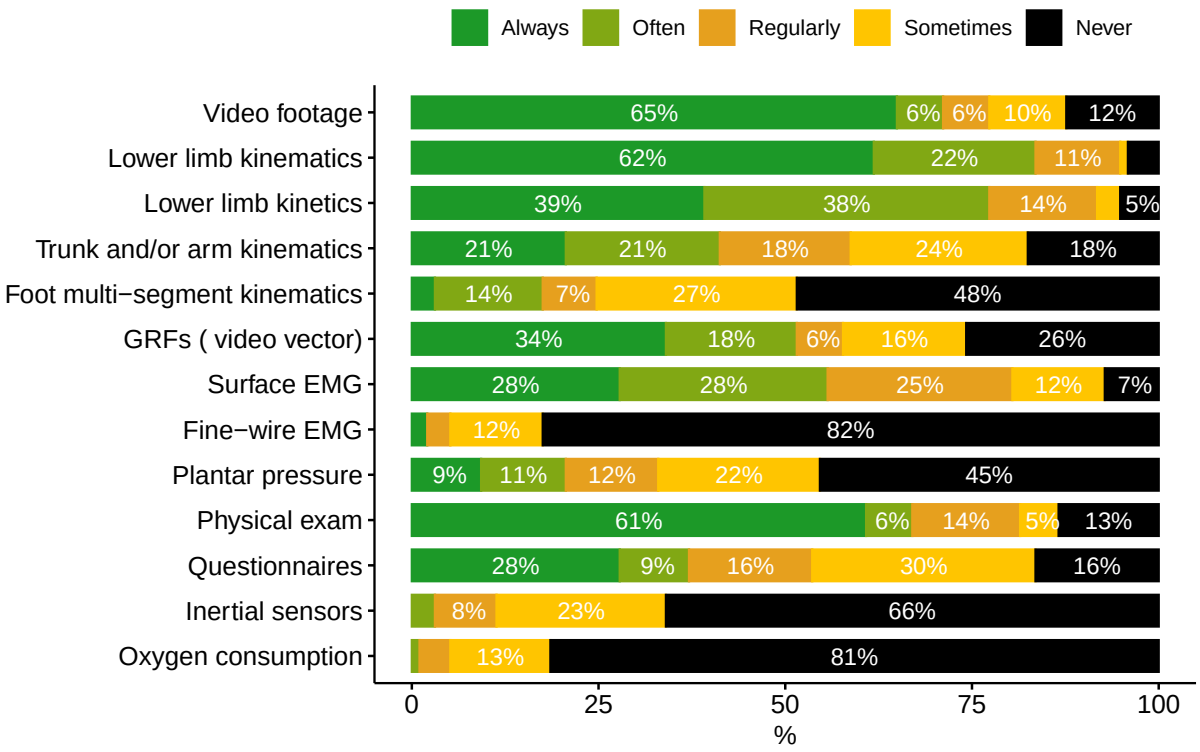
3.6 Synchronization of devices Q28

Which of the following devices of your lab are synchronized to each other?



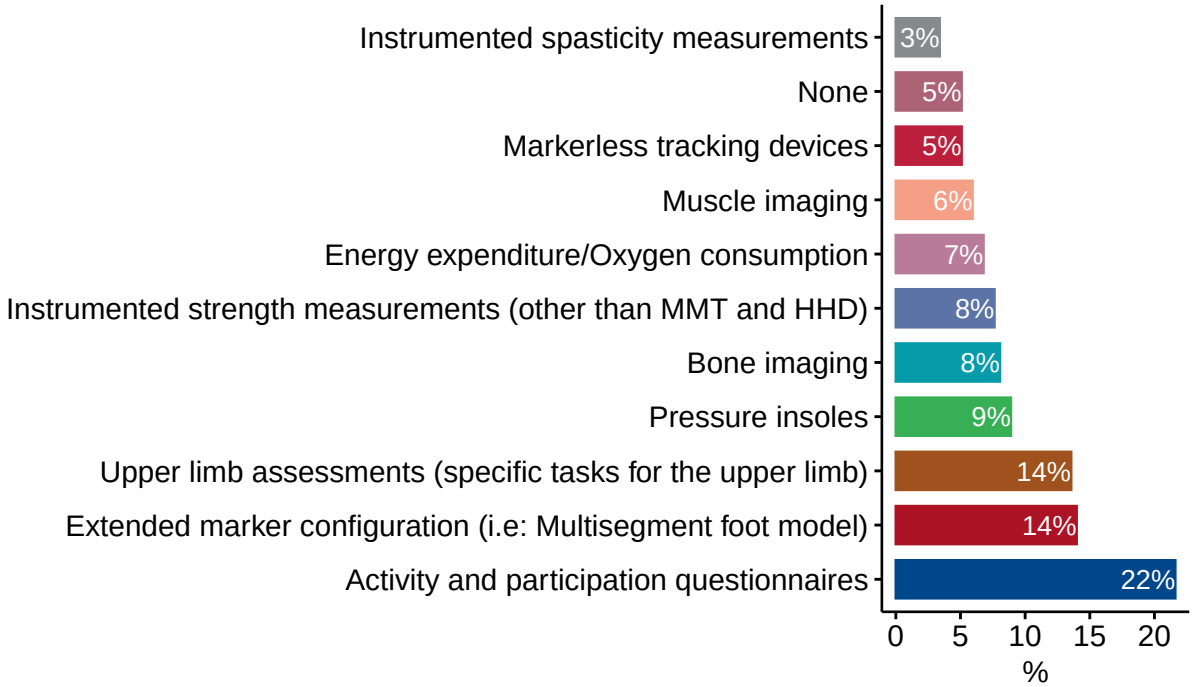
3.7 Data collected Q29

How often do you collect the following datasets during CGA?



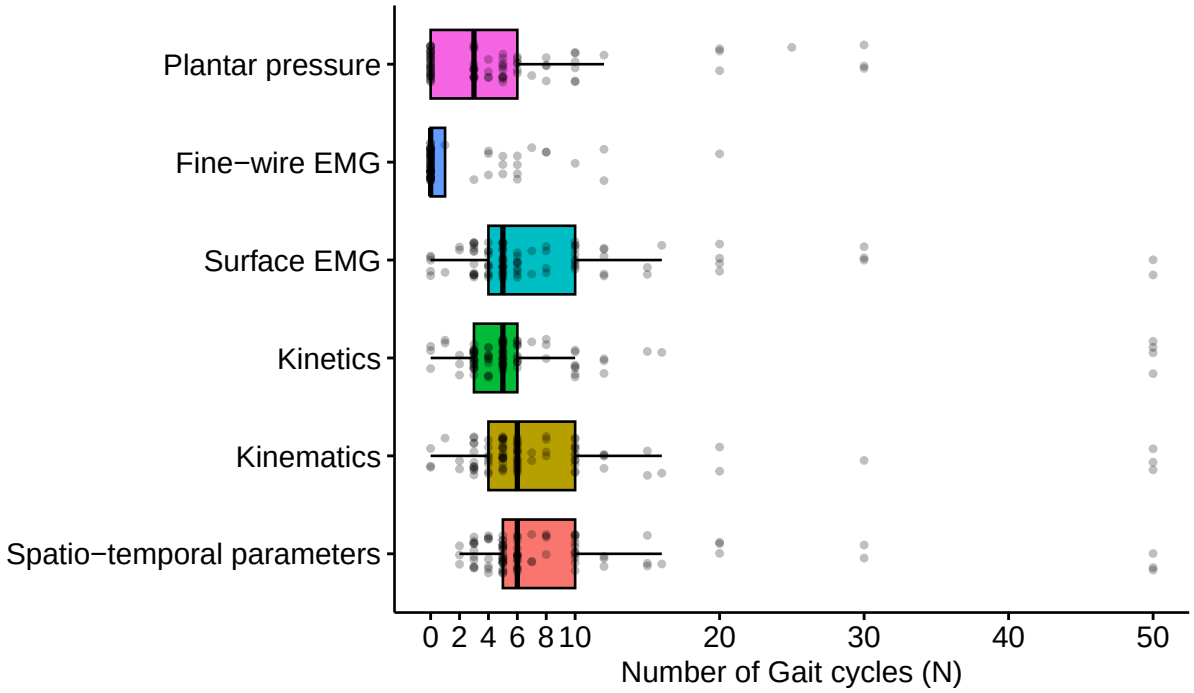
3.8 Additional measurements to CGA Q30

Do you use additional measurements on top of the standard CGA for specific treatments and/or pathologies? If so, which?



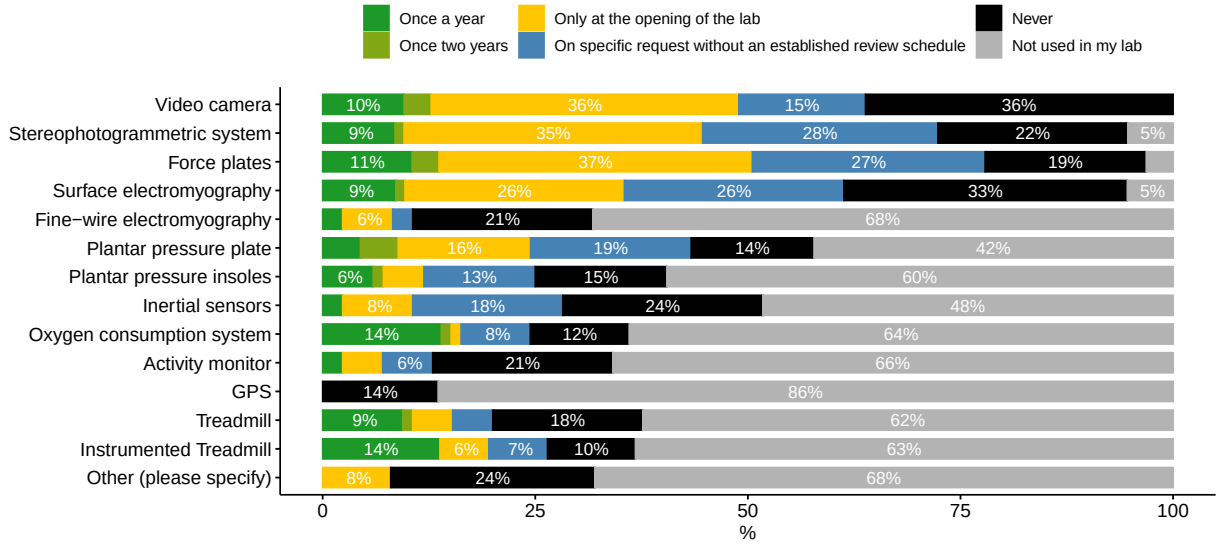
3.9 Minimal number of gait cycles Q31

What is the minimal number of gait cycles that you consider it necessary to collect to satisfactorily interpret CGA for (please type 0 if none)?



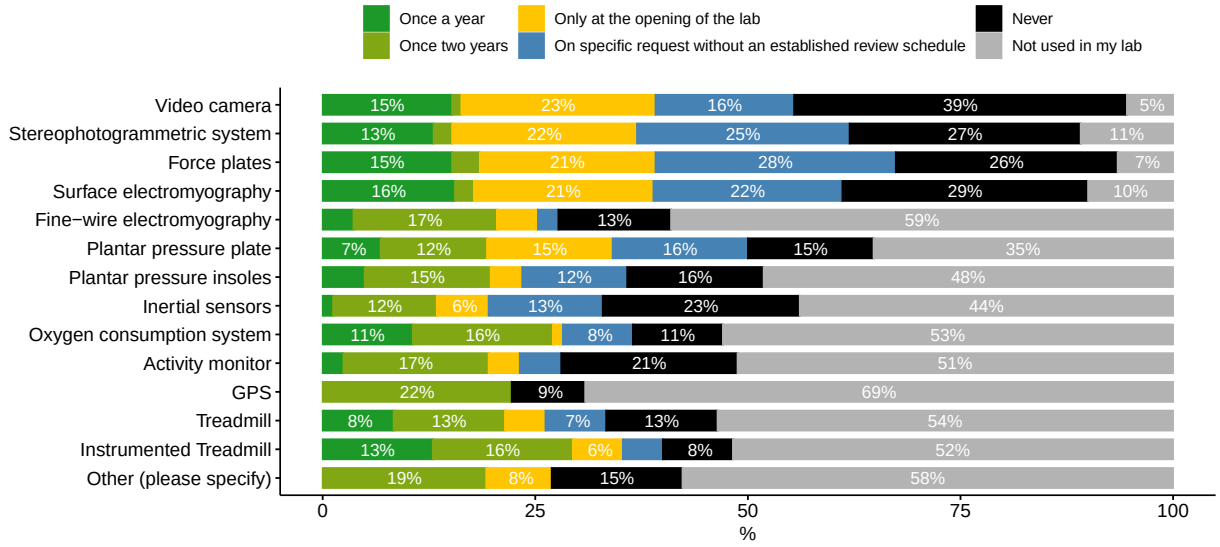
3.10 External technical calibration of systems Q32

Do an external company (e.g. the manufacturer) perform a technical calibration of the systems used for CGA?



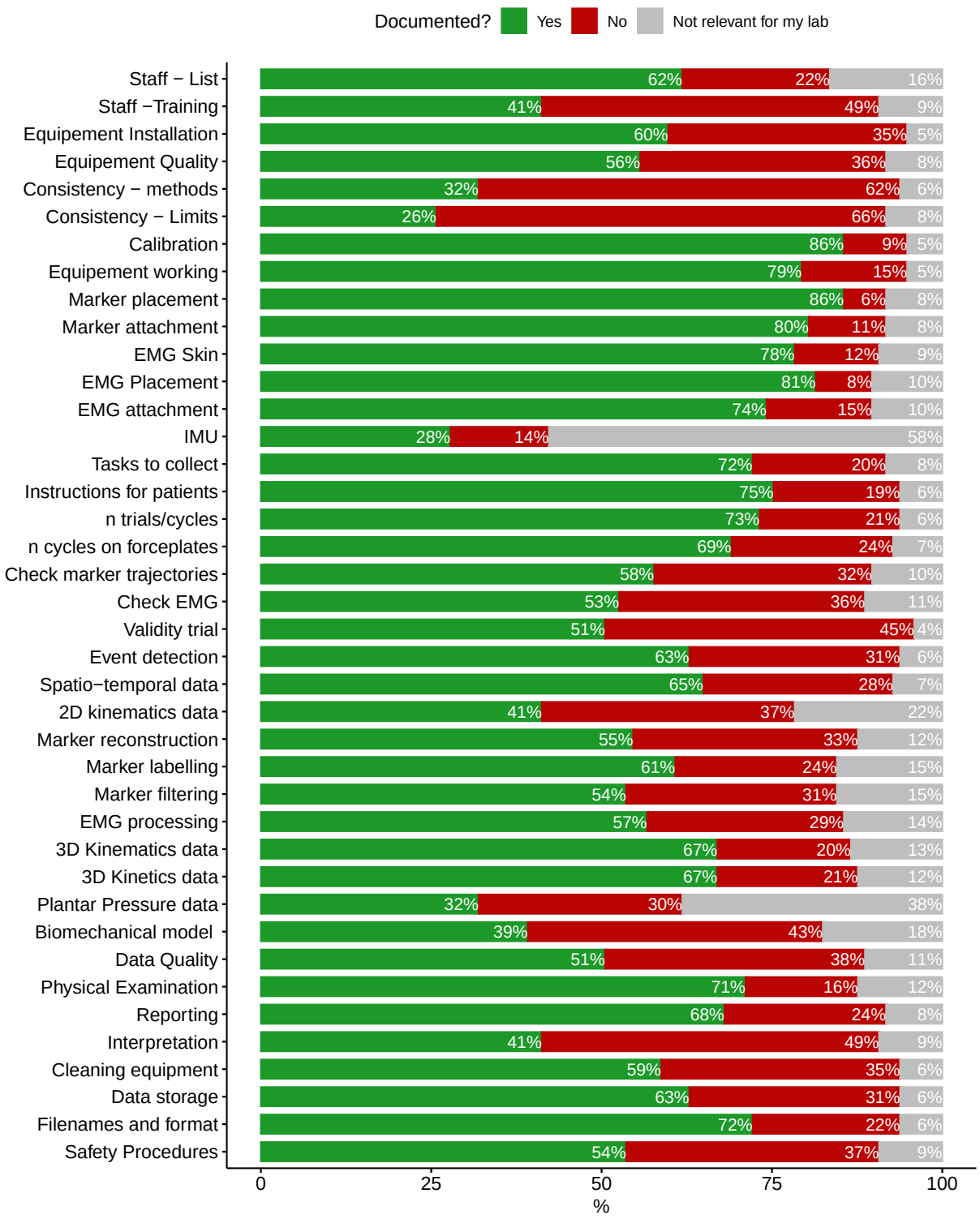
3.11 External quality control of systems Q33

Does an external company (e.g. the manufacturer) perform a quality control assessment of the systems used for CGA?

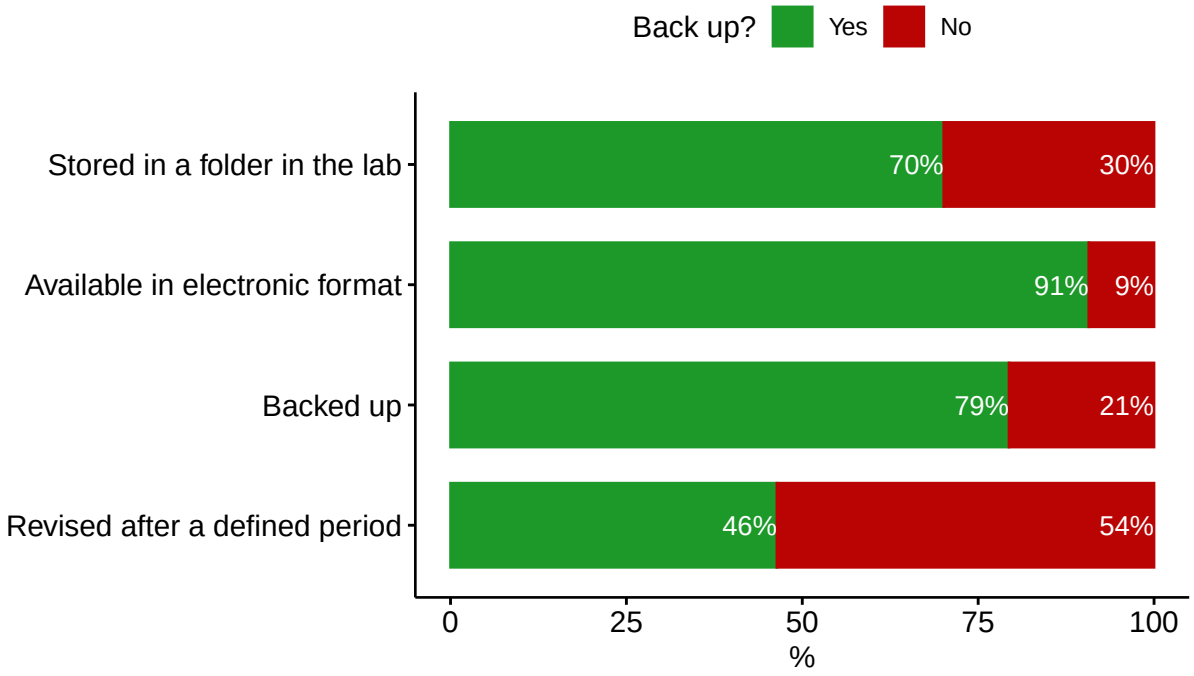


3.12 CGA documentation Q34

Do you have documentation (written or electronic) in your CGA including the following?

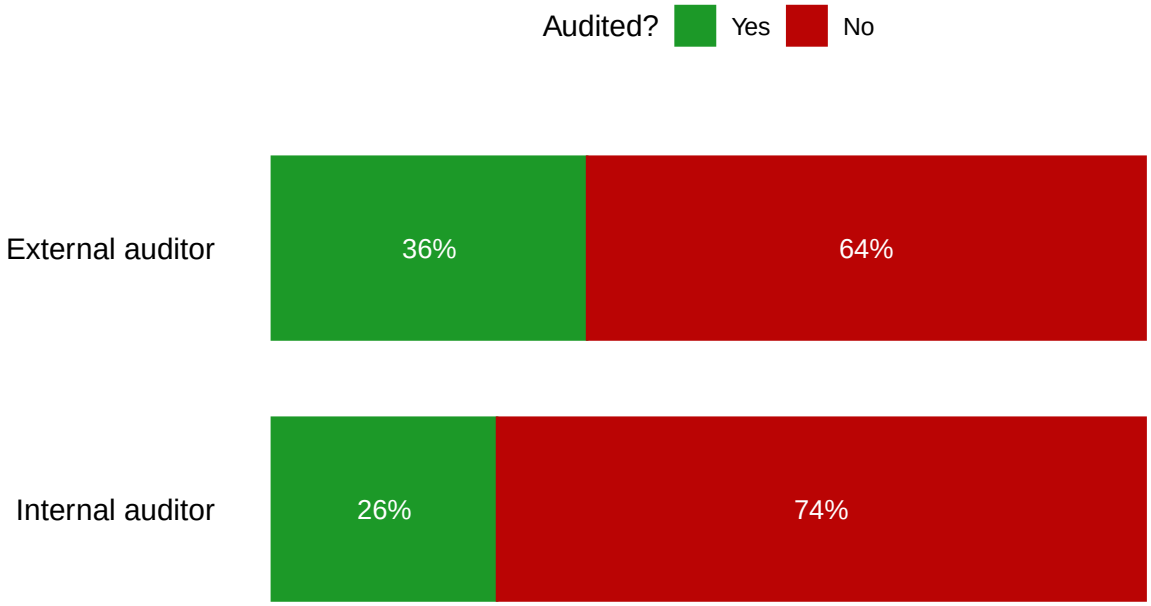

Documented?
Yes
No
Not relevant for my lab
Staff − List 62% 22% 16%
Staff −Training 41% 49% 9%
Equipement Installation 60% 35% 5%
Equipement Quality 56% 36% 8%
Consistency − methods 32% 62% 6%
Consistency − Limits 26% 66% 8%
Calibration 86% 9% 5%
Equipement working 79% 15% 5%
Marker placement 86% 6% 8%
Marker attachment 80% 11% 8%
EMG Skin 78% 12% 9%
EMG Placement 81% 8% 10%
EMG attachment 74% 15% 10%
IMU 28% 14% 58%
Tasks to collect 72% 20% 8%
Instructions for patients 75% 19% 6%
n trials/cycles 73% 21% 6%
n cycles on forceplates 69% 24% 7%
Check marker trajectories 58% 32% 10%
Check EMG 53% 36% 11%
Validity trial 51% 45% 4%
Event detection 63% 31% 6%
Spatio−temporal data 65% 28% 7%
2D kinematics data 41% 37% 22%
Marker reconstruction 55% 33% 12%
Marker labelling 61% 24% 15%
Marker filtering 54% 31% 15%
EMG processing 57% 29% 14%
3D Kinematics data 67% 20% 13%
3D Kinetics data 67% 21% 12%
Plantar Pressure data 32% 30% 38%
Biomechanical model 39% 43% 18%
Data Quality 51% 38% 11%
Physical Examination 71% 16% 12%
Reporting 68% 24% 8%
Interpretation 41% 49% 9%
Cleaning equipment 59% 35% 6%
Data storage 63% 31% 6%
Filenames and format 72% 22% 6%
Safety Procedures 54% 37% 9%
0
25
50
75
100
%

3.13 Are your documents. . . ? Q35



3.14 Appointed auditors Q36

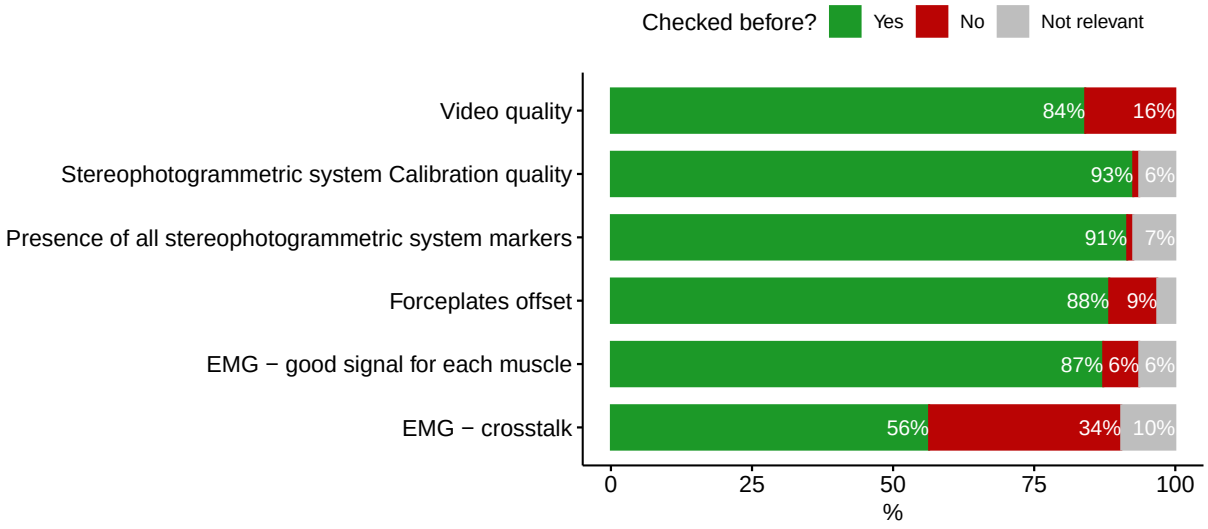
In order to review your documents and your practice, does your lab have appointed auditors?



4 Clinical gait analysis, data acquisition

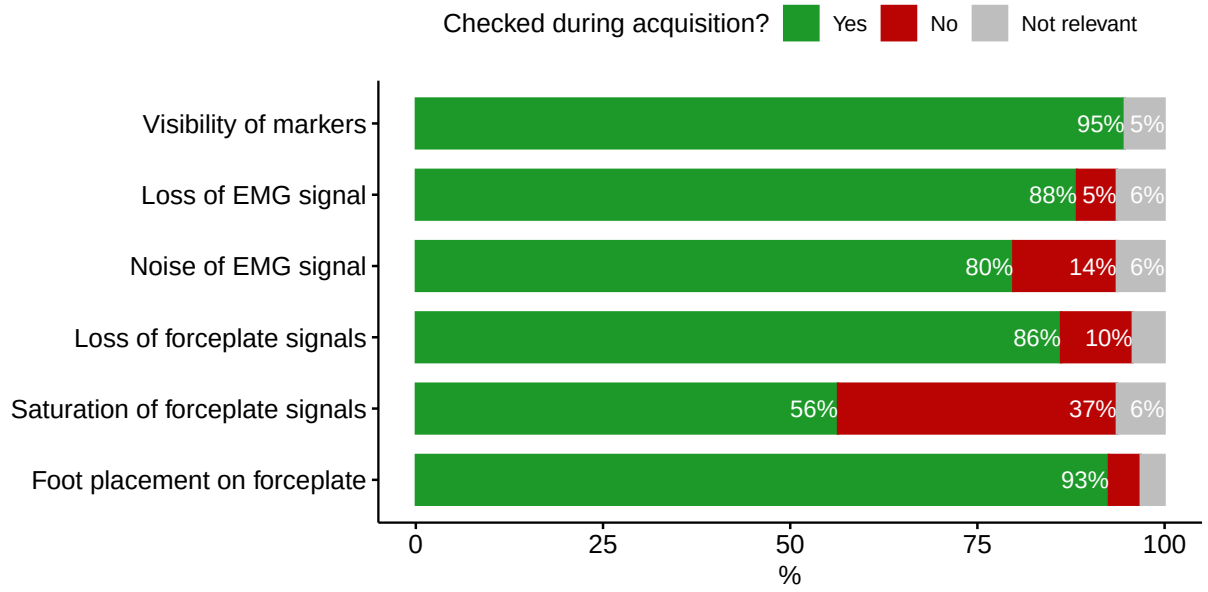
4.1 Check equipment Q37

Which equipment is checked before data acquisition?



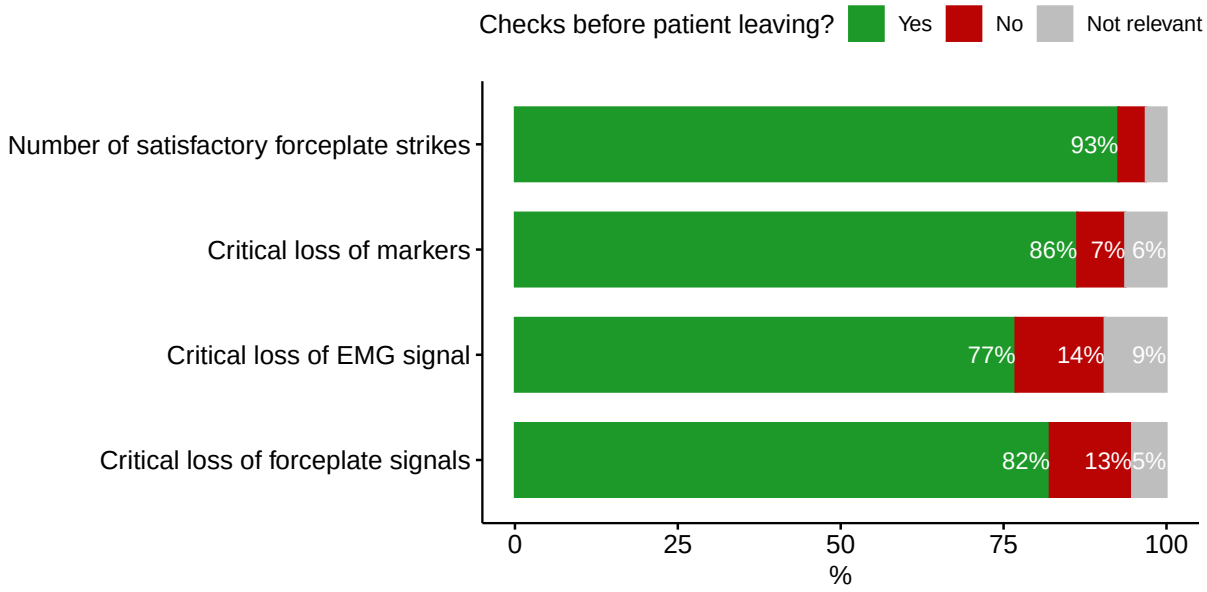
4.2 Check during acquisition Q38

What do you check during data acquisition?



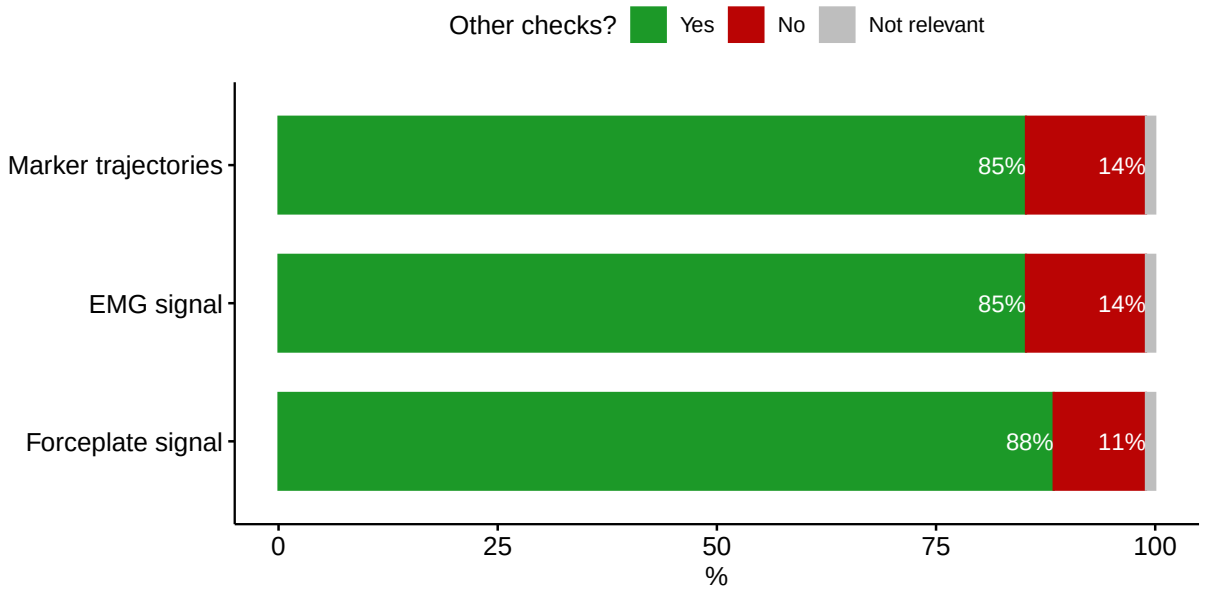
4.3 Check after acquisition Q39

What do you check before the patient leaves the lab?



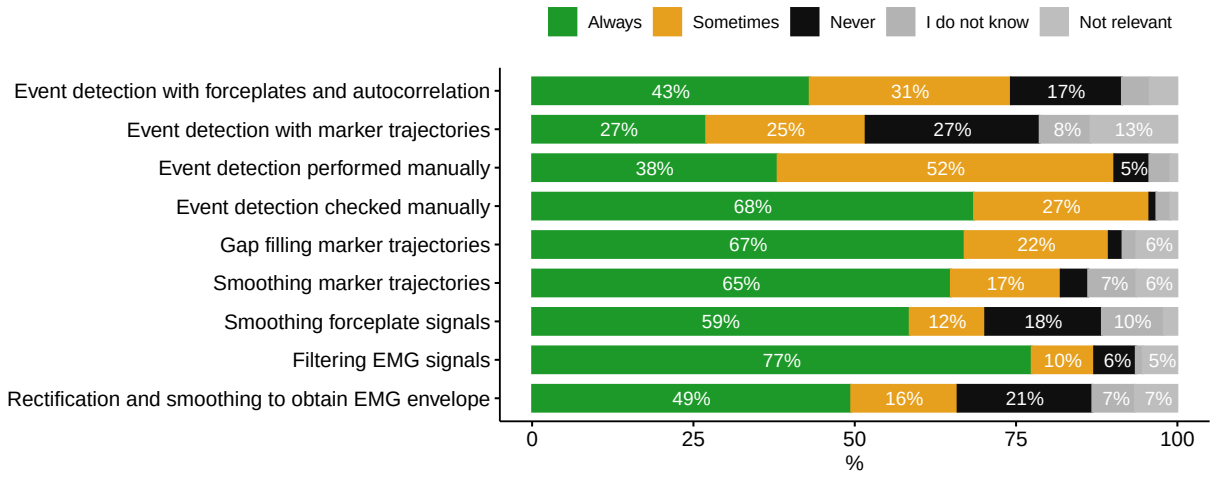
4.4 Checks - other Q40

Do you perform other checks after data acquisition?

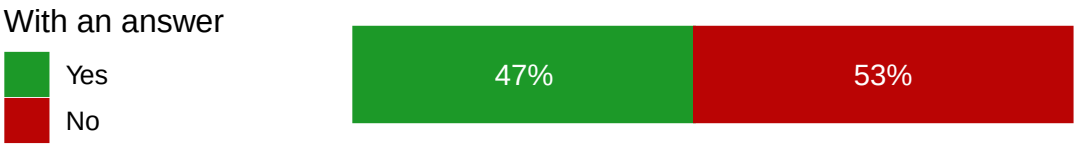


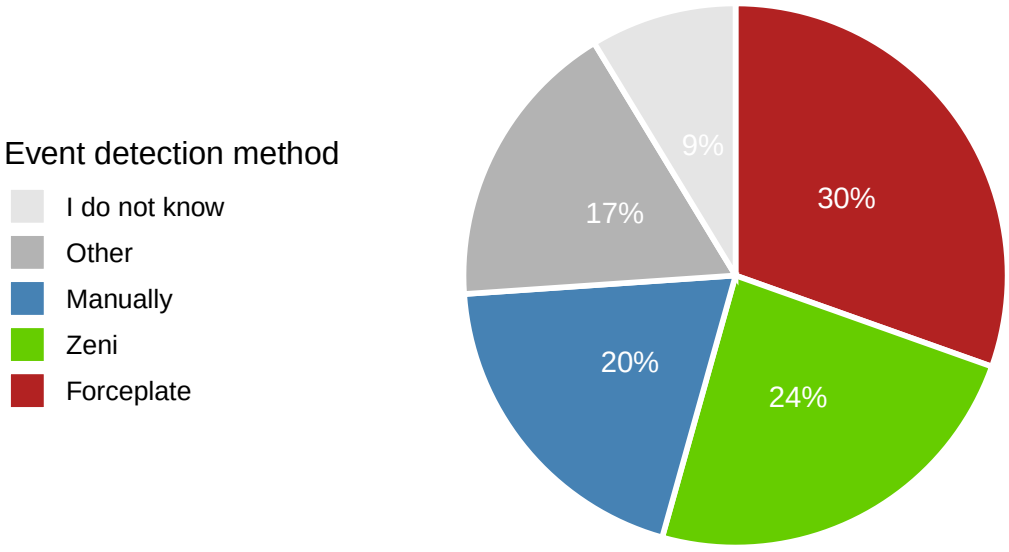
4.5 Data preparation Q41

Do you do these steps for data preparation?

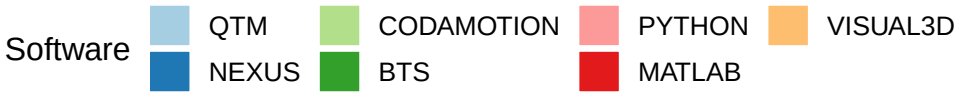


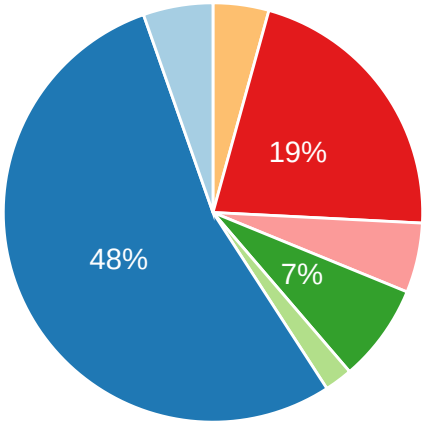
4.6 Event detection - Method Q42a



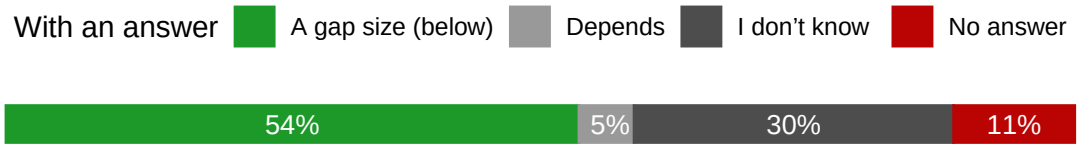


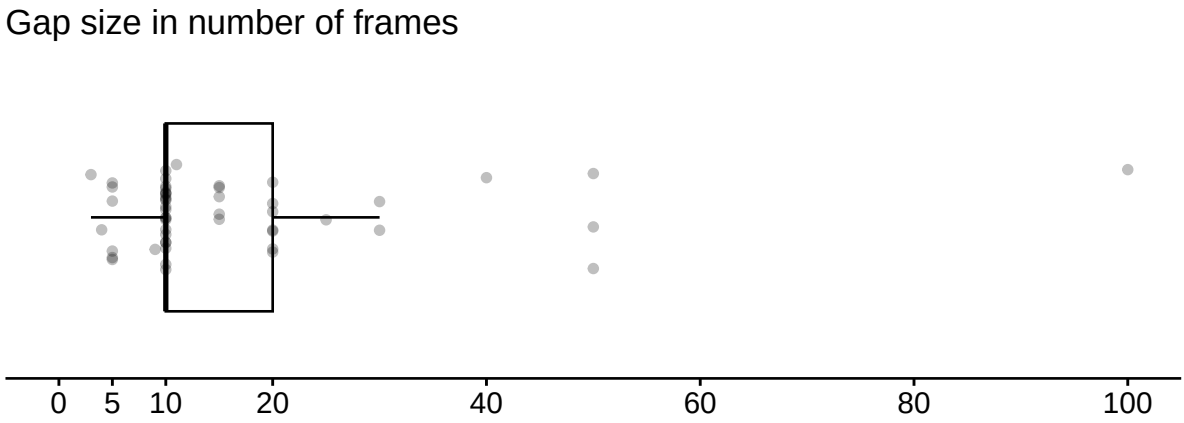
4.7 Event detection - Software Q42b

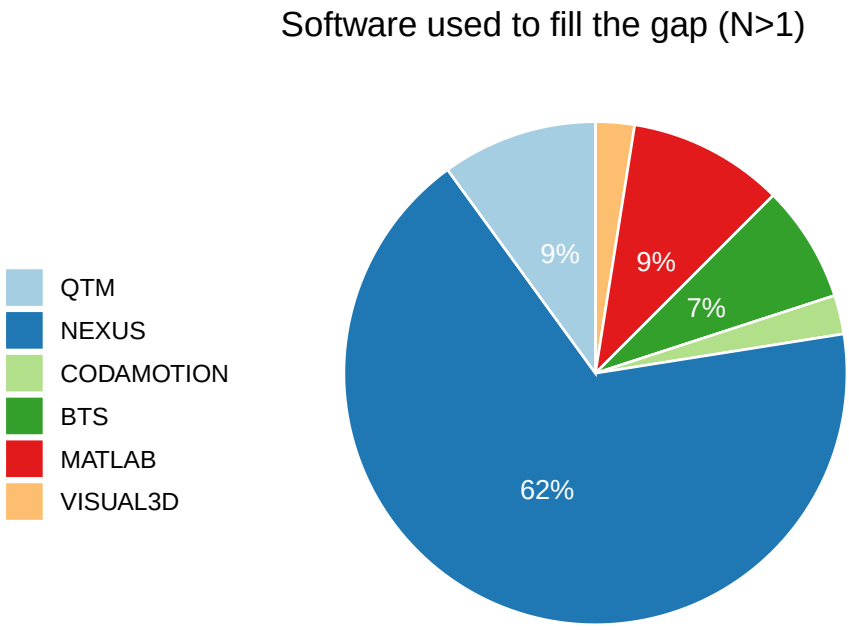




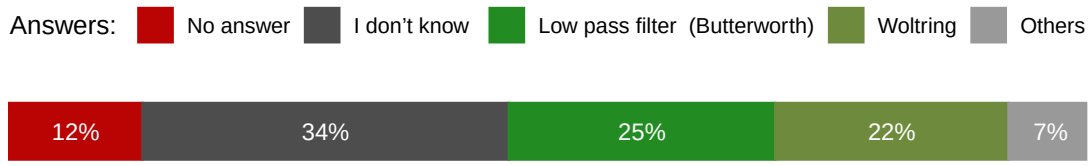
4.8 Filling gaps in trajectories Q43

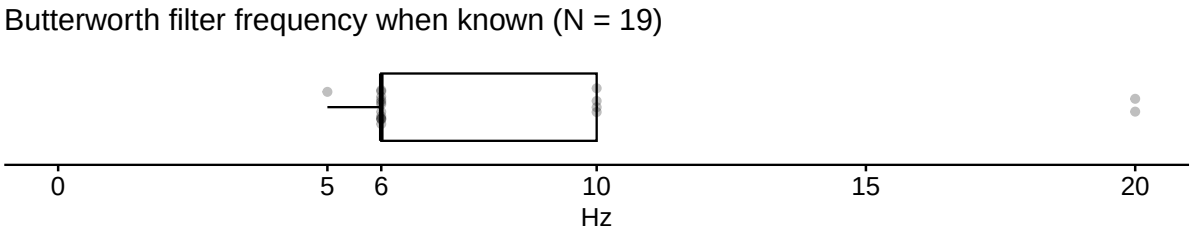


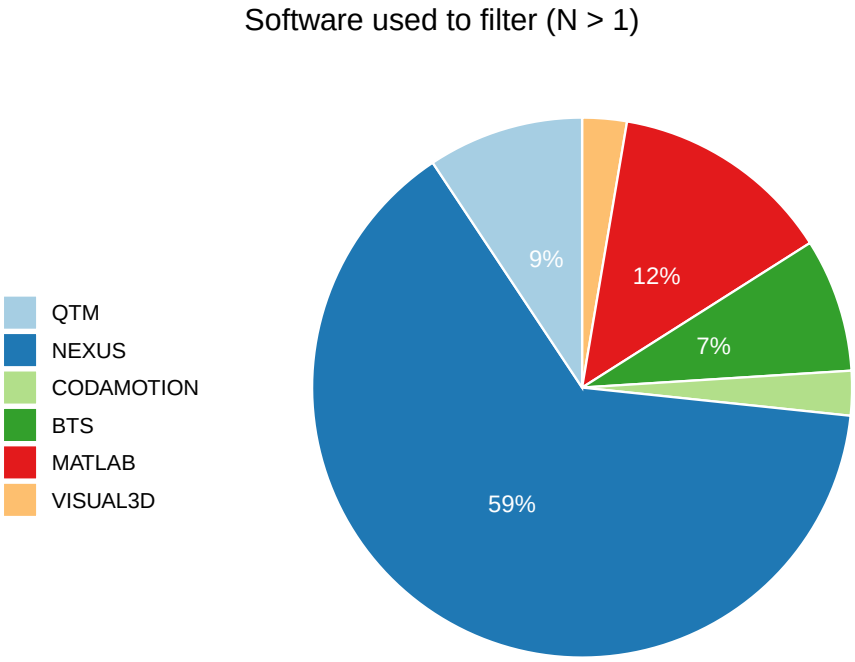




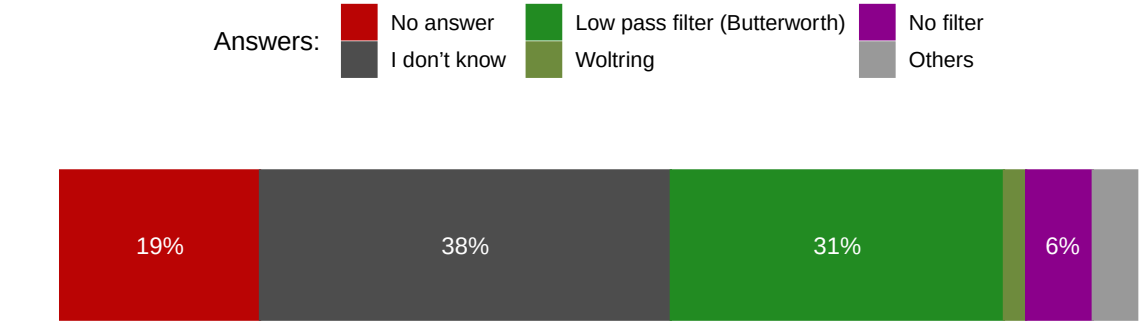
4.9 Smoothing - marker trajectories Q44



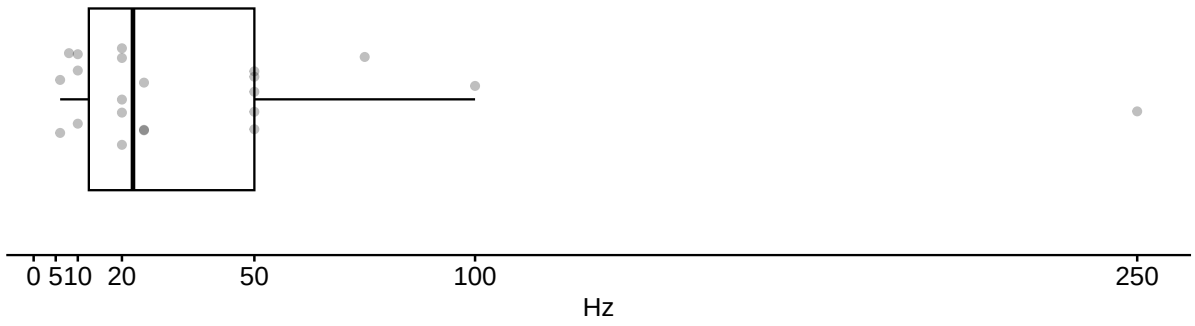




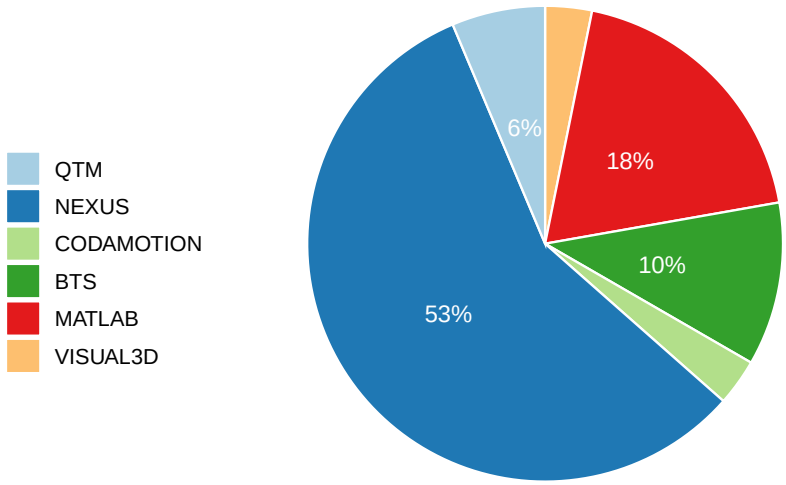
4.10 Smoothing - forceplate signals Q45



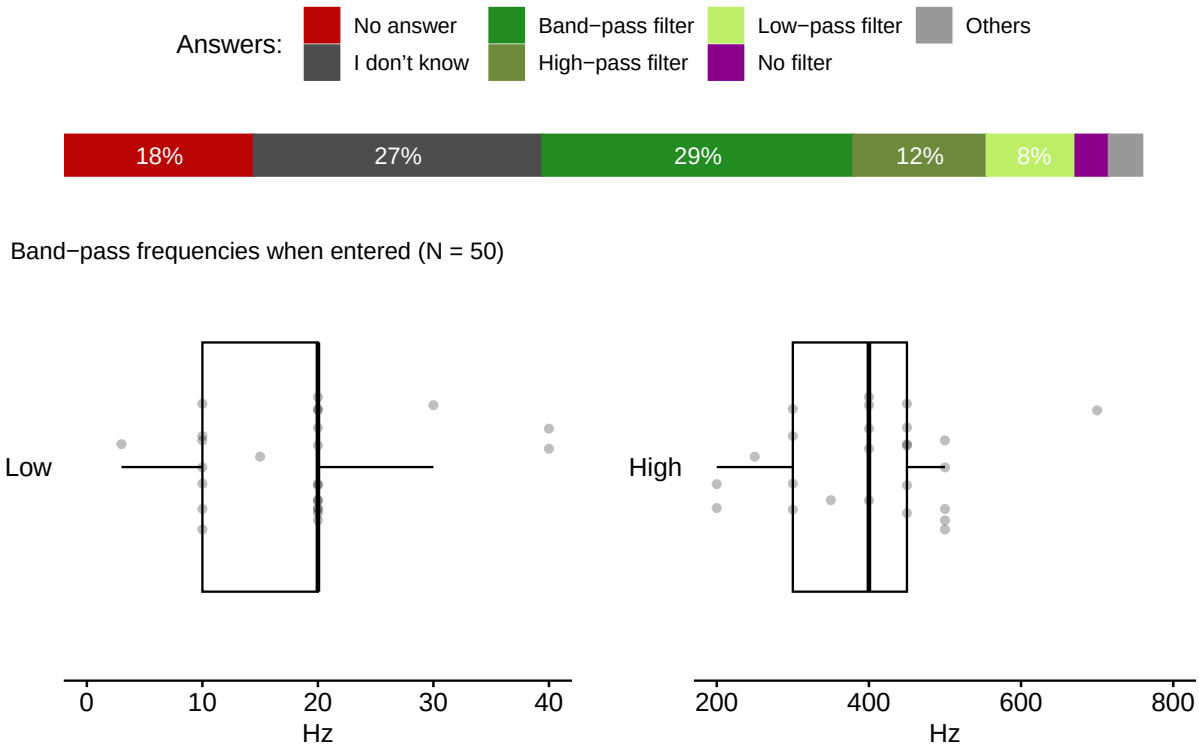
Butterworth filter frequency when entered (N = 22)



Software used to filter (N > 1)

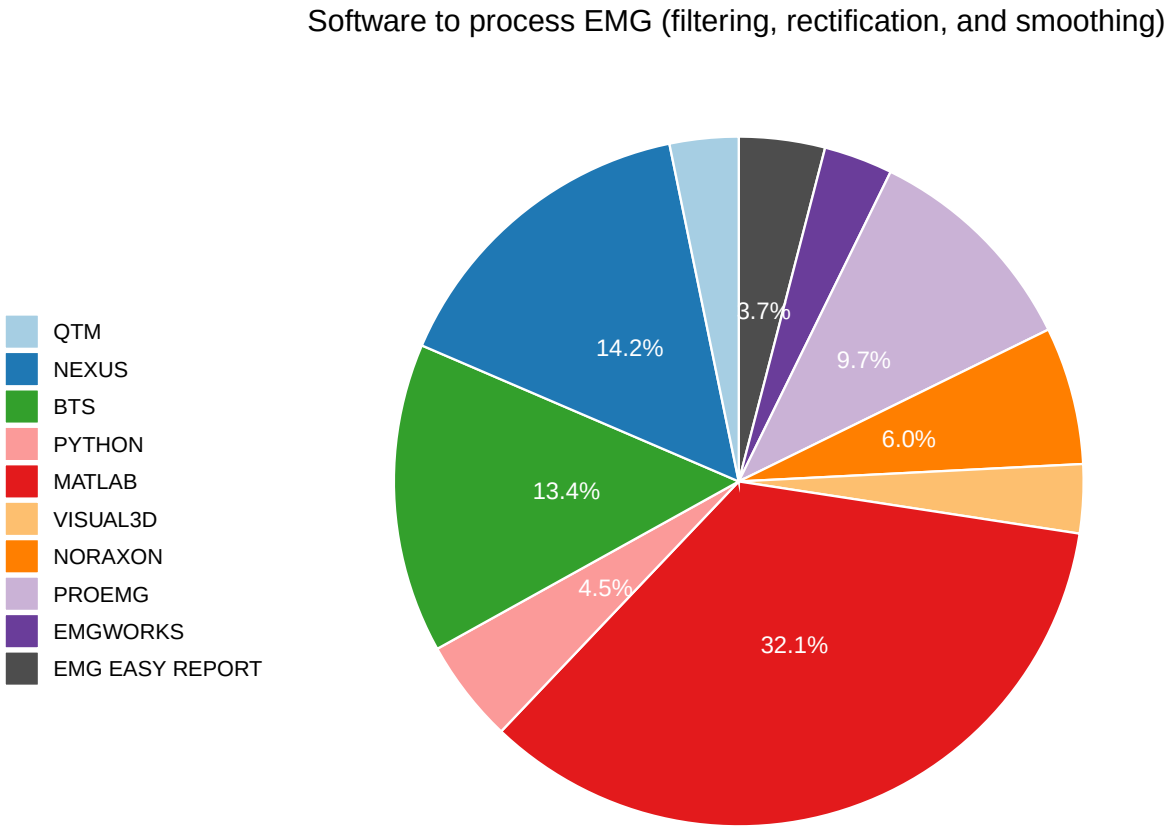


4.11 EMG - filtering Q46



4.12 EMG - software Q47

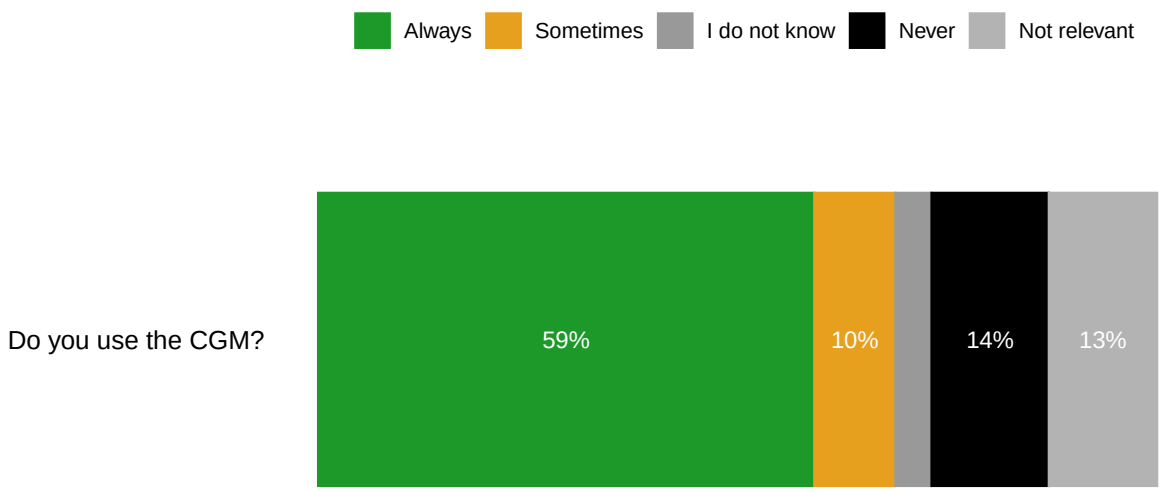
Software to process EMG (filtering, rectification, and smoothing)



5 Clinical gait analysis, data processing

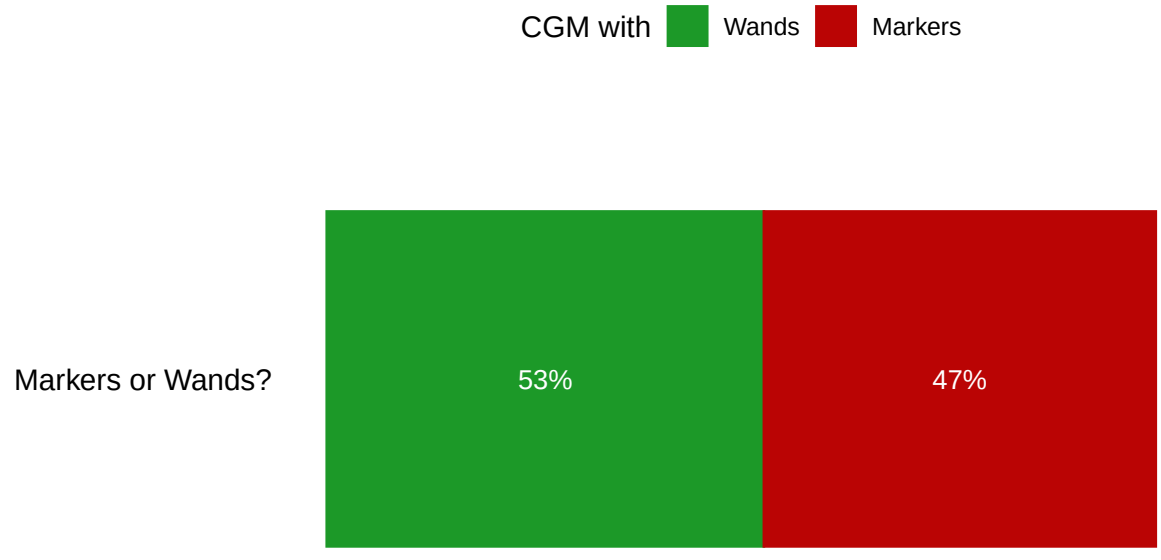
5.1 Customisation of gait model Q48

For kinematics and kinetics computation, do you use the Conventional Gait Model (i.e. Plug-in-Gait) without any customisation?



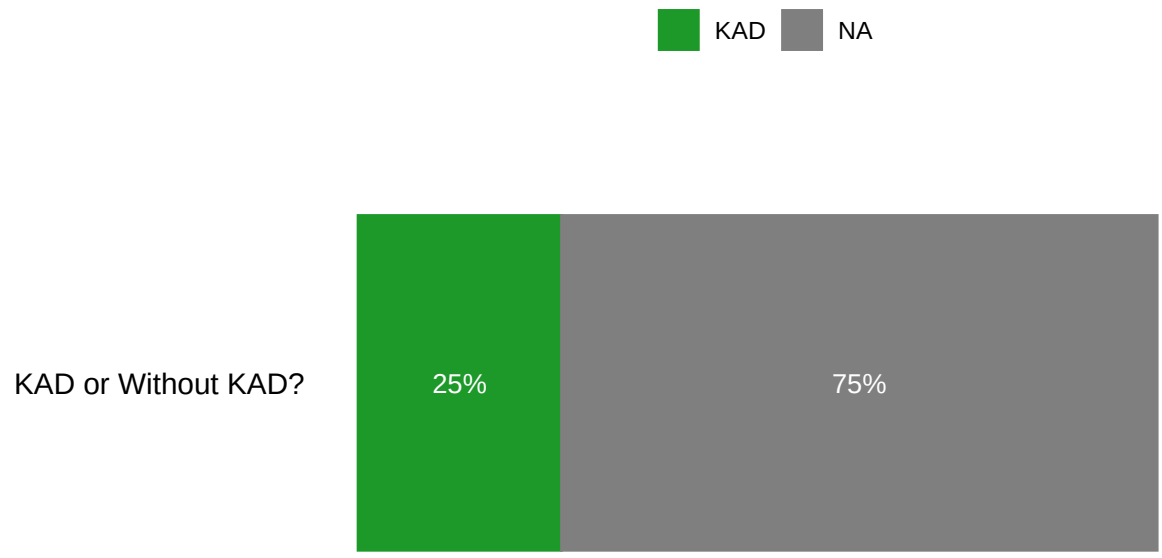
5.2 CGM, wands or markers? Q49b

If you use the CGM, do you use wands or markers for thigh and shank?



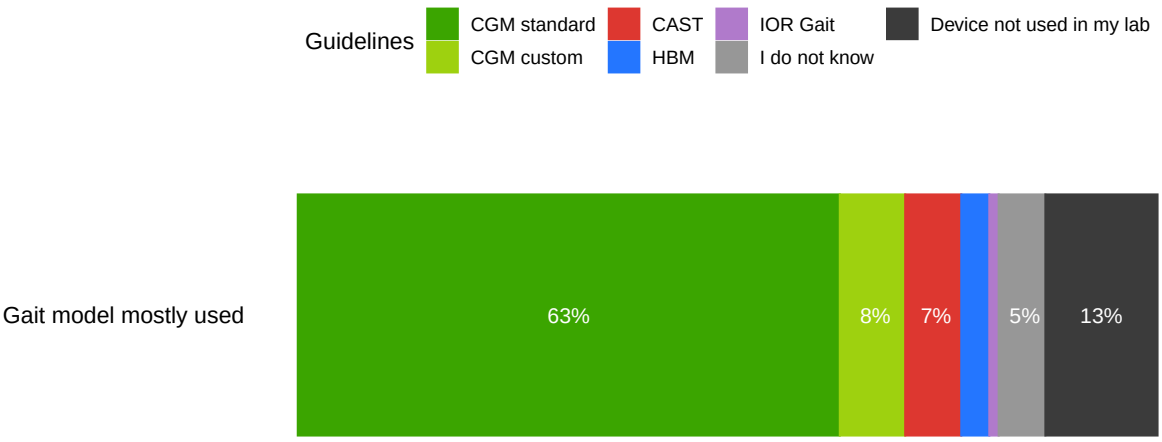
5.3 CGM, KAD? Q49c

If you use the CGM, do you use the KAD?



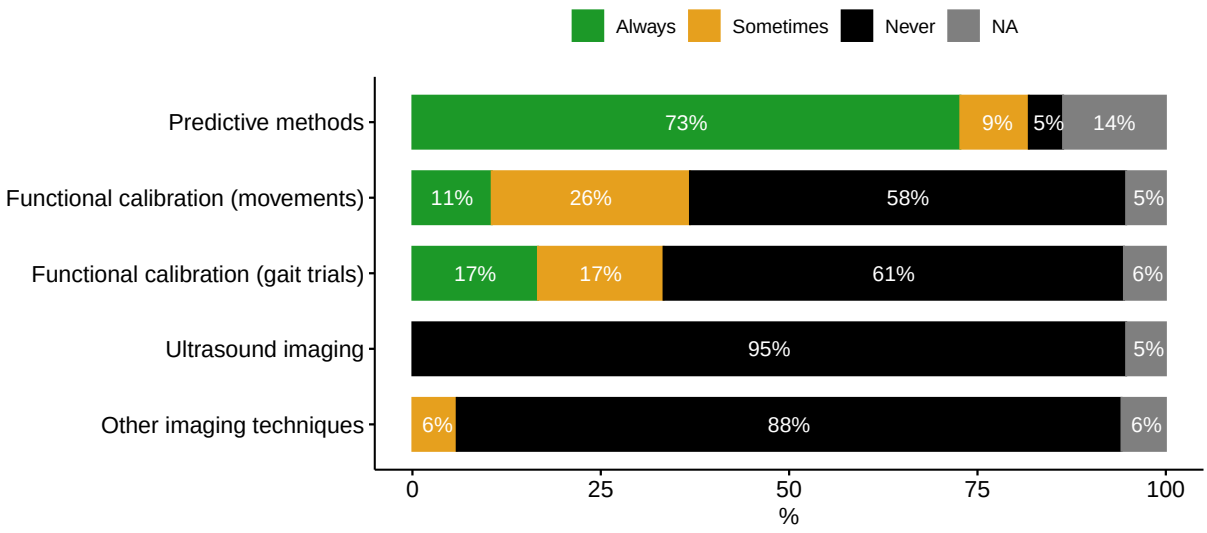
5.4 Models used Q50a

Modified analysis - Most used model for kinematics and kinetics?



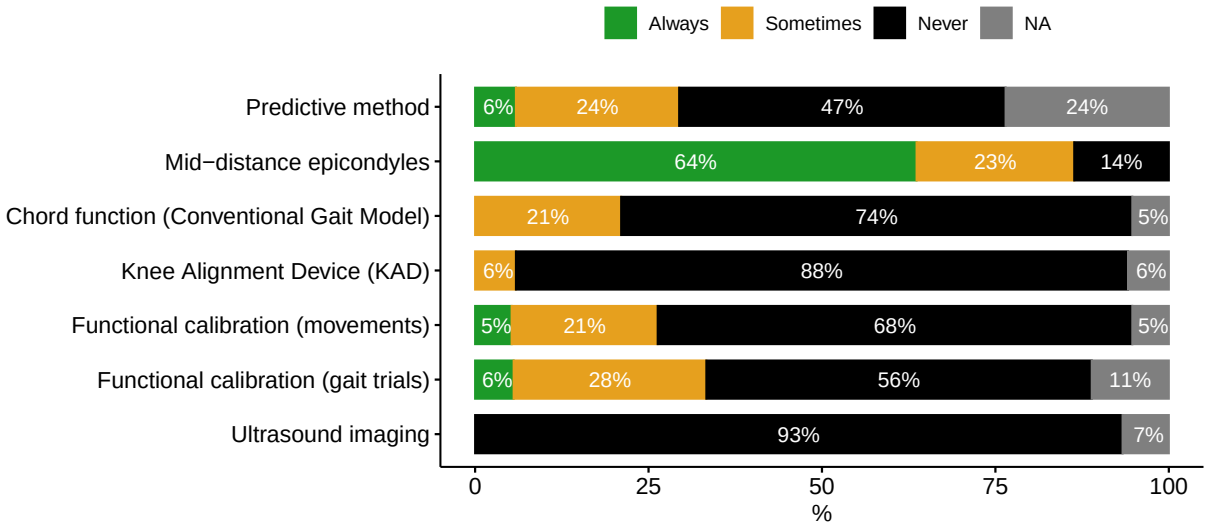
5.5 Hip joint center estimation Q51

Please specify the method to determine hip joint center?



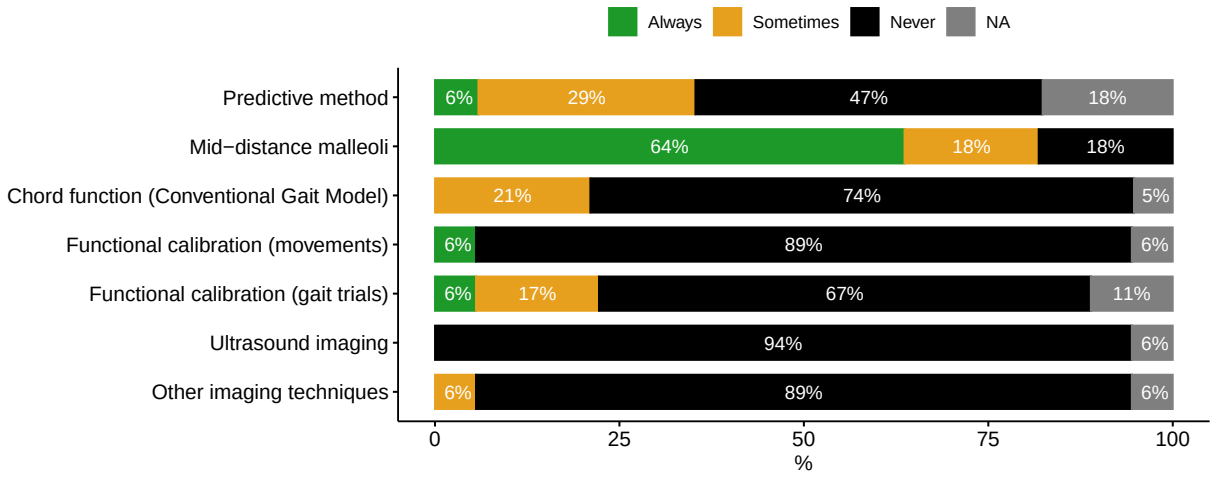
5.6 Knee joint center/axis Q52

Please specify the method to determine knee joint center/axis?



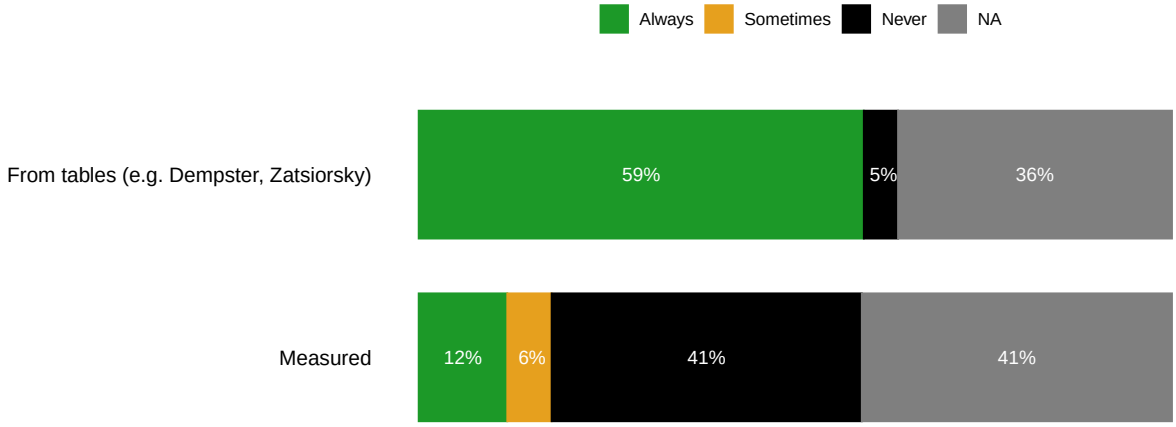
5.7 Ankle joint center/axis Q53

Please specify the method to determine ankle joint center/axis?



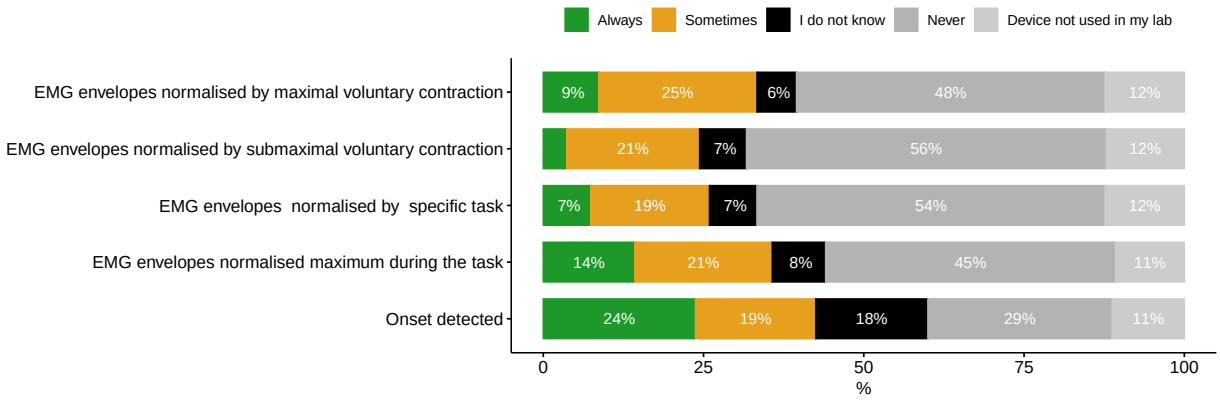
5.8 Inertial parameters Q54

Please specify the method to determine body segment inertial parameters?



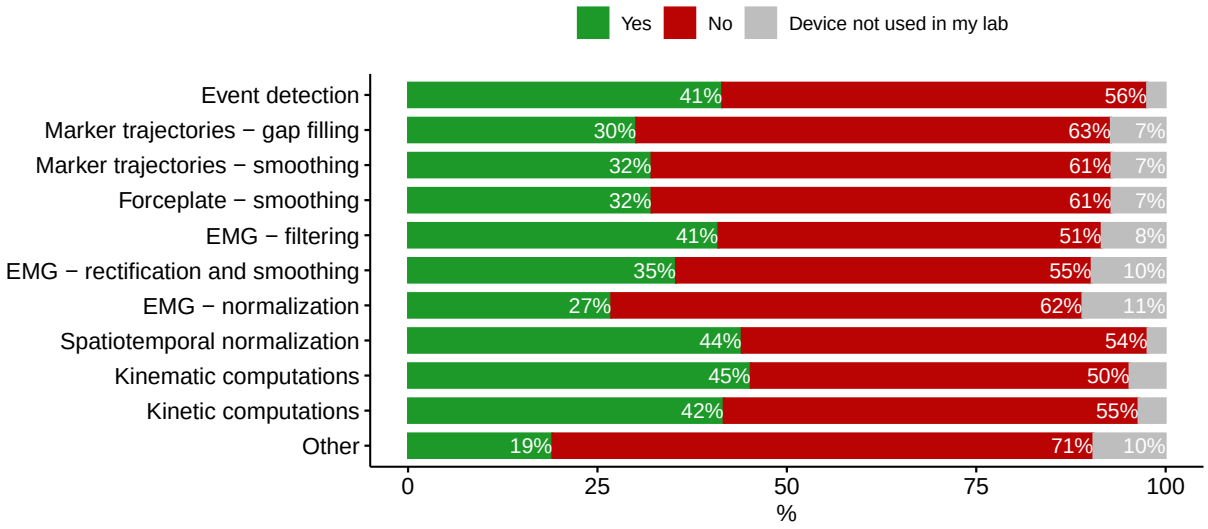
5.9 EMG computation Q55

Which methods do you use for EMG computation?



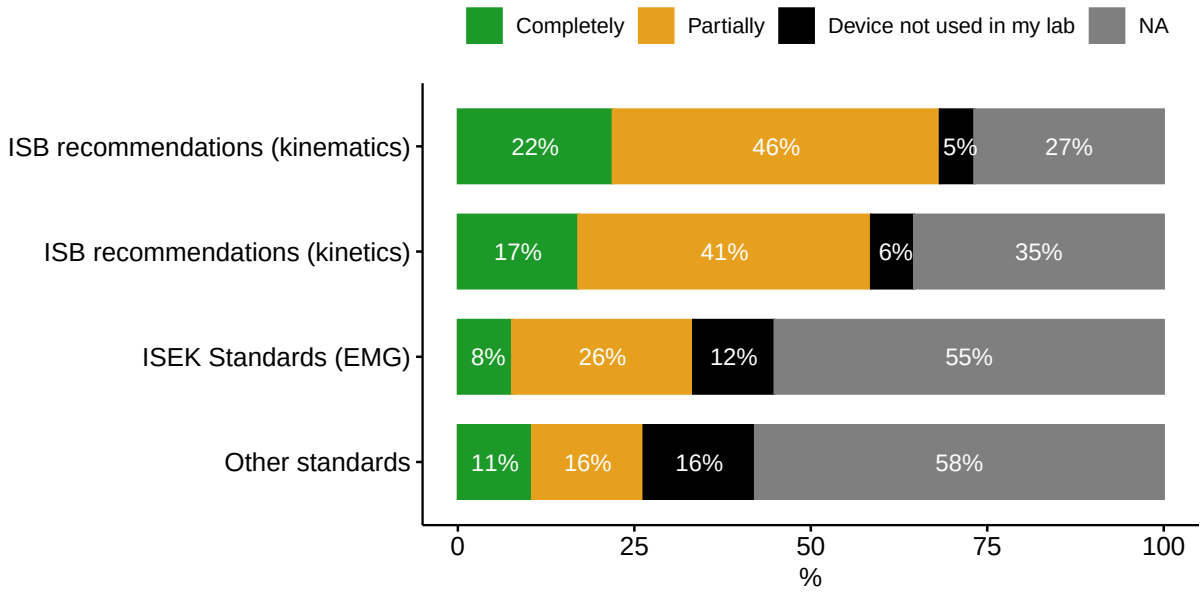
5.10 Reported methods Q56

Which methods used for data preparation and computation do you report in the technical report?



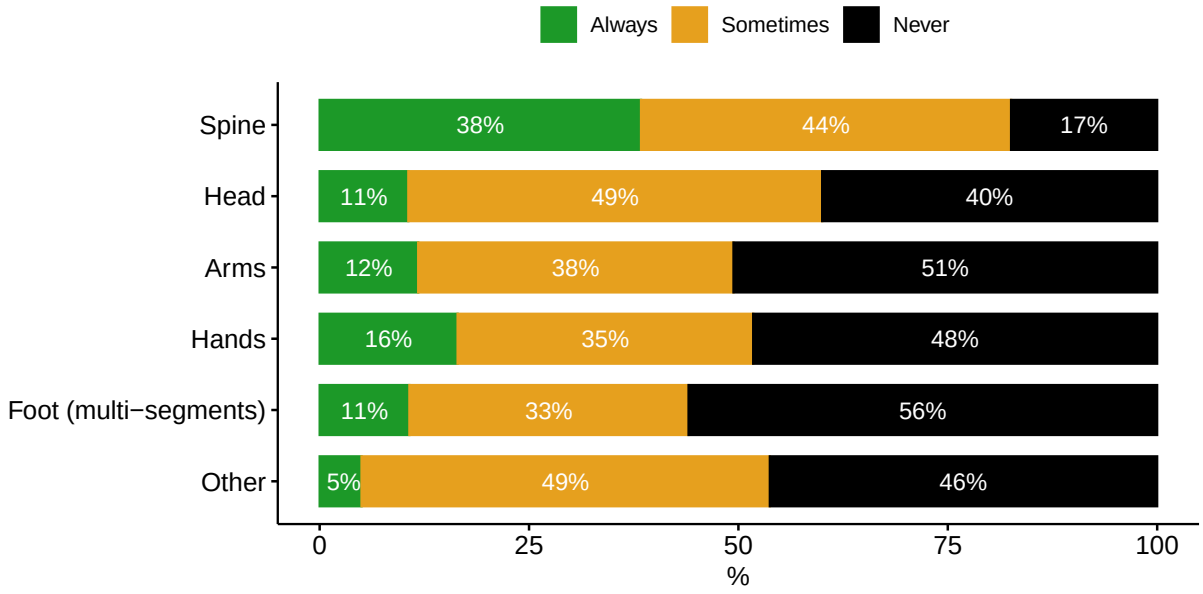
5.11 Recommendations and standards Q57

Does the data presented in the report follow the following recommendations/standards?



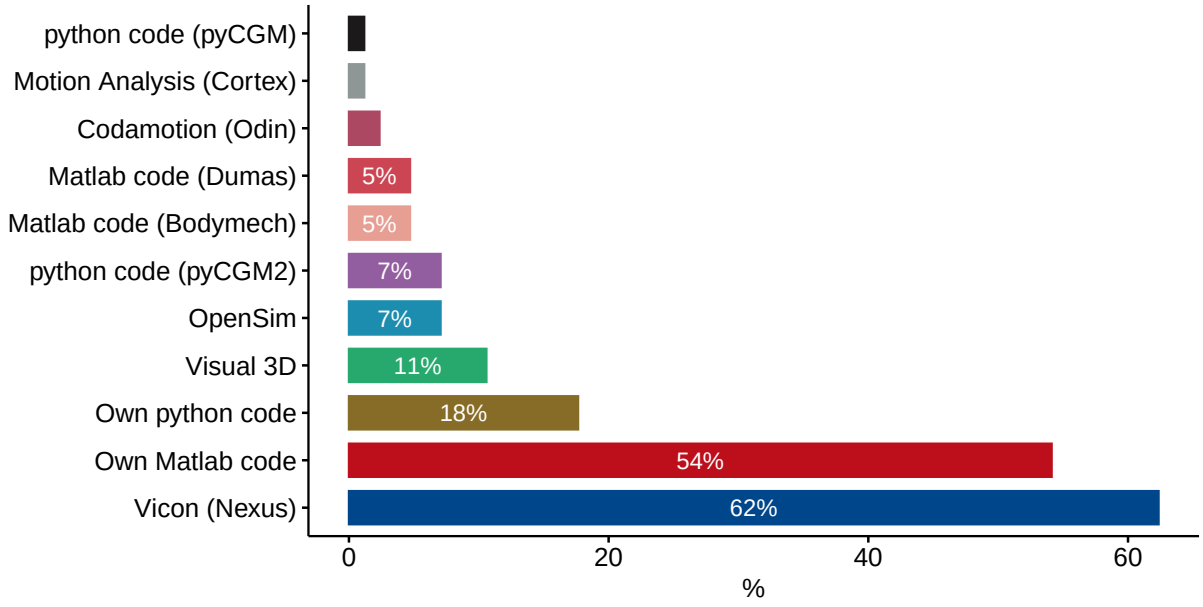
5.12 Upper body Q58

During CGA, do you perform the kinematics acquisition of the following body parts'on top of the lower limb and pelvis?



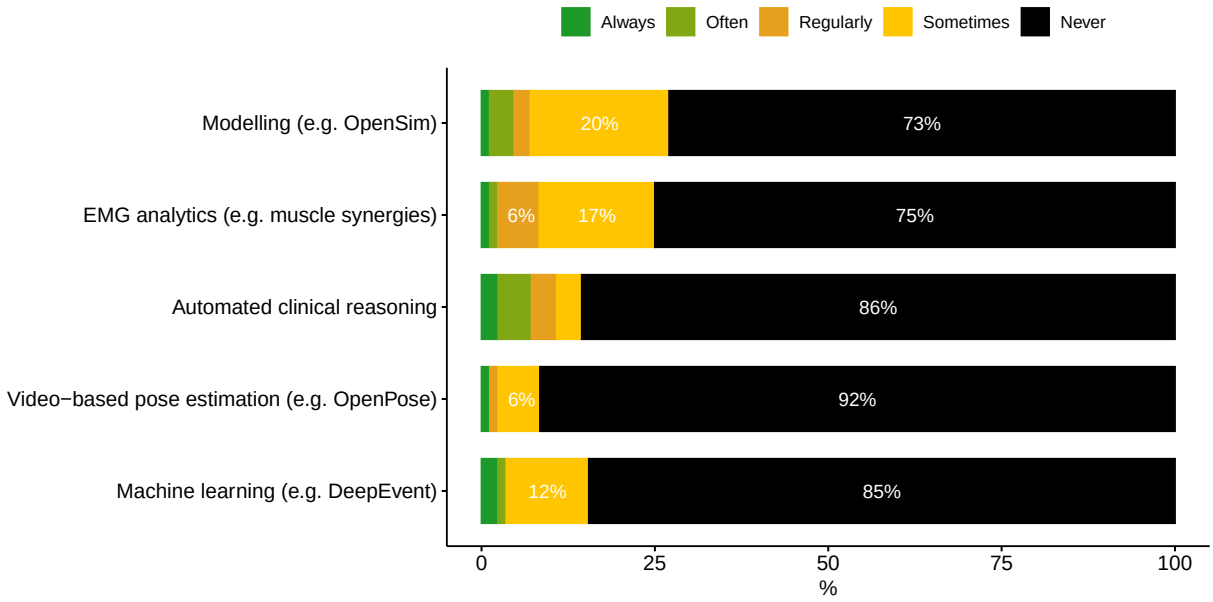
5.13 Software biomechanical computation Q59

Which software do you use for any of the biomechanical computation?



5.14 Advanced methodologies Q60

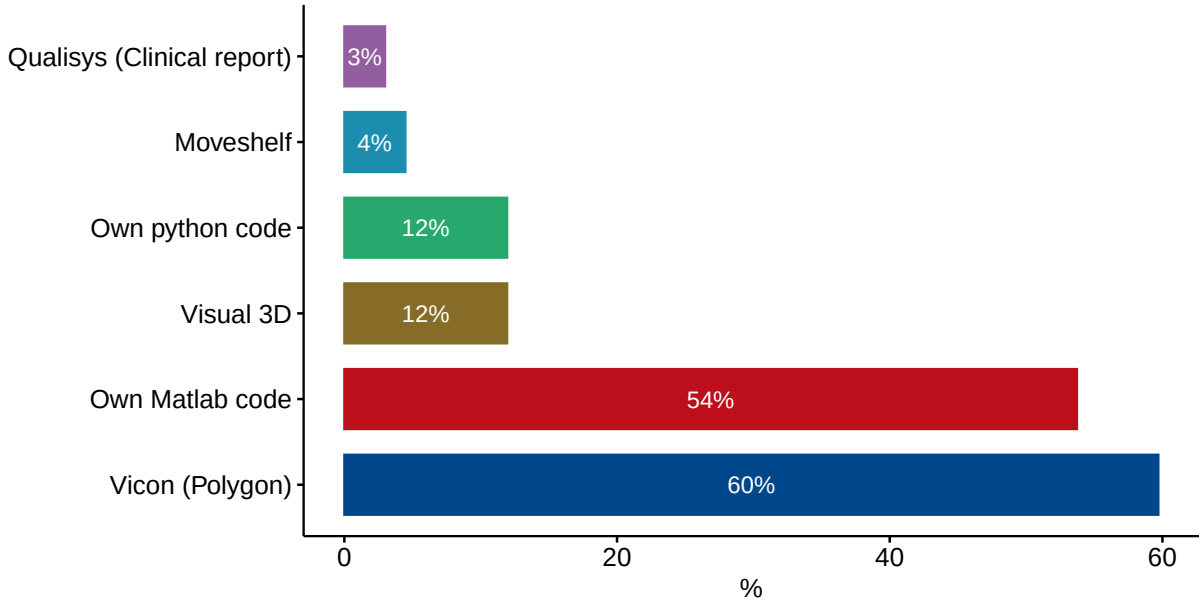
Do you use any of the below methodologies as part of your CGA and how often?



6 Clinical gait analysis, data reporting

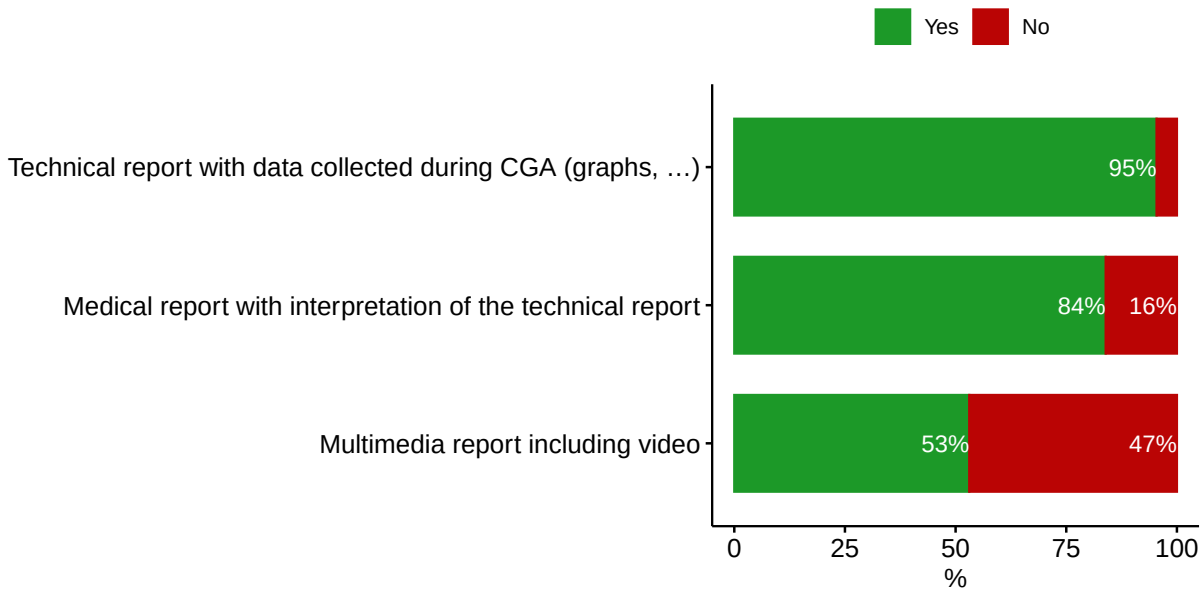
6.1 Software reporting Q61

Which software do you use to prepare the technical report?



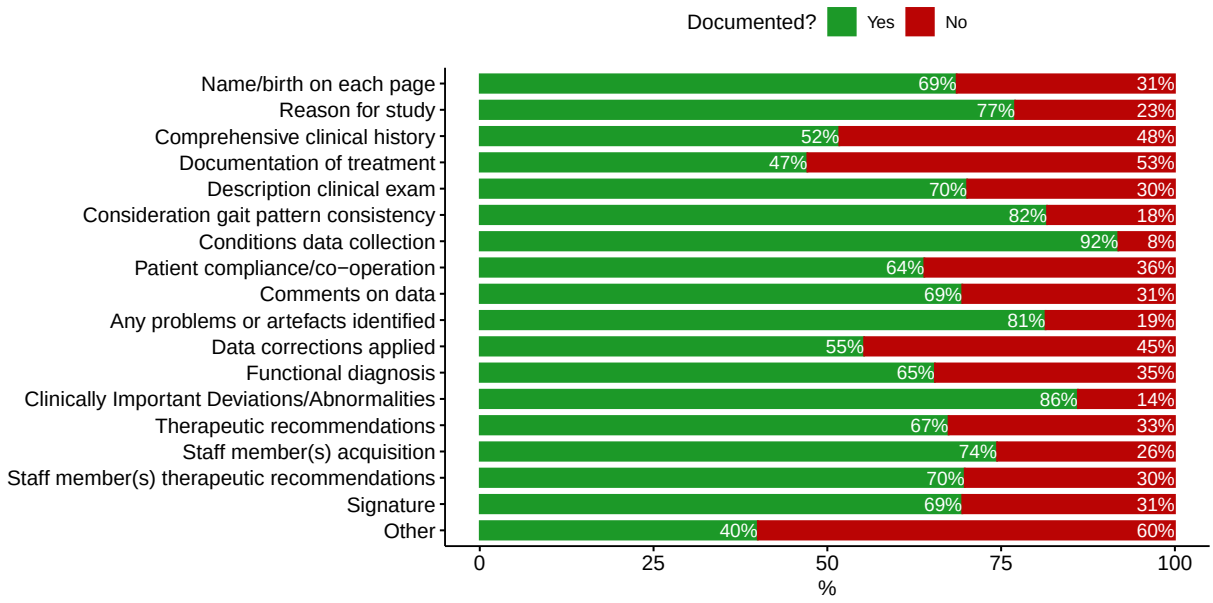
6.2 CGA reporting - content Q62

What does your CGA report include?



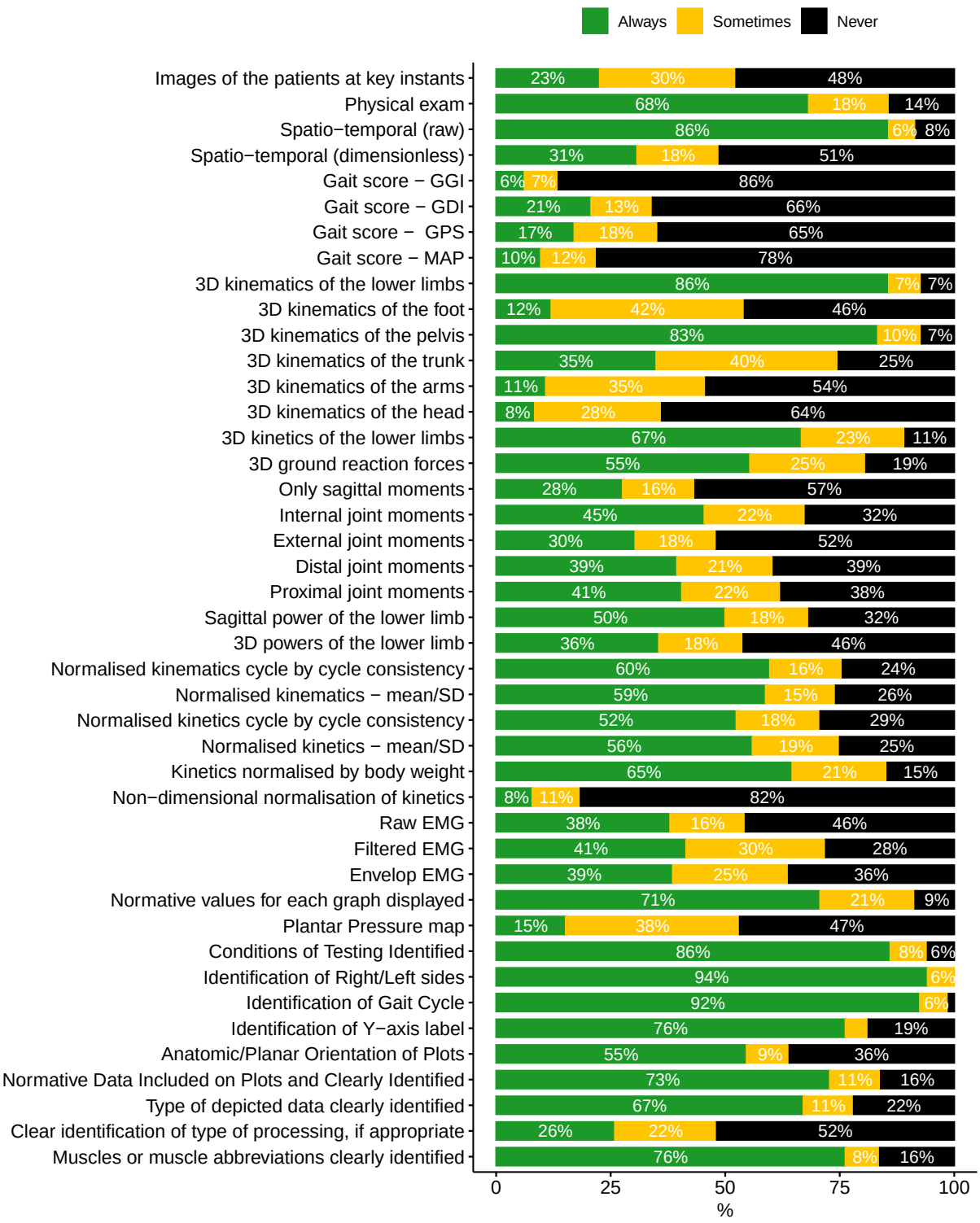
6.3 CGA reporting - information Q63

Does your report include the following information?



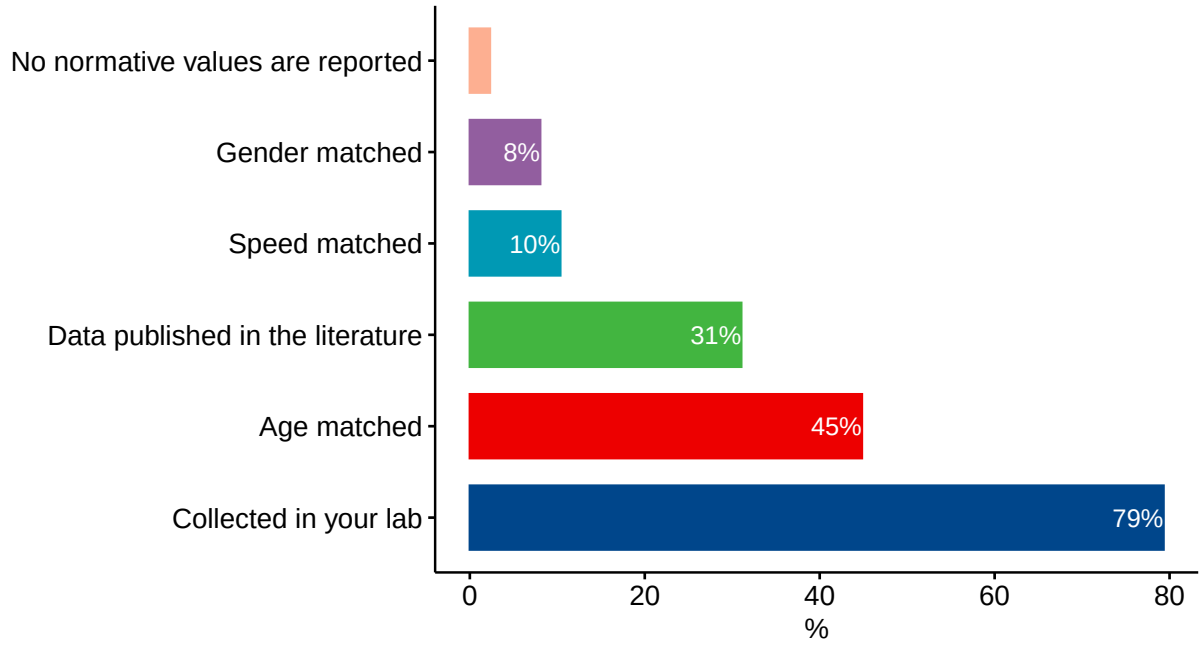
6.4 CGA reporting - visualization Q64

Does your report display the following data?



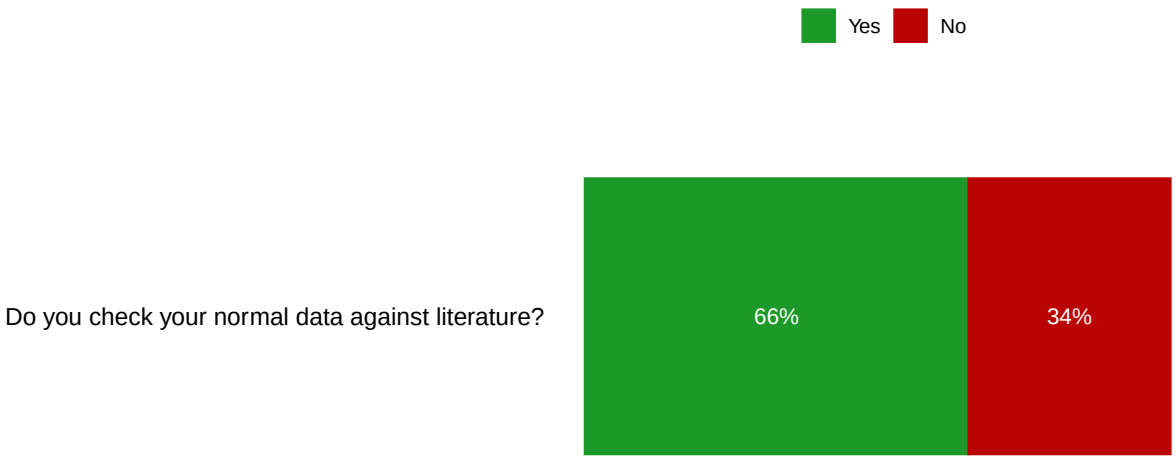
6.5 CGA reporting - normative values Q65

If you report normative values these are



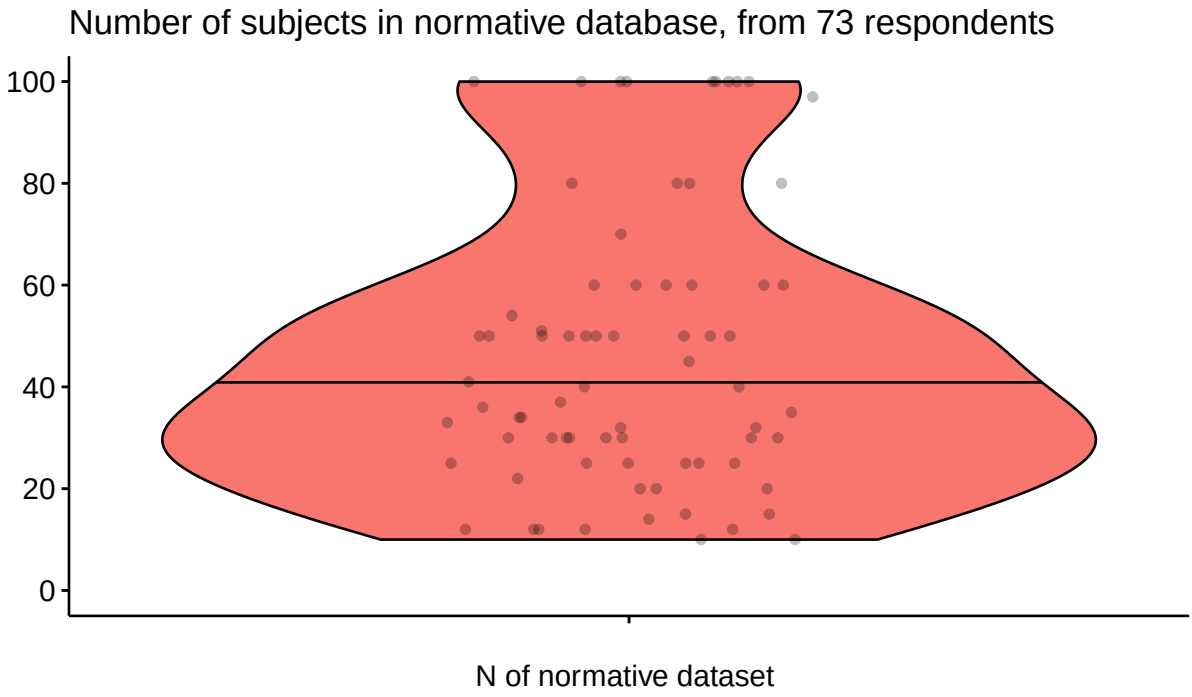
6.6 Normative data - check Q66

Do you check your normal data against literature?



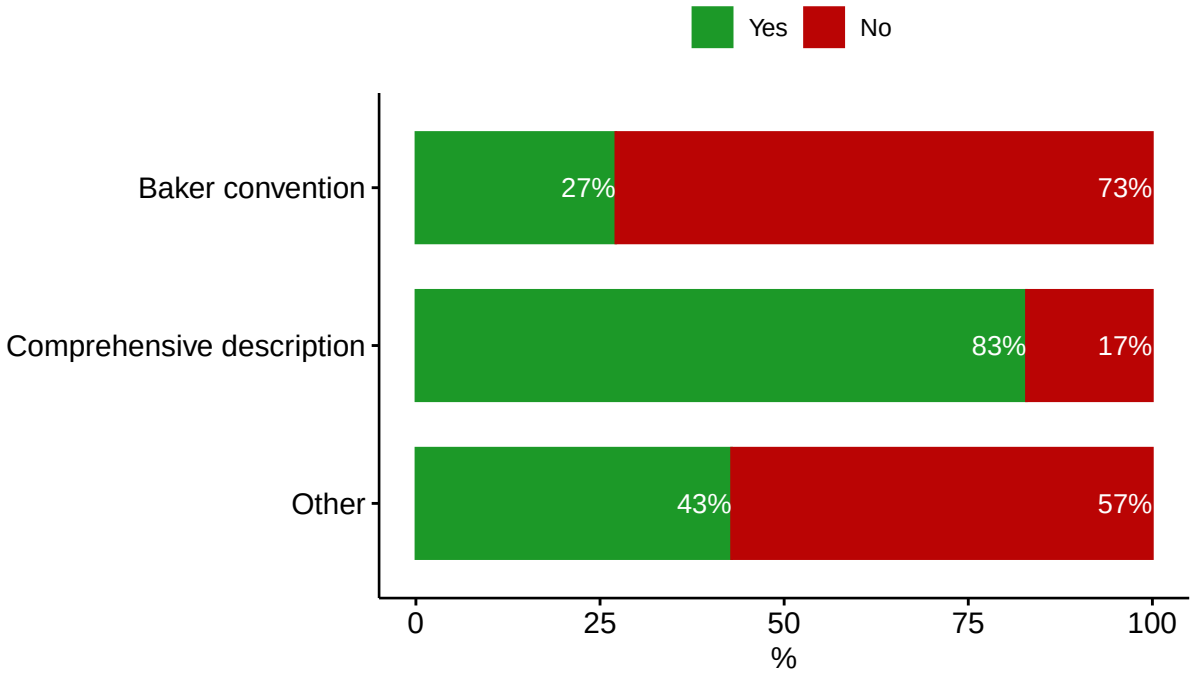
6.7 Normative data - amount Q67

How many subjects are included in total in the normative database?



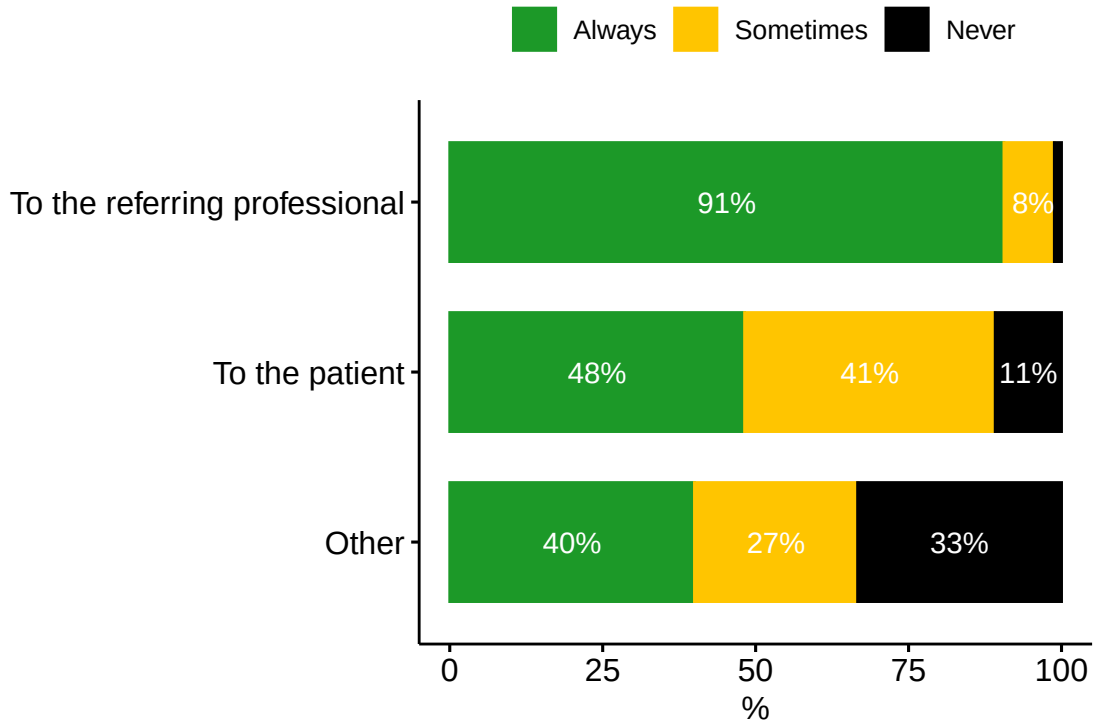
6.8 Identify gait deviations Q68

How do you identify gait deviations on the graphs of the report?



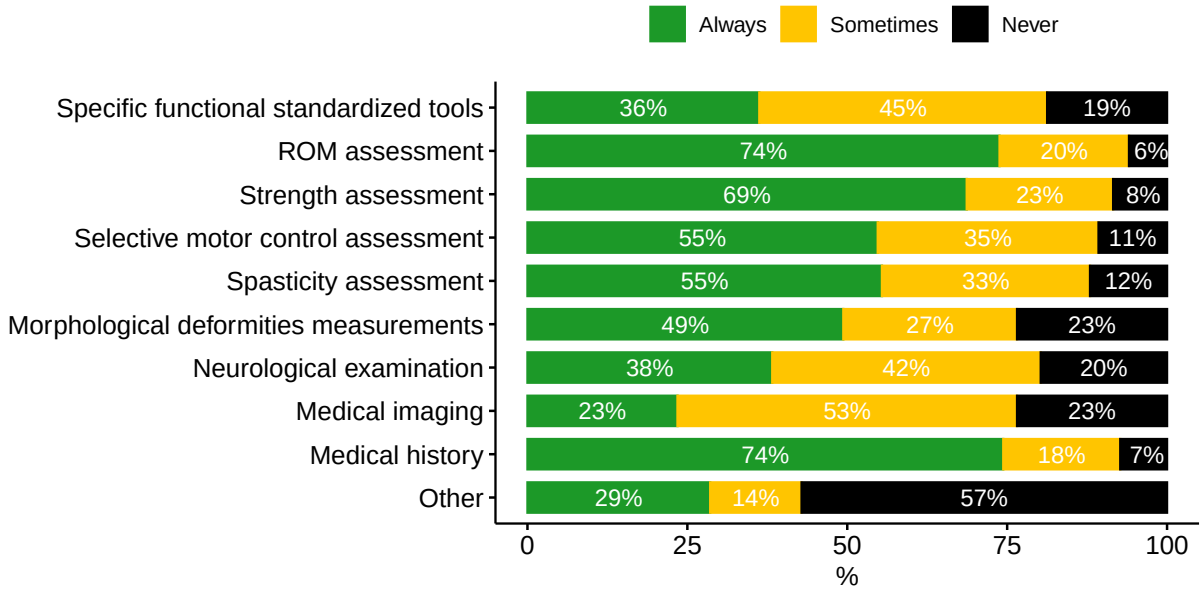
6.9 CGA reporting - to whom Q69

To whom is your CGA report delivered?



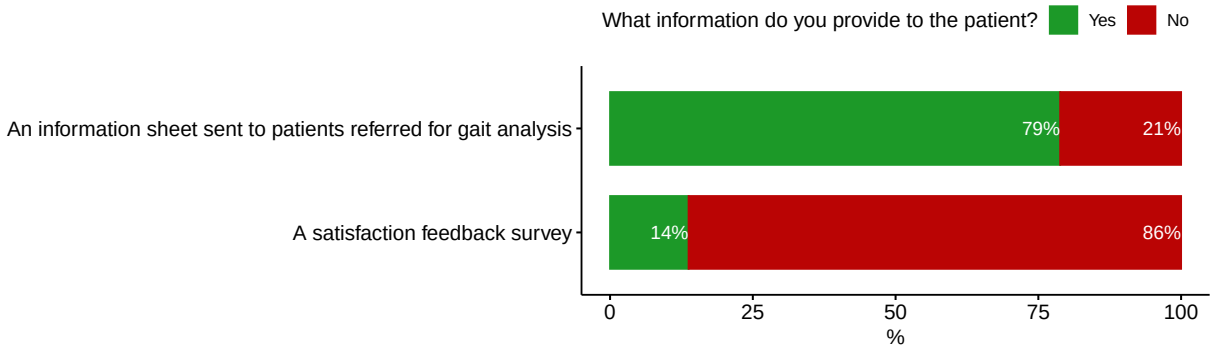
6.10 Data for decision making Q70

Which clinical data do you use in combination with 3D GA for decision making or follow up assessments?



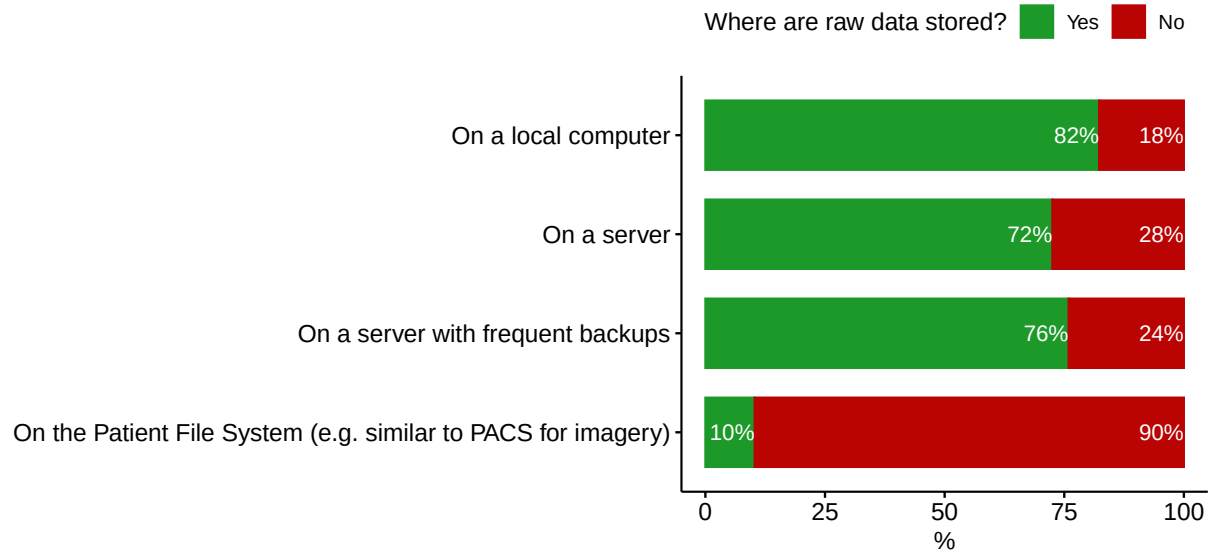
6.11 Information to patients Q71

What information do you provide for the patients?



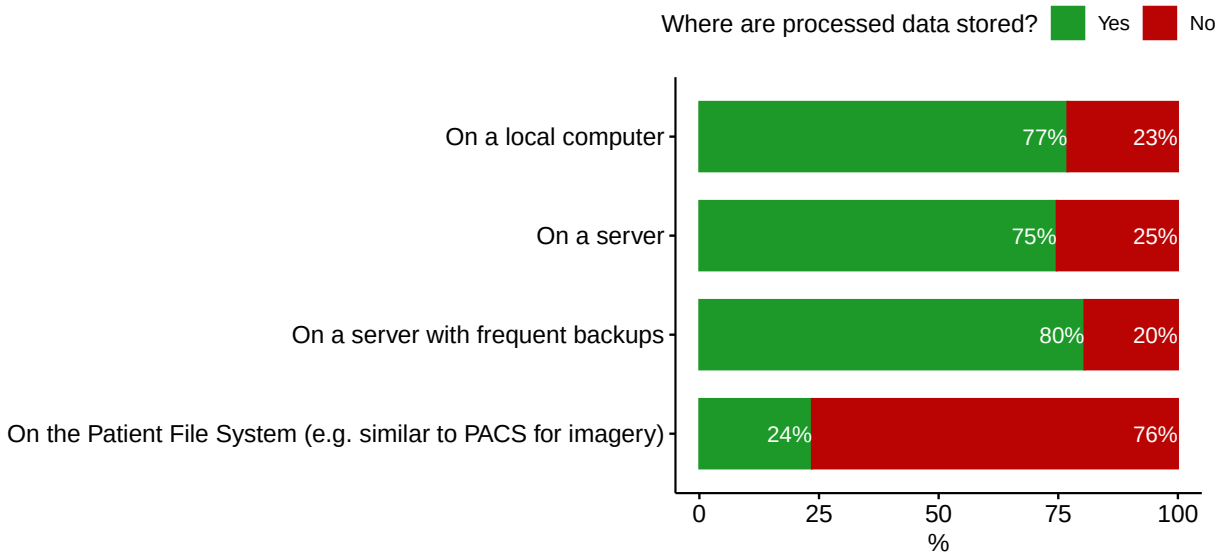
6.12 Storage - raw data Q72

CGA raw data are stored?



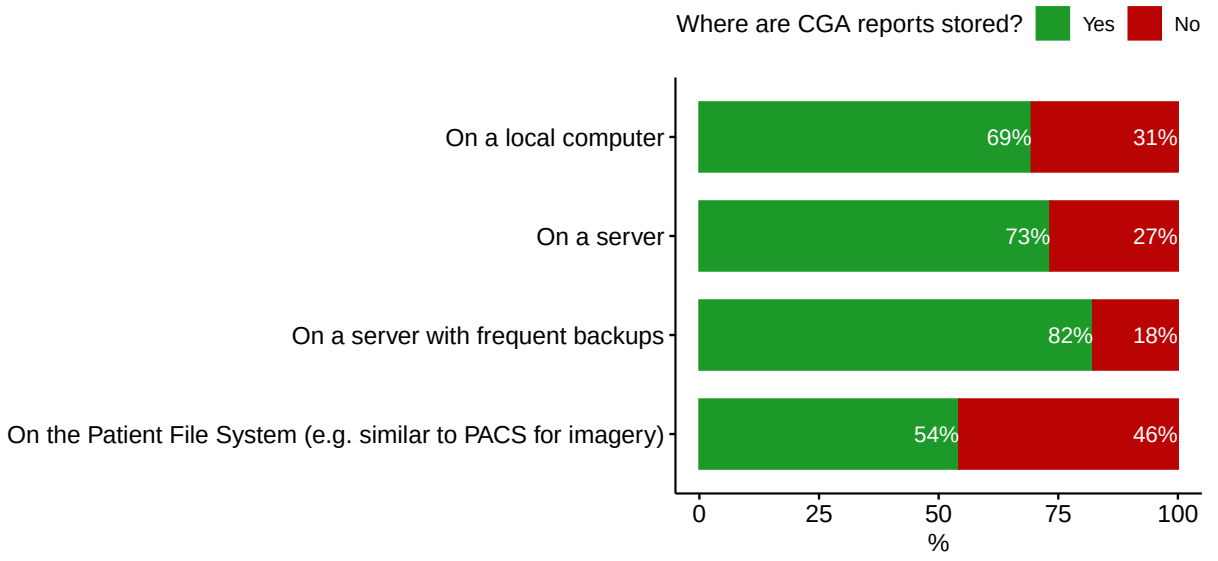
6.13 Storage - processed data Q73

CGA processed data are stored?



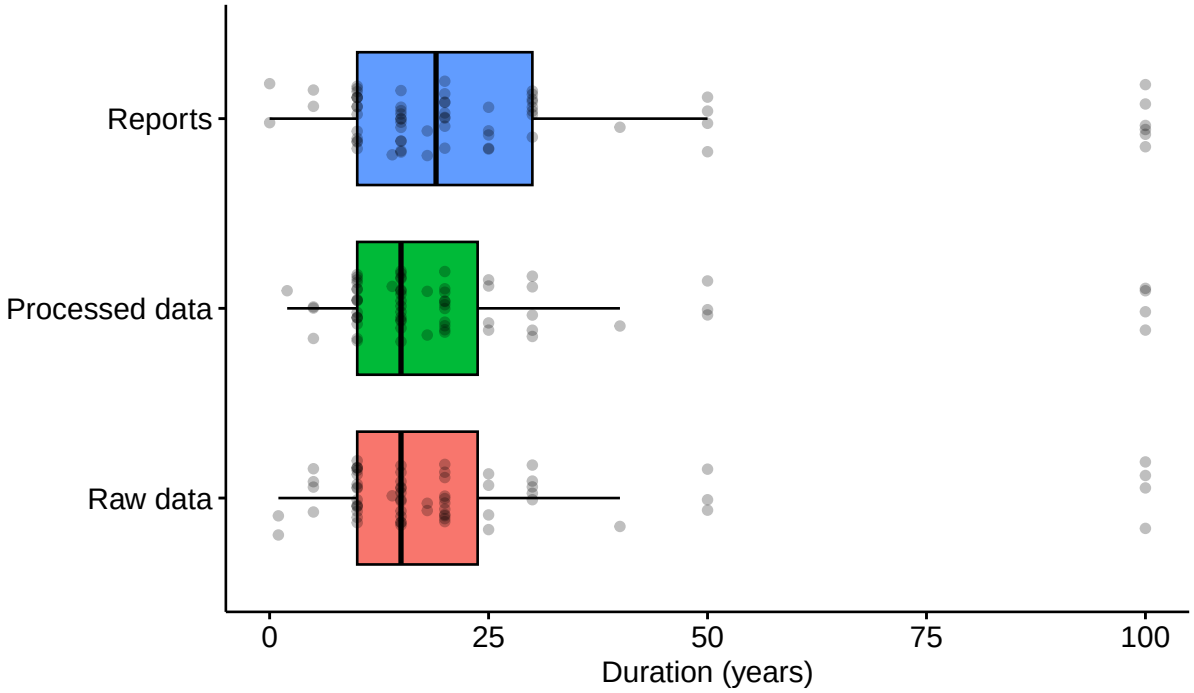
6.14 Storage - report Q74

CGA reports are stored



6.15 Storage - duration Q75

What is the duration of the storage? Please enter a number of years.


Reports
Processed data
Raw data
0
25
50
75
100
Duration (years)