

Trunk muscle strength and limitations in functioning in children and youth with spinal muscular atrophy

Submission date 04/04/2017	Recruitment status No longer recruiting	☒ Prospectively registered ☐ Protocol
Registration date 11/04/2017	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 07/06/2023	Condition category Musculoskeletal Diseases	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Spinal muscular atrophy (SMA) is a rare inherited condition that causes muscle weakness and progressive (worsening over time) loss of movement. It is caused by deterioration in the nerve cells connecting the brain and spinal cord to the body's muscles. As the link between the nerves and muscles breaks down, patients gradually lose their ability to move and their muscles waste away (atrophy). The aim of this study is to assess the strength of muscles in the trunk (torso) for rotational activity (twisting) and the level of independent functioning in children and youth with SMA.

Who can participate?

Patients aged 5-18 years who have been diagnosed with SMA and healthy children and youths of the same age.

What does the study involve?

All participants attend a single study visit at which the strength of their trunk (torso) is measured using a handheld measurement device while they are lying on their side. This is done at six points on the body. Following this, participants are asked to complete questionnaires about their daily activities and any limitations they may be facing as well as background information.

What are the possible benefits and risks of participating?

There are no direct benefits or risks involved with participating.

Where is the study run from?

Center of Functional Rehabilitation ORTHOS (Poland)

When is the study starting and how long is it expected to run for?

December 2016 to December 2017

Who is funding the study?
Józef Piłsudski University of Physical Education (Poland)

Who is the main contact?
Dr Agnieszka Stępień

Contact information

Type(s)
Scientific

Contact name
Dr Agnieszka Stępień

ORCID ID
<https://orcid.org/0000-0003-3905-8229>

Contact details
Józef Piłsudski University of Physical Education
Marymoncka 34
Warsaw
Poland
00-968

Additional identifiers

Protocol serial number
1/2017

Study information

Scientific Title
Strength of trunk rotational muscles and limitations in everyday functioning in children and youth with spinal muscular atrophy

Acronym
SMA

Study objectives
1. Strength of trunk muscles responsible for rotating trunk or pelvis in SMA children and youth is lower than in healthy peers
2. There is a correlation between the strength values of these muscles and limitations in everyday functioning

Ethics approval required
Old ethics approval format

Ethics approval(s)

Primary study design

Observational

Study design

Single-centre case-control study

Study type(s)

Prevention

Health condition(s) or problem(s) studied

Spinal muscular atrophy

Interventions

All participants will have a one-time measurement of muscle strength taken in a side-lying position using a handheld MICROFET measurement system. The device will be placed consecutively in three points on the front side of the body (i.e. forehead; trunk – in the shoulder joint area; trunk – in the anterior superior iliac spine area) and later in three points at the back of the body (i.e. posterior middle part of the skull; posterior part of the trunk in the shoulder joint area; pelvis – below iliac crest). 5-10 seconds will be devoted to one measurement during maximal isometric tension. Two series of measurements on each side will be performed in each of the aforementioned points. A higher value will be included in the analysis.

Participants will be also asked to complete a questionnaire including questions regarding limitations during everyday activities. Additional information will be collected on age, gender, accompanying illnesses.

Intervention Type

Other

Primary outcome(s)

1. Strength of muscles responsible for trunk rotation is assessed using a handheld MICROFET, in which the value of strength expressed in pounds or Newtons in a pre-set time unit, on the study visit
2. Functioning limitations are measured using a questionnaire designed for the purpose of this study, including questions regarding limitations during everyday activities prepared on the basis of ICF on the study visit

Key secondary outcome(s)

No secondary outcome measures

Completion date

31/12/2017

Eligibility

Key inclusion criteria

Patients:

1. Spinal muscular atrophy (SMA) diagnosed through clinical and genetic examinations
2. Aged 5-18 years

Controls:

1. Healthy
2. Aged 5-18 years
3. Do not practice sport

Participant type(s)

Mixed

Healthy volunteers allowed

No

Age group

Child

Lower age limit

5 Years

Upper age limit

18 Years

Sex

All

Total final enrolment

56

Key exclusion criteria**Patients:**

1. No confirmation of SMA in genetic tests
2. Children under 5
3. Children and youth not able to cooperate during an examination

Controls:

1. Age under 5 or over 18
2. Children not able to cooperate during an examination.

Date of first enrolment

15/04/2017

Date of final enrolment

30/09/2017

Locations**Countries of recruitment**

Poland

Study participating centre
Center of Functional Rehabilitation ORTHOS
Modzelewskiego 37
Warsaw
Poland
02-679

Sponsor information

Organisation
Józef Piłsudski University of Physical Education

ROR
<https://ror.org/043k6re07>

Funder(s)

Funder type
University/education

Funder Name
Józef Piłsudski University of Physical Education

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Agnieszka Stępień (orthosas@wp.pl)

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		30/04/2021	07/06/2023	Yes	No