

MeDALL

Mechanism of the Development of Allergy

Adolescent Questionnaire (age 14 - 18 years)

If parts or all of this questionnaire will be used, please refer to the origins of this questionnaire in all corresponding publications (see Supplement Fig. S4).



I) ASTHMA / WHEEZING

Core Questions

- 1 Have you had wheezing or whistling in the chest **in the past 12 months**?
☐ Yes ☐ No
- 2 How many attacks of wheezing have you had **in the past 12 months**?
☐ None
☐ 1 to 3
☐ 4 to 12
☐ More than 12
- 3 Have you had breathing difficulties (chest tightness, shortness of breath) **in the past 12 months**?
☐ Yes ☐ No
- 4 **In the past 12 months**, how often, on average, has your **sleep** been disturbed due to wheezing?
☐ Never woken with wheezing
☐ Less than one night per week
☐ One or more nights per week
- 5 **In the past 12 months**, has wheezing ever been severe enough to limit your **speech** to only one or two words at a time between breaths?
☐ Yes ☐ No
- 6 **In the past 12 months**, has your chest sounded wheezy during or after **exercise**?
☐ Yes ☐ No
- 7 **In the past 12 months**, have you had a **dry cough at night**, apart from a cough associated with a cold or chest infection?
☐ Yes ☐ No



- 8 Did you take any medicines for asthma or breathing difficulties (wheezing, chest tightness, shortness of breath) **during the last 12 months**?

(1) Prescription medication

☐ Yes ☐ No **If yes**, which? _____

- If you took oral cortical steroids, did you take them for **at least 3 days** in a row?

☐ Yes ☐ No

(2) Non-prescription medication

☐ Yes ☐ No **If yes**, which? _____

- 9 How would you estimate your complaints **in the past 12 months** due to wheezing/ breathing difficulties? (Place a vertical mark in the line below to indicate your complaints with wheezing.)

0 |-----| 10

(no complaints)

(the hardest complaints to imagine)

Supplemental Questions

- S1 1) In which **of the past 12 months** did the wheezing/breathing difficulties (chest tightness, shortness of breath) occur? (You may choose several answers) Please tick all months that apply:

<input type="radio"/> January	<input type="radio"/> April	<input type="radio"/> July	<input type="radio"/> October
<input type="radio"/> February	<input type="radio"/> May	<input type="radio"/> August	<input type="radio"/> November
<input type="radio"/> March	<input type="radio"/> June	<input type="radio"/> September	<input type="radio"/> December

- S2 How often did you suffer from breathing difficulties (chest tightness, shortness of breath) **in the past 12 months**?

☐ None
☐ 1 to 3
☐ 4 to 12
☐ More than 12

- S3 **In the past 12 months**, how often, on average, has your sleep been disturbed due to breathing difficulties (chest tightness, shortness of breath)?

☐ Never woken with breathing difficulties
☐ Less than one night per week
☐ One or more nights per week

- S4 **In the past 12 months**, have breathing difficulties (chest tightness, shortness of breath) ever been severe enough to limit your **speech** to only one or two words at a time between breaths?

☐ Yes ☐ No



S5 In the **past 12 months**, did you have breathing difficulties (chest tightness, shortness of breath) during or after **exercise**?

- ☐ Yes ☐ No
-

S6 If you have been taking asthma medication, how often do you take a relieving medication (e.g. ...) during a regular week?

- ☐ Less than 2 times a week
☐ 2 times or more a week
-

S7 How would you estimate your complaints **in the past month** due to wheezing/breathing difficulties? (Place a vertical mark in the line below to indicate your complaints with wheezing/breathing difficulties.)

0 |—————| 10
(no complaints) (the hardest complaints to imagine)

S8 In the **past 12 months**, which of these factors do you think triggered your wheezing or whistling in the chest? (You might choose several answers.)

- | | |
|--|---|
| <input type="radio"/> Weather change (coldness, fog) | <input type="radio"/> Tobacco smoke |
| <input type="radio"/> Pollen | <input type="radio"/> Emotion, stress |
| <input type="radio"/> Gas exhaust, vapours, fumes | <input type="radio"/> Tears, laughter, excitement |
| <input type="radio"/> Dust | <input type="radio"/> Wool clothes |
| <input type="radio"/> Pets | <input type="radio"/> Food or drink |
| <input type="radio"/> Cold, flu or other respiratory infection | <input type="radio"/> Soap, spray, cleaning product |
| <input type="radio"/> Strong odours | <input type="radio"/> Exercise (during or after) |

☐ Other (please specify): _____

S9 In the **last 12 months**, have you usually been congested in the chest or coughed up phlegm (mucus) when you **did not** have a cold?

- ☐ Yes ☐ No
-

S10 Are you congested in the chest or coughed up phlegm (mucus) on most days (4 or more days a week) for as much **as 3 months of the year**?

- ☐ Yes ☐ No



II) RHINITIS

Core Questions

- 10** In the **past 12 months**, have you had a problem with sneezing, or a runny, or blocked nose when you DID NOT have a cold or the flu?

☐ Yes ☐ No

- 11** If yes, please specify which of the symptoms you had **in the past 12 months** when you DID NOT have a cold or the flu (You may choose several answers) Please tick all items that apply:

sneezing	<input type="radio"/> Yes	<input type="radio"/> No
runny nose	<input type="radio"/> Yes	<input type="radio"/> No
blocked nose	<input type="radio"/> Yes	<input type="radio"/> No

- 12** If yes, **in the past 12 months**, has this nose problem been accompanied by itchy-watery eyes?

☐ Yes ☐ No

- 13** In which of the **past 12 months** did this nose problem occur? (You may choose several answers) Please tick all months that apply:

<input type="radio"/> January	<input type="radio"/> April	<input type="radio"/> July	<input type="radio"/> October
<input type="radio"/> February	<input type="radio"/> May	<input type="radio"/> August	<input type="radio"/> November
<input type="radio"/> March	<input type="radio"/> June	<input type="radio"/> September	<input type="radio"/> December

- 14** In the **past 12 months**, did you have trouble with the nose or eyes (without having a cold) in association with one of the following? (You may choose several answers) Please tick all items that apply:

☐ animals
☐ grass, trees, flowers
☐ housedust, mite
☐ tobacco smoke or heavy scent
☐ air pollutants
☐ other, please specify _____

- 15** How would you estimate your complaints **in the past 12 months** due to nasal allergy/hay fever/allergic rhinitis? (Place a vertical mark in the line below to indicate your complaints with these problems.)

0 |—————| 10
(no complaints) (the hardest complaints to imagine)



16 Did you take any medications for nasal allergy/hay fever/allergic rhinitis **in the past 12 months?**

1) Prescription medication

☐ Yes ☐ No If yes, which? _____

2) Non-prescription medication

☐ Yes ☐ No If yes, which? _____

Chronic Rhino-Sinusitis (Fokkens et al. 2007 & 2012)

17 Has your nose been blocked during **the last 12 months?**

☐ Yes ☐ No

18 If yes, how long has your nose been blocked?

- ☐ Less than 10 days
☐ More than 10 days but less than 12 weeks
☐ 12 weeks or more
-

19 Have you had pain or pressure around the forehead, nose or eyes during **the last 12 months?**

☐ Yes ☐ No

20 If yes, how long have you had pain or pressure around the forehead, nose or eyes?

- ☐ Less than 10 days
☐ More than 10 days but less than 12 weeks
☐ 12 weeks or more
-

21 Have you had green or yellow nasal discharge (snot) or green or yellow mucus in the throat during **the last 12 months?**

☐ Yes ☐ No

22 If yes, how long have you had green or yellow nasal discharge (snot) or green or yellow mucus in the throat?

- ☐ Less than 10 days
☐ 10 days or more but less than 12 weeks
☐ 12 weeks or more
-

23 Have your sense of smell been reduced or absent during **the last 12 months?**

☐ Yes ☐ No



24 If yes, how long have your sense of smell been reduced or absent?

- ☐ Less than 10 days
- ☐ 10 days or more but less than 12 weeks
- ☐ 12 weeks or more

Supplemental Questions

ARIA-Criteria might be used for severity ratings but only apply to untreated patients:
(Bousquet et al., 2001)

S11 In the past 12 months, did you have trouble with your nose without having a cold for at least 4 days per week AND for at least 4 weeks?

- ☐ Yes ☐ No ("No" means less than 4 days per week OR less than 4 weeks)

S12 In the past 12 months, did this nose problem without having a cold interfere with your daily activities, sport or leisure time?

- ☐ Yes ☐ No

S13 Did you have abnormal sleep due to trouble with your nose without having a cold **during the last 12 months?**

- ☐ Yes ☐ No

S14 In the past 12 months, did this nose problem without having a cold interfere with your school or work?

- ☐ Yes ☐ No

III) ECZEMA

Core Questions

25 Have you had dry skin **in the past 12 months?**

- ☐ Yes ☐ No

26 Have you had an itchy rash at any time **in the past 12 months?**

- ☐ Yes ☐ No

27 Has this itchy rash at any time affected any of the following places
(You may choose several answers)? Please tick all that apply:

- | | |
|---|---|
| <input type="radio"/> the folds of the elbows | <input type="radio"/> under the buttocks |
| <input type="radio"/> behind the knees | <input type="radio"/> or around the neck, ears or face? |
| <input type="radio"/> in front of the ankles | |

**Severity of Eczema**

28 Has this rash cleared completely at any time during **the past 12 months**?

- ☐ Yes ☐ No
-

29 In which **of the past 12 months** did this itchy rash/eczema occur?
(You may choose several answers.) Please tick all months that apply:

- | | | | |
|--------------------------------|-----------------------------|---------------------------------|--------------------------------|
| <input type="radio"/> January | <input type="radio"/> April | <input type="radio"/> July | <input type="radio"/> October |
| <input type="radio"/> February | <input type="radio"/> May | <input type="radio"/> August | <input type="radio"/> November |
| <input type="radio"/> March | <input type="radio"/> June | <input type="radio"/> September | <input type="radio"/> December |
-

30 In the **past 12 months**, how often, on average, have you been kept awake at night by this itchy rash?

- ☐ Never in the past 12 months
☐ Less than one night per week
☐ One or more nights per week
-

Contact Dermatitis

31 Have you ever had eczema on your hands (itchy lesions, blisters, rash)?

- ☐ Yes ☐ No

If yes, at which age was the onset? __ years

32 Have you ever had eczema after contact with:
(you may choose several answers, please tick all items that apply)

- ☐ items of metal (e.g. button, buckle, zipper, belt, watch or watchstrap, glasses or sun glasses, hair slide, cell phone, headset): please specify _____
- ☐ fashion jewellery
- ☐ hair dye
- ☐ other colourants
- ☐ tatoos
- ☐ cosmetics, perfume or fragrances
- ☐ deodorant
- ☐ shampoo or conditioner
- ☐ soap
- ☐ clothes
- ☐ latex, rubber (e.g. rubber gloves, balloons, preservatives)
- ☐ other materials, please specify: _____
- ☐ **no**, not with any material



Supplemental Questions

Please circle one response for each of the seven questions below. Children under 16 years should complete the questionnaire with the help of their parents. Please leave blank any questions you feel unable to answer.

(Charman et al., 2004)

-
- S15** **In the last 12 months,** on how many days in a typical week with eczema symptoms has your skin been itchy because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day
-
- S16** **In the last 12 months,** on how many nights in a typical week with eczema symptoms has your sleep been disturbed because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day
-
- S17** **In the last 12 months,** on how many days in a typical week with eczema symptoms has your skin been bleeding because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day
-
- S18** **In the last 12 months,** on how many days in a typical week with eczema symptoms has your skin been weeping or oozing clear fluid because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day
-
- S19** **In the last 12 months,** on how many days in a typical week with eczema symptoms has your skin been cracked because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day
-
- S20** **In the last 12 months,** on how many days in a typical week with eczema symptoms has your skin been flaking off because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day
-
- S21** **In the last 12 months,** on how many days in a typical week with eczema symptoms has your skin felt dry or rough because of the eczema?
- ☐ No Days ☐ 1-2 Days ☐ 3-4 Days ☐ 5-6 Days ☐ Every Day



IV) SOCIODEMOGRAPHIC CHARACTERISTICS

Core Questions

- 33** You are
☐ male ☐ female

- 34** What is your height? _____ cm
What is your weight? _____ kg

- 35** Which school degree did you achieve?
(define national levels / still in school/ left school without degree)

- 36** If you are still in school, which type of school are you in?
(define national types of school)

- 37** If you attend upper secondary school, which programme do you attend?
(ex. Science programme - Environment, Social studies - Economy,
Aesthetic programme - Dance, Handicraft programme - Hairdresser)
I attend: _____

- 38** Was your choice of school programme (upper secondary school or other school) affected by
asthma, allergic rhinitis, eczema or allergy?
☐ Yes ☐ No

- 39** How did your choice of programme get affected?



V) NUTRITION

Core Questions

Allergic Reactions to Food

40 Have you **ever** had an allergic reaction to food?

☐ Yes ☐ No

If yes, have you ever had an allergic reaction caused by... (You may choose several answers.)

41 **Cow's milk**

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to cow's milk first occurred? _____years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

42 **Hen's egg**

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to hen's egg first occurred? _____years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

43 **Wheat**

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to wheat first occurred? _____years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

44 **Soy**

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to soy first occurred? _____years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

**45 Codfish**

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to codfish first occurred? _____ years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

46 Peanut

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to peanut first occurred? _____ years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

47 Nuts other than peanut

☐ Yes ☐ No Please describe the allergic reaction _____

How old were you when the allergic reaction to peanut first occurred? _____ years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

48 If other food items have caused an allergic reaction, please specify food item:

Please describe the allergic reaction _____

How old were you when the allergic reaction to the food item first occurred? _____ years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

49 If other food items have caused an allergic reaction, please specify food item:

Please describe the allergic reaction _____

How old were you when the allergic reaction to the food item first occurred? _____ years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know



50 If other food items have caused an allergic reaction, please specify food item:

Please describe the allergic reaction _____

How old were you when the allergic reaction to the food item first occurred? _____ years

Do you still have this allergic reaction when eating the food item?

☐ Yes ☐ No ☐ I don't know

VI) LIFESTYLE

Core Questions

The questions will ask you about the time you spent being physically active during a typical week in summer or winter. Please think about the activities you do at school or work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport. Please answer each question even if you do not consider yourself to be an active person.

Physical Activity (Craig et al., 2003)

51 During a typical week **in the last 12 months**, on how many hours did you do vigorous physical activities (lots of sweating, much harder breathing than normal, e.g. heavy lifting, digging, aerobics, or fast bicycling)?

summer _____ hours **per week**

winter _____ hours **per week**

52 During a typical week **in the last 12 months**, on how many hours did you do moderate physical activities (light sweating, slightly more breathing than normal, e.g. carrying light loads, bicycling at a regular pace, or swimming)?

summer _____ hours **per week**

winter _____ hours **per week**

53 During a typical week **in the last 12 months**, on how many hours did you do light physical activity (no sweating, normal breathing, e.g. walking)?

summer _____ hours **per week**

winter _____ hours **per week**

54 How many hours per day (**24 hours**) do you watch TV, read, use your computer or play computer- or TV-games?

summer _____ hours **per day**

winter _____ hours **per day**

Smoking

55 Do you smoke?

☐ Yes ☐ No



56 If yes, how many cigarettes are you smoking **per day**?

- ☐ ____ cigarettes per day ☐ not smoking on a daily basis
-

57 If you are not smoking on a daily basis, how many cigarettes are you smoking **per week**?

____ cigarettes per week

When did you start to smoke regularly (at least once a week)?

____ age in years

58 How often are you staying at indoor locations where someone smokes?

At home:

- ☐ Daily
☐ several days a week
☐ one day a week
☐ less than one day a week
☐ never

Not at home:

- ☐ Daily
☐ several days a week
☐ one day a week
☐ less than one day a week
☐ never
-

Alcohol and Drugs

59 Have you **ever** drunk alcohol?

- ☐ Yes ☐ no
-

60 If yes, how much alcohol did you drink on average **in the last 12 months**?

- ☐ beer
- ☐ 1 or more glasses per day
 - ☐ 5-6 glasses per week
 - ☐ 2-4 glasses per week
 - ☐ 1 glass per week
 - ☐ 1-3 glasses per months
 - ☐ <1 glass per month
 - ☐ never
- ☐ wine, sparkling wine
- ☐ 1 or more glasses per day
 - ☐ 5-6 glasses per week
 - ☐ 2-4 glasses per week
 - ☐ 1 glass per week
 - ☐ 1-3 glasses per months
 - ☐ <1 glass per month
 - ☐ never



- ☐ schnapps
- ☐ 1 or more glasses per day
 - ☐ 5-6 glasses per week
 - ☐ 2-4 glasses per week
 - ☐ 1 glass per week
 - ☐ 1-3 glasses per months
 - ☐ <1 glass per month
 - ☐ never

- ☐ alcopops, cocktails
- ☐ 1 or more glasses per day
 - ☐ 5-6 glasses per week
 - ☐ 2-4 glasses per week
 - ☐ 1 glass per week
 - ☐ 1-3 glasses per months
 - ☐ <1 glass per month
 - ☐ never

61 Have you **ever** taken drugs (e.g. marihuana, LSD, cocaine, ecstasy)?

- ☐ Yes ☐ No
-

62 If yes, how often did you take which drugs **in the last 12 months**?

- 1) _____ (name of drug), _____(times of intake last 12 months)
- 2) _____ (name of drug), _____(times of intake last 12 months)
- 3) _____ (name of drug), _____(times of intake last 12 months)
-

VII) PUBERTY DEVELOPMENT (Carskadon et al., 1993)

Core Questions

The next questions are about changes that may be happening to your body. These changes normally happen to different young people at different ages. Since they may have something to do with your sleep patterns, do your best to answer carefully. If you do not understand a question or do not know the answer, just mark "I don't know."

63 Would you say that your growth in height:

- ☐ has not yet begun to spurt
- ☐ has barely started
- ☐ is definitely underway
- ☐ seems completed
- ☐ I don't know



- 64** And how about the growth of your body hair?
("Body hair" means hair any place other than your head, such as under your arms.)
Would you say that your body hair growth:

- ☐ has not yet begun to grow
 - ☐ has barely started to grow
 - ☐ is definitely underway
 - ☐ seems completed
 - ☐ I don't know
-

- 65** Have you noticed any skin changes, especially pimples?

- ☐ skin has not yet started changing
 - ☐ skin has barely started changing
 - ☐ skin changes are definitely underway
 - ☐ skin changes seem complete
 - ☐ I don't know
-

FORM FOR BOYS:

- 66** Have you noticed a deepening of your voice?

- ☐ voice has not yet started changing
 - ☐ voice has barely started changing
 - ☐ voice changes are definitely underway
 - ☐ voice changes seem complete
 - ☐ I don't know
-

- 67** Have you begun to grow hair on your face?

- ☐ facial hair has not yet started growing
 - ☐ facial hair has barely started growing
 - ☐ facial hair growth has definitely started
 - ☐ facial hair growth seems complete
 - ☐ I don't know
-

FORM FOR GIRLS:

- 68** Have you noticed that your breasts have begun to grow?

- ☐ have not yet started growing
 - ☐ have barely started growing
 - ☐ breast growth is definitely underway
 - ☐ breast growth seems complete
 - ☐ I don't know
-

- 69** Have you begun to menstruate (started to have your period)?

- ☐ Yes
- ☐ No

If yes, how old were you when you started to menstruate? ____ years and ____ months