

# The effect of smoking cessation on airway inflammation in young asthma patients

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## Background

- Smoking is just as common in asthma patients as it is in the general population.
- Hospitalization among asthma patients is more common when they are smokers.
- Smoking can inflame the airways, which can lead to harmful affects for patients.
- Smoking can alter how effective treatments are for asthma patients.

## Objective

- The purpose of this study is to determine how smoking cessation affects the already damaged airways of patients who have asthma and are smokers.

## Methods

- The study used people age 19-40, who all were diagnosed with asthma.
- The patients were all required to have tried smoking cessation over the course of three months.
- The researchers performed periodic evaluations at certain weeks in the study to evaluate the participants progress.
- A number of different tests were done to assess the patients.

## Results

Table 4. Methacholine AHR, RDR, lung function and Asthma Control Questionnaire (ACQ) score during tobacco cessation period

	Week 0	Week 6	Week 12	P
Methacholine AHR (PD <sub>20</sub> < 8 μmol)				
Quitters	20/26 (77%)* <sup>†</sup>	12/25 (48%)*	13/26 (50%) <sup>†</sup>	0.016* 0.016 <sup>†</sup>
Non-quitters	14/20 (70%)	14/21 (67%)	12/20 (60%)	NS
Methacholine RDR GM (CI)				
Quitters	7.9 (3.8–15.9)	6.0 (2.6–13.2)	6.1 (3.0–11.9)	NS
Non-quitters	8.6 (4.2–17.1)	7.4 (3.4–15.7)	6.8 (2.7–16.1)	
FEV <sub>1</sub> % expected				
Quitters	83.5 ± 17.3	84.4 ± 15.7	85.3 ± 15.4	NS
Non-quitters	83.0 ± 15.4	82.4 ± 15.8	83.0 ± 16.2	
ACQ6 scores				
Quitters	1.7 ± 0.8	0.7 ± 0.7	0.7 ± 0.7	0.034
Non-quitters	1.4 ± 0.8	1.3 ± 0.8	1.2 ± 0.8	

\*Represents week 0 vs. week 6.

<sup>†</sup>Represents week 0 vs. week 12. Both with a P-value of 0.016.

Table 3. Sputum eosinophils, neutrophils and FeNO during tobacco cessation period

	Week 0	Week 6	Week 12	P
Sputum eosinophil-% median (range)				
Quitters	1.25 (0.00–59.50)	0.75 (0.00–31.00)	1.50 (0.00–26.00)	NS
Non-quitters	1.63 (0.00–14.00)	1.25 (0.00–11.00)	0.75 (0.00–8.00)	
Sputum eosinophilia (> 1%)				
Quitters	11/26 (42%)	11/25 (44%)	14/26 (54%)	NS
Non-quitters	10/20 (50%)	12/21 (57%)	7/20 (35%)	NS
Sputum neutrophil-% mean ± SD				
Quitters	52.8 ± 22.5	45.9 ± 22.1	50.3 ± 19.1	0.002
Non-quitters	56.1 ± 17.1	63.0 ± 11.8	61.5 ± 13.0	
Sputum neutrophilia (> 55%)				
Quitters	11/26 (42%)	7/25 (28%)	8/26 (31%)	NS
Non-quitters	12/20 (60%)	15/21 (71%)	13/20 (65%)	NS
FeNO p.p.b. [GM (CI)]				
Quitters	8.7 (5.7–13.1)	13.7 (9.2–20.4)	14.8 (10.4–20.8)	0.002
Non-quitters	6.4 (4.5–9.3)	7.9 (5.0–12.4)	7.1 (4.6–10.9)	

Table 2



■ Eosinophilic ■ Mixed granulocytic ■ Neutrophilic ■ Paucigranulocytic

## Conclusion

- Many people who completed the smoking cessation experienced improvement in their asthma condition.
- The researchers also found that these changes were not related to the levels of inflammation in the esophagus.
- Therefore, they concluded that the improving asthma conditions were not due to the neutrophils and eosinophils in the esophagus.
- Airway inflammation, therefore, has little to do with changing in severity of asthma conditions.

## Limitations

- The first limitation is that the study was not done for long enough and the results could revert back to where they were before if the cessation is not continued.
- The second limitation is that the smoking new what the researchers were looking for which could have biased the participants in the experiment.