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Fluoridation News

Study of 11-13 year olds in Newcastle and Manchester confirms dental benefits of fluoridation

The dental benefits of fluoridation have been confirmed yet again by a new study comparing children aged 11 to 13 with similar social backgrounds, sugar consumption patterns and oral hygiene practices in fluoridated Newcastle upon Tyne and non-fluoridated Manchester.(1)

The study relied on two different methods - clinical examination and digital photography - to identify tooth decay in both sets of children. Researchers using photographs of teeth to score levels of decay were unaware which city the children came from.

Both methods were used to assess and record signs of all levels of decay - from white spot lesions to more advanced decay into the dentine of the tooth.

Comparisons of decay

When all levels of tooth decay were compared, clinical examinations found that children from fluoridated Newcastle had, on average, 34% fewer decayed, missing and filled teeth than those from non-fluoridated Manchester. Photographic evidence suggested the difference was around 27%.

When only more advanced decay (into dentine) was compared, clinical examinations found that children from fluoridated Newcastle had, on average, 39% fewer decayed, missing and filled teeth than those from non-fluoridated Manchester. Photographic evidence suggested a difference of 41%.

Fluoridated
Newcastle upon Tyne

Non-fluoridated
Manchester

Comparisons of 'decay-free' children

Around 67% of Newcastle children, compared with 54% of those from Manchester, were free of more advanced decay (into dentine), whilst 25% of children in Newcastle were free of all forms of decay, including early white spot lesions, compared with 15% in Manchester.

Comparisons of different social groups

The study found that, on average, 11-13-year olds in five social groups in Newcastle (from the most affluent to the least affluent) had fewer teeth affected by early or advanced decay than those from the equivalent group in Manchester. However, the difference between children from the most affluent groups in the two cities was not statistically significant.

The difference in the number of decayed teeth between children from the most and least affluent groups in Manchester was greater than the difference between children from the most and least affluent groups in Newcastle.

More children in each of the five social groups in Newcastle were decay-free than in the equivalent group from Manchester.

1. McGrady MG, Ellwood RP, Maguire A, Goodwin M, Boothman N (2012): *The association between social deprivation and the prevalence and severity of dental caries and fluorosis in populations with and without water fluoridation.* BMC Public Health 12:1122.

Table 1: Average number of decayed, missing and filled teeth per 100 children aged 11 to 13 (all forms of decay from early white spot lesions to more advanced decay into dentine)

Clinical examination results
Non-fluoridated Manchester: 448 teeth affected per 100 children
Fluoridated Newcastle: 294 teeth affected per 100 children

Photograph assessment results
Non-fluoridated Manchester: 344 teeth affected per 100 children
Fluoridated Newcastle: 251 teeth affected per 100 children

Table 2: Average number of decayed, missing and filled teeth per 100 children aged 11 to 13 (more advanced decay into dentine)

Clinical examination results
Non-fluoridated Manchester: 107 teeth affected per 100 children
Fluoridated Newcastle: 65 teeth affected per 100 children

Photograph assessment results
Non-fluoridated Manchester: 98 teeth affected per 100 children
Fluoridated Newcastle: 58 teeth affected per 100 children

Table 3: Percentage of 11 to 13 year olds free of all forms of decay (from early white spot lesions to more advanced decay into dentine)

Non-fluoridated Manchester: 15% decay free
Fluoridated Newcastle: 25% decay free

Table 4: Percentage of 11 to 13 year olds free of more advanced decay into dentine

Non-fluoridated Manchester: 54% decay free
Fluoridated Newcastle: 67% decay free