

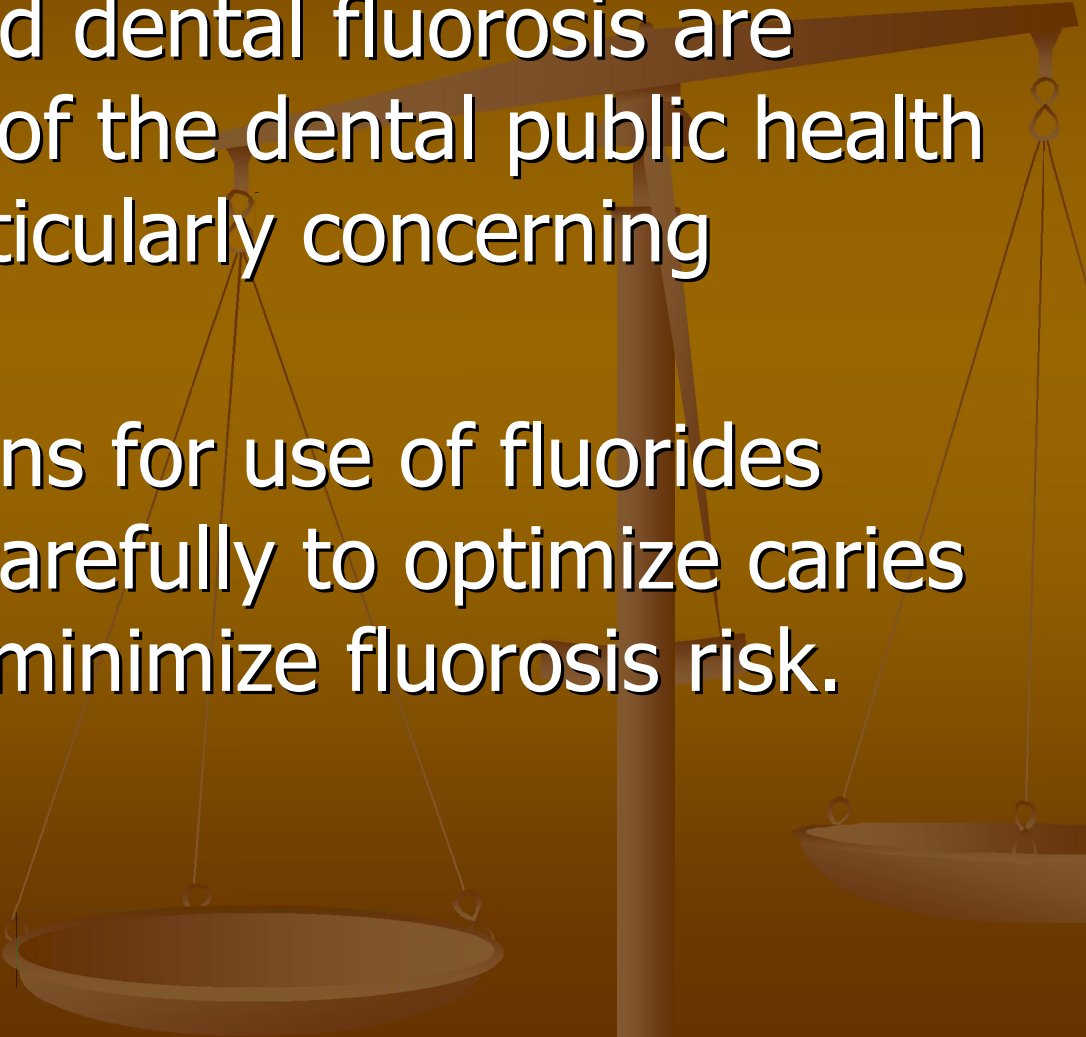


Longitudinal Fluoride Exposures, Dental Caries and Dental Fluorosis

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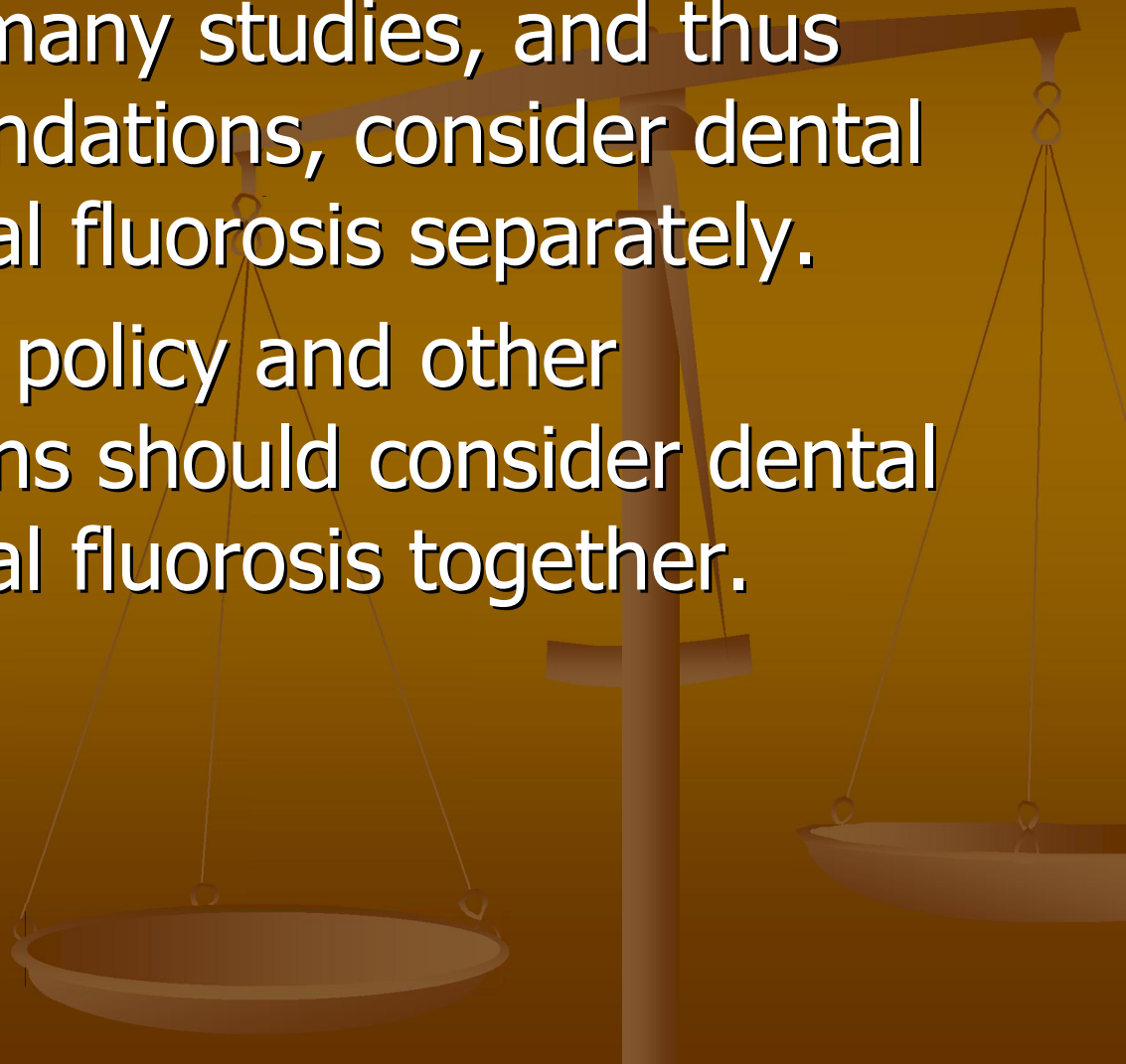
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Background

- Dental caries and dental fluorosis are major concerns of the dental public health community, particularly concerning fluoride policy.
 - Recommendations for use of fluorides must be made carefully to optimize caries prevention and minimize fluorosis risk.
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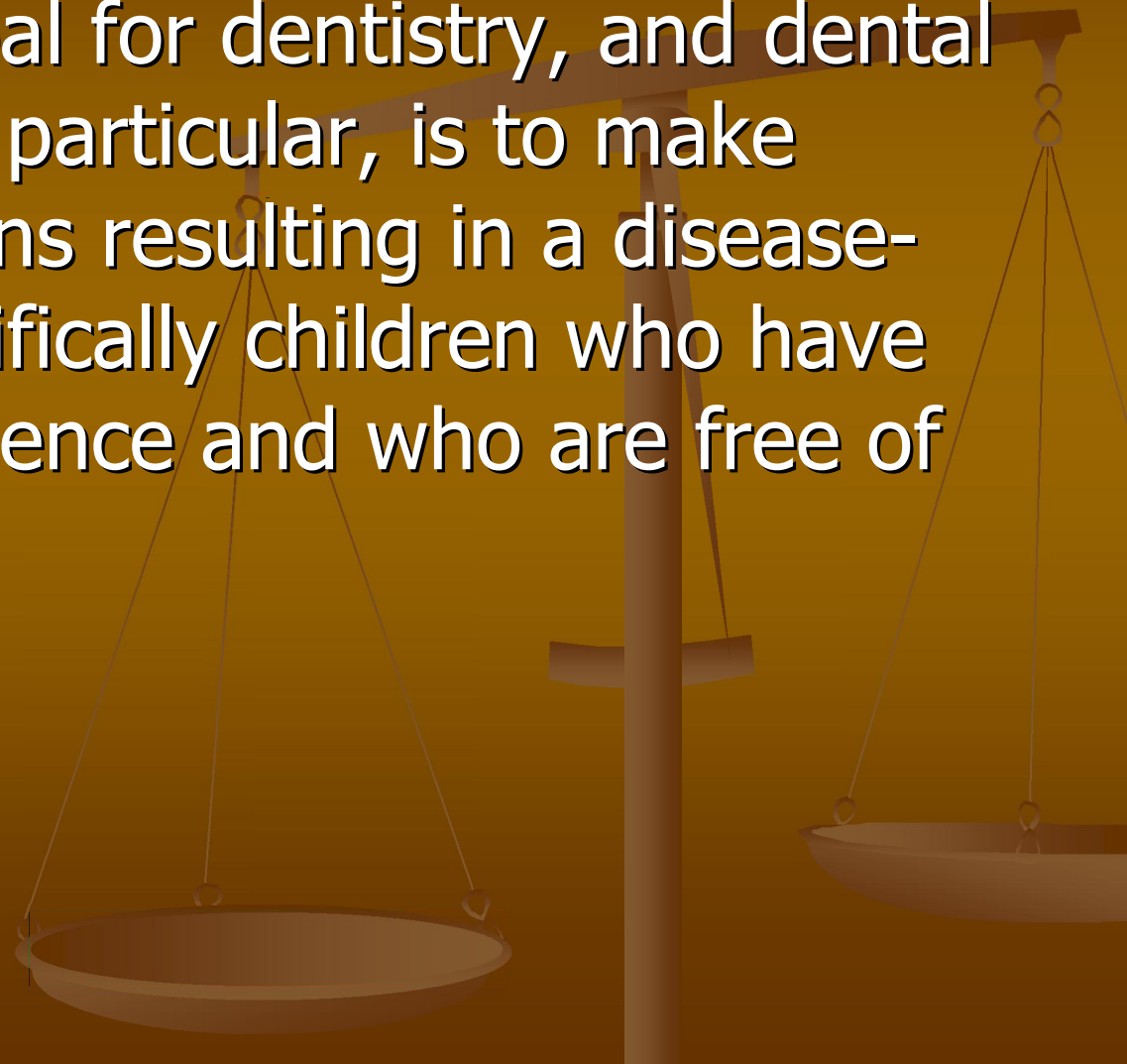
Background

- Unfortunately, many studies, and thus many recommendations, consider dental caries and dental fluorosis separately.
- Ideally, fluoride policy and other recommendations should consider dental caries and dental fluorosis together.



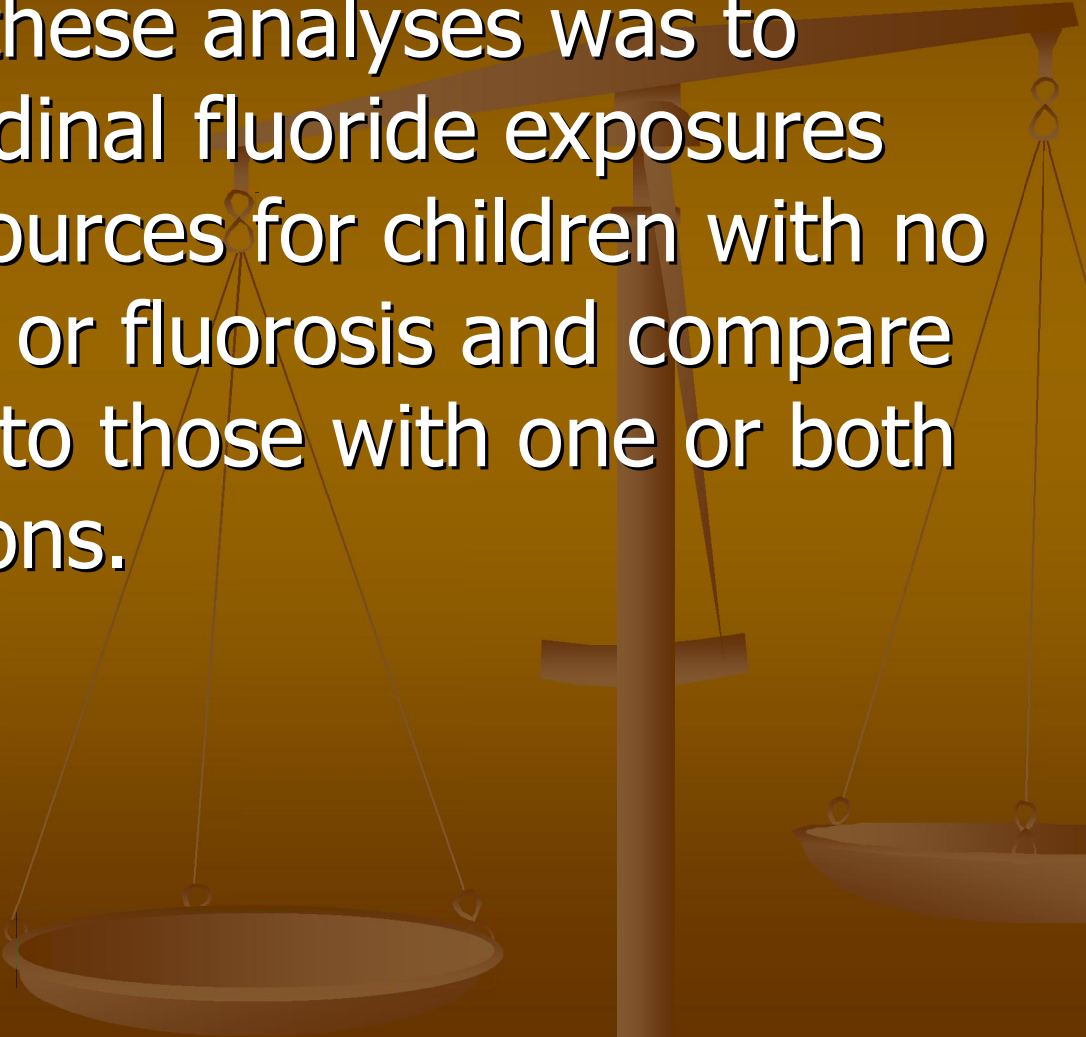
Background

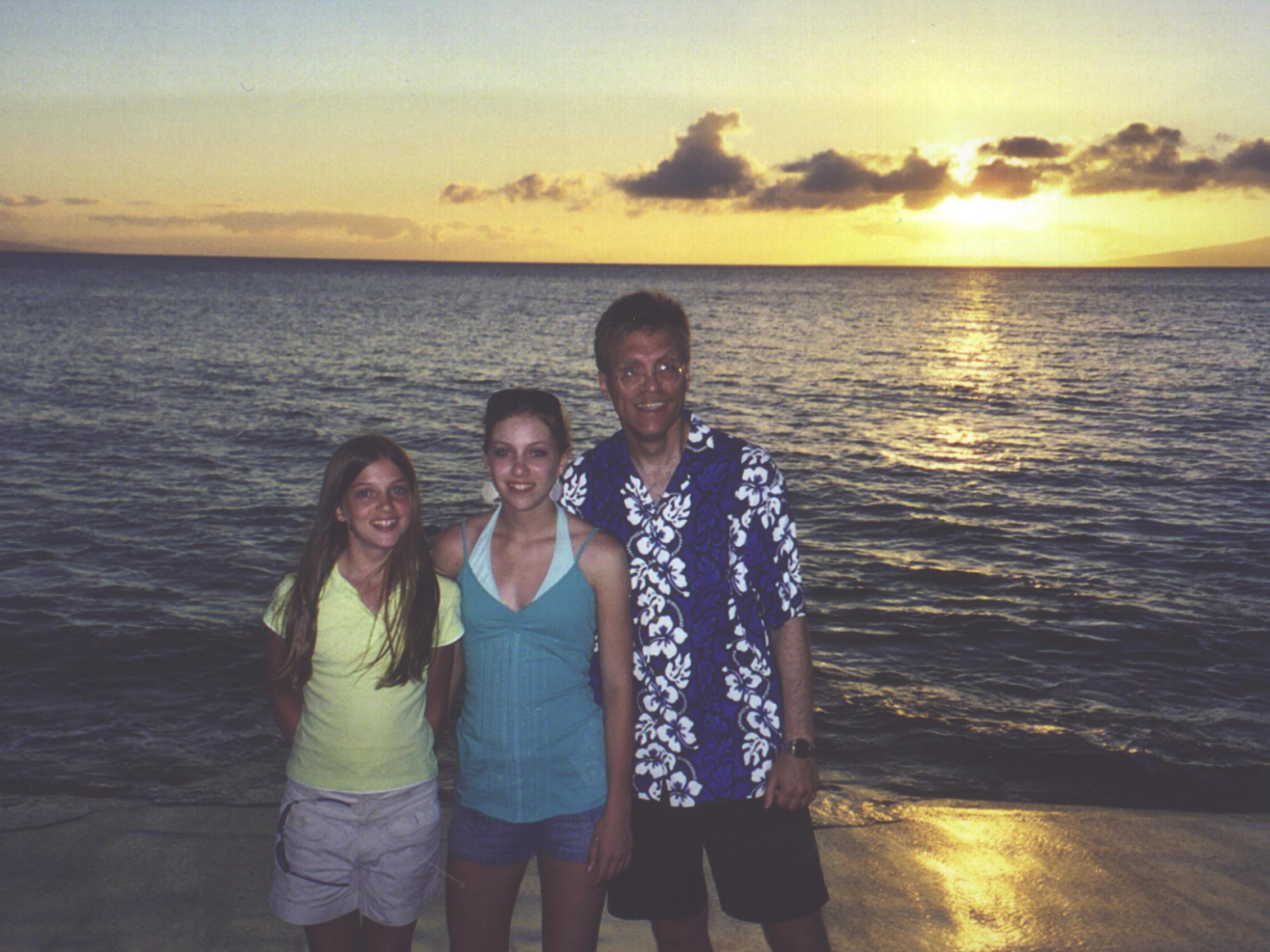
- The ultimate goal for dentistry, and dental public health in particular, is to make recommendations resulting in a disease-free state, specifically children who have no caries experience and who are free of fluorosis.



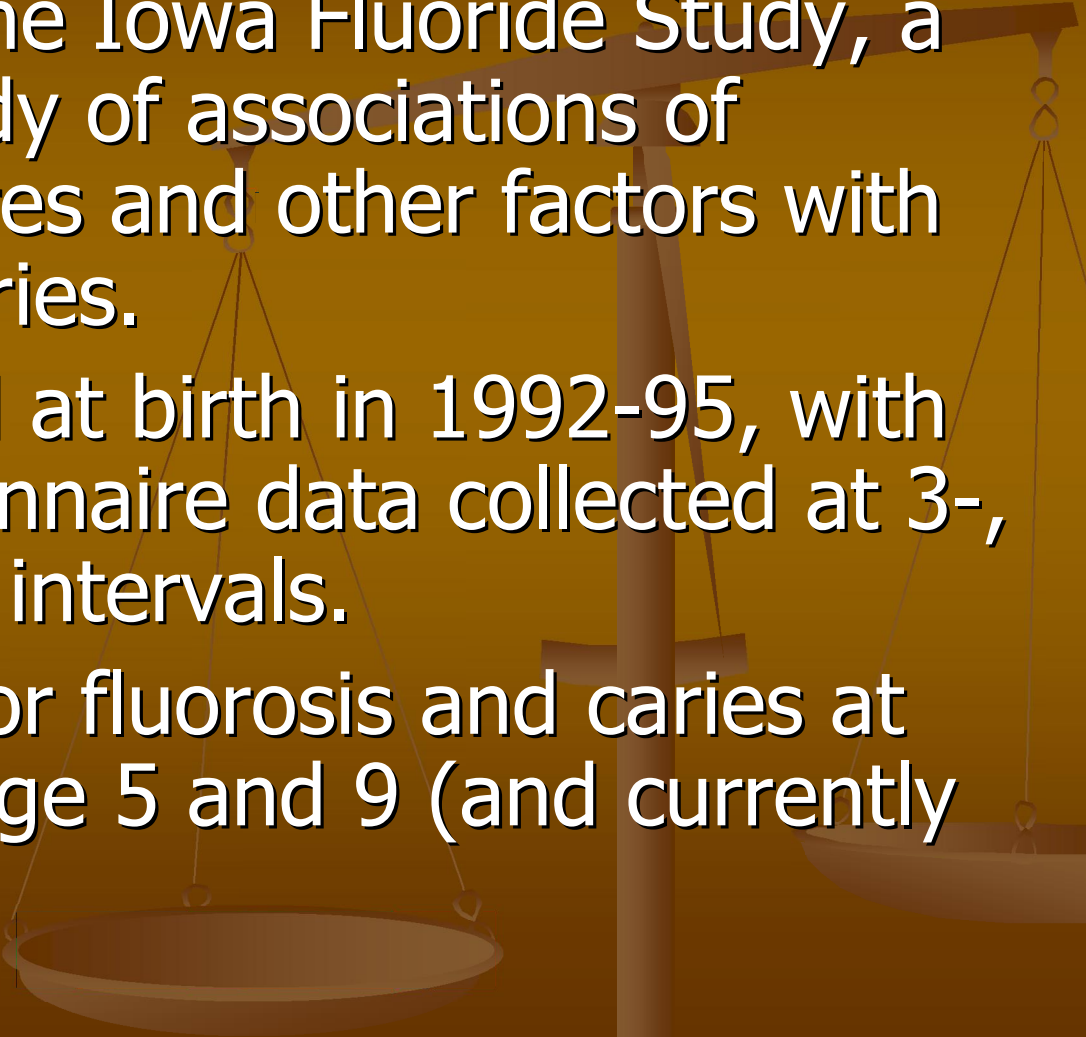
Purpose

The purpose of these analyses was to describe longitudinal fluoride exposures from different sources for children with no history of caries or fluorosis and compare their exposures to those with one or both of these conditions.





Methods

- Data are from the Iowa Fluoride Study, a longitudinal study of associations of fluoride exposures and other factors with fluorosis and caries.
 - Cohort recruited at birth in 1992-95, with ongoing questionnaire data collected at 3-, 4- and 6-month intervals.
 - Clinical exams for fluorosis and caries at approximately age 5 and 9 (and currently at age 13).
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Methods

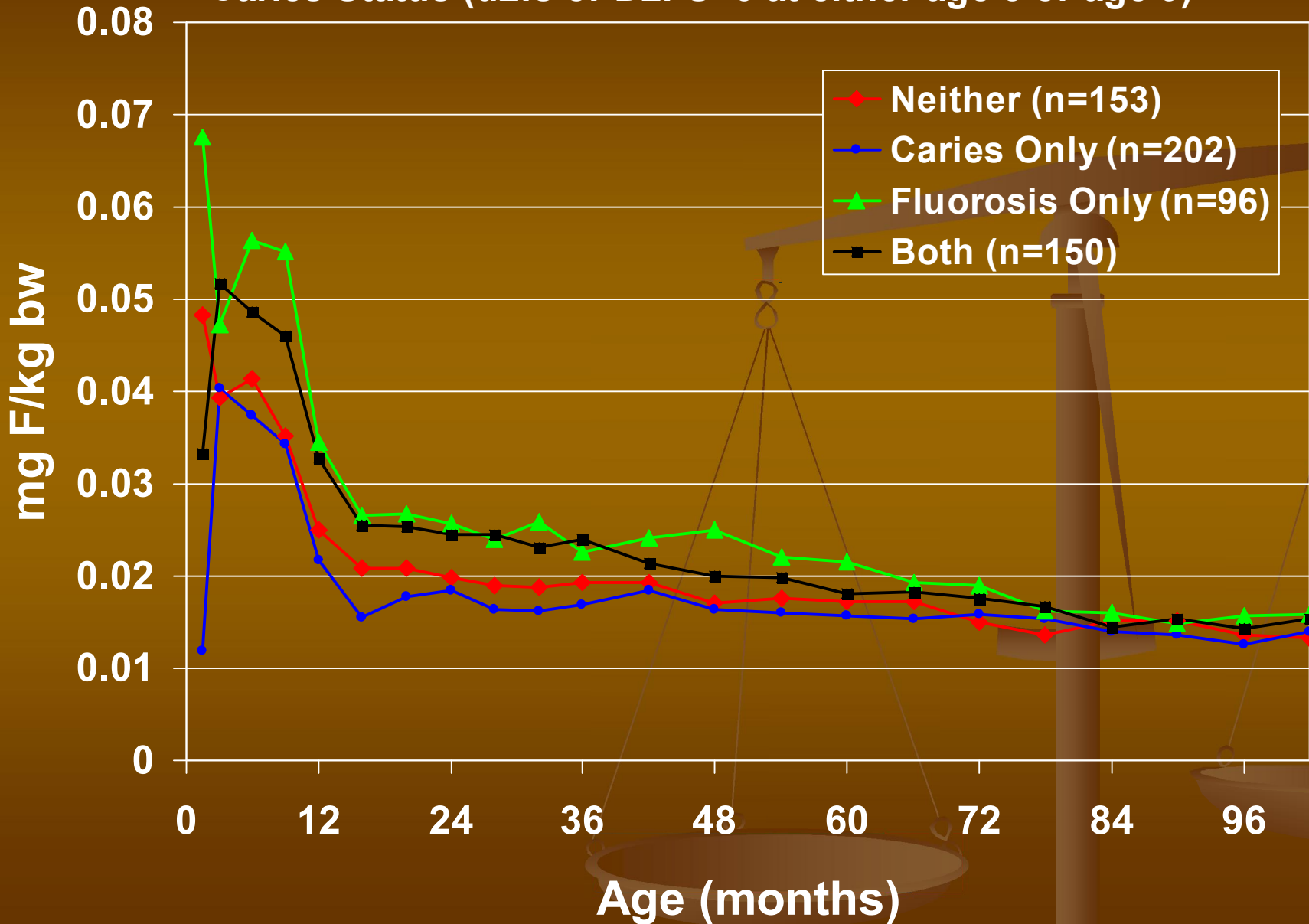
- For these analyses, outcomes of the age 5 and 9 exams were grouped as:
 - No caries at either exam and no fluorosis at age 9 (n=153)
 - Caries at age 5 and/or age 9, but no fluorosis at age 9 (n=202)
 - No caries at age 5 or age 9, but fluorosis at age 9 (n=96)
 - Both caries at age 5 and/or 9, and fluorosis at age 9 (n=151)

Methods

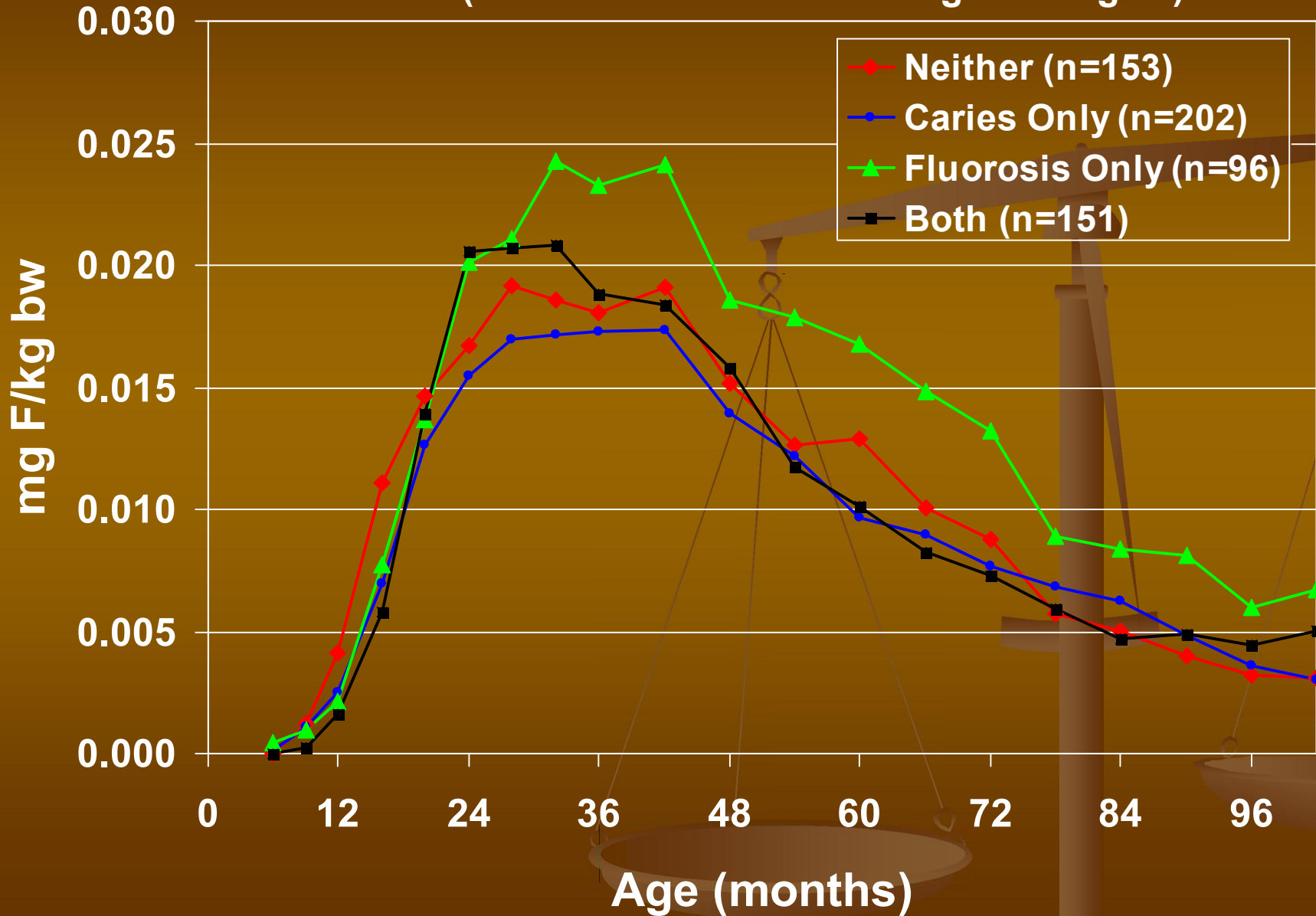


- These analyses present descriptive longitudinal data on fluoride intake (mg/kg bw) from dentifrice, water, dietary supplements, infant formula and combined as well as data about tooth brushing frequency and soda pop consumption (oz/day).
- The data depict mean intakes by caries/fluorosis group from birth to 8.5 years of age.

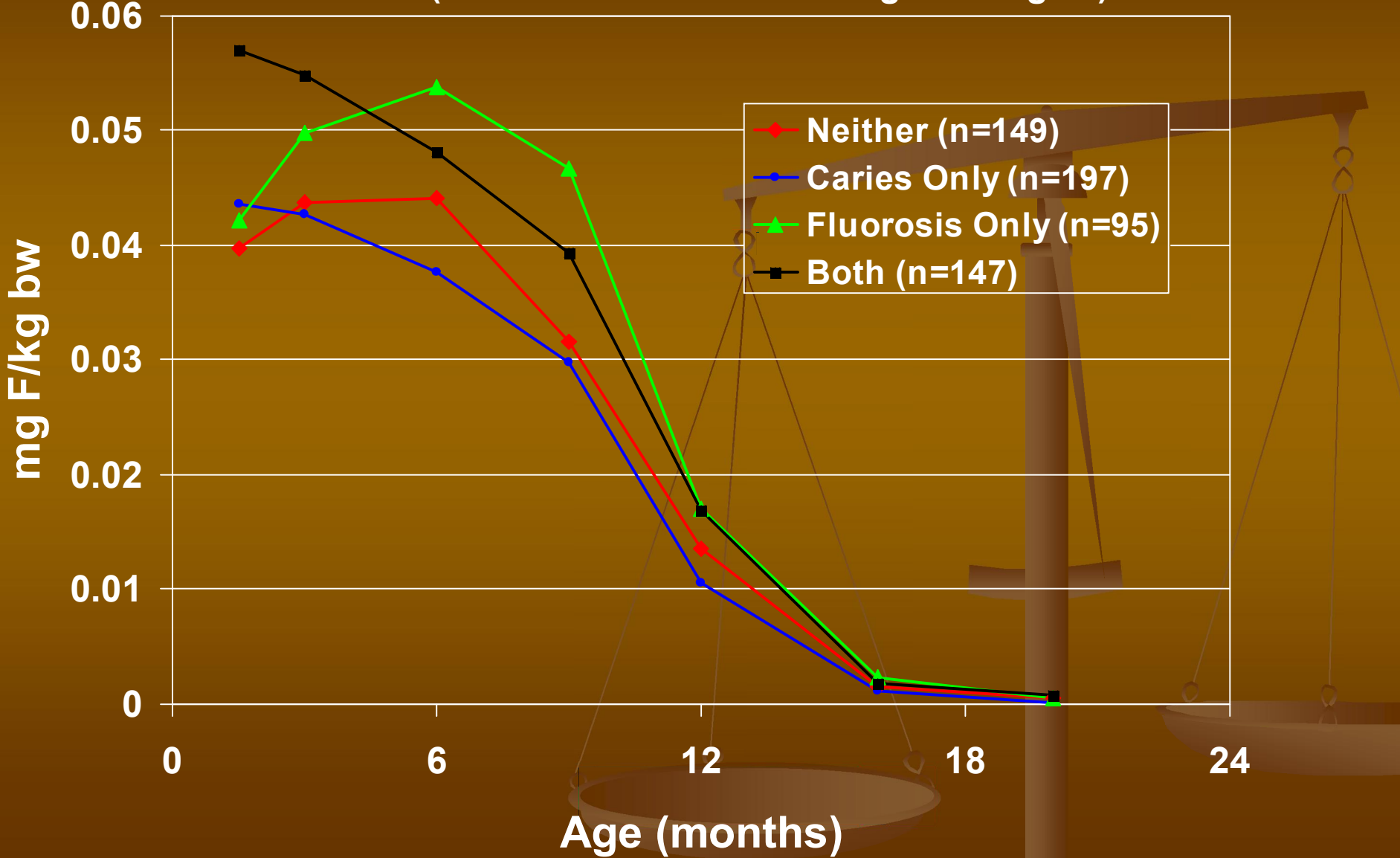
**Mean Fluoride Intake From Water (mg F/kg bw)
by Permanent Tooth Fluorosis (Incisors & 1st Molars) and
Caries Status (d2fs or D2FS>0 at either age 5 or age 9)**



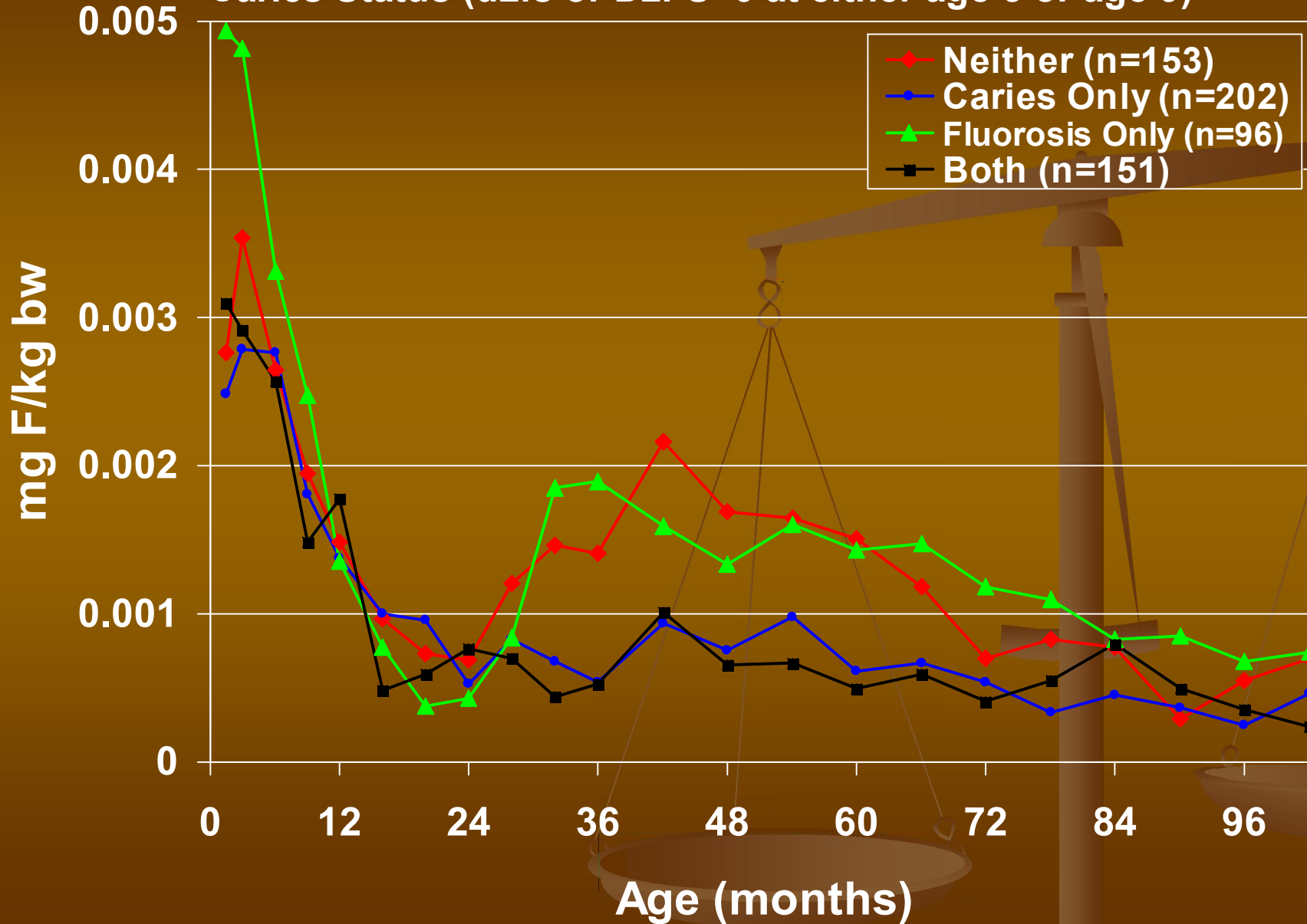
Mean Fluoride Intake From Dentifrice (mg F/kg bw) by Permanent Tooth Fluorosis (Incisors & 1st Molars) and Caries Status (d2fs or D2FS>0 at either age 5 or age 9)



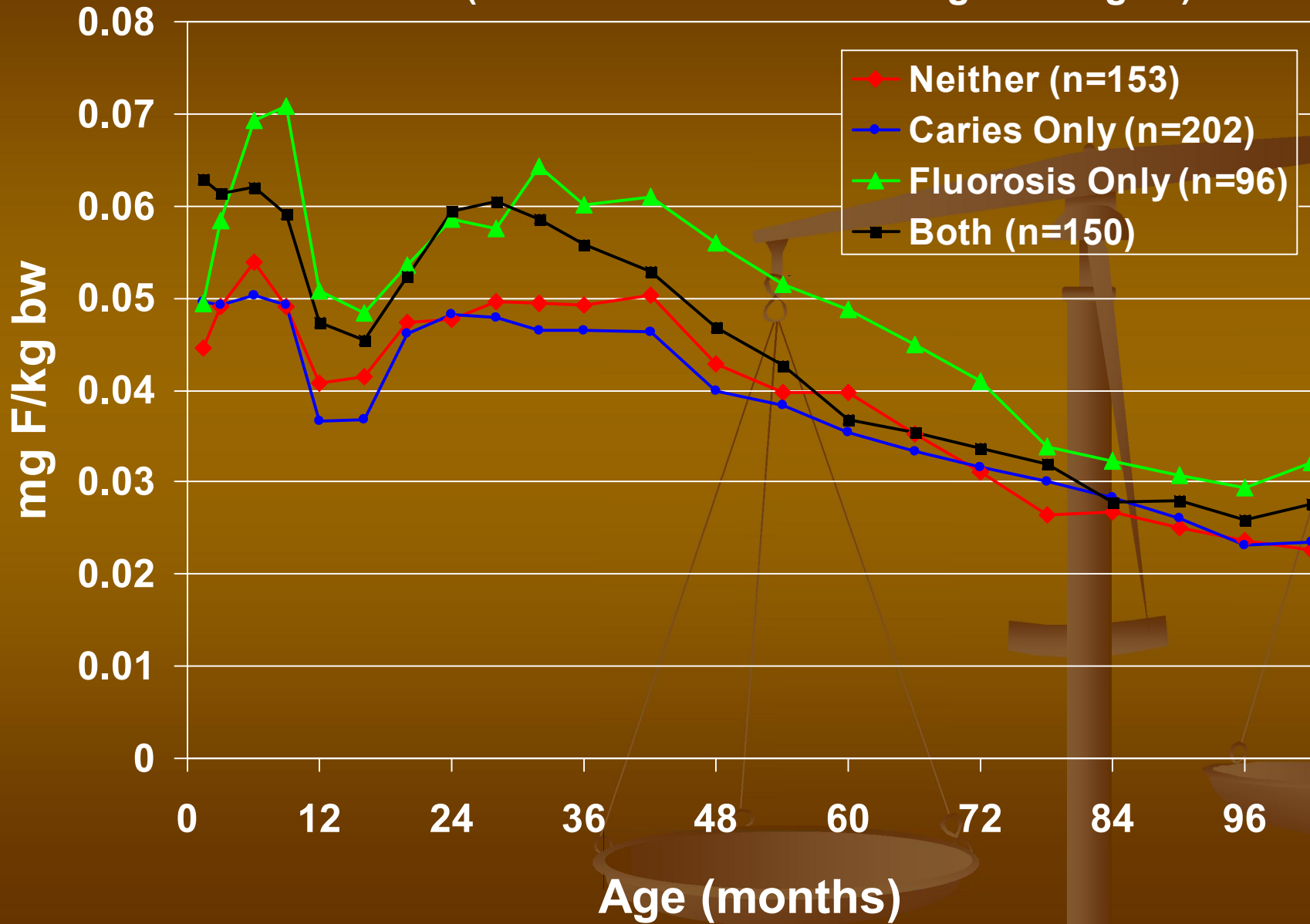
**Mean Fluoride Intake From Formula (mg F/kg bw)
by Permanent Tooth Fluorosis (Incisors & 1st Molars) and
Caries Status (d2fs or D2FS>0 at either age 5 or age 9)**

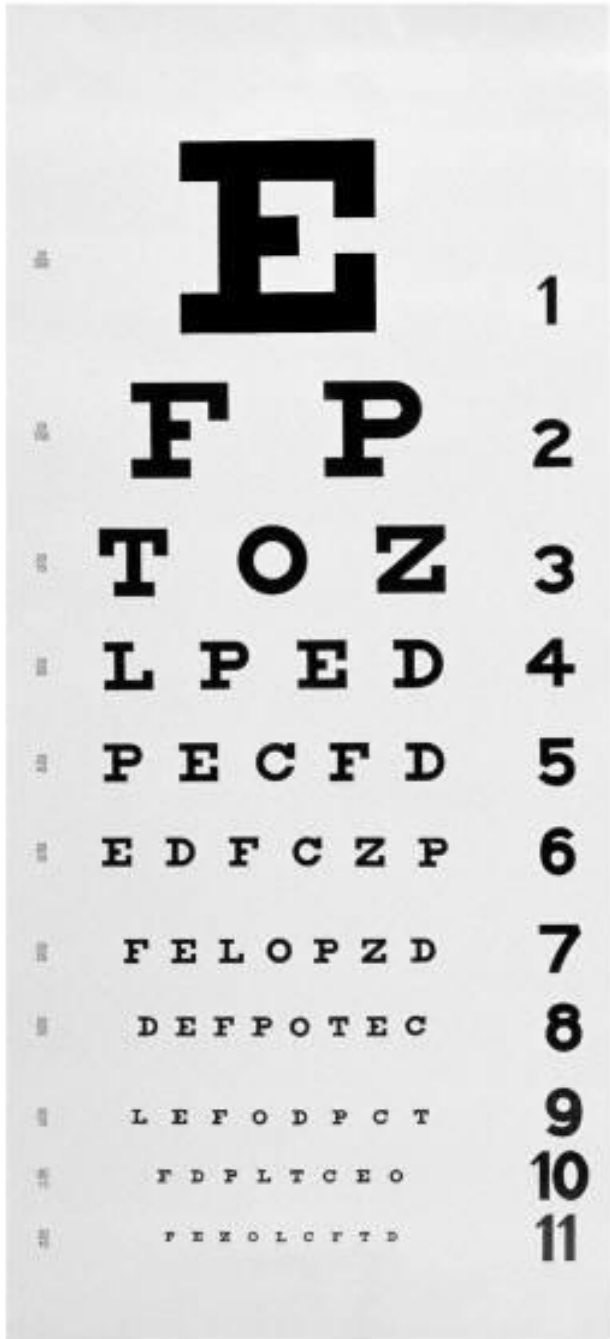


**Mean Fluoride Intake From Supplements (mg F/kg bw)
by Permanent Tooth Fluorosis (Incisors & 1st Molars) and
Caries Status (d2fs or D2FS>0 at either age 5 or age 9)**

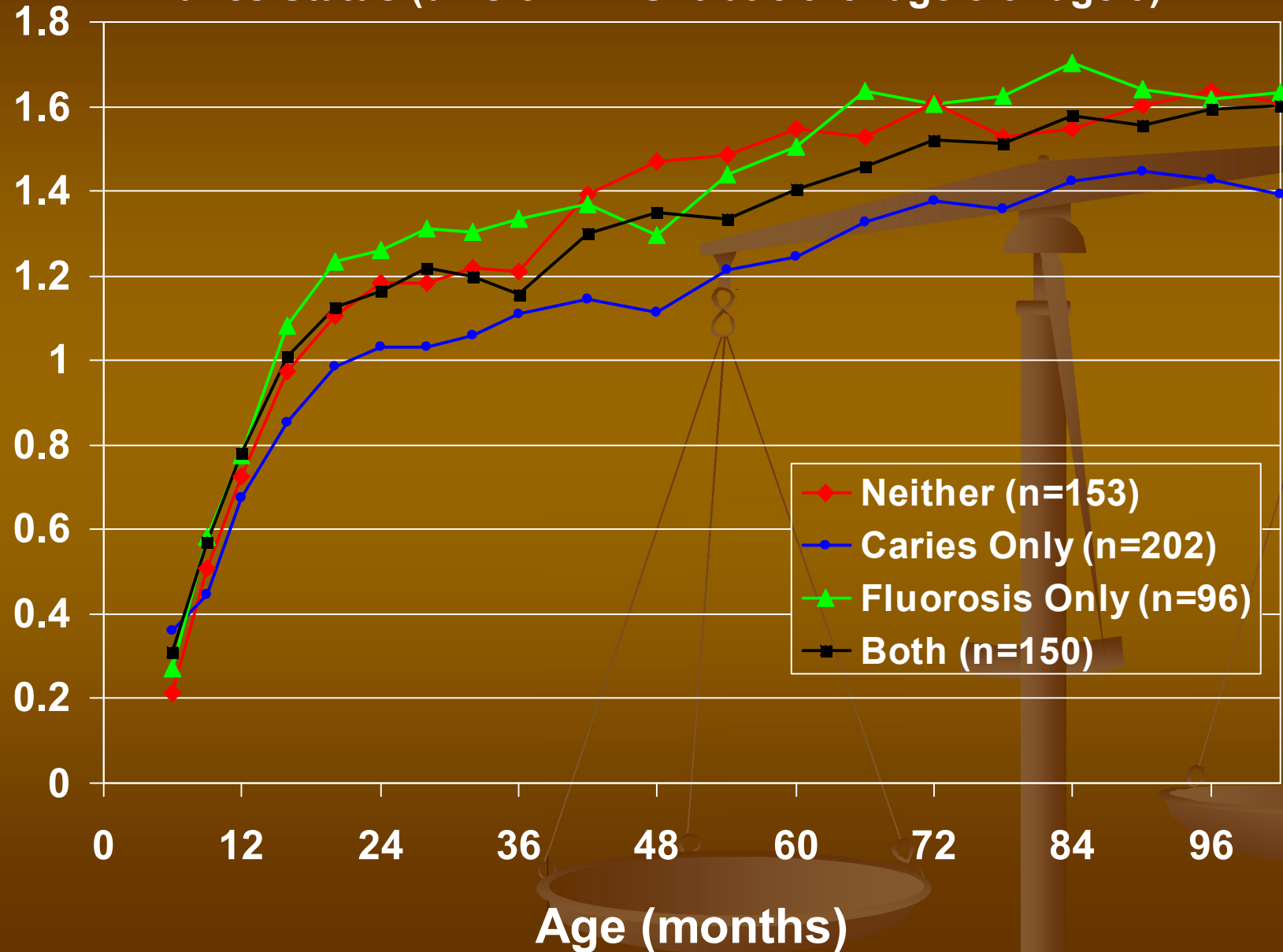


Mean Combined Fluoride Intake (mg F/kg bw) by Permanent Tooth Fluorosis (Incisors & 1st Molars) and Caries Status (d2fs or D2FS>0 at either age 5 or age 9)

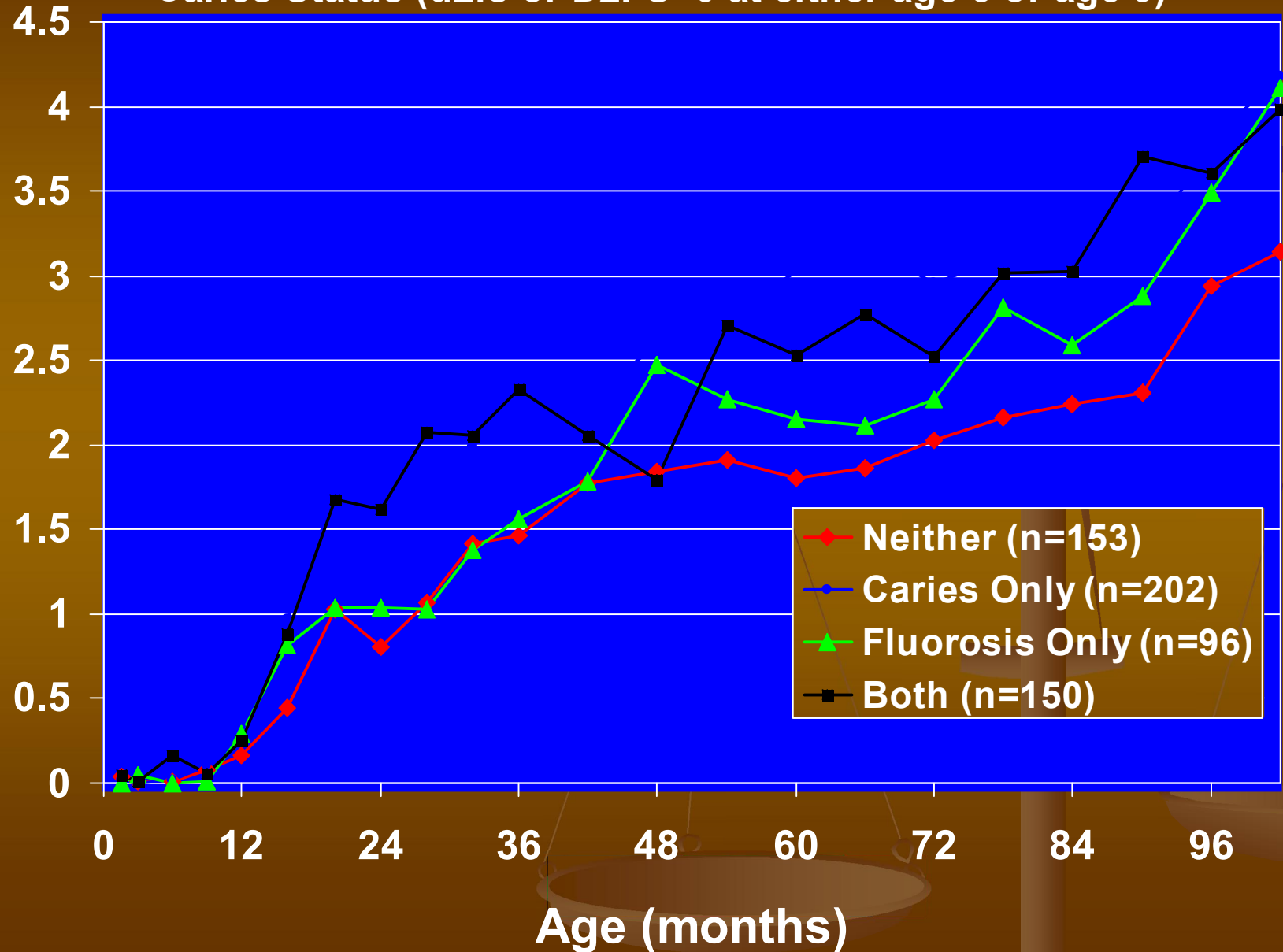




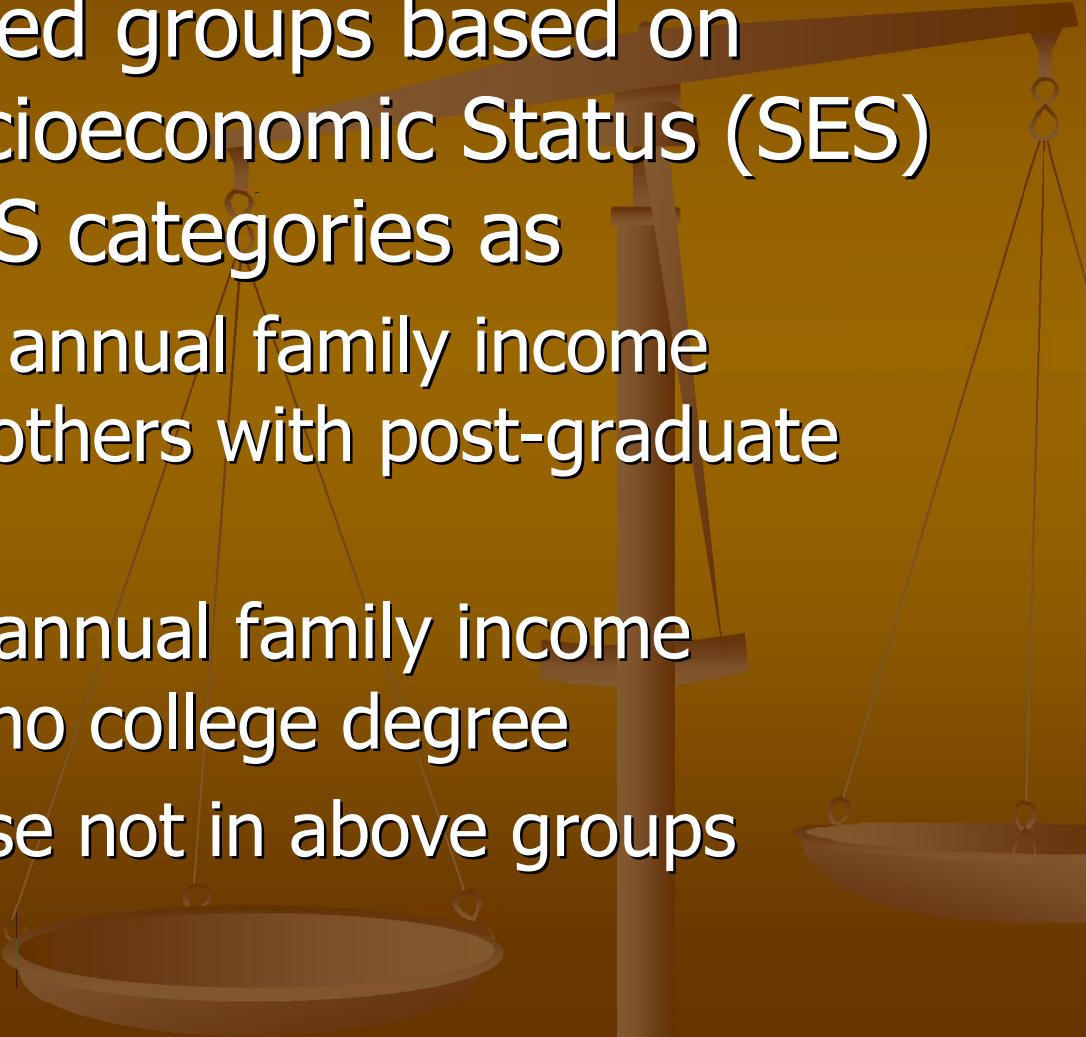
Mean Daily Toothbrushing Frequency by Permanent Tooth Fluorosis (Incisors & 1st Molars) and Caries Status (d2fs or D2FS>0 at either age 5 or age 9)



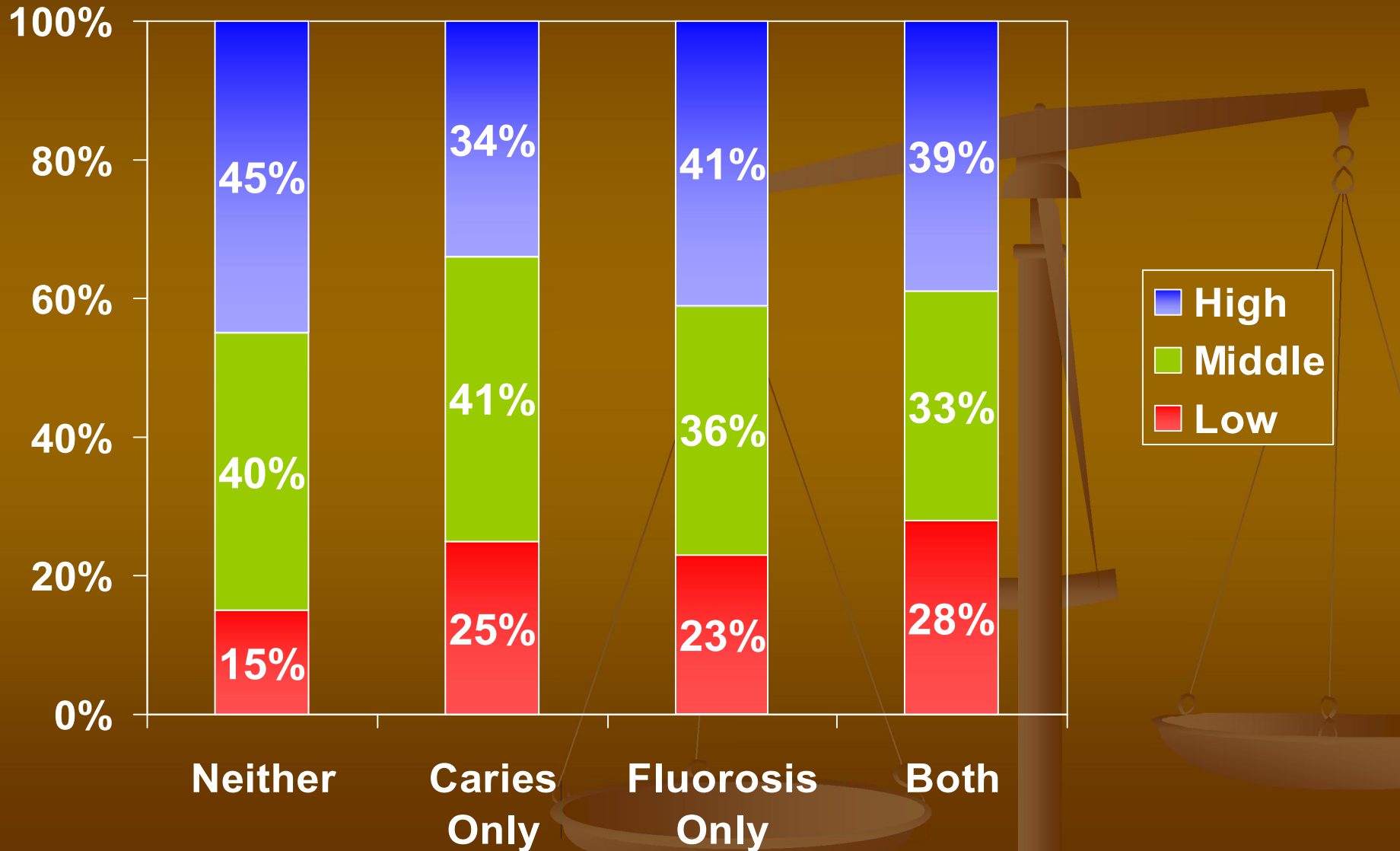
Mean Sugared Soda Pop Intake (oz. per day) by Permanent Tooth Fluorosis (Incisors & 1st Molars) and Caries Status (d2fs or D2FS>0 at either age 5 or age 9)



Results

- We also compared groups based on measures of Socioeconomic Status (SES) and grouped SES categories as
 - High – Baseline annual family income >\$50,000 **or** mothers with post-graduate education
 - Low – Baseline annual family income <\$30,000 **and** no college degree
 - Moderate – those not in above groups
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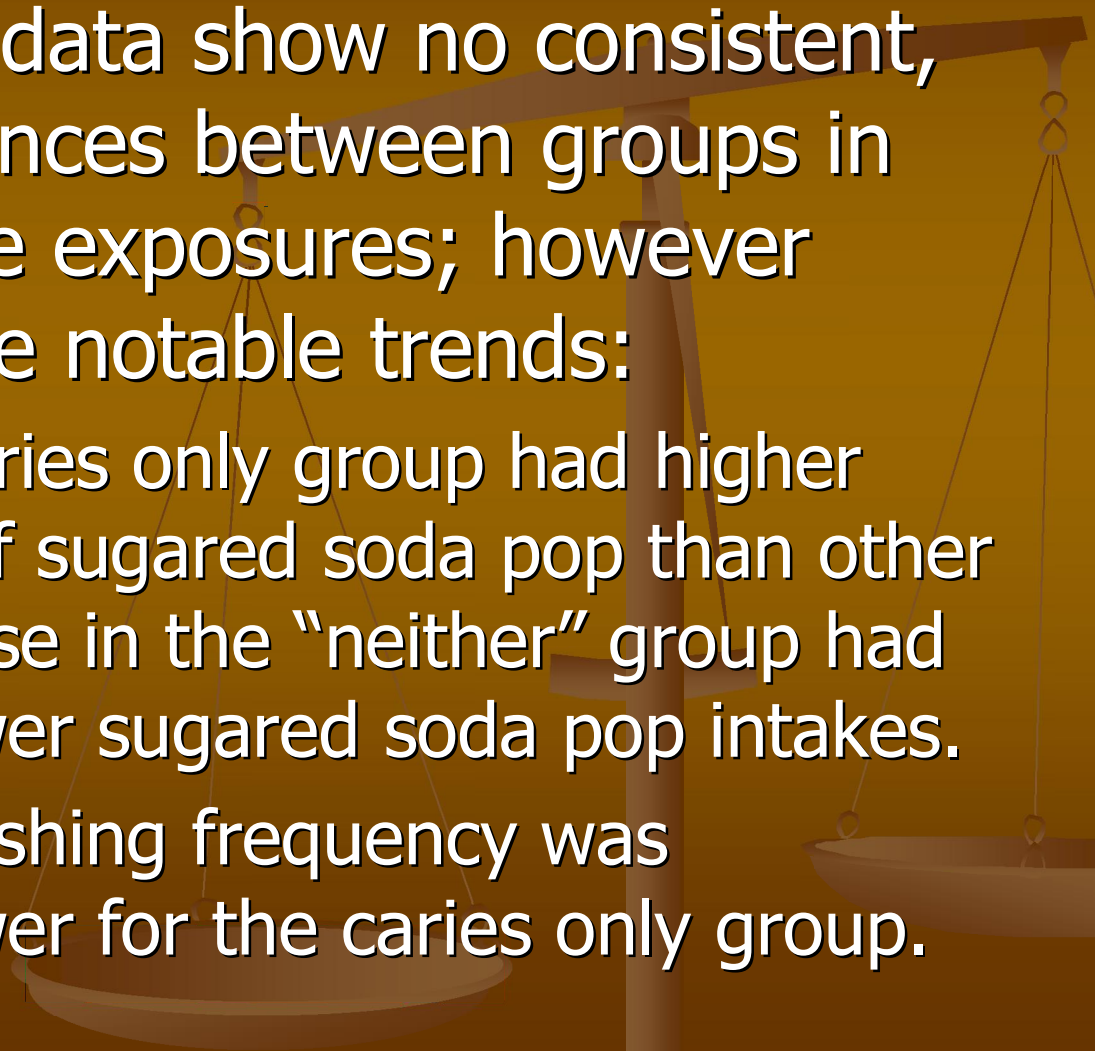
Socioeconomic Status by Permanent Tooth Fluorosis (Incisors & 1st Molars) and Caries Status (d2fs or D2FS>0 at either age 5 or age 9)



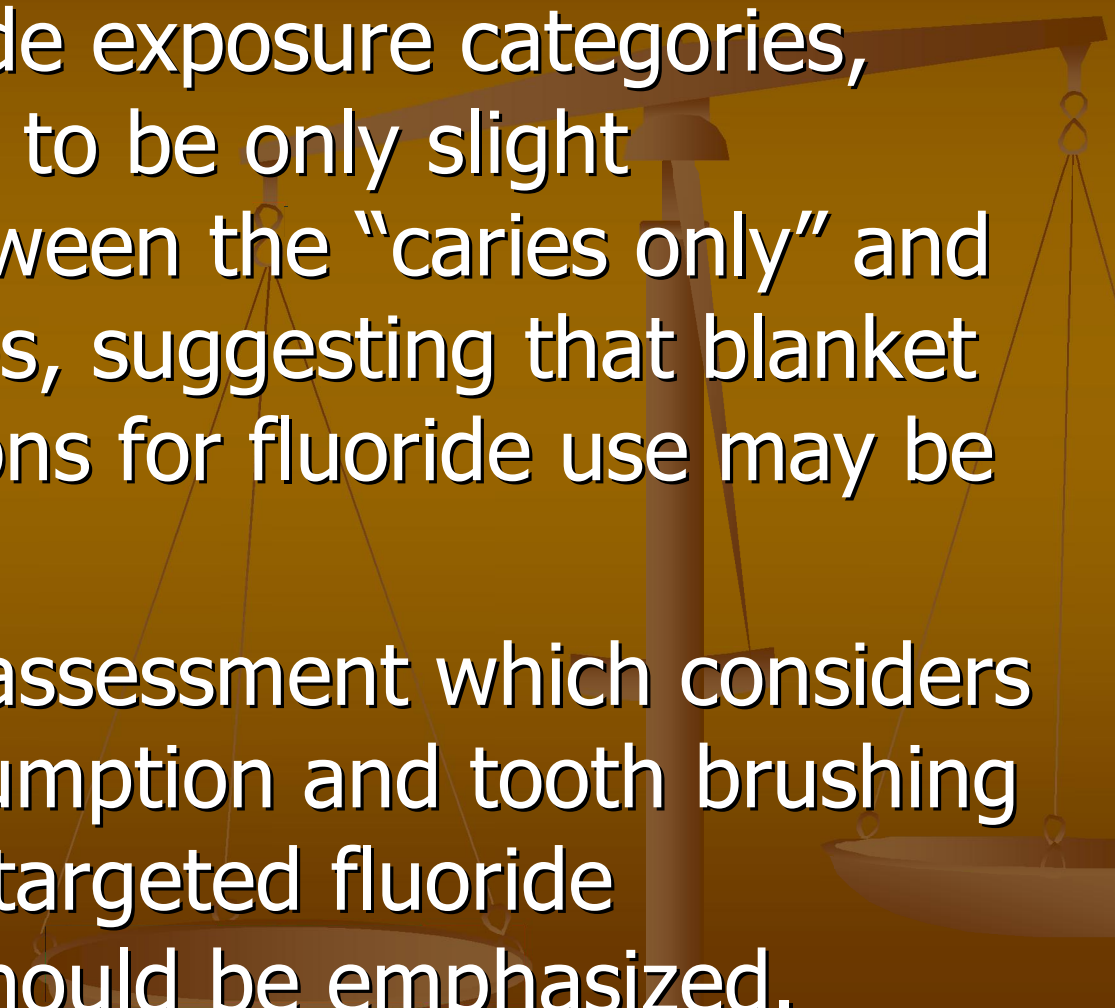
Discussion

- The descriptive data show no consistent, clear-cut differences among groups in terms of fluoride exposures; however, there were some notable trends:
 - Those with fluorosis only generally had the highest mean fluoride exposures in all categories, while those in the caries only group generally had the lowest exposures.

Discussion

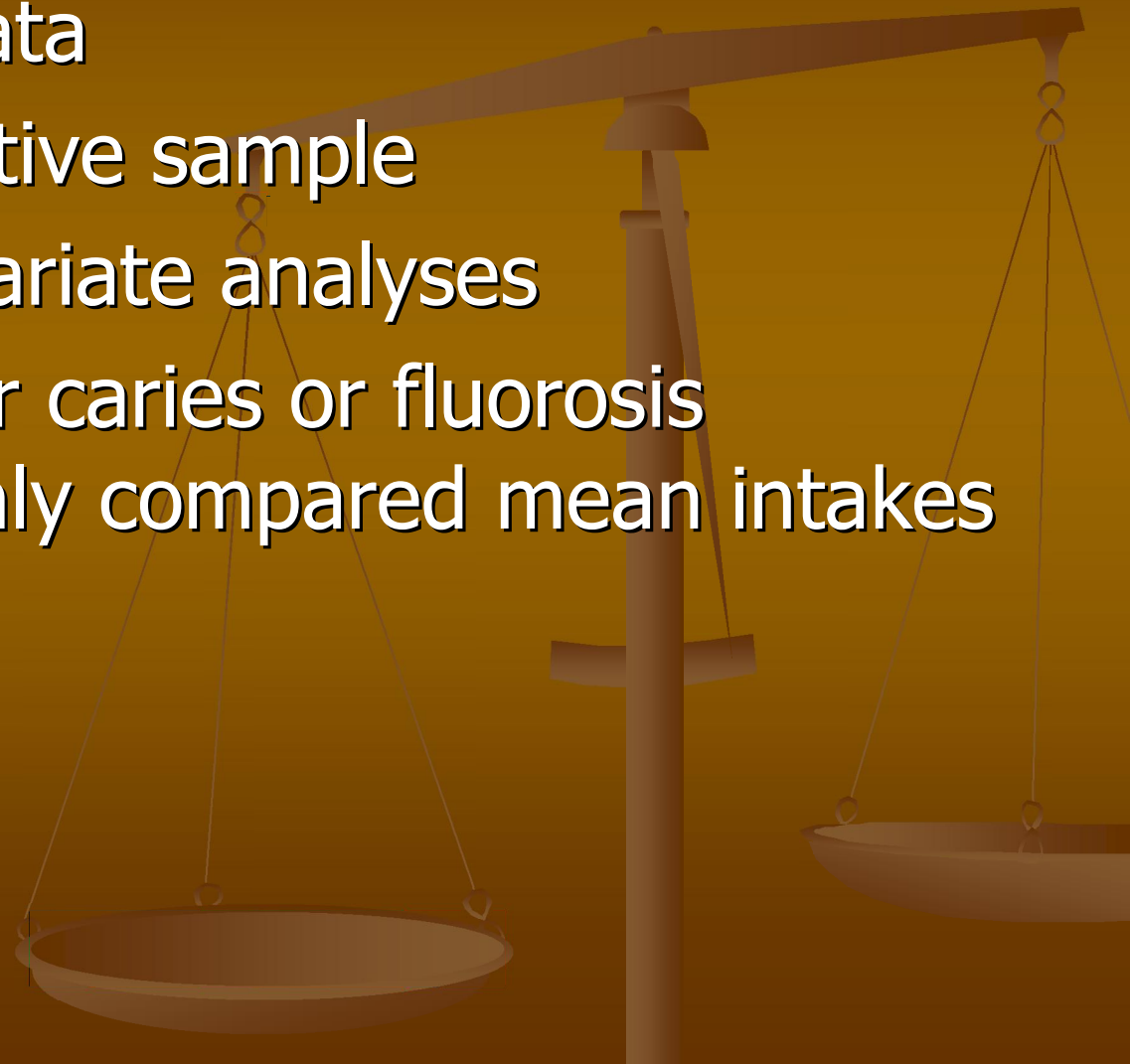
- The descriptive data show no consistent, clear-cut differences between groups in terms of fluoride exposures; however there were some notable trends:
 - Those in the caries only group had higher mean intakes of sugared soda pop than other groups and those in the “neither” group had consistently lower sugared soda pop intakes.
 - Mean tooth brushing frequency was consistently lower for the caries only group.
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Discussion

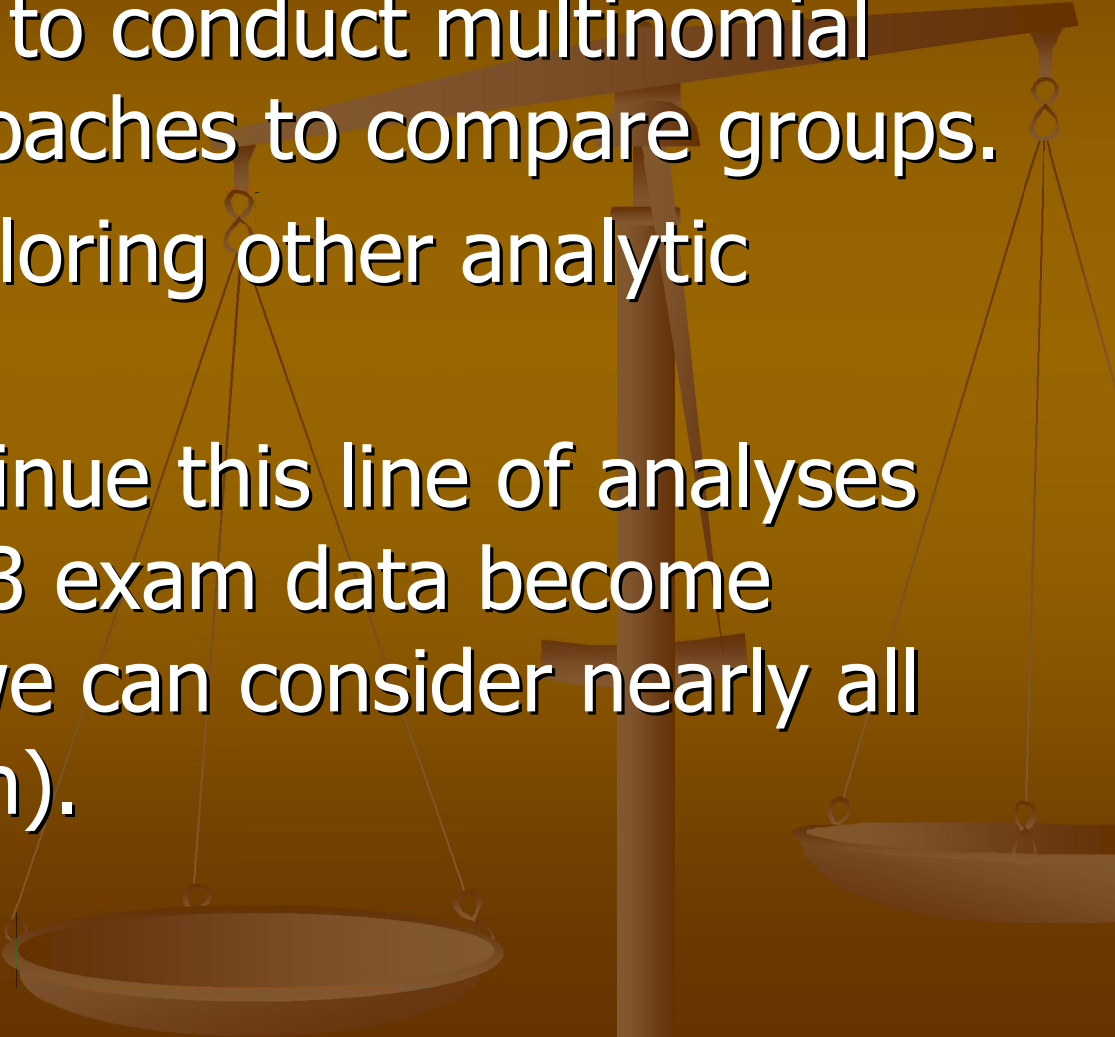
- For most fluoride exposure categories, there appeared to be only slight differences between the “caries only” and “neither” groups, suggesting that blanket recommendations for fluoride use may be tenuous.
 - Individual risk assessment which considers soda-pop consumption and tooth brushing frequency and targeted fluoride interventions should be emphasized.
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Study Limitations

- Self-reported data
- Non-representative sample
- Descriptive, bivariate analyses
- Did not consider caries or fluorosis severity, and only compared mean intakes



Future Directions

- We have begun to conduct multinomial regression approaches to compare groups.
 - We are also exploring other analytic options.
 - We plan to continue this line of analyses when the age 13 exam data become available (and we can consider nearly all permanent teeth).
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Acknowledgments

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 - Thanks also to Barb Broffitt for generating the graphs for this presentation.
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