

- **Visual attention accompanying food decision process: An alternative approach to choose the best models**

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Abstract:

Visual attention plays an active role in food choice. During eye-tracking, several gazing behavior parameters are measured along with the consumer's choice. In this study, a Tobii T60 eye-tracker was used to record the gazing behavior of 59 participants during multi-alternative choice tasks (4AFC) in which pictures of six different food product groups (apples, salads, instant soups, sausages, soft drinks and beers) were presented. The aims of this study were (1) to investigate the relationship between gazing parameters and choice (2) to create prediction models based on gazing data and (3) identify the best model. The applied thirteen statistical models showed strong relationships between gazing behavior and choice and gave accurate predictions for choice. Sum of ranking differences method was used to rank the prediction_ models based on ten performance indicators. Iterative Dichotomiser 3 algorithm, Quinlan's C4.5 decision tree algorithm and k-Nearest Neighbor's algorithm showed the best performances in the cases of the separate product groups. After merging the data sets, Iterative Dichotomiser 3 algorithm showed clearly the best performance to describe the relationship between visual attention and food choice.

Link: <http://www.sciencedirect.com/science/article/pii/S095032931630009X>