When it comes to deciding, looking-at-nothing reveals the option that will be chosen.

karla Margarita Padilla Olvera [1, 2], Samuel Madariaga [2, 3], Pedro Maldonado [2, 3].

(1) Universidad de Chile, Laboratorio de Neurosistemas, Departamento de Neurociencia, Medicin Independencia 1017, Santiago, Chile., Chile.
(2) Instituto de Neurociencia Biomedica, Independencia 1027, Santiago, Chile.
(3) Centro Nacional de Inteligencia Nacional (CENIA), Vicuña Mackenna 4860, Santiago, Chile.

25.kmpo@gmail.com

It is well-known we encode and store information through our eye movements, but it has also been shown that eye movements have a significant role in memory retrieval. Previous studies have demonstrated that people fixate their gaze on an empty portion of the visual field previously occupied by targets of interest. This phenomenon is called looking-at-nothing. Looking-at-nothing is known to allow us to generate internal memory representations of the external visual world. Interestingly, decision-making research theories have suggested choosing the decision-maker sample values from past experiences. Thus, here we investigated whether using the looking-at-nothing phenomenon can provide an accessible biomarker for retrieving sample values from decision-maker episodic memory to decide. Here, we hypothesized th successful memory retrieval could be involved in constructing hypothetical scenarios to evaluate the possible decision consequences. Tracking looking-at-nothing behavior during a preferential choices task correlates with the position on the screen where the food to be chosen was previously located. In addition, we explore if this gaze behavior remains after two experimental manipulations; 1) modifying the level of complexity of the decision by comparing easy vs. difficult decisions and 2) modifying the location of the empty frames concerning the original position of the items to be selected. Our results suggest looking-at-nothing as a potential approach to exploring the mental simulations hypothesis as an underlying mechanism of the decision-making process.