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Fresh from the tree: Implied motion improves food evaluation



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ABSTRACT

The current research explores whether the often-used depiction of foods in motion both on packaging and in marketing campaigns helps improve consumer judgments of food products. In two studies, we show that depictions of food with implied motion lead to enhanced evaluations of both freshness and appeal. This occurs even when motion is merely implied, rather than actual. These findings shed light on the common practice of showing motion in food advertising and in food packaging design. We argue that this phenomenon may relate to an overextension of a primitive link between motion and freshness. This feature can be used to help promote healthier food choices and consumption by increasing their appeal via implied motion.

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1. Introduction

Imagine you step into a seafood restaurant where you can observe and select your future dinner from a fish tank. You set your eyes on two dinner candidates: one fish is swimming vigorously while the other is floating peacefully, alive, but perhaps meditating. Which one would you choose to put on your plate? If you

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prefer the swimmer, you are probably not alone. Movement has intuitive appeal, and is recognized by the brain as an indicator of freshness and quality.

Though many food advertisements display food in motion, the rationale for this practice and its effectiveness remains unexplored. Of the food commercials presented during the Super Bowl games in 2012–2014 there were twice as many showing food in motion ($n = 34$) as ones that did not ($n = 17$). Although such prevalent use of motion in advertising may be the result of professional norms rather than scientific investigation, it may be with good reason. In the current paper we argue that movement increases food appeal, and propose that the reason for this effect is that movement increases perceived freshness.

2. Background

Food freshness is defined as the level of closeness of a food product to its original state in terms of distance, time and processing (Péneau, Linke, Escher, & Nuessli, 2009). Freshness is an important attribute in judgments of food quality (Curtis & Cowee, 2009; Tsiros & Heilman, 2005) regardless of age, gender, or dieting status (Oakes & Slotterback, 2002). Though many factors influence food choice and consumption, freshness emerges as a key driver of consumer evaluations of a broad variety of foods including baked goods (Heenan, Hamid, Dufour, Harvey, & Delahunty, 2009), eggs (Ness & Gerhardy, 1994), fruits and vegetables (Wandel & Bugge, 1997), beef (Bello Acebrón & Calvo Dopico, 2000), and fish and seafood (Halbrendt, Wang, Fraiz, & O'Dierno, 1995; Lebidzińska, Kostrzewa, Ryśkiewicz, Żbikowski, & Szefer, 2006). Surveys aimed to determine the importance of various factors influencing food choice have shown that the main factor driving food choice is freshness, followed by taste, brand name, healthy diet, price, family preferences, and habits (George, 1993; Lappalainen, Kearney, & Gibney, 1998; Lennernas et al., 1997).

Freshness is believed to affect a broad range of factors ranging from expected texture (Fillion & Kilcast, 2000; Szczesniak, 1988) to health outcomes (Wansink & Wright, 2006). Accordingly, there is a general consensus that freshness is a critical variable affecting overall food quality (Cardello & Schutz, 2003; Steenkamp & van Trijp, 1996).

Due to its importance to consumers, food marketers strive to both offer and communicate freshness. Cardello and Schutz (2003) argued that preserving freshness should be a primary objective throughout the food production and distribution chain. The extensive effects of freshness on food evaluation and choice have led experts to suggest that freshness is an important factor in conferring competitive advantage to food retailers (Lewis & Bashin, 1988).

Food manufacturers use a variety of techniques to preserve freshness, including control of storage temperature (Kaale, Eikevik, Rustad, & Kolsaker, 2011) and humidity (Bili & Taoukis, 1998), special packaging (Del Nobile & Conte, 2013), edible coatings and films (Baldwin, Hagenmaier, & Bai, 2011), and gamma radiation (Antonio et al., 2012).

Food manufacturers and retailers also strive to communicate the freshness of their products via various tactics such as expiration date labels (Wansink & Wright, 2006), and color changing time- or temperature-sensitive freshness indicators (Fortin, Goodwin, & Thomsen, 2009). However, to effectively communicate freshness, marketers need to understand which factors influence consumer judgments of freshness.

2.1. Consumer judgments of freshness

To evaluate freshness, consumers use various food properties such as flavor, color, odor and texture (Fortin et al., 2009).

Consumers tend to rely on visual cues to diagnose freshness (Péneau, Brockhoff, Escher, & Nuessli, 2007). These include perceptions of bruising and glossiness (Murakoshi, Masuda, Utsumi, Tsubota, & Wada, 2013; Péneau et al., 2007), luminance (Arce-Lopera, Masuda, Kimura, Wada, & Okajima, 2012, 2013), and color (Glitsch, 2000).

The accessibility of such cues for freshness may play a role in determining their use, with more accessible cues more likely to be utilized (Feldman & Lynch, 1988). Below we suggest that given humans' sensitivity to motion and its association with freshness, motion may serve as one such useful cue for freshness.

2.2. Sensitivity to motion

People's sensitivity to the motion of other humans, animals and objects is developed at an early age and continues to develop through adulthood (e.g., Hirai & Hiraki, 2005; Norman, Ross, Hawkes, & Long, 2003). Sensitivity to motion over stationary objects is an important social (Blake & Shiffrar, 2007) and survival skill (Johansson, 1973), since it enables humans to observe gestures and infer others' intended actions (Blake & Shiffrar, 2007; Nelissen, Luppino, Vanduffel, Rizzolatti, & Orban, 2005; Rizzolatti & Sinigaglia, 2010), as well as notice and react to potential threats or prey.

Research has suggested that this sensitivity to motion emanates in part from extensive practice in planning and implementing action. Motion detection and execution share similar brain circuits (Gazzola & Keysers, 2009; Nelissen et al., 2005). Since observation and action are linked, planning and executing motion helps develop visual sensitivity to motion (Blake & Shiffrar, 2007; Hommel, Müsseler, Aschersleben, & Prinz, 2001; Prinz, 1997).

Sensitivity to motion is also necessary for goal-directed action (Grillner, Wallén, Saitoh, Kozlov, & Robertson, 2008; Hicheur, Glasauer, Vieilledent, & Berthoz, 2005). Detection of motion is necessary for the guidance of responsive action (Gottlieb, 2007). Observation of action helps build action readiness, guide and facilitate actions (Decety & Grèzes, 1999; Fadiga, Fogassi, Pavesi, & Rizzolatti, 1995). In addition, sensitivity to the location of a target of an action helps adjust action (Van Sonderen, Gielen, & van der Gon Denier, 1989).

Primitive environments that provided rewards for employing motion in judgment (e.g., hunter-gatherer societies) may have encouraged and reinforced the development and incorporation of such sensitivity in human mental functioning. However, in the modern environment, sensitivity to motion might extend to affect areas where it is no longer relevant. Such overextensions of mechanisms from the primitive environment to modern environments where they no longer serve their original purpose have been dubbed 'evolutionary traps' (Gates & Gysel, 1978; Schlaepfer, Runge, & Sherman, 2002).

Evolutionary traps are particularly apparent in the food domain. For instance, people possess an evolved tendency to be attracted to sugars and fats. In an environment with scarce resources, consuming as much of these nutrients as possible would have been a good survival strategy (Friedman, 2003; Lev-Ran, 2001). However, in a modern environment of abundant resources this tendency can lead to obesity and related health problems such as diabetes, coronary heart disease, sleep-breathing disorders, and certain forms of cancer (Kopelman, 2000). Tendencies that served humanity in primitive environments can be maladaptive in modern society (Berthoud & Morrison, 2008).

2.3. Motion as a cue for freshness

The association between food movement and freshness is straightforward and readily apparent in nature. Living animals

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