

The Tomato Effect

Rejection of Highly Efficacious Therapies

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THE TOMATO (*Lycopersicon esculentum*) is a New World plant, originally found in Peru and carried back to Spain from whence it quickly spread to Italy (pommodoro) and France, where it was known as the pomme d'amour and thought to have aphrodisiac properties (this is the first recorded confusion between the placebo effect and the tomato effect—described herein). By 1560, the tomato was becoming a staple of the continental European diet.

Of interest is that while this exotic fruit from South America (along with other novel products such as potatoes, corn, beans, cocoa, and tobacco) was revolutionizing European eating habits, at the same time it was ignored or actively shunned in North America.¹² During the 18th century, tomatoes were not even cultivated in North America. Not until the 1800s did North Americans accept the tomato as edible; commercial cultivation of tomatoes was rare until the 20th century, although in the past eight decades the tomato has grown to become our largest commercial crop.¹

The reason tomatoes were not accepted until relatively recently in North America is simple: they were poisonous. Everyone knew they were poisonous, at least everyone in North

America. It was obvious. Tomatoes belong to the nightshade (Solanaceae) family. The word "nightshade" is usually preceded by the word "deadly," and for good reason. The leaves and fruit of several plants in this family, for example, belladonna and mandrake, can cause death if ingested in sufficient quantity. The fact that the French and Italians were eating tomatoes in increasing quantities without seeming harm did not encourage colonial Americans to try them. It simply did not make sense to eat poisonous food. Not until 1820, when Robert Gibbon Johnson ate a tomato on the steps of the courthouse in Salem, NJ, and survived, did the people of America begin, grudgingly, we suspect, to consume tomatoes.

The previous paragraphs are meant to explain the derivation of the term "tomato effect." The tomato effect in medicine occurs when an efficacious treatment for a certain disease is ignored or rejected because it does not "make sense" in the light of accepted theories of disease mechanism and drug action. The tomato was ignored because it was clearly poisonous; it would have been foolish to eat one. In analogous fashion, there have been many therapies in the history of medicine that, while later proved highly efficacious, were at one time rejected because they did not make sense. The purpose of this article is to expand on this concept by describing three examples, all from the field of rheumatology. We contend that the tomato effect is in its

own way every bit as influential in shaping modern therapeutics as the placebo effect. While the placebo effect has contributed to the enthusiastic and widespread acceptance of therapies later shown to be useless or harmful, the tomato effect has stimulated the rejection or nonrecognition of highly efficacious therapies. Recognition of the reality of the tomato effect, while not preventing future errors, may at least help us better understand our mistakes.

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... .. If a treatment bypasses the medical establishment and is sold directly to the public, whether starch blockers, megavitamins, or l'eau d'Husson, the temptation in the medical community is to accept uncritically the first bad news that comes

along.

We cannot progress in medicine without a theoretical structure. Structure by necessity limits our peripheral vision while allowing us to focus on a particular path. The benefit of such a structure far outweighs

the detriment. However, we can reduce the detriment by asking, almost in ritual fashion, certain questions. Before we accept a treatment we should ask "Is this a placebo?" and before we reject a treatment we should ask "Is this a tomato?"