Abstract

Title: Oral intake of green tea and its effect on the appearance of UV-induced erythema, *erythema solare* – A systematic literature review

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Background: UV irradiation of the skin can cause erythema, clinically called *erythema solare*. The condition can exert pain as well as discomfort and may in the long term lead to negative effects including skin cancer. Green tea contains catechins which are substances with anti-inflammatory effect that may have positive effects on the skin. The intake of green tea is believed to have a protective effect against UV irradiation, since green tea extracts in lotions in previous studies have shown to increase the skin tolerance level against UV irradiation.

Objective: To examine the scientific basis and determine whether an oral intake of green tea has a protective effect against UV-induced erythema.

Search strategy: Searches in the scientific databases PubMed and Scopus were made to find suitable articles. From the 213 search results found, four articles were assessed as relevant for further examination.

Selection criteria: Inclusion criteria were human studies with a population over 18 years old, published in English or Swedish after the year 1990. The criteria also included randomized controlled trials, cohort or case-control studies and studies in which only an oral intake of green tea and erythema had been investigated. Exclusion criteria were populations with any kind of diseases and also studies using other endpoints than erythema.

Data collection and analysis: Assessments of study quality and grading of evidence according to GRADE was performed on three RCT’s and one non-randomized intervention study.

Main results: The studies examined differed in several ways; study duration, measurement methods, amount of catechins and ingestion of green tea through capsules or drinks were the main distinctions observed. Out of the four articles examined, three were able to conclude a significant positive effect on the degree of erythema from an oral intake of green tea. The study quality of three studies was rated “low” and one was rated “moderate”. The degree of evidence from these studies was judged to be very low (+).

Conclusion: The scientific evidence to support the statement that an oral intake of green tea may have a protective effect on UV induced erythema, *erythema solare*, is incomplete. Therefore no recommendations can be given.