



Corrigendum: Modeling Circadian Phototransduction: Quantitative Predictions of Psychophysical Data

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A Corrigendum on

Modeling Circadian Phototransduction: Quantitative Predictions of Psychophysical Data

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In the original article, there was an error. One of the inherent mathematical assumptions for Equation 3 as published, should be explicitly added to the mathematical formulation. The published terms “ V_λ ” and “ S_λ ” therefore have been replaced by “ $V_{c\lambda}$ ” and “ $S_{c\lambda}$ ” respectively, to convey the implicit normalizations in the corrected equation. The term k has also been defined.

A correction has been made to Equation 3.

$$CL_A 2.0 = 1548 \begin{cases} \left(\int Mc_\lambda E_\lambda d\lambda - a_{rod1} \left(\frac{\int V'_\lambda E_\lambda d\lambda}{\int V_{c\lambda} E_\lambda d\lambda + g_1 \int S_{c\lambda} E_\lambda d\lambda} \right) \left(1 - e^{-\frac{\int V'_\lambda E_\lambda d\lambda}{RodSat}} \right) \right) \\ + \left(a_{b-y} \left(\int S_{c\lambda} E_\lambda d\lambda - k \int V_{c\lambda} E_\lambda d\lambda \right) - a_{rod2} \left(\frac{\int V'_\lambda E_\lambda d\lambda}{\int V_{c\lambda} E_\lambda d\lambda + g_2 \int S_{c\lambda} E_\lambda d\lambda} \right) \right) \\ \left(1 - e^{-\frac{\int V'_\lambda E_\lambda d\lambda}{RodSat}} \right), & b - y > 0 \\ \left(\int Mc_\lambda E_\lambda d\lambda - a_{rod1} \left(\frac{\int V'_\lambda E_\lambda d\lambda}{\int V_{c\lambda} E_\lambda d\lambda + g_1 \int S_{c\lambda} E_\lambda d\lambda} \right) \left(1 - e^{-\frac{\int V'_\lambda E_\lambda d\lambda}{RodSat}} \right) \right), & b - y \leq 0 \end{cases}$$

where,

$$b - y = \int S_{c\lambda} E_\lambda d\lambda - k \int V_{c\lambda} E_\lambda d\lambda$$

$k = 0.2616$	E_λ : light source spectral irradiance.
$a_{b-y} = 0.21$	Mc_λ : melanopsin sensitivity (corrected for crystalline lens spectral transmittance) (Wyszecki and Stiles, 1982)
$a_{rod1} = 2.30$	S_λ : S-cone fundamental (Smith and Pokorny, 1975).
$a_{rod2} = 1.60$	mp_λ : macular pigment spectral transmittance (Snodderly et al., 1984).
$g_1 = 1.00$	V_λ : photopic luminous efficiency function (Commission Internationale de l'Éclairage, 1994).
$g_2 = 0.16$	V'_λ : scotopic luminous efficiency function (Commission Internationale de l'Éclairage, 1994).

$$RodSat = 6.50 W m^{-2}$$

$$V_{c\lambda} = \frac{\left(\frac{V_\lambda}{mp_\lambda}\right)}{\max\left(\frac{V_\lambda}{mp_\lambda}\right)} \quad S_{c\lambda} = \frac{\left(\frac{S_\lambda}{mp_\lambda}\right)}{\max\left(\frac{S_\lambda}{mp_\lambda}\right)}$$

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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