

# Letter to the Editor

## ABSTRACT

The authors wish to acknowledge that the information on the Monet website<sup>9</sup> has now changed (2024) to reflect that exposures longer than 3 seconds are required for larger restorations and that overlapping exposures should be used. The website now states that for preparation areas that are larger than 5mm in depth and 8mm in diameter, two overlapping spot cures of 3 seconds are recommended (Figure 2). The single 1 and 3x1-second exposure times used in the article are not recommended by the manufacturer and should now be considered 'off-label' use of the Monet.

In 2022, we conducted a study to determine the ability of six curing light curing units (LCUs) to photocure four resin-based composites (RBCs). One of the LCUs used in the study was the Monet, which the manufacturer was promoting as a 1-second curing light with an 11 mm diameter light tip spot size that could cure all dental composites. At the time when the experiment was conducted, the Monet website<sup>1,2</sup> contained statements such as:

*'Join the 1-second curing revolution'*

*'The collimated beam means you can penetrate deep into the composite allowing for bulk fills by just adding an extra click or two'*

*'Three back-to-back 1-second curing cycles will achieve an 8 mm depth of cure on a bulk-fill'*

*'The collimated beam means the Monet cures dental composite evenly at any depth in only 1 second'*

*'The spot size of the Monet curing laser beam is 11 mm'* (see Figure 1).

Therefore, the Monet was compared to five other LCUs using four different resin-based composites in a 12 mm wide mesial-occlusal-distal (MOD) mould made from semi-transparent white Delrin. Although previous studies using other LCUs have shown that using the LCU from more than one position may be required for adequate polymerization when curing large restorations,<sup>3</sup> because some of the LCUs tested had a large light tip that covered the RBC, all six LCUs were used under identical conditions to deliver a "central shot" of irradiation at the same central occlusal position for the following times: Woodpecker B for 2x10s, SmartLite Pro 2x10s, Valo Cordless 2x10s, Valo Cordless 2x3s Xtra power, Valo X 2x10s, Valo X 2x5s Xtra power, PowerCure 2x3s mode, Monet 1x1s, and Monet 3x1s. The study was designed to provide visual images that illustrated what was cured and what was uncured RBC in the simulated MOD restoration. The manuscript was accepted on 10.02.2024 and has now been published.<sup>4</sup>

The highly visual, apples-to-apples comparison between the LCUs showed that there were significant differences in how well these six LCUs photocured the four RBCs tested. Although the Monet cured the RBC that was directly under the center of the light tip, the SmartLite Pro with a 10 mm internal diameter light tip and Valo X with a 12.5 mm internal diameter light tip delivering two 10 s exposures at the central spot produced RBC restorations that were rated to be the best cured, even at the bottom of the

## Keywords

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mesial and distal proximal boxes. This result was attributed to the observation that the SmartLite Pro and Valo X used for 20s delivered more energy ( $J/cm^2$ ) than the Monet in 1 second, and the ‘hot spot’ of high irradiance at the center of the Monet 12.6 mm diameter light tip. Similar findings that the Monet should be used for longer than 1 second and the presence of a high irradiance ‘hot spot’ at the center of the Monet light tip have been reported by others.<sup>5-7</sup>

The authors wish to acknowledge that the information initially provided on the Monet website<sup>1,2</sup> has changed and the website now states<sup>8</sup> that for preparation areas that are larger than 5mm in depth and 8mm in diameter, two overlapping exposures are recommended (Figure 2). Thus, the manufacturer

no longer recommends the single 1 second, or the 3x1 second exposures that were delivered only to the center of the MOD specimens. The authors acknowledge that the results of the published study<sup>4</sup> where only a single 1 s exposure, or 3 x1 s exposures were used, do not follow these updated instructions and should now be considered ‘off-label’ use of the Monet LCU. Further studies are required to determine how well the LCUs would photocure the RBC restorations using an overlapping exposure technique.

Sincerely yours,

Richard Price DDS, MS, PhD, John C Comisi, DDS, MAGD and Cristiane Maucoski DDS, MS, PhD

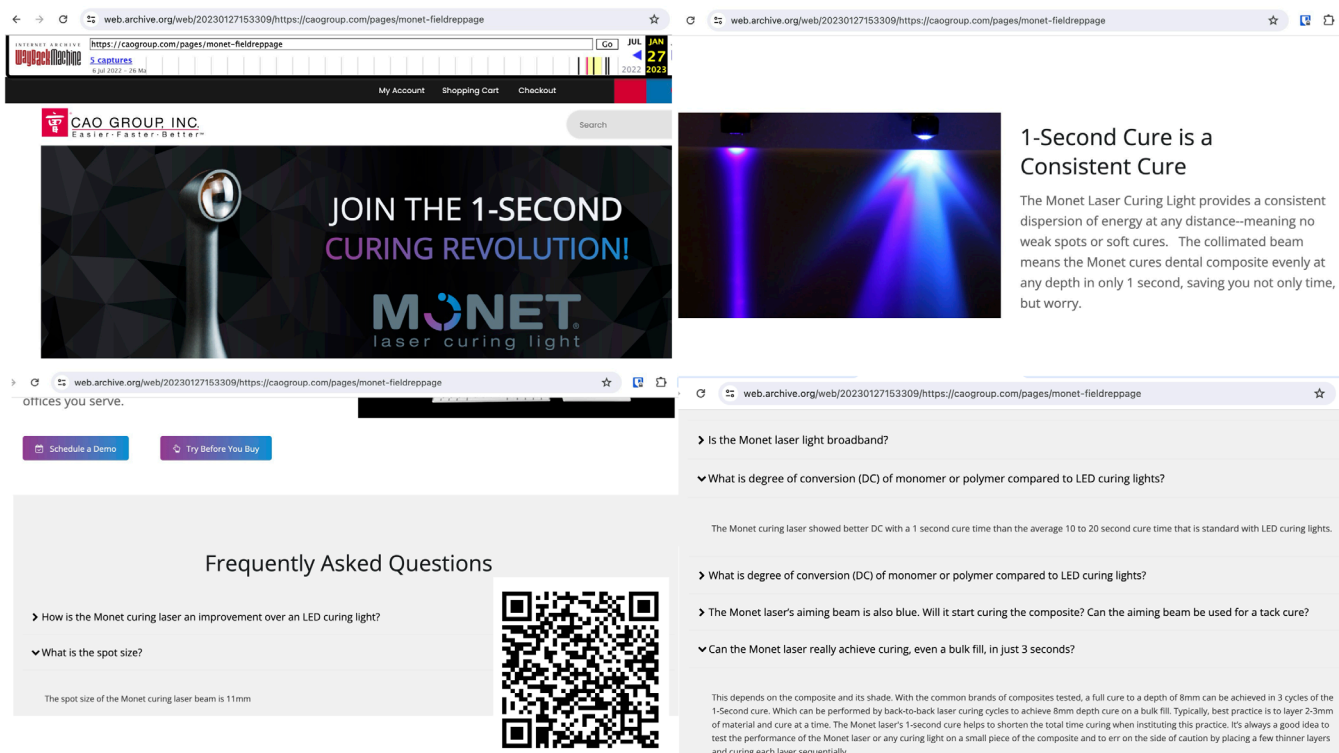


Figure 1: Screenshots taken from the Wayback Internet Archive<sup>1</sup> of the Monet website taken Jan 27, 2023. <https://web.archive.org/web/20230127153309/https://caogroup.com/pages/monet-fieldreppage>



Figure 2: Updated instructions on the Monet website accessed 15 June, 2024.<sup>8</sup> <https://web.archive.org/web/20240615055843/https%3A%2F%2Fwww.amdlasers.com%2Fproducts%2Fmonet-laser-curing-light>

## Depth of Cure

Laser Curing is as simple as 1, 2, 3. With the Monet, it is generally recommended to do a single 1-second cure with a composite layer less than 2.5mm, two 1-second cures for composite layers between 2.5-5 mm, and three 1-second cures for layers more than 5 mm.

To control heat, do not cure any spot for more than 3 seconds in rapid succession. For prep areas larger than 8mm in diameter, two overlapping spot cures are recommended. Monet comes with 4 unique apertures for precision control of your laser. For preps near gingival tissues, please use one of the reducing apertures of 2, 4, or 6mm size to avoid light on gingival tissue. The Monet also comes with a reducing aperture which cuts the power by 50% to give you even more custom control!

See the full Monet Depth Matrix Guide

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