Dali gets a health check: Using medical devices to diagnose art

EurekAlert!

Scientists and conservators have developed a new method to diagnose painting canvases from the back, without disturbing a single fibre, to see if they can withstand the stress of handling and travel.

Using the method - which is similar to the way doctors measure blood sugar without the need for needles – scientists examined 12 paintings by the surrealist painter Salvador Dalí.

They assessed the 'health' of the canvases, which are known to degrade with time due to acidity and environmental conditions. Once a canvas is brittle, expensive conservation is required.

While all 12 were shown to be in a good condition and can continue to be enjoyed safely, there was evidence of the early canvases approaching the threshold for safe travel. Interestingly, it was also shown that these same canvases were made of inexpensive low-quality cotton, used by the young Dalí who later became known also for his extravagant lifestyle.

The research is published in Royal Society of Chemistry journal *Analytical Methods*.

By shining invisible near infrared light on the canvas through fibre optics, scientists obtained information about the 'health' of the painting from the reflection of the light. Since canvas is the carrier of paint, any tears or other mechanical degradation could lead to loss of the image if the canvas is too brittle.

"While distressed paint layers can be evaluated visually from the front, there has been no method available so far to evaluate the fragility of canvas without actually cutting off a piece of it, which is certainly unacceptable" explained Irene Civil, Head of the Conservation Department of the Gala-Salvador Dalí Foundation from Figueres, Spain. The Foundation greets in excess of 1.5 million visitors annually, and relies on visitor income to take proper care of the invaluable artworks, some of which may also travel to exhibitions.

The development of the method to assess the health of the canvases was carried out in unique collaboration between researchers and conservators at the UCL (University College London) Centre for Sustainable Heritage, University of Barcelona's Department of Conservation, University of Ljubljana, University of London's Birkbeck College, and The British Library.

The research is part of Marta Oriola's (University of Barcelona) PhD Thesis on condition assessment of painting canvases. She said: "The method finally gives

conservators the possibility to non-invasively evaluate the brittleness of a canvas, this was previously impossible. Also, we can now quickly assess what fibres the canvas is made of, which is important when designing a conservation treatment".

Dr Matija Strlic, Senior Lecturer from UCL's Centre for Sustainable Heritage, who has been supervising the method's development said: "In galleries and museums, one would usually wish to see a painting from the front. Well, not in the case of this research, where we have shown that looking at the back of a painting is not as surreal as it seems."

He added: "As in medical diagnostics, only close interdisciplinary collaboration between curators, conservators and researchers can lead to truly useful development. The non-invasive canvas health check can now improve the standard of management and care in any gallery or museum."

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