Adhesion of giant unilamellar vesicle (GUV): A new method to determine the excess surface area of oxidized lipids.

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Lipid bilayer membranes are the building blocks of the cells and their oxidation is a natural phenomenon of life, which results in the increment of area per lipid at the molecular scale at unsaturation sites. We demonstrate and optimize a new method to measure the area increase of membrane during oxidation using GUVs adhesion on protein grafted surface which is significantly fast and easy compared to previous methods of micropipette manipulation or external electric fields. The calculated area change agrees with the previous findings for relative area increase for DOPC i.e. 19%. Grafting neutravidin instead of streptavidin was successfully tested and other lipids oxidation will be further tested using the same technique to correlate the role of position and number of unsaturations in lipids.