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## How to remove the cork from a wine bottle

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It is more efficient to remove a cork from a bottle by a combination of twist and pull, rather than pulling alone, according to a team of French and Italian researchers.

A team from Lecce University in Italy and the University of Pierre and Marie Curie in Paris has explored the background mathematics in a paper entitled: "The stress field in a pulled cork and some subtle points in the semi-inverse method of nonlinear elasticity."

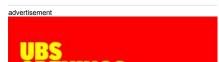
In today's Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, Michel Destrade, Riccardo de Pascalis, and Prof Giuseppe Saccomandi say their arcane workings are able to "answer a classic wine party dilemma: which kind of corkscrew system requires the least effort to uncork a bottle?"



Second rate? Scientists prefer more complex instruments

After 16 pages of mathematical calculations in which a cork is modelled as "an incompressible rubber-like material", they conclude that their work "backs wine amateurs who favour a system relying on a combination of pulling and twisting over a system relying on pulling."

They point out that the most common corkscrews rely on pulling only - either directly or through levers - but these are inferior to the rarer kinds that rely on a combination of pulling and twisting.



The authors conclude that they "are confident that they have provided a scientific argument to those wine experts who favour the second type of corkscrew over the first."