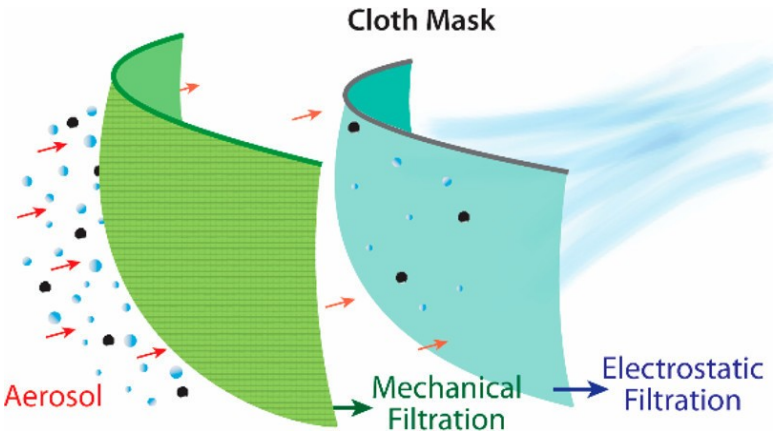
http://newblankets.org/charlesstudio/does_your_mask_work.pdf

Although the filtration efficiencies for various fabrics when a **single layer** was used ranged from
5 to 80% for **particle sizes of <300 nm (small aerosols)** and
5 to 95% for **particle sizes of >300 nm (large droplets)**,

the efficiencies **improved** when **multiple layers** were used and when using a *specific combination of different fabrics.*



Filtration efficiencies of the hybrids (such as cotton−silk, cotton−chiffon, cotton−flannel) were >80% (for small aerosol particles <300 nm) and >90% (for larger droplet particles >300 nm). We speculate that the enhanced performance of the hybrids is likely due to the combined effect of mechanical and electrostatic-based filtration. **Cotton,** the most widely used material for cloth masks performs better at **higher weave densities (i.e., thread count)** and can make a significant difference in filtration efficiencies.

Improper fit of the mask) can result in over a 60% decrease in the filtration efficiency, implying the need for future cloth mask design studies to take into account issues of **"fit" and leakage**, while allowing the exhaled air to vent efficiently.
Overall, we find that **combinations of various commonly available fabrics** used in cloth masks can potentially **provide significant protection against the transmission of aerosol particles**.

KEYWORDS: cloth masks, personal protection, aerosols, SARS-CoV-2, face masks, respiratory protection, COVID-19