

ORT_34 - Dynamic Transfer of SARS-CoV-2 Viral Load to Face Masks: Insights from COVID-19 Patients

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Introduction: Amidst the COVID-19 pandemic, the widespread adoption of facemasks emerged as a crucial preventive measure due to epidemiological evidence suggesting their efficacy in reducing viral particle emission. While a correlation between nasopharyngeal swab viral load and facemasks has been established, gaps in understanding persist.

Objectives: This study aims to investigate the dynamic transfer of viral load from individuals to their facemasks over time, across various infection stages.

Methodology: Nine COVID-19 positive individuals were enrolled. Nasopharyngeal swab and corresponding facemask samples were collected longitudinally. Real-Time PCR quantified viral load, while viral viability studies and SpiK gene sequencing were conducted.

Results: Most symptoms were mild, with no hospitalization required. Extended sample collection (>14 days post-infection) was feasible in two cases; otherwise, two samples per person were collected. Both nasopharyngeal swab and facemask viral loads decreased over time. Viral viability study indicated cytotoxicity in nasopharyngeal swab samples but not in facemasks. Sequencing revealed 100% similarity between nasopharyngeal swab and facemask samples for the SAR-CoV-2 SPIKE gene.

Conclusion: Our findings suggest a decline in viral load over time. Viability of the virus in nasopharyngeal swabs was confirmed, with concordance between swab and facemask viral strains.

Keywords: Covid-19 and Masks