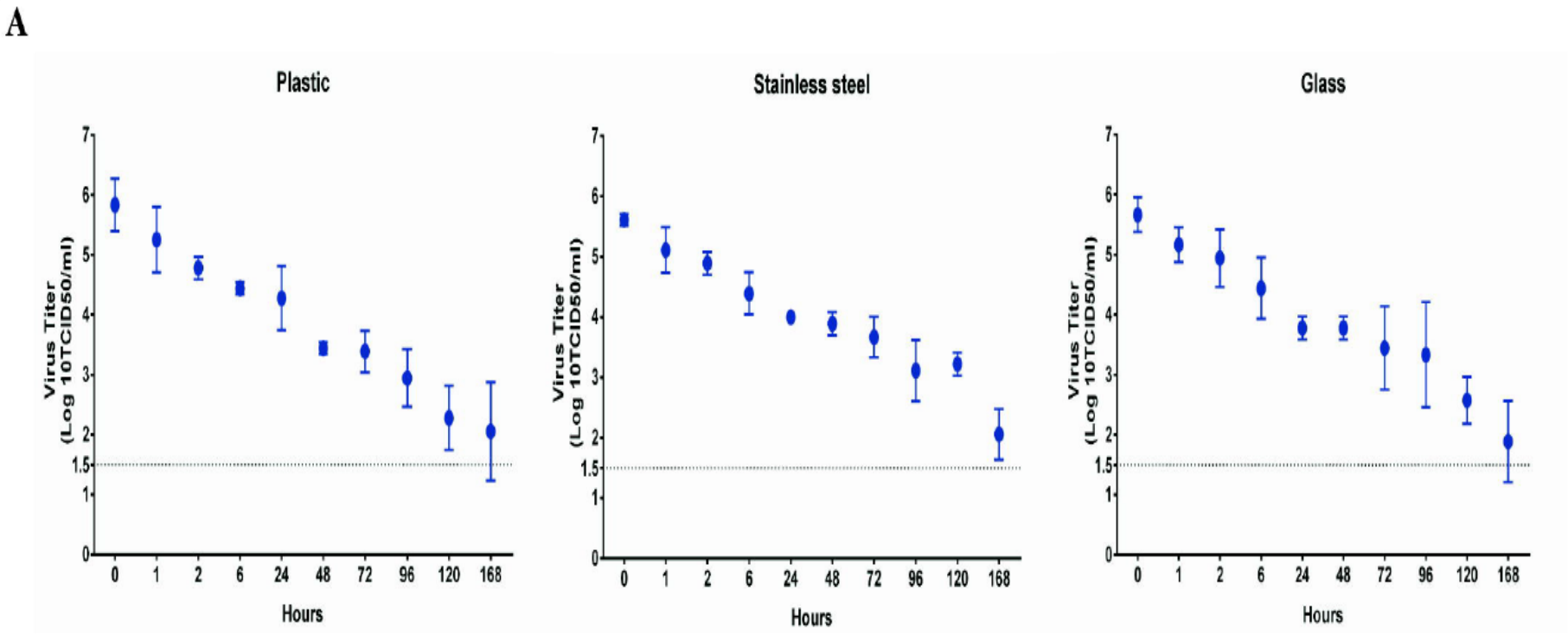
Stability of Coronavirus On Surfaces And Urine / Feces

Stability in Environment Surfaces - Methods

Fifty microliters of virus stock with the infectious titer of 10^6 , 50% tissue culture infectious dose (TCID-50) per milliliter was deposited on each surface and left at room temperature (25-27°C) with a relative humidity of 35%. At predefined time points (0 h, 1h, 2h, 6h, 1d, 2d, 3d, 4d, 5d, 7d), the viruses were recovered by adding 500µl of viral transport medium. The infectivity of residual virus was titrated in quadruplicate on 96-well plates containing 100µl of Vero cells (2×10^5 cells/ml). The plates were incubated in 5% CO2 at 37°C. On the fifth day, the cytopathic effect (CPE) was observed under a microscope, and the TCID50 for each sample at a different time was calculated with Reed-Muench method. All experiments were repeated three times.

Stability in Environment Surfaces

At room temperature, SARS-CoV-2 was stable on environmental surfaces and remained viable up to 7 days on smooth surfaces. This virus could survive for several hours in feces and 3-4 days in urine.



Stability of SARS-CoV-2 on environmental surfaces and in human excreta by Yongjian Liu

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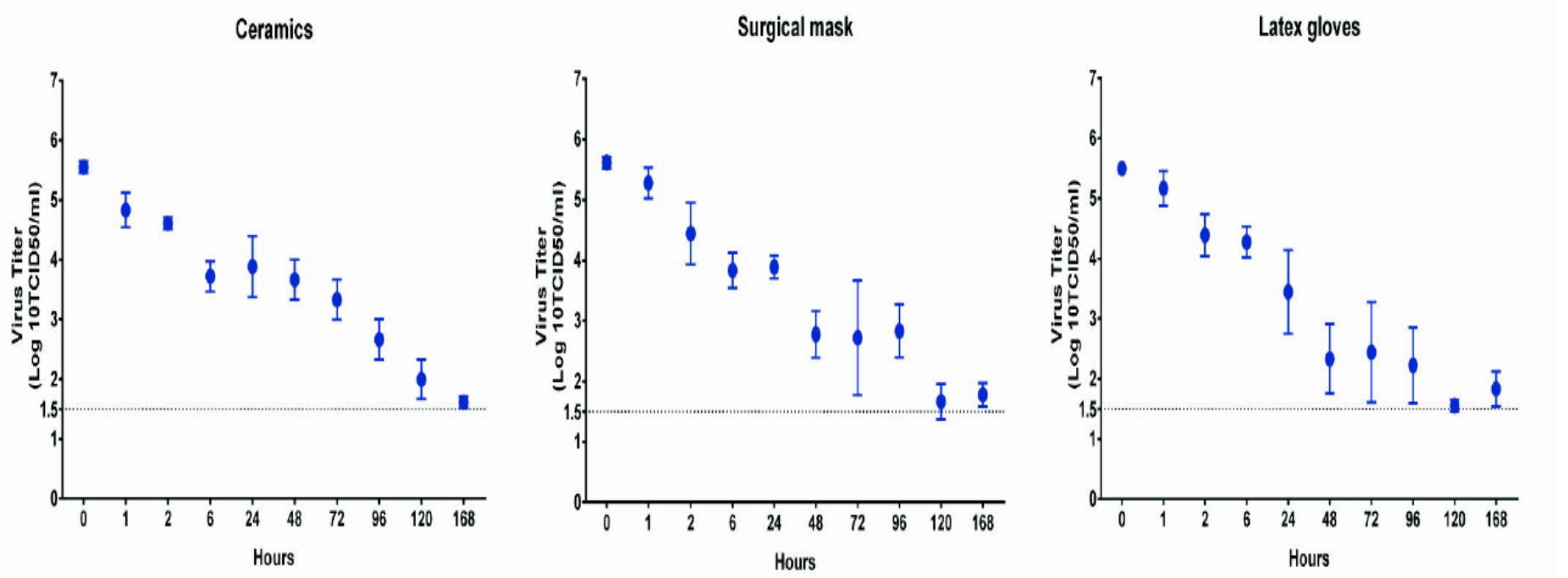

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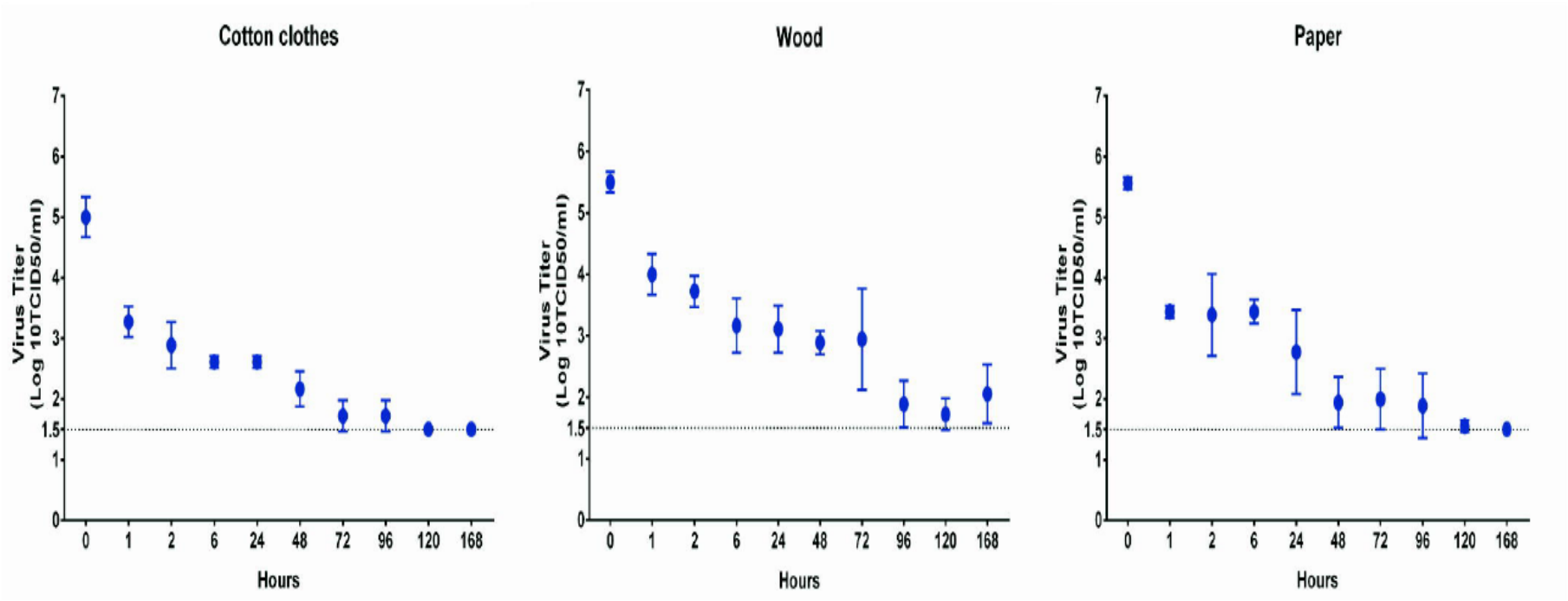

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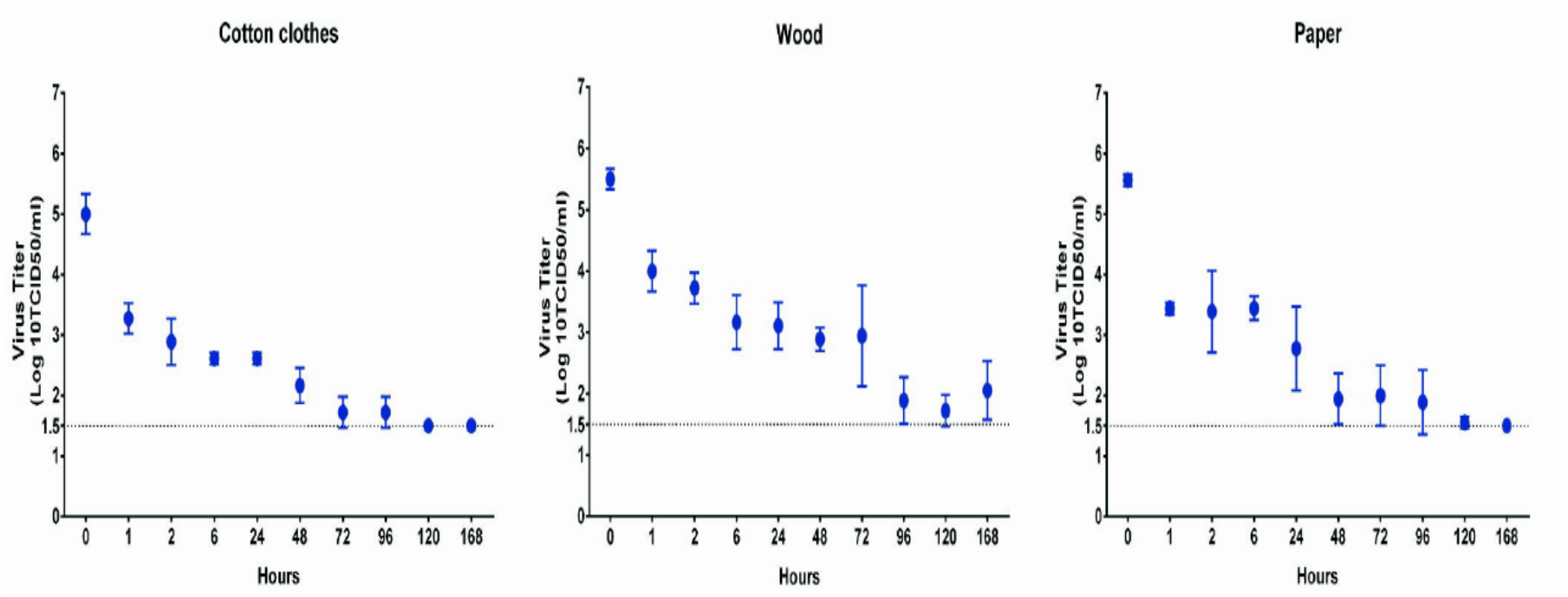
Stability in Environment

At room temperature, SARS-CoV-2 was stable on environmental surfaces and remained viable up to 3 days on rough surfaces.



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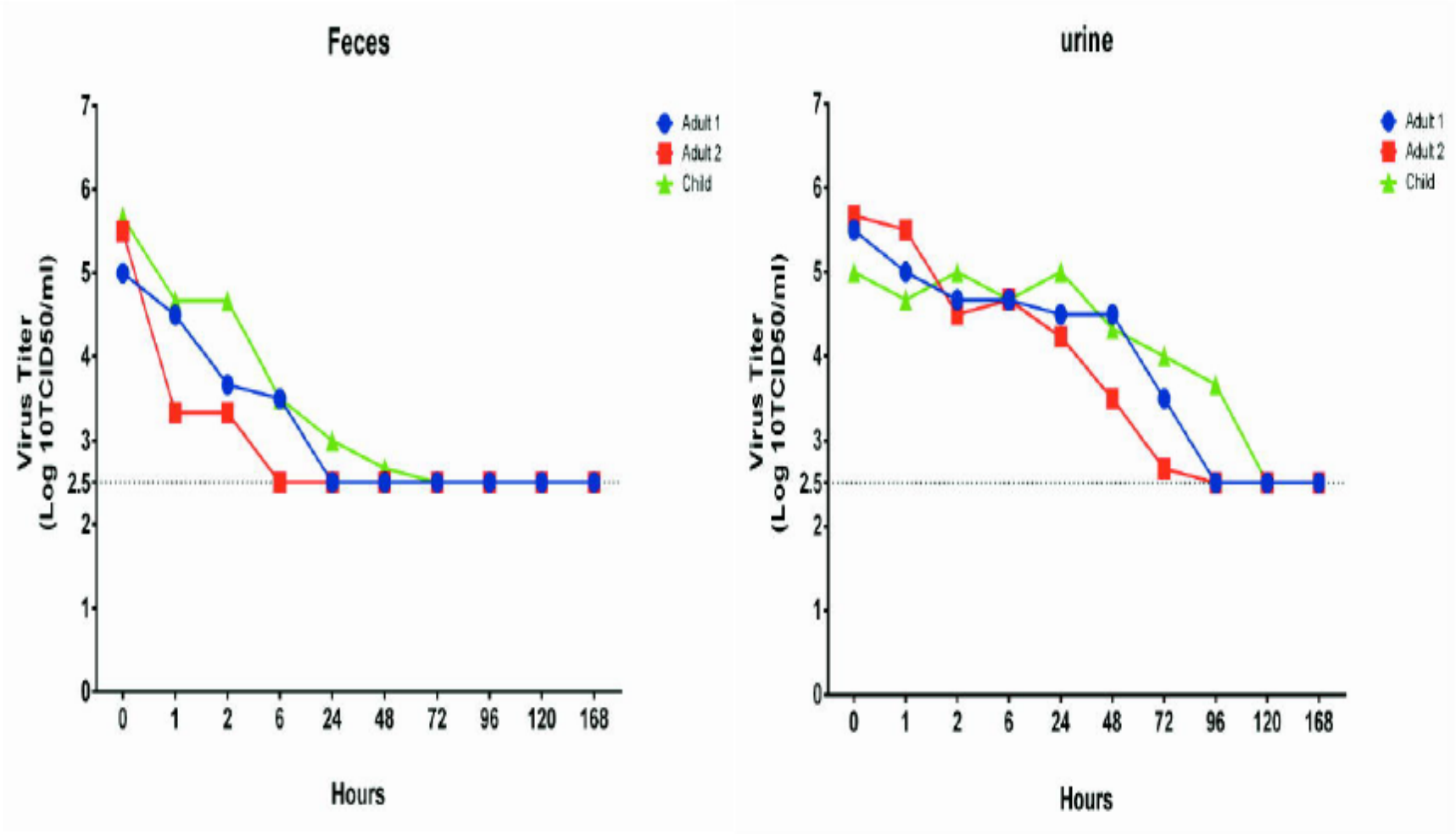
Stability in SARS-CoV-2 in Feces and Urine -Methods

Stability of the specimens of feces and urine were collected from three health donors, including two adults and one seven-year-old child. A 10% suspension of each faecal specimen was prepared in PBS (pH, 7.4) as described previously. Faecal suspension and urine samples were filtrated with 0.2μm filter to remove bacteria. A total of 2.7ml of each filtered faecal suspension and urine sample was inoculated with 0.3ml of virus stock (106 TCID50/ml) and left at room temperature for 7days. At desired time points (0h, 1h, 2h, 6h, 1d, 2d, 3d, 4d, 5d, 7d), 50μl of each sample was taken and virus titer was determined with the same method described above.

The decay of SARS-CoV-2 in experimental conditions Two-phase linear regression fitting for the log unit TCID50/ml against time and estimation of initial and terminal half-lives were performed using R project based on the method for biologic half-life data

Stability in Exectra – 2 to 4 days in Feces/Urine Respectively



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SURFACE	EXAMPLES	DAYS OR HOURS
Metal	Doorknobs, Jewelry, Silverware	5 Days
Glass	Drinking glasses, Mirrors, Windows	UP TO 5 Days
Ceramics	Dishes, Pottery, Mugs	5 Days
Paper	Newspaper, Magazines	UP TO 5 Days
Wood	Furniture, Decking	4 Days
Plastics	Milk bottles, Bus seats, Elevator buttons	2-3 Days
Stainless Steel	Refrigerators, Pots/pans, Sinks, Water bottles	2-3 Days
Cardboard	Shipping boxes	1 Day
Aluminum	Soda cans, Tinfoil, Water bottles	2-8 Hours
Copper	Pennies, Teakettles, Cookware	4 Hours
Food/Water	Doesn't seem to spread through food, and has not been found in water.	

How long do Coronaviruses Live on various surfaces?

WHAT YOU CAN DO: Disinfect all surfaces and objects in your home daily with a household cleaning spray or wipe.

Wash hands for at least 20 seconds with soap and warm water, especially after visiting the supermarket or bringing in packages

Sources: CDC. FDA.
Medical Review: Brunilda Nazario at WebMD, 03/24/2020.