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SEMEN ANALYSIS PARAMETERS DO NOT CHANGE DURING ACTIVE COVID INFECTION IN KNOWN SPERM DONORS

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OBJECTIVE:

The effects of SARS-CoV-2 were initially studied in the respiratory system, but research has now shown manifestations in multiple organ systems. SARS-CoV-2 is known to enter target cells through the ACE-2 receptor, which is expressed in the testes. Due to this, the testes has been purported to be a potential target for SARS-CoV-2 infection. To date, studies have suggested that there is only a minor risk for shedding of SARS-CoV-2 into the semen.¹ The objective of this study is to compare semen analysis parameters in a subset of healthy sperm donors prior to, during, and after testing positive for COVID-19.

MATERIALS AND METHODS:

The study included semen analyses (SA) from qualified sperm donors aged 19-38, with 2-5 days of abstinence who donated sperm prior to COVID infection, during active COVID infection, and post COVID infection. Semen was collected in the course of sperm bank operation and samples were collected concurrent with incidental positive test results obtained through COVID screening. Primary outcomes included ejaculate volume (mL), average concentration (M/mL), and percent motility (%). The standard operating procedure for sperm donation dictated that morphology is performed when they are first accepted into the program, thus was not recorded for these samples. Data were compared and analyzed by ANOVA.

RESULTS:

A total of five qualified sperm donors met inclusion criteria for this study. When comparing semen analyses across the three time points, there was not a significant difference in concentration ($p=0.7460$), percent motility ($p=0.9135$), or ejaculate volume ($p=0.9241$) [Table 1].

CONCLUSIONS:

Sperm quality measures as evidenced in qualified, healthy sperm donors are not significantly different when comparing sperm samples prior to COVID infection, during active COVID infection, and after recovery from COVID infection. Although limited by a small sample size, our findings are reassuring to those with SARS-CoV-2 infection, as there appears to be no adverse association with sperm quality.

IMPACT STATEMENT:

Sperm quality in healthy, qualified donors is not affected by active SARS-CoV-2 infection.



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Table 1. COVID Infection & Semen Analysis Parameters

Quality Measures	Mean	Standard Deviation	p-value
Pre COVID concentration (millions/mL)	43.49	4.53	0.7460
Active COVID concentration	50.20	20.91	
Post COVID concentration	52.42	24.94	
Pre COVID percent motile (%)	44.62	14.64	0.9135
Active COVID percent motile	40.94	16.51	
Post COVID percent motile	42.58	8.52	
Pre COVID volume (mL)	4.44	2.07	0.9241
Active COVID volume	3.98	2.42	
Post COVID volume	3.94	2.60	

References:

1. Holtmann N, Edimiris P, Andree M, Doehmen C, Baston-Buest D, Adams O, Kruessel JS, Bielfeld AP. Assessment of SARS-CoV-2 in human semen-a cohort study. *Fertil Steril.* 2020 Aug;114(2):233-238. doi: 10.1016/j.fertnstert.2020.05.028. Epub 2020 May 29. PMID: 32650948; PMCID: PMC7256599.