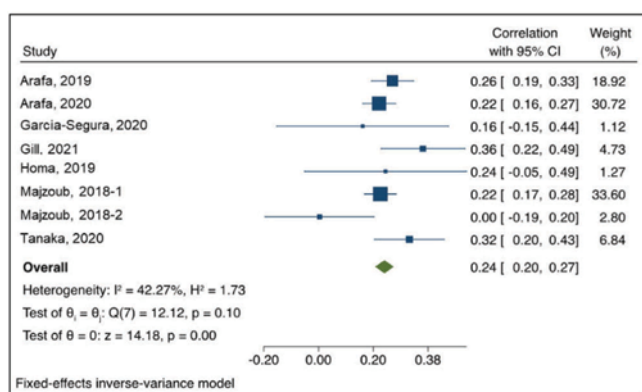


**Results:** Eight studies that measured both seminal ORP and SDF of 3,491 semen samples from men attending fertility clinics were pooled in this meta-analysis. The fixed-effects model revealed that the pooled correlation coefficient (0.24;  $p = 0.00$ ) between seminal ORP and SDF was significant (Figure 1). Furthermore, subgroup analyses indicated that the pooled correlation coefficient between ORP and SCD assays was lesser than other SDF assays, which includes TUNEL and SCSA (0.23 vs. 0.29,  $p > 0.05$ ). There was a moderate level of heterogeneity ( $I^2 = 42.27\%$ ) among the studies with a lack of publication bias.

**Conclusion:** This is the first meta-analysis to evaluate the relationship between seminal oxidative stress marker and sperm DNA damage. This meta-analysis reveals a positive correlation between seminal ORP and SDF. The present study indicates the role of oxidative stress in the development of sperm DNA damage, thus warrants exploring the clinical value of these sperm function tests in a prospective manner.



Forest plot of correlation coefficient between ORP and SDF

#### Poster 34

### EXPANDING ACCESS TO MALE FERTILITY TESTING THROUGH VALIDATION OF AN AT HOME COLLECTION KIT

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Presented By: G Charles Ostermeier, PhD

**Introduction & Objective:**  $G_{M1}$  localization patterns indicate capacitation status at the single cell level. The Cap-Score™ reports the proportion of sperm displaying  $G_{M1}$  localization patterns consistent with capacitation. Two separate studies confirmed that Cap-Score prospectively predicts a man's fertility and his probability of generating a pregnancy. TEST (TES and Tris) yolk buffer (TYB) prolongs the fertilization capacity of sperm. Here, we document that TYB enables home collection for Cap-Score.

**Methods:** *Validation study:* Following liquefaction, semen samples were split. Half was processed normally for Cap-Score (Control). The other half was diluted with TYB, cooled overnight and then processed the following day (Test). Paired t-tests compared the Control and Test samples.

*Real-world observational study:* Cap-Score and concentration were obtained from men seeking fertility assistance at reproductive endocrinology offices. Samples were either collected and processed at Clinics using the same process as the control above (Clinic) or with Home Collection kits (HC) like the Test group. Mann-Whitney tests compared the Clinic and HC samples.

**Results:** Cap-Score and concentration were the same for the Control and Test ( $33.6 \pm 1.2$  vs.  $34.0 \pm 1.2$ ;  $p = 0.601$ ;  $n = 40$ ;  $76.9 \pm 5.2$  vs.  $79.0 \pm 8.8$ ;  $p = 0.767$ ;  $n = 35$  respectively).

Cap-Score was the same ( $29.2 \pm 0.2$  vs.  $29.3 \pm 0.3$ ;  $p = 0.484$ ) for Clinic ( $n = 1889$ ) and HC ( $n = 763$ ). Concentration ( $68.0 \pm 1.3$  vs.  $61.9 \pm 1.9$ ;  $p = 0.001$ ) was reduced with HC.

**Conclusion:** The validation study and real-world data demonstrated Cap-Score was consistent with HC versus immediate processing at the clinic. Reductions in concentration were anticipated with HC, as a minimum of  $10 \times 10^6$  cells was originally required with processing at clinics, whereas no minimum was set for HC. Home collection would allow clinics with limited andrology staff to focus on other responsibilities. It may help to encourage men who are concerned with producing at an office or delivering samples to a clinic, to pursue fertility workups. It may also increase the availability of fertility evaluations to individuals that live far from clinics and decrease costs related to travel and time off work.

#### Poster 35

### IN MEN SEEKING FERTILITY ASSISTANCE, DEFECTS IN SPERM CAPACITATION/FERTILIZING ABILITY ARE COMMON IN ALL AGE GROUPS, IN CONTRAST, SEMEN VOLUME AND MOTILITY DECLINED WITH AGE

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 Presented By: Cristina Cardona, PhD

**Introduction & Objective:** Sperm must capacitate to become fertilization competent. Cap-Score™, which quantifies capacitation status to functionally assess male fertility, prospectively predicts pregnancy. Semen analysis (SA) does not diagnose sperm function defects and fails to predict fertility. Multiple societal factors including education, career, life goals, financial considerations, and health issues are causing couples to delay having children. Delaying parenthood raises several concerns related to reproductive success. It is generally accepted that maternal age is inversely related with fertility and pregnancy outcome. However, the influence of paternal age on male fertility parameters is largely unknown.

**Objective:** The objective of this study was to determine how capacitation ability, as measured by Cap-Score, and traditional semen analysis (SA) measures (Volume, Concentration, Motility) change with paternal age. The objective of this study was to determine how capacitation ability, as measured by Cap-Score, and traditional semen analysis (SA) measures (Volume, Concentration, Motility) change with paternal age.