

Comparison of the SwimCount Home Diagnostic Test with Conventional Sperm Analysis

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Citation: Castello D, Garcia-Laez V, Buyru F, Bakircioglu E, Ebbesen T, et al. (2018) Comparison of the SwimCount Home Diagnostic Test with Conventional Sperm Analysis. Adv Androl Gynecol: AAG-101. DOI: 10.29011/AAG-101.000001

Received Date: 28 May, 2018; **Accepted Date:** 26 June, 2018; **Published Date:** 28 June, 2018

Abstract

The objective of this study was to use a home test kit (SwimCount[®]) as to sperm quality test for measure the male fertility. A total of 324 semen samples were included and analysed using Makler counting chambers and compared to home test kit readout. Before counting the number of Progressive Motile Sperm Cells (PMSC) using Makler counting chamber, 0.5mL of the sperm sample was added to the SwimCount[®] (SC) test device. Test results were read and categorized as low, normal or high PMSC concentration. The mean concentration of our sample was 15.5 million of PMSC per mL. Approximately 23% of the samples had a PMSC semen count per mL below the threshold of 5 mill/mL, considered by subnormal concentration by World Health Organization (WHO). An area under curve of 0.95 was obtained when the home test performance was compared with traditional semen analysis performed in standard IVF lab. An accuracy of 95% is in the range of excellent agreement. A good balance between the sensitivity and specificity were obtained at a cut off value of 10.6 mill PMSC per mL, which gave a sensitivity and specificity of the 88.1% and 93.3%, respectively. The cut of value of 10.6 million PMSC per mL was obtained in this study, correlate to $10.6/1.6 = 6.6$ mill PMSC per mL, which is very close to the 5 mill/mL cut of value proposed by WHO. The results confirmed the usability of the test as a screening device for male factor infertility home kit.