

ALCOHOL, CAFFEINE AND PSYCHOLOGICAL STRESS

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The American Society for Reproductive Medicine currently has guidelines in the United States to limit the number of embryos transferred (ET) (i.e., <35 years n= 1-2 ET; 38-40 years n =3 ET, and >40 years n=5 ET). Remarkably, in 2009, there are still no recommendations regarding the modification of male and female lifestyle habits, which could possibly enhance assisted reproductive technology (ART) outcomes. Factors such as patient age and embryo quality are beyond the patient's control; however, understanding and addressing the effects of stress, alcohol, and caffeine consumption are within the power of the ART patient—if these habits are eliminated, this may reduce undesirable consequences. Thus, what is known and unknown about lifestyle habits and ART success rates? We will summarize 3 important areas—caffeine, alcohol, and stress on IVF, to determine whether the evidence is adequate or inadequate.

It is well recognized that the IVF procedure is stressful because of daily hormone injections, blood samples, laparoscopic surgery, and the possibility of pregnancy failure. Moreover, the most traumatic aspects are waiting to hear if fertilization and pregnancy are successful, after a prolonged treatment. Despite the physical and psychological stress of undergoing ART, there are no published surveys that systematically examine concerns directly related to the woman's experience of undergoing ART, and whether these concerns (stressors) ultimately affect success rates (i.e., live birth delivery). Therefore, a new instrument, referred to as the "Concerns During Assisted Reproductive Technology" (CART), was developed by Klonoff-Cohen to elicit 9 concerns experienced by women participating in IVF and GIFT programs: anesthesia, surgery, length of recovery, side effects from hormones, not having enough information, pain, finances, missing work, and delivering a healthy baby. The CART scale was validated and compared with the Fertility Index Scale and the Bipolar Profile of Moods. When administered to 151 women undergoing IVF/GIFT, a recurrent pattern surfaced— "missing work" at the initial clinic visit was a prominent concern that was negatively associated with embryo transfer, fertilization, and achieving a pregnancy. Furthermore, "financial concerns" were strongly associated with no live birth.

Success rates may be further enhanced by decreasing alcohol or caffeine consumption. In the US, for the past decade, a total of 71% of women and men of reproductive age have consumed one alcoholic beverage per week. Additionally, the number of drinks/week has doubled since 1996 from 2.8 to an average of 4.5 drinks/week. This contrasts with Europe, which reports that 77% of adults >15 years indulge in alcohol, consuming on average of 6.4 drinks/week. Currently, only one study has examined female and male alcohol consumption as a primary risk factor for IVF (Klonoff-Cohen et al.). It was determined that female alcohol consumption was associated with a decrease in oocyte retrieval and pregnancy, while male or female drinking resulted in an increased risk of miscarriage. The findings of this one study require confirmation in future studies. Most prospective couples are aware that alcohol use may be detrimental to pregnancy, despite the fact that they may not recognize the potential effects during ART; however, caffeine use is readily accepted by prospective couples trying to achieve a pregnancy. Interestingly, eighty percent of pregnant women consume caffeinated beverages. Caffeine is one of the most widely used pharmacologically active substances in the world. A total of 54% of men and women consume 3 cups of coffee/day. To date, there is only one study that has investigated the effect of caffeine consumption by men and women on success rates of IVF (Klonoff-Cohen et al., 2002). In this study, female caffeine intake had a profound effect on not achieving a live birth and infant gestational age. Nevertheless, recommendations for moderating caffeine intake by infertile women may be premature because of the paucity of studies.

In summary, more international research is necessary to confirm relationships among lifestyle habits and favorable ART outcomes. More than 3 million babies have been born worldwide using ART, and this number continues to escalate. Since ART is the last treatment choice for infertile couples, understanding the effects of stress, alcohol, and caffeine consumption may ultimately lead to effective interventions that will decrease adverse outcomes and in turn, produce healthy babies that mature into strong children and adults.