

Sperm preparation techniques

XVIII.1 Procedures

Several simple preparation techniques are described. For all of them the culture medium suggested is supplemented Earle's balanced salt solution, although other media that will support sperm motility and viability for at least 18 hours at 37°C may be used, e.g., Ham's F10, Human tubal fluid (HTF).

XVIII.2 Swim-up

Supplemented Earle's medium (1.2 ml) is gently layered over semen (1 ml) in a sterile 15 ml conical-based centrifuge tube. The tube is inclined at an angle of 45° and incubated for 1 hour at 37°C. It is then gently returned to the upright position and the uppermost 1 ml removed. This aliquot of motile cells is then diluted with eight volumes of supplemented Earle's, centrifuged at 500g for 5 minutes, and finally resuspended in 0.5 ml of Earle's medium for the assessment of sperm concentration or sperm function, or for other procedures.

Constituents of supplemented Earle's medium

46 ml Earle's balanced salt solution
4 ml heat-inactivated (56°C for 20 minutes) patient's serum
1.5 mg sodium pyruvate
0.18 ml sodium lactate (60% syrup)
100 mg sodium bicarbonate

or

50 ml Earle's balanced salt solution
300 mg human serum albumin^a
1.5 mg sodium pyruvate
0.18 ml sodium lactate (60% syrup)
100 mg sodium bicarbonate

^a For assisted reproduction procedures such as in vitro fertilization (IVF), artificial insemination, or gamete intrafallopian transfer, it is imperative that the human serum albumin be highly purified and free from viral, bacterial, and prion contamination. Some preparations of albumin have been designed for such procedures (e.g., from Irvine Scientific, Santa Ana, CA, USA; Armour Pharmaceuticals, Eastbourne, United Kingdom).