

Index

- adhesiolysis 115
- algorithm
 - decision-making 119
 - surgical sperm retrieval 198
- amenorrhoea
 - exercise, and weight loss 54–5
 - in hyperprolactinaemia 55–6
- amniocentesis, genetic diagnosis 258
- anovulation 51–3
- antibiotics, contraindications 98
- antisperm antibodies
 - in female 46–7, 110–11
 - in male 93–4, 219
 - obstructive azoospermia 97
- artificial insemination
 - techniques 214
 - trends 153, 213–16
 - see also* intrauterine insemination
- ascites 146, 147
- Asherman's syndrome 48
- aspermia 36
- assisted hatching 246–53
 - clinical management 252
 - patient selection 246
 - techniques 245–52
 - age of embryo 247–8
 - lasers 250–2
 - partial zona dissection (PZD) 154–5, 248–9
 - zona drilling 249–50
- asthenozoospermia 36, 43
- augmentin 131
- autonomic hyperreflexia 93
- azoospermia
 - non-obstructive 36
 - treatment 97–8
 - obstructive 43
 - treatment 96–7
 - spermatid injection in ICSI 157, 177–9
- Bartholin's glands 17
- blastocyst
 - biopsy 261–2
 - defined 33
- blastomere, biopsy 260–1
- body mass index (BMI) 63
- bromocriptine 107–8
 - long-term 108
 - oral/vaginal 107
 - side-effects 107
- bulbo-urethral (Cowper's) gland 4–5
- buserelin 123, 125
- cabergoline, hyperprolactinaemia 108
- capacitation, defined 27
- carbon dioxide
 - embolism 74
 - laparoscopy and dye test 72–4
- carunculae 17
- cervical canal 17–18
- cervical crypts 27, 29
- cervical mucus
 - preovulation 65–6
 - quality/hostility 26–7, 46–7
 - spinnbarkeit 75
 - tests, post-coital 75
- chorionic villus sampling, genetic diagnosis 258
- chromosomes, number 30
- clitoris 16–17
- clomiphene citrate
 - induction of ovulation 102–4
 - superovulation 124
- condoms
 - non-toxicity for collection of spermatozoa 13
 - toxicity to spermatozoa 13
- congenital abnormalities, testes 41
 - congenital bilateral absence of vas deferens (CBAVD), and cystic fibrosis 182–4

- corpus albicans 20
- corpus luteum 20–2
 - function 20, 34
- counselling and psychoprophylaxis 150
- cryopreservation 232–44
 - cooling and warming 234
 - ultrarapid cooling 237
 - vitrification 237
 - cryoprotectants 233
 - embryos 139–40, 241–2
 - frozen embryo transfer 242–4
 - oocytes 240–1
 - ovarian tissue 241
 - principles 232–4
 - procedures and thawing 234–6
 - sperm 238–40
 - testicular tissue 240
- cryoprotectants 233
- cryptozoospermia 43
- culdoscopy 207
- cumulus oophorus 20–1, 31
- cystic fibrosis
 - and congenital bilateral absence of vas deferens (CBAVD) 182–4
 - infertility 41
- diabetes insipidus, in hyperprolactinaemia
 - treatment 109
- diploid chromosomes 30
- direct intraperitoneal insemination (DIPI) 215
- Döderlein's bacilli 17
- donor sperm
 - indications 221–2
 - and intrauterine insemination 218
 - retesting for disease (quarantine) 221, 232, 238
- drugs of abuse, and fertility 40–1
- Duchenne muscular dystrophy 256
- ectopic tubal pregnancy 50–1, 115
 - in IVF 149
- ejaculation 10
- ejaculatory dysfunction 37–9
 - drugs involved 38
 - electroejaculation 90–3
 - epi/hypospadias 39
 - failure, treatment 92–3
 - immunological cause 39
 - premature 38
- retrograde 38
 - treatment 91–2
 - systemic causes 40
- embolism, carbon dioxide 74
- embryo transfer
 - frozen embryos, treatment schedule 242–4
 - ICSI 172–3
 - IVF 138–41
 - number replaced 136–8
- embryos
 - biopsy techniques 258–9
 - cryopreservation 139–40, 241–2
 - freezing protocol 239
 - transfer 242–4
 - generation for genetic diagnosis 257–8
 - hatching *see* assisted hatching
 - transport in fallopian tube 33
- endometriosis 56–8
 - and GIFT 203
 - and infertility 113
 - management 111–12
- endometritis 48
- endometrium
 - biopsy 66
 - implantation 33–4
 - menstrual cycle 23–6
 - ultrasound 66–7, 126, 224
 - triple line 127, 224
- epididymal aspiration of sperm (MESA/PESA) 184–90
- epididymides 3–5
- epispadias 39
- exercise, ovulation, and weight loss 54–5
- fallopian tubes 16–17, 19
 - embryo transport 33
 - infections and PID 50–1
 - tubal patency tests 68–75
 - tubal pregnancy 50–1, 115, 149
 - tubal surgery 113–15
- female evaluation 62–78
 - clinical history 62–3
 - decision-making 87
 - diagnosis 78
 - optional investigations 76–7
 - physical examination 63–4
 - routine investigations 64–77
 - time schema 86
- female factor infertility
 - estimate of distribution of problems 46

271 **Index**

- factors causing 45–59
 - intrauterine insemination 218
 - no detectable problem 58
- female sex organs 15–29
- fertile period, defined 25
- fertilization
 - diagnosis 135–6
 - time after gamete contact 31
 - time available for oocyte 20
- fibroids, uterus 47–8
- fluorescence in situ hybridization (FISH), for
 - genetic diagnosis 262–3
- follicle-stimulating hormone (FSH)
 - female menstrual cycle 22–3
 - males 8–9
 - measurement, days 2 to 5 of cycle 68
 - in PCOS 53
 - preparations
 - genetically engineered 105
 - hMG 105
 - 'pure' form 104
- follicles
 - atresia 20
 - development stages 21
 - growth to corpus luteum 20
 - monitoring and predicting ovulation 223–4
 - number in ovary 19
 - production 19–26
- follicular phase, defined 25
- folliculogram 128

- galactorrhoea 56, 64
- gamete intrafallopian transfer (GIFT) 202–11
 - conventional IVF of excess oocytes 208
 - indications 202–4, 210–11
 - ovarian stimulation and oocyte retrieval
 - 204–5
 - patient groups 203, 210
 - success rate 210
 - transfer of oocytes and sperm 205–8
 - outcome and aftercare 208, 209–11
- ganirelix acetate 121
- genetic diagnosis
 - amniocentesis/CVS 258
 - analytical techniques 262–3
 - see also* preimplantation genetic diagnosis
- globozoospermia 36
- gonadotrophin-releasing hormone (GnRH)
 - agonists 120–3
 - administration routes 123
 - antagonists 121
 - females 22–3
 - males 8–9
 - pump administration
 - hypogonadotrophic hypogonadism 99–101
 - PCOS 104
- gonadotrophins
 - deficiency, male factor infertility 42
 - injections, IVF 125
 - in PCOS 104–5
 - preparations and brand names 124
 - see also* FSH; hCG; hMG; LH
- goserelin 123
- Graafian *see* follicles

- haploid chromosomes 30
- hatching *see* assisted hatching
- hormone assays, IVF 127–9
- human chorionic gonadotrophin (hCG)
 - administration at LH surge 104
 - embryo signal 34, 140–1
 - preparations, ovulation triggers 125
- human menopausal gonadotrophin (hMG)
 - characteristics 104
 - induction of ovulation 100–1
- HyCoSy 71–2
- hydrosalpinx 50
- hymen 16–17
 - imperforate 46
- hyperinsulinaemia, in PCOS 53–4
- hyperprolactinaemia 55–6
 - pituitary adenoma 108–9
 - treatment
 - female 106–9
 - male 94
- hypogonadotrophic hypogonadism 51–2
 - evaluation 94
 - management 99–101
- hypospadias 39
- hypothalamus
 - GnRH deficiency, male factor infertility 42
 - hormone production, males 8–9
- hysterosalpingo contrast sonography 71–2
- hysterosalpingogram 69–70
- hysteroscopy 76

- immunological causes of infertility, ejaculatory dysfunction 39
- implantation 33–4

272 **Index**

- impotence 37
 - drugs involved 38
 - treatment 90–1
- in vitro fertilization (IVF) treatment 110, 117–50
 - counselling and psychoprophylaxis 150
 - embryo cryopreservation 139–40
 - embryo transfer 138–9
 - fate of transferred embryos 140–1
 - number of embryos to replace 136–8
 - GnRH agonists 120–3
 - gonadotrophin injections 125
 - HIC-IVF 153
 - hormone assays 127–9
 - laboratory phase 135–6
 - oocyte collection 135–6
 - manipulation of menstrual cycle 118–20
 - ovulation triggers 125
 - μIVF 153
 - negative outcome 142–3
 - oocyte retrieval 129–32
 - outcome reports 150
 - patient selection 117–18
 - pregnancy
 - notifying IVF unit of outcome 150
 - success rate 141–2, 210
 - test and result 141, 143
 - problems, unexpected 120
 - production of semen sample 132–4
 - progesterone supplementation 134–5
 - superovulation 120, 123–4
 - ultrasound scans 125–7
 - timing during pregnancy 143–5
 - undesirable aspects 145–9
 - welfare of babies 149
- infections, male factor infertility 41, 42
- infertile couple, evaluation 60–87
 - decision-making algorithm 119
 - early/preliminary 61–2
 - female partner 62–78
 - infertility/subfertility, defined 1–2
 - male partner 79–85
 - see also* female factor infertility; male factor infertility
- inhibin 9
- instrumentation, ICSI 159–62
- insulin resistance, in PCOS 53–4
- intracytoplasmic sperm injection (ICSI) 153–80
 - data 173–76
 - donor sperm 158–9
 - fertilization, embryo culture and transfer 172–3
 - in genetic diagnosis 258
 - indications 155–8
 - instrumentation 159–62
 - procedure 167–80
 - removal of cumulus cells 166–7
 - semen sample 158–9
 - sperm preparation and pick-up 163–6, 170–2
 - spermatid injection 177–9
 - superovulation and oocyte retrieval 163
 - welfare of babies 176–7
 - intrafollicular insemination 215
 - intratubal replacement of gametes and embryos 202–11
 - see also* GIFT; ZIFT
 - intrauterine insemination (IUI) 213–27
 - complications 226–7
 - contraindications 216
 - monitoring of follicular development 223
 - ovarian cycle management 222
 - patient selection 216–22
 - contraindications 216–17
 - donor sperm 221–2
 - fresh partner sperm 217–20
 - frozen partner sperm 220–1
 - indications 217–22
 - predicting ovulation 223–4
 - procedure, timing and success rates 225–6
 - trends in AI 213–16
- Kartagener's syndrome 184
- labia majora/minora 15–16
- laparoscopy
 - and dye test 72–4
 - tubal surgery 114
- laparotomy, tubal surgery 114
- lasers, in assisted hatching 250–2
- leiomyoma 47–8
- Lesch–Nyhan syndrome 256
- leuprorelin 123
- Leydig cells 8
- lifestyle, and infertility 98
- luteal phase, defined 24
- luteinizing hormone (LH)
 - females 22–3
 - males 8–9
 - measurement
 - days 2 to 5 of cycle 68
 - home detection kits 224

273 **Index**

- menstrual cycle 22–5
- surge detection 67–8
- male evaluation
 - clinical history 79
 - diagnosis 85
 - function *see* ejaculation; ejaculatory dysfunction
 - other investigations 84
 - physical examination 80
 - semen analysis 80–4
 - time schema 86
- male factor infertility
 - distribution of problems 44
 - factors causing 36–44
 - intrauterine insemination 218
 - lifestyle considerations 98
 - see also* intracytoplasmic sperm injection (ICSI)
- male sex organs 3–14
 - accessory glands 4–5
 - dysfunction 42
 - infection 94–5
- masturbation 13
- meiosis 30
- menopausal gonadotrophin (hMG) 100–1, 104
- menopause, normal ovarian failure 52
- menstrual cycle
 - endometrium 23–6
 - FSH and LH 22–5, 68
 - length 25–6, 28
 - manipulation for IVF 118–20
 - oestrogen 23–6
 - phases 24–5
 - progesterone 23–6
 - timing after ovulation 25–6
- menstruation, and weight loss 54–5
- metronidazole 130
- microassisted fertilization technique 154–5
 - see also* ICSI
- microepididymal sperm aspiration (MESA)
 - 184–6
 - MESA vs. PESA 188–90
- microscope system, ICSI 159–62
- minilaparotomy 207
- mons 15–16
- morula, defined 33
- multiple pregnancy
 - complications 137
 - premature labour 148–9
- mumps 41
- myometrium 18
- naferelin 123
- necrozoospermia 36, 43
- obesity, and PCOS 101–2
- obstructive azoospermia 43
 - treatment 96–7
- oestrogen
 - menstrual cycle 23–6
 - production by corpus luteum 20, 34
- OHSS *see* ovarian hyperstimulation syndrome
- oligozoospermia 36, 43
- oocyte(s) 19–28
 - biopsy techniques 258–60
 - collection for GIFT 204–5
 - collection for ICSI 163
 - collection for IVF 129–32, 135–6
 - day after 135
 - same day 135
 - second day 135–6
 - cryopreservation 240–1
 - defined 19
 - donation 109–10
 - folliculogram 128
 - mature 30
 - removal of cumulus cells 166–7
 - spindle apparatus 206
 - time for release to fertilization 20
 - two pronuclei 32
- oocyte–cumulus complex (OCC) 31, 125, 132
- ovarian biopsy and freezing 157–8
- ovarian cycle 19–23
 - management for IUI 222
- ovarian diathermy 106
- ovarian failure 51–3, 109–10
- ovarian hyperstimulation syndrome (OHSS)
 - 100–1, 146
 - clinical grading 147
 - incidence in PCOS management 105–6
 - problems and treatment 148
- ovarian stimulation *see* superovulation
- ovarian tissue, cryopreservation 241
- ovary 16–17, 19
 - development stages of follicles 21
 - number of follicles 19
 - resistant ovary syndrome 109–10
 - wedge resection 106
- oviduct *see* fallopian tubes

274 Index

- ovulation
 - exercise and weight loss 54–5
 - GnRH pump administration 99–101
 - induction regimen 105–6
 - interval to menstruation 25–6
 - ovarian hyperstimulation syndrome (HSS) 100–1
 - pain at 28
 - right or left ovary 28
 - tests for 64–8
 - triggers 125
 - see also* superovulation
- Palomo operation, varicocelectomy 95
- panhypopituitarism 109
- partial zona dissection (PZD) technique 154–5
 - assisted hatching 248–9
- patient selection
 - assisted hatching 246
 - GIFT/ZIFT 203, 210
 - intrauterine insemination (IUI) 216–22
 - IVF 117–18
- pelvic adhesions 51, 57–8
- pelvic inflammatory disease (PID) 50
- pelvic ultrasound scan 76
- penis *see* ejaculation; ejaculatory dysfunction
- percutaneous epididymal sperm aspiration (PESA) 186–8
 - indications 183
 - PESA vs. MESA 188–90
- peritubal adhesions 113
- pituitary gland 8–9
 - adenoma
 - hyperprolactinaemia 108–9
 - irradiation treatment 109
 - desensitization protocols 121–3
 - short/ultrashort 122
 - downregulation 121
 - hormone deficiency 42, 99–101
 - see also* hypothalamus
- polar bodies 30–1
 - biopsy for genetic diagnosis 259–60
- polycystic ovary syndrome (PCOS) 53–4
 - management 101–6
 - induction of ovulation 102–6
 - weight loss 101–2
 - risks 101
- polymerase chain reaction (PCR), for genetic diagnosis 262–3
- polyvinylpyrrolidone (PVP) 167–71
- pregnancy test, and result, IVF 141, 143
- preimplantation genetic diagnosis (PGD) 255–63
 - analytical techniques for PGD 262–3
 - blastocyst biopsy 261–2
 - blastomere biopsy 260–1
 - diseases to screen 256–7
 - single gene defects 257
 - X-linked 256–7
 - generation of embryos for genetic diagnosis 257–8
 - present day practice 258
 - theoretical considerations 257–8
 - and inherited diseases 177
 - oocyte and embryo biopsy techniques 258–9
 - polar body biopsy 259–60
- progesterone
 - day 21 assay 67
 - menstrual cycle 23–6
 - production by corpus luteum 20, 34
 - supplementation
 - GIFT 208
 - IVF 134–5
- prolactin 55–6
 - excess, male factor infertility 42
 - measurement, days 2–5 of cycle 68
- prolactinoma 55–6
- proliferative phase, defined 24
- prostaglandins, causing uterine contractions 214
- prostate gland 4–5
- quinagolide, hyperprolactinaemia 108
- radiotherapy, pituitary adenoma 109
- resistant ovary syndrome (ovarian failure) 51–3, 109–10
- rubella screening 77
- Rubin's test 68
- secretory phase, defined 25
- semen 10–14
 - coagulation 11, 29
 - and liquefaction 11
 - concentration of spermatozoa 12
 - constituents 10–11
 - production of sample for analysis 12–14
 - ICSI 158–9
 - IVF 132–4

275 **Index**

- semen analysis 11–14, 80–4
 - normal values 82
 - plasma abnormalities 40
- seminiferous tubules 3–9
- Sertoli cells 7, 9
- sex organs
 - female 15–29
 - male 3–14
- sexual intercourse 10
 - frequency 14, 36–7
 - retention of sperm 30
 - timing 37
- single gene defects, preimplantation diagnosis (PGD) 257
- spermatids 6–7
 - injection, ICSI 177–9
 - testicular sperm extraction (TESE) 191
- spermatocoele, alloplastic 97
- spermatocytes 6–7
- spermatogonia 6–7
- sperm(spermatozoa) 3–12
 - concentration in semen 12
 - cryopreservation 238–40
 - thawing protocol 239
- donor
 - and intrauterine insemination 218
 - quarantine of sperm 221, 232, 238
- and fertility, terminology 36
- microepididymal aspiration (MESA) 184–6, 188–90
- percutaneous epididymal aspiration (PESA) 186–90
- preparation, ICSI 163–6
- production 6–7
- retrieval *see* surgical sperm retrieval
- testicular sperm aspiration/extraction (TESA/TESE) 191–3
 - and time of fertilization 31
 - time for production 6, 13
 - transport in female 29–30
- spindle apparatus, oocyte 206
- subfertility, defined 1
- subzonal insemination (SUZI) 154
- superovulation
 - GIFT 204
 - ICSI 163
 - IVF 120, 123–4
 - regimens 124
- surgical sperm retrieval 182–99
 - algorithm 198
 - indications 182–4
 - methods 183
 - microepididymal sperm aspiration (MESA) 184–6
 - percutaneous epididymal sperm aspiration (PESA) 186–8
 - testicular sperm aspiration (TESA) 192–3
 - testicular sperm extraction (TESE) 191–2
 - vas deferens sperm aspiration 190
 - in vitro culture of testicular tissue 193–5
 - strategy 195–8
- tamoxifen, induction of ovulation 103–4
- temperature
 - basal, monitoring (BBT), ovulation 64–5
 - scrotal 6
- teratozoospermia 36, 43
- testes 3–5
 - acquired damage 41
 - congenital abnormalities 41
 - dysfunction, drugs involved 38
 - hormonal control 8–9
 - infections associated with infertility 40, 41
 - tissue, cryopreservation 240
 - undescended 41
- testicular cancer, cryopreservation of sperm 220–1
- testicular sperm aspiration/extraction (TESA/TESE) 191–3
 - spermatids 191
- testosterone 8–9
- transcervical tubal cannulation 207–8
- transvaginal oocyte collection 130–1
- triptorelin 123
- trophectodermal cells, blastocyst biopsy 261–2
- Tyrode's solution 154, 249
- ultrasound scans, IVF 125–7, 143–5
- uterus 16–18
 - abnormalities 48–9
 - ante/retroversion 57
 - Asherman's syndrome 48
 - fibroids, types 47–8
 - size 18
- vagina 15–17
 - acidity 17
 - functional problems 45–6
 - structural abnormalities 49

- vaginismus 45–6, 111
 - and AI 219
- varicocele 42
 - treatment 95–6
- varicolectomy 95
- vas deferens 3–5
 - congenital bilateral absence (CBAVD), and cystic fibrosis 182–4
 - sperm aspiration 190
- vasectomy, and cryopreservation of sperm 221
- vasectomy reversal, failed 184
- vasoepididymostomy 96
- vasovasostomy 96
- vestibule 16
- viagra 91
- voltarol 130
- vulva 15–16

- weight loss, and ovulation/menstruation 54–5, 99

- welfare of babies
 - ICSI 176–7
 - IVF 149

- X-linked genetic disease 256–7

- Young's syndrome 184

- zona drilling technique
 - assisted hatching 154–5, 249–50
 - lasers 249–52
 - zona hardening 247
 - zona thickness 247
- zygote intrafallopian transfer (ZIFT) 208–11
 - GIFT/ZIFT in present day infertility
 - treatment 210–11
 - indications 208–9
 - patient groups 203, 210
 - treatment outcome, vs. IVF 209–10