

Appendix 1 Search strategy

Pubmed	
#1	((("Pentoxifylline"[Mesh]) OR ((pentoxifylline[tiab] OR Oxpentifylline[tiab] OR Trental[tiab] OR Agapurin[tiab] OR Torental[tiab] OR BL 191[tiab] OR Pentoxil[tiab]))) AND (((("Spermatozoa"[Mesh]) OR "Semen"[Mesh]) OR "Infertility, Male"[Mesh]) OR (spermatozoa[tiab] OR semen[tiab] OR sperm*[tiab] OR male infertility[tiab] OR male subfertility[tiab] OR astheno*spermia[tiab] OR oligo*spermia [tiab] OR terato*spermia[tiab] OR "Seminal Plasma" [tiab]))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT (humans[mh] AND animals[mh]))) Sort by: Most Recent
Number of literature: 46	
Web of science	
#1	(((((TS=(sperm*)) OR TS=(semen)) OR TS=(male infertility)) OR TS=(male subfertility)) OR TS=(astheno*spermia)) OR TS=(oligo*spermia)) OR TS=(terato*spermia)) OR TS=(Seminal Plasma) and Semen Analysis (OR – Search within topic) and Infertility (OR – Search within topic) and Semen Parameters (OR – Search within topic) and Semen Quality (OR – Search within topic) and Preprint Citation Index (Exclude – Database)
#2	(((((TS=(Pentoxifylline)) OR TS=(Oxpentifylline))) OR TS=(Trental)) OR TS=(Agapurin)) OR TS=(Torental)) OR TS=(BL 191)) OR TS=(Pentoxil) and Pentoxifylline Ptx (OR – Search within topic) and Pentoxifilina (OR – Search within topic) and Pentoxiphylline (OR – Search within topic) and Pentoxifylline (OR – Search within topic) and Preprint Citation Index (Exclude – Database)
#3	#2 AND #1 and Clinical Trial (Document Types)
Number of literature: 55	
Embase	
#1	'pentoxifylline'/exp
#2	'semen parameters'/exp
#3	('1 (5 oxohexyl) 3, 7 dimethylxanthine':ab,ti OR '1 (5 oxohexyl) theobromine' OR '1 (5' oxohexyl) 3, 7 dimethylxanthine' OR '1 oxohexyl 3, 7 dimethylxanthine' OR '3, 7 dihydro 3, 7 dimethyl 1 (5 oxohexyl) 1h purine 2, 6 dione' OR '3, 7 dimethyl 1 (5 oxo hexyl) xanthine' OR '3, 7 dimethyl 1 (5 oxohexyl) xanthine' OR 'agapurin' OR 'agapurin retard' OR 'artal' OR 'azupentat' OR 'azutrenat' OR 'bl 191' OR 'bl191' OR 'c-vex' OR 'carpentat s.r.' OR 'cental' OR 'ceretal' OR 'claudicat retard' OR 'eht 0201' OR 'eht0201' OR 'elorgan' OR 'erytral' OR 'fixoten' OR 'flexital' OR 'harin' OR 'harine' OR 'hemovas' OR 'ikomio' OR 'ipentol' OR 'kentadin' OR 'oxopurin 400 sr' OR 'oxpentifylline' OR 'oxpentiphylline' OR 'oxypentifylline' OR 'penphylline' OR 'pentong' OR 'pentopak' OR 'pentox' OR 'pentoxi' OR 'pentoxifilin' OR 'pentoxifyllin' OR 'pentoxine' OR 'pentoxiphylline' OR 'pentoxifyllin' OR 'pentoxifylline' OR 'pentoxiphylline' OR 'pentyllin' OR 'perencal' OR 'perental' OR 'peridane' OR 'pexal' OR 'pexol' OR 'pkb 171' OR 'pkb171' OR 'platof' OR 'ralofect' OR 'ralofekt' OR 'relofekt' OR 'rentylin' OR 'tarontal' OR 'thrental' OR 'torental' OR 'torestal' OR 'trenfyl' OR 'trenlin' OR 'trenlin sr' OR 'trental' OR 'trepal-400' OR 'vazofen' OR 'pentoxifylline':ab,ti,kw) AND [embase]/lim
#4	('seminal parameters' OR 'sperm parameters' OR 'spermatic parameters' OR 'spermatid parameters' OR 'spermatozoa parameters' OR 'spermatozoal parameters' OR 'spermatozoan parameters' OR 'spermatozoid parameters' OR 'spermatozoon parameters' OR 'semen parameters':ab,kw,ti) AND [embase]/lim
#5	('spermatozoa' OR 'semen' OR 'sperm' OR 'male infertility' OR 'male subfertility' OR 'asthenozoospermia' OR 'asthenospermia' OR 'oligozoospermia' OR 'oligospermia' OR 'oligoasthenozoospermia' OR 'oligoasthenospermia' OR 'oligoasthenoteratozoospermia' OR 'oligoasthenoteratospermia' OR 'teratozoospermia' OR 'teratospermia' OR 'spermatogenesis':ab,kw,ti) AND [embase]/lim
#6	#1 OR #3
#7	#2 OR #4 OR #5
#8	#6 AND #7
Number of literature: 394	

Cochrane library

- #1 MeSH descriptor: [Pentoxifylline] explode all trees
- #2 ((pentoxifylline OR Oxpentifylline OR Trental OR Agapurin OR Torental OR BL 191 OR Pentoxil OR Pentoxifilina OR Pentoxiphylline OR Pentoxifylline)):ti,ab,kw
- #3 MeSH descriptor: [Semen Analysis] explode all trees
- #4 MeSH descriptor: [Spermatozoa] explode all trees
- #5 MeSH descriptor: [Infertility, Male] explode all trees
- #6 ('Semen parameters' OR 'Sperm parameters' OR 'Semen characteristics' OR 'Sperm characteristics' OR 'Semen quality' OR 'Sperm quality' OR 'spermatozoa' OR 'semen' OR 'sperm' OR 'semen' OR 'male subfertility' OR 'asthenozoospermia' OR 'asthenospermia' OR 'oligozoospermia' OR 'oligospermia' OR 'oligoasthenozoospermia' OR 'oligoasthenospermia' OR 'oligoasthenoteratozoospermia' OR 'oligoasthenoteratospermia' OR 'OAT' OR 'teratozoospermia' OR 'teratospermia' OR 'spermatogenesis' OR 'Seminal Plasma'):ti,ab,kw
- #7 #1 or #2
- #8 #3 or #4 or #5 or #6
- #9 #7 and #8

Number of literature: 79

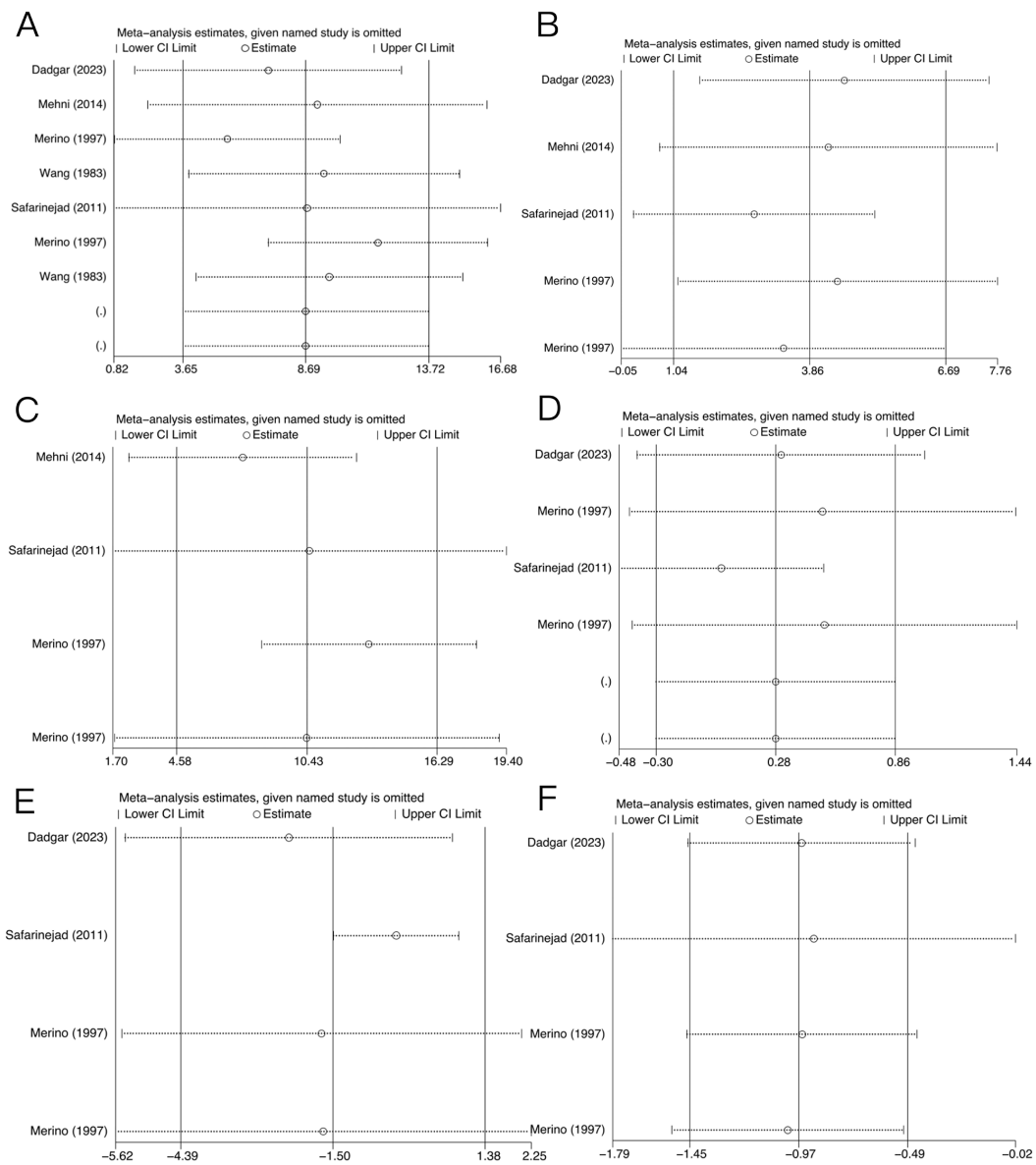


Figure S1 Leave-one-out analysis. (A) Sperm concentration. (B) Sperm morphology. (C) Sperm motility. (D) Testosterone. (E) Follicle-stimulating hormone. (F) Luteinizing hormone. CI, confidence intervals.

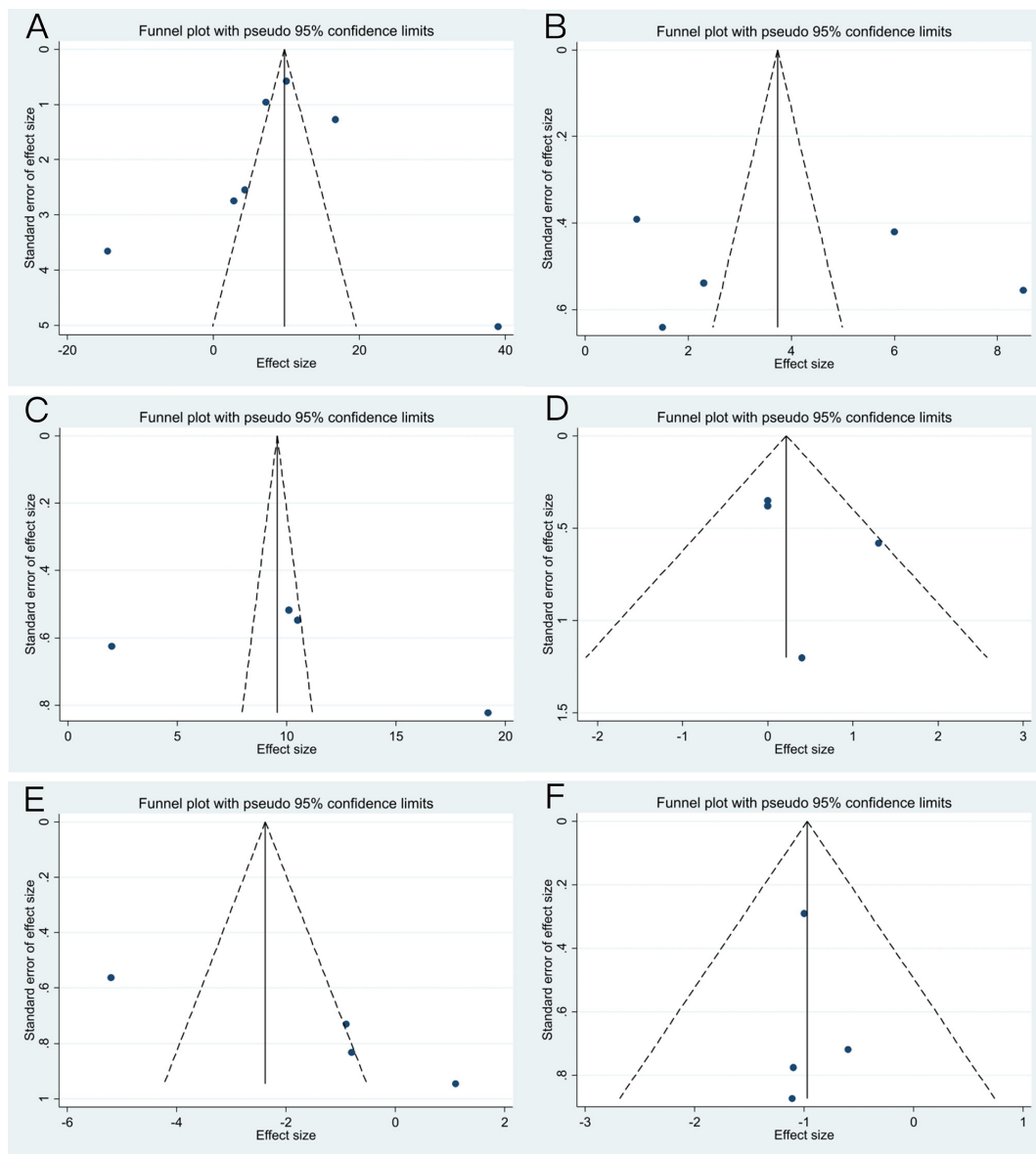


Figure S2 Funnel plots for evaluating publication bias of the meta-analysis outcomes. (A) Sperm concentration. (B) Sperm morphology. (C) Spermmotility. (D) Testosterone. (E) Follicle-stimulating hormone. (F) Luteinizing hormone.