

English Corner 5: articles

The articles **the**, **a** and **an** are often omitted when needed, and used when they need not be. It should be easy to tell when they are required, for as their names imply, the definite article is used with **definite** (*defined, particular, specific*) items, whereas the indefinite article is used when the item referred to is used in an **indefinite** (*general, vague*) sense. However, the distinction between articles is not so straightforward, for no article (indicated here by the caret ^) is necessary, even when a **specific** process is referred to, if that word **implies** a specific process that on its own does need a **definite article**.

The cases below highlight how important the use, or lack, of an article can be in providing important information on meaning.

Use of the *definite* article only

- In [**The** PRDX6 gene was localised in **the** epithelium] a **particular** gene (PRDX6) and **particular** tissue (an epithelium) are referred to; in [**The** principal cell is **the** major cell of **the** epididymal epithelium], a **particular** cell type (principal, major) in a **particular** epithelium (in the epididymis), is referred to; in [**The** initial segment of **the** caput epididymidis], a **particular** region (the initial) of a **particular** part (the caput) of a **particular** organ (the epididymis) is referred to; in [**The** caput epididymidis is **the** first part of **the** epididymis], a **particular** part (the first) of a **particular** region (the caput) of a **particular** organ (the epididymis) is referred to.
- Similarly, when the reactions of **specific** subpopulations of experimentally-observed spermatozoa are to be described, the definite article is used [**The** acrosome-reacted spermatozoon penetrated **the** zona pellucida. **The** hyperactivated spermatozoon penetrated **the** cumulus oophorus. **The** capacitated spermatozoon underwent ^hyperactivation], because only **the specific groups** of spermatozoa (**the** acrosome-reacted, **the** capacitated, **the** hyperactivated) are being described, in contrast to the control groups of spermatozoa that are non acrosome-reacted, non-capacitated and non-hyperactivated, and that do not penetrate the zona or cumulus, or undergo hyperactivation.

Use of the *indefinite* article only

- In [**An** acrosome-reacted spermatozoon can penetrate **the** zona pellucida. **A** hyperactivated spermatozoon can penetrate **the** cumulus oophorus. **A** capacitated spermatozoon can undergo ^hyperactivation], the **indefinite article** is used for the types of spermatozoa, as the properties of acrosome-reacted, hyperactivated and capacitated cells are referred to in general, and no particular subpopulation of acrosome-reacted, capacitated or hyperactivated cells is described.

Differences in meaning with *definite* or *indefinite* articles

The use of the definite and indefinite article may depend on whether the noun referred to has appeared earlier in the text.

- In [Spermatozoa were adjusted to **a** concentration of 15×10^6 /ml], the **indefinite** article is used, although a **specific** value is given, because the specificity resides in the value given. In [Spermatozoa were adjusted to **the** concentration of 15×10^6 /ml], the **definite** article indicates that the **specific value** of 15×10^6 has previously been cited (perhaps to distinguish it from another concentration used in another procedure).
- In [Sperm concentration was measured in **a** Neubauer chamber], although a **specific** chamber is mentioned (**the** Neubauer rather than **the** Thoma chamber), the **indefinite** article is used since **any** Neubauer chamber, not a particular one, is meant. If a **particular** chamber is referred to (perhaps one that has been calibrated) one would write [Sperm concentration was measured in **the** Neubauer chamber], where the details of that particular chamber (as having been validated) have been referred to previously.

Differences in meaning with *definite, indefinite or no articles*

- In [β -catenin, **a** tumour promoter, is present in the epididymis], β -catenin is just **one of many** tumour promoters (not a specific one) referred to, whereas in [**The** tumour promoter β -catenin is upregulated in hypoxia] this **specific** protein, in contrast to others that are not upregulated, is referred to.
- In [It is useful for studying **^developmental biology**], where developmental biology **in general** is meant, no article is used, whereas in [It is useful for studying **the** developmental biology of **the** testis] the definite article indicates that a **specific** biology (developmental) of a **specific** organ (the testis) is being described.
- No article is needed if the general subjects of the sentences are plural [**^Acrosome-reacted spermatozoa** can penetrate **the** zona pellucida. **^Hyperactivated spermatozoa** can penetrate **the** cumulus oophorus. **^Capacitated spermatozoa** can undergo hyperactivation].

No article with *specific processes*

- Note in the sentences above that **the zona pellucida** and **the cumulus oophorus** need the definite article, since they refer to specific objects (the **specific** zona that is pellucid (clear), and the **specific** cumulus that surrounds the oocyte) whereas **^hyperactivation** takes no article. This is because, although the latter refers to a **specific** process, that specific process has a description that includes a definite article (**the** process of hyperactivation).
- In other words [**A** capacitated spermatozoon can undergo **^hyperactivation**] implies [**A** capacitated spermatozoon can undergo **the** hyperactivation process]. Similarly, [**^Spermatozoa** underwent **^capacitation**] implies [**^Spermatozoa** underwent **the** capacitation process], so that the single word **capacitation** by itself requires no article. Writing [**the** capacitation] or [**the** hyperactivation] is incorrect because this means [**the** (**the** capacitation process)] and [**the** (**the** hyperactivation process)], where the definite article, though written only once, is implied twice.
- By contrast, in [**^Spermatozoa** underwent **the** acrosome reaction], a particular reaction (one occurring to **the** acrosome) is referred to, so the definite article is needed. Thus, in contrast to **^capacitation** and **^hyperactivation**, there is no such **global** term for **the** acrosome reaction, which always requires the definite article.

No article with defined parameters

- The common semen parameters do not require the definite article: in [^Sperm concentration was assessed in a Neubauer chamber. ^Sperm motility was measured by CASA. ^Sperm viability was assessed by eosin-nigrosin staining. ^Sperm morphology was assessed after Shorr staining] it is **the** concentration, **the** motility, **the** viability or **the** morphology of spermatozoa that is, respectively, implied, and these phrases require the definite article. Similarly [The results are shown in ^Table 2 and in ^Figure 8] means that the results are to be found in **specific** places, namely, **the** 2nd Table and **the** 8th Figure.

Example

^Spermatozoa are produced in **the** testis and travel through **the** epididymis by **the** action of ^peritubular smooth muscles that are stimulated by **the** local network of ^peri-capsular nerves, which are part of **the** local autonomic nervous system. Upon ^ejaculation ^seminal fluid is transferred to **the** female tract where ^spermatozoa have to pass through ^cervical mucus by ^active motility and then through **the** uterus, which aids ^sperm passage by ^peristaltic contractions. In **the** oviduct ^spermatozoa undergo ^capacitation and display ^hyperactivated motility and **the** acrosome reaction. They are attracted to **the** ovulated oocyte by ^chemotaxis and ^thermotaxis. When ^spermatozoa reach **the** oocyte they have to penetrate **the** zona pellucida and then have to fuse with **the** oolemma.

Explanation

Spermatozoa (**no definite article**: all spermatozoa, not a definite subpopulation) are produced in **the** testis (**definite article**: a specific organ) and travel through **the** epididymis (**definite article**: a specific organ) by **the** action (**definite article**: a specific action) of peritubular smooth muscles (**no definite article**: the muscles are particular muscles [peritubular in location] but this is described by the adjective **peritubular**) that are stimulated by **the** local network (**definite article**: a specific network) of peri-capsular nerves (**no definite article**: the nerves are specific [peri-capsular in location] but this is described by the adjective **peri-capsular**), which are part of **the** local autonomic nervous system (**definite article**: a specific nervous system, autonomic not central). Upon ejaculation (**no definite article**: this is a specific process but it is short for **the ejaculatory process**) seminal fluid (**no definite article**: the fluid is a particular one [produced by the accessory glands] but this is described by the adjective **seminal**) is transferred to **the** female tract (**definite article**: a specific tract of the female) where spermatozoa (**no definite article**: all spermatozoa, not a definite subpopulation) have to pass through cervical mucus (**no definite article**: the mucus is a particular fluid [produced by the cervix] but this is described by the adjective **cervical**) by active motility (**no definite article**: the motility is specific [active not passive] but this is described by the adjective **active**) and then through **the** uterus (**definite article**: a specific organ), which aids sperm passage (**no definite article**: the passage is specific [that of the spermatozoa] but this is described by the adjective **sperm**) by peristaltic contractions (**no definite article**: the contractions are specific [peristaltic in nature] but this is described by the adjective **peristaltic**). In **the** oviduct (**definite article**: a specific organ) spermatozoa (**no definite article**: all spermatozoa, not a definite subpopulation) undergo capacitation (**no definite article**: this is a specific process but it is short for **the capacitation process**) and display hyperactivated motility (**no definite article**: this is a specific process but it is short for **the hyperactivation**

process) and **the** acrosome reaction (**definite article**: a specific reaction of the acrosome). They are attracted to **the** ovulated oocyte (**definite article**: a specific oocyte, ovulated not follicular) by chemotaxis (**no definite article**: this is a specific process but it is short for **the chemotaxis process**) and thermotaxis (**no definite article**: this is a specific process but it is short for **the thermotaxis process**). When spermatozoa (**no definite article**: all spermatozoa, not a definite subpopulation) reach **the** oocyte (**definite article**: a specific cell type) they have to penetrate **the** zona pellucida (**definite article**: a specific egg structure) and then have to fuse with **the** oolemma (**definite article**: a specific egg membrane).

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