

## **Course N<sup>0</sup>= 4: Grammar Rules in English Scientific Writing -II- (Commas, Other Punctuation and Word Choice)**

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## 1. Commas

### 1.1 Coordinating Conjunctions

Coordinating conjunctions are used to connect words, phrases, and clauses.

Examples: for, and, nor, but, or, yet, so

Commas are used before coordinating conjunctions to separate independent clauses. The absence of a comma with a coordinating conjunction results in a run-on sentence. Use of a comma when there is not a coordinating conjunction can result in a comma splice.

**Wrong (run-on):** Human iPSCs can be differentiated into all cell types and are used for genetic engineering.

**Wrong (comma splice):** Human iPSCs can be differentiated into all cell types, researchers use them for genetic engineering.

**Right:** Human iPSCs can be differentiated into all cell types, and researchers use them for genetic engineering.

Commas are used before coordinating conjunctions when using the Oxford comma in a list of three or more.

**Wrong:** Cells used for cartilage tissue engineering include primary chondrocytes<sup>1</sup>, and stem cells<sup>2</sup>.

**Right:** Cells used for cartilage tissue engineering include primary chondrocytes<sup>1</sup>, adult stem cells<sup>2</sup>, and pluripotent stem cells<sup>3</sup>.

### 1.2 Subordinating Conjunctions

Subordinating conjunctions are commonly confused as subordinating conjunctions. These (usually) do not need a comma since they show a relationship between clauses.

Examples: because, since, as long as, as, due to the fact that

### 1.3 Coordinate Adjectives

Coordinate adjectives are a series of adjectives of equal value used to modify a noun. They should independently modify the noun; therefore, they could be reversed or combined with a noun.

**Wrong:** The obese female mice had severe heart disease.

**Right :** The obese, female mice had severe heart disease.

= The female, obese mice had severe heart disease.

## 2. Other Punctuation

### 2.1 Semicolons

Semicolons connect related independent clauses in cases of comma splices, connectors (e.g., *however*, *therefore*), and clauses containing commas. They cannot be used to connect dependent clauses.

**Wrong:** The cells died, the drug concentration was too high. (Independent clauses)

A dosage test was done, however, all the cells died. (connector)

The clinical trial was not performed in Athens, Greece, but it was successful in Athens, Georgia. (Clauses containing commas)

**Right:** The cells died; the drug concentration was too high.

A dosage test was done; however, all the cells died.

The clinical trial was not performed in Athens, Greece; but it was successful in Athens, Georgia.

Semicolons can also be used to help clarify lists that contain commas.

**Wrong:** This protocol was tested in labs in Paris, Texas, Athens, Georgia, and Rome, New York.

**Right:** This protocol was tested in labs in Paris, Texas; Athens, Georgia; and Rome, New York. (We separated each two places in list).

### 2.2 Colons

Colons can be used to introduce a list, separate independent clauses when the second explains the first, emphasize a word or phrase, or introduce a subtitle.

Colons must always follow a complete sentence (except if a subtitle). Typically use a lower case after a colon unless introducing a quote or series of related sentences.

*Examples:* This review will cover three topics: *in vitro models*, *in vivo models*, and clinical trials.

This experiment failed: we used an expired reagent.

After four weeks, I received the results of my experiment: success.

The KO mouse model : the next step

### 2.3 Apostrophes

For possessive, singular nouns, add 's.

A cell's nucleus

For possessive, singular nouns ending in s, add '.

The nucleus' chromatin

For plural nouns, add s.

All the cells

For possessive, plural nouns ending in s, add '.

All the cells' nuclei

For possessive, plural nouns not ending in s, add 's.

The nuclei's chromatin

Pronouns have special possessive forms, so do not add an ' or 's.

My, his, its

For joint possession, add possessive form to last noun.

The mouse and rat's gene

When the plural form causes confusion, use 's.

Do's and don'ts

## 2.4 Hyphens

Hyphenate noun-verb and adverb-verb compound modifiers if preceding the noun it modifies, the adverb is not very, and the adverb does not end in -ly.

**Wrong:** Drug induced effects  
**Nom    Verb**

The effects were drug-induced

Newly-identified enzyme  
**Adverb end with ly**

**Right:** Drug-induced effects

The effects were drug induced

### Newly identified enzyme

When combining compound modifiers with the same first or last word, use a suspended hyphen.

**Example:** Drug- and mutation-induced effects

Dose-dependent and -independent effects

## 3. Word Choice

### 3.1 Who vs. Whom

Who is used as the subject of the sentence

Whom is used as the object of the verb or preposition

**Tip:** Replace who/whom with he/she/they or him/her/them in the sentence: if he/she/they is correct, use *who*, if him/her/them is correct, use *whom*

**Example:** (He, she, they) like to go on field inspection

**Who** would like to go on field inspection ?

The email was addressed to (him, her, them)

To **whom** was the email addressed?

### 3.2 That vs. Who

Who refers to people (preference but not wrong to use that)

That refers to objects

**Example:** The scientists **who** discovered the vaccine are attending the conference.

**People**

The contract **that** defines my work hours is on your desk.

**Object**

### 3.3 That vs. Which

**That** conveys essential information and is not preceded by a comma.

**Which** conveys additional information and is preceded by a comma.

**Tip :** “which” is disposable.

**Wrong:** The PCR experiment **which** I ran last week failed.

The experiment, **that** I ran last week, failed.

**Right :** The PCR experiment, **which I ran last week**, failed.

The experiment **that** I ran last week failed.

### 3.4 Accept vs. Except

Accept means consent to receive something offered or believe as valid/correct – an Action

The scientist **accepted** the results.

Except means other than

The scientist did all of the experiments **except** western blot.

### 3.5 Affect vs. Effect

Affect means to make a difference to or move emotionally – an Action

Ex: This pandemic has greatly **affected** our productivity.

Effect means a result or consequence of an action

Ex: Labs were shut down as an **effect** of the pandemic

### 3.6 Use vs. Utilize

Use means to engage with something in order to accomplish a task, achieve a goal, or take an advantage (or to exploit). Used if performing the intended function.

I **use** my pen for writing.

Utilize has the same definition but only when the item, process, or situation is employed in a way that goes beyond its intended use. Used if innovative or novel or if a nutrient is being taken up and used effectively.

I **utilize** my pen as a bookmark in my notebook.

**Tip :** *Use* can always replace *utilize*, but the reverse is not true.

### 3.7 Compose vs. Comprise

Compose means to make up or to form the basis of

Ex: The parts **compose** the whole.

Comprise means to include, contain, or consist of

Ex: The whole **comprises** the parts.

**Tip :** Avoid comprised of (means included of); instead use composed of.

Ex: The whole **is composed of** parts.

### 3.8 e.g. vs. i.e.

e.g. is short for *exempli gratia* which means “for example” (think: example given). Use this to list examples.

Pre-built ontologies were used to identify instances of head or brain injuries (**e.g.**, subdural hematoma, traumatic encephalopathy, depressed skull fracture).

i.e. is short for *id est* which means “that is” (think: in essence or in other words). Use to clarify a statement or in place of “aka.”

The Clinical Dementia Rating is used to quantify the severity of symptoms of dementia (**i.e.**, its stage).

**Tip :** Follow **e.g.** and **i.e.** with a comma (e.g., i.e.,)