

# Segment One - Hygiene Versus Bacteria

In everyday speech, we often use the words **hygienic** and **clean** to mean exactly the same thing. If they were asked to explain the difference between the two words, most people would say they meant more or less the same thing. This is because they go hand in hand in normal life. In this first segment, we're going to spend some time telling you about the words we'll be using often. We'll fill in the detail as we work through the module.

## AIMS OF THIS SEGMENT

The main aim of this segment is to help you to achieve Objective 1 given on the previous page.

At the end of this segment you will be able to:

Understand the main ways in which food becomes poisoned.

Realise that food poisoning has social and commercial dangers.

Realise that your actions can cause or prevent food poisoning by seafood.

Understand that there are laws which cover seafood handling premises and employees.

## FOOD HYGIENE

**Food hygiene** is the practice of properly chilling, cooking, cleaning **food** and avoiding cross-contamination to prevent the spread of bacteria in **food**.

Food Hygiene may be thought of as safeguarding food from anything that may cause harm. It includes all the measures involved in keeping food safe and wholesome from harvest to sale or consumption.

Often this requires the seafood to be protected from contamination.

Contamination simply being the presence in food of anything that shouldn't be there, for example bacteria, chemicals or physical material such as hairs and bits of insects!

### **Disease**

Disease is generally caused by bacteria, so good hygiene is usually aimed at reducing the numbers of bacteria and stopping them from multiplying.

### **Food Borne Infection and Food Poisoning**

These are types of illness caused by eating contaminated food. Heavy bacterial contamination will usually cause food poisoning, but smaller numbers of some bacteria will transmit infectious diseases such as Typhoid, Tuberculosis, Dysentery, or Brucellosis (only from milk). These are rarely transmitted by seafood products and only if good hygiene practices have been neglected.

Food poisoning may be caused by bacteria, toxins, chemicals, and viruses. Toxins or poisons can be produced by some plants (including marine algae), types of poisonous fish, fungi or bacteria either on your food before eating or in your body after eating!

Food poisoning is usually an acute or sudden illness that starts quickly and has spectacular symptoms such as vomiting, diarrhoea, stomach pain or even death. Food poisoning is usually over within a few days, while food borne infections can last much longer.

Being hygienic means achieving a level of cleanliness which prevents disease and food poisoning from developing.

## **CLEANLINESS**

### **What do we mean by clean?**

Well, usually we mean visually clean, that means no obvious dirt.

We may, therefore, think that a clean shirt, a clean knife, clean hands, and a clean work surface that have been washed or wiped are satisfactory because they **look** fine.

In this module however, we're dealing with **bacteria** that are not visible, unless you use a microscope.

So, a surface which has been wiped and looks clean, the washed hands, the washed knives, the clean shirt, can all have large numbers of invisible bacteria on them.

We have to aim for **bacterial cleanliness** since it is bacteria which cause disease.

## BACTERIA

There will be much more on this later, but we'll start by telling you that bacteria are **small organisms which are found everywhere**.

They are:

In the air:

On your body.

On the fish or shellfish's body.

In the guts of fish and shellfish.

Bacteria are sometimes called **germs** but you should try and avoid using this term. They are always waiting for a chance to multiply. There are different types of bacteria which can multiply on almost everything so long as there's **food, water, warmth and time**.



It is important that you remember the following: Most bacteria are harmless to people and healthy living fish and shellfish. In fact most of the time, we don't notice they are there!

Some bacteria are useful and give us products like yoghurt and cheese.

However, some bacteria are harmful and cause illness. These are known as **pathogens**, and they may be introduced to food by careless handling.

## QUALITY LOSS

It is bacteria which mainly cause seafood to lose quality after harvesting:

We take the seafood out of the cold wet sea, where most bacteria will not easily multiply.

On land it is warmer, and bacteria like the warmer temperatures. They start multiplying happily in and on the dead seafood.

A lot of people handle the seafood before it is eaten. Each time a different person handles it there is a chance that more bacteria will be added to those already on the seafood.

Given enough time, the seafood will spoil or 'go off', the bacteria causing the flesh to become soft and slimy, and a characteristic 'off' smell to develop.

Fish for instance changes in appearance from:

glistening	—————→	dull
wet	—————→	slimy
firm	—————→	soft

and becomes very smelly.

Most of the bacteria which cause these spoilage changes, even if eaten, **do not harm** people. The fish won't taste very nice but it won't make anyone ill.

Spoilage leads to changes in appearance (colour), smell and taste. Spoiled food is usually easy to spot.

There are groups of bacteria which cause **food poisoning** and it's very important that these don't get near the seafood. Seafood contaminated with large numbers of these bacteria can **taste and smell OK**, but can still be very dangerous.

The types of bacteria which cause illness contaminate the seafood during **careless handling** caused by careless food handlers.

Eating seafood which contains poisoning bacteria causes various types of illness ranging from an upset stomach to death in a small number of cases.

**Very old, very sick, or very young people** are at the greatest risk from food poisoning bacteria. This is because they have a lower resistance to them.

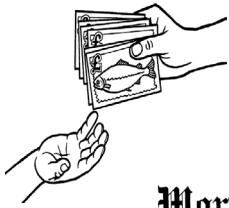
**Remember** it is very important at this point that you realise that food poisoning almost always happens because someone does not take proper care of the food.

## Poisoning is preventable

When handling food you should, at all times aim to keep it:

**Clean, Cool, free from Contamination, so be Careful and Consistent**

### THE EFFECT ON YOU AND YOUR JOB



Morning Express

THE  
**Star**

TIMES NEWS

DAILY HERALD

**Seafood pays your wages.** If you work in some area of the seafood industry then your wages get paid if enough people eat the seafood you handle.

If there is an outbreak of poisoning that is caused by seafood then you are going to be affected as well as the people who have been made ill. It's not only the person who gets ill who suffers.

If people read headlines like “**Seafood responsible for food poisoning outbreak**” they'll think twice about eating fish and shellfish.

If less people buy seafood then everyone working in the seafood industry suffers.

There are a number of **food hygiene laws** that cover the handling of seafood.

If seafood gets infected with food poisoning bacteria, someone is to blame for handling the food un-hygienically. So, if seafood is found to be the cause of a food poisoning outbreak the following consequences could occur:

- The people who have eaten the seafood are obviously harmed.
- Markets are lost through bad publicity.
- The seafood handler gets into trouble with the law.

Food poisoning is something that many of us have suffered from at one time or another. Many cases of food poisoning are not reported to the Authorities and so do not appear in any of the official statistics. Various studies have suggested that for every one reported case of food poisoning more than ten cases go unreported.

### **UK Food Poisoning Statistics**

Depending on where you look and who you talk to, food poisoning cases in the UK can in the region of 100,000 or 1 million a year. 100,000 is close to the number of cases actually reported, while 1 million is the scale of the possible problem if you include all possible contributions.

As some food poisoning can be **fatal**, food safety is important whatever the number of cases each year.

So you can see that you have responsibilities as a food handler :

- To the people who eat food handled by you, not to poison them.
- To your employer not have the business fined or closed down.
- And to the law because you could be fined or imprisoned for a serious offence.

This first segment is really meant to get you thinking about hygiene.

You'll need to know what we mean by certain words so we'll give you a chance to produce your own definitions in a S.A.Q. It is the only S.A.Q. in this segment and is longer than the others you will come across in the rest of the module - so don't let its length worry you.

**? SAQ23**

Write in the spaces provided what you think the words mean.

Check your answers with mine after you've finished.

- a. Hygienic
- b. Clean
- c. Bacteria
- d. Dirty
- e. Harmful

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a.

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b.

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c.

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d.

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e.

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## **SUMMARY**

You should now realise that food poisoning caused by seafood can have very serious effects on the seafood industry.

The aim of the rest of this module is to teach you how to make sure this doesn't happen!

There are three important points to remember from this segment:

Poisoning bacteria are not found naturally on seafood.

They are put there by careless handling at some stage.

Clean working procedures should help to prevent food poisoning.

You have now reached the end of the first segment. We hope that it was not too difficult for you and that you are now looking forward to the remainder of this module.

You have now achieved Objective 1