

WE'RE NOT
AFRAID OF

or

PREVENTION AS
A DOORWAY TO HEALTH

ONCOLOGICAL PREVENTION METHODOLOGY
FOR LOWER SECONDARY SCHOOLS



Jitka Slaná Reissmannová
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PRESS

Jitka Slaná Reissmannová, Zdeňka Smejkalová

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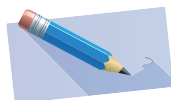
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Internet link or internet tip

Introduction

The methodology “We’re not afraid of cancer or prevention as a doorway to health” was published in the Czech Republic in 2018 and was warmly accepted by elementary and secondary school teachers and also academics involved in health education.

Regarding the fact that in developed countries, oncological disease are the second most frequent cause of death, the authors have decided to make the book international.

The methodology is intended for lower secondary school teachers and is designed for use in health education lessons or natural history lessons.

The book focuses on oncological prevention, the principles of which should be adopted in the family, kindergarten, and primary school.

In the Czech Republic, oncological prevention is addressed primarily by Žaloudíková and Hrubá, whose methodologies “It is normal not to smoke I–V” (2007–2009) were the initial inspiration for the authors of the present publication.

The methodology “It is normal not to smoke” is intended for younger children and focuses on primary prevention and a healthy lifestyle. The methodology “We’re not afraid of cancer or prevention as a doorway to health” has a narrower focus and is intended for lower secondary school teachers and students. Its aim is to introduce the primary and secondary prevention of oncological diseases and increase students’ (and teachers’) health literacy in this important area. Our experience with the Czech edition shows that the methodology is also used in secondary schools (mainly those focused on nursing and health care) and in universities in health education didactic courses.

The material contains a total of 10 draft lesson plans—each lesson is structured and contains a theoretical introduction intended for professional teacher training, didactic transformation of the topic into a draft lesson plan, worksheets and activities designed for students, as well as a worksheet key for the teacher.

We are aware of the fact that health-related information is constantly being updated. For this reason, the methodology contains numerous internet resources, where teachers can find relevant information.

We hope that this book will facilitate the teaching of this topic and help raise awareness about oncological prevention. The methodology should not be considered a complete work, but rather an inspiration that should provide the teacher with the first steps in oncological prevention in elementary school.

Brno, June 2020

PhDr. Jitka Slaná Reissmannová, Ph.D.

Mgr. Zdeňka Smejkalová

teaching
lesson

1

Oncological diseases

Keywords: oncological diseases, benign tumour, malignant tumour, metastases, risk factors



THEORETICAL PREPARATION

Why address this issue? Several basic facts to begin with:

- Cancer is the second leading cause of death globally, and is responsible for an estimated 9.6 million deaths in 2018. Globally, about 1 in 6 deaths is due to cancer.
- Around one third of deaths from cancer are due to the 5 leading behavioural and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use.
- Tobacco use is the most important risk factor for cancer and is responsible for approximately 22% of cancer deaths.
- The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US\$ 1.16 trillion.
- Cancer is a leading cause of death worldwide, accounting for an estimated 9.6 million deaths in 2018. The most common cancers are: lung (2.09 million cases), breast (2.09 million cases), colorectal (1.80 million cases), prostate (1.28 million cases), skin (non-melanoma) (1.04 million cases), stomach (1.03 million cases).
- The most common causes of cancer death are cancers of: lung (1.76 million deaths), colorectal (862 000 deaths), stomach (783 000 deaths), liver (782 000 deaths), breast (627 000 deaths). (Cancer, WHO, 2018)



For more information see the WHO website: *Cancer/Fact sheets*:

<https://www.who.int/news-room/fact-sheets/detail/cancer>

What is cancer?

One of the properties of the tissues of the human body is regular cell division, which is required for example for the growth or healing of damaged tissues after injury. However, if this process of cell division gets out of control, a tumour grows that destroys, oppresses, and damages the surrounding healthy tissue (Tomášek [online], 2017).

The term oncological or neoplastic diseases refers to a group of diseases, whose common feature is uncontrolled cell division and growth, which gradually permeates the surrounding tissues (Dienstbier and Skala, 2014). A neoplastic disease is also defined as a growth of tissue, which is out of control and grows independently of the organism. The tissues or organs that are most frequently affected are those with rapid cell division under normal conditions, for example the digestive system or female reproductive organs (Vokurka and Hugo, 2011). The branch of medicine dealing with oncological diseases is called oncology and is derived from the Greek word *onkos* (*crab*), which refers to a tumour.

According to the degree of severity, tumours are classified as benign and malignant.

- In the case of benign (non-malignant) tumours, the cells are subject to uncontrolled division, but are not aggressive, grow slowly, and have even edges. Unlike malignant tumours, they do not grow through the surrounding tissues but rather oppress them. These tumours are seldom dangerous. However, there are cases where the pressure on the adjacent organs results in nutrition failure and subsequent tissue death, or tumours may cause obstruction of some organs including the alimentary canal or urethra provided that they grow from their epithelium. Benign tumours can usually be removed and most of them do not regrow, but some may transform into malignant tumours (Holečková, 2011). However, even a benign tumour may be lethal if a vital region is destroyed.
- On the contrary, malignant tumours grow through the surrounding tissues and damage them. Some tumour cells may separate from the primary tumour, and through blood or lymph vessels travel to near or distant parts of the body. Here, under suitable conditions the cells may proliferate, grow, and form secondary tumours called metastases. The growth of a malignant tumour and metastases gradually threatens the vital organs. If timely treatment does not take place, the organism dies (Tomášek [online], 2017). A malignant tumour may produce metastases at a later stage, while it can be revealed and removed in the meantime.

Oncological diseases in the world

Cancer is the second leading cause of death globally, accounting for an estimated 9.6 million deaths, or one in six deaths in 2018. Lung, prostate, colorectal, stomach, and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervical, and thyroid cancer are the most common among women (WHO, [online], 2020).

Risk factors

The term risk factor refers to a factor that increases the probability of a health problem, in this case the onset of a neoplastic disease. The specific causes of the onset of oncological diseases have not been completely explained, but there are several risk factors. These factors are classified as external and internal.

External risk factors

External risk factors are mostly related to lifestyle and are easy to influence. The main external risk factors include primarily the following:

- Smoking—this also includes passive smoking or secondary involuntary smoking, during which smoke is inhaled by persons other than the smoker. Passive smoking is related to being with a smoker in a closed or open environment;

- Excessive alcohol consumption;
- Poor nutrition—especially excessive intake of energy-rich food, food which is high in salt, excessive consumption of red meat and meat products (e.g. smoked meat), poor food storage, food preparation at high temperatures (frying, smoking, grilling);
- Overweight, obesity;
- Decreased physical activity;
- Infection—the most common infection in the context of some oncological diseases is the human papillomavirus (HPV). Hepatitis B and C infection is largely responsible for the onset of liver cancer;
- Environmental conditions—this primarily includes ultraviolet (UV) radiation from the sun, and ionizing radiation from medical devices (X-ray, mammograph, CT). However, compared with other risk factors, ionizing radiation poses a relatively small risk.

Many authors believe that the onset of some neoplastic diseases in women is related to reproduction and hormonal factors such as early menstruation, late onset of menopause, late or no pregnancy, short-term breastfeeding, use of hormonal contraception. Mental stress are considered risk factors especially because they affect the immunity of the organism (Adam, Krejčí & Vorlíček, 2011; Žaloudíková, 2014).



For more information see the WHO website: *Cancer/Fact sheets*:

<https://www.who.int/news-room/fact-sheets/detail/cancer>

The correlation between external risk factors and an increased risk of some neoplastic diseases affected by these risks is shown in the table below.

| Risk factor | Increased risk of neoplastic disease |
|-------------------------------|---|
| Smoking | <ul style="list-style-type: none"> • Lung cancer • Oral cavity cancer, pharynx cancer, larynx cancer, oesophagus cancer • Pancreatic cancer • Urinary system cancer |
| Excessive alcohol consumption | <ul style="list-style-type: none"> • Oral cavity cancer, pharynx cancer, larynx cancer, oesophagus cancer • Colon cancer, liver cancer • Breast cancer |
| Poor diet | <ul style="list-style-type: none"> • Colorectal cancer • Stomach cancer • Breast cancer, uterine cancer • Prostate cancer, lung cancer |
| Overweight, obesity | <ul style="list-style-type: none"> • Uterine cancer, breast cancer • Colon cancer, kidney cancer, gallbladder cancer |
| Decreased physical activity | <ul style="list-style-type: none"> • Colorectal cancer • Breast cancer • Lung cancer |

| Risk factor | Increased risk of neoplastic disease |
|---------------|--------------------------------------|
| HPV infection | • Cervical cancer |
| UV radiation | • Skin cancer |

The awareness of all external risk factors is very important, because it is the only way individuals can eliminate these factors from their lives. This primarily includes a change in one's lifestyle.

Internal risk factors

The internal risk factors are difficult to influence; they include inheritance, age, or gender. It is obvious that the occurrence of some neoplastic diseases is affected by gender and the risk of onset increases with age.

Each neoplastic disease is considered a genetic disease, because genes surely affect the origin of tumours. In many cases the cause is a random gene mutation, which may result from the effect of the external risk factors. Human DNA is damaged in regions where genes important for DNA repair or cell death initiation are located. These damaged genes are unable to repair DNA in other regions, which results in uncontrolled cell growth and origin of a tumour. If this gene damage is inherited from the previous generation, the risk of cancer is much higher. This is referred to as hereditary predisposition to a disease. The most frequent oncological disease affected by inheritance is breast and ovarian cancer, which is associated with damaged BRCA1 and BRCA2 genes (Foretová, 2013).

Let us conclude this section on risk factors by a comment made by Janáčková (2014, p. 18): *"Cancer genes are probably not that dangerous unless awakened by our lifestyle."*



DRAFT TEACHING LESSON 1

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|---|---|--------|
| Motivation | <ul style="list-style-type: none"> Prevalence of oncological diseases | <ul style="list-style-type: none"> Discussion | <ul style="list-style-type: none"> Group | 5 min |
| Exposure | <ul style="list-style-type: none"> Concept of oncological diseases What is cancer: video (1:00 min) | <ul style="list-style-type: none"> Presentation (watching a video) | <ul style="list-style-type: none"> Group Individual | 25 min |
| | <ul style="list-style-type: none"> Malignant, non-malignant tumours Risk factors of oncological diseases Completion of a worksheet | <ul style="list-style-type: none"> Using a worksheet Discussion | <ul style="list-style-type: none"> Work in pairs | |
| Reinforcement | <ul style="list-style-type: none"> Activity 1 / 2: Malignant or non-malignant tumours? | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Group Individual | 10 min |
| | <ul style="list-style-type: none"> Activity 3: Risk factors of oncological diseases | | | |
| Application | <ul style="list-style-type: none"> Activity 3: Risk factors of oncological diseases | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Individual | 5 min |
| | <ul style="list-style-type: none"> Homework assignment | | | |

Motivation

The lesson starts with a discussion on the prevalence of oncological diseases. The students understand that neoplastic diseases are very frequent and may affect each of us. The teacher may start a discussion by the following questions:

- *Do you think that neoplastic diseases are frequent?*
- *In your opinion, which type of neoplastic disease is the most frequent?*

Exposure

The students are handed *Worksheet 1*, which they continuously complete and check with the teacher. Any exercise may be followed by a discussion.

At first, the students complete Task 1 according to the presentation.



Download presentation:

<https://www.rozhodniseprozdрави.cz/onkologick%C3%A1-onemocn%C4%9Bn%C3%AD>

What is cancer (video 1:00 min)

<https://www.youtube.com/watch?v=5LLtZY6wvXU>

This is followed by Tasks 2, 3, 4; the students learn about the characteristics of malignant and non-malignant tumours. At first they try to explain in their own words the difference between malignant and benign tumours and then complete the exercise. They can check the results with their classmates. Then they jointly define the term metastasis and risk factor; the students write the explanation in Task 5. In Task 6, the students learn about the specific risk factors. Then the students go through the factors again and add which neoplastic disease is most affected by each factor.

In the final part of the worksheet in Task 7, the students write the four most frequent neoplastic diseases as presented at the beginning of the lesson.

Reinforcement

In order to fix the knowledge about the issue, it is advisable to repeat the basic information about neoplastic diseases. To fix the differences between a malignant and benign tumour use especially *Activity 1* "Malignant or non-malignant tumour?" or *Activity 2*. Use *Activity 3* to repeat the risk factors of neoplastic diseases.

Application

The purpose of *Activity 3* "Risk factors of oncological diseases" is to apply the learning content, because the students think about which risk factors they can affect already at their age. At the end of the teaching lesson, the students are assigned *homework* in which their task is to find out whether somebody they know is at a higher risk of a neoplastic disease. The main task is to specify the risk factors that can be influenced.



WORKSHEET 1 – ONCOLOGICAL DISEASES

1) Add the missing words in the text on neoplastic diseases:

Neoplastic or _____ diseases.

One of the properties of the tissues of the human body is regular cell _____, which is required, for example, for the growth or healing of damaged tissues after injury. However, if this process of cell division gets out of control, a _____ grows that destroys, oppresses, and damages the surrounding _____ tissue. The common feature of neoplastic diseases is _____ division and growth of _____, which gradually permeate the surrounding tissues.

2) Choose the medical branch that deals with the issue of neoplastic diseases:

- a) Surgery b) Orthopaedics c) Urology d) Oncology

3) Look at the anagrams and make two words that represent the two types of tumours:

M A N - N G L T O N A N I = I N B N E G

□ □ □ - □ □ □ □ □ □ □ □ □ □ = □ □ □ □ □ □ □ □

A G T I A N M N L

□ □ □ □ □ □ □ □ □ □

4) Match the following descriptions with malignant or non-malignant tumours (use colours):

Non-malignant tumours – blue

Malignant tumours – red

Spreading through the lymphatic system

Slow growth

Oppression of the surrounding tissues

Uncontrolled cell division

Surgical removal

Development of metastases

Surgical removal

Growing through the surrounding tissues

Oppression of the surrounding tissues

Uncontrolled cell division

Aggressive cell growth

Death of the organism

No secondary tumours

Spreading through the blood system

Not growing through the surrounding tissues



WORKSHEET 1 – ONCOLOGICAL DISEASES

1) Add the missing words in the text on neoplastic diseases:

Neoplastic or oncological diseases.

One of the properties of the tissues of the human body is regular cell division, which is required, for example, for the growth or healing of damaged tissues after injury. However, if this process of cell division gets out of control, a tumour grows that destroys, oppresses, and damages the surrounding healthy tissue. The common feature of neoplastic diseases is uncontrolled division and growth of cells, which gradually permeate the surrounding tissues.

2) Choose the medical branch that deals with the issue of neoplastic diseases:

- a) Surgery b) Orthopaedics c) Urology **d) Oncology**

3) Look at the anagrams and make two words that represent the two types of tumours:

M A N - N G L T O N A N I = I N B N E G

N O N - M A L I G N A N T = B E N I G N

A G T I A N M N L

M A L I G N A N T

4) Match the following descriptions with malignant or non-malignant tumours (use colours):

Non-malignant tumours – blue

Malignant tumours – red

Spreading through the lymphatic system (red)

Slow growth (blue)

Oppression of the surrounding tissues (red)

Uncontrolled cell division (blue)

Surgical removal (red)

Development of metastases (red)

Surgical removal (blue)

Growing through the surrounding tissues (red)

Oppression of the surrounding tissues (blue)

Uncontrolled cell division (red)

Aggressive cell growth (red)

Spreading through the blood system (red)

Death of the organism (red)

No secondary tumours (blue)

Not growing through the surrounding tissues (blue)

5) Explain the terms metastasis and risk factor:

Metastasis: **New secondary (subsidiary) source of a malignant tumour.**

Risk factor: **Factor that increases the probability of the onset of neoplastic disease.**

6) In the wordsearch, find 13 risk factors of oncological diseases

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | G | R | I | L | L | I | N | G | A | O | F | D | E | W |
| E | B | E | T | A | S | G | R | O | W | B | R | T | H | E |
| A | T | E | S | R | T | I | E | R | K | E | Y | H | P | V |
| T | A | S | M | I | R | A | B | I | O | S | I | S | E | A |
| P | S | M | O | K | E | C | O | O | K | N | G | A | L | |
| R | C | A | K | O | S | R | O | M | I | T | G | B | L | O |
| O | A | T | E | S | O | K | O | D | Y | B | E | C | O | |
| D | R | O | N | U | V | R | A | D | I | A | T | I | O | N |
| U | R | A | G | C | O | H | O | L | M | E | A | N | H | A |
| C | O | I | N | H | E | R | I | T | A | N | C | E | O | G |
| T | T | B | U | G | S | A | L | T | N | G | O | A | L | E |

Risk factors: _____

Smoking _____

Alcohol _____

Salt _____

Frying _____

Smoke cooking _____

Grilling _____

Meat products _____

Obesity _____

HPV _____

UV radiation _____

Stress _____

Inheritance _____

Age _____

Can you think of any other risk factors of oncological diseases?

Low physical activity, early menstruation, late or no pregnancy, short-term breastfeeding

7) Specify the most frequent neoplastic diseases:

- a) **Lung cancer**
- b) **Breast cancer in women**
- c) **Colorectal cancer**
- d) **Prostate cancer**



ACTIVITIES FOR STUDENTS

ACTIVITY 1 – Malignant or non-malignant tumour?

Students receive four cards saying *non-malignant (benign)* and *malignant* tumour. The teacher describes the characteristics and the students' task is to raise the card with the correct type of tumour. The students fix the differences between malignant and benign tumours and practice their attention. The teacher can make the activity more interesting by awarding points for correct answers. The student with the highest number of points is the winner.

ACTIVITY 2 – Malignant or non-malignant tumour, who are you?

This activity is a modification of the previous one. Some students receive a card with malignant tumour on it, some with non-malignant tumour. The teacher describes their characteristics. If the description relates to their card, the students stand up.

| Malignant tumour | Non-malignant tumour |
|------------------|----------------------|
|------------------|----------------------|

Malignant tumour

- Uncontrolled cell division
- Death of the organism
- Spreading through the surrounding tissues
- Development of metastases
- Damage to the surrounding tissues
- Aggressive cell growth
- Spreading through the blood system
- Spreading through the lymphatic system
- Pressure on the surrounding tissues
- Surgical removal

Non-malignant tumour

- Uncontrolled cell division
- Delimited structure
- Slow growth
- Surgical removal
- Not spreading through the surrounding tissues
- Pressure on the surrounding tissues
- No secondary tumours

ACTIVITY 3 – Risk factors of oncological diseases

The task of the students is to write on a slip of paper as many risk factors of oncological diseases as possible and mark those that they think that can be influenced. The students fix the risk factors of oncological diseases and at the same time learn that already in adolescence it is possible to influence some of the risk factors.

teaching
lesson **2**

Prevention of oncological diseases

Keywords: prevention, primary prevention, secondary prevention, tertiary prevention, screening



THEORETICAL PREPARATION

The prevention of oncological diseases is very important. Most of these diseases can be prevented by changing the lifestyle. Prevention also increases the chances for early detection, which increases the probability of complete recovery.

Generally, prevention focuses not only on neoplastic diseases, but also other diseases. The specific objective of oncological prevention is to reduce the risk of the onset of neoplastic diseases. There are several ways of preventing cancer (What is prevention? [online], 2016).

Prevention is divided into three main categories:

- Primary prevention
- Secondary prevention
- Tertiary prevention

Primary prevention

Primary prevention focuses on the healthy population, the aim is to prevent the onset of cancer. As a result, the incidence of newly diagnosed cases should decrease. Primary prevention focuses on the reduction or elimination of the risk factors, and lies especially in improving one's lifestyle. Primary prevention should start already in childhood, because in this period the basic behavioural models and lifestyles are established. At a later age, they are only strengthened (Vorlíček, Žaloudík and Vyzula [online], 2009). Primary prevention should be applied by the parents; by women in the preconceptual stage during pregnancy, and during lactation.

The text below specifies the methods of decreasing or the elimination of the negative effects of the risk factors of neoplastic diseases.

Smoking, alcohol

Smoking certainly has an effect on the onset of oncological diseases. In terms of prevention, it is important not to smoke; the best preventive measure is not to start smoking. One of the risk factors is passive smoking and any smoky places should be avoided. Children should certainly not be exposed to passive smoking.

The excessive consumption of alcoholic beverages increases the risk of neoplastic diseases, and therefore, moderation is the key aspect. A preventive measure is to abstain from alcohol or significantly limit the consumption of alcohol. The maximum recommended amount is two drinks per day for men and one drink per day for women, where a drink is 250 ml of beer or 100 ml of wine (Alkohol [online], 2018). Alcohol and nicotine are absolutely contraindicated in children and youth.



Tip: WHO/Cancer prevention/Tobacco, Alcohol use:

<https://www.who.int/cancer/prevention/en/>

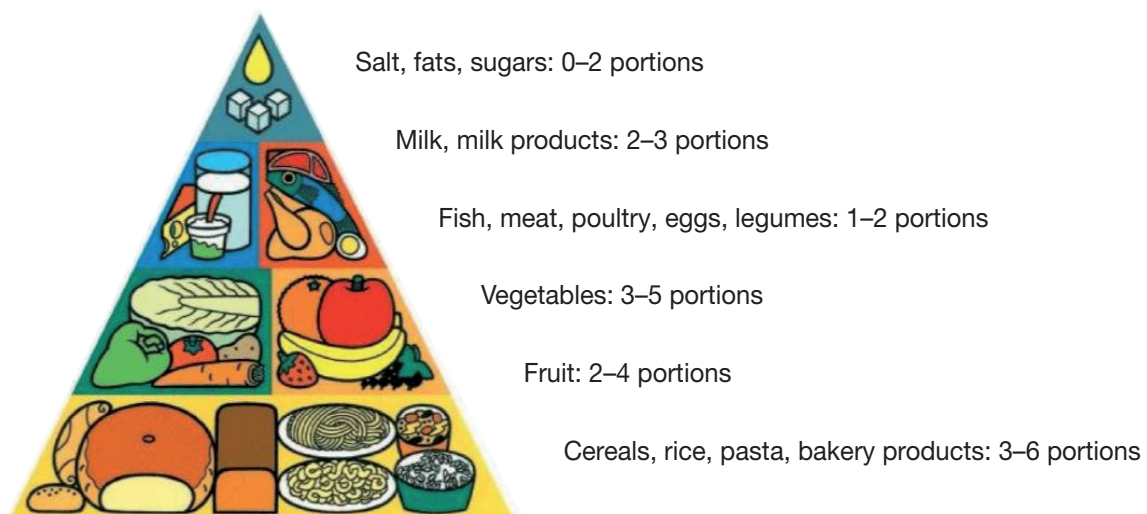
Nutrition

Preventive measures in the area of nutrition are understood as a reduction in risk-increasing food and, conversely, an increase in the consumption of foods with a positive impact. In terms of prevention, it is also advisable to know general dietary recommendations and be able to follow a healthy diet.

As far as oncological prevention is concerned, it is advisable to observe the following measures that decrease the risk of the onset of several oncological diseases (Komárek [online], 2007).

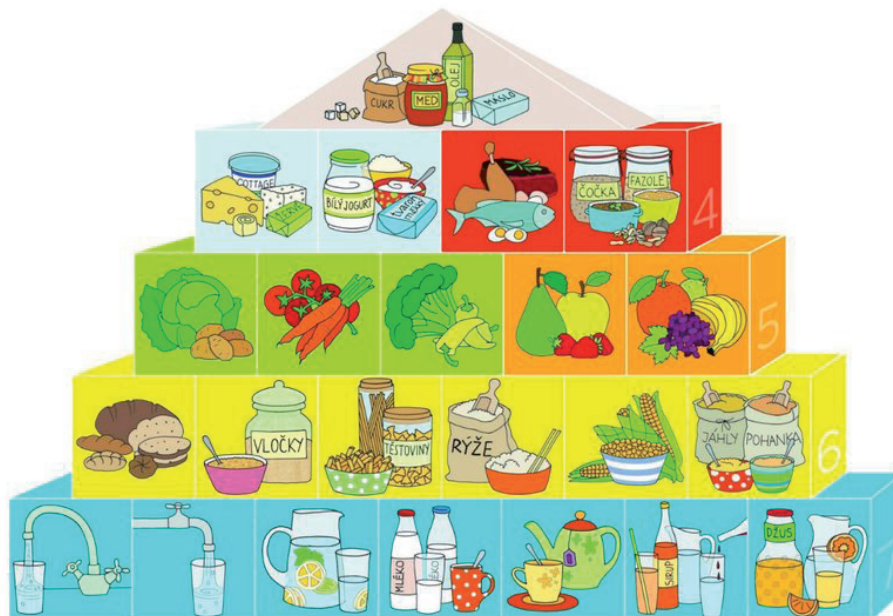
- Include fruit, vegetables, whole-grain products and legumes in the diet;
- Avoid smoked and oversalted foods;
- Use a reasonable amount of salt, the maximum recommended amount is 5 g of salt per day for adults and 4 g for children (approximately one teaspoon);
- Reduce the consumption of red meat and offal;
- Include fish in the diet;
- Give priority to vegetable fats;
- Reduce food preparation at high temperatures, such as baking, frying, smoking, grilling. Use cooking and stewing instead.

In the area of nutrition it is important to follow a proper diet, which should reflect the food pyramid. The food pyramid reduces the risk of excessive or insufficient intake of certain substances and indicates the amount of specific foods. Each main dish of the day should contain all floors of the food pyramid.



Food pyramid (Výživová doporučení pro obyvatelstvo ČR [online], 2005)

The food pyramid made of “blocks” is for children to make it easier to understand. The blocks represent the number of portions, where one portion compares to a clenched fist or open palm, and one drink means 250 ml.



Food pyramid for children (Mužíková & Březková, 2014)

The floors of the pyramid contain (Pohyb a výživa [online], 2014):

- Drinks—fluid intake is extremely important. Unsweetened and uncarbonated drinks are preferred, the best is clean drinking water. In the food pyramid by Mužíková and Březková (2014), drinks also include milk, especially for its high content of water. However, food legislation classifies milk among dairy products;
- Cereals, bakery products, pasta—the main source of carbohydrates;
- Fruit and vegetables—the recommended daily intake of fruit and vegetables is 5 portions a day. Fruit and vegetables are an important source of water, fibre, vitamin C, and mineral substances;
- Dairy products, eggs, meat, fish, legumes, nuts—the main source of protein;
- Food flavouring.

In addition to including food from each floor of the pyramid, the diet should be regular, appropriate, and varied. Everybody should consume a reasonable amount of food about five times a day, the interval between meals should not exceed 3 hours, and each meal should be sufficiently varied, which can also be ensured by the food pyramid. In addition, food should be properly stored and subjected to appropriate heat treatment (Pohyb a výživa [online], 2014).



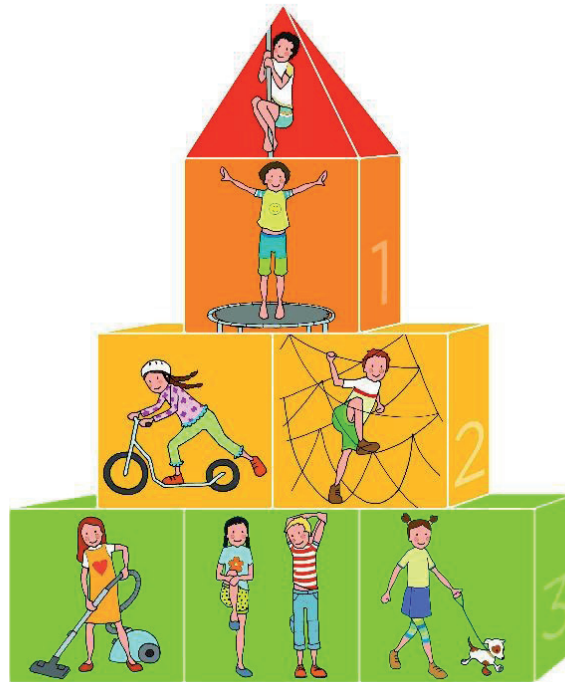
Tip: WHO/Cancer prevention/Dietary factors:

<https://www.who.int/cancer/prevention/en/>

Physical activity

Physical activity is absolutely crucial for the health of each individual, and together with an appropriate diet has a significant effect on the prevention of not only oncological diseases.

Suitable physical activity for children can be planned using the physical activity pyramid that describes the appropriate intensity and amount of physical activity. The physical activity pyramid is divided into several blocks, each representing 20 to 30 minutes of physical activity. The activity need not be continuous but can be divided into shorter periods of at least 10 minutes each.



Physical activity pyramid for children (Mužik & Mužiková, 2014)

The floors of the pyramid represent the following (Pohyb a výživa [online], 2014):

- Low intensity physical activity—this is an activity without a considerable increase in heart rate and respiration rate, such as walking, slow movement back and forth, standing, housework, etc. Everybody should accumulate at least 12,000 steps per day. This activity should be performed for at least 60 to 90 minutes per day;
- Medium intensity physical activity—the second floor includes for example fast-paced walking, running, physical activity games, cycling, skating or even riding a scooter. During these activities everybody should work out until they are slightly out of breath while it should take up to 60 minutes per day;
- Higher intensity physical activity—the activities on the third floor should be pursued for up to 30 minutes per day, they include for example intensive cycling or fast running;
- Vigorous physical activity—these activities are short-term, last less than 20 seconds, and include for example very fast running, running uphill, running up the stairs, or pole climbing.



Tip: WHO/Cancer prevention/Physical inactivity:

<https://www.who.int/cancer/prevention/en/>

Overweight, obesity

Overweight and obesity represent a significant risk to the development of neoplastic diseases. The preventive measure is adequate body weight, which requires a balance between energy intake and expenditure.



Tip: WHO/Cancer prevention/Obesity and being overweight:

<https://www.who.int/cancer/prevention/en/>

Infection

The most common type of infection with the greatest influence on the development of oncological diseases is the HPV infection. Regarding the fact that the infection is transmitted through sexual contact, the basic preventive measure is protected sexual intercourse using a barrier contraception (condom) and limited promiscuity. Another preventive measure is vaccination against papillomaviruses.



Tip: WHO/Cancer prevention/Infections:

<https://www.who.int/cancer/prevention/en/>

Other preventive measures

The risk of ultraviolet radiation can be decreased or even eliminated by avoiding sunlight, using creams with a high sun protection factor, and avoiding solaria.

Mothers should try to breast-feed their children for at least six months without any complementary feeding, because breastfeeding helps prevent breast cancer in the mother and excessive weight gain in the child.



Tip: WHO/Cancer prevention:

<https://www.who.int/cancer/prevention/en/>

Secondary prevention

Secondary prevention focuses on the detection of neoplastic disease at an early curable stage, thus avoiding the development of the disease. Secondary prevention helps reduce mortality. Important parts of secondary prevention include preventive check-ups, screening programmes, breast and testicular self-examination (Prevence nádorových onemocnění [online], 2017).

As part of secondary prevention, each person over 18 years of age is entitled to a comprehensive periodic preventive examination by a general practitioner once every two years, which should also include the prevention of oncological diseases. During the preventive check-up the general practitioner should examine the skin, rectum, testicles in men, and breasts in women. The patients should also be informed about the significance of breasts and testicular self-examination. In addition, each year a preventive dental examination should be taken to detect any precancerous changes in the teeth and jaws (Preventivní prohlídky [online], 2018).

Screening programmes are an essential part of secondary prevention. The term screening means regular examination of the target population with no signs of the disease. The aim of screening is the timely detection of any diseases (Tomášek [online], 2015).



Tip: For more information about screening see the WHO website – Cancer/Screening:

<https://www.who.int/cancer/prevention/diagnosis-screening/screening/en/>

Screening Tests

<https://www.cdc.gov/cancer/dcpc/prevention/screening.htm>

Tertiary prevention

Tertiary prevention is aimed at monitoring patients who have suffered cancer, because even after successful treatment, complication and recurrence of the tumour may occur, or even late metastases may develop. The objective of tertiary prevention is primarily the following (Tesařová [online], 2017):

- Prevention of the recurrence of cancer;
- Examination of the other organ in the pair, where a malignant tumour was diagnosed, for example in the case of breast or kidney cancer;
- Monitoring of new oncological diseases.

Uživajmo v zdravju [Let's enjoy health] online game:

<http://hrast.pef.uni-lj.si/games/website/uzivajmoVZdravju.html>

Manual of the project "Let's enjoy health"

http://www.uzivajmovzdravju.si/wp-content/uploads/2016/12/prirocnik_UZ_gibanje-F.pdf



DRAFT TEACHING LESSON 2

ESTIMATED TIME: 45 min / 90 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|--|---|--|-----------------|
| Motivation | <ul style="list-style-type: none"> • Discussion on homework (see application of Teaching lesson 1) | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 3 min |
| Exposure | <ul style="list-style-type: none"> • The concept of primary, secondary, and tertiary prevention • Primary prevention • Completion of a worksheet (Tasks 1–3) • Activity 1: Food pyramid • Completion of a worksheet (Tasks 4–7) • The concept of screening | <ul style="list-style-type: none"> • Using a worksheet • Presentation • Activities • Discussion | <ul style="list-style-type: none"> • Group • Individual • Work in pairs | 25 min |
| Reinforcement | <ul style="list-style-type: none"> • Activity 2: Who am I and where do I belong? or Activity 3: Match correctly • Activity 4: Live physical activity pyramid | <ul style="list-style-type: none"> • Activities | <ul style="list-style-type: none"> • Group • Work in pairs | 15 min |
| Application | <ul style="list-style-type: none"> • Activity 5: Weekly record • Activity 6: Enjoy your meal | <ul style="list-style-type: none"> • Activities | <ul style="list-style-type: none"> • Individual • Group | 2 min 45 min |

It is a good idea to start the lesson with a discussion about the homework. The students discuss whether they have found somebody with an increased probability of the onset of a neoplastic disease, and what risk factors they have observed. The teacher may ask the following questions:

- *How could you eliminate the risk factors?*
- *What can you do to prevent neoplastic diseases?*
- *What do you think the term prevention means?*

Exposure

The students are handed *Worksheet 2*, which they complete and continuously check with the teacher. Any exercise may be followed by a discussion and the teacher's presentation. At first, the students learn about the concepts of primary, secondary, and tertiary prevention by completing Task 1. In Task 2, they discuss with the teacher what should be included in primary prevention. When checking Task 3, the students can add more food that may be included in the diet as part of oncological prevention.



Download presentation:

<https://www.rozhodniseprozdravi.cz/prevence-onkologick%C3%BDch-onemocn%C4%9Bn%C3%AD>

The next is *Activity 1* "Food pyramid". The students are given cards with different foods and their task is in pairs to place the cards on the correct floors of the pyramid.

After that they can proceed to Task 4. First of all, emphasis should be placed on the proper structure of the diet, which is facilitated by the food pyramid. In Task 5, the students learn about capitalized

the Physical activity pyramid. The students say what activities they like. After the completion of Task 6, they will understand the basic oncological prevention recommendations. At the end of the worksheet the term screening is briefly introduced and defined in Task 7.



Tip for the teacher: Project the food pyramid when checking Task 4.

Reinforcement

During the reinforcement stage the teacher can choose from two activities that revise the risk and protective factors: *Activity 2* “Who am I and where do I belong?” or *Activity 3* “Match correctly”. The first activity involves physical activity in the classroom, in the second activity the students work in pairs at their desk. Prevention in the area of physical activity may be repeated in *Activity 4* “Live physical activity pyramid”, which can make the lesson more interesting.

Application

The purpose of *Activity 5* is to make the students think about their own preventive behaviour and the activity should be assigned as homework. The students are encouraged to produce a weekly record. For a period of one week, they will record in the table what they have done for oncological prevention and which risk factors they have failed to avoid. A voluntary activity is to produce a weekly record for other family members. If a kitchen is available, the students can spend the following lesson making healthy and simple meals. Recipes are developed as part of *Activity 6* entitled “Enjoy your meal”. If a kitchen is not available, the students receive recipes and try to make the meals at home.



WORKSHEET 2 – PREVENTION OF ONCOLOGICAL DISEASES

Oncological prevention is divided into three main categories:
primary, secondary, and tertiary.

1) Match what belongs together and you will understand the concepts of primary, secondary, and tertiary prevention:

PRIMARY
PREVENTION

Applies to patients with cured neoplastic disease.

Focuses primarily on improving one's lifestyle.

Focuses on the timely detection of the disease.

SECONDARY
PREVENTION

The purpose is to prevent the onset of neoplastic diseases.

The aim is especially to avoid the recurrence of the disease.

Elimination of the development of the disease.

TERTIARY
PREVENTION

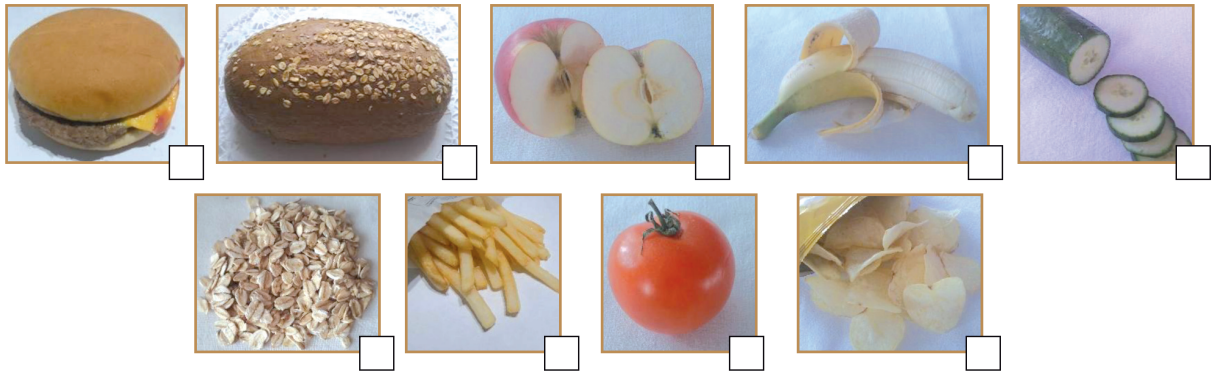
Relates to healthy people.

Includes preventive check-ups and screening.

2) Give examples of steps taken as part of primary prevention of neoplastic diseases:

An important part of the prevention of neoplastic diseases is a healthy lifestyle,
which includes, inter alia, proper nutrition and a well-designed diet.

3) Identify the foods that should be included in the diet as part of oncological prevention:



4) Label the floors of the food pyramid and then add some foods on the correct floors

1st floor: _____

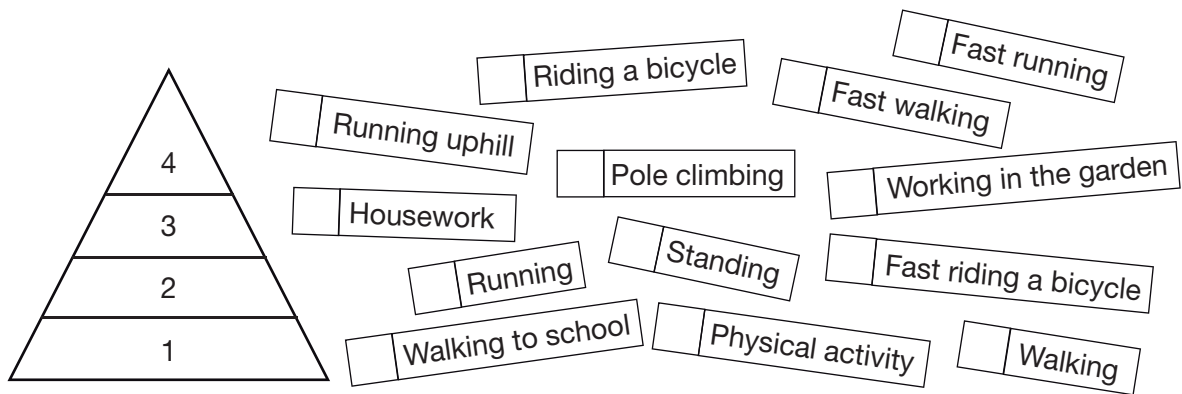
2nd floor: _____

3rd floor: _____

4th floor: _____

5th floor: _____

5) Assign a number to each physical activity according to the correct floor of the Physical activity pyramid:



6) Decide whether the following statements are oncological prevention recommendations or not, and in the solution write the letter corresponding to your answer. What is the solution?

| | YES | NO |
|--|-----|----|
| 1 Non-smoking is very important, but high alcohol consumption does not increase the risk of the onset of cancer. | R | P |
| 2 The diet should include 5 portions of fruit and vegetables. | R | A |
| 3 It is a good idea to reduce baking, grilling, frying, and increase cooking and stewing. | E | K |
| 4 The diet should include whole-grain products and legumes. | V | O |
| 5 It is recommended to consume meat products, smoked and oversalted food. | V | E |
| 6 Only a reasonable amount of salt should be consumed, the recommended daily amount is approximately two teaspoons (10 g). | I | N |
| 7 Everybody should take at least 5,000 steps a day. | N | T |
| 8 The prevention of some neoplastic diseases includes protected sexual intercourse, restricting promiscuity, and the use of sun protection creams. | I | A |
| 9 It is very important to carry out breast and testicular self-examination | O | K |
| 10 The prevention of skin cancer is to avoid excessive exposure to the sun | N | Y |

Solution: _____

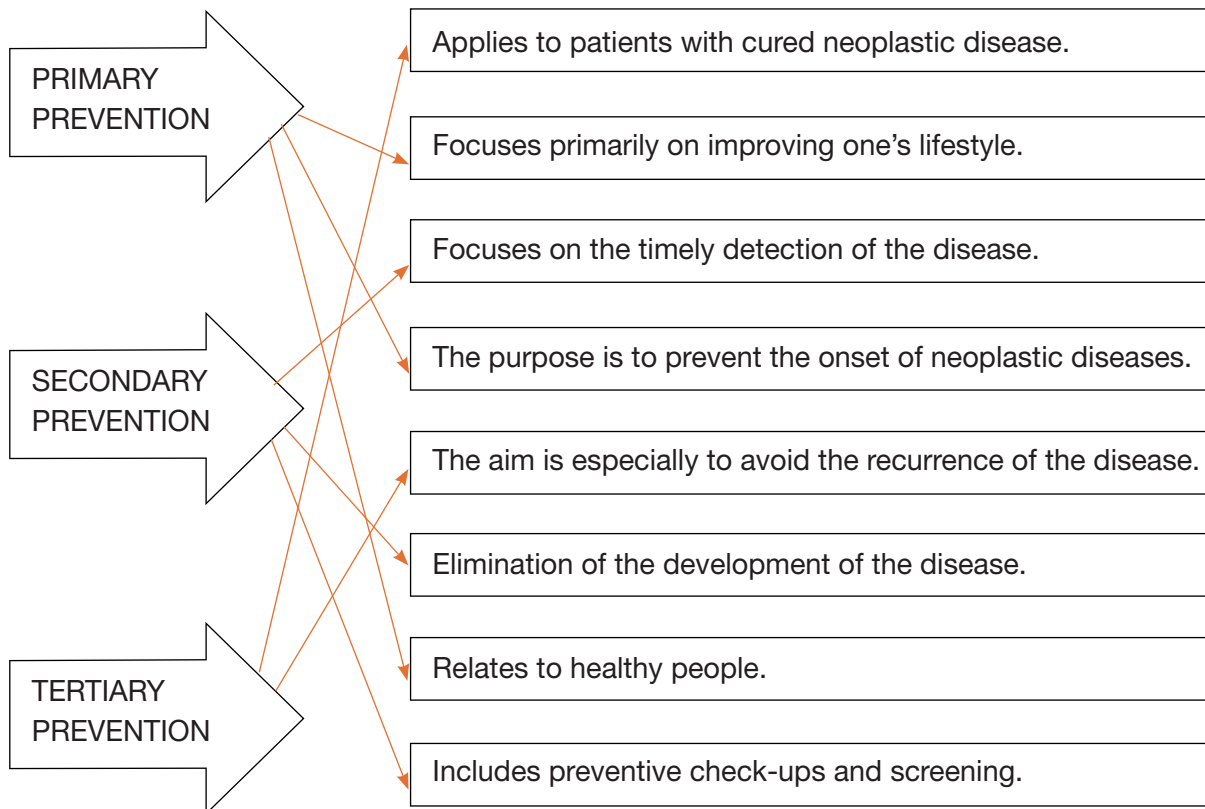
7) Explain the term screening:



WORKSHEET 2 – PREVENTION OF ONCOLOGICAL DISEASES

Oncological prevention is divided into three main categories:
primary, secondary, and tertiary.

1) Match what belongs together and you will understand the concepts of primary, secondary, and tertiary prevention:

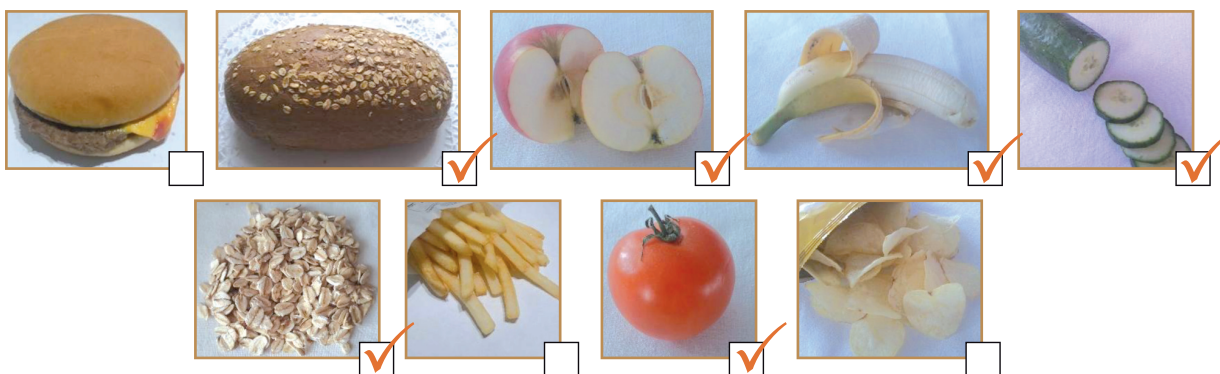


2) Give examples of steps taken as part of primary prevention of neoplastic diseases:

Non-smoking, alcohol restriction, proper diet, sufficient physical activity, protected sexual intercourse, limited promiscuity, use of creams with sun protection factor, rest

An important part of the prevention of neoplastic diseases is a healthy lifestyle, which includes, inter alia, proper nutrition and a well-designed diet.

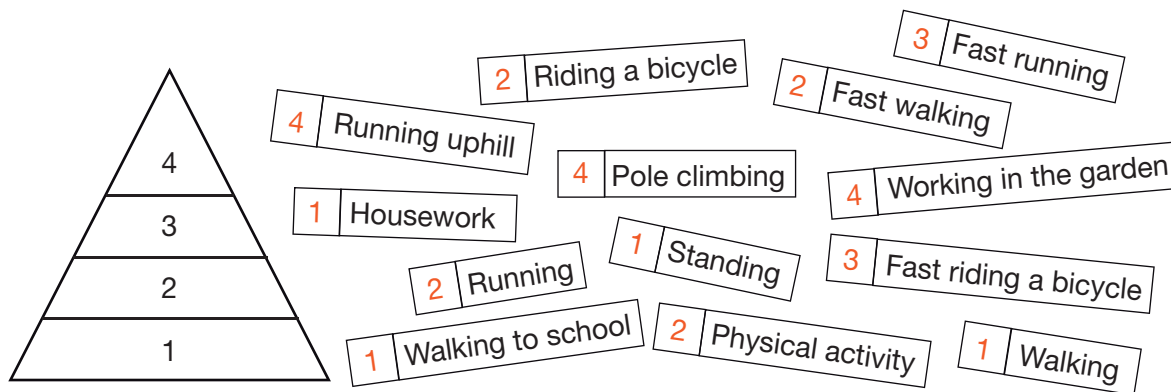
3) Identify the foods that should be included in the diet as part of oncological prevention:



4) Label the floors of the food pyramid and then add some foods on the correct floors

- 1st floor: Drinks—plain water, unsweetened tea, juice, water with lemon
- 2nd floor: Cereals, bakery products, pasta—rice, flakes, buckwheat, wholemeal bread, ...
- 3rd floor: Fruit, vegetables—5 pieces, apple, banana, pepper, cucumber, tomato, broccoli, ...
- 4th floor: Dairy products, eggs, meat, legumes, nuts—lentils, beans, fish, ...
- 5th floor: Flavourings—sugar, salt, oil, honey, ...

5) Assign a number to each physical activity according to the correct floor of the Physical activity pyramid:



6) Decide whether the following statements are oncological prevention recommendations or not, and in the solution write the letter corresponding to your answer. What is the solution?

| | | YES | NO |
|----|--|----------|----------|
| 1 | Non-smoking is very important, but high alcohol consumption does not increase the risk of the onset of cancer. | R | <u>P</u> |
| 2 | The diet should include 5 portions of fruit and vegetables. | <u>R</u> | A |
| 3 | It is a good idea to reduce baking, grilling, frying, and increase cooking and stewing. | <u>E</u> | K |
| 4 | The diet should include whole-grain products and legumes. | <u>V</u> | O |
| 5 | It is recommended to consume meat products, smoked and oversalted food. | V | <u>E</u> |
| 6 | Only a reasonable amount of salt should be consumed, the recommended daily amount is approximately two teaspoons (10 g). | I | <u>N</u> |
| 7 | Everybody should take at least 5,000 steps a day. | N | <u>T</u> |
| 8 | The prevention of some neoplastic diseases includes protected sexual intercourse, restricting promiscuity, and the use of sun protection creams. | <u>I</u> | A |
| 9 | It is very important to carry out breast and testicular self-examination | <u>O</u> | K |
| 10 | The prevention of skin cancer is to avoid excessive exposure to the sun | <u>N</u> | Y |

Solution: **PREVENTION**

7) Explain the term screening:

Regular examination of the target population with no signs of the disease.



ACTIVITIES FOR STUDENTS

ACTIVITY 1: FOOD PYRAMID

The students receive pictures with different parts of the floors of the food pyramid and in pairs they put the food pyramid together. Then the students are shown the whole pyramid and check their solution.



Components of the food pyramid (Mužíková & Březková, 2014)

ACTIVITY 2: WHO AM I AND WHERE DO I BELONG?

The students receive cards with risk factors and cards with primarily prevention factors of oncological diseases. The students arrange themselves into two groups according to which factor they have received. On one side of the classroom there are students with risk factors, while on the other side there are students with primarily prevention factors. To make the activity more interesting and challenging, the teacher may attach the cards to the students' back and their task is to arrange themselves without communicating.

ACTIVITY 3: MATCH CORRECTLY

This activity is a modification of the previous one; the students work in pairs and their task is to arrange the cards in two columns. During this activity, the students fix their knowledge of the risk and protective factors of neoplastic diseases.

| | | | | |
|------------------------------|-------------------------------|-----------------------------------|------------------------------|--|
| RISK FACTORS | Smoking | Alcohol | Meat products | Grilling, frying, smoke cooking |
| High amount of salt | Overweight, obesity | Low physical activity | Sedentary way of life | HPV |
| Sun radiation | Solaria | Stress | Inheritance | |
| PRIMARY PREVENTION | Restriction of alcohol | Legumes, oat flakes | Fruit, vegetables | Rest |
| Fish | Wholemeal products | Reasonable physical weight | Physical activity | Condom |
| Protective sun creams | Avoid Solaria | Non-smoking | | |

Activity 4: Live physical activity pyramid

Volunteers who are not afraid to perform in front of others are given cards with activities. Their task is to pantomime these activities. The other students do not guess aloud but only talk to the other guessers. Their main task is to arrange the performing students into a physical activity pyramid. Once all the performing students are arranged the cards are revealed and the pyramid is checked with the teacher. The students revise the floors of the physical activity pyramid and at the same time make the lesson more interesting.

| | | | |
|----------------------|---------------------|------------------------------|--------------------------------|
| Walking | Vacuuming | Working in the garden | Cleaning windows |
| Cycling | Skating | Riding a scooter | Rope skipping |
| Swimming | Fast cycling | Fast running | Jumping on a trampoline |
| Pole climbing | Fast walking | Running | Dancing |

Activity 5: Weekly record or what I have done for my health

The students are given a table, in which they record their daily regimen throughout the whole week with a focus on nutrition and physical activity. A smiling emoji 😊 is used to identify a health supporting item, while a frowning smiley ☹️ identifies something they should avoid next time. The table should make the students consider whether what they do is preventive or risky with respect to the onset of neoplastic diseases. The students can also produce a weekly record for other family members.

Weekly record:

| | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Breakfast | | | | | | | |
| 5 pieces of fruit and vegetables | | | | | | | |
| Cooked and stewed dish | | | | | | | |
| Grilled or fried dish | | | | | | | |
| Wholemeal bread | | | | | | | |
| Legumes | | | | | | | |
| Fish | | | | | | | |
| Red meat | | | | | | | |
| Sweets | | | | | | | |
| Crisps | | | | | | | |
| Plain water | | | | | | | |
| Sweetened drink | | | | | | | |
| 2–3 litres of suitable drink | | | | | | | |
| PC/phone game | | | | | | | |
| Housework | | | | | | | |
| Sport (specify) | | | | | | | |
| Relaxation (specify) | | | | | | | |

Activity 6: Enjoy your meal

The students are divided into groups and their task is to make a simple healthy meal according to a recipe. After that they all taste the meal and give points. The group with the highest number of points is the winner and receives the title "Class Chefs".

RECIPES:

Cream cheese spread

Ingredients: 250 g of cream cheese, 2 tablespoons of white yoghurt, chives, salt, pepper

Procedure: Mix all ingredients and serve with wholemeal bread.

Radish spread

Ingredients: 250 g of cream cheese (or 150 g of cottage cheese), 3 tablespoons of white yoghurt, 1 bunch of radishes, chives or garden cress, salt, pepper

Procedure: Grate the radishes, mix with other ingredients, serve with wholemeal bread.

Beetroot spread

Ingredients: Beetroot, 200 g of cream cheese, 100 g of hard cheese, 3 cloves of garlic, salt, pepper

Procedure: Finely grate the beetroot, mix with the grated cheese and other ingredients. Serve with wholemeal bread.

Pumpkin muffins (6–8 muffins)

Ingredients: 1 large shredded carrot, 1 cup of shredded pumpkin, 80 ml of milk, 1 teaspoon of honey, 1 whole egg, 2 tablespoons of rapeseed oil, 100 g of wholemeal flour, 30 g of ground nuts, 1 teaspoon of baking powder

Procedure: Mix all ingredients, fill in moulds, bake at 170°C for approximately 20 min.

Muesli bars (20 bars)

Ingredients: 2 cups of oat flakes, 2 tablespoons of honey, ¼ teaspoon of salt, 1 banana, 1 cup of dried fruit (raisins, cranberries, etc.), 1 cup of nuts and seeds, 1 teaspoon ground cinnamon, 60 ml of rapeseed oil

Procedure: Fry the flakes, nuts and seeds on a frying pan, in the meantime cut fruit and spread the banana, then add the other ingredients. Spread the mixture on a baking sheet and bake at 180°C for approximately 30 min. Cut the baked and cooled mixture into rectangular muesli-shaped bars.

Oncological disease of the colon and rectum

.....

Keywords: colon and rectum, risk factors, symptoms, prevention, faecal occult blood test, screening colonoscopy



THEORETICAL PREPARATION

The word *colon* comes from Latin. The colon is part of the digestive system. It is located in the abdomen, while it is approximately 1.5 m long and 5–8 cm wide. It starts with the appendix and includes the ascending, transverse, and descending colon, sigmoid, rectum, and ends with the anus. The main function is to thicken the intestinal contents by absorbing water together with some mineral substances (Machová, 2010). Colon and rectum cancer is jointly referred to as colorectal carcinoma.

In 2018, 1.8 million people suffered from colorectal cancer.



Tip: *The current prevalence of colorectal carcinoma:* WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

Risk factors

The onset of a neoplastic disease is affected by several risk factors (Jaké je mé riziko onemocnění? [online], 2015):

- Age—individuals over 50 years old are a risk group;
- Hereditary predispositions—the risk of cancer increases in individuals whose blood relatives, including parents, siblings, or children have had colorectal cancer;
- Intestinal polyps—mucous growths. These are non-malignant tumours. If not removed, they keep growing and some of them may become malignant;
- Chronic inflammatory bowel disease—for example Crohn's disease, where chronic irritation of the mucous membrane causes certain changes that may lead to the onset of cancer;

- Structure of one's diet—a risk factor that everybody can influence. The factors that increase the risk of colorectal cancer include the excessive intake of energy-rich foods, high-temperature food treatment (frying, baking, grilling, smoke cooking), lack of fibre, fruit and vegetables;
- Decreased physical activity;
- Excessive intake of alcohol;
- Smoking.

Symptoms

It should be noted that any prolonged change in bowel function may be a manifestation of colorectal carcinoma. The symptoms of colorectal cancer include the following:

- Diarrhoea, constipation, feeling of insufficient emptying, difficult emptying, narrow stools;
- Bleeding from the rectum or bright red to dark red blood in the stool;
- Abdominal discomfort—feeling of fullness, flatulence, abdominal pain;
- Unintentional weight loss;
- Nausea, lack of appetite, fatigue, weakness, increased body temperature.

In case of any doubt or symptoms a physician must be consulted and relevant examinations taken! These symptoms need not always indicate cancer but for example an infectious or inflammatory disease, or haemorrhoids (Jaké jsou příznaky onemocnění? [online], 2015).

Prevention

The primary prevention of colorectal cancer should include the general principles of preventing neoplastic diseases; any susceptible risks of colorectal carcinoma must be reduced or eliminated.

These primarily include:

- Limited intake of energy-rich food;
- Limited food preparation at high temperatures;
- Sufficient intake of fibre, fruit and vegetables;
- Increased physical activity;
- Reduced alcohol consumption and non-smoking.

Colorectal screening consists of occult (hidden) faecal bleeding (FOBT) or screening colonoscopy. Alternatively, a preventive screening colonoscopy may be taken.

Faecal occult blood test (FOBT)

FOBS is a very simple, painless, and effective method, and is usually performed by the general practitioner. The sample can easily be taken home. The test consists of taking a small stool sample into a test tube and sending it to the laboratory. The test analyses the presence of human haemoglobin in the stool and can detect a large percentage of tumours at an early stage. However, a positive result need not always indicate a neoplastic disease and must be followed by a colonoscopic examination (Brůha [online], 2017).

Screening colonoscopy

This is an examination of the rectum and colon using a colonoscope in accredited screening centres. The colonoscope is an instrument fitted with a camera, which is introduced through the anus to the beginning of the colon, and the colon is then checked during the reverse movement. During the examination it is also possible to take a suspicious sample or remove any polyps. A precondition for a high-quality examination is proper intestinal preparation, which includes dietary restrictions three days in advance. Any solid food should be omitted, and one day prior to the examination 4 litres of laxative must be drunk. Colonoscopy is a very reliable examination, which should be performed once every ten years (Screeningová kolonoskopie [online], 2015).



Screening Tests:

<https://www.cdc.gov/cancer/dcpc/prevention/screening.htm>

What Is Colorectal Cancer Screening?:

https://www.cdc.gov/cancer/colorectal/basic_info/screening/

Screening colonoscopy:

Will Smith: I Vlogged My Colonoscopy (video 17:37 min):

<https://www.youtube.com/watch?v=eWwKQjUyoUc>



DRAFT TEACHING LESSON 3

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|---|---|--------|
| Motivation | <ul style="list-style-type: none"> • Occurrence of colorectal cancer | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 5 min |
| Exposure | <ul style="list-style-type: none"> • Structure of the digestive system • Risk factors, symptoms, primary prevention • Secondary prevention • Colonoscopy: video (3:47 min) • Completion of a worksheet | <ul style="list-style-type: none"> • Presentation • Using a worksheet • Watching a video • Discussion | <ul style="list-style-type: none"> • Group • Individual | 30 min |
| Reinforcement | <ul style="list-style-type: none"> • Summary of the lesson | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 7 min |
| Application | <ul style="list-style-type: none"> • Homework assignment: Secondary prevention in their environment | <ul style="list-style-type: none"> • Activities | <ul style="list-style-type: none"> • Individual | 3 min |

Motivation

The teacher shows the incidence and mortality graphs as well as the occurrence by age structure according to WHO/Cancer today.



Occurrence of colorectal cancer in the world: WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

Exposure

The students are handed *Worksheet 3*, which they continuously complete and check with the teacher. Any exercise may be followed by a discussion and the teacher's presentation.



Download presentation:

<https://www.rozhodniseprozdрави.cz/onkologick%C3%A9-onemocn%C4%9Bn%C3%AD-tlust%C3%A9ho-st%C5%99eva-a-kone%C4%8Dn%C3%ADku>

The students complete Task 1. The purpose of Task 2 is to briefly revise the structure of the digestive system and the function of the colon and rectum. In the process of reviewing Tasks 3 and 4 on risk factors and symptoms, the teacher provides additional information and emphasises a medical check-up in the event of any doubts or presence of any of the symptoms. It is recommended to discuss with the students the primary prevention of this disease, as they should already know from the previous chapter how to prevent neoplastic diseases. The teacher writes their ideas on the blackboard, then the students use them to complete Task 5.

The issue of secondary prevention of colorectal cancer is summarized at the end of the worksheet. At first, the students try to guess the name of screening examinations in Task 6. Then the teacher makes a presentation and plays a *video*.



Colonoscopy (video 3:47 min):

<https://www.youtube.com/watch?v=xCmnWsAqMlw>



Colorectum:

<https://www.kolorektum.cz/index-en.php>

Reinforcement

A discussion is held to revise the issue of colon and rectal cancer, especially its risk factors, symptoms, and primary and secondary prevention.

Application

At the end of the lesson the students are assigned *homework*: explain the purpose of screening for colorectal cancer to their family and friends, especially people over 50 years of age.

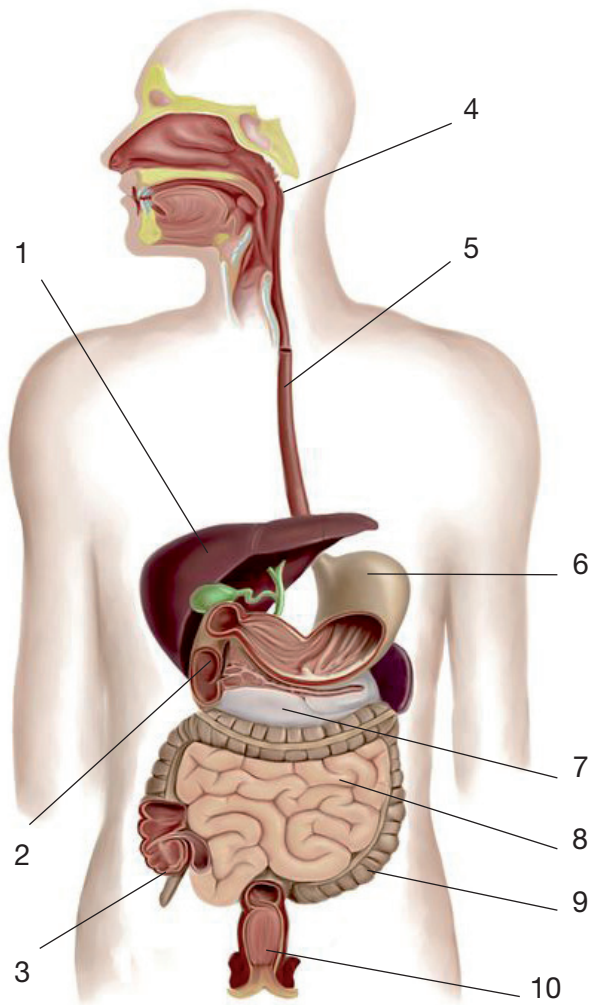


WORKSHEET 3 – ONCOLOGICAL DISEASE OF THE COLON AND RECTUM

1) Add the missing words:

Not taking into account skin tumours, colon and rectum cancer is the _____ most frequent neoplastic disease after breast cancer in women and prostate cancer in men. It is jointly referred to as _____ carcinoma.

2) Describe the parts of the digestive system and choose the correct statements:

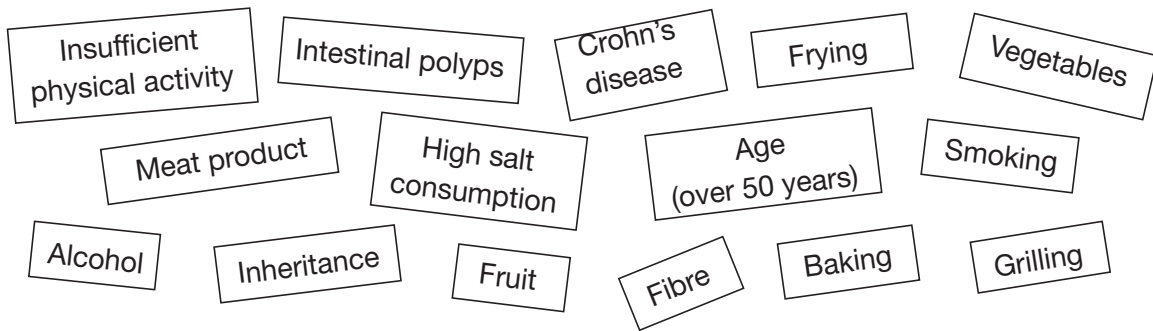


_____ 1 –
 _____ 2 –
 _____ 3 –
 _____ 4 –
 _____ 5 –
 _____ 6 –
 _____ 7 –
 _____ 8 –
 _____ 9 –
 _____ 10 –

What is the function of the colon and rectum?

- a) Thickening of the intestinal content
- b) Excretion of indigestible residues
- c) Food disintegration
- d) Absorption of water and mineral substances

3) Select the risk factors of colorectal cancer:



4) Decide whether the following symptoms are related ✓ or not related x

| Symptoms of colorectal cancer | ✓ / x |
|---|-------|
| Any long-term change in intestinal activity | |
| Diarrhoea, constipation, feeling of insufficient emptying | |
| Bleeding from the rectum, bright red to dark red blood in the stool | |
| Narrow stool, unintentional weight loss | |
| Feeling of fullness, flatulence, abdominal pain | |
| Nausea, lack of appetite, fatigue, weakness | |
| In case of any doubt or symptoms a physician must be consulted! | |

5) Write down what everybody can do in the context of oncological prevention of colorectal cancer:

6) Look at the anagram and make a word that refers to the second examination as part of colorectal screening:

N O S C P Y O L O C O

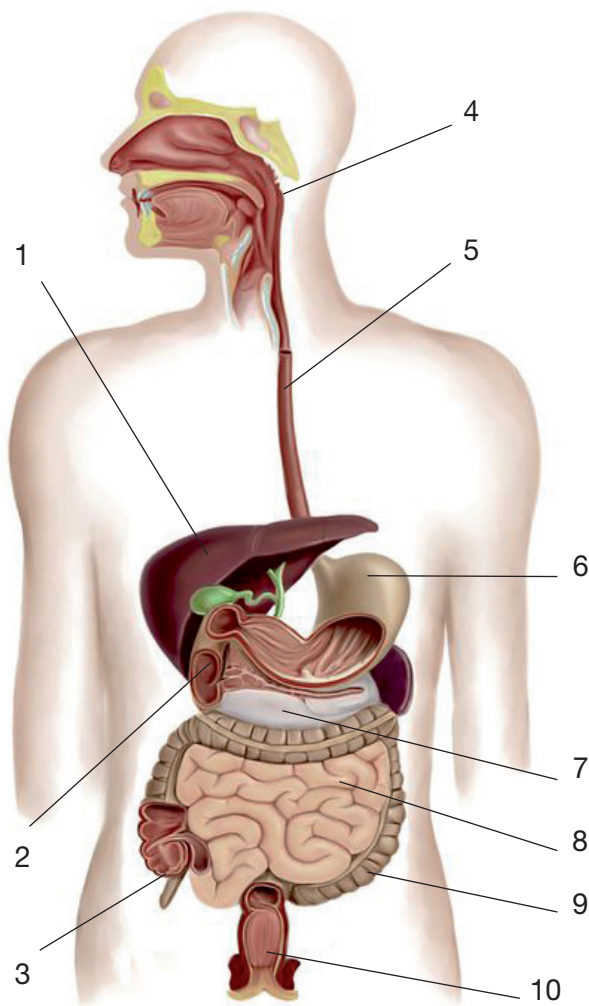


WORKSHEET 3 – ONCOLOGICAL DISEASE OF THE COLON AND RECTUM

1) Add the missing words:

Not taking into account skin tumours, colon and rectum cancer is the **second** most frequent neoplastic disease after breast cancer in women and prostate cancer in men. It is jointly referred to as **colorectal** carcinoma.

2) Describe the parts of the digestive system and choose the correct statements:

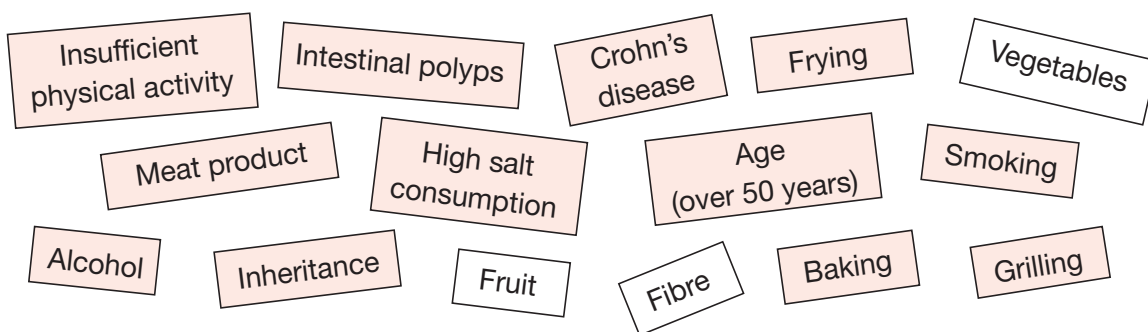


- _____
- 1 – Liver
- _____
- 2 – Duodenum
- _____
- 3 – Appendix
- _____
- 4 – Pharynx
- _____
- 5 – Oesophagus
- _____
- 6 – Stomach
- _____
- 7 – Pancreas
- _____
- 8 – Small intestine
- _____
- 9 – Large intestine
- _____
- 10 – Rectum
- _____

What is the function of the colon and rectum?

- a) Thickening of the intestinal content
- b) Excretion of indigestible residues
- c) Food disintegration
- d) Absorption of water and mineral substances

3) Select the risk factors of colorectal cancer:



4) Decide whether the following symptoms are related ✓ or not related x

| Symptoms of colorectal cancer | ✓ / x |
|---|-------|
| Any long-term change in intestinal activity | ✓ |
| Diarrhoea, constipation, feeling of insufficient emptying | ✓ |
| Bleeding from the rectum, bright red to dark red blood in the stool | ✓ |
| Narrow stool, unintentional weight loss | ✓ |
| Feeling of fullness, flatulence, abdominal pain | ✓ |
| Nausea, lack of appetite, fatigue, weakness | ✓ |
| In case of any doubt or symptoms a physician must be consulted! | ✓ |

5) Write down what everybody can do in the context of oncological prevention of colorectal cancer:

Limited intake of energy-rich food, limited food preparation at high temperatures, sufficient intake of fibre, fruit and vegetables, physical activity, non-smoking, alcohol restriction.

6) Look at the anagram and make a word that refers to the second examination as part of colorectal screening:

N O S C P Y O L O C O



teaching
lesson

4

Oncological disease of the breast

Keywords: breast cancer, risk factors, symptoms, mammography, self-examination



THEORETICAL PREPARATION

In 2018, 2.09 million people suffered from breast cancer.



Tip: *The current prevalence of breast cancer:* WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

Breast cancer is the most frequent neoplastic disease in women and the most frequent cause of death among women aged 20–54 years.

Risk factors

There are several risk factors that may increase the risk of breast cancer (Rakovina prsu [online], 2018):

- Gender;
- Age—the most serious risk factor. Breast cancer most frequently affects women over 45 years of age. For this reason, the secondary prevention focuses especially on this age category;
- Inheritance—the risk of breast cancer significantly increased if diagnosed in direct relatives, i.e. mother, sister, daughter. This is primarily due to the fact human DNA was damaged in regions where important genes for DNA repair or cell death initiation are located. This may lead not only to breast cancer but also other neoplastic diseases. Breast carcinoma is also associated with damage to the BRCA1 and BRCA2 genes, which is frequently examined. The damage to these genes need not always lead to the development of a malignant tumour, but these persons are genetically predisposed to this disease and may threaten their offspring;
- Hormone replacement therapy—application of women's sex hormones, for example, during menopause, when the natural hormone production decreases;
- Inadequate diet;
- Obesity;
- Non-breastfeeding;

- Low physical activity;
- Smoking;
- Early menstruation, late onset of menopause, late or no pregnancy, use of hormonal contraception, radiation therapy—these are less important risk factors.

Symptoms

Breast cancer may have a number of symptoms. Most changes that indicate a neoplastic disease are obvious. The symptoms include:

- Painful lump—the most common and often one of the first symptoms of breast cancer;
- Pain, enlargement of the breast;
- Bulging regions;
- Retracted skin or nipple;
- Pockmarks, scales, swelling of the breast or nipple;
- Discharge or bleeding from the nipple;
- Long-term eczema on the breast, redness;
- Enlargement of lymph nodes above the collar bone and in the armpit—this is a symptom of tumour spreading.

No symptoms should be underestimated and any change should be examined by a gynaecologist or general practitioner (Samovyšetření prsu – návod pro ženy [online], 2017).

Prevention

Breast cancer is the most common neoplastic disease in women. Therefore, it is absolutely vital to know how to prevent it.

The aim of the primary prevention is to eliminate all susceptible risk factors. In the case of breast cancer, the same oncological prevention principles apply, especially a healthy lifestyle—healthy diet, increased physical activity, non-smoking, limited alcohol consumption, etc.

However, the risk factors mentioned above suggest that some of them cannot be influenced (especially age and inheritance). Therefore, the secondary prevention including breast cancer screening and breast self-examination is of vital importance.

Breast carcinoma screening

The method of breast cancer screening is mammography examination. This is a regular examination of the mammary gland in women without symptoms and its aim is to detect a malignant breast tumour at a very early stage (Mamografický screening [online], 2014). Breast cancer screening is very effective, while it is a significant preventive measure, and every woman entitled to this examination should definitely undergo it.

The examination is performed screening mammography centres using an instrument called the mammograph. The examination is not time consuming and is based on X-raying both breasts. In order to achieve high-quality results, each breast must be squeezed between two plates, which may be uncomfortable for some women, but this procedure does not harm the mammary gland. The examination is performed in the standing position and two images of each breast are taken. This is followed by an assessment of the mammography image by a physician.

Breast cancer most frequently affects women over 45 years of age. For this reason, carcinoma screening is targeted especially at this age category.

In younger women, the preferred method is ultrasound examination as they usually have dense fibrous tissue, which usually makes the mammography examination difficult (Mamografické vyšetření [online], 2014).



Tip: Breast cancer/Screening:

<https://www.who.int/cancer/prevention/diagnosis-screening/breast-cancer/en/>

What Is Breast Cancer Screening?

https://www.cdc.gov/cancer/breast/basic_info/screening.htm

Self-examination of breasts

Breast self-examination is a simple method to detect a neoplastic disease at an early and curable stage while it is based on breast palpation. Focus is on any changes in the breasts with a special emphasis on the above mentioned symptoms of cancer.

The self-examination procedure should be performed every month, preferably from an early age. It is advisable to perform the self-examination after showering with warm water when the skin is relaxed and smooth, and the second or third day after menstruation (during menstruation the breasts change) when the breasts are without tension. If the woman does not have periods, she should choose a day in the month which is easy to remember.

Self-examination procedure

- The first step is a visual examination. The woman stands in front of the mirror and examines the appearance of the breasts with her arms along the body, on the hips, and in a slight forward bend with the body turned to one side;
- This is followed by palpation, which is performed by using a circular motion of the pads of the three middle fingers to examine the whole breast without missing any region. It is advisable to select a self-examination scheme that best suits the woman. The palpation examination is first performed in the standing position in front of the mirror, then in the lying position. Each breast is examined separately;

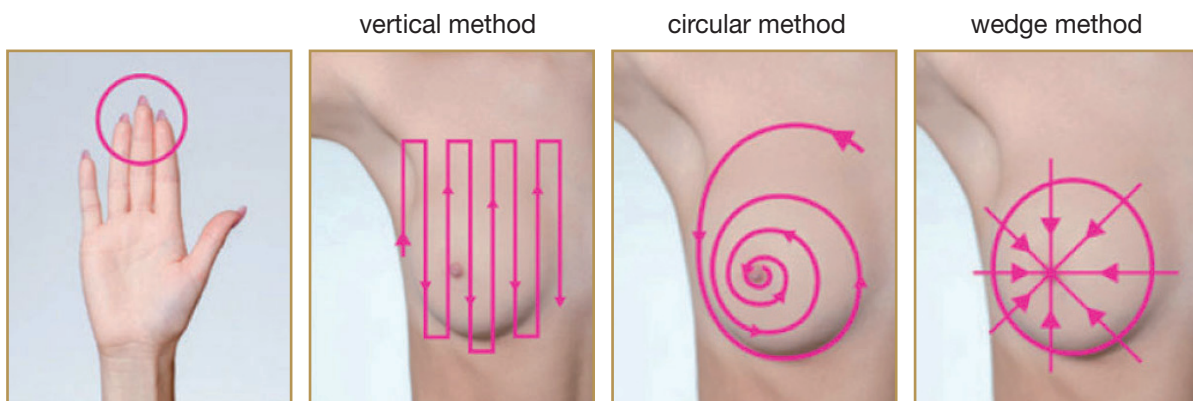
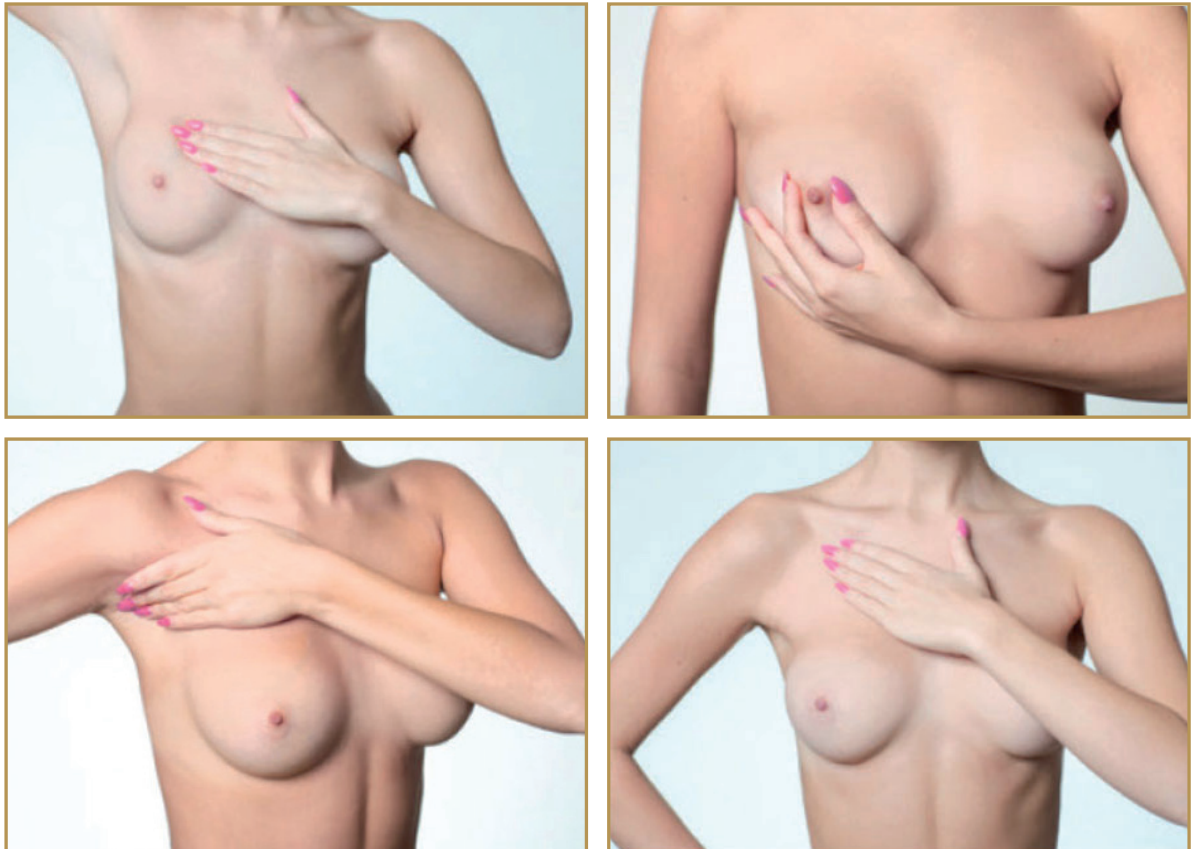


Illustration of the choice of the correct fingers and methods for breast self-examination
(Mamma HELP [online], 2017)

- One hand is placed behind the head and the other examines the whole breast;
- The nipple is examined by gently pressing it to check for any discharge;
- It is also necessary to examine the armpit and the area around the collar bone. The lymph nodes in the armpit are gradually palpated, then the pit above the collar bone and the region above the sternum;
- The same procedure is applied in the lying position with one hand behind the head or along the body. Both breasts must be examined (Mamma HELP [online], 2017).



Breast self-examination procedure by palpation in the standing position (Mamma HELP [online], 2017)



Self-examination of breasts:

How to Check Your Breast|Breast Self Examination|Self Care (video 1:22 min):

<https://www.youtube.com/watch?v=BiduuXQw8H8>



DRAFT TEACHING LESSON 4

ESTIMATED TIME: 45 min / 90 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|--|---|---|--------|
| Motivation | <ul style="list-style-type: none"> Activity 1: Story-based riddle | <ul style="list-style-type: none"> Discussion | <ul style="list-style-type: none"> Group | 3 min |
| Exposure | <ul style="list-style-type: none"> Activity 2: Risk factors of breast cancer Activity 3: Symptoms of breast cancer Activity 4: Self-examination of breasts Activity 5: Breast cancer screening | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Group (alternatively work in pairs) | 30 min |
| Reinforcement | <ul style="list-style-type: none"> Completion of a worksheet | <ul style="list-style-type: none"> Using a worksheet Presentation Discussion | <ul style="list-style-type: none"> Individual Group | 10 min |
| Application | <ul style="list-style-type: none"> Homework assignment | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Individual | 2 min |

Motivation

At the beginning of the lesson as part of *Activity 1*, the teacher reads an excerpt from a story of a woman with breast cancer and the students' task is to guess which neoplastic disease is the topic of the lesson. The teacher should notice who is the first to answer. If the answer is correct, the student wins. The teacher may finish the story.

Exposure

The main part of the lesson is based on group work. The students are divided into four groups according to their coloured slips of paper. There are 4 sections in the classroom relating to breast cancer. Specifically, the following topics are covered: risk factors, symptoms, screening examination of breast cancer, and breast self-examination. The sections are described in detail in *Activities 2, 3, 4, 5*. The teacher gives the instructions concerning the sections before the class is divided into groups. The students spend 5 minutes in each section and then move to the next one. Once the group has completed the task, the teacher checks their answers.



Tip for the teacher: Group work may be substituted by pair work; each pair gradually works on the tasks. After each task the answers are checked together. Another alternative is to assign one section to each group. The task of the group is to study the section thoroughly, understand, and then present and explain to their classmates in their own words.



Download presentation:

<https://www.rozhodniseprozdravi.cz/onkologick%C3%A9-onemocn%C4%9Bn%C3%AD-prsu>

Reinforcement

After group work the students are given *Worksheet 4* to be completed individually. The purpose of the exercises in the worksheet is to revise the knowledge gained during group work. After that the whole worksheet is checked with the teacher, who may add information on the topic. When it comes to the factor of inheritance, the students should be explained the way inheritance affects the onset of breast cancer. The teacher should emphasise the importance of breast self-examination.



Tip for the teacher: If another lesson is available, give more time for group work and the worksheet. If a breast self-examination model is available, include *Activity 6* “Breast self-examination—practice”. The students watch the self-examination procedure on the video and then try it out using the model.

Application

At the end of the lesson the students are assigned *homework*. Their task is to find out if somebody they know has experience with a mammography examination and to perform some small research study on how many people perform breast self-examinations. Another task is to start regular self-examinations (girls) and to promote this method of early detection (girls and boys).



WORKSHEET 4 – ONCOLOGICAL DISEASE OF THE BREAST

1) Specify the risk factors of breast cancer:

2) Identify typical symptoms that may indicate breast cancer:

- Swelling of the fingers
- Scales on the nipple or breast skin
- Painless lump in the region of the breast or armpit
- Pockmarks of the breast skin or nipple
- Pain in the breast
- Retracted nipple or breast skin
- Enlargement of the breast
- Hair loss
- Enlargement of the lymph nodes in the region of the armpit
- Long-term eczema on the breast
- Discharge or bleeding from the nipple
- Enlargement of the lymph nodes in the region of the collar bone
- Redness of the nipple or breast skin
- Long-term eczema on the face

3) Decide whether the following statements concerning breast self-examination are true or not

| Statement | YES/NO |
|--|--------|
| The purpose of the self-examination method is to detect breast cancer at an early and curable stage. | |
| During self-examination, the focus is on any changes in the breasts. | |
| The self-examination should be performed regularly every month, preferably from an early age. | |
| It should be performed the second or third day after menstruation. | |
| The self-examination should be performed after showering with warm water. | |

4) Number the following paragraphs 1–4 according to the right breast self-examination procedure:

- It is also necessary to examine the armpit and the area around the collar bone. Lymph nodes in the armpit are palpated, then the pit above the collar bone and the region above the sternum. The same procedure is applied in the lying position with one hand behind the head or along the body. Both breasts must be examined.
- This is followed by palpation, which is performed by using slow circular movements over the whole breast. The woman placed one hand behind her head and finishes the examination with the other hand.
- The nipple is examined by gently pressing it to check for any discharge.
- The first step is visual examination. The woman stands in front of the mirror and examines the entire appearance of the breasts with her arms along the body, with the body turned to one side, with the arms above the head, with the arms on the hips, and in a slight forward bend.

5) Look at the anagram and write the name of the screening examination of breast cancer:

A G M O H Y A P M M R

| | | | | | | | | | | | |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|

7) In your own words describe the screening examinations of breast cancer and answer the following questions:

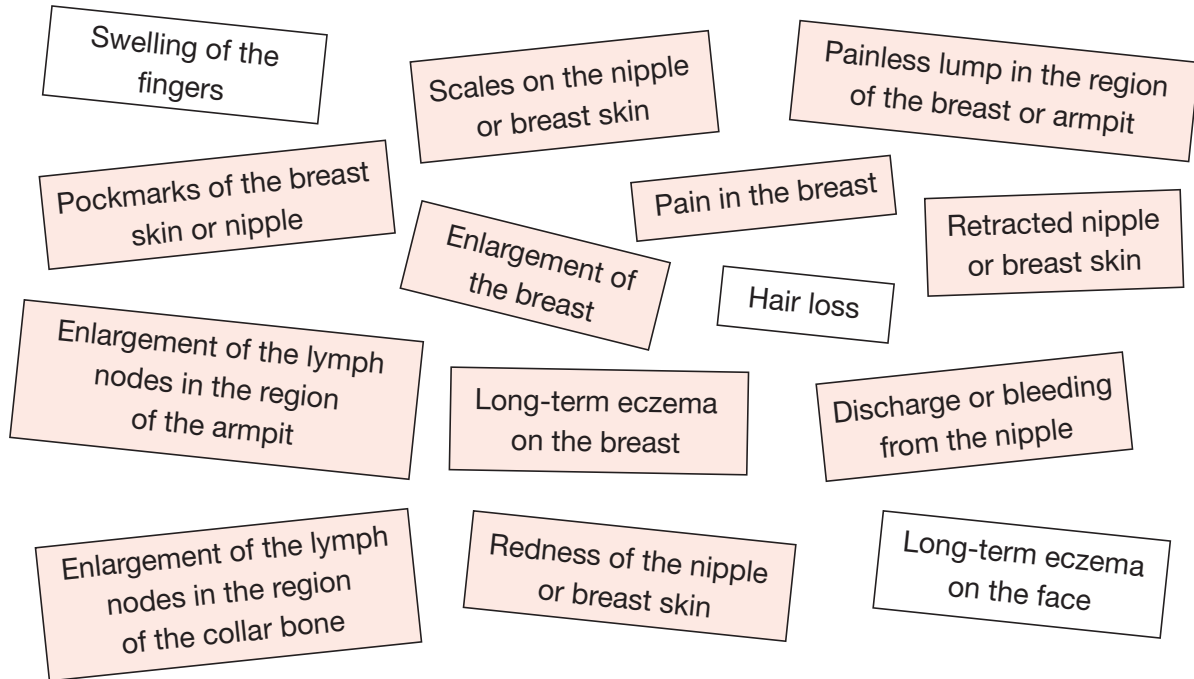


WORKSHEET 4 – ONCOLOGICAL DISEASE OF THE BREAST

1) Specify the risk factors of breast cancer:

Gender, age over 45, breast cancer in the family, genetic factors, poor lifestyle, early menstruation, late menopause, no or late pregnancy, hormonal contraception

2) Identify typical symptoms that may indicate breast cancer:



3) Decide whether the following statements concerning breast self-examination are true or not

| Statement | YES/NO |
|--|--------|
| The purpose of the self-examination method is to detect breast cancer at an early and curable stage. | YES |
| During self-examination, focus is on any changes in the breasts. | YES |
| The self-examination should be performed regularly every month, preferably from an early age. | YES |
| It should be performed the second or third day after menstruation. | YES |
| The self-examination should be performed after showering with warm water. | YES |

4) Number the following paragraphs 1–4 according to the right breast self-examination procedure:

- 4 It is also necessary to examine the armpit and the area around the collar bone. Lymph nodes in the armpit are palpated, then the pit above the collar bone and the region above the sternum. The same procedure is applied in the lying position with one hand behind the head or along the body. Both breasts must be examined.
- 2 This is followed by palpation, which is performed by using slow circular movements over the whole breast. The woman placed one hand behind her head and finishes the examination with the other hand.
- 3 The nipple is examined by gently pressing it to check for any discharge.
- 1 The first step is visual examination. The woman stands in front of the mirror and examines the entire appearance of the breasts with her arms along the body, with the body turned to one side, with the arms above the head, with the arms on the hips, and in a slight forward bend.

5) Look at the anagram and write the name of the screening examination of breast cancer:

A G M O H Y A P M M R

M A M M O G R A P H Y

7) In your own words describe the screening examinations of breast cancer and answer the following questions:

This is a regular examination of the mammary gland in women without symptoms and its aim is to detect a breast tumour at an early stage. The examination is based on screening both breasts.



ACTIVITIES FOR STUDENTS

ACTIVITY 1: Story-based riddle

This activity is based on reading a short excerpt from a story of a woman with breast cancer. The task of the students is to guess which oncological disease is the topic of the lesson. The first student to give the correct answer is the winner. The excerpt should be read until the end. The story makes the students think about the seriousness of breast cancer.

A story of a woman with breast cancer (Když vás srazí nemoc k zemi, musíte vstát [online], 2015):

“It’s been exactly one year. A year since my life has changed. I would never believe that this could happen to me at this age, but it did. A year ago, the doctor told me the three feared words: ‘IT IS CANCER’.”

It all started innocently. I palpated a lump and I went to see my gynaecologist just to make sure. He told me not to worry and that it’s nothing serious, but sent me to a senology department. After an ultrasound examination, the doctor decided to do a biopsy just to be sure. At that time I started to be a little nervous, but I kept telling myself: “Just relax, 9 of 10 objects are non-malignant, it’s unlikely.

After a week of waiting, the day came on which I was supposed to get the results. My mum went with me, I really didn’t want to go alone. When it was my turn, the doctor told my mum to come to the office with me and I realized what was going on. Immediately it came to me that something was not right. I won’t lie. It’s very difficult to describe the first feelings. The scenario I had in mind was clear—that’s the end. I’m just 29. I have no children. I’m freshly in love. What now? What will happen? Can cancer be cured? What is ahead of me? What will my boyfriend say, we’ve been together for a short time, will he leave me? Will I have to undergo chemotherapy? Will I lose my hair, will I be sick all the time? And so on. Millions of questions came to my mind one after another.”

ACTIVITY 2: Risk factors of breast cancer

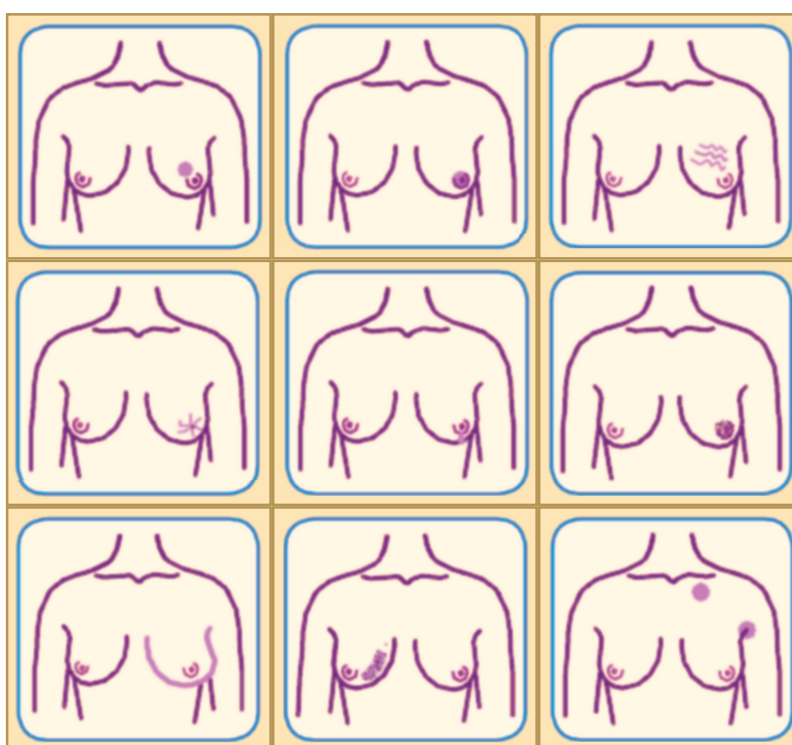
This activity uses cards with risk factors. The students’ task is to select those that have an effect on breast cancer.

| | | |
|------------------------------------|--|--|
| BRCA1 gene damage BRCA2 | Early menstruation (before 12 years of age) | Breasts cancer in the family (mother, sister, daughter) |
| Gender | Cancer already in one breast | Obesity |
| Low physical activity | Smoking | Inadequate diet |
| Age (older than 45 years) | Late onset of menopause | No pregnancy |

| | | |
|----------------|--------------------------|-----------------------------|
| Late pregnancy | Hormonal contraception | Age (older than 15 years) |
| Underweight | Early onset of menopause | Increased physical activity |

ACTIVITY 3: Symptoms of breast cancer

This activity focuses on the symptoms that may indicate breast cancer. The students are supposed to match the descriptions with the pictures that show the basic symptoms. These symptoms should be paid due attention and in the event of any doubts a physician should be consulted immediately.



Breast cancer symptoms (Slavičková, Macková, & Procházková [online], 2016)

| | | |
|--|--|---|
| Painless lump in the region of the breast or armpit | Retracted nipple breast skin | Wrinkling of the nipple or breast skin |
| Pockmarks in the breast skin or the nipple | Discharge or bleeding from the nipple | Redness or scales in the nipple or breast skin |
| Any unusual change of the size of shape of the breast, pain in the breasts | Changes in skin colour long-term eczema in the region of the breasts | Enlarged lymph nodes in the region of the collar bone and in the armpit |

ACTIVITY 4: Breast self-examination – procedure

The students match the pictures on the cards with the steps of breast self-examination and then put the cards in the right order. The students learn the breast self-examination procedure and are able to perform the examination.

The self-examination should be performed every month, preferably from an early age. The best time for the self-examination is the second or third day after menstruation when the breasts are not sensitive and are without tension. The self-examination should be performed after showering with warm water. Focus is on any changes in the breasts.



The first step is visual examination. The woman stands in front of the mirror and examines the entire appearance of the breasts with her arms along the body, the body turned to one side, with the arms above the head, the arms on the hips, and in a slight forward bend.



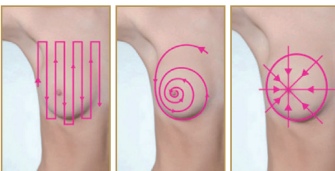
This is followed by palpation, which is performed by a circular movement of the pads of the three middle fingers to examine the whole breast. One hand is placed behind the head and the other examines the breast.



The nipple is examined by gently pressing it to check for any discharge.



It is also necessary to examine the armpit and the area around the collar bone. Lymph nodes in the armpit are palpated, then the pit above the collar bone and the region above the sternum. The same procedure is applied in the lying position with one hand behind the head or along the body. Both breasts must be examined.



It is advisable to select a self-examination scheme that best suits the woman, i.e. vertical, circular, or wedge.

Breast self-examination (Mamma HELP [online], 2017)

ACTIVITY 5: Breast cancer screening

The main task of the students is to work with a text which describes breast cancer screening and the procedure of a mammographic examination.

Description of breast cancer screening:

A very important aspect in cancer treatment is the secondary prevention, which in addition to breast self-examination also includes a screening examination for a neoplastic disease. In the case of breast cancer, the so-called *mammographic examination (mammography)* is used. This is a regular examination of the mammary gland in women without symptoms and its aim is to detect a malignant breast tumour at a very early stage.

What is the procedure of a mammographic examination?

“Before the mammographic examination, the laboratory technician takes you to a changing room where you leave all clothes that would prevent of a breast examination. This also includes your bra. During the examination it is very important to follow the instructions of the laboratory technician so that the images of your breasts can be easily assessed by the doctor. The laboratory technician explains how to approach the mammograph, what to do, where to place your breasts and where to put your arm. Each breast is X-rayed twice in different positions. The laboratory technician places the breast on the mammograph pad and presses it using a transparent plastic holder so that the breast stays in a constant position during the examination. This part of the examination may be uncomfortable and slightly painful. If the pressure causes too much pain, ask the laboratory technician to relieve the pressure.

Mild pressure must be maintained in order to ensure a high-quality image. During the examination, which is initiated by the laboratory technician by pressing a button, the internal parts of the breast is projected on an X-ray image, which is then assessed by the doctor. This type of X-ray image is called the mammogram. Low quality of the image compromises the reliability of the assessment. After the mammographic examination, you get dressed and sit in the waiting room. After the images (mammograms) have been developed, the laboratory technician tells you if they are usable and what to do next. In some centres you are sent home and informed when and how you will receive the results. In some centres you receive the results after a while or you are recommended a sonographic examination of the breast ...” (Mamografické vyšetření [online], 2014).

ACTIVITY 6: Breast self-examination – training

If you have a breast self-examination model, play your students a short video that shows the procedure of breast self-examination and then try out the procedure using the model. Using the model, the students can palpate a lump, which shows them the difference between a healthy breast and a breast with cancer.



Breast self-examination (video 3:40 min):

<https://www.youtube.com/watch?v=biTZmXL0Nu8&t=2s>

teaching
lesson

5

Oncological disease of the cervix

Keywords: cervix, HPV, risk factors, symptoms, prevention, gynaecological examination, vaccination



THEORETICAL PREPARATION

The cervix (cervix uteri in Latin) is a part of the uterus, specifically the lower narrow part. Inside the cervix there is a canal that connects the uterus and the vagina. Through this canal, sperm penetrates the uterus, blood from the menstruation is taken away, and the foetus passes during childbirth delivery. The cervix has two types of mucosa (epithelium)—epithelium of the uterine cavity (cylindrical) changes into vaginal epithelium (squamous). Each mucosa consists of different cell types. Cervical cancer is commonly referred to as cervical carcinoma (Raušová, 2009).

Worldwide, cervical cancer is the fourth most frequent cancer in women with an estimated 570,000 new cases in 2018 representing 7.5% of all female cancer deaths.



Tip: *The current prevalence of cervical carcinoma:* WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

HPV

Human papillomavirus (HPV) is the most common viral infection of the reproductive tract. Most sexually active women and men will be infected at some point in their lives and some may be repeatedly infected.

The peak time for acquiring infection for both women and men is shortly after becoming sexually active. HPV is sexually transmitted, but penetrative sex is not required for transmission. Skin-to-skin genital contact is a well-recognized mode of transmission.

There are many types of HPV, and many do not cause problems. HPV infections usually clear up without any intervention within a few months after acquisition, and about 90% clear up within 2 years. A small proportion of infections with certain types of HPV can persist and progress to cervical cancer. Cervical cancer is by far the most common HPV-related disease. Nearly all cases

of cervical cancer can be attributable to HPV infection. The infection with certain HPV types also causes a proportion of cancers of the anus, vulva, vagina, penis and oropharynx, which are preventable using similar primary prevention strategies as those for cervical cancer.

Non-cancer causing types of HPV (especially types 6 and 11) can cause genital warts and respiratory papillomatosis (a disease in which tumours grow in the air passages leading from the nose and mouth into the lungs). Although these conditions very rarely result in death, they may cause significant occurrence of disease. Genital warts are very common, highly infectious and affect sexual life (Human papillomavirus (HPV) and cervical cancer [online], 2019).

Risk factors

The risk factors of cervical cancer include the following: (Rakovina děložního čípku [online], 2018):

- HPV infection;
- Promiscuity;
- Selection of a partner with risky sexual behaviour;
- Sexual intercourse at a young age;
- Unprotected sexual intercourse;
- Smoking;
- Immunity disorders.

Symptoms

It takes a long time for the cells of the cervical mucosa to change to a malignant tumour. In the pre-cancer stage and early cancer stage there are usually no symptoms of the disease. The symptoms of the late cervical cancer stage, may include:

- Pain in the lower abdomen;
- Bleeding other than menstruation;
- Pain during sexual intercourse;
- Discharge from the vagina;
- Pain during urination.

These symptoms need not always indicate cancer, but should certainly be examined. The gynaecologist should be consulted in the event of any difficulties (Rakovina děložního čípku [online], 2018). HPV also infects the rectal or mouth mucosa.

Prevention

The primary prevention of cervical cancer includes the general rules to decrease the risk of a malignant tumour, but the following preventive measures are of crucial importance:

- Gynaecological check-ups;
- Postponing the first sexual activity until about 18 years of age because the cervix matures at this age. Until then it is much more susceptible to viruses;
- Partner stability;
- Protected sexual intercourse using a condom;
- HPV vaccination.

Cervical carcinoma screening

Screening aims to detect precancerous changes, which if not treated may lead to cancer. Women who are found to have abnormalities during screening need a follow-up examination, diagnosis and treatment, in order to prevent the development of cancer or to treat cancer at an early stage.

Cervical carcinoma screening has been is one of the secondary preventive measures. This is a very effective method of detection of the pre-cancer stage or early cancer stage of cervical cancer. The screening includes a cervical smear test, which is performed as part of a regular gynaecological examination, which should be taken by every woman without gynaecological problems every year. As part of cervical cancer prevention, girls should be examined for the first time after they have started their sexual life.

The screening is based on a cytological cervical smear test, which is performed by the gynaecologist during regular check-ups. The gynaecologist uses a spatula or brush to take cells from the surface of the cervix and the cervical canal. The cells are then sent to an accredited laboratory and examined for any changed cells. In the event of a positive result, the gynaecologist recommends further testing. After a negative test, the following examination should be taken in a year's time. Regular examinations are the only way to detect any changes in the cervix in time.

However, girls should see a gynaecologist before they start their sexual life. They should see a gynaecologist for the first time at the age of 15. If the girl has not had sexual intercourse, the examination is performed through the rectum because of the intact hymen. A girl younger than 15 years should see a gynaecologist in the event of no menstruation, weak and long-term bleeding, frequent and strong bleeding, missing menstruation, or any other gynaecological problems (Rakovina děložního čípku: Prevence [online], 2017).



Tip: Cervical cancer/Screening:

<https://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en/>

Screening Tests:

<https://www.cdc.gov/cancer/dcpc/prevention/screening.htm>

Cervical Cancer:

https://www.cdc.gov/cancer/cervical/basic_info/screening.htm

HPV vaccination

Currently, a preventive vaccination is available against some types of papillomavirus. The available vaccines are effective against four types of papillomavirus (HPV 6, 11, 16, 18) and prevent the onset of cervical carcinoma but also the pre-cancer stage. However, it should be noted that although these types of virus are most often responsible for the onset of cancer, they are not the only factor and therefore, vaccination is not the only prevention against cervical cancer (Rakovina děložního čípku: Prevence [online], 2017).



How the HPV vaccine works (video 2:47 min):

https://www.youtube.com/watch?time_continue=15&v=qF7pBzU4D20&feature=emb_logo

Cervix:

<http://www.cervix.cz/index-en.php>



DRAFT TEACHING LESSON 5

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|--|--|--------|
| Motivation | <ul style="list-style-type: none"> Brainstorming on cervical cancer | Brainstorming | <ul style="list-style-type: none"> Group | 3 min |
| Exposure | <ul style="list-style-type: none"> Structure of the female reproductive system Risk factors, symptoms, prevention Cervical cancer screening Gynaecological check-ups of adolescents HPV vaccination Completion of a worksheet | <ul style="list-style-type: none"> Presentation Working with a worksheet Discussion | <ul style="list-style-type: none"> Group Individual Work in pairs | 30 min |
| Reinforcement | <ul style="list-style-type: none"> Summary of the lesson How the HPV vaccine works: video (2:47 min) | <ul style="list-style-type: none"> Discussion Watching a video | <ul style="list-style-type: none"> Group | 10 min |
| Application | <ul style="list-style-type: none"> Homework assignment, mini survey | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Individual | 2 min |

Motivation

At the beginning of the lesson the students are encouraged to share their knowledge of cervical cancer. The teacher may take notes on the blackboard. The initial discussion makes the students think about the topic and at the same time gives the teacher the opportunity to analyse their knowledge of the issue.



Tip: *At the beginning the teacher may show the graphs of the incidence and mortality of cervical cancer: WHO. Cancer Today/Cancer fact sheets:*

<https://gco.iarc.fr/today/fact-sheets-cancers>

Exposure

The main part of the lesson is based on *Worksheet 5*. The students continuously complete and check the tasks with the teacher. Any exercise may be followed by a discussion and the teacher's presentation.



Download presentation:

<https://www.rozhodniseprozdрави.cz/onkologick%C3%A9-onemocn%C4%9Bn%C3%AD-d%C4%9Blo%C5%BEn%C3%ADho-%C4%8D%C3%ADpku>

In Task 1, the students revise the anatomy of the female reproductive system and learn the Latin name for the cervix. Tasks 2 and 3 focus on the risk factors and symptoms of cervical cancer. At the beginning, it is recommended to encourage the students to express their opinion and open a discussion especially on the risk factors. Only after that they should complete the exercises in the worksheet. In Task 4 the students learn about HPV. Then the whole class can discuss the issue of prevention in Task 5. Tasks 6 and 7 focus on the screening examination of cervical cancer and gynaecological

examination of girls. The teacher should focus on the correct understanding of the topic. The last exercise (Task 8) is completed in pairs. This task focuses on a discussion of possible advantages and disadvantages of vaccination against HPV.

Reinforcement

As part of the reinforcement, the theme of the lesson is revised. Emphasis should be especially on the risk factors and prevention of the disease. This is followed by watching a video that summarizes HPV vaccination and cervical cancer screening.



HPV vaccination and cervical cancer screening:

How the HPV vaccine works (video 2:47 min):

<https://www.youtube.com/watch?v=qF7pBzU4D20&t=6s>

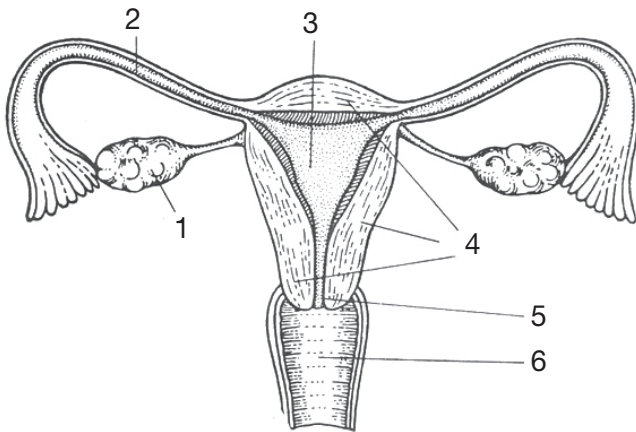
Application

At the end of the lesson the students are assigned *homework*, which is to remind all female relatives that they should undergo a gynaecological examination to prevent cervical cancer, and to carry out a small research study. The students' task is to ask as many friends as possible whether they have undergone HPV vaccination and to record the number of respondents who have and who have not. If the respondents have not undergone vaccination, they should indicate whether they have thought about it and why they have decided against it.



WORKSHEET 5 – ONCOLOGICAL DISEASE OF THE CERVIX

1) Specify the parts of the woman's reproductive system. Look at the anagram and write the Latin name for the cervix:



1 – _____

2 – _____

3 – _____

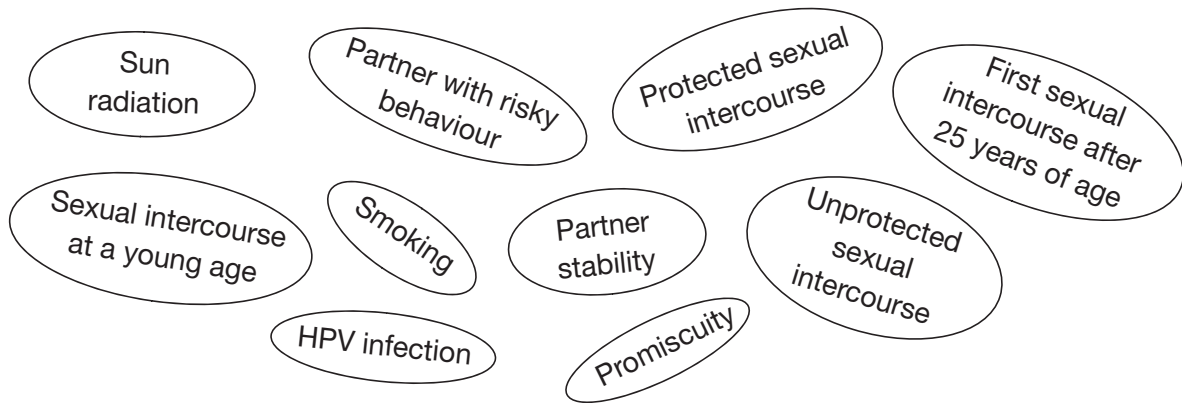
4 – _____

5 – _____

6 – _____

X E R I C V E R U T I

2) Specify the risk factors of cervical cancer:



3) Specify some of the symptoms of cervical cancer:

4) Decide whether the following statements relating to HPV are true or false:

| Statement | YES/NO |
|---|--------|
| It refers to the human papillomavirus. | |
| It is considered the main factor of the onset of cervical cancer. | |
| It causes cellular changes in the cervix that lead to cancer. | |
| These types of viruses cause only cervical cancer. | |
| Viruses can cause warts or sexually transmitted diseases. | |
| HPV is transmitted by sexual intercourse. | |
| HPV attacks only the female gender. | |
| Men can also be infected by the virus and become carriers. | |

5) Specify what everybody can do to prevent cervical cancer:

6) Complete the missing words in the text on cervical cancer screening:

| | | | | |
|----------------|-----------|------------|------------|----------|
| gynaecological | secondary | smear test | pre-cancer | cervical |
|----------------|-----------|------------|------------|----------|

Cervical cancer screening is part of the _____ prevention of this disease and includes a _____ smear test performed during a regular _____ check-up. The screening will detect even the _____ stage. The _____ is performed by the gynaecologist using a spatula or brush to take cells from the surface of the cervix.

7) Answer the questions relating to gynaecological check-ups of adolescent girls:

- a) When should a girl undergo a gynaecological examination for the first time? _____
- b) Should a girl visit a gynaecologist before the start of her sexual life? _____
- c) For what reasons should a girl younger than 15 years see a gynaecologist? _____

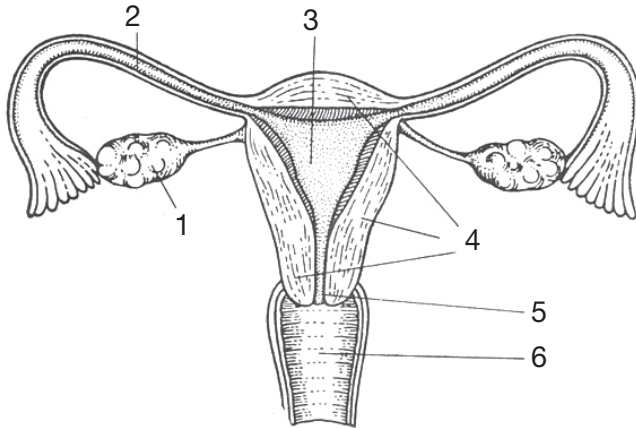
8) In the table specify the advantages and disadvantages of HPV vaccination:

| Advantages of the vaccination | Disadvantages of the vaccination |
|-------------------------------|----------------------------------|
| | |



WORKSHEET 5 – ONCOLOGICAL DISEASE OF THE CERVIX

1) Specify the parts of the woman's reproductive system. Look at the anagram and write the Latin name for the cervix:

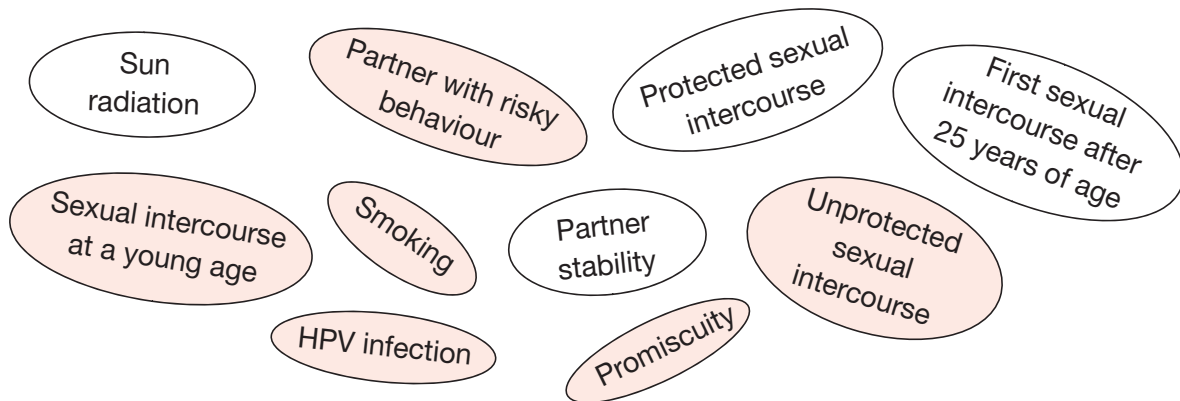


- _____
- 1 – Ovary
- _____
- 2 – Salpinges
- _____
- 3 – Uterine cavity
- _____
- 4 – Uterine wall muscle
- _____
- 5 – Cervix
- _____
- 6 – Vagina
- _____

X E R I C V E R U T I

C E R V I X U T E R I

2) Specify the risk factors of cervical cancer:



3) Specify some of the symptoms of cervical cancer:

Pain in the lower abdomen, bleeding other than menstruation, pain during sexual intercourse, vaginal discharge, pain during urination

4) Decide whether the following statements relating to HPV are true or false:

| Statement | YES/NO |
|---|--------|
| It refers to the human papillomavirus. | YES |
| It is considered the main factor of the onset of cervical cancer. | YES |
| It causes cellular changes in the cervix that lead to cancer. | YES |
| These types of viruses cause only cervical cancer. | NO |
| Viruses can cause warts or sexually transmitted diseases. | YES |
| HPV is transmitted by sexual intercourse. | YES |
| HPV attacks only the female gender. | NO |
| Men can also be infected by the virus and become carriers. | YES |

5) Specify what everybody can do to prevent cervical cancer:

Postponing the first sexual intercourse (preferably until 18 years of age), partner stability, protected sexual intercourse using a condom, gynaecological check-ups, vaccination

6) Complete the missing words in the text on cervical cancer screening:

| | | | | |
|----------------|-----------|------------|------------|----------|
| gynaecological | secondary | smear test | pre-cancer | cervical |
|----------------|-----------|------------|------------|----------|

Cervical cancer screening is part of the secondary prevention of this disease and includes a cervical smear test performed during a regular gynaecological check-up. The screening will detect even the pre-cancer stage. The smear test is performed by the gynaecologist using a spatula or brush to take cells from the surface of the cervix.

7) Answer the questions relating to gynaecological check-ups of adolescent girls:

- When should a girl undergo a gynaecological examination for the first time? **At 15 years of age.**
- Should a girl visit a gynaecologist before the start of her sexual life? **Yes.**
- For what reasons should a girl younger than 15 years see a gynaecologist? **No menstruation, weak and long-term bleeding, frequent and strong bleeding, missing menstruation, any other gynaecological problems.**

8) In the table specify the advantages and disadvantages of HPV vaccination:

| Advantages of the vaccination | Disadvantages of the vaccination |
|---|--|
| <p>+ Decreases the risk of cervical cancer.</p> | <ul style="list-style-type: none"> - It is effective only against four types of papillomavirus (HPV 6, 11, 16, 18). - Vaccination is not the only protection and prevention of cervical cancer. - It is not effective against already active HPV infection. |

Note: the solution will vary by county.

Oncological disease of the testicles

Keywords: testicles, risk factors, cryptorchism, symptoms, prevention, self-examination



THEORETICAL PREPARATION

The testicles (testes in Latin, singular testis) are parts of the male internal reproductive organs. They are paired reproductive glands of an ovoid shape located in the scrotum outside the abdominal cavity. However, their development takes place inside the abdominal cavity and during prenatal development they descend through the inguinal canal into the scrotum. The main function of the testicles is the production of reproductive cells—sperm and the sex hormone testosterone (Machová, 2010; Grim and Druga, 2005).

Testicular cancer is a rare neoplastic disease. However, in the age category 15–35 years, it is one of the most frequent oncological diseases.



Tip: *The current prevalence of colorectal carcinoma:* WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

Risk factors

The risk factor of testicular cancer is especially an undescended testicle (cryptorchism), whereby the testicle is withheld in the inguinal canal or the abdominal cavity. Other risk factors are genetic. An individual whose relatives (especially brothers or father) have been diagnosed with testicular cancer, is exposed to a six time greater risk (Klener, 2002).

Symptoms

The symptoms of testicular cancer include the following:

- Changes in the size of the testicle—in most cases the change is painless, the testicle may both increase and decrease;
- Stiff or hard testicle;
- Irregularity, palpable lump, bumps on the testicle;
- Pain in the testicle or feelings of discomfort in the scrotum;

- Pain in the groin or lower abdomen;
- Feeling of heaviness of the testicle.

The following may appear at a later stage:

- Enlargement, swelling, sensitivity and feeling of mammary gland tension;
- Fatigue, lack of appetite, weight loss, increased temperature.

In the event of any changes from the normal condition, a physician must be consulted as soon as possible because early detection and treatment increase the chances of curing. A late diagnosis may be dangerous primarily because testicular cancer is associated with the rapid development of metastases (Co jsou nádory varlat [online], 2010).

Prevention

Similarly to other neoplastic diseases, the general principles of oncological prevention should be followed, especially following a proper diet, non-smoking, limited alcohol consumption, and increased physical activity. Another preventive measure is timely treatment of an undescended testicle. As part of secondary oncological prevention, the testicles should be examined during regular medical check-ups and a regular self-examination should be performed (Klener, 2002).

Self-examination procedure:

- 1) To be carried out regularly once a month;
- 2) Should be performed after a warm bath or shower when the scrotum is relaxed and soft and palpation is easier and pain-free;
- 3) First of all, visual examination is performed. In front of the mirror, the man should check the skin of the scrotum, which should not be tight, reddish, or darker compared with the previous examination. Both size and volume must be checked;
- 4) It should be noted that under usual circumstances a healthy man has one of the testicles bigger, but when the testicle changes in size, this may be a symptom of an oncological disease;
- 5) This is followed by palpation of each testicle separately. The testicle should be grasped by both hands—index finger and middle finger should be positioned under the testicle and the thumb on the front side. The testicle is then gently turned between the fingers to detect any irregularities, bumps, or stiffened areas.
- 6) It should also be mentioned that during palpation, the epididymis is often confused with a tumour. It adjoins the rear edge of the testicle and is well palpable;
- 7) The same self-examination procedure is repeated for the other testicle (Co jsou nádory varlat [online], 2010).



Correct grasping of the testicle during self-examination



Testicular cancer:

<https://www.youtube.com/watch?v=gD3tJagtVSc>

Testicular Cancer Self-Check at Home in 3 Easy Steps (video 0:53–1:36 min):

<https://www.youtube.com/watch?v=fPeGnpidDZo>



DRAFT TEACHING LESSON 6

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|--|---|--------|
| Motivation | <ul style="list-style-type: none"> Watching a selected video | <ul style="list-style-type: none"> Watch a video | <ul style="list-style-type: none"> Group | 7 min |
| Exposure | <ul style="list-style-type: none"> Structure of the male reproductive system Occurrence and risk factors Activity 1: Men with testicular cancer—How I recognized a tumour Symptoms of the testicular cancer Activity 2: Self-examination of testicles Completion of a worksheet | <ul style="list-style-type: none"> Presentation Working with a worksheet Work with text Activity Discussion | <ul style="list-style-type: none"> Group Individual Work in pairs (groups) | 25 min |
| Reinforcement | <ul style="list-style-type: none"> Testicular self-examination: video (7:40 min) Activity 3: Testicular self-examination—training | <ul style="list-style-type: none"> Discussion Watching a video | <ul style="list-style-type: none"> Group | 11 min |
| Application | <ul style="list-style-type: none"> Homework assignment Distribution of bookmarks with testicular self-examination | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Individual | 2 min |

Motivation

At the beginning, the teacher plays a YouTube video (teacher's choice). During the video, the students can think about the seriousness of the disease and the importance of timely detection of testicular cancer.

Exposure

The main part of the lesson is based on *Worksheet 6*. The students gradually complete the tasks and continuously check them with the teacher. Any exercise may be followed by a discussion and the teacher's presentation.



Download presentation:

<https://www.rozhodniseprozdravi.cz/onkologick%C3%A9-onemocn%C4%9Bn%C3%AD-varlat>

The purpose of Task 1 is to revise the structure of the male reproductive system and the function of the testicles. Then the students complete Tasks 2 and 3 on the prevalence and risk factors of testicular cancer. The teacher may show the graphs of the incidence and mortality of this disease. In the exercise that defines the term cryptorchism, the students can use a medical dictionary to look up the meaning.

This is followed by *Activity 1* called “Men with testicular cancer—How I recognized a tumour”, which uses Task 4 to note the typical symptoms of testicular cancer. In the follow-up activity the teacher may add further symptoms of the disease. It is important not to underestimate any

changes in the testicles and to see a physician in the event of any symptoms or doubts. Then the students learn about testicular self-examination using *Activity 2*, *Task 5* and *6* in the worksheet.

Reinforcement

In order to revise the theme of the lesson, especially the testicular self-examination procedure, the students watch an instructional video, in which they again go through the symptoms of testicular cancer and self-examination procedure. In addition, they can try out the self-examination technique and the process of searching for a lump as part of *Activity 3* using a testicular self-examination model. The procedure should be tried out by both boys and girls.



Testicular self-examination (video 7:40 min):

<https://www.youtube.com/watch?v=C0eYFW71Vs0>

Testicular self-examination (video 2:05 min):

https://www.youtube.com/watch?v=vbj4NwiQhk8&oref=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3Dvbj4NwiQhk8&has_verified=1

Application

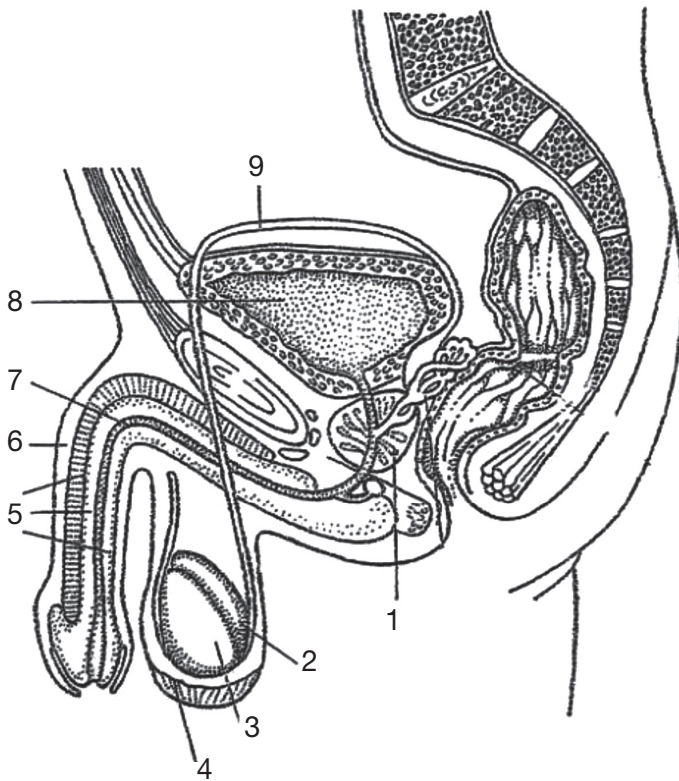
At the end of the lesson the students are assigned *homework*. Their task is to conduct a survey to find out how many people they know who perform testicular self-examination. Another task is to start regular self-examination (boys) and to promote this method of early detection of malignant tumours (boys and girls).



WORKSHEET 6 – ONCOLOGICAL DISEASE OF THE TESTICLES

1) Describe the parts of the male reproductive system (see the box for clues) and choose the correct statements:

| | | |
|-----------------|-------------|-----------------|
| Scrotum | Penis | Urinary bladder |
| Epididymis | Urethra | Testicle |
| Erectile bodies | Sperm ducts | Prostate |



- 1 – _____
- 2 – _____
- 3 – _____
- 4 – _____
- 5 – _____
- 6 – _____
- 7 – _____
- 8 – _____
- 9 – _____

What is the function of the testicles?

- a) Sexual intercourse
- b) Production of germ cells – sperm
- c) Production of sex hormone – testosterone

2) Choose from the words below and complete the gaps:

~~~~~  
Testicular cancer is one of the (1) \_\_\_\_\_ neoplastic diseases, but in the age category of (2) \_\_\_\_\_, it is one of the (3) \_\_\_\_\_ oncological diseases. Recently, the prevalence of testicular cancer (4) \_\_\_\_\_. Early detection and treatment increases the possibility for (5) \_\_\_\_\_. A risk factor of testicular cancer includes (6) \_\_\_\_\_ factors. A man whose father, brother or son have been diagnosed with testicular cancer is at a greater risk of this disease. Another risk factor is the so-called (7) \_\_\_\_\_.  
~~~~~

- | | | |
|---------------------|---------------------|----------------------------|
| 1. a) most frequent | b) most serious | c) rare |
| 2. a) 15–35 years | b) 35–50 years | c) 50 years and older |
| 3. a) most frequent | b) most serious | c) rare |
| 4. a) decreases | b) remains the same | c) increases |
| 5. a) death | b) curing | c) removal of the testicle |
| 6. a) mental | b) genetic | c) external |
| 7. a) cryptorchism | b) impotence | c) BRCA1 gene |

3) Choose the correct statement about cryptorchism:

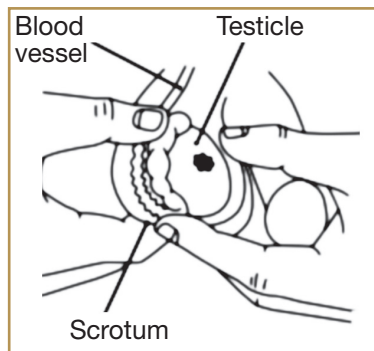
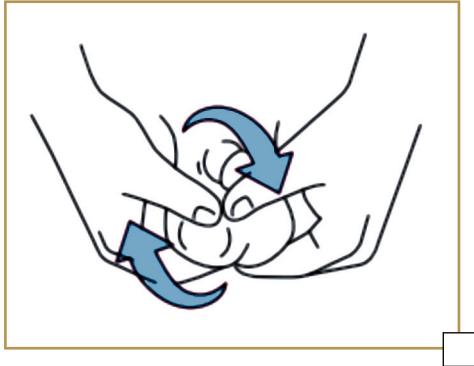
- a) Undescended testicle
- b) Erectile disorder
- c) The testicle is withheld in the inguinal canal or the abdominal cavity
- d) Treatment must take place within 18 months

4) Specify the symptoms of testicular cancer:

5) Number the following paragraphs 1–4 according to the right testicular self-examination procedure:

- Each testicle is palpated separately. During the palpation care must be taken not to confuse the epididymis with a tumour. The epididymis is located at the back above the testicle and is well palpable. The same procedure is applied for the other testicle.
- The examination should be performed once a month, always on the same day. The self-examination should be performed after a warm bath or shower when the scrotum is relaxed and soft and palpation is easier and pain-free.
- During the palpation procedure, the testicle should be grasped by both hands—index finger and middle finger should be positioned under the testicle and the thumb on the front side. The testicle is then gently turned between the fingers to detect any irregularities on the surface of the testicle.
- At first the examination is visual—the man stands in front of the mirror and observes the scrotum. The skin should not be tight, reddish or darker compared with the previous examination. Both size and volume must be checked.

6) In the first picture, decide whether the method of grasping the testicles during self-examination is correct. In the second picture, identify the epididymis and the shape that could be a tumour (match with the names):



Epididymis

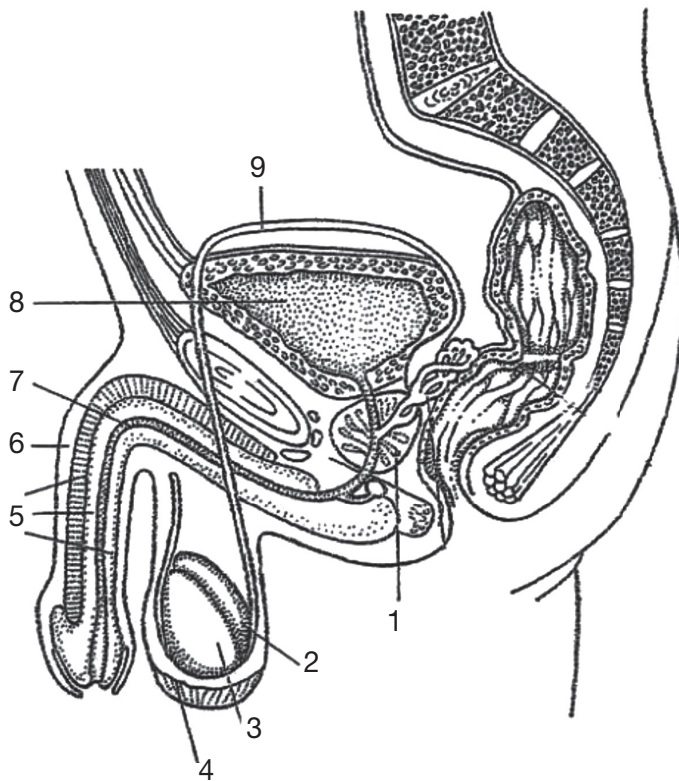
Tumour



WORKSHEET 6 – ONCOLOGICAL DISEASE OF THE TESTICLES

1) Describe the parts of the male reproductive system (see the box for clues) and choose the correct statements:

| | | |
|-----------------|-------------|-----------------|
| Scrotum | Penis | Urinary bladder |
| Epididymis | Urethra | Testicle |
| Erectile bodies | Sperm ducts | Prostate |



1 – Prostate

2 – Epididymis

3 – Testicle

4 – Scrotum

5 – Erectile bodies

6 – Penis

7 – Urethra

8 – Urinary bladder

9 – Sperm ducts

What is the function of the testicles?

a) Sexual intercourse

b) Production of germ cells
– sperm

c) Production of sex hormone
– testosterone

2) Choose from the words below and complete the gaps:

Testicular cancer is one of the rare neoplastic diseases, but in the age category of 15–35 years, it is one of the most frequent oncological diseases. Recently, the prevalence of testicular cancer has increased. Early detection and treatment increases the possibility for curing. A risk factor of testicular cancer includes genetic factors. A man whose father, brother or son have been diagnosed with testicular cancer is at a greater risk of this disease. Another risk factor is the so-called cryptorchism.

1. a) most frequent b) most serious c) rare
2. a) 15–35 years b) 35–50 years c) 50 years and older
3. a) most frequent b) most serious c) rare
4. a) decreases b) remains the same c) increases
5. a) death b) curing c) removal of the testicle
6. a) mental b) genetic c) external
7. a) cryptorchism b) impotence c) BRCA1 gene

3) Choose the correct statement about cryptorchism:

- a) Undescended testicle
- b) Erectile disorder
- c) The testicle is withheld in the inguinal canal or the abdominal cavity
- d) Treatment must take place within 18 months

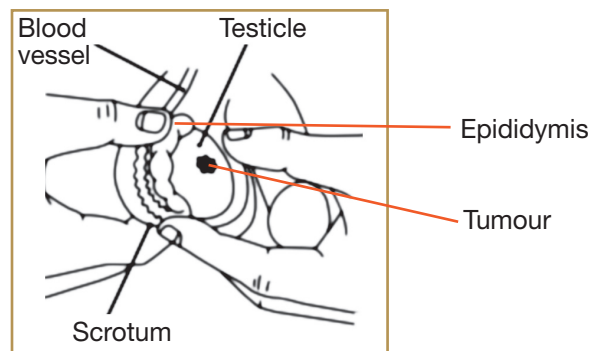
4) Specify the symptoms of testicular cancer:

Changes in the size of the testicle, irregularity, lump, bumps on the testicle, pain in the testicle, pain in the groin, feeling of heaviness of the testicle, pain in the lower abdomen, stiffness, hardness of the testicle, enlargements or sensitivity of the mammary glands, fatigue, loss of appetite, weight loss, increased temperature

5) Number the following paragraphs 1–4 according to the right testicular self-examination procedure:

- 4** Each testicle is palpated separately. During the palpation care must be taken not to confuse the epididymis with a tumour. The epididymis is located at the back above the testicle and is well palpable. The same procedure is applied for the other testicle.
- 1** The examination should be performed once a month, always on the same day. The self-examination should be performed after a warm bath or shower when the scrotum is relaxed and soft and palpation is easier and pain-free.
- 3** During the palpation procedure, the testicle should be grasped by both hands—index finger and middle finger should be positioned under the testicle and the thumb on the front side. The testicle is then gently turned between the fingers to detect any irregularities on the surface of the testicle.
- 2** At first the examination is visual—the man stands in front of the mirror and observes the scrotum. The skin should not be tight, reddish or darker compared with the previous examination. Both size and volume must be checked.

6) In the first picture, decide whether the method of grasping the testicles during self-examination is correct. In the second picture, identify the epididymis and the shape that could be a tumour (match with the names):





ACTIVITIES FOR STUDENTS

ACTIVITY 1: Men with testicular cancer—How I recognized a tumour

In this activity, the students can work in pairs or groups. The teacher gives the students short excerpts from the stories of several men diagnosed with testicular cancer. Their task is to read the stories and note down the typical symptoms of testicular cancer and reflect on the seriousness of the disease. There are two activity options. Each pair or group either receives all stories or they are given an excerpt that they read to the other students.

Excerpts from stories (Vaše příběhy [online], 2015):

Story 1: *"... I was thinking whether it's a good idea to publish my story. The truth is this is something that should be spoken about and not be ashamed of. I found my cancer in the bath. Suddenly, I saw that one of my testicles was about 6 cm big. And I felt pain in the groin. So, I went to the doctor for an examination and he sent me to a different hospital where they confirmed it was a tumour in the testicle. And then it all started. I had an examination in the morning and in the afternoon I was lying in the hospital waiting for an operation. It was a big shock from the morning. When I woke up in the evening, I was thankful for being alive. Of course, the idea came to my mind that I am half a man now. When I returned from the hospital after 5 days, my two beloved children were waiting for me at home. After that, I started going to the hospital for further examinations, blood tests, examinations in the tunnel, to check whether there was another tumour somewhere in the body. Then waiting for histology. They found it was a malignant tumour in the third stage..."*

Story 2: *"... It all started when I noticed pain in the left testicle. I didn't pay attention to it until I palpated a lump when I was having a shower. At my family's urging I went to see my doctor, who sent me to urology saying it would probably be some sort of inflammation. The diagnosis at the urology department caught me by surprise, or better to say, took my breath away. You have a tumour on your testicle. Tomorrow we will have to remove it and after that you'll probably have to undergo chemotherapy. The day after my visit to the urology department I was lying in the hospital and was waiting for the histology verdict..."*

Story 3: *"... It's been almost two months, one evening in the bath I had a very anxious feeling when I palpated something strange in my body. I went to the hospital for an examination. In the evening I had an operation. Now I've taken the second series of chemotherapy and I'm about to take the third one..."*

Story 4: *"... Since then, I have started to notice my testicles more. At the beginning of March this year, I was palpating my testicles and noticed something strange on one of them. That evening I searched the internet for information. Then I decided to consult the doctor the next morning. The very next day! I stayed awake all night and went to see the doctor in the morning, where I underwent an ultrasound examination. A tumour was confirmed and it all went very quickly from then on. You know that. Surgery, histology, cryopreservation of sperm, chemotherapy (two rounds in my case)..."*

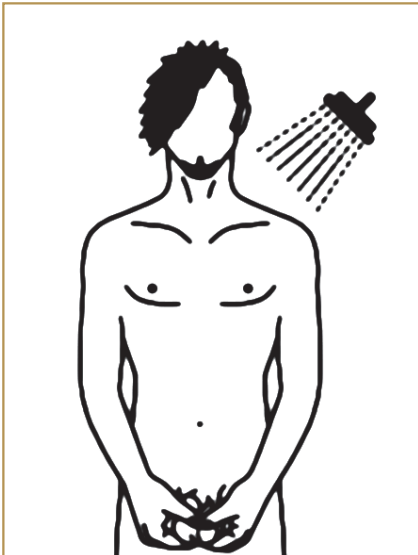
Story 5: *"... I did a self-test, for fun basically, and I found something on one of the testicles. In the beginning I was hesitant about doing something about it. After 2 weeks I went to see my doctor who sent me to urology. There they confirmed the diagnosis and after 30 minutes I was putting on the hospital dress. After two days I had an operation and during the following two weeks I underwent various examinations (CT, X-rays...) and waited for the histology result. Eventually the tumour was malignant but had not spread to other parts of the body..."*

Story 6: *"... This Friday we went to a lecture with our school. About half a year ago, I found a lump on the testicle but because I was ashamed and didn't do anything about it, I was sort of postponing it thinking it would disappear. After the lecture I searched the internet and unfortunately all symptoms suggested a tumour. Only now have I decided to resolve it and I confided to my mum. Now I'm trying to make an appointment with an urologist as soon as possible (hopefully tomorrow)..."*

Story 7: *"... I had an uncomfortable feeling in my right groin. I found some anomaly on my right testicle. From the beginning I didn't want to pay attention to it..."*

ACTIVITY 2: Testicular self-examination—procedure

The students receive cards with pictures and the testicular self-examination procedure. The students are supposed to match the pictures with the steps of the self-examination procedure and to put the cards in the right order. The students learn the testicular self-examination procedure and then will be able to perform the examination.



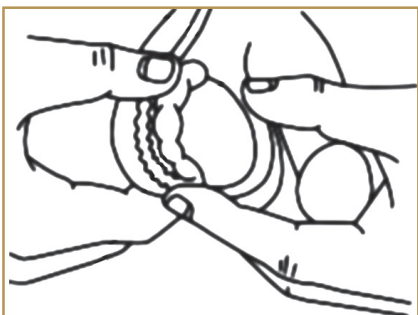
The examination should be performed once a month, always on the same day. The self-examination should be performed after a warm bath or shower when the scrotum is relaxed and soft and palpation is easier and pain-free.



At first the examination is visual—the man stands in front of the mirror and observes the scrotum. The skin should not be tight, reddish or darker compared with the previous examination. Both size and volume must be checked.



During the palpation procedure, the testicle should be grasped by both hands—index finger and middle finger should be positioned under the testicle and the thumb on the front side. The testicle is then gently turned between the fingers to detect any irregularities on the surface of the testicle.



Each testicle is palpated separately. During the palpation care must be taken not to confuse the epididymis with a tumour. The epididymis is located at the back above the testicle and is well palpable. The same procedure is applied for the other testicle.

Testicular self-examination (Zdravé koule [online]. 2016)

ACTIVITY 3: Testicular self-examination – training

A testicular self-examination model is a practical aid to train the procedure. Using the model, the students can learn the technique and palpate a lump, the students see the difference between a healthy testicle and possible cancer. The self-examination procedure should be tried out by both boys and girls.



Tip for the teacher: If a testicular self-examination model is not available, you can make your own. Use an inflated balloon filled with soft material, such as flour or powder sugar, and add a hard ball inside, for example a pea, bean, or cherry stone. The balloon is a model of a testicle with a tumour inside.

teaching
lesson

7

Oncological disease of the skin

Keywords: skin, melanoma, risk factors, UV radiation, solaria, phototype, symptoms, prevention



THEORETICAL PREPARATION

The skin (cutis in Latin) is the organ with the largest surface and consists of the skin, dermis and subcutaneous tissue. The main function of the skin is protection. It protects the body against mechanical, physical and chemical effects, and external infection. It also excretes some substances from the body, helps maintain body temperature, is the place where vitamin D originates, and contains skin sensors (Machová, 2010).

A large number of non-malignant tumours originate in the skin and are very easy to remove. However, skin cancer refers to malignant tumours. Some tumours attack only the place of their origin and the closest environment, while others produce metastases. A very dangerous type of skin cancer is melanoma, which may originate from a pigment spot or even intact skin. The early manifestation of this type of cancer is a small spot but later creates extensive metastases (Arenberger [online], 2014).

Speaking of melanoma and non-melanoma types of tumours, the non-melanoma type is more frequent. The prevalence of melanomas is lower, but regarding the frequent development of metastases, the prevalence numbers are high. In 2018, the global prevalence of skin cancer was 1.04 million cases (non-melanoma type).



Tip: *The current prevalence of skin cancer:* WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

Skin cancer may occur at all ages, but its prevalence increases with the most affected age category being 50 to 80 years old (Novotvary 2015 ČR [online], 2015).

Risk factors

It has been confirmed that ultraviolet (UV) radiation, which originates in the sun, increases the risk of skin cancer. The risk factors include excessive sunbathing, repeated sunburn, and excessive sunbathing in childhood. Sunburn weakens the skin and makes it more susceptible to damage.

In the context of sunlight exposure, another risk factor is non-application of protective means, especially creams with UV filters.

The most endangered group are people with phototype 1 and 2. On the contrary, in persons with phototype 3 and 4 the risk is much lower. Skin phototypes are determined according to skin pigmentation, hair and eye colour. There are a total of 4 skin phototypes, see the following table.

| Skin phototype | Description | Skin reaction to sunlight | Threshold of burning without protection |
|-----------------------|--|--|--|
| Phototype 1 | Light eyes, light skin, red or blond hair, freckles | Most sensitive to sunlight, the individual gets burnt very often and seldom tans. | 3–10 min |
| Phototype 2 | Light skin, but darker than for phototype 1, blond hair or dark blond, blue eyes | Skin sensitive to sunlight, rare and slow tanning. | 10–20 min |
| Phototype 3 | Most common, darker skin, hair dark blond or brown, no freckles | Skin slightly sensitive to sunlight, individuals tan well and their tan colour stays for long. | 20–30 min |
| Phototype 4 | Light brown skin, dark to black hair, dark eyes | Least sensitive skin to sunlight, individuals get seldom burnt. | 30–40 min |

People who have unusual or changing spots on the body or a large number of spots are also at risk. Other risk factors include visits to solarium, inheritance, and age. The effect of frequent and regular visits to solarium on skin cancer is higher by up to 75%. Damage sustained in childhood is usually manifested at a later age, including a higher occurrence of malignant skin tumours (Vojáčková and Fridrichová, 2013).

Symptoms

Although skin changes are easy to observe and check, there are many cases when the physician is consulted during the late stage of skin cancer. The symptoms of skin cancer differ from other types of cancer, but a warning signal is any change on the skin. These changes mostly relate to birthmarks. Attention should be paid to any deviations from the normal condition (Fait [online], 2015):

- Change in birthmark size, colour, structure;
- Long-term and non-healing changes;
- Itchy, suppurating or bleeding birthmark;

Some forms of skin cancer may appear as a solid red node or an unusual scab. Melanoma, the most dangerous skin tumour, is usually a pigmented stain, which resembles a common birthmark. However, gradually some changes take place that signalize a malignant skin tumour (Kožní nádory [online], 2018).

- Surface spreading;
- Colour change, usually dark colour;
- Spotty appearance;
- Irregular edges;
- Keratinization, suppuration;
- Bleeding, excessive itching.

Attention should also be paid to nail stains. Some melanoma tumours may look like warts, calluses, or bruises.

In the event of any changes, a physician must be consulted. Early tumour removal decreases the probability of further growth, damage, and metastases. Particularly in the case of the melanoma type of cancer, early detection is of great importance.

Prevention

Cancer is affected by several risk factors. The purpose of oncological prevention is to eliminate these factors. The most important preventive measure is to limit sunlight exposure. It is important to avoid direct exposure to sunlight as much as possible (between 11 a.m. and 3 p.m.) When staying in the sun it is important to use protective means, especially creams with a high sun protection factor, head covers, sunglasses. Creams with a high sun protection factor are essential for small children and persons with phototype 1 and 2. Children younger than one year should not be exposed to sunlight at all because children's skin is much more sensitive and gets burnt much more quickly compared with adults. As a prevention, everybody should search for shade and avoid direct sunlight. Also, solarium should be avoided.

Another way of prevention is to check for any changes and suspicious spots on the skin. The purpose of skin self-examination is the early detection of a suspicious structure on the skin. During the self-examination procedure, a large mirror and a small hand mirror should be used to check all body parts. Skin self-examination should be performed at least three times a year (Melanom.cz [online], 2018).



Ultraviolet (UV) radiation and skin cancer:

[https://www.who.int/news-room/q-a-detail/ultraviolet-\(uv\)-radiation-and-skin-cancer](https://www.who.int/news-room/q-a-detail/ultraviolet-(uv)-radiation-and-skin-cancer)

Association of European Cancer Leagues/Sun and UV Awareness:

<https://www.europeancancerleagues.org/sun-safety-sun-and-uv-awareness/>



DRAFT TEACHING LESSON 7

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|---|--|--------|
| Motivation | <ul style="list-style-type: none"> Brainstorming on skin cancer | Brainstorming | <ul style="list-style-type: none"> Group | 3 min |
| Exposure | <ul style="list-style-type: none"> Function of the skin system Risk factors, symptoms Activity 1: Skin phototypes Prevention Completion of a worksheet | <ul style="list-style-type: none"> Presentation Using a worksheet Activity Discussion | <ul style="list-style-type: none"> Group Individual Work in pairs | 30 min |
| Reinforcement | <ul style="list-style-type: none"> Melanoma—Overview: video (4:32 min) Summary, particular focus on prevention | <ul style="list-style-type: none"> Watching a video Discussion | <ul style="list-style-type: none"> Group | 10 min |
| Application | <ul style="list-style-type: none"> Activity 2: Family tree of skin phototypes | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Individual | 2 min |

Motivation

At the beginning of the lesson the students discuss their knowledge of skin cancer. The teacher may take notes on the blackboard. The initial discussion makes the students think about the topic and at the same time gives the teacher the opportunity to analyse whether the students' ideas relate to skin cancer.



Tip for the teacher: At the beginning the teacher can show the students graphs of the incidence and mortality of skin cancer and provide relevant comments.

WHO. Cancer/Fact sheets:

<https://www.who.int/news-room/fact-sheets/detail/cancer>

Exposure

In the main part of the lesson the students use *Worksheet 7*. The students continuously check the tasks with the teacher. A discussion or the teacher's presentation may be included.



Download presentation:

<https://www.rozhodniseprozdрави.cz/onkologick%C3%A9-onemocn%C4%9Bn%C3%AD-k%C5%AF%C5%BEe>

At first, in Task 1 the students revise the function of the skin system. In Tasks 2, 3, and 4 the students learn about the most serious type of malignant skin tumour, risk factors and symptoms of skin cancer. The teacher should emphasise the importance of not underestimating any skin changes and making an early appointment with the physician.



Tip for the teacher: The teacher can show the pictures of some types of tumours and add other typical symptoms of the disease (Annex 2).

This is followed by *Activity 1* “Skin phototypes” and Task 5, the purpose of which is to fix the information gained during the activity. Then the students can pair up and think about the preventive measures against skin cancer and complete Tasks 6 and 7 in the worksheet.

Reinforcement

The students watch a video on skin cancer. After that the lesson is summarized with a focus on prevention.



Melanoma—Overview (video 4:32 min):

<https://www.youtube.com/watch?v=mkYBxfKDyv0>

Application

At the end of the lesson the students are explained *Activity 2*. The purpose of this activity is to create a family tree of skin phototypes. This activity is assigned as *homework*. The students should also discuss this neoplastic disease and its prevention with their relatives, especially those with the risky skin phototype and those who are frequently exposed to the risk factors.



WORKSHEET 7 – ONCOLOGICAL DISEASE OF THE SKIN

1) Look at the following possibilities and choose the correct skin functions:

- a) Excretion of substances from the body
- b) Maintaining body temperature
- c) Formation of vitamin D
- d) Location of the skin sensors
- e) Protection of the body against mechanical, physical, and chemical influences
- f) Protection against external infection

2) Look at the anagram and make a word that describes the most dangerous skin tumour:

A L E M M O N A

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
|--|--|--|--|--|--|--|--|

~~~~~  
This type of skin tumour usually originates from a pigment spot  
and produces extensive metastases.  
~~~~~

3) Identify all risk factors of skin cancer:

Persons with phototype 4

Persons with phototype 1

Long-lasting eczema

Sun radiation

Inheritance

Dry skin

Persons with phototype 2

Repeated burning

Persons with phototype 3

Excessive sunbathing during childhood

Pigment spots

Large amount of birthmarks

Use of sun creams

Non-use of protective creams

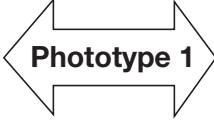
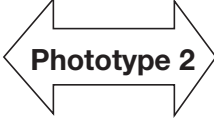
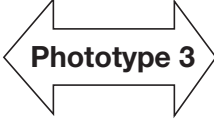
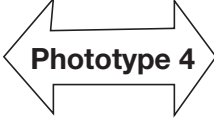
Excessive sunbathing

Non-use of a head cover and sunglasses

Solaria

4) Specify some of the typical symptoms of skin cancer:

5) Match the characteristic with skin phototypes and specify your skin phototype:

| | | |
|---|---|-------------------------------|
| Light eyes, light skin, freckles |  | Light skin, darker than 1 |
| Red or blond hair | | Almost never tans |
| Often gets burnt |  | Tanning is difficult and slow |
| Dark blond hair | | Dark skin, no freckles |
| Most common skin phototype in this region |  | Least sensitive skin |
| Dark to black hair | | Brown skin, dark eyes |
| Tans well |  | Dark blond hair, brown |
| | | Almost never gets burnt |

I have discovered that my phototype is _____.

6) Specify what everybody can do to prevent skin cancer:

7) Answer the following question:

Is there something like skin self-examination? _____

If so, please specify the interval at which it should be performed: _____



WORKSHEET 7 – ONCOLOGICAL DISEASE OF THE SKIN

1) Look at the following possibilities and choose the correct skin functions:

- a) Excretion of substances from the body
- b) Maintaining body temperature
- c) Formation of vitamin D
- d) Location of the skin sensors
- e) Protection of the body against mechanical, physical, and chemical influences
- f) Protection against external infection

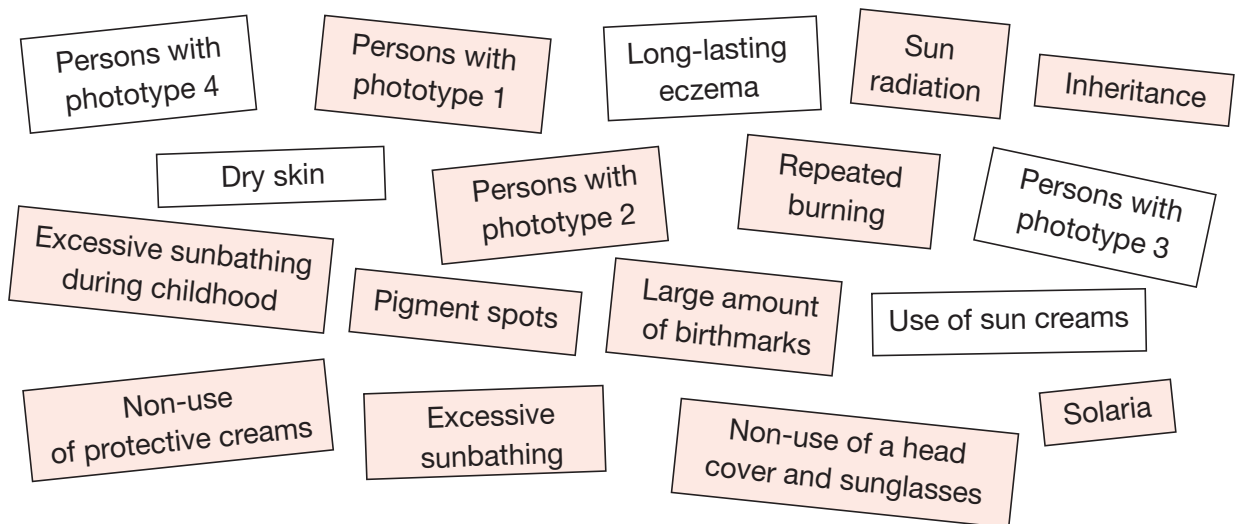
2) Look at the anagram and make a word that describes the most dangerous skin tumour:

A L E M M O N A

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | E | L | A | N | O | M | A |
|---|---|---|---|---|---|---|---|

~~~~~  
This type of skin tumour usually originates from a pigment spot  
and produces extensive metastases.  
~~~~~

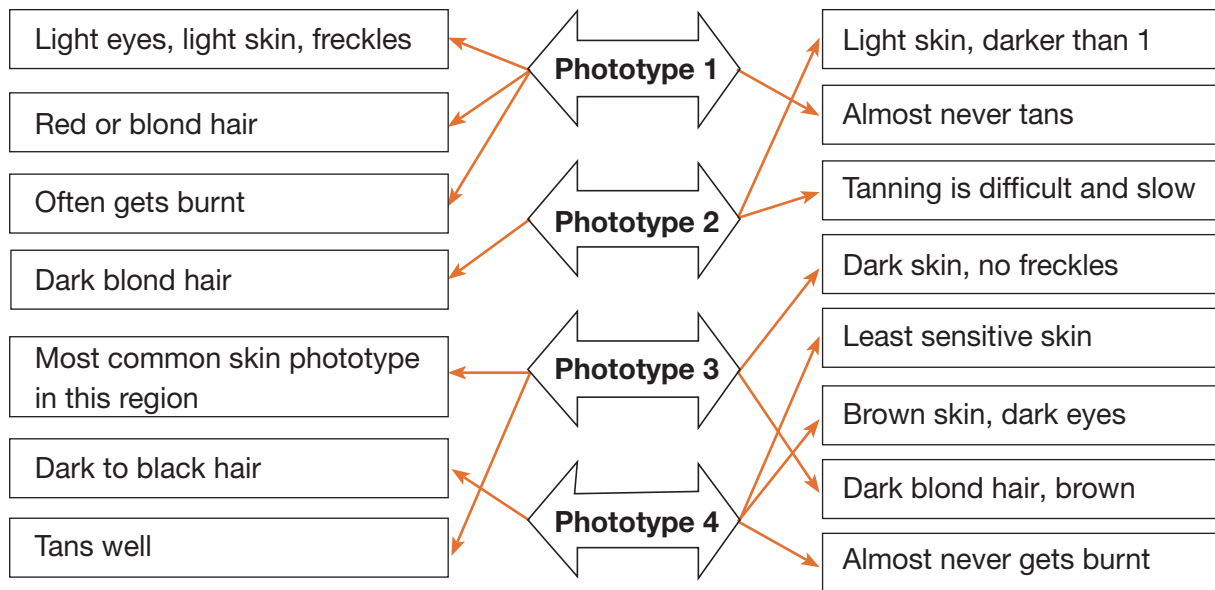
3) Identify all risk factors of skin cancer:



4) Specify some of the typical symptoms of skin cancer:

Any change on the skin is a warning signal, a change in the size, colour, or structure of the birthmark, itchy, suppurating, bleeding birthmark, surface spreading of the birthmark, change in the colour, dark colour of the birthmark, spotty appearance, irregular edges, bruise or wart resembling shape, nail spot.

5) Match the characteristic with skin phototypes and specify your skin phototype:



I have discovered that my phototype is _____.

6) Specify what everybody can do to prevent skin cancer:

Limit sunlight exposure, avoid direct sunlight between 11 a.m. and 3 p.m., use sunglasses, use a head cover, use creams with sun protection factor, protect children younger than 1 year from sunlight, search for shade, do not visit solaria.

7) Answer the following question:

Is there something like skin self-examination? **Yes**

If so, please specify the interval at which it should be performed: **At least three times a year**



ACTIVITIES FOR STUDENTS

ACTIVITY 1: Skin phototypes

During this activity each student receives a card with information concerning skin phototypes. Their task is without speaking to arrange the cards in groups by the phototypes and their characteristics. To make this activity more difficult, the teacher may attach the cards on the students' backs. The students need to communicate to arrange themselves correctly. If there are more students than there are phototypes, copy some of the cards to make all students involved. This activity may also be performed in pairs. The students arrange the cards at their desks.

| PHOTOTYPE 1 | PHOTOTYPE 2 | PHOTOTYPE 3 | PHOTOTYPE 4 |
|--|---|---|---|
| Light eyes, light skin, freckles | Light skin, darker than type 1 | Most frequent, darker skin, no freckles | Light brown skin, dark eyes |
| Red or blond hair | Difficult and slow tanning | Tans well | Dark to black hair |
| Often gets burnt, almost never tans | blond hair or dark blond, blue eyes | Dark blond hair or brown | Least sensitive skin, almost never gets burnt |
| 3–10 min in the sun without protection | 10–20 min in the sun without protection | 20–30 min in the sun without protection | 30–40 min in the sun without protection |

ACTIVITY 2: Family tree of skin phototypes

The students are supposed to produce a family tree of skin phototypes on a sheet of paper. At first, they produce a traditional family tree and then identify the phototype of each family member and write it in the box instead of the picture. If there is a family member with a risky phototype, the students' task is to inform the person about the risk of skin cancer and relevant preventive measures. It is a good idea to assign this activity as *homework*.

teaching
lesson

8

Oncological disease of the lungs

Keywords: lungs, risk factors, active smoking, passive smoking, symptoms, prevention



THEORETICAL PREPARATION

The lungs (pulmones in Latin) are paired breathing organs located in the thoracic cavity, the main function of which is the replacement of respiratory gases between air and blood. Moreover, the breathing system includes the upper respiratory tract (nasal cavity, pharynx) and the lower respiratory tract (larynx, trachea, and bronchi). The bronchi enter the lungs, branch into bronchioles and are terminated by air sacs where the gas exchange takes place (Machová, 2010).

Malignant tumours of the respiratory system represent a heterogeneous group of cancers. Lung cancer includes tumours located in the trachea, bronchi, bronchioles, and the lung tissue. The respiratory tract and the lung tissue are the most frequent locations of metastases of tumours in other body parts, but these metastases are not included in the category of lung cancer (Rakovina plic [online], 2018).

Cancer is a leading cause of death worldwide, accounting for an estimated 9.6 million deaths in 2018. The most common of cancers is lung cancer (2.09 million cases). The most common causes of cancer death is lung cancer (1.76 million deaths)



Tip: *The current prevalence of lung cancer*: WHO. Cancer Today/Cancer fact sheets:

<https://gco.iarc.fr/today/fact-sheets-cancers>

Risk factors

Smoking is a well-confirmed risk factor for the development of lung cancer. Smoking is also dangerous for other organs (mouth, pharynx, oesophagus, larynx, pancreas, urinary organs). Lung cancer mostly affects cigarette smokers, because unlike smoking pipes or cigars, where the smoke is absorbed in the mouth, in the case of cigarettes the acid smoke reaches the lungs. Therefore, people who smoke cigars or pipes (alkaline smoke) are most frequently diagnosed with mouth, oesophageal, lip, or tongue cancer. The risk of development of malignant lung tumours increases with the length of smoking. In people who smoke more than 20 cigarettes a day, the risk is up to 30 times higher than in non-smokers. The risk is also higher in individuals who have smoked from

an early age. Research studies have confirmed a higher risk of lung cancer in individuals who are exposed to passive smoking. Especially children and adolescents are at risk if exposed to this form of smoking for a long period of time (Dienstbier and Skala, 2014).

Another risk factor is a polluted environment. Especially heavily polluted areas with for example a high concentration of uranium decay products (especially radon) and asbestos are correlated with lung cancer (Manuál prevence v lékařské praxi [online], 2008). The development of lung cancer may also be affected by genetic factors.

Symptoms

At an early stage, lung cancer does not manifest, the symptoms occur slowly and are often weak. Symptoms usually indicate a later stage of lung cancer. The onset of the disease is usually revealed coincidentally by X-ray. Some manifestations are non-specific and need not necessarily indicate lung cancer.

- Cough—although this is the most common manifestation of lung cancer, it is very difficult to distinguish between smoker's cough and lung cancer cough. The cough is usually dry, irritating, and persistent;
- Coughing blood;
- Pain in the chest;
- Hoarseness, difficult swallowing;
- Loss of appetite, weight loss, temperature, fatigue.

Prevention

The most important preventive measure of lung cancer is non-smoking. Do not even start or quit smoking immediately. Quitting smoking significantly decreases the risk of a malignant tumour. A few years after quitting smoking, the risk may be reduced by up to 50%. As part of the primary prevention, it is also important to avoid passive smoking (Rakovina plic [online], 2018). Regarding the fact that currently the number of smokers is increasing among adolescents, school-based preventive measures in the form of preventive programmes are of crucial importance. The purpose of these programmes is to inform the students about the negative effects of smoking on health.



What is Lung Cancer?:

https://www.cdc.gov/cancer/lung/basic_info/what-is-lung-cancer.htm



DRAFT TEACHING LESSON 8

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|---|---|-----------------|
| Motivation | <ul style="list-style-type: none"> • Occurrence of lung cancer | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 3 min |
| Exposure | <ul style="list-style-type: none"> • Structure of the breathing system, lung function | <ul style="list-style-type: none"> • Presentation | <ul style="list-style-type: none"> • Group | 15 min |
| | <ul style="list-style-type: none"> • Risk factors, symptoms | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Individual | |
| | <ul style="list-style-type: none"> • Prevention • Completion of a worksheet • Activity 1: I just say NO! • Activity 2: Smoking prevention in school | <ul style="list-style-type: none"> • Work with a worksheet | <ul style="list-style-type: none"> • Work in pairs | 5 min 15 min |
| Reinforcement | <ul style="list-style-type: none"> • Summary of the teaching lesson | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 5 min |
| Application | <ul style="list-style-type: none"> • Homework assignment | <ul style="list-style-type: none"> • Activities | <ul style="list-style-type: none"> • Individual | 2 min |

Motivation

At the beginning of the lesson, a discussion takes place on the prevalence of lung cancer. The teacher may encourage the students using the following questions:

- *Do you think that lung cancer is a frequent disease?*
- *In your opinion, what is the position of lung cancer among other neoplastic diseases?*
- *What age category do you think is most affected by lung cancer?*



Tip: *Example graphs of the incidence and mortality of lung cancer: WHO. Cancer Today/Cancer fact sheets:*

<https://gco.iarc.fr/today/fact-sheets-cancers>

Exposure

The students receive *Worksheet 8*, which they complete and continuously check with the teacher. A presentation or discussion may follow.



Download presentation:

<https://www.rozhodniseprozdрави.cz/onkologick%C3%A9-onemocn%C4%9Bn%C3%AD-plic>

The purpose of Task 1 is to revise the structure of the breathing system and lung function. After that, the students work on Tasks 2, 3 and 4. The students learn about the risk factors and symptoms of the disease and should be able to explain the difference between active and passive smoking. This is followed by a discussion on the prevention of lung cancer, after which the students should be able to answer the last question in Task 5. The teacher should emphasise the risk of active and passive smoking. In the context of smoking prevention and lung cancer prevention it is important to be able to say *no* when somebody offers a cigarette. This is the purpose of *Activity 1* called

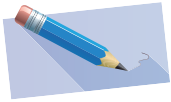
“I just say NO!”. In *Activity 2* entitled “Smoking prevention in school”, the students work in pairs and produce a short smoking prevention programme for their peers. At the end of the lesson, the students may present their work.

Reinforcement

In order to revise the learning content, the students revise the basic information that they remember about lung cancer.

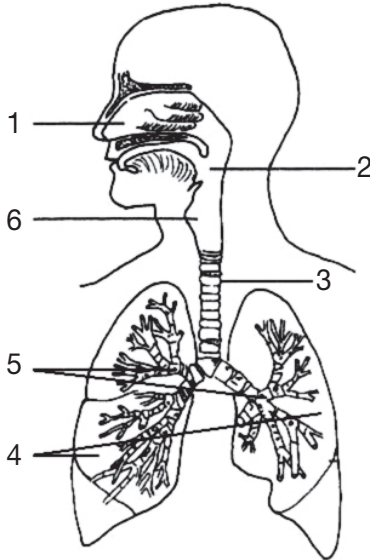
Application

At the end of the lesson the students are assigned *homework*, the purpose of which is to find out how many smokers they know. Their primary task is to inform these individuals about the risks of smoking.



WORKSHEET 8 – ONCOLOGICAL DISEASE OF THE LUNGS

1) Describe the parts of the breathing system and choose the correct statement:



1 –

2 –

3 –

4 –

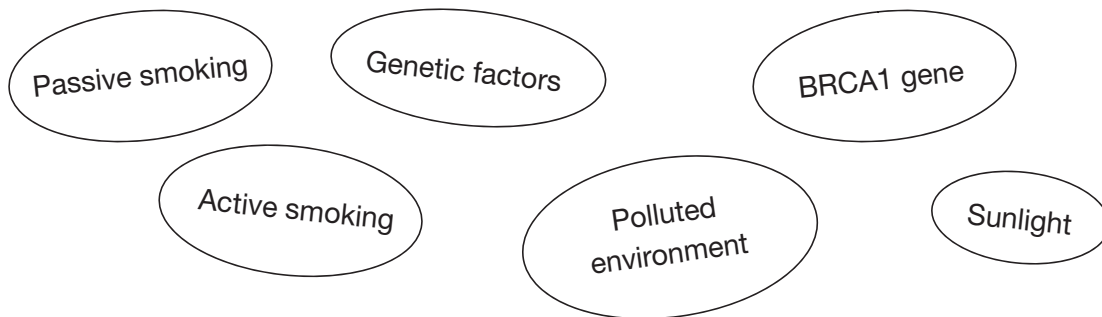
5 –

6 –

What is the function of the lungs?

- a) They ensure blood circulation.
- b) They exchange respiratory gases between air and blood.
- c) They maintain body temperature.

2) Identify the risk factors of lung cancer:



3) Match the terms active and passive smoking with the correct definitions:

_____ smoking:
Smoke is inhaled by a person who is not smoking.

_____ smoking:
Smoke is inhaled by the person who is smoking.

4) Add the missing letters in the words that refer to possible symptoms of lung cancer:

a) C _ U _ H

b) _ O _ _ H I N _ U P _ L O _ D

c) P A _ N I _ T H E C _ E _ T

d) _ O _ R S E N _ _ S

e) S _ A _ L O W I N G _ _ _ F I _ U L T I E S

f) _ A _ I _ U E

g) _ E I _ _ _ _ O S _

5) Specify the preventive measures of lung cancer and some smoking prevention programmes (in your country):

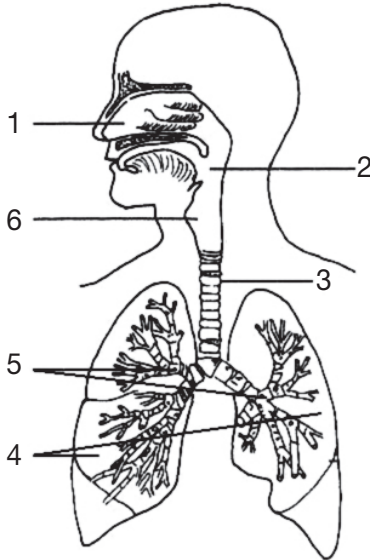
Prevention of lung cancer: _____

Smoking prevention programmes: _____



WORKSHEET 8 – ONCOLOGICAL DISEASE OF THE LUNGS

1) Describe the parts of the breathing system and choose the correct statement:



1 – Nasal cavity

2 – Pharynx

3 – Trachea

4 – Lungs

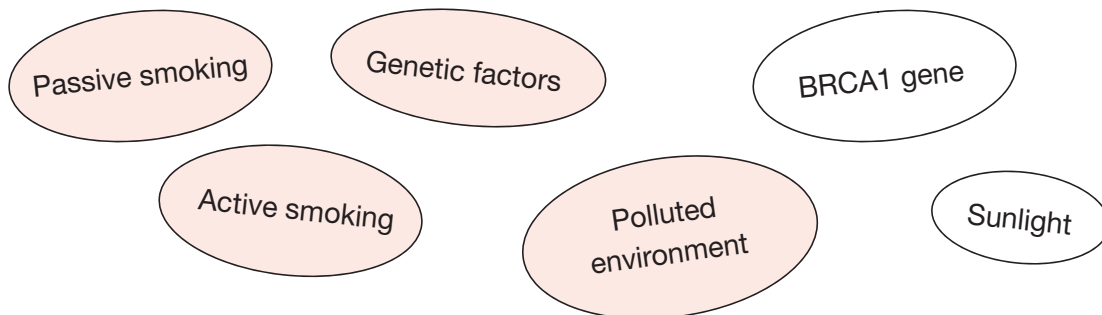
5 – Bronchi

6 – Larynx

What is the function of the lungs?

- a) They ensure blood circulation.
- b) They exchange respiratory gases between air and blood.
- c) They maintain body temperature.

2) Identify the risk factors of lung cancer:



3) Match the terms active and passive smoking with the correct definitions:

PASSIVE smoking:

Smoke is inhaled by a person who is not smoking.

ACTIVE smoking:

Smoke is inhaled by the person who is smoking.

4) Add the missing letters in the words that refer to possible symptoms of lung cancer:

a) C O U G H

b) C O U G H I N G U P B L O O D

c) P A I N I N T H E C H E S T

d) H O A R S E N E S S

e) S W A L L O W I N G D I F F I C U L T I E S

f) F A T I G U E

g) W E I G H T L O S S

5) Specify the preventive measures of lung cancer and some smoking prevention programmes (in your country):

Prevention of lung cancer: Non-smoking, avoid passive smoking, preventive measures against smoking in school, regular medical examinations

Smoking prevention programmes: _____

Note: the solution will vary by county.



ACTIVITIES FOR STUDENTS

ACTIVITY 1: I just say NO!

The students are divided into several groups according to coloured paper slips and their task is to refuse an offered cigarette. They are supposed to perform a role-play with two roles – the one who offers (individual, several people) and the one who refuses. The students should identify with the roles and describe their feelings when they refuse and offer a cigarette.



Tip for the teacher: after this activity the teacher may offer the students cigarette chewing gum. The students should refuse as they do not now that they are not real cigarettes.

ACTIVITY 2: Smoking prevention in school

In pairs or in groups, the students produce a short programme for their peers aimed at smoking prevention that could be implemented in school. It is possible to prepare the project in any form, for example create a poster or make up an interesting activity on prevention. After that the students do a presentation.

European Code Against Cancer

Keywords: European Code Against Cancer, prevention



THEORETICAL PREPARATION

The European Code Against Cancer ([online], 2016) defines twelve recommendations on cancer prevention that the whole population should follow. Observing these preventive measures leads to a decrease in the prevalence of oncological diseases and mortality rate. The European Code includes both the primary and secondary prevention. For the first time the Code was published in 1987; the latest version that includes these recommendations was issued in 2014 (Evropský kodex proti rakovině [online], 2016).

- 1) *Do not smoke. Do not use any form of tobacco.*
- 2) *Make your home smoke free. Support smoke-free policies in your workplace.*
- 3) *Take action to be a healthy body weight.*
- 4) *Be physically active in everyday life. Limit the time you spend sitting.*
- 5) *Have a healthy diet:*
 - *Eat plenty of whole grains, legumes, vegetables and fruits.*
 - *Limit high-calorie food (foods high in sugar or fat) and avoid sugary drinks.*
 - *Avoid processed meat; limit red meat and foods high in salt.*
- 6) *If you drink alcohol of any type, limit your intake. Not drinking alcohol is better for cancer prevention.*
- 7) *Avoid too much sun, especially for children. Use sun protection. Do not use sunbeds.*
- 8) *In the workplace, protect yourself against cancer-causing substances by following health and safety instructions.*
- 9) *Find out if you are exposed to radiation from naturally high radon levels in your home. Take action to reduce high radon levels.*
- 10) *For women:*
 - *Breastfeeding reduces the mother's cancer risk. If you can, breastfeed your baby.*
 - *Hormone replacement therapy (HRT) increases the risk of certain cancers. Limit use of HRT.*

11) *Ensure your children take part in vaccination programmes for:*

- *Hepatitis B (for newborns)*
- *Human papillomavirus*

12) *Take part in organized cancer screening programmes for:*

- *Colorectal cancer (men and women)*
 - *Breast cancer (women)*
 - *Cervical cancer (women)*
-



DRAFT TEACHING LESSON 9

ESTIMATED TIME: 45 min / 90 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|---|---|---|--------|
| Motivation | <ul style="list-style-type: none"> Activity 1: Class Code Against Cancer | <ul style="list-style-type: none"> Discussion | <ul style="list-style-type: none"> Group | 12 min |
| Exposure | <ul style="list-style-type: none"> European Code Against Cancer Completion of a worksheet | <ul style="list-style-type: none"> Presentation Discussion | <ul style="list-style-type: none"> Group Individual | 15 min |
| | <ul style="list-style-type: none"> Activity 2: Fight against cancer | <ul style="list-style-type: none"> Using a worksheet Activity | | 45 min |
| Reinforcement | <ul style="list-style-type: none"> Revising the European Code Project presentation | <ul style="list-style-type: none"> Discussion | <ul style="list-style-type: none"> Group | 15 min |
| Application | <ul style="list-style-type: none"> Homework assignment: Family Code Against Cancer | <ul style="list-style-type: none"> Activities | <ul style="list-style-type: none"> Individual | 3 min |

Motivation

At the beginning of the lesson the students work on *Activity 1*, in which the whole class develops the Class Code Against Cancer. Their task is to think about the preventive measures against cancer. The teacher writes the recommendations on a large piece of paper attached to the blackboard. This activity follows the discussion on the European Code Against Cancer.

Exposure

The students work on *Worksheet 9*, specifically Tasks 1, 2 and 3, which introduce the European Code Against Cancer. After the teacher's presentation the students add the items of the Code in their own words.



Download presentation:

<https://www.rozhodniseprozdravi.cz/evropsk%C3%BD-kodex-proti-rakovin%C4%9B>



Tip for the teacher: It is also possible to project the entire European Code or underline those items in the Class Code that are also included in the European Code. Based on this, the students complete Task 2 in the worksheet.

This is followed by *Activity 2* entitled "Fight against cancer", in which the students work in groups and focus on projects on the prevention of oncological diseases. In this activity they use the information from the previous lessons.

Reinforcement

The students repeat in their own words what the European Code Against Cancer means and what it contains. They also present their work, by which they revise the knowledge on the issue of oncological prevention. Their work should also be displayed in the classroom.

Application

At the end of the lesson the students are assigned *homework*, the purpose of which is to develop the Family Code Against Cancer. The students think about what the family should observe or change to prevent neoplastic diseases. After checking by the teacher, the homework can be displayed home in order to inform all family members about the code and make them follow the rules.



WORKSHEET 9 – EUROPEAN CODE AGAINST CANCER

1) Add the missing words in the sentence:

The European _____ Against Cancer defines twelve _____ on cancer _____ that the whole _____ should follow.

2) Briefly describe the items of the Code:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____
- 9) _____
- 10) _____
- 11) _____
- 12) _____

3) Choose the correct statements about the European Code:

- a) Observing the Code leads to a decrease in the occurrence of neoplastic diseases.
- b) The Code relates only to the primary prevention.
- c) The European Code includes both the primary and secondary prevention.
- d) Observing the Code leads to a decrease in the mortality rate of people with neoplastic diseases.



WORKSHEET 9 – EUROPEAN CODE AGAINST CANCER

1) Add the missing words in the sentence:

The European Code Against Cancer defines twelve recommendations on cancer prevention that the whole population should follow.

2) Briefly describe the items of the Code:

- 1) Do not smoke. Do not use any form of tobacco.
- 2) Make your home smoke free.
- 3) Take action to be a healthy body weight.
- 4) Be physically active in everyday life. Limit the time you spend sitting.
- 5) Eat healthy food: fruit, vegetables, legumes, wholemeal products, ...
- 6) If you drink alcohol of any type, limit your intake. The best is to avoid alcohol completely.
- 7) Avoid excessive sunbathing, use sun protection. Do not use sunbeds.
- 8) In the workplace, protect yourself against cancer-causing substances.
- 9) Take action to reduce radon levels in your house.
- 10) For women: If you can, breastfeed your baby. Limit use of HRT.
- 11) Take vaccination against hepatitis B and human papillomavirus.
- 12) Take part in organized cancer screening programmes aimed at: colorectal cancer, cervical cancer, breast cancer.

3) Choose the correct statements about the European Code:

- a) Observing the Code leads to a decrease in the occurrence of neoplastic diseases.
- b) The Code relates only to the primary prevention.
- c) The European Code includes both the primary and secondary prevention.
- d) Observing the Code leads to a decrease in the mortality rate of people with neoplastic diseases.



ACTIVITIES FOR STUDENTS

ACTIVITY 1: Class Code Against Cancer

During this activity the students think about the preventive measures against cancer and the teacher writes their ideas on the blackboard. It is a good idea to use a large piece of paper so that the students can place their Class Code Against Cancer in the classroom. They can either focus on what the whole population could do in the context of oncological prevention, or what could be done by each students in the class to decrease the risk of cancer. A similar preventive recommendation may be produced for the family and called the Family Code Against Cancer.

ACTIVITY 2: Fighting cancer

The students are divided into eight groups and draw topics on neoplastic diseases. The numbers of the topics can be used to divide the students into groups.

Topics:

| | |
|------------------------------|--------------------------------|
| 1) Primary cancer prevention | 2) Secondary cancer prevention |
| 3) Colorectal cancer | 4) Breast cancer |
| 5) Cervical cancer | 6) Testicular cancer |
| 7) Skin cancer | 8) Lung cancer |

The task of each group is to produce an information leaflet, poster, or brochure for the general public. The students should present general information on the topic and focus especially on prevention. In this activity they use the knowledge gained in the previous lessons. The teacher should provide the students with the required materials such as paper, glue, coloured pencils, felt-tip pens, magazines, leaflets for inspiration (for example a brochure on breast self-examination), scientific publications on the topic.



European Code Against Cancer materials:

<https://www.europeancancerleagues.org/cancer-prevention-ecac-materials-2/>

**teaching
lesson 10**

Where to find information about oncological diseases?

Keyword: organizations, foundations, projects, campaigns, prevention



THEORETICAL PREPARATION

In order to raise awareness about cancer and particularly its prevention, several organizations have been established and some interesting projects as well as campaigns are in place.

Global organizations that focus on health promotion and protection as well as oncological prevention

World Health Organization

Good health is a precious thing. When we are healthy we can learn, work, and support ourselves and our families. When we are sick, we struggle, and our families as well as our communities fall behind.

That's why the World Health Organization is needed. Working with 194 Member States, across six regions, and from more than 150 offices, WHO staff are united in a shared commitment to achieve better health for everyone, everywhere.

WHO works worldwide to promote health, keep the world safe, and serve the vulnerable.

Our goal is to ensure that a billion more people have universal health coverage, to protect a billion more people from health emergencies, and provide a further billion people with better health and well-being.

For universal health coverage, we:

- focus on primary health care to improve access to quality essential services
- work towards sustainable financing and financial protection
- improve access to essential medicines and health products
- train the health workforce and advise on labour policies
- support people's participation in national health policies
- improve monitoring, data and information.



www.who.int

The Association of European Cancer Leagues

The Association of European Cancer Leagues (ECL) is a non-profit, pan-European umbrella organisation of national and regional cancer societies. Located in Brussels, ECL provides an exclusive platform for members to collaborate with their international peers, primarily in the areas of cancer prevention, tobacco control, access to medicines and patient support, and creates opportunities to advocate for these issues at the EU level.



<https://www.europeancancerleagues.org/about-ecl/>

Centers for Disease Control and Prevention

The CDC is one of the major operating components of the Department of Health and Human Services.

The CDC works 24/7 to protect America from health, safety and security threats, both foreign and in the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, the CDC fights disease and supports communities as well as citizens to do the same.

The CDC's Division of Cancer Prevention and Control is advancing cancer prevention nationwide for everyone. The work of the CDC in 2018 included innovative communication approaches to promote cancer prevention, screening and early detection, research, and evidence-based programs.



<https://www.cdc.gov/about/organization/cio.htm>



DRAFT TEACHING LESSON 10

ESTIMATED TIME: 45 min

| Teaching stage | Activity description | Teaching method | Form of study | Time |
|----------------|--|---|---|-----------------|
| Motivation | <ul style="list-style-type: none"> • Introductory discussion | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 2 min |
| Exposure | <ul style="list-style-type: none"> • Where to find information on oncological diseases • Completion of a worksheet | <ul style="list-style-type: none"> • Using a computer • Using a worksheet | <ul style="list-style-type: none"> • Group • Individual | 17 min |
| Reinforcement | <ul style="list-style-type: none"> • Checking of the information found • Activity 1: Health prevention | <ul style="list-style-type: none"> • Discussion • Activity | <ul style="list-style-type: none"> • Group • Work in pairs (groups) | 5 min 15 min |
| Application | <ul style="list-style-type: none"> • Final discussion | <ul style="list-style-type: none"> • Discussion | <ul style="list-style-type: none"> • Group | 6 min |

Motivation

At the beginning the teacher has a short discussion with the students about projects or websites aimed at oncological diseases. The students share their experiences with searching for information about cancer. The teacher can mention some specific projects, organizations, or campaigns.

Exposure

The lesson is based on using *computers*. Therefore, it is recommended to move to the computer classroom so that everybody has access to the internet. The students are given *Worksheet 10*, in which they write information that they find on the internet. The worksheet contains three tasks. Task 1 consists of three parts—organizations and foundations, projects, campaigns. The students draw a topic that they focus on. Their task is to search the internet and find information about the organizations, projects or campaigns, and complete the tables in the worksheet. Specifically, they complete the name, the neoplastic disease the website focuses on, and the main objective. The students also explore whether the website provides the basic information about the disease and prevention. These questions are answered yes or no, the students can also add whether the information is sufficient. Then they write an interesting piece of information that they found on the website. In Task 2, the students search for other organizations, projects, and campaigns related to oncological diseases. The purpose of the lesson is to identify the websites that provide useful information about oncological diseases.



Download presentation:

<https://www.rozhodniseprozdravi.cz/kde-hledat-informace-o-onkologick%C3%BDch-onemocn%C4%9Bn%C3%ADch>

Reinforcement

The students check the information about the websites with the teacher and the remaining students complete the tables. After that they revise the issue of oncological prevention using *Activity 1* "Prevention as a doorway to health". The game can be played in pairs as a board game or in groups by means of asking questions.



Tip for the teacher: If a computer room is not available, the teacher provides the basic information about relevant websites and the students complete the worksheet. In the reinforcement stage, the checking of the worksheet is skipped.

Application

At the end of the lesson the students evaluate the whole programme on oncological diseases and consider the following questions:

- *Have you changed anything in your lifestyle as part of oncological prevention or is there something you would like to change?*
- *Have you informed someone about oncological prevention and has the person changed his/her lifestyle?*
- *Have you motivated someone for regular preventive examinations, breast or testicular self-examination, or a screening programme?*



WORKSHEET 10 – WHERE TO FIND INFORMATION ABOUT ONCOLOGICAL DISEASES?

1) Find information about the organizations, projects, and campaigns that focus on cancer prevention in the world and your country and complete the following tables:

ORGANIZATIONS, FOUNDATIONS

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

PROJECTS

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

CAMPAIGNS

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease:: _____

Information on prevention: _____

Interesting information: _____

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease:: _____

Information on prevention: _____

Interesting information: _____

2) List some other projects and campaigns that address oncological diseases:



WORKSHEET 10 – WHERE TO FIND INFORMATION ABOUT ONCOLOGICAL DISEASES?

1) Find information about the organizations, projects, and campaigns that focus on cancer prevention in the world and your country and complete the following tables:

ORGANIZATIONS, FOUNDATIONS

| | | | |
|--------------------------------------|---|-------|--------------------|
| Name: | <u>World Health Organization.</u> | Link: | <u>www.who.int</u> |
| Neoplastic diseases: | <u>General focus on health promotion and protection</u> | | |
| Main objective: | <u>Inform the public about prevention, improvement of the quality of the life of patients</u> | | |
| Basic information about the disease: | <u>Yes (publication)</u> | | |
| Information on prevention: | <u>Yes</u> | | |
| Interesting information:: | | | |

| | | | |
|--------------------------------------|---|-------|---|
| Name: | <u>The Association of European Cancer Leagues</u> | Link: | <u>https://www.europeancancerleagues.org/</u> |
| Neoplastic diseases: | | | |
| Main objective: | | | |
| Basic information about the disease: | | | |
| Information on prevention: | | | |
| Interesting information: | | | |

| | | | |
|--------------------------------------|---|-------|-----------------------------|
| Name: | <u>Centers for Disease Control and Prevention</u> | Link: | <u>https://www.cdc.gov/</u> |
| Neoplastic diseases: | | | |
| Main objective: | | | |
| Basic information about the disease: | | | |
| Information on prevention: | | | |
| Interesting information: | | | |

PROJECTS

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

CAMPAIGNS

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

Name: _____ Link: _____

Neoplastic diseases: _____

Main objective: _____

Basic information about the disease: _____

Information on prevention: _____

Interesting information: _____

2) List some other projects and campaigns that address oncological diseases:



ACTIVITIES FOR STUDENTS

ACTIVITY 1: PREVENTION AS A DOORWAY TO HEALTH

This activity is based on the principle of a board game (Smejkalová [online], 2017). The game is designed for two people. Requirements: some knowledge about oncological diseases and their prevention, game board, paper cards, playing pieces. To save time, the paper cards should be cut in advance. Each card has a question, correct answer, and the number of squares that the player moves if he/she gives the correct answer. At the beginning of the game the players place the pieces at the start. One of the players draws a card and reads the question. If the other player gives the correct answer, he/she moves the number of squares on the board. If the answer is incorrect, the player moves back one square. The players take turns. The first one to finish is the winner. If the students have some time and cards left, they can play again. This is an entertaining way of revising the information they gained about the issue of neoplastic diseases.



Tip for the teacher: Modification of the game—the students are divided into two groups using coloured pieces of paper, each group chooses a number and the teacher reads the question. Before the game, the teacher produces a table on the blackboard with the numbers of questions. After a question is picked, the number is crossed. If the group gives the correct answer, the students receive the number of points on the card. If the answer is incorrect, the group loses one point. After all questions are used or after the time is up, the group with the higher number of points wins.



Tip for the teacher: Modification of the game—the students are divided into halves. Everybody stands up. Each student is asked a question and if the correct answer is given, the student can sit down. If the answer is incorrect, the question passes on to the next student in the group. The group who sits first is the winner.

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Annexes

LIST OF ANNEXES

Annex 1: Health prevention – a game for two

Annex 2: Example of skin cancer



WE'RE NOT

AFRAID OF

OR

PREVENTION AS
A DOORWAY TO HEALTH

HEALTH PREVENTION — A GAME FOR TWO

Take a game piece and place it at the start. Your partner draws a card and reads the question. If you give the correct answer, you move forward the number of squares on the card. If your answer is incorrect, you move back one square.

Who will be first to finish?



CUT THE CARDS



Question:
.....

Is breast and testicular self-examination performed visually and also by palpation?

Response:
.....

Yes



Question:
.....

How often should breast and testicular self-examination be performed?

Response:
.....

Once a month



Question:
.....

Is it true that that testicular self-examination should be performed only by men over 50?

Response:
.....

No



Question:
.....

Is a proper diet one of the measures of oncological prevention?

Response:
.....

Yes



Question:
.....

Which age category is most frequently affected by testicular cancer?

Response:
.....

15 to 35 years old



Question:
.....

Name at least three factors that negatively affect the occurrence of cancer.

Response:
.....

Smoking, alcohol, obesity, unhealthy diet, overweight, insufficient physical activity, excessive sunbathing, HPV, inheritance, stress etc.



Question:
.....

Does the daily consumption of red meat increase the risk of colorectal cancer?

Response:
.....

Yes



Question:
.....

When is the most appropriate time for self-examination of the breasts and testicles?

Response:
.....

After a bath or shower



Question:
.....

Is overweight and obesity one of the risk factors of cancer?

Response:
.....

Yes



Question:
.....

Procedure: self-examination breasts and testicles only visually?

Response:
.....

No



Question:
.....

How many portions of fruit and vegetables should be included in our diet?

Response:
.....

3 portions of vegetables and 2 portions of fruit



Question:
.....

What is the word for the preventive examination of breast cancer?

Response:
.....

Mammography (mammography examination)



Question:
.....

What is the word for the preventive examination of colorectal cancer?

Response:
.....

Colonoscopy



Question:
.....

Is a mammography a preventive examination of cancer of the cervix?

Response:
.....

No



Question:
.....

Should nibbles rich in salt (e.g. chips, salted nuts) be included in our daily diet?

Response:
.....

No



Question:
.....

What examination is usually performed in women younger than 40 years instead of a mammography?

Response:
.....

Ultrasonic examination



Question:
.....

What is the most frequent symptom of breast cancer?

Response:
.....

Lump in the region of the breasts, armpit or collarbone



Question:
.....

How is HPV transmitted?

Response:
.....

By sexual intercourse



Question:
.....

Is it true that vaccination against HPV is the only protection against cervical cancer?

Response:
.....

No



Question:
.....

What is the name of the very dangerous type of skin cancer?

Response:
.....

Melanoma



Question:
.....

Is it important during breast self-examination to palpate also the armpit and the region of the collarbone?

Response:
.....

Yes



Question:
.....

What is the most important preventive measure of lung cancer?

Response:
.....

Non-Smoking



Question:
.....

Does breast cancer affect only women?

Response:
.....

No



Question:
.....

Can the HPV virus infect women and men?

Response:
.....

Yes



Question:
.....

How often should girls take regular gynaecological examinations?

Response:
.....

Every year



Question:
.....

What is the other name for non-malignant tumours?

Response:
.....

Benign



Question:
.....

Is it true that breast cancer is the most frequent neoplastic disease in women?

Response:
.....

Yes



Question:
.....

Does passive smoking affect cancer?

Response:
.....

Yes



Question:
.....

Specify three risk factors for skin cancer.

Response:
.....

Excessive sunbathing, non-use of creams with sun protection factor, sunbeds



Question:
.....

What is the secondary prevention of colorectal cancer?

Response:
.....

Colonoscopy



Question:
.....

What is a metastasis and which tumours cause its development?

Response:
.....

New secondary sources of a malignant tumour



Question:
.....

A man palpated a lump in the testicle. Can it be testicular cancer?

Response:
.....

Yes



Question:
.....

A young boy spotted a difference in the size of the testicles that does not change. Is this testicular cancer?

Response:
.....

No



Question:
.....

What is the name of the structure located at the top back part of both testicles?

Response:
.....

Epididymis



Question:
.....

Is it recommended to see the doctor when you notice a significant difference in the size and stiffness of the testicles?

Response:
.....

Yes



Question:
.....

Is breast and testicular self-examination painful?

Response:
.....

No



Question:
.....

It is true that one testicle can be bigger than another one in a healthy man?

Response:
.....

Yes



Question:
.....

It is true that having many birthmarks increase the risk of skin cancer?

Response:
.....

Yes



Question:
.....

A girl uses a sunbed twice a week. Does it increase the risk of skin cancer?

Response:
.....

Yes



Question:
.....

Is excessive sunbathing one of the preventive measures of a neoplastic disease?

Response:
.....

No



Question:
.....

Which virus causes cervical cancer?

Response:
.....

HPV



Question:
.....

Should fried, grilled and smoked food be included in our diet every day?

Response:
.....

No



Question:
.....

It is true that cancer is the result of the uncontrolled growth of abnormal cells anywhere in the body.

Response:
.....

Yes



Question:
.....

What kind of cancer is the most common form of cancer in all humans?

Response:
.....

Skin cancer



Question:
.....

It is true that artificial sweeteners are linked to certain kinds of cancers?

Response:
.....

No



Question:
.....

It is true that symptoms for cervical cancer include pain during urination?

Response:
.....

Yes



Question:
.....

It is true that smoking is one of the risk factors of cervical cancer?

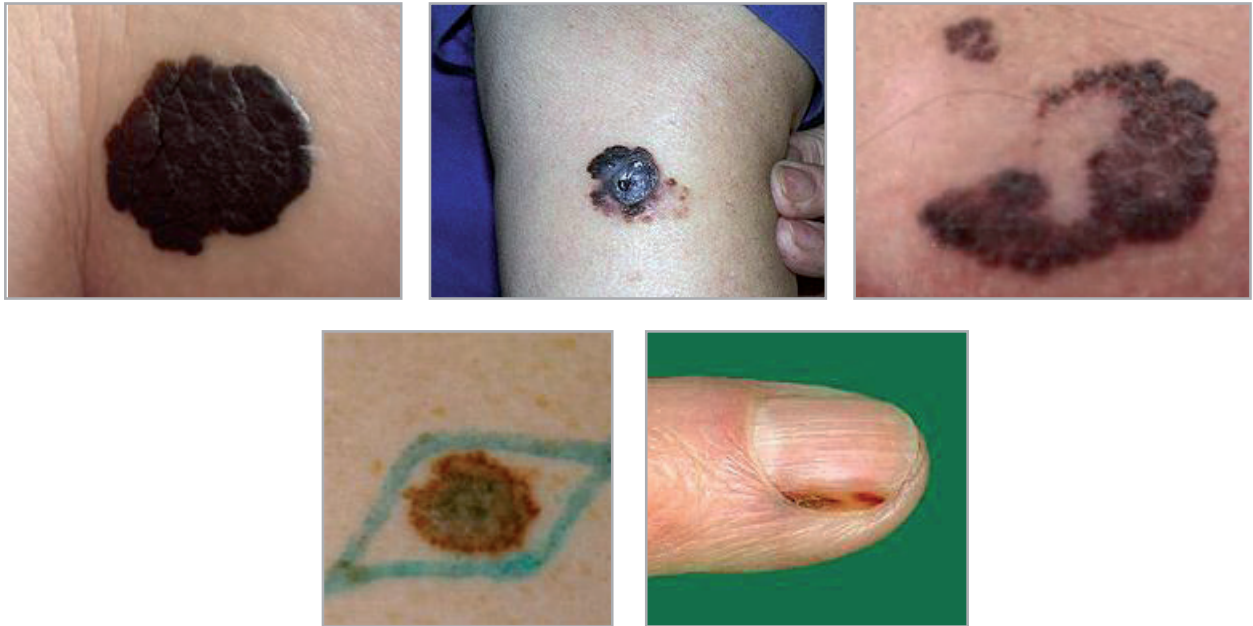
Response:
.....

Yes



Annex 2

EXAMPLE OF SKIN CANCER



Skin cancer (Melanom.cz [online], 2018)

WE'RE NOT AFRAID OF CANCER OR PREVENTION
AS A DOORWAY TO HEALTH

**ONCOLOGICAL PREVENTION METHODOLOGY FOR
LOWER SECONDARY SCHOOLS**

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