

LET'S DO CLICL

Work project

TITOLO: **Working safely with Video Display Terminals**
(How to use your computer without hurting yourself)

Docente: **Luca Battistin**

Anno Scolastico: **2015/2016**

Institute : Istituto Tecnico Industriale Statale "V.E. Marzotto" - Valdagno
Specialisation : Computer and Information Science
Subject: Safety in ICT

Topic : *Computing Health and Safety*

Students involved : age and school grade

Target 17/18 years old ; 4 th year

Learning language and linguistic competence according to Common European Framework

Language and Level English B1

TITLE: Working safely with Video Display Terminals	
Lesson/Unit: (3 or 4 hours)	
OBJECTIVES:	
CONTENT	Health and safety in ICT. Becoming aware of the risks related with Video Terminal Displays
LANGUAGE	Reinforcing the basic language of PC hardware and Peripherals. Acquiring the basic language of ergonomics related with Video terminal Display
STUDY SKILLS AND STRATEGIES	Discussion working in pairs and in small groups in the computer lab
STEP 0: 20 minutes	Introducing the subject: discussion starting from question like: Do you ever feel pain while working at the computer, or immediately after? In your opinion, What kind of risks for your health are related with computers? Watch: https://www.youtube.com/watch?v=T8qGO7XQ0Uw (good for pronunciation)
STEP 1: 40 - 60 minutes	Traditional lesson using the slides: www.v-learning.it/marzotto/mod/resource/view.php?id=6910 guide some simple relaxation exercises.
STEP 2: 20 minutes (can be done at home)	Watch and comment some of the following videos: https://www.youtube.com/watch?v=bLBKUbnLYTs (6 MINUTES. US ENGLISH. MIGHT NEED SUBTITLES AND SOME HELP FROM THE TEACHER.) https://www.youtube.com/watch?v=ARxqeV8mwZE (2 minutes; NO SOUND, ONLY PICTURE AND TEXT, BUT FUNNY) VIDEO ON ERGONOMICS : https://www.youtube.com/watch?v=S3z7uYMmaZ0 (2 minutes, no sound.)
STEP 3: 45 minutes	Students work in pairs on the workstation checklist: www.v-learning.it/marzotto/mod/resource/view.php?id=6911
STEP 4: 45 - 60 minutes	Online individual test and discuss the results (and the feedbacks) in groups: http://www.v-learning.it/marzotto/mod/quiz/view.php?id=7260

Working safely with Video Display Terminals (VDT)



How to use your computer without hurting yourself



Luca Battistin - Information and computer science dept.
ITI Marzotto di Valdagno - sept 2016

Foreword:

The computer is a useful tool.
Like every technology it can harm
you, if you don't use it properly.
An incorrect use can cause physical
and mental troubles.
The following notes talk about this
troubles and give some advice to
reduce them to the minimum

Note for the teacher:

The following notes, available at www.v-learning.it/marzotto/mod/resource/view.php?id=6910 are part of a CLIL lecture of about 3 hours.

The lecture includes an online test: <http://www.v-learning.it/marzotto/mod/quiz/view.php?id=7260>

and an activity of self observation: www.v-learning.it/marzotto/mod/resource/view.php?id=6911

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Troubles of a VDT worker

- 1. Eye problems**
- 2. Muscle skeletal disorders;**
- 3. Mental stress.**

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Other problems connected with the use of ICT technologies

3. Addiction (gambling, gaming, Online compulsions)

4. Electromagnetic radiation

5. Cyber bullism and cyber crime

Those aspects will be treated in the next presentation. By now, here are some interesting links:

<http://www.helpguide.org/articles/addiction/smartphone-and-internet-addiction.htm>

http://www.dipartimentodipendenzeverona.it/dip_digitale.html

<http://www.applelettrosmog.it/public/index.php>

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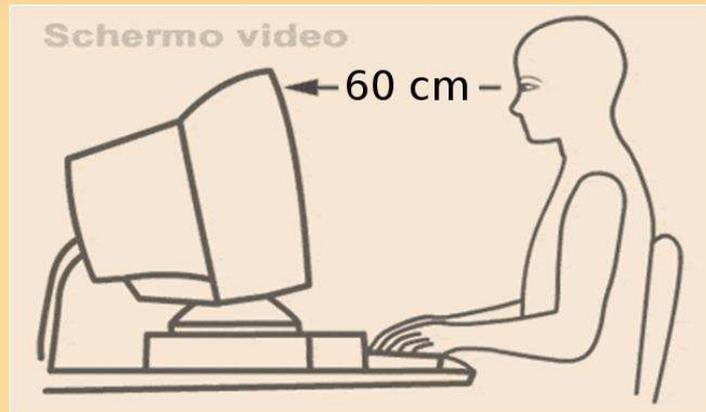
What causes eye problems ?

1. Wrong position and orientation of the Terminal Display
2. Fixity of the sight
3. Wrong lighting and monitor brightness
4. Blue Light: Bad for Your Eyes? (do your own research)

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Visual Problems remedies

- Lateral lighting, soft contrast, pastel colours.
- Check the distance... 60 cm
- Focus on distant objects; close your eyes from time to time; sometimes, keep your eyes close and let them rest.



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Eyes Problems

Check your understanding with the first three questions of the

quiz on VdT health and safety:

<http://www.v-learning.it/marzotto/mod/quiz/view.php?id=7260>

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What causes muscle skeletal troubles?

- Wrong posture



- Repeated micro movements (e.g. when you use the mouse) .

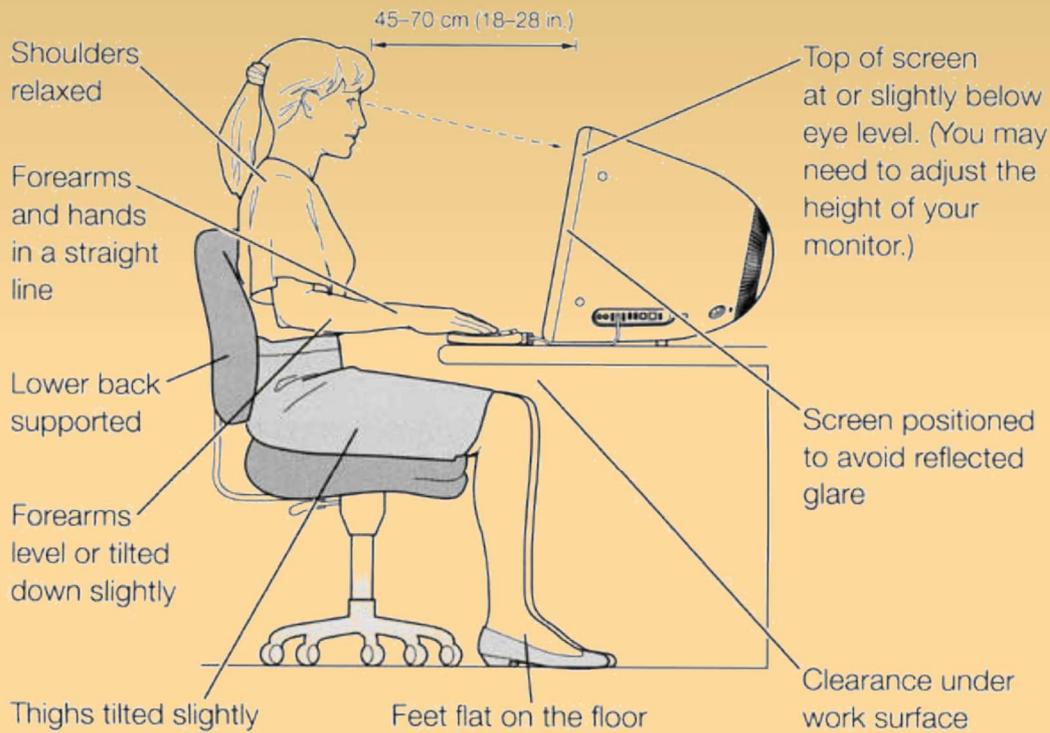
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How to reduce muscle skeletal troubles

- Check your posture (see next picture)
- Prefer keyboards rather than mouse.
- Organize your desk
- Practise some exercises (there's an example ahead)

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Check your posture



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Posture

Check your understanding with the questions from 4 to 6 of the quiz on VdT health and safety:

<http://www.v-learning.it/marzotto/mod/quiz/view.php?id=7260>

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What causes Mental stress

- Scarce knowledge of the tools
- Lack of breaks
- Bad aeration
- Bad attitude



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How to reduce mental stress

- Take your time to learn how the computer works
- Keep it efficient
- Take a 15 mins break every 120
- Plan your work:

Turn on the device when you know what you want to do with it.

Remember :The best ideas come unplugged

- Air the room
- If you have to do something, do it at your best.



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Mental Stress

Check your understanding with the questions from 7 to 9 of the quiz on VdT health and safety:

<http://www.v-learning.it/marzotto/mod/quiz/view.php?id=7260>

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Laws and regulations

In Italy there are some laws which protect the health and safety of the VTD workers (who works at a vdt at least than 20 hours per week)

(Decreto legislativo 9 aprile 2008, n. 81)

TITOLO VII

ATTREZZATURE MUNITE DI VIDEOTERMINALI

Articoli 172 - 179

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Laws and regulations

If your placement is not comfortable in terms of lighting, airing, ergonomics, seat, etc... You have the right to ask for:

- ✓ Information and training about safety and health (art 177)
- ✓ Adjustment of your placement in conformity to the requirements (see “allegato XXXIV” art 173)
- ✓ A break of 15 mins every 120 mins (art 175)
- ✓ Appropriate health surveillance (art 176)

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Check List

- ✓ **Lighting**
- ✓ **Airing**
- ✓ **Distance and contrast of the display**
- ✓ **Posture**
- ✓ **More keyboards and less mouse**
- ✓ **15 minutes break every 2 hours**
- ✓ **Stretching & Relaxing exercises**

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Other Advice

- ✓ **Know your tool**
- ✓ **Keep it efficient**
- ✓ **Plan when you are unplugged**
- ✓ **Choose a job that you like (*and do it at your best, anyway*)**

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Other references

D. Lgs. 81 del 2008 Titolo VII (art.i.172 – 179)

Libretto dell'INAIL del 2010

US department of Labour:

<https://www.osha.gov/Publications/videoDisplay/videoDisplay.html>

University of New Mexico: ergonomic guidelines

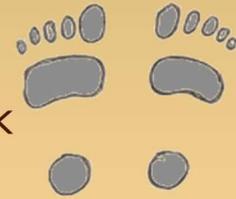
<https://srs.unm.edu/ergonomics/ergonomic-guidelines.php>

Safety Works : Maine Department of Labour

http://www.safetyworksmaine.com/training/online_classes/vdt/VDT-Main.htm

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Exercise : posture and relaxation



1. Set your chair straight in front of your desk
2. Breathe deeply twice
3. Feel your feet pressing the ground
4. Balance the weight of your buttocks on the chair
5. Drive your attention to the backbone: straight it respecting its natural curves
6. Place your hands on the desk
7. Relax your shoulder and rotate them three times clockwise, three time anti-clockwise
8. Rotate gently your head
9. Stretch your arms and rotate your hands (like a flamenco dancer)

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Take care of yourself

Working at a VDT (like every other sedentary work), need to be balanced by a proper physical exercise:

What is your balancing activity?

Jogging, trekking, swimming, climbing, juggling, rowing, cycling, chopping woods, jumping rope...

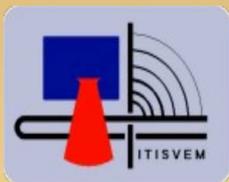
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Work in pairs

Get the “Workstation checklist” available at
www.v-learning.it/marzotto/mod/resource/view.php?id=6911

Fill it and discuss with a friend

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Thanks for your attention
And
Good luck with your work .

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Question **1**

Not yet answered

Marked out of 1.00

which is the right distance between the monitor and the eyes ?

Select one:

- a. about 1 meter
- b. between 30 and 50 cm
- c. the distance is not important as far as the contrast of the monitor is well tuned
- d. about 60 cm

Question **2**

Not yet answered

Marked out of 1.00

What can you do to reduce the risk of eye problems while working on a video terminal?

Select one or more:

- a. you can focus on distant objects
- b. you can blink frequently to keep the front surface of your eye moist
- c. there is nothing to do... If you want to use a computer, you have to accept eye problems
- d. close your eyes from time to time
- e. you can stare at the monitor keeping your eyes fixed and wide open

Question **3**

Not yet answered

Marked out of 1.00

How should the lighting of the room be, in order to reduce eye problems?

Select one:

- a. the surface of the desk should reflect as much light as possible in order to make the room brighter
- b. the room should be dark, the only light coming from the screen
- c. the natural light coming from a window should be lateral (i.e. not coming from the back nor from the front)
- d. room lighting is not important since the monitor itself is a source of light and all you have to do is to increase the brightness if needed.

Question **4**

Not yet answered

Marked out of 1.00

Which is the correct posture to keep in order to avoid muscle skeletal problems?

Select one:

- a. your body should draw 4 90-degree angles: foot-calf (ankles), thigh-lower leg (knees), thigh-body (hips), upper-lower arm (elbows)
- b. there is no such a thing as a correct posture, just forget about it and keep playing your game.
- c. Every posture is correct, as long as you feel relaxed.
- d. your leg should be straight or crossed

Question **5**

Not yet answered

Marked out of 1.00

when you work at your desk, what kind of chair would you choose for your comfort?

Select one:

- a. the softest... something like a couch
- b. a very strong one, so that I can lean back in my chair putting all of my weight on the two back legs.
- c. an adjustable chair so that I can keep the right posture
- d. Any chair can fit... I don't look for comfort when I am working (or is it playing?) at my computer.

Question **6**

Not yet answered

Marked out of 1.00

What can you do to reduce body tension (in particular shoulders and neck)?

Select one or more:

- a. do some specific exercises.
- b. take a 15 minutes break every 2 hours of work
- c. forget about the little pains or other messages coming from your body
- d. prefer mouse rather than keyboard
- e. Recent studies prove that Muscle tension is not a problem for people who work on a Video Terminal Display

Question **7**

Not yet answered

Marked out of 1.00

Which of the following are mental stress causes for a person who works on a video terminal display?

Select one or more:

- a. lack of pauses
- b. scarce knowledge of the tool (the computer)
- c. negative attitude
- d. Bad aeration

Question **8**

Not yet answered

Marked out of 1.00

How can you manage mental stress, while working on a computer?

Select one or more:

- a. Take your time to learn how the computer works
- b. if you feel tired, just forget about it and work harder!
- c. playing on line games at every break from work or, if possible, at the same time.
- d. learn to breathe with your belly

Question **9**

Not yet answered

Marked out of 1.00

How can you reduce mental stress?

Select one or more:

- a. have a positive attitude
- b. I don't want to reduce mental stress... I need to be stressed to perform better.
- c. there is nothing to do... Mental Stress is an unavoidable side effect of modern technology
- d. project your work before turning the computer on

Started on martedì, 11 ottobre 2016, 4:52

State Finished

Completed on martedì, 11 ottobre 2016, 4:56

Time taken 4 mins 9 secs

Marks 1.25/9.00

Grade 1.39 out of 10.00 (14%)

Feedback You should read again the notes

Question 1

Incorrect

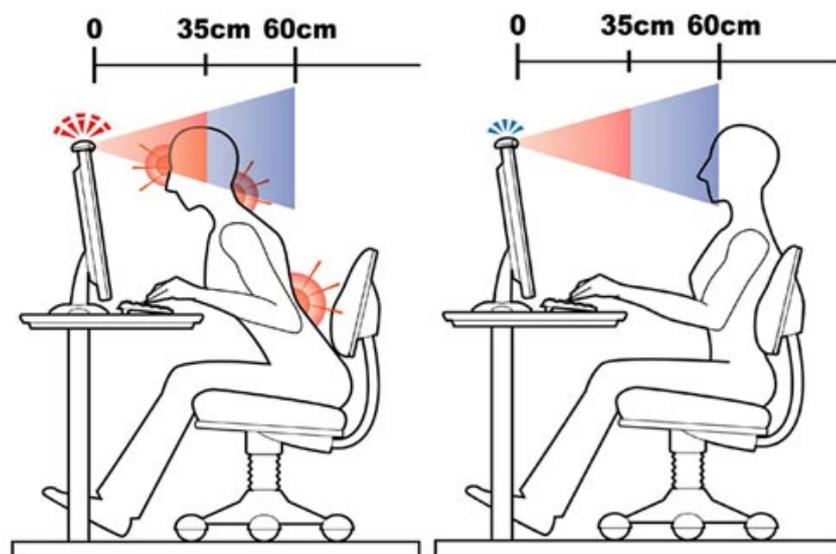
Mark 0.00 out of 1.00

which is the right distance between the monitor and the eyes ?

Select one:

- a. about 1 meter
- b. between 30 and 50 cm
- c. the distance is not important as far as the contrast of the monitor is well tuned **✗** the contrast is important, but also the distance!
- d. about 60 cm

Risposta errata.



The correct answer is: about 60 cm

Question 2

Incorrect

Mark 0.00 out of
1.00

What can you do to reduce the risk of eye problems while working on a video terminal?

Select one or more:

- a. you can focus on distant objects ✓ Remember we are 3-dimensional animals, while the screen is a 2-dimensional object. Consider the 20-20-20 rule: take 20 seconds breaks for your eyes every 20 minutes during your work then look at objects that are at last 20 feet away (about 6 meters)
- b. you can blink frequently to keep the front surface of your eye moist ✓ that's right! If you keep staring at the video without blinking your eyes get dry.
- c. there is nothing to do... If you want to use a computer, you have to accept eye problems ✗ that is not true: you can take care of your eye remembering some simple tips
- d. close your eyes from time to time ✓ that's the best way to let your eyes rest a bit
- e. you can stare at the monitor keeping your eyes fixed and wide open ✗ are you joking !?

Risposta errata.

Tips to remember



Monitor Location:
Ideally more than 25 inches from eye & 6 inches below the horizontal eye level.



Anti-glare screen:
Will decrease the amount of light reflected from the screen.



Light effect:
Use suspended lights from ceiling & windows with shades, blinds or curtains. Avoid light hitting directly on eyes.



Sitting posture:
Use chairs with armrests which are able to provide support while typing, position of head slightly tilted downwards & height of the chair adjusted appropriately so that the feet rest flat on floor.



A.C. Distance:
Avoid sitting at a location with direct blow of air on eyes from a blower or an A.C. or for a long period in a room with low humidity.



20-20-20 rule:
Take short breaks for your eyes every 20 minutes between your work for 20 seconds then look at objects that are at least 20 feet away.



Eye Exercise:
Close your eyes & slowly roll your eyeballs clockwise & anticlockwise. Repeat it three times.



Blinking:
Blink frequently to keep the front surface of your eye moist.

The correct answer is: you can blink frequently to keep the front surface of your eye moist, you can focus on distant objects, close your eyes from time to time

Question **3**
Incorrect
Mark 0.00 out of 1.00

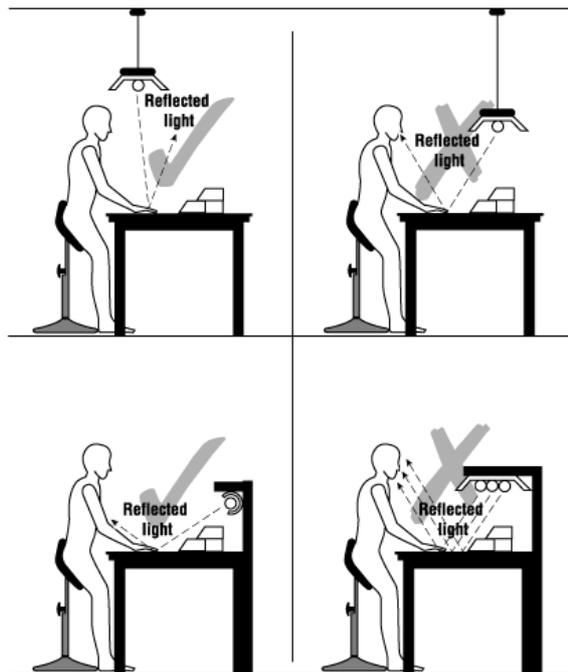
How should the lighting of the room be, in order to reduce eye problems?

Select one:

- a. the surface of the desk should reflect as much light as possible in order to make the room brighter
- b. the room should be dark, the only light coming from the screen
- c. the natural light coming from a window should be lateral (i.e. not coming from the back nor from the front)
- d. room lighting is not important since the monitor itself is a source of light and all you have to do is to increase the brightness if needed. ❌

Risposta errata.

lateral natural lighting, avoid reflections and dark rooms



The correct answer is: the natural light coming from a window should be lateral (i.e. not coming from the back nor from the front)

Question 4

Incorrect

Mark -0.25 out of
1.00

Which is the correct posture to keep in order to avoid muscle skeletal problems?

Select one:

- a. your body should draw 4 90-degree angles: foot-calf (ankles), thigh-lower leg (knees), thigh-body (hips), upper-lower arm (elbows)
- b. there is no such a thing as a correct posture, just forget about it and keep playing your game. ✗



- c. Every posture is correct, as long as you feel relaxed.
- d. your leg should be straight or crossed

Risposta errata.

You don't have to be as rigid as a statue, but remember the correct posture is similar to the pharaohs' one:



correct answer is: your body should draw 4 90-degree angles: foot-calf (ankles), thigh-lower leg (knees), thigh-body (hips), upper-lower arm (elbows)

Question 5

Incorrect

Mark 0.00 out of
1.00

when you work at your desk, what kind of chair would you choose for your comfort?

Select one:

- a. the softest... something like a couch
- b. a very strong one, so that I can lean back in my chair putting all of my weight on the two back legs.
- c. an adjustable chair so that I can keep the right posture
- d. Any chair can fit... I don't look for comfort when I am working (or is it playing?) at my computer. ❌ A lack of awareness of how you are sitting can lead to serious muscles skeletal problems

Risposta errata.



The correct answer is: an adjustable chair so that I can keep the right posture

Question 6

Incorrect

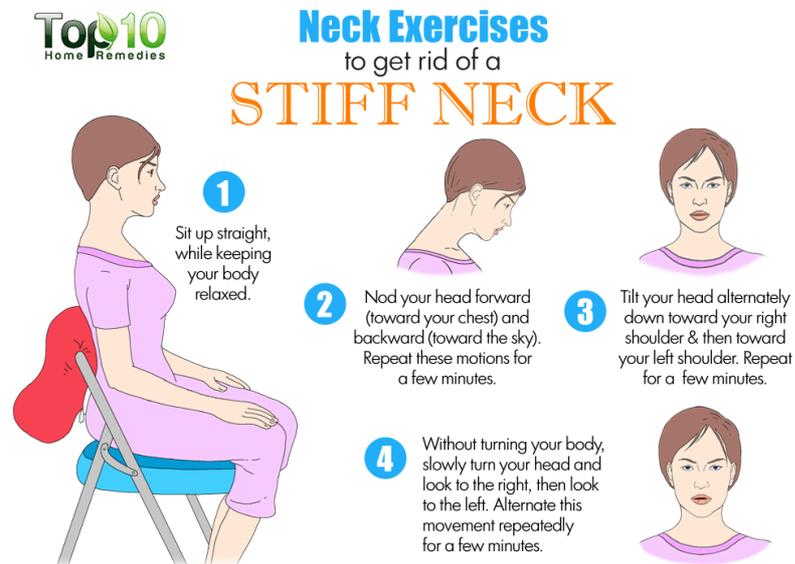
Mark 0.00 out of

1.00

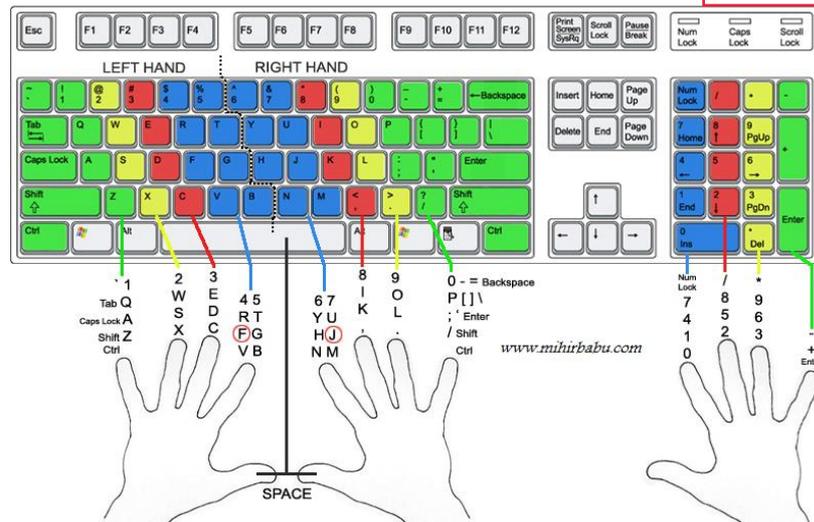
What can you do to reduce body tension (in particular shoulders and neck)?

Select one or more:

- a. do some specific exercises. ✓ Sure! Here is a simple example:



- b. take a 15 minutes break every 2 hours of work ✓ And remember that the break is meant to get up and move your body, not to check your e-mail!
- c. forget about the little pains or other messages coming from your body ✗ No! It is important to be aware of our body and its messages while working on a computer
- d. prefer mouse rather than keyboard ✗ No. When you use the mouse your posture is asymmetric and your left shoulder (the trapezium, to be precise) is under tension. The keyboard allows you to keep a more symmetric and relaxed posture. Train your typing with a 10 finger typing on-line course, and remember: there are many keyboard shortcuts that you can use to avoid the mouse.



- e. Recent studies prove that Muscle tension is not a problem for people who work on a Video Terminal Display ✗ Are you joking? Almost every one who does a sedentary work suffer from body tension

Your answer is incorrect.

- prefer keyboard rather than mouse
- take a 15 min break every 120
- do some specific exercises
- be aware of your body and its messages while working at your desk

The correct answer is: do some specific exercises., take a 15 minutes break every 2 hours of work

Question 7

Correct

Mark 1.00 out of
1.00

Which of the following are mental stress causes for a person who works on a video terminal display?

Select one or more:

- a. lack of pauses ✓ Taking a 15 minutes break every 2 hours of work reduces both muscle tension and mental stress
- b. scarce knowledge of the tool (the computer) ✓ If you know how the computer works you can use it more efficiently and you'll get less upset when it doesn't respond the way you expected.



"There are better ways to log off."

- c. negative attitude ✓ if you think "this is gonna be either a torture or a total boredom" before sitting at your computer, you are more likely to get stressed... Don't you think so?
- d. Bad aeration ✓ the air in a room becomes quickly stuffy and oppressive if the windows are closed and there is not a conditioner. That is specially true if the room is crowded. A bad quality of the air is a major cause of headache. Of course, the way you breathe is as important as the quality of the air

BREATHING EXERCISES TO HELP YOU DE-STRESS BY YUMI SAKUBAWA

STIMULATING BREATH



INHALE AND EXHALE RAPIDLY THROUGH YOUR NOSTRILS AS QUICKLY AS POSSIBLE FOR 15 SECONDS. BREATHE NORMALLY FOR 15 SECONDS. REPEAT FOR SEVERAL CYCLES. GREAT FOR AN ENERGY BOOST.

ALTERNATIVE NOSTRIL



HOLD DOWN LEFT NOSTRIL WITH THUMB AND BREATHE IN THROUGH RIGHT NOSTRIL.



HOLD DOWN RIGHT NOSTRIL WITH INDEX FINGER OF SAME HAND AND BREATHE OUT THROUGH YOUR LEFT NOSTRIL. REPEAT FOR 5 MIN.

EQUAL PARTS



BREATHE IN THROUGH YOUR NOSE FOR 4 COUNTS.



BREATHE OUT FOR 4 COUNTS. REPEAT. WORK YOUR WAY UP TO 7-8 COUNTS SO THAT YOU ARE TAKING SLOWER, DEEPER BREATHS.

Your answer is correct.

- lack of pauses
- bad aeration
- negative attitude
- scarce knowledge of the tool (the computer)

The correct answer is: lack of pauses, Bad aeration, negative attitude, scarce knowledge of the tool (the computer)

Question 8

Incorrect

Mark 0.00 out of
1.00

How can you manage mental stress, while working on a computer?

Select one or more:

- a. Take your time to learn how the computer works ✓ Very often we get angry because the computer doesn't work the way we expected. Sometimes it is because it has not been well programmed, but most of the times it is because we can't use it properly.

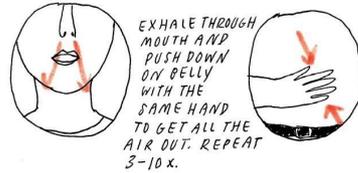


"Ms. Johnson, would you mind ordering me another computer? And you can cancel that call to tech-support."

- b. if you feel tired, just forget about it and work harder! ✗
No. 15 minutes break every 2 hours helps you clear your mind and think more creatively. There is a law stating the importance of breaks:
"dlgs 81/2008 in attuazione all'articolo 1 della legge 123/2007: per scongiurare i rischi per la salute (vista, postura e affaticamento) connessi all'attività lavorativa tramite videoterminali, vige l'obbligo per il datore di lavoro di tutelare i dipendenti con misure ad hoc e con interruzioni di **un quarto d'ora** ogni due ore (sempre mediante pause o cambiamento di attività di lavoro)."
- c. playing on line games at every break from work or, if possible, at the same time. ✗ Nice try ;-)
- d. learn to breathe with your belly ✓ When you use your diaphragm correctly, you can manage the stress and the

anxiety:

BELLY BREATHING 4-7-8 BREATHING



REPEAT THE BELLY BREATHING EXERCISE BUT WITH A SLIGHT MODIFICATION. INHALE FOR 4 COUNTS, WAIT 7 COUNTS AND EXHALE FOR 8 COUNTS. REPEAT FOR SEVERAL MINUTES.



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Your answer is incorrect.

The correct answer is: learn to breathe with your belly, Take your time to learn how the computer works

Question 9

Partially correct

Mark 0.50 out of
1.00

How can you reduce mental stress?

Select one or more:

- a. have a positive attitude ✓ If you think "this is going to be either a frustrating experience or a total boredom" before starting, it is surely going to be a stressing activity... Don't you think so?
- b. I don't want to reduce mental stress... I need to be stressed to perform better. ✗ well, the right tension is good to avoid falling asleep, but the term "STRESS" refers to an excessive tension that leads to a state of mental or emotional strain.
- c. there is nothing to do... Mental Stress is an unavoidable side effect of modern technology ✗ Have you tried some of the previous suggestions?
- d. project your work before turning the computer on ✓ This is very important in order to assume a positive attitude because the best ideas come unplugged and because a good planning reduces the time spent on the video terminal display.

Your answer is partially correct.

You have selected too many options.

The correct answer is: have a positive attitude, project your work before turning the computer on