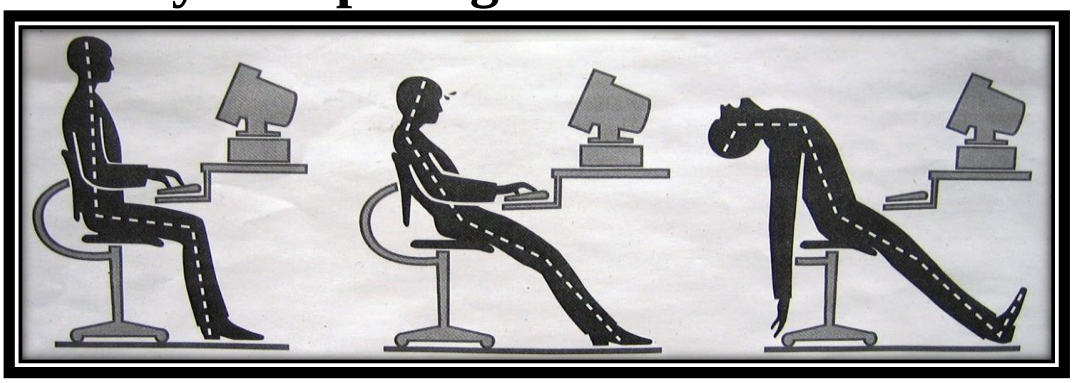
Simulation Storyboard

Overview

Workshop simulation title	**Healthy Computing** 
Field and/or discipline:	The field or discipline involves professional development of federal employees working in a computer use intensive environment at Wright Patterson Air Force Base. The specific field or discipline is not specified since federal employment as a whole requires spending a significant amount of time sitting at a desk behind a computer.
Topic of simulation	The purpose of this simulation is to promote digital physical health and wellness. Simulation participants will learn how to identify common desktop computer work station problems, and explore physical health improvement methods. Participants will gain understanding in how to properly perform job tasks and use equipment and furniture to increase safety, efficiency, and personal comfort.
Environment and characters of simulation	The simulation takes place in a typical federal office workspace where multiple desktop computers and monitors are used by employees. The main character is a male digital character who is an occupational therapist professional.
Short summary of the simulation	The main character will present information regarding musculoskeletal disorders and issues associated with prolonged and/or improper computer use, and suggest ways to prevent injury and promote health.
Target audience	Adults working in computer use-intensive careers or anyone who spends a significant amount of time working or playing on a computer, regardless of type (desktop or laptop).
Big idea for participants upon completion	Upon completion of this simulation, participants will be aware of proper computer use techniques allowing them to form healthy computer use habits that prevent stress, cause overuse injuries, and contribute to the development of musculoskeletal disorders (MSDs).
What are the SMART Learning objectives?	1. List five Risk Factors that can contribute to the development of musculoskeletal disorders (MSDs) 2. Name important considerations when attempting to maintain neutral body postures (proper working positions) while working at computer workstation 3. Describe factors or actions involved with repetition 4. Explain physical warning signs associated with repetition and what can happen if ignored 5. Identify three primary factors that negatively or positively affect workstation environment

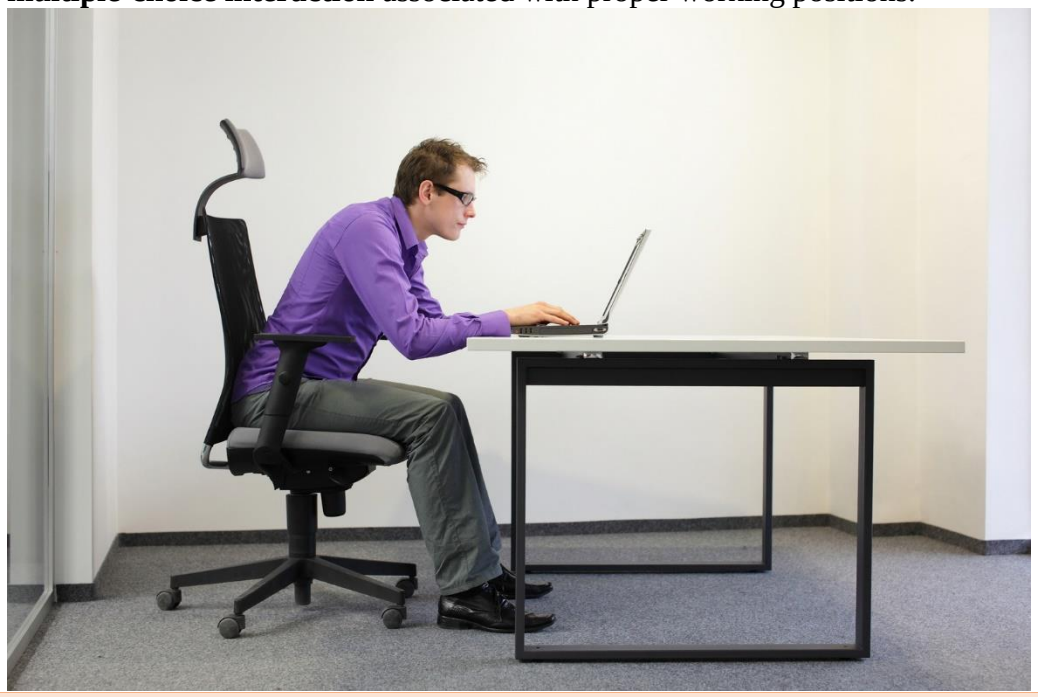
Scene 1: Introduction and Overview of Healthy Computing	
Slide #1	**VISUAL:** A welcome by a male digital character and the title of the simulation. The visual will contain a callout with the word "Welcome".
	INTERACTION: Participants will select a button titled "Introduction" to advance to the next slide.
	AUDIO NARRATION SCRIPT: Welcome to the Healthy Computing workshop. This workshop is designed to teach you ways to prevent injury and promote good health when using a computer workstation. You will learn how to prevent musculoskeletal disorders and other physical issues associated with prolonged and/or improper computer use. Select the "Introduction" button to begin the workshop.
	SLIDE TEXT: **Welcome to the Healthy Computing Workshop**
	BRANCHING: None
	RESOLUTION: None
Slide #2	**VISUAL:** The male digital character providing a description of the problem when working with computer equipment in an office environment. The character image will include a callout with the word "Introduction"
	INTERACTION: Participants will select a button titled "Risk Factors" to advance to the next slide.
	AUDIO NARRATION SCRIPT: Have you ever thought of the many things you do while working at your computer? What is your body posture while you are performing general computer functions, such as keyboarding or using a mouse? How long do you sit at your computer without taking breaks? By changing how you interact with computer equipment and furniture, you may be able to reduce your risk of injury. If you feel discomfort or pain while working on the computer, or would like to learn how to work safely and reduce your risk of injury, this workshop is for you. Next, I'll explain risk factors involved with poor computer working positions, processes, and factors such as workstation components and workstation environment. Select the "Risk Factors" button to advance to the next slide.
	SLIDE TEXT: **Introduction**
	BRANCHING: N/A
	RESOLUTION: N/A
Slide #3	**VISUAL:** The male character will point to a bubble with the phrase "Risk Factors". An information display is included to list the factors as they are narrated. A button titled "Healthy Computing Topics" is included on the slide to prompt the participant to advance to the next slide.
	INTERACTION: Participants are provided an information display that will list risk factors involved with poor computing practices and listen to the audio narration. Then, they are prompted to select a button titled "Healthy Computing Topics" to advance to the next slide once they have listened to the explanation of Risk Factors.
	AUDIO NARRATION SCRIPT: Using a computer involves certain conditions or risk factors that can contribute to the development of musculoskeletal disorders (MSDs) when exposed frequently to these risk factors, or for long periods of time. The conditions for exposing a user to the risk of MSDs associated with computer use include: 1. Using a keyboard for long periods of time without breaks or rest. 2. Using force when striking the keyboard or gripping a mouse. 3. Sitting with awkward neck, shoulder, elbow, wrist, or back postures

	4. Remaining in the same position for a long time with little or no movement (e.g. sitting, holding the mouse), or staring at a monitor for long periods without a break. 5. Improperly adjusted workstation components, or surrounding environment that is not conducive to human comfort. Do not wait until you feel pain or discomfort by learning how to change the way you work. If you understand proper working positions and process in relation to your workstation components and environment, you may be able to prevent discomfort or injury. Select the button titled "Healthy Computing Topics" to learn more about ways to prevent injury and increase comfort while performing computer intensive work.
	SLIDE TEXT: **Risk Factors**
	BRANCHING: N/A
	RESOLUTION: N/A
Slide #4	**VISUAL:** The male digital character will appear on the screen with the text "Healthy Computing Topics". The visual will also contain two section choices in the form of buttons: Lesson 1: Proper Working Positions and Process Lesson 2: Workstation Components and Environment.
	INTERACTION: Participants will select each subject in topic order.
	AUDIO NARRATION SCRIPT: Healthy computer use involves proper body positioning, work habits, and the physical work environment. First, select "Proper Working Positions and Process" and work through each activity. Then, select Workstation Components and Environment" and work through the activities. You will be given the opportunity to test your knowledge within each subject area using a number of interactions. Within each subject area, read the content and select the best answer. If you chose incorrectly, you will be provided additional information and an opportunity to re-test your knowledge.
	SLIDE TEXT: **Healthy Computing Topics**
	BRANCHING: N/A
	RESOLUTION: N/A

Scene 2 - Proper Working Position and Work Process

Slide #1

VISUAL: A person working at a computer using improper working positions and a **multiple-choice interaction** associated with proper working positions.



INTERACTION: Multiple-choice interaction. The participant will view the image and select three of five choices to improve working position

AUDIO NARRATION SCRIPT: This is an image of a person working at a computer. There are at least three ways this person can improve their working position. Please select all that apply. If you answer incorrectly, click on the "Slide #2" button below to learn ways to improve working positions. If you answer correctly, click on the "Work Process" button.

SLIDE TEXT: Proper Working Positions– Select ways to improve working positions: A: Keep elbows close to the body. B: Straighten your back. C. Use a desktop instead of a laptop. D: Keep torso between 90-120 degrees when sitting. E: Make sure the back of your knees touch the edge of the seat.

BRANCHING: If the participant selects A, B, or D, they are navigated to the Work Process Slide. If they select C or E, they are prompted to navigate to Slide #2 that illustrates proper working positions.

RESOLUTION: After the participant has reviewed Slide #2, they may go back to Slide #1 and re-take the quiz, or advance to the next topic: Work Process.

Slide #2	**VISUAL:** Proper Working Position – Image of a person using proper working position.
	INTERACTION: The participant will review this slide for information regarding proper working position and select buttons to reattempt the quiz or advance to the next slide.
	AUDIO NARRATION SCRIPT: Review this image as an example of proper working position. Note that the back is straight, elbows are close to the body, and the back of the knees do not touch the edge of the seat. This image also includes other methods to improve working position. Once you've reviewed this image, return to the previous slide to take the quiz again. Once you've selected the correct responses, click the button titled "Work Process" at the bottom of Slide #1
	SLIDE TEXT: Proper Working Positions
	BRANCHING: Once the participant reviews the slide, they are directed back to the previous slide to retake the quiz.
	RESOLUTION: Participants are directed to Slide #3 once they provide the correct responses to the quiz.

Slide #3	**VISUAL:** A digital character guiding the participant through an exercise with **drag and drop interaction.** "Review" and "Next" buttons are provided to review incorrect answers or advance to the next lesson.
	INTERACTION: Drag and drop interaction. Participants will drag and drop examples into terms to learn the difference between work process "repetition" and "warning signs". If the participant answers incorrectly, they are directed to click a button to review the correct examples in slide #4. If they answer correctly, they are directed click a button that directs them to Scene 3.
	AUDIO NARRATION SCRIPT: Work Process involves prolong periods of activity that can intensify the impact of risk factors, such as repetition. Failing to recognize warning signs may allow small problems to develop into serious injuries. In this slide, examples are warning signs and repetition are provided. Drag and drop the examples into the appropriate category. If you answer incorrectly, click the "Review" button below to review the correct responses.
	SLIDE TEXT: Work Process – Repetition and Warning Signs The word "Repetition" and "Warning Signs" are listed separately. The correct answers to drag and drop for "Repetition" are: little task variation, prolonged use of mouse, consistent tasks, not taking breaks. The correct answers for "Warning Signs" are: numbness in hands, reduced grip strength, pain in wrists or forearms, reduced range of motion, dry or sore eyes.
	BRANCHING: If the participants make the wrong selections, they are directed to Slide #4 that provides the correct responses.
	RESOLUTION: After the participant reviews Slide #4, they may re-take the drag and drop exercise, or progress to the next lesson – Workstation Components and Environment.
Slide #4	**VISUAL:** A digital character reviews the correct examples of Repetition and Warning Signs in text format. The terms with correct examples are listed via information display. "Review" and "Next" buttons are provided to review incorrect answers or advance to the next lesson.
	INTERACTION: A "Next" button allows participants to advance to Scene 3 – Workstation Components and Environment, or a "previous" button allows the participant to re-take the drag and drop exercise.
	AUDIO NARRATION SCRIPT: Repetition involves physically repetitive tasks when working on a computer. This includes tasks involving little to no variation, prolonged use of a mouse or pointing device, consistent tasks such as typing, not taking breaks. Warning signs include numbness in hands, reduced grip strength, pain in wrists or forearms, reduced range of motion, dry or sore eyes. At this time, you may go back and re-attempt the drag and drop exercise, or proceed to the next lesson: Workstation Components and Environment.
	SLIDE TEXT: Work Process – Repetition and Warning Signs Examples
	BRANCHING: Once reviewed, the participants are directed to Scene 3 – Workstation Components and Environment
	RESOLUTION: Participants are offered the opportunity to re-take the drag and drop exercise, or progress to Scene 3.

Scene 3 – Workstation Components and Environment	
Slide #1	**VISUAL:** Digital character, images of four workstation components (Chairs, Desks, Monitors, Keyboards), a list of component descriptions are matched using a **matching interaction.** "Review" and "Next" buttons are provided to review incorrect answers or advance to the next lesson.
	INTERACTION: Matching interaction. Participants are required to match the image with the workstation component description illustrated on the slide. An incorrect match illustrates a red X. A correct match illustrates a green check. Participants who select incorrect responses are directed to select Slide #2 which illustrates each workstation component with its associated description. If they select the correct responses, they are directed to the next topic – Workstation Environment.
	AUDIO NARRATION SCRIPT: Proper workstation components and their use are as important to healthy computing as proper working position and process. For this exercise, match the image of the four workstation components with its associated description. If you incorrectly match a component with a description, select the "Review" button below to review the correct responses.
	SLIDE TEXT: Workstation Components
	BRANCHING: If the participant mismatches a component with its associated description, they are directed to Slide #2 to review component images with the correct description and importance to Healthy Computing.
	RESOLUTION: After the participant reviews the correct description of each image, they can re-take the matching exercise, or advance to the next topic: Work Environment.
Slide #2	**VISUAL:** Digital character explaining the four workstation images with associated description and importance to Healthy Computing. "Re-take" and "Next" buttons are provided to allow the participant to re-take the matching exercise, or advance to the next lesson.
	INTERACTION: Participants will review the images and descriptions. They are offered the opportunity to re-take the matching exercise on the previous slide, or advance to Slide #3 – Work Environment using buttons at the bottom or side of the screen.
	AUDIO NARRATION SCRIPT: Review the four workstation images and their associated descriptions. Return to the previous slide to re-take the matching exercise, or advance to the next topic: Work Environment.
	SLIDE TEXT: Workstation Components – Correct Matches
	BRANCHING: Once the participant reviews the correct matches, they may return to the matching exercise to try again, or proceed to Slide #3 – Work Environment.
	RESOLUTION: After the participant reviews the correct description of each image, they can re-take the matching exercise, or advance to the next topic: Work Environment.

Slide #3	**VISUAL:** Digital character, list of terms that directly affect Workstation Environment. Buttons to advance to the review slide or proceed to the Summative Assessment.
	INTERACTION: Select all that apply. A selection of terms is presented that directly impacts Workstation Environment. Select all of the correct terms to advance to the Summative Assessment. Incorrect selections receive a negative facial expression from the digital character.
	AUDIO NARRATION SCRIPT: Welcome to Workstation Environment. Please review the list of terms presented on the screen and select the terms that have a direct impact on workstation environments. If you select a wrong answer, the digital character will make an unfavorable facial expression to let you know. If you answer incorrectly, select the "Review" button below to review the correct responses.
	SLIDE TEXT: Workstation Environment
	BRANCHING: When the digital instructor makes an unfavorable facial expression, the participant must go to slide #4 to review the proper connections of terms directly affecting workstation environment. Note: The three primary factors affecting workstation environment are: Lighting, Glare, and Ventilation
	RESOLUTION: After the participant reviews the correct description of each image, they can re-take the matching exercise, or advance to the Summative Assessment.
Slide #4	**VISUAL:** Digital Character, list of correct terms, their definitions, and hazard/solution information. Buttons to take the participant back to the previous slide or advance to the Summative Assessment.
	INTERACTION: Slider. When the participant moves the slider over a term, it's definition along with hazard/solution information appears. Participant can then click buttons to review the previous slide or advance to the Summative Assessment.
	AUDIO NARRATION SCRIPT: To review the correct answers, move the slider over the term to see the term definition and a list of hazards/solutions you can use to improve your workstation environment.
	SLIDE TEXT: Workstation Environment Review
	BRANCHING: Back to the previous slide or advance to the Summative review.
	RESOLUTION: Review terms, try matching exercise again to review digital character facial expression, advance to the Summative Assessment.

Simulation Storyboard – Summative Assessment

Q#1	1. **VISUAL:** A person using a computer who's body language indicates they are in pain from computer use.
	QUESTION: Select five Risk Factors that can contribute to the development of musculoskeletal disorders (MSDs)
	ANSWERS: 1. Using a keyboard for long periods of time without breaks or rest **2. Frequent periods of rest during keyboarding** 3. Using force when striking the keyboard or gripping a mouse 4. Sitting with awkward neck, shoulder, elbow, wrist, or back postures 5. Remaining in the same position for a long time with little or no movement (e.g. sitting, holding the mouse), or staring at a monitor for long periods without a break **6. Constant interruptions by co-workers** 7. Improperly adjusted workstation components, or surrounding environment that is not conducive to human comfort. ***Note: Correct answers in black, incorrect answers in red***
	RESPONSE FEEDBACK: Option 1: Green check or red "X" will appear over corresponding right/wrong answers. **Option 2:** Digital character facial expressions will correspond with right/wrong answer.
	ADVANCEMENT OPTIONS: If the participant answers correctly, they will be taken to the next question. If they answer incorrectly, they advance to the next question anyway. Participants are **required** to review the subject area they missed if their final score is below 80%. Participants have the **option** to review the subject areas they missed if they score above an 80%.
Q#2	2. **VISUAL:** Image of person using incorrect body posture while working at a computer
	QUESTION: True or False: One way to maintain proper body position when working at a computer is to sit upright and keep your back straight.
	ANSWERS: ***True***
	RESPONSE FEEDBACK: Option 1: Green check or red "X" will appear over corresponding right/wrong answers. **Option 2:** Digital character facial expressions will correspond with right/wrong answer.
	ADVANCEMENT OPTIONS: If the participant answers correctly, they will be taken to the next question. If they answer incorrectly, they advance to the next question anyway. Participants are **required** to review the subject area they missed if their final score is below 80%. Participants have the **option** to review the subject areas they missed if they score above an 80%.
Q#3	3. **VISUAL:** Image of person intently staring at a computer monitor (or similar)
	QUESTION: "Repetition" in relation to musculoskeletal disorders includes all of the following EXCEPT: 1. Little task variation 2. Prolonged use of mouse 3. Frequently looking away from the monitor 4. Consistent tasks

	5. Not taking breaks **ANSWER: Frequently looking away from the monitor** **RESPONSE FEEDBACK: Option 1:** Green check or red "X" will appear over corresponding right/wrong answers. **Option 2:** Digital character facial expressions will correspond with right/wrong answer. **ADVANCEMENT OPTIONS:** If the participant answers correctly, they will be taken to the next question. If they answer incorrectly, they advance to the next question anyway. Participants are **required** to review the subject area they missed if their final score is below 80%. Participants have the **option** to review the subject areas they missed if they score above an 80%.
Q#4	**4. VISUAL:** Person sitting at computer holding rubbing/holding hands/wrist **QUESTION:** Select a physical warning sign associated with repetition: A. Numbness in toes B. Numbness in hands C. Increased productivity D. Decreased productivity **ANSWERS: B. Numbness in hands** **Option 1:** Green check or red "X" will appear over corresponding right/wrong answers. **Option 2:** Digital character facial expressions will correspond with right/wrong answer. **ADVANCEMENT OPTIONS:** If the participant answers correctly, they will be taken to the next question. If they answer incorrectly, they advance to the next question anyway. Participants are **required** to review the subject area they missed if their final score is below 80%. Participants have the **option** to review the subject areas they missed if they score above an 80%.
Q#5	**5. VISUAL:** *Describe the visuals for this slide.* **QUESTION:** From the following options, select the one that directly affects workstation environment: A. Lighting, Glare, Ventilation B. Lighting, Sound, Time of Day C. Sound, Ventilation, Lighting **ANSWERS: A: Lighting, Glare, Ventilation** **RESPONSE FEEDBACK: Option 1:** Green check or red "X" will appear over corresponding right/wrong answers. **Option 2:** Digital character facial expressions will correspond with right/wrong answer. **ADVANCEMENT OPTIONS:** If the participant answers correctly, they will be taken to the next question. If they answer incorrectly, they advance to the next question anyway. Participants are **required** to review the subject area they missed if their final score is below 80%. Participants have the **option** to review the subject areas they missed if they score above an 80%.