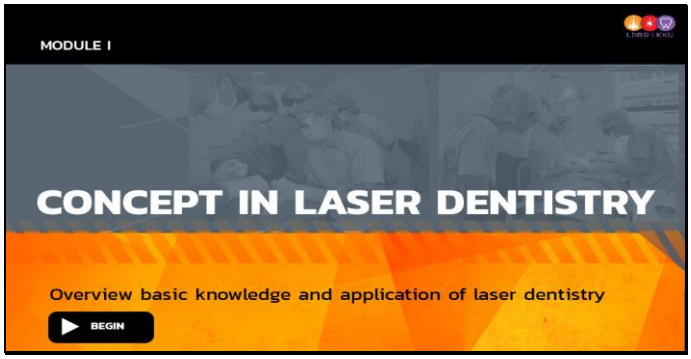
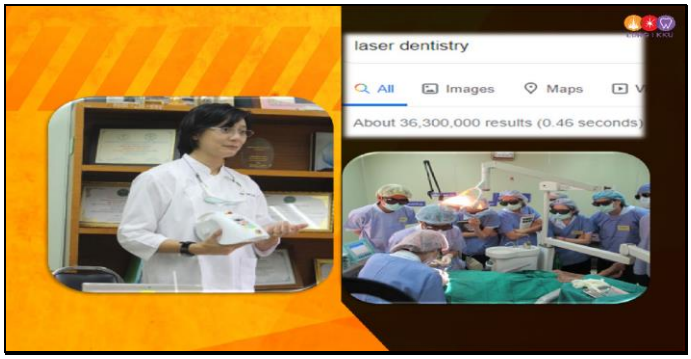


Slide 1 – Beginning the course

Slide notes: Module I: Concept in laser dentistry.

This module overviews basic knowledge and application of laser dentistry.

Please click Begin Button to start the module.



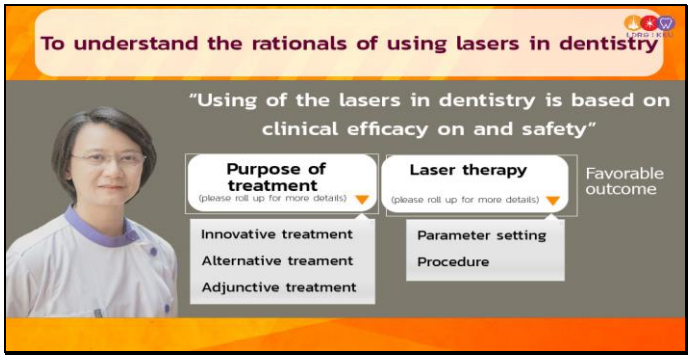
Slide 2 - Introduction

Slide notes: The use of laser dentistry is growing and internationally accepted.

Therefore, dental personnel must be knowledgeable on the basics and uses of lasers in dentistry.

Slide 3 - Objectives

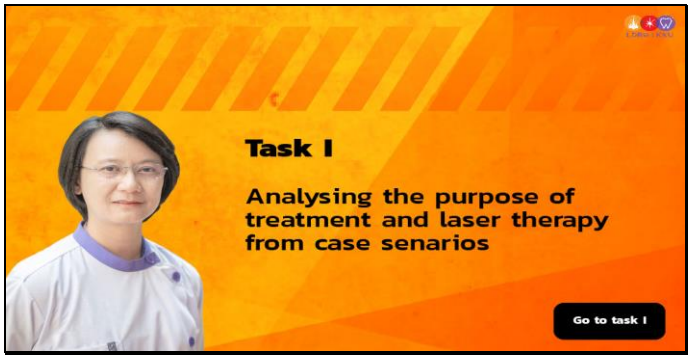
Slide notes: After study this module, you will be able to understand the rational of using laser in dentistry and identify related subjects.



Slide 4 – Explain the rational of using laser dentistry

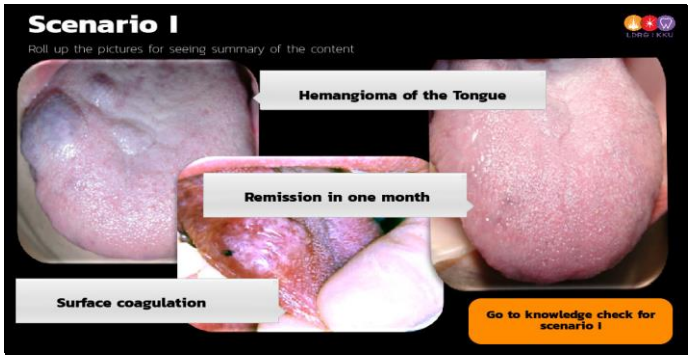
Slide notes: We use the lasers in dentistry in order to gain clinical efficacy together with safety. Thus, the purpose of treatment needs to be clarified before select a suitable laser therapy.

1. We can use the laser as innovative treatment in case there is no other treatments can be used for treating the patient.
2. Or use the laser as an alternative treatment in case there is a standard treatment. But the laser can have more benefits to the patient.
3. Using laser as an adjunctive treatment when we combine laser with other treatments for gaining more clinical efficacy.



Slide 5 - Task I analyzing purpose of laser treatment

Slide notes: Please click to go to task 1. You will practice to identify a rational of using laser from the scenarios.



Slide 6 - Scenario I

Slide notes: Scenario I

Hemangioma of the tongue

By using ND YAG laser doing surface coagulation technique. We can easily coagulate the hemangioma of the tongue without any bleeding. This can be conducted under local anesthesia. A 1-month healing is very nice without scar formation.

Slide 7 - Knowledge Check for Scenario I

Slide 8 - Scenario II

Slide notes: Scenario II

This case demonstrates an elderly patient with erosive type lichen planus that didn't respond to topical and systemic steroids. This lesion possibly turned to oral cancer.

The technique used in this case is called 'laser welding', which accelerates wound healing.

1 week later, results indicated positive results, so the treatment was repeated and 1 week later complete wound healing was observed. This patient responded very well to laser therapy as 8-years later, there was no relapse.

Slide 9 - Knowledge Check for Scenario II

Slide 10 - Scenario III

Slide notes: Scenario III

Some wavelengths of lasers can be used in operative dentistry. It is not as fast as using the drill but the advantage is based on minimally invasive concept; selectively removed caries according the chosen laser parameters. In this case using the Erbium YAG laser preparing for preventive resin restoration.

Slide 11 - Knowledge Check for Scenario III

Slide 12 - Scenario IV

Slide notes: Scenario IV

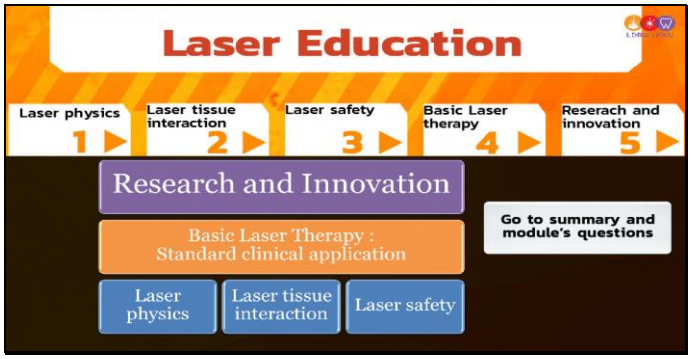
In this case, we used diode laser to initiate bleaching gel. The other light sources such as light emitting diodes can also give the same result.

Slide 13 – Knowledge for Scenario IV

Slide 14 - Ending rational of using laser and go to basic subjects of laser dentistry

Slide notes: I think you now understand the rational of using lasers in dentistry. This is very important to know before you use the laser to treat the patient. Then you can relate the treatment need and outcome with the efficacy of using laser.

In order to make possible the laser treatment, the laser education is involved. Please click the button to study the highlight of the subjects in laser education.



Slide 15 - Laser education and subjects

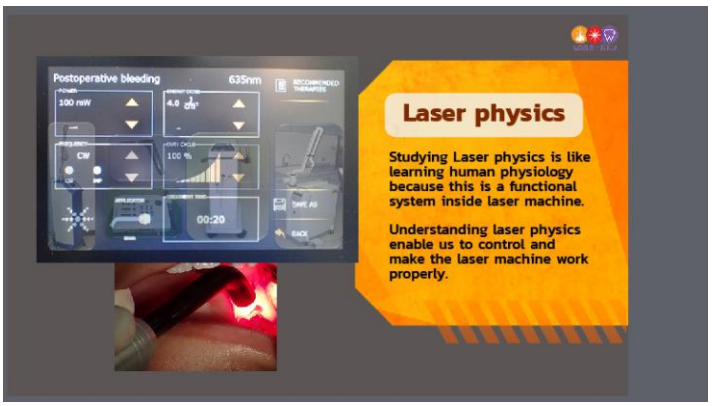
Slide notes: Laser education is the way to make you possibly use the lasers in dentistry effectively and safely.

There are 3 main fundamental subjects; Laser Physics, Laser Tissue Interaction and Laser safety.

Three of them enable clinical application which are the basic types of laser therapies.

On the top of them is research and innovation enhancing more efficacy and safety laser therapy to the patients.

Please click to each folder icon above the diagram to see the highlight of each subject.

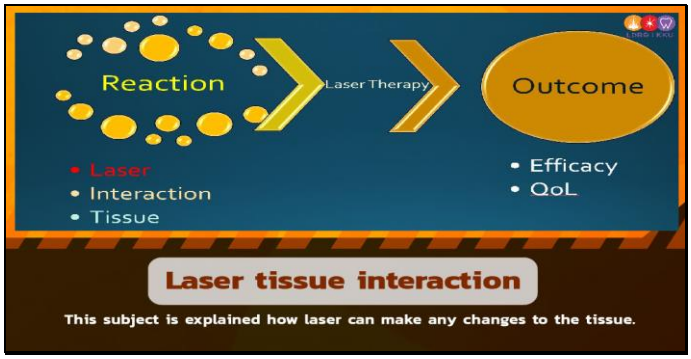


Slide 17 - laser physics highlight

Slide notes: Studying laser physics is like learning human physiology. This make us know about the function of laser machine. Understanding this subject will enable us to control and make laser machine work as we would like.

Let review your knowledge about quantify physics

please click on the control panel of the laser on your screen.



Slide 19 - laser tissue interaction highlgiht

Slide notes: The subject of laser tissue interaction

makes us understand the situation when the laser strikes the tissue

and finally makes the change into the tissue.

Gaining clinical outcome and impacting patient quality of life.

Text Captions: Laser tissue interaction

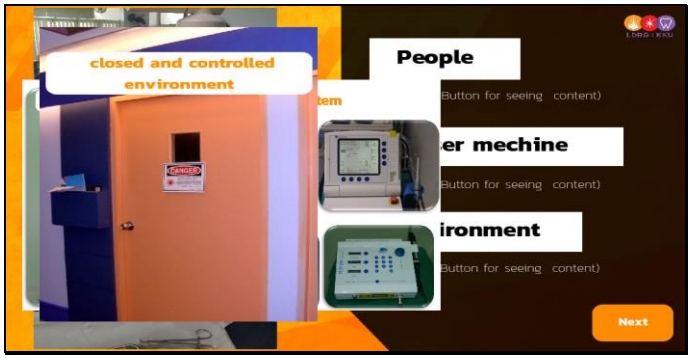
This subject is explained how laser can make any changes to the tissue.

Slide 20 – Video: photothermal reaction

Slide notes: Let have a look the video showing a photothermal reaction.

After this you will answer to question.

Slide 21 - Interactive question of the photothermal video



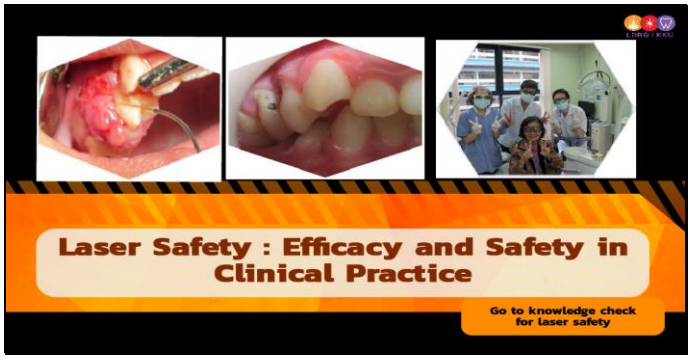
Slide 22 - highlight of laser safety I

Slide notes:

Another important basic subject is laser safety concerning people, laser machine and environment for using laser safely in dentistry.

Please click each icon to see the highlights of them.

Then you can move on by clicking the next button.

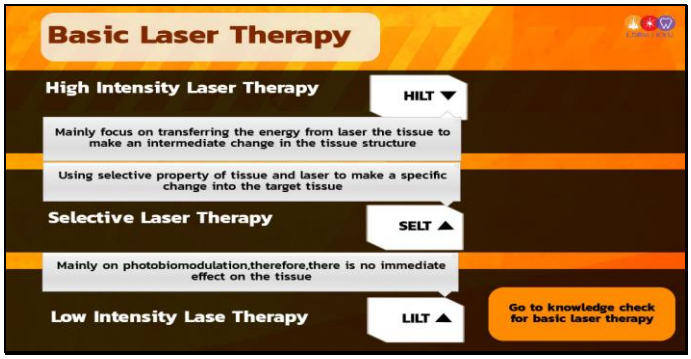


Slide 23 - Highlight of laser safety II

Slide notes: The use of lasers shouldn't be solely focused on the treatment itself. Safety factors must be considered as well. For example, treating a large pyogenic granuloma. Without care, the surface of nearby teeth can be burnt by the photothermal reaction of Nd YAG lasers due to neglecting the safety protocols of lasers.

All types of lasers have an effect on our eyes, therefore we must use special glasses to protect ourselves from this glare. The efficacy and safety of lasers go hand in hand

Slide 24 - Knowledge for laser safety



Slide 25 - Highlight basic laser therapy

Slide notes: Basic laser therapy in dentistry can be divided into 3 categories.

1. High intensity laser therapy

Mainly focus on transferring the energy from laser to the tissue to make an intermediate change in the tissue structure.

2. Selective laser therapy

Using selective property of tissue and laser to make a specific change into the target tissue.

3. Low intensity laser therapy

Mainly on photobiomodulation, therefore, there is no immediate effect on the tissue.

Please go to knowledge check for basic laser therapy.

Slide 26 Knowledge Check for Basic Laser Therapy

Slide notes: Please categorize types of laser therapies of the following 3 examples

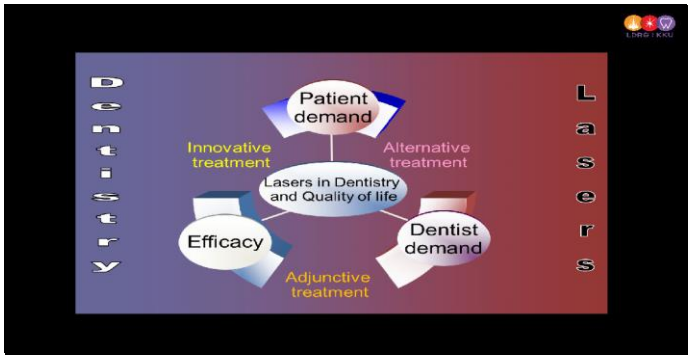
Number 1 Using laser therapy for pain control and promoting wound healing without changing any structure.

Number 2 Using laser for soft tissue surgery and tooth surface preparation.

Number 3 Using laser to stimulate the photosensitizer aiming to eliminate only abnormal tissue

Slide 27 - Research and innovation

Slide notes: Research in laser dentistry have been grown rapidly. There have been over 3000 publications from 2007 t0 2019. These clearly need education with good basic knowledge to understand all of those new knowledges in order to apply them for the patients. We must update innovation in laser dentistry in order to engage in efficient clinical practice in laser dentistry.

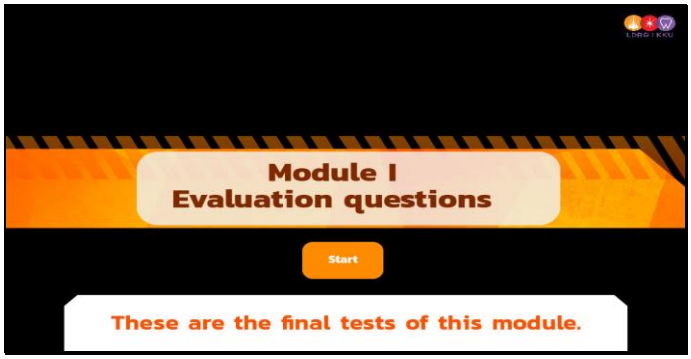


Slide 28 - Summary

Slide notes: In summary of this module; concept in laser dentistry, is a combination of dental sciences and lasers.

As we recognize the laser as a science not only a tool.

Basic subjects of lasers will allow you to conduct the laser treatment in a variety of methods for enhancing clinical efficacy and quality of life.



Slide 29 - evaluation

Slide notes: You reach the final session of this module: concept in laser dentistry.

Please click the start button to enter the knowledge evaluation.

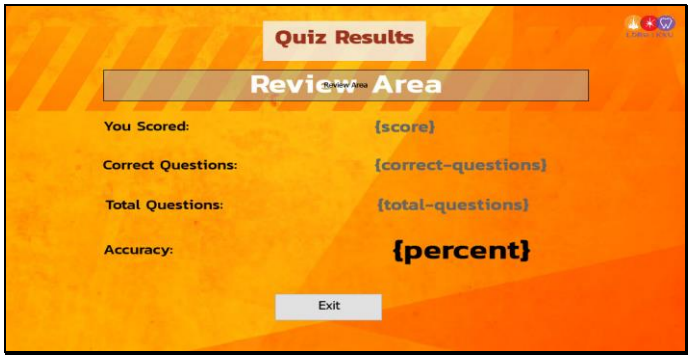
Slide 30 - question 1

Text Captions: Pigmented gingivae

4 weeks after laser depigmentation

Slide 31-question 2

Text Captions: 2. Matching the basic laser subjects to the related applications



Slide 32 - Quiz results