



# PRACTICE STATEMENT

Practice Statement  
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## TOPIC: LASER

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### PREAMBLE/INTRODUCTION:

LASER is an acronym for Light Amplification by Stimulated Emission of Radiation.

Use of light energy for therapeutic purposes is within the scope of practice of physiotherapists. (Other examples of light therapy include Ultraviolet Radiation (UVR) and Infrared.)

LASER for photobiomodulation therapy is used in Europe and Australia, and to a lesser extent in North America. In the United States it is considered an investigative device.

LASER is classified as High-Power (used in surgery and industry) and Low Power. Use of LASER by Physiotherapists is confined to the latter classification.

The current recommended term for this is Low Level LASER Therapy or LLLT.

The main therapeutic indications of LLLT, from the literature, are to promote tissue healing and to relieve pain. The exact mechanisms by which these aims are achieved when using LLLT are not well understood.

LASER is applied using either a mono-diode probe or a multi-diode (cluster) probe; the probe can be in direct contact with the patient or a non-contact method can be used. It can be delivered in continuous or pulsed mode.

Dosimetry is calculated using

Power

Power density (energy per unit area of the probe)

Energy density (energy per unit area of tissue)

The Power output and the surface area of each probe must be specified by the manufacturer.

Energy density guidelines appear in the literature and are then used to calculate total treatment time that is required to deliver the required amount of energy.

**A Practice Statement is a formal position of the College with which members shall comply.**

**Practice recommendations:****Regarding best practice:**

Physiotherapists are expected to maintain their competence by keeping up to date with the best available evidence to guide their parameter selection, indications, contraindications and precautions for the use of LLLT.

Physiotherapists must determine the presence of contraindications.

Physiotherapists must warn each patient regarding potential adverse effects prior to applying LLLT.

**Regarding eye safety:**

LLLT can cause eye damage to the retina. Recent articles show that the blink reflex is insufficient protection from visible LASER.

Care must be taken to ensure that LASER does not strike the eyes of the patient, the therapist or other persons in the vicinity.

LLLT should be used in an enclosed space, or protective screening should be placed around the treatment area.

Protective eyewear should be used by patient and therapist during set-up and treatment. The protective eyewear must be suitable for the wavelength of the machine being used.

The LLLT device should be stored safely, and the key for the device should be kept away from patients and unauthorized personnel.

**Regarding infection control:**

The tip of the LLLT probe should be cleaned before and after each treatment, particularly if the contact method is used. Refer to User Manual for recommendations re: safe cleaning of the probe.

**Regarding calibration:**

Failure to maintain a regular maintenance schedule as outlined by manufacturer's guidelines may adversely affect dosimetry and effectiveness. It is reported in the literature that actual power output is often less than advertised by the manufacturer. (Belanger, page 206)

LASER units have a life span of 5000-20,000 hours, after which they are no longer able to emit energy.

**Reference:**

Belanger AY. Evidence – based guide to Therapeutic Physical Agents. Lippincott, Williams, Wilkins, 2002. ISBN 0-7817-2108-3