



## Nd:YAG Photobiomodulation for the Treatment of Oral Mucositis

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### Introduction:

Oral mucositis (OM) consists of inflammatory and/or ulcerative lesions of the oral cavity. It is a painful and debilitating side effect of cancer therapy that affects a large proportion of cancer patients. OM can interfere with speaking, swallowing and speech, leading to hospitalisation, parenteral feeding and even cessation of cancer therapy. It is most often caused by high-dose interventions like chemotherapy and radiotherapy. It is experienced in almost all head and neck cancer patients receiving radiotherapy within 14 days. Additional symptoms include dry mouth, halitosis and radiation dermatitis.

Photobiomodulation (PBM) is recommended by the Multinational Association for Supportive Cancer Care and the International Society of Oral Oncology (MASCC/ISOO) for the management of OM and related pain. It can improve a broad range of complications, and has an important role in supportive care. Recommended wavelengths range from around 600-980 nm. No previous clinical cases have been treated with Nd:YAG 1064 nm.

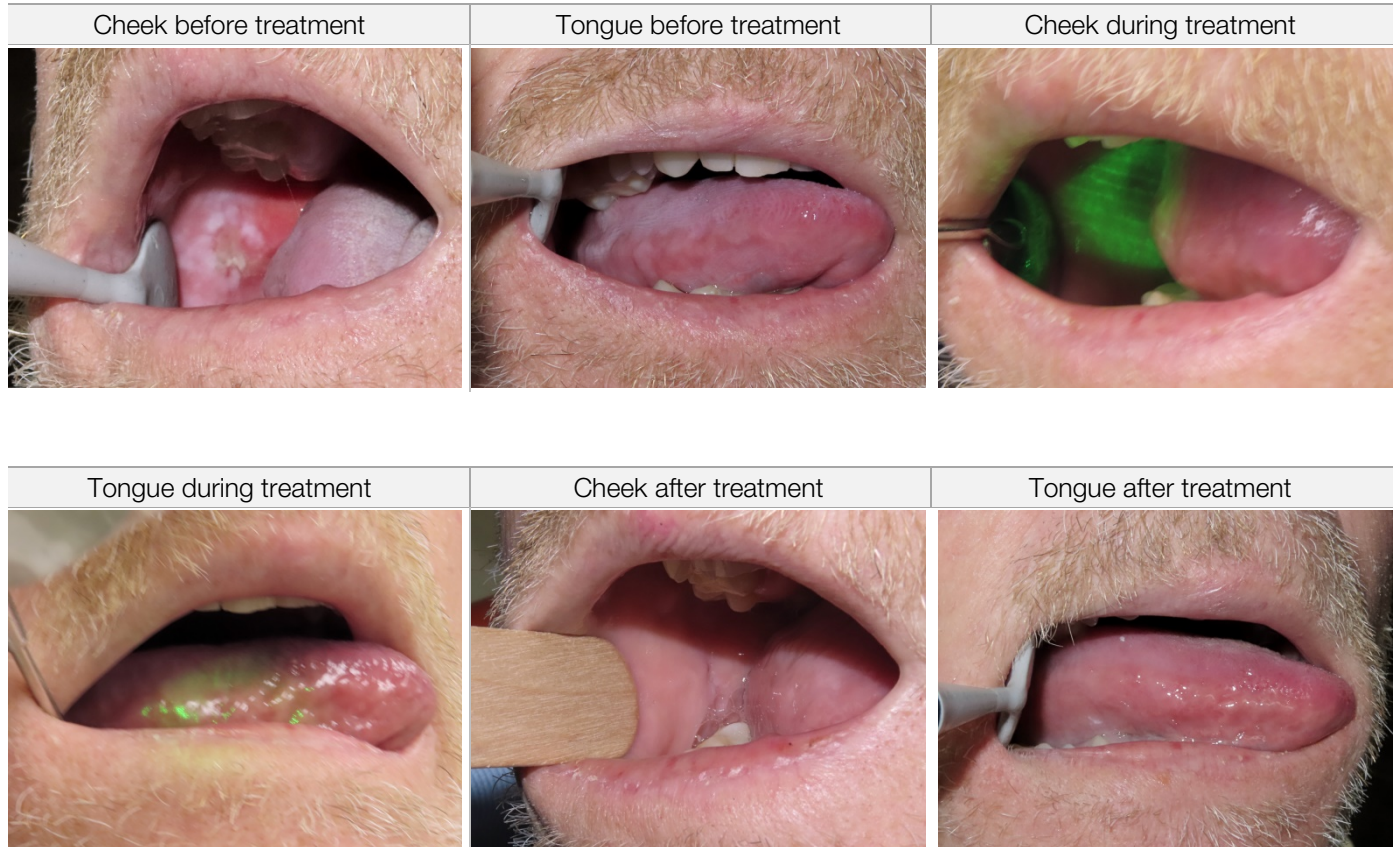
Laser	Fotona LightWalker ATS
Wavelength	1064 nm
Handpiece	Prototype 6 cm <sup>2</sup>
Power density	0.5 W/cm <sup>2</sup>
Mode	MSP
Frequency	10 Hz
Treatment	1 minute per spot (6 spots)
Spot size	28 mm
Sessions	3 sessions per week for 5 weeks



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## CLINICAL CASE:

A patient in his 50's attended our clinic with mouth ulcers that developed towards the end of his chemo-radiotherapy for tonsillar cancer. Over 7 weeks he received 80 Gy of radiation, which would usually mean that parenteral feeding would be required. However, as he had a home photobiomodulation system, there was a greatly reduced incidence of oral mucositis. Despite daily light therapy at home, two ulcers were present, one on his right cheek and another on the right lateral border of his tongue. In addition, there was pain in his throat on swallowing. The pain was continuous and interfered with his sleep, requiring daily opioid medication. Nd:YAG photobiomodulation treatment was performed 3x per week for five weeks over the ulcers, the back of the throat and into his neck. Each session provided slight relief. After three weeks there was no visible sign of the cheek ulcer but some pain remained. Treatment continued for another two weeks until pain was absent. Follow-up scans three months later showed that he was cancer free.



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