

# Retinal Degeneration Treatment

Robert Thottam, *Biomedical Engineering, University of Rhode Island*  
BME 181 First Presentation, March 18, 2013 <rtthottam@my.uri.edu>

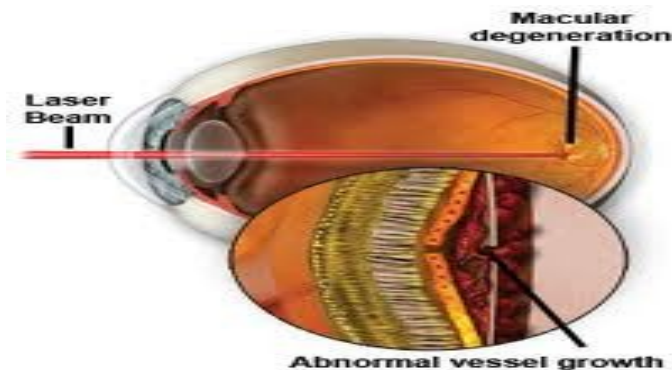
**Abstract**—Age-Related Macular Degeneration is one of the most common causes of blindness in the world. This paper focuses on the laser treatments that are available and are still being tested to treat this condition.

## I. INTRODUCTION

**A**GE-RELATED macular degeneration (AMD) is the second- highest cause of irreversible blindness in the world. In 2010, over 2 million cases of AMD were recorded in the U.S. alone. AMD is one of the three most common eye disease along with cataracts and glaucoma. This condition results in the loss of vision due to the damage to the retina. It is prevalent in adults over the age of 50. AMD can occur in two different forms, wet and dry (10% and 90% respectively), both of which result in the potential detachment of the retina. Wet AMD occurs when blood vessels abnormally grow from the choroid. Dry AMD occurs when cellular debris builds up between the retina and the choroid. Although the wet form is the more severe of the two, it maybe be treated with laser coagulation and medication. No treatments are currently available for the dry form.

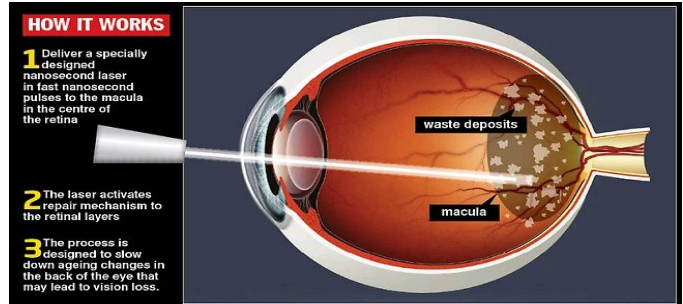
## II. METHODS

Laser coagulation is the only method of treatment for AMD that is currently available. It is limited in the sense that it is only effective in the wet form of the condition. The laser is used to destroy the abnormal blood cells via heat. The destruction of the blood vessels can stop and sometimes even reverse some effects of the wet AMD. The patient will generally combine this treatment with the use of medication.



As far as dry AMD is concerned there are a number of methods that are still being explored. The most

promising is the non-thermal Ellex 2RT™ laser therapy. The therapy involves stimulation of the retinal pigment epithelium (RPE) near the points of debris accumulation. The stimulation results in the releasing of enzymes which repair the Bruch's membrane, the portion of the retina which provides energy and and waste removal for the photoreceptors.



## III. RESULTS

Due to the fact that the laser treatments are treatments rather than a cures, effectiveness is reliant on the stage of development of the condition. Similarly, the purpose of wet and dry AMD laser treatments are to slow or halt the effects of the condition as best it can. The Ellex laser therapy is still undergoing in Australia and the United Kingdom. Thus far, studies have shown no signs of post surgical damage as well as an increase of vision for the majority of the patients.

## IV. DISCUSSION

Although so many potential treatments including stem cells, chemically induced cell differentiation, and transplanted retinal cells have shown promise the pursuit for a solution has not been slowed. Engineers and scientists alike continuously look for different ways to approach problems to improve the way we live. Although it is only in the trial stages, laser treatment is a method that holds both extreme economical and medical potential.

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