

## **Esophagatron**

**Ali Khair and Liyan al-Kawafhah**

The Jubilee School

The aim of our project, the Esophagatron, is to provide a cost-effective solution to dysphagia-accompanied-odynophagia, or cases in which odynophagia is present on its own. Odynophagia, as a term, is referred to pain when swallowing. The pain may be described as a retrosternal ache, a burning sensation and a sensation of feeling every single bolus of food as it passes down. Esophagitis typically presents itself as odynophagia with or without dysphagia. Inspired by the fact that one of us suffers from odynophagia, and after consulting various doctors in the fields of both Otorhinolaryngology and Physiotherapy, we were able to pinpoint the distinct spots, called acupressure points, which result in almost instantaneous pain relief when correctly pressurised and massaged. Using that relegation as the basis to our project, we have created a device, the Esophagatron, which takes advantage those points on the patient's neck by exerting pressure on them alternatively, thus mechanically stimulating muscular movements in the esophagus, providing pain relief. After the creation of the device, we have chosen a sample of 20 patients aged 14-18 for a clinical trial under doctor's supervision, whereas the device was fitted onto their necks and turned on. The patients were instructed to turn off the device when they were able to swallow without pain, and were timed upon that. After collecting and examining the results, it was safe to deduce that 95% of patients were able to swallow without difficulty, pain and unease after using the device, 86% of them had been able to do so within 3 minutes. The next day, the patients were instructed to wear the device for four minutes, and were monitored as to determine exactly how long can the patient go without any difficulty swallowing after using the device. The range of time where the patients were able to painlessly eat after the utilisation of the Esophagatron ranged from one and a half to two hours, which was more than enough for the patients to have completed a full three-course meal. We were thus able to conclude that the device is indeed affective, and provided as the perfect solution for Odynophagia .