INTRODUCTION
Tinnitus (from the Latin word tinnire meaning ‘ringing’) is the perception of sound in the absence of a corresponding external sound.

Tinnitus is a common complaint. About one in five people between the ages of 55 to 65 years report tinnitus symptoms. Tinnitus is also reported amongst children.

There is a considerable percentage of people with tinnitus who have a hearing loss, in that they are often unable to hear external sounds which occur within the same range of frequencies as their “phantom sounds”, the tinnitus.

Tinnitus may also present itself as anxiety, stress, depression, fatigue or a general state of poor health. The psychological symptoms may well start prior to the onset of the tinnitus. Treatment of the depression, stress or anxiety by psychotherapy or by use of psychopharmacological support is therefore essential.

Tinnitus is a highly individualized personalized treatment concept, administered by a team trained in specific areas of expertise related to the holistic treatment of the problem.

One of the elements of the Tinnitus program includes the use of an mp3 device which can be carried by the patient in a pocket or purse, when sitting at home or while resting in bed.

It is recommended that listening to the device through headphones produces optimal results, but the use of loudspeakers, be they miniature or Hi Fi stereo speakers is also acceptable, as is placing special speakers in the bed cushions if sleep difficulty is one of the manifestations of the patient’s tinnitus.

TREATMENT COMPONENTS OF THE TINNITUS PROGRAM
1. Explanations to why tinnitus is so debilitating
2. Choice of maskers:
   - Masking tinnitus is achieved by exposure to more pleasant and less disturbing external noises that neutralize the effect of the tinnitus.
   - The various sounds used in masking are generally associated with nature sounds and are very pleasant to the ear such as rain, waves breaking on the sea shore etc.

   It is important to make sure that the masking sounds are heard in such a way that they reduce the intensity of the tinnitus but do not totally cover it. By partial masking of the tinnitus the perceived intensity of the disturbance is reduced and facilitated of habituation is achieved (T.R.T like technique) [1].

3. Relaxation techniques [2]:
   - Brain wave entrainment [3][4]:
     Brain wave entrainment is based on the principle of stimulation frequencies and binaural beats which are sampled by the brain. The human brain has a tendency to replace its dominant EEG frequency and mimic or copy the frequency of an external stimulus, encouraging brainwave adjustment, balance and relaxation. Using the principle of “frequency following response” the brain reproduces the frequency that it “hears” or “sees” leading to the desired change i.e. relaxation, reducing the excessive Beta waves, which exacerbate the symptoms of tinnitus and substitute alpha waves which promote calmness and tranquility.

   The final formula which is produced in the maskers and the guided imagery and is based on the information from two (or more) biofeedback related sessions that the patient receives prior to his receiving the tinnitus device. This personalized formula is based on the results of the graphs that are plotted using G.S.R (biofeedback monitoring).

These incorporated frequencies are the unique components of the tinnitus device which facilitate the desired positive conditioning reflex so enabling the patient to better cope with the debilitating tinnitus.

3b. Relaxation by means of Progressive Muscle Relaxation (Jacobson)
3c. Autogenic Relaxation
3d. Attention Focusing techniques
3e. A guided imagery program
3f. Techniques for minimizing intrusive thoughts

Cognitive therapy evolved out of the cognitive theory of emotions asserting that the influence of a situation or event experienced by a person is the way he perceives the event and not by the event itself. ( Beck 1979).

Cognitive behavioral group therapy is practiced by the patients in a group setting with a trained C.B.T therapist.

SUBJECTS
10 patients suffering from subjective tinnitus took part in the Tinnitus pilot study. All the patients prior to inclusion into the pilot study were subjected to a general E.N.T examination including a detailed anamnestic questionnaire, physical examination, tonal audiometry and in selected cases an A.B.R or a brain M.R.I.

Each patient completed a questionnaire requiring a detailed description of the disturbance caused by tinnitus.

The tinnitus was rated on a 7 degree scale of severity as follows:
1 - no tinnitus
2 - mild tinnitus: without any daily disturbance
3 - moderate tinnitus: disturbances but does not affect daily activities or sleep
4 - severe tinnitus: affecting daily activities and/or sleep in a mild degree
5 - severe tinnitus: affecting daily activities and/or sleep in a moderate degree
6 - severe tinnitus: affecting daily activities and/or sleep in a severe degree
7 - very severe tinnitus: prevents normal daily activities and causes severe insomnia and spontaneous awakenings.

The questionnaires were given in the form of pre test and post test following the period of three months use of the tinnitus device, and a comparison of the results pre and post treatment was made.

RESULTS
There is a reduction in the amount of stress in all the tinnitus patients (fig.1). The mean reduction was by 2.5 degrees on the 7 degree scale (fig.2). The improvement of tinnitus distress is shown also in fig.3.

DISCUSSION
This study was undertaken as a pilot study only because of the limited length of the investigation and the limited number of patients examined.

A control group was not established in this pilot study.

However the importance of such a control group in our pilot study was regarded as not significant as the total time of the investigation was for only a period of 3 months, and it was not to be expected that in such a control group with patients suffering from tinnitus for many years it would show any change in tinnitus severity without treatment in such a short period of time.

The significant improvement of the participants in the pilot study in lowering their level of subjective tinnitus severity in such a short time would suggest the effectiveness of the tinnitus modality.

CONCLUSIONS
Tinnitus is a multimodality treatment, which includes the advantages of C.B.T, B.W.E and T.R.T, individual and group therapy. It is a very promising and successful treatment modality for the reduction of tinnitus distress.

Further study is needed to evaluate the success of the program on expanded groups over a longer time period.

REFERENCES