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## **Audio-Visual Stimulation (AVS) or Audio-Visual Enhancement (AVE)**

First a quite simple apparatus for photo stimulation methods emerged in the 90s as "mind machines" or "brain machines". Today's electronically controlled devices for photo stimulation consist of a kind spectacle frame in which several LEDs are installed and a headset. These generate light patterns and synchronous sounds with different frequencies and intensities. Usually a session lasts about 30 minutes. The user receives passively light and tone stimulus with closed eyes. By means of the photic stimulation the brain is affected by these optical and acoustical frequencies. It is some sort of "Photic-driving-out phenomenon" that the brain wave activity can be synchronized or triggered by photic stimulation, and so different activation or relaxation and states of consciousness can be achieved. AVS devices affect with its pulsating and individually adjustable light and tone bursts the neuronal activity of the brain and thus mental activity. The rhythmic AVS stimulation produces beneficial and persistent physiological effects, ranging from relaxation to the activation.

AVS stimulation (similar to neurofeedback) affects positively the EEG activity, limbic structures (e.g. amygdala, hypothalamus), all biofeedback parameters (e.g., skin temperature, heart variability), neurotransmitter production and cerebral blood flow. Because our behaviour and our mood have neurological foundations, it is not surprising that AVS devices are extremely effective and used for different neurodiagnostic and therapeutic purposes. These are used successfully to increase physical performance in **athletes**, academic growth in **students** and for memory improvement in **elderly**, but also with many chronic conditions such as **ADHD, learning disabilities, pain** (including fibromyalgia), **sleep difficulties, PMS** (premenstrual syndrome), **brain damage, anxiety** (including "stage fright"), **mood changes** (e.g. SAD: Seasonal Affective Disorder). According to scientific studies (Prof. Dr. Sven Tönnies, University of Hamburg) AVS, as an alternative to the traditional relaxation methods, improves **tinnitus**, also because active participation of the client is not required. As most clients are somatically oriented they accept AVS better, because it does not work with "feedback" principle such as biofeedback.

Only recently **sports psychologists** introduced AVS to **top athletes** training, including in golf (professional golfer Rocky Thompson: "... I have never experienced anything quite like that ... After my first use, I shot my lowest round ever .. . '), speed skating (silver medal winner Boudrais Christine: "I now use it twice a day, once in the morning to get a good start and another in the evening just before I begin training"), bodybuilding (world champion Frank Zane: "I'm in the best shape of my life, and one reason is mind machines.") or in ice hockey (coach Matt Nichol of the Toronto Maple Leafs: "I would highly recommend this device to any athlete who is serious about maximizing the performance and recuperative ability."). The **professional athletes** see a direct connection between their success and AVS application.

