

# The use of Psycho-Acoustical Transitional (PAT) sessions in patients suffering of moderate and severe Alzheimer's disease.

Aiello Gioacchino, M.D., Neurophysiologist, Psychotherapist  
Fondazione GIROLDI-FORCELLA-UGONI (Bs), SIPP

Finsterle Gubert, ECP Psychoterapist, Researcher-Inventor  
AVS Research – Research and development in the field of Psychology, SIPP

The Psycho-Acoustical Transitional (PAT) session - able to induce ecstatic and flow states (Finsterle, 2007), improving subjective/objective well-being - from a mathematical-physical point of view, is a completely defined setting that promotes large-scale functional connectivity between neural populations (Aiello, Finsterle, 2005). Phenomenologically this phenomenon can be described as a modulation of the state of consciousness, inducing the unfolding of a clinical ecstatic state in normal subjects, improving for at least 48 hours psycho-physical performances and enhancing the “flow” state (Finsterle, 2007). A multi-gradient micro-synchronised fractal sound stimulus (Pink Noise) is used, reproduced following the procedures foreseen for AVS Virtual Audio Standard®'s audio reproducing system (US, EU, Int. patented, Finsterle, 2003) during a 20 minutes listening session .

In order to contribute to understand the relation between subjective/objective well-being and increase of top-down/bottom-up neural communication, PAT sessions have been administered by F.G. to 5 patients with different diagnosis of dementia: 3 pts. affected by Alzheimer Disease, 1 pt. by Frontal Syndrome ad 1 pt. by Pick Disease. Results showed in one case a complete and stable remission of symptoms (Pick), in the other cases an improvement of memory and/or of body control, reducing related depressive symptoms.

In the year 2002 a subject (M, age 65) suffering of symptoms and brain damages ascribed to Pick syndrome, already hospitalised and twice unsuccessfully operated for dylopia, has been submitted to 22 PAT sessions, twice a week. He was seriously compromised in his mental abilities and considered as dement patient (MMSE), completely unable to conduce simple daily-life routines. Starting from the first session dylopia and back ache tended to disappear or to reduce. From the second session the voice tended to return normal in tone. At the third appointment he presented himself alone, coming without aid by public transport (underground trains). During the 6<sup>th</sup> session he was able speaking with pertinence and competence about a patent he had conceived some years ago. At the end of the treatment - 22 PAT sessions in approx. 3 months - dylopia, memory, logic reasoning, strength, voice tone were normal and stable. Back ache persisted but strongly attenuated and no more invalidating his life. Despite brain damages were still present (CT scan), the MMSE re-evaluation yielded a normal score.

Following this unexpected result, in the last years some other subjects (4, S1/S2/S3/S4) with a diagnosis of Alzheimer Disease and Frontal Syndrome have been treated with PAT session (ranging from 6 to 15 sessions), showing – in relation to the severity of symptoms and the number of sessions – an overlapped improvement's trend of health (Fig. 4, 5, 6) and, in one case, also in general well-being (reduction of anti-depressive pharmacological treatment by his M.D.).

Therefore in 2006 a study by G.A. was aimed to evaluate if PAT sessions could induce a (therapeutic) change in Alzheimer's affected subjects, hospitalised in a nurse (Fondazione Giroldi-Forcella-Ugoni) for their total inability to conduce simple daily-life routines.

Six subjects were selected, three testable and three not testable for their severe compromised mental abilities. Mini Mental State Evaluation (MMSE) (Fig. 1), Corsi (Fig. 2) and Token (Fig. 3) tests have been evaluated prior, during (Token) and after the administration of 13 PAT Sessions, once a week, for 4 months.

The three non testable subjects didn't show significant improvement of their mental abilities and remained non testable till the end of the evaluation period. The three testable subjects showed a significant score's increase in Corsi (+ 50/+150%) and Token test (+ 50/+110% or more), less evident in MMSE test.

Results suggest that PAT sessions increase the topologic memory (Corsi) and the comprehension of language (Token), perhaps “restoring” a primary mental space representation related with the sense of Being before any identification (primary sense to “exist” in a good and holding mental space, Finsterle, 2007). Furthermore some new neural paths between sub-cortical and cortical areas have been opened, probably by the deletion and resetting of previous functional and/or dysfunctional communication paths. To demonstrate this specific effect (loop deletion/resetting of new paths) of PAT's session further researches with high-density EEG are now in progress.

These data seems to sustain the idea that PAT sessions' effects are related to an improvement of brain's “flexibility” and computation abilities, widening the research field concerning the essence of well-being, intended as the general capability to be positively involved “in the present time” (flow) and able to perceive and - emotionally and logically - interact with efficacy with internal (body – mind) and external (world) information.

## Bibliography

Finsterle G. (2003), *Recording and play – back two channel system for providing a holophonic reproduction of sounds*, in “The NASA Astrophysics Data System”, Harvard, USA.

Aiello G., Finsterle G. (2005), “Modulazione dello stato di coscienza mediante l'ascolto di una stimolazione sonora a struttura casuale in un campo olonico: fenomenologia dell'esperienza, ipotesi teoriche e prime analisi elettroencefalografiche”, in *Abstracts XIII Congresso Nazionale AIAMC, Vivere in una società a rischio*, pp. 4-5, Milano.

Finsterle G. (2006), “The “mirror effect” in sound's fusion time: the integration of two specular sound fields in one mental-virtual holophonic sound field. Phenomenology and applications”, in *Abstracts of the International CIANS Conference, Neuro-Psycho-Physiological and Social research and interventions from an interdisciplinary point of view*, pp. 28-29, Milano.

Finsterle G. (2007), “L'incanto di Orfeo e i sincronismi neurali corticali. Introduzione alla Psico-Acustica Transazionale”, in *La condivisione del benessere. Il contributo della Psicologia Positiva*, a cura di Delle Fave A., Franco Angeli, Milano, pp. 208-227.



## Corsi Test

3 testable subjects' score increase after 13 PAT sessions:  
TS1+150/TS2+50/TS3+50%

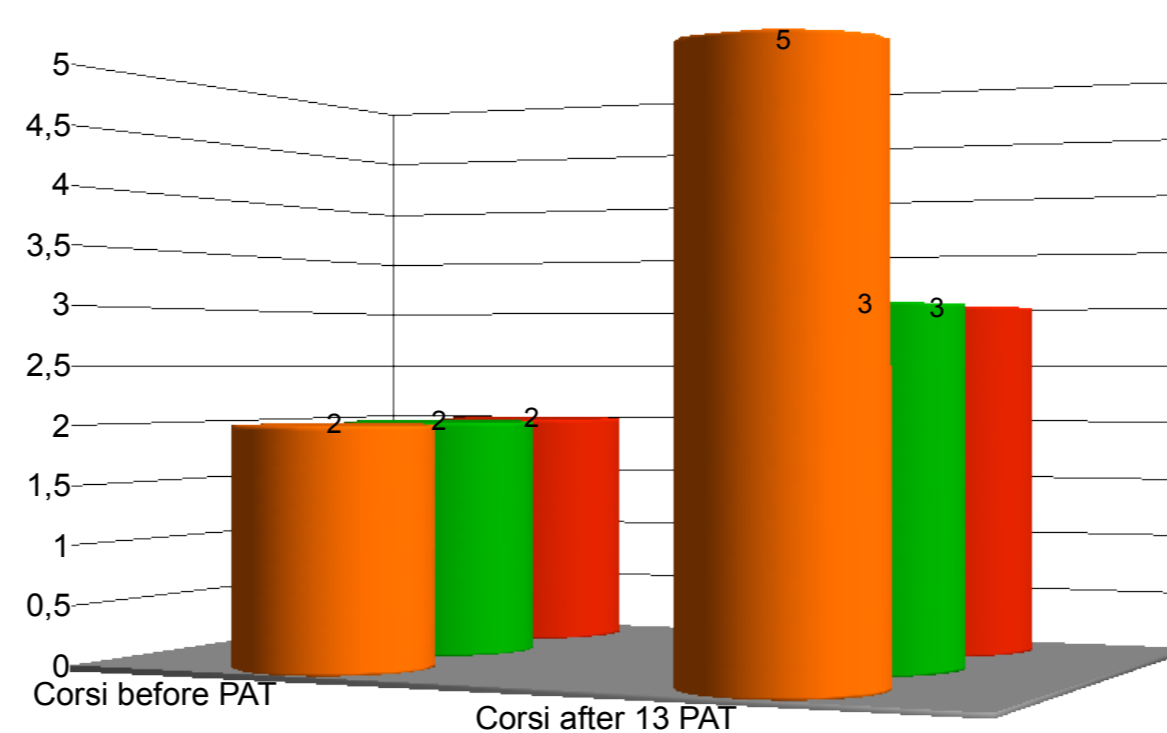


Fig. 1

## MMSE

3 testable subjects' score increase after 13 PAT sessions:  
TS1+17/TS2+0/TS3+60%

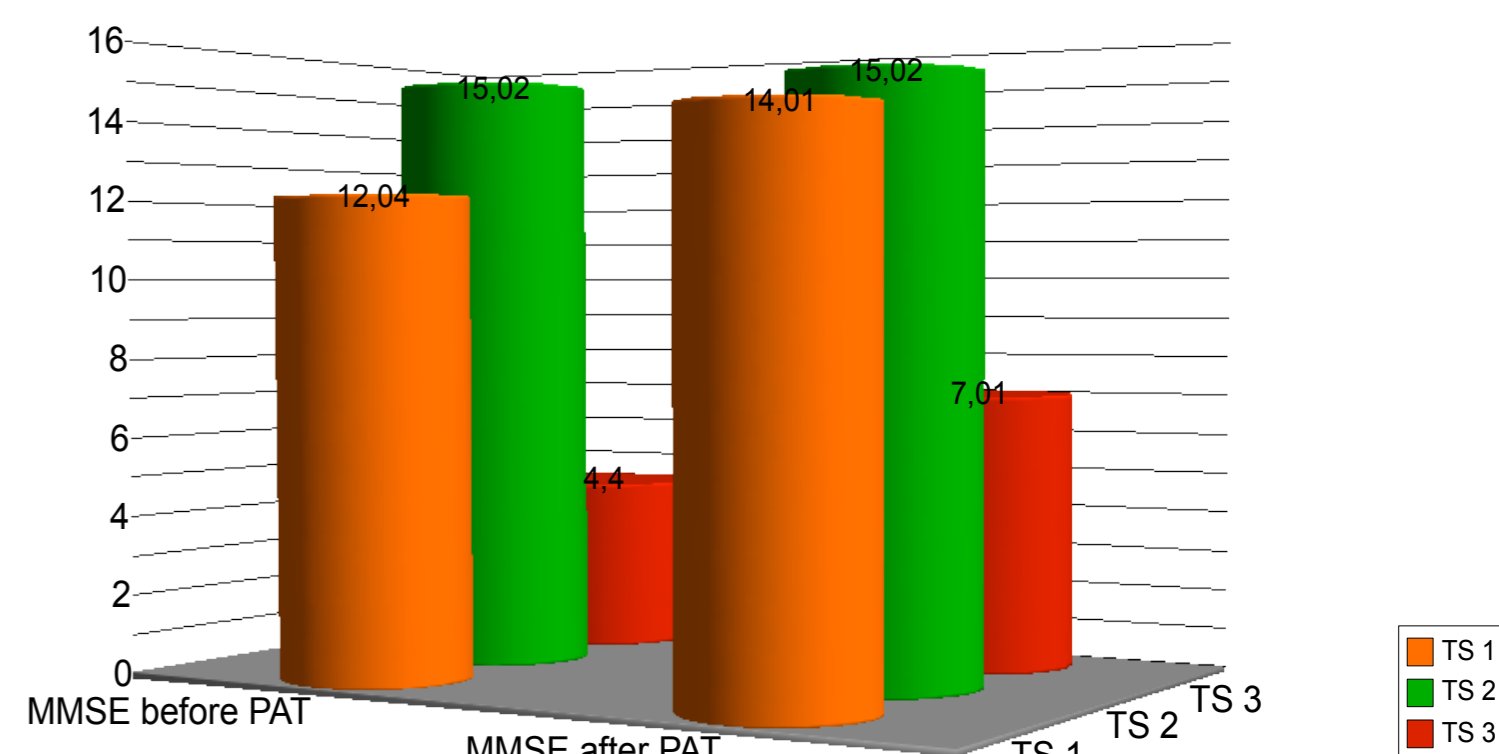


Fig. 2

Fig. 3

## Token Test

3 testable subjects, 13 PAT sessions once a week.  
Test administered quite every day, beginning from one week before the first PAT session.

Testable subjects' score increase (first-last score):  
TS1+150/TS2+113/TS3+86%

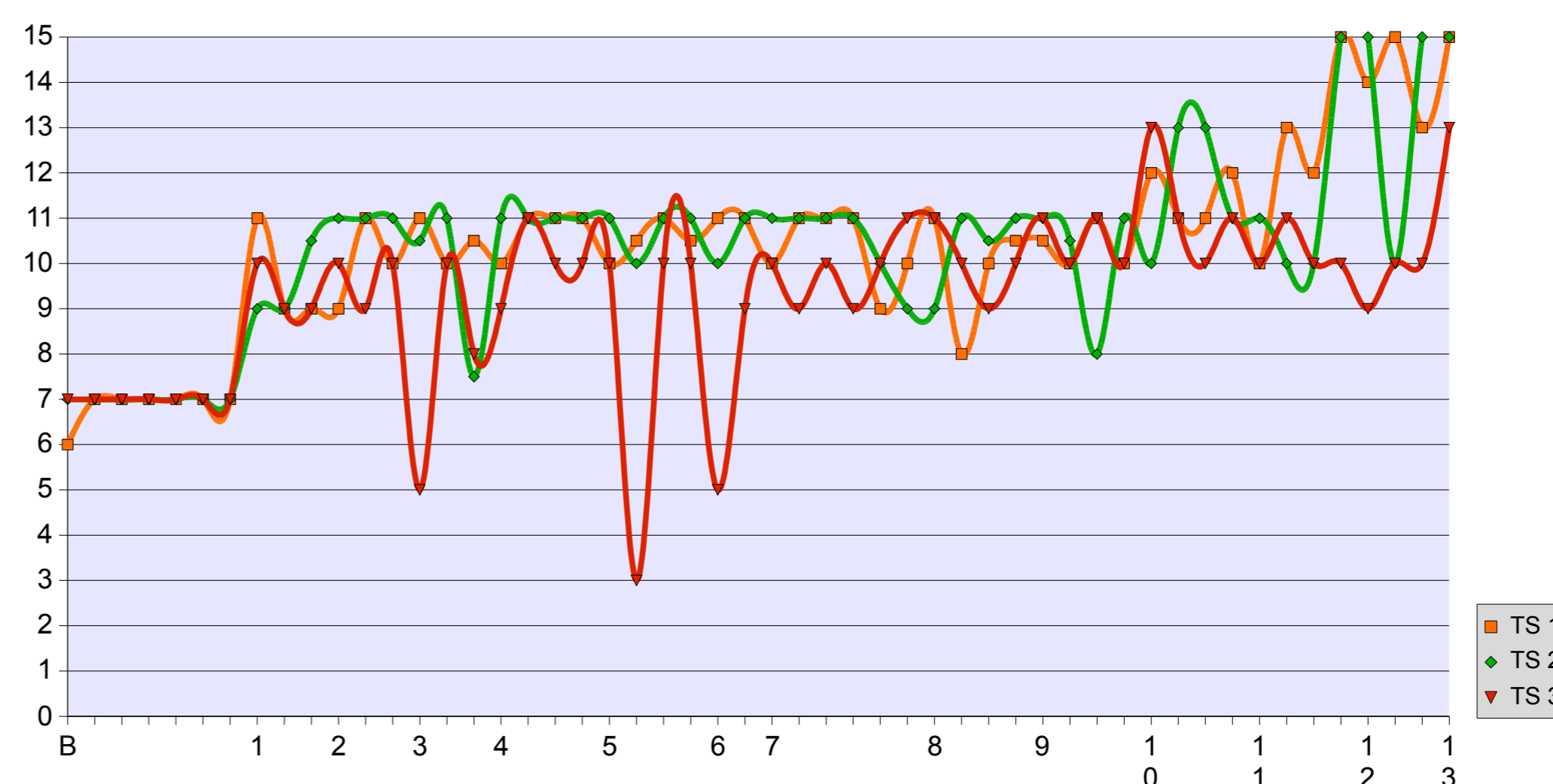
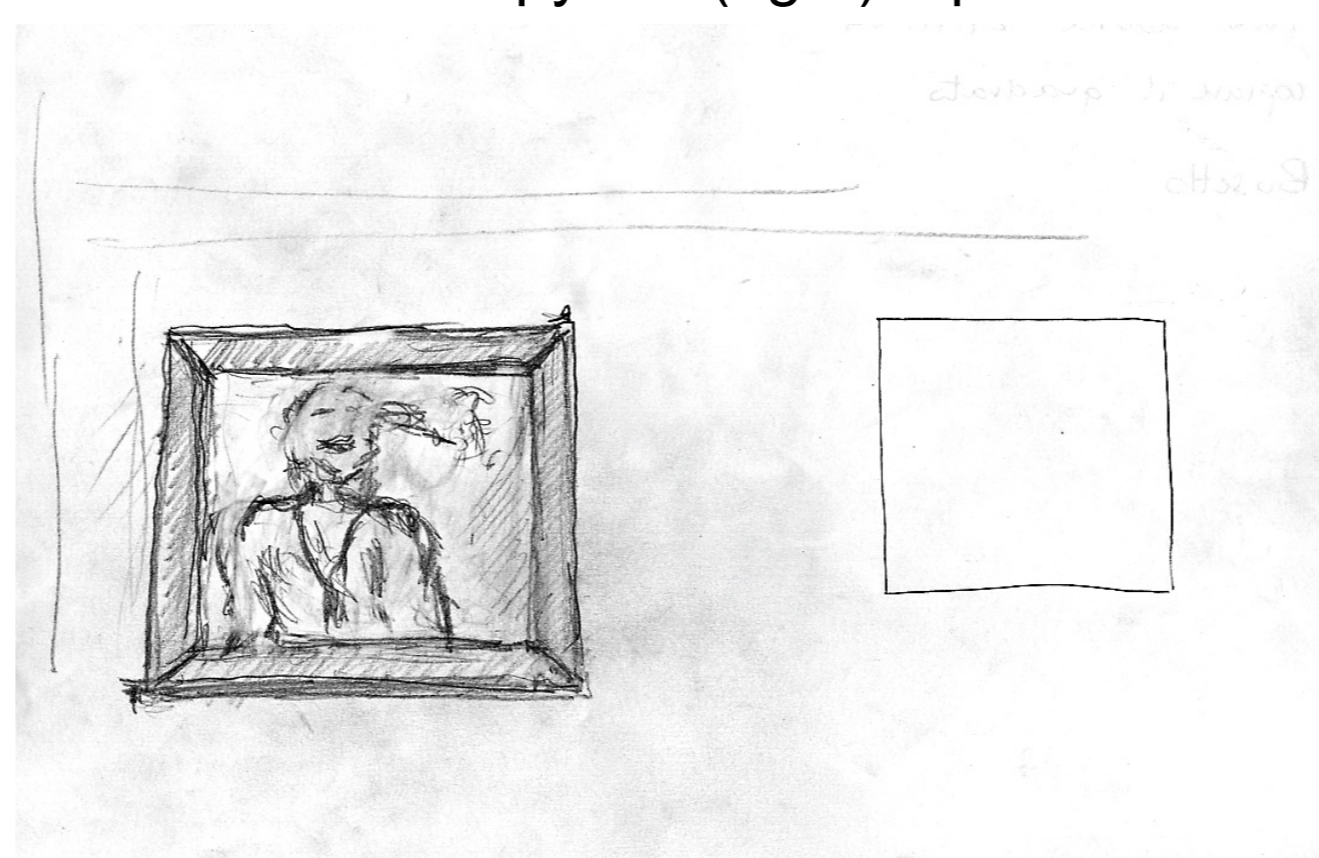


Fig. 4

Fig. 5

Not testable (M, age 64, Architect) Alzheimer subject  
(F.G. S1) after 2<sup>nd</sup> PAT session  
Order: copy the (right) square



Not testable (M, age 64, Architect) Alzheimer subject  
(F.G. S1) after 3<sup>rd</sup> PAT session  
Order: copy the (left) square

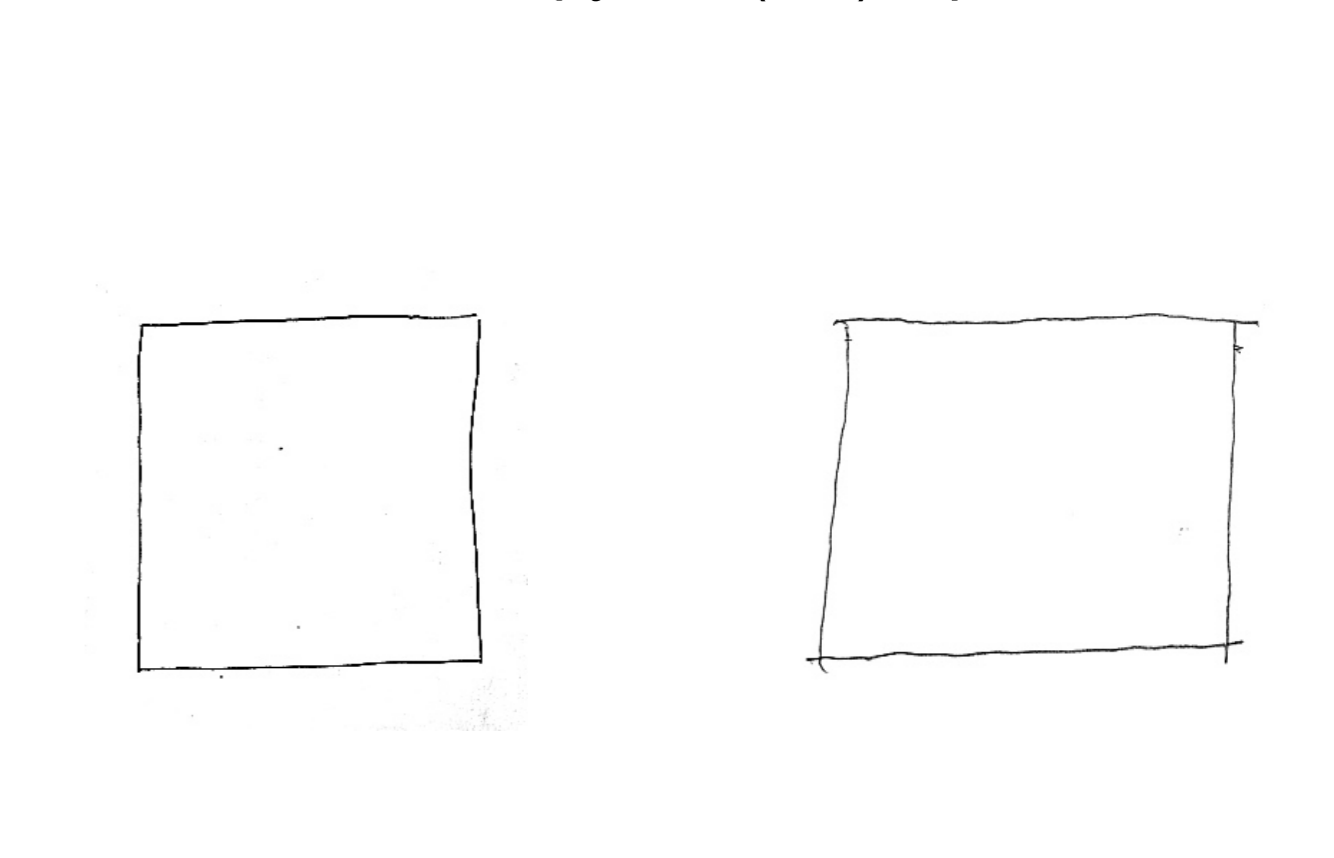


Fig. 6

Not testable (M, age 62, Manager) Frontal Syndrome subject (F.G. S2)  
Measure of the maximum walking's speed effected after each PAT session

Time (sec.) for 5 meters distance: from 4,5 sec/m to 2-2,5 sec/m

