

## Specific observations and statements

During the exercise on the modular robotic tiles it became clear that A was challenged on 3 of the 4 main areas, *strength, balance, circulation* and *coordination* mentioned on p. 16-17. These areas are all described as central in relation to rehabilitation of apoplectic patients.

observations are interpreted as physical signs of an increased activity in the *circulation*.

The exercise is still challenging for his *balance* and *coordination*.

A experienced an improvement of the postural orientation.

It seems that A has experienced the process similar to the observers as he, during the interview, states: "*it may improve the balance*" (p.5 l. 11), when he was asked whether he felt that the exercise could benefit him in his everyday life.

When A was asked whether he would prefer to do regular physiotherapeutic exercises at home or exercise on the intelligent exercise tile at home, A responded: "*Then I think that I would prefer to work out on the exercise tile, I benefit from that*".

During the intervention it was observed, from first to last session, that A changed his movement pattern on the tile; from solely using one leg when stepping on the tile to using both legs, stepping backwards, sideways and turning around on the tile. This change in movements is interpreted as a fact of that A using strategies in the sensory and motor system in order to keep his balance on the tile; strategies that can be transferred to improving balance in his everyday life.

He kept *the intensity* and energy during the exercise. This became visible as A was more focused on the tile; he was sweating and lost his breath.

There were "indications that A was able to keep concentrated while exercising on the tiles during a longer exercise session."

During the interview A told that he would have liked to exercise on the tiles for a longer span of time than the current period of intervention. He could imagine himself using the tiles, both at home and at the municipal rehabilitation centre.

It must be highlighted that the perceived progress, both in A's movement pattern and the number of collected tiles, cannot solely be caused by the exercise on the modular robotic tiles, but can as well be caused by the municipal rehabilitation and the nature of the disease.

He found the competitive element of ColorRace motivating as he was able to compete against his previous scores in this game. "*I tried to do a little better all the time, that's the way it always is*"(p. 3 l. 23). Likewise, B also thought that the competitive element could be used to compete against others, e.g. he thought that it could be used in the exercise team

that he was a part of: *“Well, then you have somebody to compete against. How many did you get, right? You know, it is the competition within it”* (p. 10 l. 3).

During the last two sessions on the tile, B continued the exercise for more than the required 30 minutes, in spite of the fact that he was aware that time was up. He was so engaged in the games and seemed to have fun, e.g. he uttered the following expression during ColorRace: *“Where are you, you little bastard”*, while he glanced intensively on the luminous tile. Based on these observations and compared with the quote that B stated during the interview, *“I have felt so good walking on it”* (p. 6 l. 5), it shows that B also perceived elements of *task oriented* motivation, where joy/want of the activity is at its pride of place.

While exercising B states that he thinks his *“balance is better”*

B expresses that *“I became better and better...it is interesting”*

B kept involvement and *intensity* in exercising on the tile

When B was asked whether he could see himself exercising on the tiles for 2 months further, either at home or as a tool during the municipal rehabilitation, he replied: *“yes, yes, yes, yes, absolutely, that I could...then it would be used once a day...for as long as it is possible, that is”*

B perceived exercising on the modular robotic tiles as particularly challenging in relation to his *balance*. Statements like *“You’ll have to move around and keep your balance all the time”* (p.3 l. 3) and *“it is really a challenge when you cannot keep your balance very well”* (p. 5 l. 14), agreed with the observations during the intervention, where B at the beginning avoided certain movements like wide steps, stepping backwards and sideways. But after the first two sessions using the tile, B seemed more confident. He started to step backwards and sideways and at the same time he used both legs during the games. B was aware of this himself, and when he, during the interview, was asked whether he felt that the exercise challenged his balance, his reply was: *“that is does, when standing there you’ll have to move backwards and turn around, you’ll have to do it all”* (p. 5 l. 14). When B during the interview was asked if he felt a benefit from the exercises, he replied: *“Yes, but that is due to the fact that I can feel an improvement in my balance”* (p. 4 l. 5-9)

This change in B’s movement pattern can be interpreted as a sign that he became better at *coordinating* his movements during combined exercises where both truncus and the extremities must cooperate to ensure preservation of the postural control.

B experienced that the tiles enabled him to do weight training of the muscles in his legs. B could especially feel an effect in his thighs. After the exercise it was observed several times that B touched his thighs, especially after playing Lunges in which he was supposed to move forward and place weight on his legs.

Cheek colour, sweat and faster respiration was observed frequently during B’s exercises, both on the tile and during the municipal physiotherapy. B stated during the interview, *“the heat...it comes almost immediately when we are jumping around”* (s. 4 l. 21). When B was

asked how he experienced perspiration etc. he answered: *“that is because it moves around in you entire body”* (p. 6 l. 12). B here referred to the *circulation* of the blood.

Beyond the 4 main areas, *balance, coordination, strength* and *circulation*, B thought that exercising on the intelligent exercise tile challenged his ability to concentrate. During the interview B provided the following statement: *“It is also strengthening the brain, you know, following the lights...one must concentrate on following the lights. And to get them turned off before they flash”* (p. 8 l. 6).

B’s last comment on how he perceived the exercises on the tile was perfectly clear: *“No, it has really been an extremely positive experience”* (p. 4 l. 11).

In the game for collecting (touching) coloured tiles, “B collected 14 tiles more at the 4<sup>th</sup> training session (75) than at the 1<sup>st</sup> training session (61).”

B mentioned the advantage that if using it as home exercise equipment, it would not take up more space than is available in a regular living room.

Judging from B’s evaluation, the intelligent exercise tile can be used as a part of the collected municipal rehabilitation of apoplectic citizens. B could imagine himself using the tile both for home exercises and at the municipal rehabilitation centre, because the tile offered other possible movements. *“It can actually be used everywhere”* (s. 11 l. 13). If he was offered a chance to use the tile as an exercise tool he could use it every day and he thinks that the estimated half hour exercise would suit him perfectly (p. 7 l. 13-23).