### DOWN WITH MEDIT& TION JOSEPH TLOCZÝNSKI PH.D. (BLOOMSBURG UNIVERSITY)



Meditation refers to a family of techniques which have in common a conscious attempt to focus attention in a non-analytical way, and an attempt not to dwell on discursive, ruminating thought. (Shapiro, 1980)





### Effects of Meditation Include:

Improved: Happiness Self-actualization Empathy **Stress-Hardiness** Autonomy & Independence **Positive Control** Moral Maturity Spirituality Synesthesia

Heightened Perception (Visual & Auditory)

Reaction Time & Motor Skill

Concentration & Attention

Intelligence

School Grades

Learning Ability

Memory (short term & long term) Creativity Speed of Information Processing Interpersonal Functioning



### Effective Intervention For:



- Of particular relevance to Down Syndrome is the experimental research documenting impact from meditation on memory and structural changes in the brain in relationship to aging



#### Memory

- Newberg et al. (2010) examined cerebral blood flow and memory in subjects with diagnosed memory loss who participated in an 8 week meditation program.

- Subjects significantly increased blood flow to the prefrontal, superior frontal, and superior parietal cortices.

- Subjects significantly improved scores on a variety of neuropsychological tests of memory. - Engstrom, Pihlsgard, Lundberg, and Soderfeldt (2010) found that subjects participating in silent mantra meditation showed significant activation in the bilateral hippocampus/parahippocampal formations.

- These areas are thought to be involved in memory formation and consolidation.



#### Structural Changes in the Brain

Lazar et al. (2005) examined
experienced practitioners of Insight
Meditation in comparison to age
matched controls.

- Meditation subjects exhibited greater thickness in the prefrontal cortex and the anterior insula.

- Since the differences were most pronounced in older subjects, the researchers suggest that meditation might delay/prevent age related cortical thinning.



- Subsequent research by Pagoni and Cekic (2007) found that meditation subjects did not exhibit the age related effects on attentional performance and gray matter volume which the control subjects did.

- Increased gray matter volume was especially prominent for meditators in the putamen.

- Suggested that meditation may have neuroprotective effect & reduce cognitive decline associated with "normal" aging.



- It has been noted in the experimental literature that there is a lack of research on the effects of meditation on Intellectual and Developmental Disabilities (IDD), and especially so for Down Syndrome (DS). (e.g. Chapman & Mitchell, 2013)



- Rare exceptions is a case study looking at the effects of martial arts and mindfulness for a young man with Down Syndrome but which did not collect any quantitative data (Proo, 2006).

- This lack of experimental application of meditation to DS is an egregious error when considering how meditation has been found to improve cognitive function in individuals with subjective cognitive decline (Innes, Selfe, Khalsa, & Kandati, 2017), improves memory and mood generally (Basso, Oberlin, & Suzuki, 2019), and has shown promise in improving anxiety, depression, and compassion in individuals with IDD (Idusohan-Moizer, Sawicka, Dendle, & Albany, 2015)



- We set out to conduct a 12 week case study with Daniel, 25 year old male born with DS. No prior consistent meditation practice.
- Daily breath meditation for 20-30 minutes sitting in seiza

position. Background white noise.



#### **Meditation Instructions:**

- Sit comfortably, with your spine erect, either in chair or cross-legged on a cushion.
- Close your eyes, take a few deep breaths, and feel the points of contact between your body and the chair or floor. Notice the sensations associated with sitting—feelings of pressure, warmth, tingling, vibration, etc.
- Gradually become aware of the process of breathing. Pay attention to wherever you feel the breath most clearly—either at the nostrils, or in the rising and falling your abdomen.
- Allow your attention to rest in the mere sensation of breathing. (There is no need to control
  your breath. Just let it come and go naturally.)
- Every time your mind wanders in thought, gently return it to the sensation of breathing.
- As you focus on the breath, you will notice that other perceptions and sensations continue to appear: sounds, feelings in the body, emotions, etc. Simply notice these phenomena as they emerge in the field of awareness, and then return to the sensation of breathing.
- The moment you observe that you have been lost in thought, notice the present thought itself as an object of consciousness. Then return your attention to the breath—or to whatever sounds or sensations arise in the next moment.
- Continue in this way until you can merely witness all objects of consciousness—sights, sounds, sensations, emotions, and even thoughts themselves—as they arise and pass away.
- If your Fall , Asleep, Rest, then Wake Up, and return to your breath, stop when you wish.
- Repeat daily, attempting to reach a 30 to 50 minute session when able

### - Pre, Post 4 Week, and Post 12 Week assessments:

- Purpose In Life Test Awareness Scale
- Simon Memory Test Mindfulness Attention
- Perceived Stress Scale Shapiro Control Inventory



## Simon Memory Test

# F = 5.03, p = .038



## Purpose In Life Test

# F = 6.43, p = .004



### Perceived Stress Scale

# F = 8.14, p = .003



### Mindfulness Attention Awareness Scale

# F = 53.39, p = .0001



# Shapiro Control Inventory

# \*t = 1.78, p = .044F = 1.81, p = .175

\*Comparison of Pre- to Post 12 Weeks



Suggestions for future research... the obvious would be to run a randomized group design with a control group.

Questions/Answers & Responses from the Participant (Danny)

