ADHD Non-Medication Treatments: Fact vs. Myth

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Are These Effective Treatments?

- Cognitive-Behavioral Therapy
- Coaching
- Exercise
- “Brain games”
- Interactive Metronome
- Mindfulness Meditation Training
- Neurofeedback
- Omega 3-6-9
- Diet Changes
Cognitive-Behavioral Therapy
Cognitive-Behavioral Psychotherapy for ADHD

- In cognitive-behavioral therapy, it is believed that a person’s “dysfunctional thinking” about an event and consequent behavior has more of an impact on wellbeing than the event itself
  - (Beck 2011)

- Cognitive-behavior therapy focuses on changing these negative thoughts or attitudes to more positive, healthy ones
  - (Scott and Freeman 2010)
Cognitive-Behavioral Psychotherapy for ADHD

• 12-session cognitive-behavioral group therapy for ADHD adults
  ▫ Participants assigned to the CBT group or a regular support group
  ▫ Statistically significant improvement in the CBT group compared to the support group
    ◦ (Solanto et al. 2010)
Cognitive-Behavioral Psychotherapy for ADHD

- Twelve sessions of individual CBT for ADHD
  - 53% had significant improvements in their symptoms
  - 23% improvement in ADHD adults who only received relaxation training and educational support.
    - (Safren et al. 2010)
Coaching
Coaching for ADHD

• “Counseling lite”
• Brief interventions
• Assistive support
  ▫ Organizing
  ▫ Prioritizing
  ▫ Goal-setting
• Focus on present and future
• Should not address pathology or family-of-origin issues
Coaching for ADHD

- Study of 54 undergraduates with ADHD and/or LD, 7 in-depth interviews
- They felt that coaching
  - Provided a self-determined approach to goal attainment
  - Was supportive of their autonomy
  - Helped develop and manage executive function skills
  - Promoted self-efficacy and confidence regarding future success
    - (Parker & Boutelle 2009)
Exercise
Exercise and ADHD

- Physical exercise has been found to significantly reduce ADHD symptoms and improve executive functioning
  - (Rommel Halperin Asherson and Kuntsi 2013; Archer and Kostrzewa 2012)

- Exercise can also lead to improvements in social skills, motor coordination, strength, and executive function performance in people with ADHD
  - (Kamp Sperlich and Holmberg 2014)
Exercise and ADHD

• Even exercising once can improve executive function performance
  ◦ (MacIntosh et al. 2014)

• Five to thirty minutes of exercise helped improve the executive function performance of children with ADHD
  ◦ (Grassmann Alves Santos-Galduróz and Galduróz 2014; Gawrilow Stadler Langguth Nauman and Boeck 2013)
Exercise and ADHD

- Martial arts have been found to help reduce symptoms of ADHD, improve executive function, and improve academic performance
  - (Marquez-Castillo 2013)

- Taekwondo improved self-regulation, social skills, classroom behavior, and math test scores
  - (Lakes and Hoyt 2004)
Brain Games
“Brain Games”

• Review of twenty-three studies
  ▫ Children and adults in either a neurocognitive training group or a control group
  ▫ Neurocognitive training groups had short-term improvements versus controls
    ◦ (Melby-Lervåg and Hukme 2013)
“Brain Games”

- Verbal working memory
  - Effects did not last long-term
- Visual-spatial working memory, there was
  - Little evidence of any improvement lasting long-term
- No proof that neurocognitive training helped with other skills, including inhibition
  - (Melby-Lervåg and Hukme 2013)
“Brain Games”

• The researchers felt that neurocognitive trainings may help people learn the skills of the games in the short-term, but they do not help in other areas
  ◦ (Gathercole 2014; Melby-Lervåg and Hukme 2013; Dahlin Neely Larsson Backman and Nyberg 2008)

• Brain games may not be effective because working memory cannot be “trained”
  ◦ (Gathercole 2014; Dahlin Neely Larson Backman and Nyberg 2008)
Interactive Metronome
Interactive Metronome (IM)

• Computerized version of a standard metronome
• Makes a rhythmic beat and can be slowed down or sped up
• Theory: IM helps develop central nervous system processing
  ▫ This underlies motor regulation and timing abilities
Interactive Metronome

- 12-week program of interactive metronome training with ADHD children
  - Significant improvements of greater than two years in grade level in all domains except in mathematical reasoning
    - (Leisman Melillo Thum Ransom Orlando Tice and Carrick 2010)
  
- Some studies find that just having sensory input, like the sound of the metronome, can help decrease hyperactivity
  - (Demers, McNevin, and Azar 2013)
Mindfulness Meditation Training
Mindfulness Meditation Training

- Mindfulness is defined as paying attention to present experience
  - (Smalley et al. 2009)

- A mindfulness skill test found that people with ADHD do have difficulties with mindfulness, especially difficulties with self-regulation and novelty-seeking
  - (Smalley et al. 2009)
Mindfulness Meditation Training

- 8-week MMT program for adults and teens with ADHD
- 78% of people that completed the training reported reductions in ADHD symptoms
- 30% had clinically significant symptom improvement
- Improvements were made on conflict attention, and set shifting on a neurocognitive measure
  - (Zylowska et al. 2008)
Mindfulness Meditation Training

• Eight-week mindfulness training for adults with ADHD
  ▫ Significant improvement in self-reported and clinician-rated
    • ADHD symptoms
    • Executive function symptoms
    • Emotion regulation
      ◦ (Mitchell et al. 2013)
Neurofeedback
Neurofeedback

• Goal is to decrease theta waves and increase beta waves
  ▫ When this happens, character on computer screen starts moving
  ▫ Person becomes more relaxed and more focused
• Full treatment requires several visits
Neurofeedback

- Neurofeedback treatment group and a bogus treatment group (fake neurofeedback) showed the same improvement in ADHD scores
  - Children and parents tried to guess which treatment the children were on, and their guesses were no better than chance
    - (Arnold et al. 2013)
Neurofeedback

• Other studies have come to the conclusion that neurofeedback may be a valid treatment for ADHD, but needs much more research
  ◦ (Gevensleben et al. 2014; Lofthouse et al. 2012; Moriyama and Rohde 2012)

• Improvements in neurofeedback study design are needed for more accurate results
  ◦ (Lofthouse et al. 2012)
Omega 3-6-9
Omega 3-6-9

• People with ADHD may have a significantly lower level of omega-3 fatty acids in their blood than people without ADHD
  ○ (Gow and Hibbeln 2014; Schuchardt et al. 2010; Antalis et al. 2006)

• Meta-analysis of 11 studies of Omega-3 supplements in children with ADHD
  ▫ Omega-3 fatty acids demonstrated a small but significant effect in improving ADHD symptoms
    ○ (Bloch and Qawasmi 2011)
Omegas, Multivitamins & ADHD

• Study with ADHD children
  ▫ Divided into 3 groups
    • Omega 3-6-9 and multivitamins
    • Only Omega 3-6-9
    • Neither treatment

• After 15 weeks, all study subjects were given Omega 3-6-9 plus multivitamins for another 15 weeks
  ◦ (Sinn et al. 2008)
Omegas, Multivitamins, & ADHD

- Omega group - improved scores on a test of switching and controlling attention compared to the control group.
- Once the control group started 15 weeks of Omegas and multivitamins, their scores also improved.
  - (Sinn et al. 2008)
Omegas, Multivitamins, & ADHD

- There were no significant improvements on other cognitive measures regardless of treatment.
- Multivitamins did not appear to improve attention scores.
  - (Sinn et al. 2008)
Diet Changes
Diet Changes

• Feingold Diet
  ▫ Restrictive diet – no food dyes and low salicylate foods
    • Difficult for parents to access, maintain, and afford
  ▫ Studies found the diet not to be effective in treating ADHD overall
    ◦ (Smith, 2011)
Diet Changes

• Meta-analysis of studies looking at restricted elimination diets, food color elimination, and fatty acid supplements in children with ADHD
  ▫ Small effect for fatty acids
  ▫ Not enough evidence showing efficacy of restrictive diets and elimination of food coloring
    • Need better better study methodology for these diets
      ◦ (Stevenson et al. 2014)
Diet Changes

• A trial elimination diet is recommended for children who have not responded to conventional treatment for ADHD
  ◦ (Stevens et al. 2011)

• Most promising and potentially effective dietary treatment for ADHD
  ▫ Education of parents and children in healthy dietary pattern
    ◦ (Millichap and Yee 2012)
Summary

- There are effective alternative treatments available for ADHD
  - However
    - Do research on the treatments
    - Look at study methodology
    - Weigh benefit versus risk
    - Consider cost of treatment
    - Look at long-term gains
    - Avoid any treatment claiming it is a “cure” for ADHD
Questions?
References

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