

COGNITIVE REHABILITATION FOR CANCER SURVIVORS

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ATTENDEE OBJECTIVES ARE TO:

- 1. LEARN COGNITIVE DEFICITS ASSOCIATED WITH BREAST CANCER AND ITS TREATMENT.
- 2. BE ABLE TO RELATE COGNITIVE DEFICITS OF BREAST CANCER SURVIVORS TO OCCUPATIONAL PERFORMANCE PROBLEMS.
- 3. BE COMPETENT IN SELECTING COGNITIVE REMEDIATION AND/OR COMPENSATION TECHNIQUES.

BREAST CANCER STATISTICS

- IN 2018, APPROXIMATELY 1,685,210 INDIVIDUALS WERE DIAGNOSED WITH CANCER
- IN WOMEN, ABOUT 30% OF NEWLY DIAGNOSED CANCERS WERE BREAST CANCERS
- THERE ARE 3.1 MILLION WOMEN BREAST CANCER SURVIVORS IN THE U.S.

("U.S. BREAST CANCER STATISTICS," 2018, PARA. 7)

COGNITIVE EFFECTS OF CANCER AND CANCER TREATMENTS

- COGNITIVE PRETESTS BEFORE CANCER TREATMENTS
- COGNITIVE DEFICITS COMMONLY FOR 1-2 YEARS AFTERWARDS BUT CAN BE PERSISTENT OR LATE ONSET IN 20-30% OF SURVIVORS
- THEY ARE UNDERDIAGNOSED AND UNDERTREATED
- BREAST CANCER TREATMENTS
 - SURGERY (ANESTHESIA)
 - CHEMOTHERAPY (INCLUDING NEO-ADJUVANT)
 - RADIATION
 - ENDOCRINE (TAMOXIFEN)

(AHLES & ROOT, 2018)

COGNITIVE EFFECTS OF CANCER AND CANCER TREATMENTS CONTINUED

- EFFECTS ARE SUBTLE COMPARED WITH DEGENERATIVE CONDITIONS OR CNS D/O
- SELF-REPORTS INCLUDE: DISTRACTION, FORGETFULNESS, & DIFFICULTIES WITH ATTENTION, MULTITASKING, AND WORD FINDING. DECREASED QOL.
- NEUROPSYCHOLOGICAL TESTS: CHANGES IN ATTENTION, PROCESSING SPEED, WORKING MEMORY, LEARNING, EXECUTIVE FUNCTION

(AHLES & ROOT, 2018)

COGNITIVE EFFECTS OF CANCER AND CANCER TREATMENTS CONTINUED

- NEUROIMAGING STUDIES (MRI) FOUND REDUCED DORSOLATERAL PREFRONTAL CORTEX VOLUME (MIDDLE FRONTAL GYRUS, SUPERIOR FRONTAL GYRUS, FRONTAL POLES) (CORREA ET AL., 2013) AND ALTERATIONS IN WHITE MATTER INTEGRITY IN ANTERIOR/PREFRONTAL REGIONS (CORREA ET AL., 2016)

OCCUPATIONAL PERFORMANCE PROBLEMS

- DECREASED ATTENTION- EASILY DISTRACTED AND GETS OFF TASK
- WORKING MEMORY DEFICITS- DOESN'T MAINTAIN NECESSARY QUANTITY OF INFORMATION
- DECREASED PROCESSING SPEED- SLOW TO PROCESS
- ORGANIZATION PROBLEMS
- TIME MANAGEMENT ISSUES

OCCUPATIONS ADVERSELY AFFECTED

- WORK- MAY NEVER RETURN TO WORK OR NOT RETURN TO PRIOR LEVEL OF FUNCTION
- EDUCATION- MAY NOT RETURN TO PRIOR LEVEL OF FUNCTION
- REST AND SLEEP- FATIGUE, ENERGY CONSERVATION
- ADLS- SEXUAL ACTIVITY
- IADLS- FINANCIAL MANAGEMENT, COMMUNICATION, DRIVING

EBP INTERVENTIONS FOR TREATMENT RELATED COGNITIVE IMPAIRMENT

- COGNITIVE TRAINING PROGRAMS (GROUP OR INDIVIDUAL) HAVE BE SHOWN TO INCREASE ATTENTION & MEMORY (POPPELREUTER, WEIS, & BARTSCH, 2009; VON AH ET AL., 2012), SPEED OF PROCESSING (VON AH ET AL., 2012), AND EXECUTIVE FUNCTION (KESLER ET AL., 2013; VON AH, JANSEN, & ALLEN, 2014)
- TWO PHYSICAL ACTIVITY INTERVENTIONS IMPROVED EXECUTIVE FUNCTION AND CONCENTRATION, BIKING AND HATHA YOGA (CHAN, MCCARTHY, DEVENISH, SULLIVAN, & CHAN, 2015).
- EFFECTIVENESS HAS NOT BEEN ESTABLISHED FOR THE FOLLOWING INTERVENTIONS:
 - X COGNITIVE-BEHAVIORAL TRAINING
 - X MEDITATION
 - X NATURAL RESTORATIVE ENVIRONMENT INTERVENTIONS
- EFFECTIVENESS IS UNLIKELY FOR:
 - X GINGKO BILOBA (VON AH, JANSEN, & ALLEN, 2014)

MY RESEARCH APPROACH: BRAIN NEUROPLASTICITY CAN BE ACHIEVED (FUCHS & FLÜGGE, 2014) AND COMPUTER BRAIN-TRAINING EXERCISES CAN FACILITATE PLASTICITY (MEDEIROS, 2017).

MY RESEARCH- STUDY 1

- COGNITIVE REHABILITATION PROGRAM DEVELOPED & RUN W/ KAREN RATCLIFF AT UTMB
- THE PROGRAM CONSISTED OF FIVE TWO-HOUR GROUP SESSIONS FOR MEMORY, ORGANIZATION, PROBLEM SOLVING, ATTENTION, AND COMPENSATORY STRATEGIES, FOLLOWED BY ONE MONTH OF IN HOME COMPUTER-ASSISTED COGNITIVE THERAPY.
- GOOD PARTICIPANT SATISFACTION!
- RESULTS REPORTED AT TOTA 2017

WHAT THEY LIKED SO MUCH!

- MEMORY STRATEGY- HAND TECHNIQUE
 1. THUMB- I'M STOPPING FOR A MOMENT
 2. INDEX FINGER- WHAT AM I DOING RIGHT NOW?
 3. WHAT AM I SUPPOSED TO BE DOING?
 4. WHAT DO I DO NEXT?
 5. OK, GO!
- PROBLEM SOLVING- CONTRADICTION STRATEGY
 1. WHAT IS THE PROBLEM?
 2. WHAT WOULD YOU HAVE TO DO TO MAKE THE PROBLEM WORSE?
 3. WHAT IS THE OPPOSITE OF WHAT YOU JUST IDENTIFIED?

PARTICIPANT QUOTES

- SELF-IMAGE- QOL "IT MAY NOT BE IN THE BIG PICTURE, BUT WHEN IT'S ME THAT NO LONGER HAVE BREASTS AND HAVE TO LOOK AT MYSELF EACH MORNING, IT'S A BIG THING FOR ME" (P3)
- LACK OF ATTENTION "I LEARNED SO MUCH MORE ABOUT MYSELF. I DON'T PAY ATTENTION. I'M ALWAYS IN A HURRY. I HAVE A WHOLE LIST RIGHT HERE. DON'T FOCUS, DISTRACTED, INTERRUPTIONS..." (P5)
- RETURN TO WORK "I HAD TO HURRY UP AND GO RIGHT BACK TO WORK...I REALIZED PHYSICALLY I COULDN'T DO THAT ANYMORE. MENTALLY, I STARTED GETTING SCARED, BECAUSE I PUT DOWN MEDICINE AND I COULDN'T FIND IT. I HAD TO WRITE DOWN EVERYTHING I DID WITH EACH PATIENT SO I COULD GO CHART IT BECAUSE I COULDN'T REMEMBER." (P1)
- COMMUNICATION "ONE OF THE PROBLEMS THAT I FIND IS THAT I CANNOT LOOK AT A WORD AND ...KNOW WHAT IT IS. AND I CAN'T SPELL. JUST A NUMBER OF DIFFERENT THINGS THAT I USED TO DO ALL THE TIME" (P2)

MY RESEARCH- STUDY 2

- THIS STUDY WAS DONE IN COLLABORATION W/ KAREN RATCLIFF, OTR
- AIM 1-DETERMINE EFFECTS OF AN AUDIO+VISUAL COMPUTER-ASSISTED COGNITIVE REHABILITATION PROGRAM COMPARED TO A VISUAL ONE ON WORKING MEMORY, PERCEIVED COGNITION, QUALITY OF LIFE, AND ENGAGEMENT IN MEANINGFUL ACTIVITIES.
- THE VISUAL PROGRAM RESULTED IN SIGNIFICANTLY IMPROVED POST-TEST SCORES FOR QUALITY OF LIFE AND PERCEIVED COGNITION.
- AIM 2- EXAMINE THE RELATIONSHIP BETWEEN PERCEIVED COGNITIVE DEFICITS, QUALITY OF LIFE, AND ENGAGEMENT IN MEANINGFUL ACTIVITIES. THE ONLY SIGNIFICANT ASSOCIATION DETERMINED WAS THAT OF PERCEIVED COGNITIVE FUNCTION IN THE PRETEST TO QUALITY OF LIFE IN BOTH PRETEST AND POSTTEST.

MY NEXT RESEARCH

- COMPARE VISUAL INPUT COMPUTER-ASSISTED COGNITIVE REHABILITATION PROGRAM TO ONE WITH EXTERNAL AUDIO INPUT DURING EXERCISES TO INCREASE BRAIN WAVES FOR FOCUS AND CONCENTRATION

CLINICAL IMPLICATIONS

- COMPUTER-ASSISTED COGNITIVE REHABILITATION CAN BE DELIVERED CONCURRENTLY TO ALL OTHER REHABILITATION. PROGRAMMING CAN BE INDIVIDUALIZED TO ADDRESS CLIENT COGNITIVE DEFICITS AND PERFORMED AT HOME. PARTICIPATION CAN BE EASILY MONITORED.
- BEST PRACTICE HAS NOT BE DETERMINED

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