

CHANGES IN COGNITIVE FUNCTION

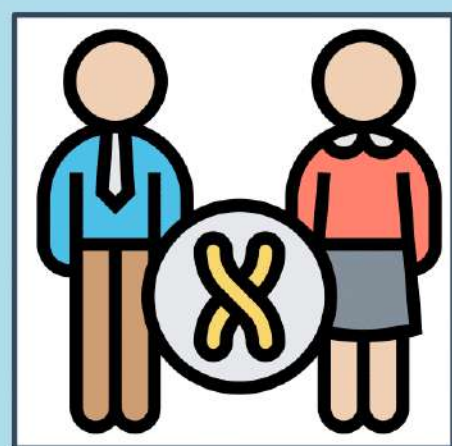
After a 12-week Exercise Intervention in adults with Down syndrome

(Ptomey et al., 2018)

DOWN SYNDROME

CONDITION IN WHICH A PERSON HAS AN EXTRA CHROMOSOME OCCURS AS

- ERROR IN CELL DIVISION
- DEVELOPMENTAL DELAYS
- INTELLECTUAL DISABILITY
- DISTINCT FACIAL APPEARANCE



COMPLICATIONS

- DEMENTIA
- ALZHEIMER'S DISEASE
- DECREASED LIFE EXPECTANCY
- DEFICITS IN COGNITIVE CONTROL

MENTAL HEALTH CONCERNS

- NEUROPSYCHOLOGICAL PROBLEMS
- AUTISM SPECTRUM CONDITIONS
- SLEEP RELATED DIFFICULTIES
- INATTENTIVE BEHAVIORS
- GENERAL ANXIETY
- OPPOSITIONAL
- DEPRESSION
- IMPULSIVE



COGNITIVE FUNCTION

MENTAL PROCESS INVOLVES IN

- ACQUISITION OF KNOWLEDGE
- MANIPULATION OF INFORMATION
- REASONING.

IMPACT OF EXERCISE

- IMPROVEMENT IN :

AEROBIC FITNESS

MEMORY SCORES

COGNITIVE FUNCTION

(Chen & Ringenbach, 2016)

COMPONENTS OF COGNITION

PERCEPTUAL AND MENTAL SPEED



SPECIAL COGNITIVE TESTS

1. ATTENTION SWITCHING TASK (AST) :
 - FOR ATTENTION - COGNITIVE FLEXIBILITY
2. PAIRED ASSOCIATES LEARNING
 - FOR VISUAL MEMORY AND NEW LEARNING
3. REACTION TIME
 - FOR MOTOR - MENTAL RESPONSE SPEEDS

12 WEEK EX. PROGRAM

- 5-MINUTE WARM-UP,
- 20 MIN OF MOD-VIG INTENSITY
(Pastula et al., 2012)
- INTENSITY INCREASED SLOWLY
- 5-MINUTE COOL-DOWN
- INTENSITY - DURATION : MONITORED



OUTCOMES

COGNITIVE DOMAINS OBSERVED

- PROCESSING SPEED
- PSYCHOMOTOR SPEED
- SUSTAINED ATTENTION
- VISUAL EPISODIC MEMORY
- WORKING MEMORY
- COGNITIVE CONTROL

CONCLUSION

- IMPROVED PAIRED ASSOCIATE LEARNING TASKS PERFORMANCE
- PREVENT LOSS OF MEMORY
- INCREASE IN LOCAL GRAY MATTER VOLUME
(PREFRONTAL - CINGULATE CORTEX)
- BRAIN-DERIVED NEUROTROPHIC FACTOR
- (DS) SHOULD PROMOTE INCREASES IN (PA)



MYTH

PEOPLE WITH DOWN SYNDROME ARE UNEMPLOYABLE

TRUTH

PEOPLE WITH DOWN SYNDROME CAN AND DO MAKE VALUABLE EMPLOYEES

MANY PEOPLE WITH (DS) ARE EMPLOYED IN VARIOUS SECTORS