



FRONTOTEMPORAL DEMENTIA

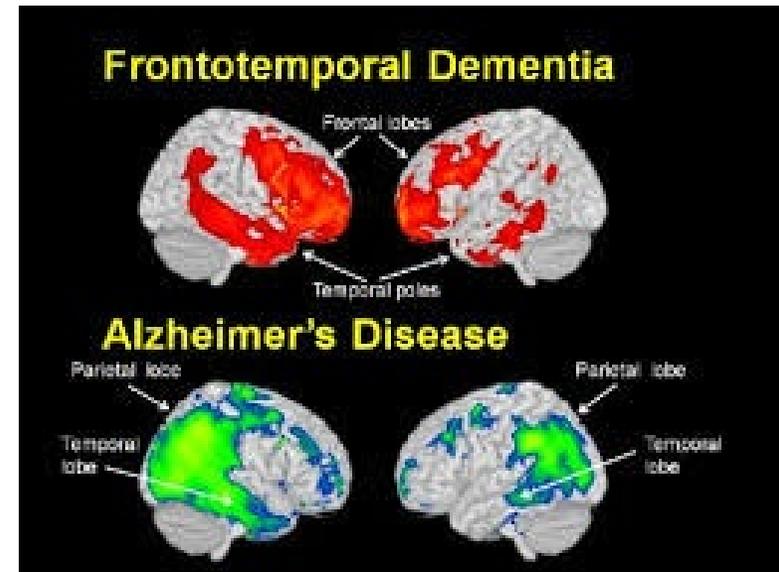
TOP TIPS TO OPTIMIZE TREATMENT AND QUALITY OF LIFE

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FRONTOTEMPORAL DEMENTIA (FTD)

Dementia that begins in
the frontal lobe, temporal lobe,
or both



FTD OVERVIEW

- Progressive decline in behavior and personality and/or language, resulting in significant impairment in social and daily activities, and increasing dependence on caregivers
- Typical onset in 50's or 60's; as common as early-onset Alzheimer's dementia in individuals <65 years old (average age of onset is 57)
- Life expectancy = 7-13 years (ranges from 2-20)
- Causes: Genetic factors may play a role in about 30% of cases; Unknown causes in most cases
- Personality changes are often initially misdiagnosed as a psychiatric disorder
- No treatments to slow or stop progression, but some treatments help to manage symptoms; clinical trials are underway

THREE SUBTYPES OF INITIAL SYMPTOMS IN FTD

- Progressive changes in **behavior/personality**, judgment, and emotions
- Progressive **language decline**: changes in speaking, comprehending, reading, and writing
- Progressive **motor decline** – difficulties with physical movement such as shaking, difficulty walking, frequent falls, poor coordination

TYPES OF FTD

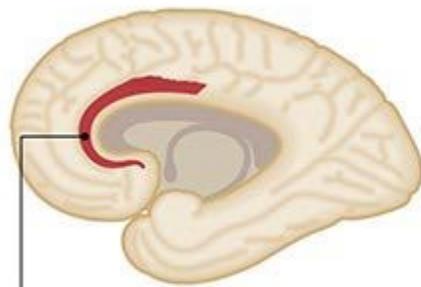
- Progressive behavior/personality decline
 - Behavioral variant FTD (BvFTD)
- Progressive language decline/Primary Progressive Aphasia (PPA)
 - Semantic PPA
 - Logopenic PPA
 - Agrammatic PPA
- Progressive motor decline
 - Progressive supranuclear palsy (PSP)
 - Corticobasal syndrome (CBS)
 - FTD with amyotrophic lateral sclerosis (FTD-ALS)

BEHAVIORAL VARIANT FTD (BVFTD)

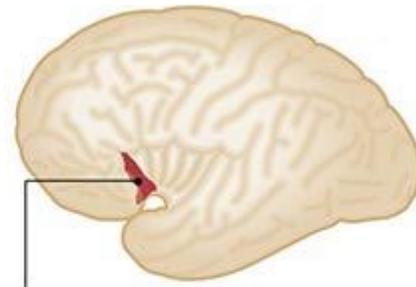
- The most common FTD
- Clinical symptoms often involve changes in behavior, personality, judgment, and may include:
 - Unusual behavior that is out of context for the social situation
 - Deficits in self-awareness/decreased insight into behavior
 - Reduced empathy for the feelings of others, likely due to impaired ability to recognize facial or vocal emotions
 - Hyperorality (e.g. excessive eating, often of sweet foods)
 - Stereotyped behavior or vocalizations
 - Disinhibition
 - Difficulty “meta-tasking”/”disorganized syndrome” (carrying out multi-step tasks that are coordinated and interleaved over an extended period of time)
 - Impulsivity
 - Lack of initiation
 - Social withdrawal
 - Sudden-onset criminal behavior (54% vs. only 12% with Alzheimer’s)

BVFTD NEUROANATOMY AND PROGRESSION

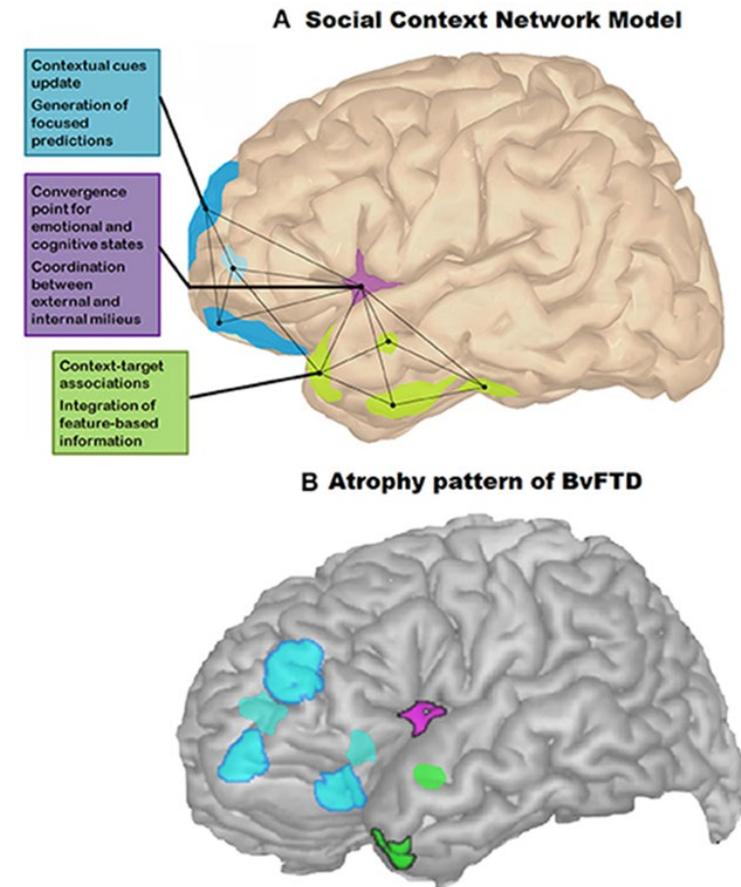
- Initially, Von Economo neurons are often impacted (important for social cognition), and may lead to apathy, disinhibition, and social inappropriateness
- Thus, measurable deficits in executive functioning/EF might not be present early in the disease process



Anterior Cingulate Cortex



Frontal Insula



BVFTD

- No hereditary cause for 50% of cases (“sporadic”)
- About 40% may be genetic (a close relative diagnosed with a neurodegenerative disease)
 - 10-30% is due to mutations in the *MAPT*, *GRN*, *C9orf72* or rarer genes
- Only autopsy can provide a definitive diagnosis of the underlying brain pathology. Two major subtypes:
 - Abnormal tau protein
 - Transactive DNA binding protein 43 (TDP-43)
 - A smaller proportion of people will have accumulation of the FUS (fused in sarcoma) protein instead of tau or TDP-43

BVFTD TREATMENTS

- I. Medications
 - No FDA-approved medications.
 - Antidepressants (serotonin-specific reuptake inhibitors) may improved mood and reduce behavioral problems
 - Trazodone sometimes helps with binge-eating and depression
 - Atypical antipsychotics such as risperidone, olanzapine, quetiapine have been used to treat agitation, but they can also bring increased risk from unwanted side effects and are not approved for use in FTD.
 - Memory medication (acetylcholinesterase inhibitors) can worsen agitation and are generally not therapeutic

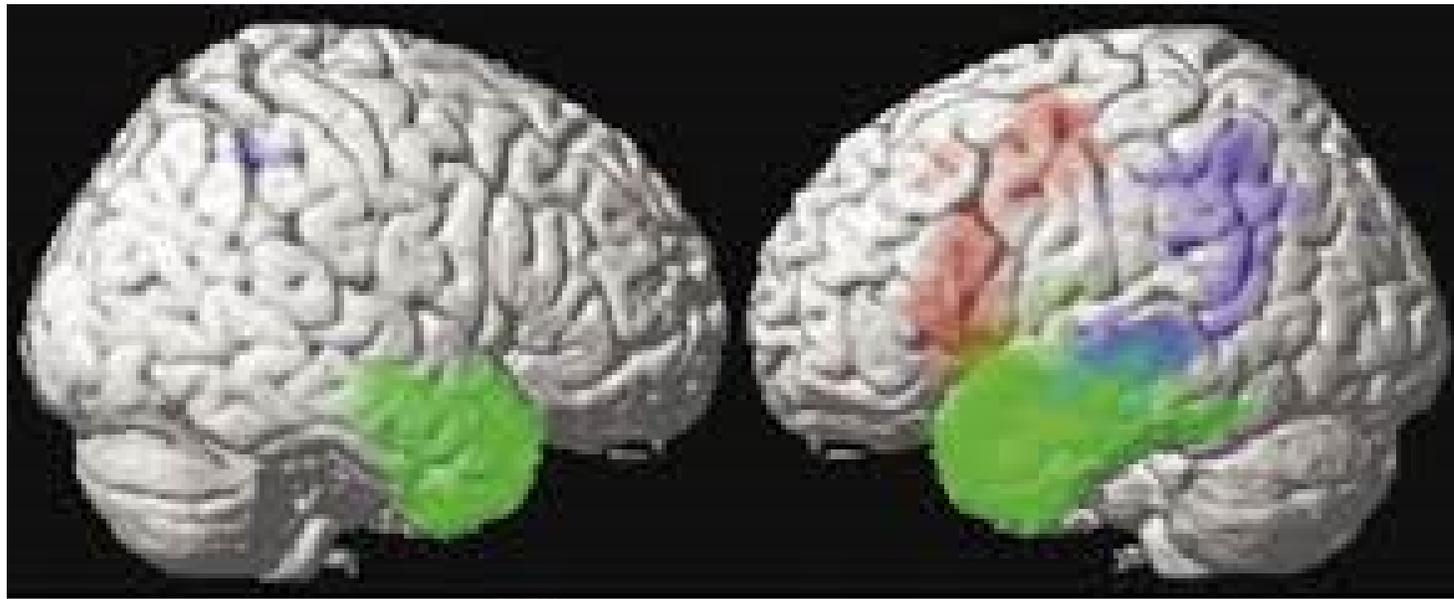
BVFTD TREATMENTS (CONT'D)

- II. Behavioral assessments and treatments for:
 - Driving safety
 - Financial guidance (limiting access, joint accounts, oversight to minimize exploitation)
 - Physical safety in and outside the home (alarms on doors, monitoring devices, signs, rearranging furniture/environment)
 - Cognitive impairment (daily planning tools for organization, alarms to help with initiation and stopping behaviors)
 - Self care (OT can be helpful in breaking down tasks)
 - Social/communication issues (redirection, limited exposure to situations, information card for others)
 - Agitation, aggression (daily schedule, ABC model, “unmet needs”/Advancing Caregiver Training)
- III. Other recommendations
 - Exercise
 - Disability
 - Connecting family to education and support (including support groups)

3 SUBTYPES OF LANGUAGE – RELATED FTD (PRIMARY PROGRESSIVE APHASIA/PPA)

- **Logopenic PPA:** A problem with *word-finding*
- **Semantic PPA:** A problem with *word-understanding*
- **Agrammatic PPA:** A problem with *word-order* and *word-production*

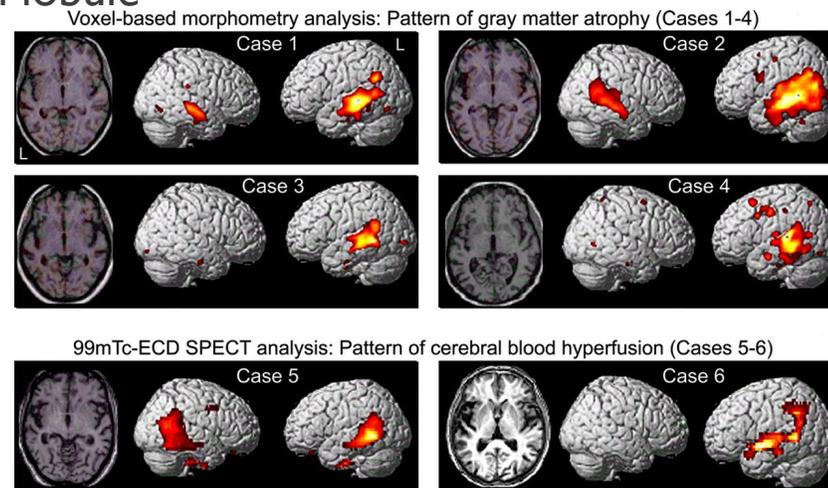
PPA BRAIN REGIONS



- Non-fluent variant PPA
- Semantic variant PPA
- Logopenic variant PPA

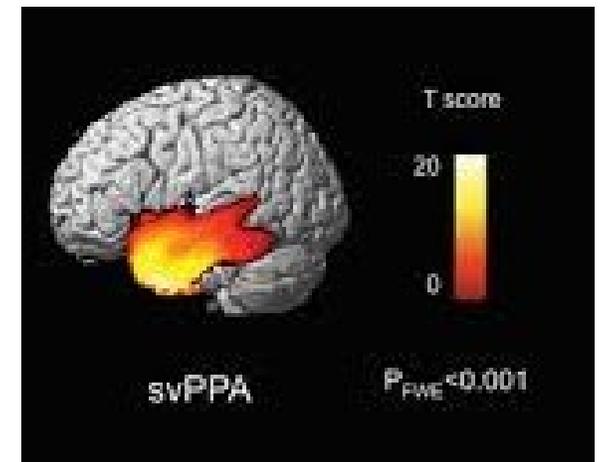
LOGOPENIC PPA - A PROBLEM WITH WORD-FINDING

- Common symptoms:
 - Word-finding difficulties are prominent
 - Talking speed may be slow, with frequent pauses
 - Problems with comprehension and repetition (especially lengthy information)
 - Comprehension of word meanings and objects is intact (unlike in semantic PPA)
- Brain region impacted: left posterior temporal cortex and inferior parietal lobule
- Most common underlying pathology: Alzheimer's



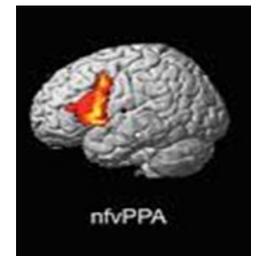
SEMANTIC PPA - A PROBLEM WITH WORD-UNDERSTANDING

- Characterized by:
 - Impaired object naming
 - Impaired single-word comprehension, especially for uncommon words (e.g. “zebra” rather than “cat”) (unlike logopenic PPA)
 - Possible reading, spelling problems with “irregular” words e.g. “sew” may be read as “su”
 - Intact ability to repeat information (unlike logopenic PPA)
 - Speech motor skills are intact (unlike agrammatic PPA)
- Brain region impacted: anterior temporal lobe
- Most common underlying pathology: FTLN-TDP protein abnormalities



AGRAMMATIC PPA - A PROBLEM WITH WORD-ORDER AND WORD-PRODUCTION

- AKA “Progressive nonfluent aphasia”
- Characterized by:
 - “Telegraphic speech”/omitting words that link nouns and verbs (such as “to, from, the”) – e.g. “Go store”
 - Apraxic speech (somewhat like stuttering)
 - Possible difficulty swallowing
- Brain region impacted: left posterior frontal-insular (atrophy or hypometabolism)
- Most common underlying pathology: FTLD-tau abnormalities
- May progress to a motoric syndrome such as corticobasal degeneration (CBD) or progressive supranuclear palsy (PSP)



PPA TREATMENT

- I. Language therapies
 - Speech therapy (including internet-based)
 - In person or internet based
 - Augmentative communication devices and communication boards
 - Research and clinical services at Northwestern University (specializing in PPA)
 - Encourage/use nonverbal communication (touch, use of other sounds as cues)
 - Multiple-choice formats to facilitate communication



PPA TREATMENT (CONT'D)

- II. Optimizing mood and daily functioning
 - Use of routines
 - Break down routine tasks (OT)
 - Music
 - Art
 - Simple signs or pictures to cue
 - Change environment to guide behavior
- III. Family support and education
 - Connecting family to education and support (including support groups)

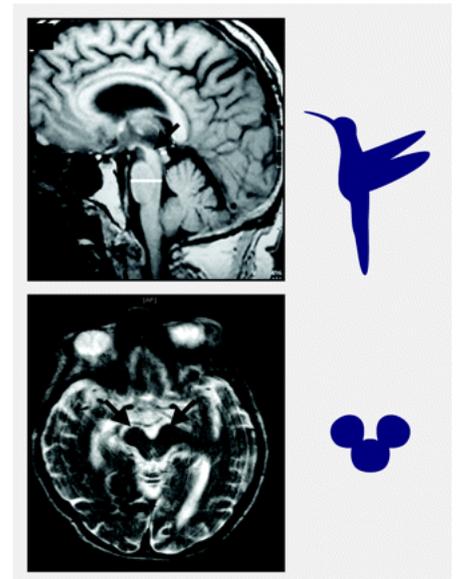
3 SUBTYPES OF MOVEMENT – RELATED FTD

- **PSP** (Progressive Supranuclear Palsy)
- **CBS** (Corticobasal Syndrome) aka **CBD** (Corticobasal Degeneration)
- **FTD with ALS** (Amyotrophic Lateral Sclerosis)

PSP (PROGRESSIVE SUPRANUCLEAR PALSY)

- Motoric disorder (“Parkinson’s plus syndrome”)
- Affects movement, control of walking (gait) and balance, speech, swallowing, vision, mood and behavior, and thinking
 - Problems walking/unexplained falls/stiffness may be initial symptom
 - Later, blurred vision and problems controlling eye movement often occur (vertical gaze is especially difficult; problems maintaining eye contact)
- The name “PSP” describes its characteristics:
 - It worsens (*progressive*)
 - Damages certain parts of the brain above nerve cell clusters called nuclei (*supranuclear*), and
 - Causes weakness (*palsy*)

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Progressive-Supranuclear-Palsy-Fact-Sheet>



PSP (PROGRESSIVE SUPRANUCLEAR PALSY)

- Impacts 3-6 in every 100,000 people worldwide, or approximately 20,000 Americans
- Symptoms of PSP begin on average after age 60, but may occur earlier.
- Men are affected more often than women.
- Problems with mood (depression and anxiety) are common
- Problems with speech and swallowing are common
- Cognitive problems may also occur (judgement, insight, problem solving, word finding)
- Prognosis: Significant disability often occurs within 3-5 years after onset; with good treatment, some individuals can live up to a decade or more after the initial symptoms
 - Higher likelihood of head fractures, pneumonia, choking
- May initially be misdiagnosed as Parkinson's because it shares similar features; how to differentiate
 - PSP = more progressive, "axial rigidity," abnormal eye movements, earlier problems w/speech and swallowing, rare tremor, underlying pathology different (tau) vs. Parkinson's (alpha-synuclein)

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Progressive-Supranuclear-Palsy-Fact-Sheet>

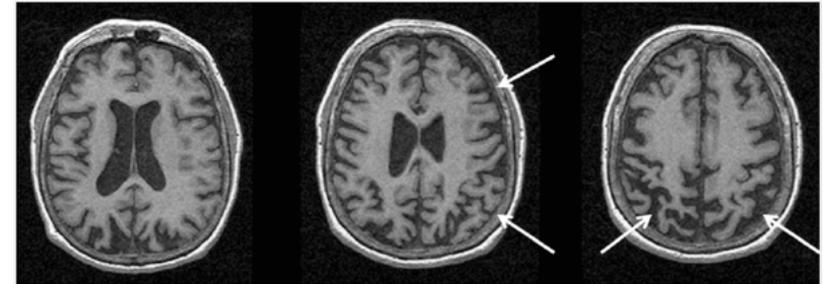
PSP (PROGRESSIVE SUPRANUCLEAR PALSY)

- Causes
 - Mostly sporadic (no known cause); no genetic cause in most people
 - In very few cases, mutations of MAPT gene
- Treatment
 - No effective treatments
 - Parkinson's medications rarely providing lasting benefit
 - Botox may be helpful with excessive eye closing
 - Antidepressant medication may help with mood, and may help with pain and decrease drooling
 - Weighted walking aids can help counteract tendency to fall backward
 - Bifocals or glasses with prisms can help the person look downward
 - PT of limited benefit, but can help with flexibility
 - Gastrostomy may help with swallowing or severe risk of choking

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Progressive-Supranuclear-Palsy-Fact-Sheet>

CBS (CORTICOBASAL SYNDROME)

- Corticobasal syndrome/degeneration is a progressive neurological disorder characterized by nerve cell loss and atrophy (shrinkage) of multiple areas of the brain (cerebral cortex, basal ganglia)
 - Usually progresses slowly over 6-8 years, and often leads to inability to walk
- Symptoms
 - Poor coordination, akinesia (absence of movements)
 - Rigidity, balance problems
 - Abnormal muscle postures, myoclonus (muscle jerks)
 - Cognitive and visuospatial impairments
 - Apraxia (loss of ability to make familiar, purposeful movements)
 - Hesitant/halting speech, difficulty swallowing



CBS (CORTICOBASAL SYNDROME)

- Treatment
 - Unfortunately, there is no treatment to slow the course of the disease
 - Parkinson's medication doesn't have significant benefit
 - Clonazepam may help myoclonus
 - OT/PT/ST may be helpful

<https://www.ninds.nih.gov/Disorders/All-Disorders/Corticobasal-Degeneration-Information-Page>

FTD WITH AMYOTROPHIC LATERAL SCLEROSIS (FTD-ALS)

- ALS is a neurodegenerative disease with loss of “upper” (located in the brain) and “lower” (located in the spinal cord) motor neurons that leads to paralysis, difficulty swallowing, difficulty talking, and eventually respiratory failure.
 - Often starts between ages 55-75; men slightly more than women; Caucasians and non-Hispanics more likely to develop disease; veterans 1.5-2 times more likely
- Up to 30% of people diagnosed with FTD may develop ALS; up to 50% of people w/ALS may develop FTD. Motor symptoms often include:
 - Muscle weakness, typically beginning on one side of the body, and leading to paralysis; impacts the arms, legs, face, tongue, and neck
 - Clumsiness, difficulty grasping objects, difficulty lifting arms above head, difficulty breathing
 - Muscle atrophy/loss, fasciculations/uncontrolled twitching, spasticity/prolonged muscle contraction
 - Dysarthria/slowed slurred speech due to inability to move facial muscles
 - Dysphagia/swallowing difficulty (e.g. drooling, choking on food or saliva; may lead to malnutrition)

<https://www.theaftd.org/what-is-ftd/ftd-and-als-ftd-als/>

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Amyotrophic-Lateral-Sclerosis-ALS-Fact-Sheet>

FTD WITH AMYOTROPHIC LATERAL SCLEROSIS (FTD-ALS)

- Course of the disease is much more rapid than other forms of FTD (may be 2-3 years)
- Cellular pathology: abnormal accumulation of the protein TDP-43
- Cause:
 - 90% sporadic (no known cause)
 - 5-10% are genetic (*C9orf72* gene, or *SOD1*)

<https://www.theaftd.org/what-is-ftd/ftd-and-als-ftd-als/>

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Amyotrophic-Lateral-Sclerosis-ALS-Fact-Sheet>

FTD WITH AMYOTROPHIC LATERAL SCLEROSIS (FTD-ALS)

■ Treatments

- Riluzole, the first drug approved for use in the treatment of ALS, has been shown to slow the progression of ALS for some patients and increase survival
- Rasagiline developed for Parkinson's disease, is a monoamine oxidase inhibitor but demonstrates neuroprotective action
- PT for stretching
- Ramps, braces, walkers, and wheelchairs can help with mobility
- Speech therapy; over time, speech synthesizers might be used
- Breathing support (noninvasive ventilation; mechanical cough devices; breath stacking; mechanical ventilation)

<https://www.theaftd.org/what-is-ftd/ftd-and-als-ftd-als/>

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Amyotrophic-Lateral-Sclerosis-ALS-Fact-Sheet>

GENERAL TOOLS TO ENHANCE MOOD AND MINIMIZE DISTRESS IN FTD

- Can be helpful proactively and in response to irritability
 - Routine
 - Distraction
 - Tailored calming strategies
 - Music, family time, reading, praying, television, pictures, etc – customization is key
 - Tactile tools (touch, aromatherapy, objects, music, pets, walking, games)

FTD RESOURCES AND SUPPORT

- The Association for Frontotemporal Dementias <http://www.theaftd.org/frontotemporal-degeneration/disorders>
- Alzheimer's Association: <http://www.alz.org/dementia/fronto-temporal-dementia->
- Frontotemporal Dementia Caregiver Support Center <http://ftdsupport.com/>
- FTD support group in Milwaukee, at Alzheimer's Association on 76th street, on the third Wed of the month (6-7:30 pm)