




Geriatrics & Gerontology

Section 12

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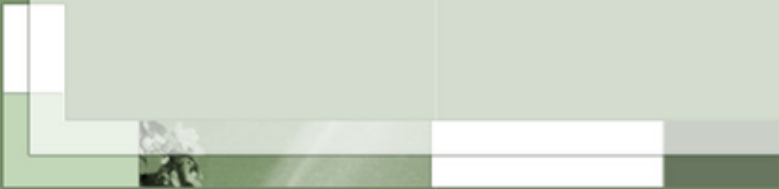


Geriatrics & Gerontology

- Geriatrics – branch of medicine that treats health problems associated with ageing
 - Gerontology – study of ageing from several viewpoints, including biology, genetics, psychology, sociology, anthropology, philosophy, history and religion
 - Gerontophilia – the attraction to older people and the desire to work with them
 - Gerontophobia – being repelled by older people and trying to avoid them
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The Fourteen I's of Geriatrics

- Instability and falls
 - Degenerative changes in the balance centers of the brain with increased weakness of muscles and stiffness of joints leads to ambulatory instability
 - 1/3 of those over 65 living at home have at least one major fall a year (they are injured)
 - 50% who are hospitalized will die within one year after a bad fall
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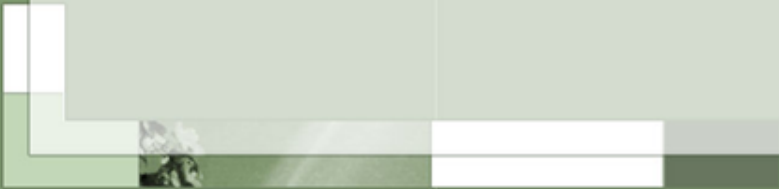


- Instability – continued

- Types of injuries sustained in falls


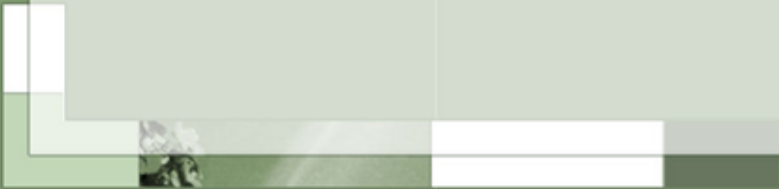
- Painful soft tissue injuries, fractures, subdural hematomas

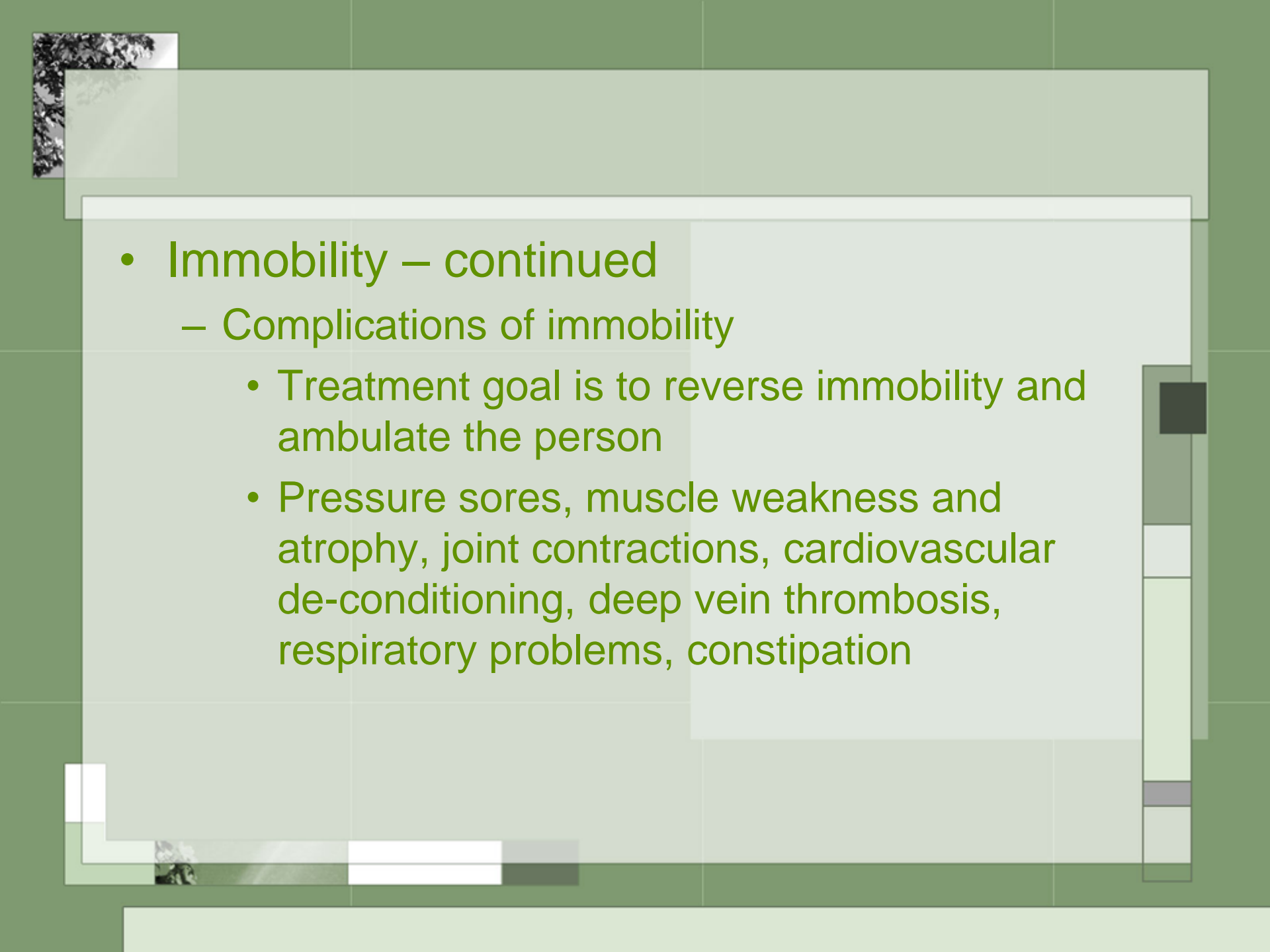
- Causes of falls in the elderly

- Accidents, fainting, drop attacks, dizziness, orthostatic hypotension, drug-induced, acute illness, cardiac arrhythmias, idiopathic
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- **Immobility**

- Weakness and stiffness may lead to decreasing activity, which is a cycle leading to more weakness and stiffness
 - Causes of immobility
 - Orthopedic causes, neurological disorders, cardiovascular disorders, pulmonary disease, deconditioning after prolonged best rest, malnutrition, severe illness, depression and drugs
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- Immobility – continued
 - Complications of immobility
 - Treatment goal is to reverse immobility and ambulate the person
 - Pressure sores, muscle weakness and atrophy, joint contractions, cardiovascular de-conditioning, deep vein thrombosis, respiratory problems, constipation



- Intellectual impairment

- Alzheimer's disease, multi-infarct dementia, and mental problems of Parkinson's lead to this



- Impairment of vision & hearing

- Decreases visual acuity

- More near-sightedness, macular degeneration, diabetic retinopathy and glaucoma


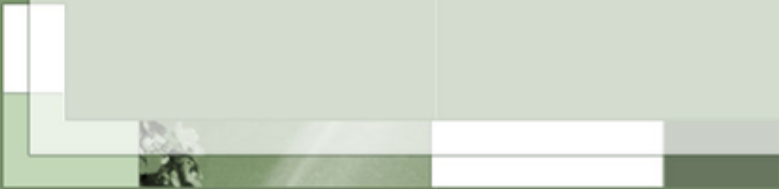
- Presbycusis

- Decreased ability to hear background noises (presbycusis)





- Incontinence



- 33% of women over 65 and 20% of men over 65 have some urinary incontinence
 - 15% wear protective pads
 - 60-80% in LTCF have incontinence
 - Types of urinary incontinence
 - SUI – Stress urinary incontinence
 - “I laughed so hard I peed my pants.”
 - Due to stretching and weakness of pelvic floor muscles
 - Treated with Kegal exercises
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– Urge incontinence

- Leakage of urine due to inability to delay voiding after bladder fullness sensation
- Seen in UTI and CNS disorders
- Treatment with bladder relaxants, anti-cholinergics, and sometimes estrogen

– Overflow incontinence


- Mechanical forces due to overextended bladder that does not void properly
 - Bladder fills up and overflows without sensation and then spills
 - Due to fluid overload from diuretics or CNS
 - Treat with surgery removal of obstruction
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– Functional incontinence


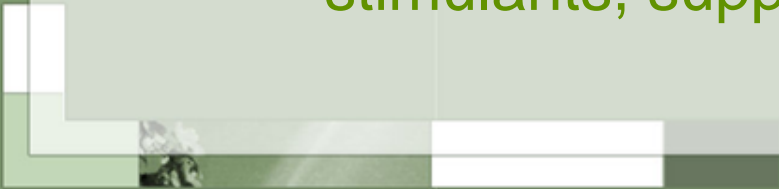
- Often due to impairment of cognitive function
- Can be the result of certain drugs
- Treat with environmental improvements and behavioral interventions



– Drugs that cause incontinence

- Diuretics
 - Anticholinergics
 - Narcotics
 - Psychotropic drugs
 - Alpha and beta blockers and adrenergics
 - Calcium channel blockers
 - Caffeine and alcohol
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– Fecal incontinence

- Rare, but still commonly occurs
 - Fecal impaction is the most common cause
 - May also be due to laxative overuse, stroke, neurological disorders, dementia, delirium, colorectal disorders, diabetic neuropathy, rectal sphincter damage
 - Treated with stool softeners, lubricants, bulk forming agents, osmotic cathartics, stimulants, suppositories, enema
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- Irritable bowel syndrome
 - Cramping, flatulence, diarrhea and constipation
 - Isolation, with possible depression
 - Isolation of the elderly is common in the western culture
 - Inanition
 - Malnutrition due to improper eating
 - Impecunity – lack of financial resources
 - Being financially strapped as a retired person living only on social security
 - Iatrogenesis
 - Elderly are vulnerable target for treating errors
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- Insomnia

- Elderly sleep less and do not get enough restorative sleep


- Immune deficiency

- Leads to increased infections and cancer rates

- Impotence


- Due to falling testosterone levels

- Improperly labeling of the elderly

- Disoriented older patients in a hospital or nursing home can be mislabeled as demented when they are mentally competent but are confused as to their environment
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Biological aging

- Throughout the body
 - Decreased height, weight, water content and increased fat to lean-body ration
 - Skin
 - Increased wrinkling, atrophy of sweat glands
 - Cardiovascular system
 - Tortuosity , thickening & fibrosis of arteries
 - Sclerosis of heart valve
 - Decreased cardiac output, heart rate, elasticity and compliance of arteries and veins
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- Kidneys

- Interstitial fibrosis, decreased renal blood flow, creatinine clearance, urine output

- Lungs

- Decreased lung elasticity and activity of mucociliary escalator of bronchial passages

- Gastrointestinal tract

- Slower intestinal motility, decreased taste buds and hydrochloric acid secretions

- Skeleton

- Osteoarthritis and osteoporosis
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- Eyes

- Decreased pupil widening, visual acuity, depth perception and color perception
- Arcus senilis, growth and thickening of lens, less accommodation, myopia, hyperopia

- Ears

- Ear ossicle hardening, atrophy of auditory meatus, decreased perception of high frequencies, decreased pitch discrimination

- Immune system

- Decreased T cell activity
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- Endocrine system

- Decreased T3 and testosterone

- Increased insulin, norepinephrine, vasopressin, parathormone

- Nervous system

- Decreased brain weight, cortical cell count, short-term memory, fluid intelligence activity, selective attention, sleep time per night, REM sleep


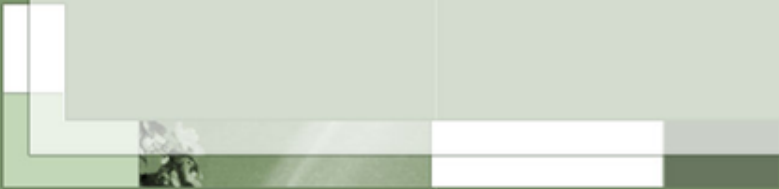
- Increased motor response time

- No change in long-term memory, sustained attention or implicit memory







Geriatrics demography

- Why are there increased elderly today?
 - Improvements in social living conditions
 - Advances in medical science and improved survival rates
 - The birth rate
 - Current lower birth rates combined with the baby boomers entering retirement
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- Cost of caring for the elderly

- Annual per capita cost of medical treatment over 65 is \$5947, 45-64 years is \$3226, 18-44 years is \$1666
 - The out-of-pocket medical expenses of the elderly is about 25% of their total cash income
 - 80% of those over 65 have one chronic condition that could lead to early death
 - Cost for caring for those over 65 is 5X what it costs to care for those under 65
 - Only 25% of the elderly considered their health as good
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- Causes of death in the elderly

- More people died in 1900 as a result of infections
 - More died in 2000 as a result of lifestyle and behavior changes
 - Smoking, alcohol abuse, high-fat diet, obesity, lack of exercise, street drugs, misuse of prescription drugs, high-risk sexual behavior
 - 60% of those over 65 die of heart, cancer, stroke
 - 80% of all death from heart disease of the entire population are over 65
 - The potential from death from strokes triple every decade after 60 years of age
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- Percentage of the elderly who are disabled

- 6.4 million disabled over 65 in 1982

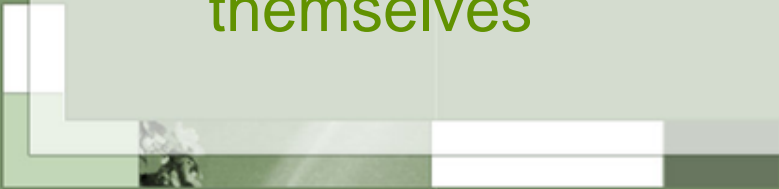

- 7.0 million disabled over 65 in 1999

- This figure was projected to rise to 9.3 million by this time, but did not

- Reasons for lowered statistics than expected

- Coronary artery stents and bypass, increased hip and knee replacements and increased usage of CAM

- 2004 survey of those over 85 found that 55-60% still lived independently and took care of themselves





- How is disability evaluated in the elderly?

- ADL



- Activities of daily living
- Ability to perform their own basic care
 - Eating, restroom, bathing, dressing, transferring, walking

- IADL

- Instrumental activities of daily living
 - Ability to live independently
 - Shop, manage finances, use phone, cooking, get around the community alone
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End of Life Issues

- Ethical dilemmas
 - There are numerous ethical dilemmas with the elderly and end of life situations
 - Withdrawing or withholding treatment
 - Treatment more disruptive than the disease
 - Ability to die with dignity
 - When to resuscitate?
 - After choking?
 - After cardiac or respiratory arrest?
 - What about tube feeding
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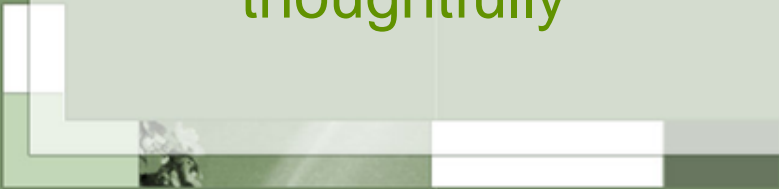


- Management dilemmas

- When should they be admitted?
 - Should they be allowed to stay at home?
 - If admitted, when are they discharged?
 - What about nursing homes or LTCHF?
 - When should they be sent home, knowing they will not get the same level of care?
 - What about lethal cancer treatment more dangerous than the disease?
 - What about risky surgeries?
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- Definitions around end of life

- Autonomy – inherent right to control your own destiny and exercise your own will
 - Beneficence – inherent obligation to do good
 - Non-maleficence – obligation that we have at all times to avoid harming others
 - “first do no harm”
 - Justice – duty to treat everyone fairly
 - Fidelity – duty to keep our promises
 - Competence – ability to act reasonably and thoughtfully
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- Issues concerning autonomy

- Is the patient capable of understanding the issues involved?
 - Has the patient received all the information?
 - Have they received other options?
 - What if the family wants something different than the patient?
 - How much right does the competent elderly have to choose their treatment choices?
 - How do you deal with a demented patient?
 - Can you assume they are capable of understanding what they are being told?
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- Advanced directives

- They address how someone would wish to be cared for in a hypothetical situation

- Two forms

- Living will

- A detailed list of “dos” and “do not’s”

- DNR


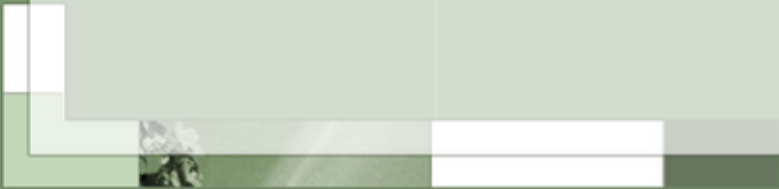
- Durable power of attorney

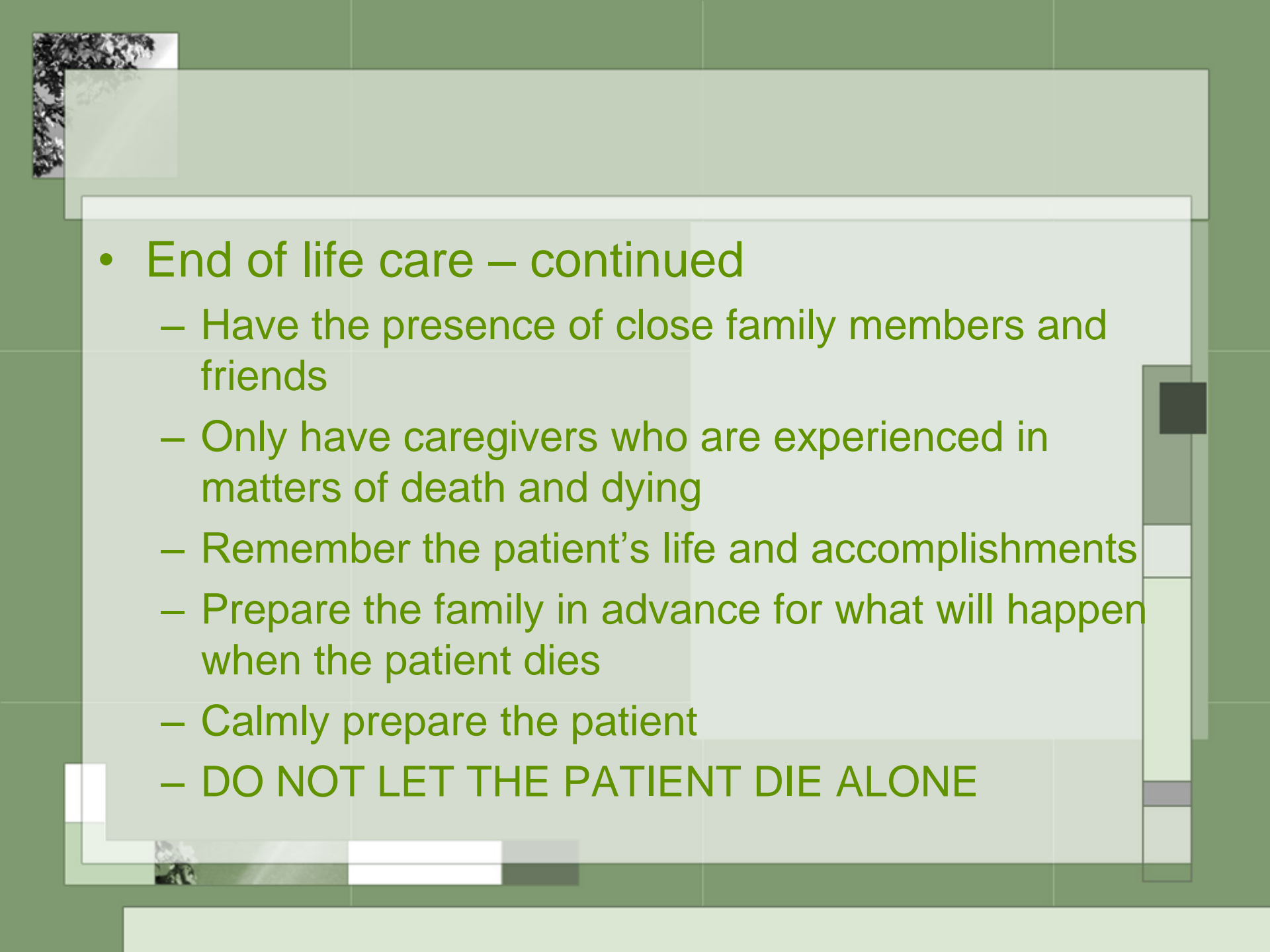
- A person has been chosen to act as a proxy in the event the patient cannot communicate







- End of life care

- Always name one person who will be the decision maker
 - Keep patient groomed and clean
 - Listen to patient and family
 - Control the patient's pain and shortness of breath
 - Preserve the patient's dignity
 - Touch and talk to the patient often
 - Have the patient's financial affairs in order
 - Try to maintain a good sense of humor
 - Let the patient say goodbye to everyone
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- End of life care – continued
 - Have the presence of close family members and friends
 - Only have caregivers who are experienced in matters of death and dying
 - Remember the patient's life and accomplishments
 - Prepare the family in advance for what will happen when the patient dies
 - Calmly prepare the patient
 - DO NOT LET THE PATIENT DIE ALONE


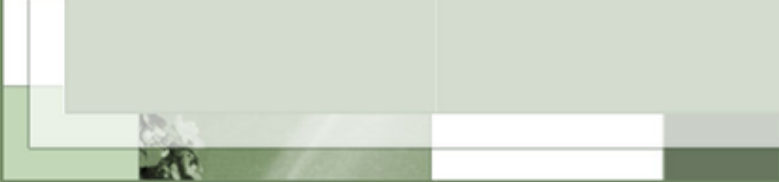


Disorientation in the elderly

- Disorientation – the patient is confused, perplexed, bewildered and unable to fit into the environment
 - Usually resolves when the person is returned to a familiar environment
 - Confusion is a common problem
 - It is easy to mislabel an elderly patient as delirious or demented, when they are only confused
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Delirium in the elderly



- A disturbance of consciousness, person is less alert and less well-oriented
 - In dementia, the patient is alert
 - Precipitating factors for delirium
 - Old age (common over 80), more in males,
 - Infections, malnutrition, use of restraints, bladder catheters
 - Taking > 3 medications, use of neuroleptic drugs (induces mental changes) or narcotics
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- Common causes of delirium


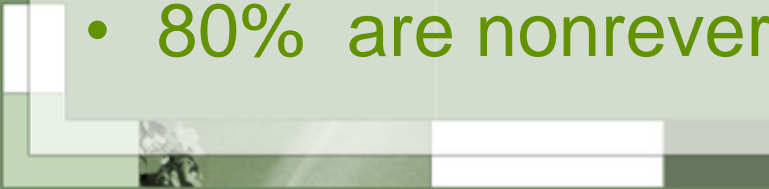
- Metabolic disorders, infections, decreased cardiac output, strokes, drugs, intoxications, hypothermia or hyperthermia, acute psychosis, fecal impaction or urinary retention

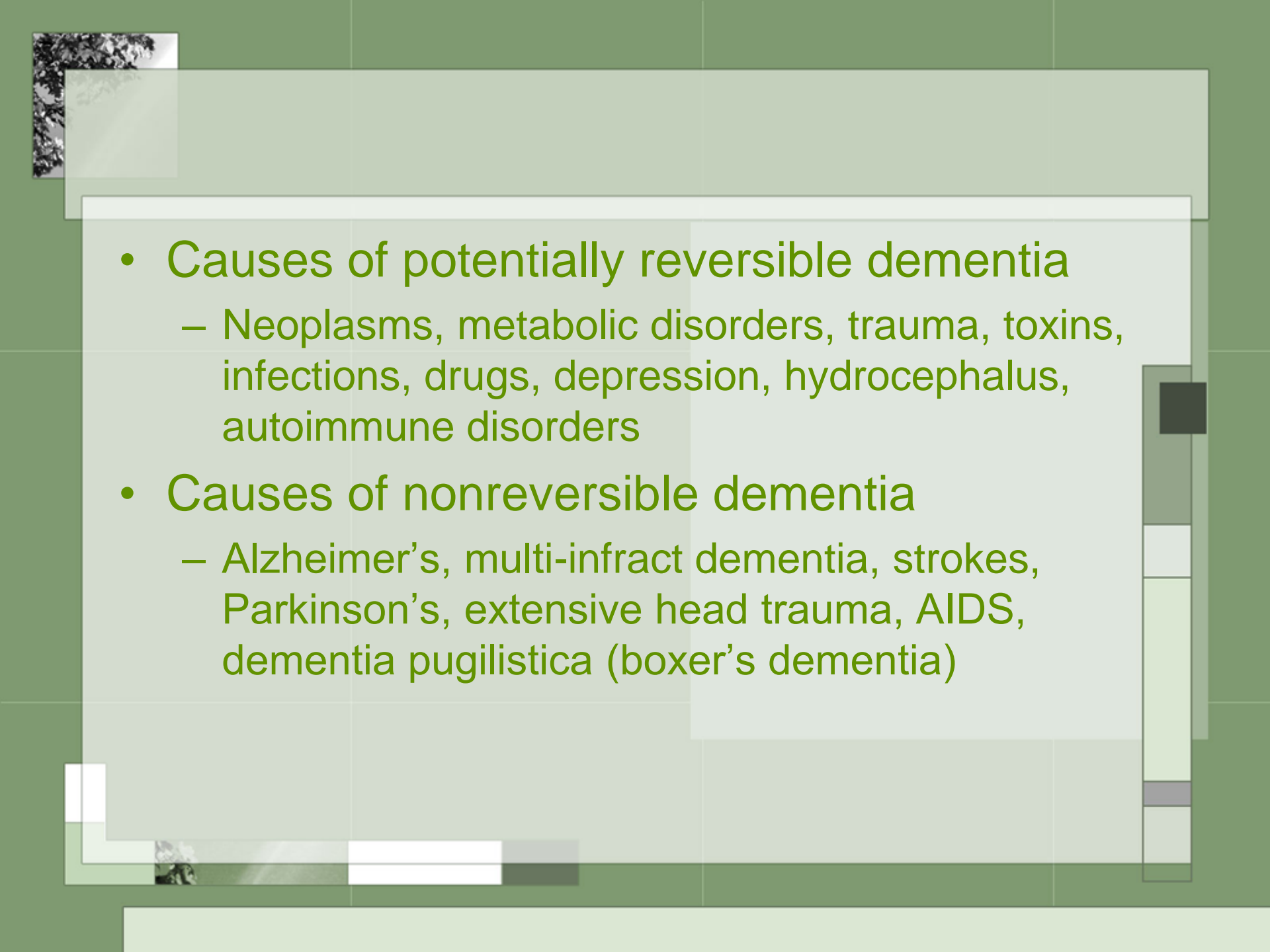
- Western treatment of delirium

- Make correct diagnosis always being alert of the big three – low or high glucose, low oxygen, low sodium
 - Ask “ Is this patient a diabetic or a respiratory disease patient?”
 - Ask “Is this patient on any drugs that could cause this?”
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Dementia

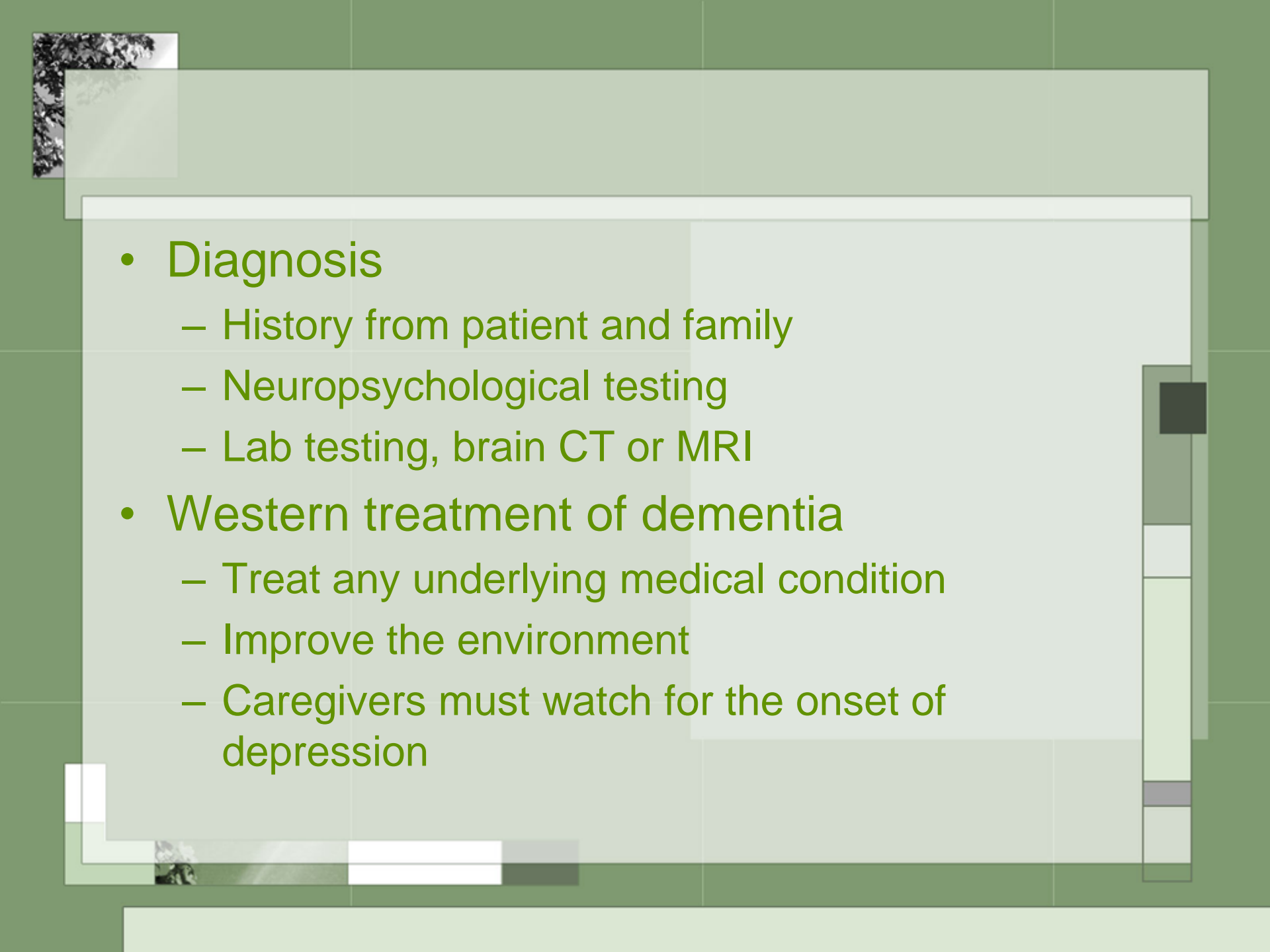
- Sustained loss of intellectual function and memory sufficient to cause a change of daily living
 - Over 47% over 85 have some form of dementia
 - Over 80% in nursing homes have some form of dementia
 - 20% are potentially reversible
 - 80% are nonreversible
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- Causes of potentially reversible dementia
 - Neoplasms, metabolic disorders, trauma, toxins, infections, drugs, depression, hydrocephalus, autoimmune disorders
 - Causes of nonreversible dementia
 - Alzheimer's, multi-infract dementia, strokes, Parkinson's, extensive head trauma, AIDS, dementia pugilistica (boxer's dementia)




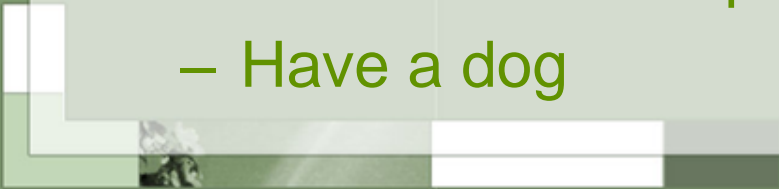
- S & S of dementia

- Difficulty learning and retaining new information
 - Difficulty handling complex tasks
 - Loss of reasoning ability
 - Cannot solve problems
 - Loss of spatial orientations
 - Trouble driving, gets lost easily
 - Loss of language skills
 - Change of behavior
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- **Diagnosis**
 - History from patient and family
 - Neuropsychological testing
 - Lab testing, brain CT or MRI
 - **Western treatment of dementia**
 - Treat any underlying medical condition
 - Improve the environment
 - Caregivers must watch for the onset of depression



Ten Factors Associated with Longevity

- Exercise
 - Nonsmoker
 - No alcohol abuse
 - In a long term stable environment
 - Have at least one good friend a week
 - Good oral hygiene
 - Manage stress well
 - Both parents lived to over 70
 - Controlled blood pressure
 - Have a dog
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Geriatrics Red Flags

- Acute red flags
 - Delirium and history of recent falls or instability
 - Sub-acute red flags
 - Pressure sores, postural hypertension, joint contraction, sensory impairment, neurological symptoms, infections, anemia, depression, dementia, urinary incontinence, atelectasis, thrombophlebitis, hypostatic pneumonia
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