

# Geriatrics -An overview

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**Ageing – the most inevitable stage of human life**











## Geriatrics-Definition:

- The care of **aged people**
- **Sub-specialty** of internal medicine
- Prevention and treatment of **age related disabilities**
- Performed by **Geriatricians**



## Geriatric age

- Age group is not defined precisely
- WHO defines old age as  $\geq 60$  years ( developing countries) or  $\geq 65$  years (developed countries)



**I will never be an old man.  
To me, old age is always 15 years older than I am**



Greek '*geron*' meaning "old man"

'*iatros*' meaning "healer"


Byzantine medicine(324-1453 AD)

*The Canon of Medicine* by Avicenna in 1025

Algizar wrote "Kitab Tibb al-Machayikh"

First publication on geriatrics, George Day, 1849

Modern geriatric hospital **Belgrade, Serbia 1881**

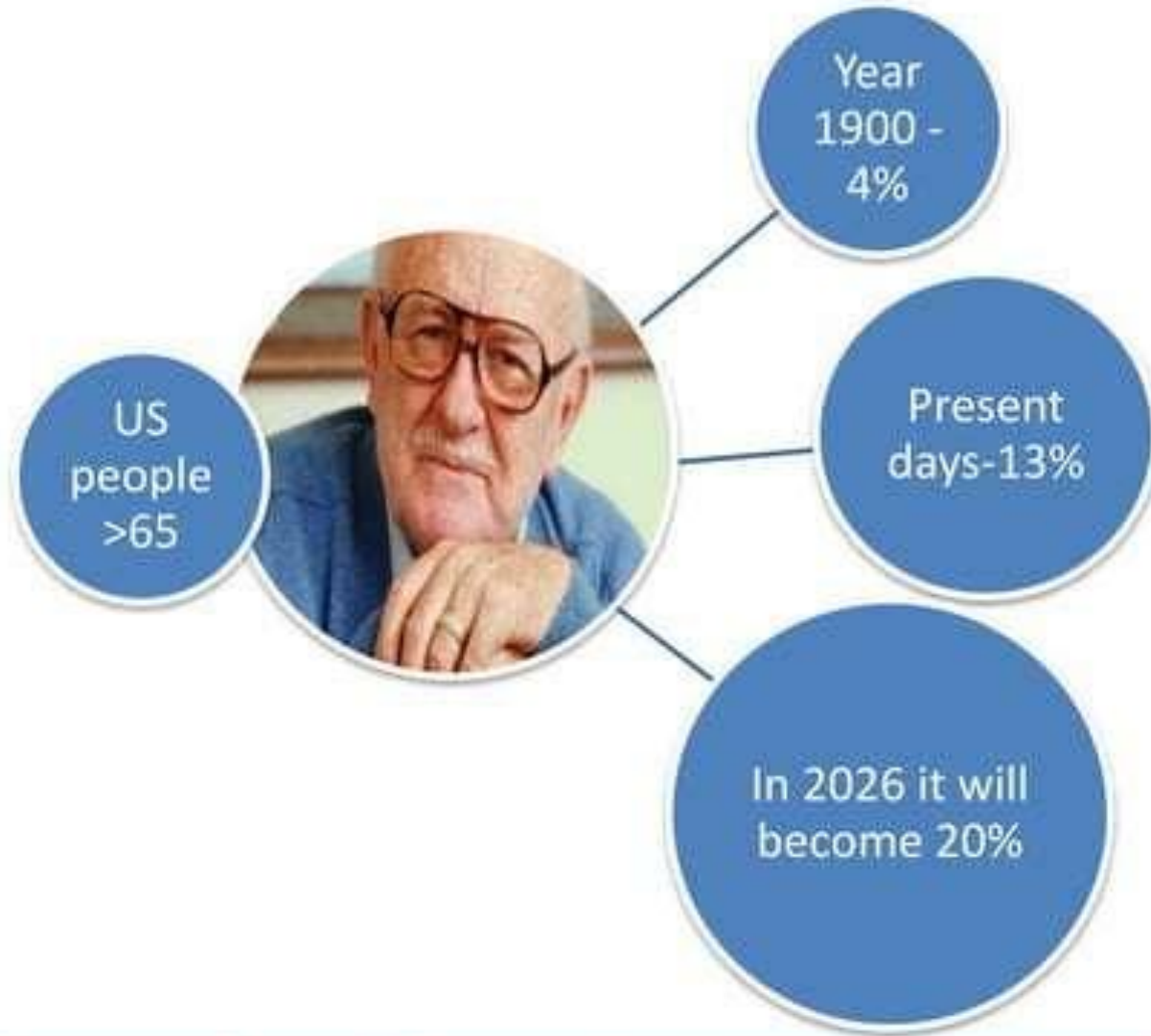


1909 **Dr. Ignatz** proposed the term  
**“Geriatrics”**

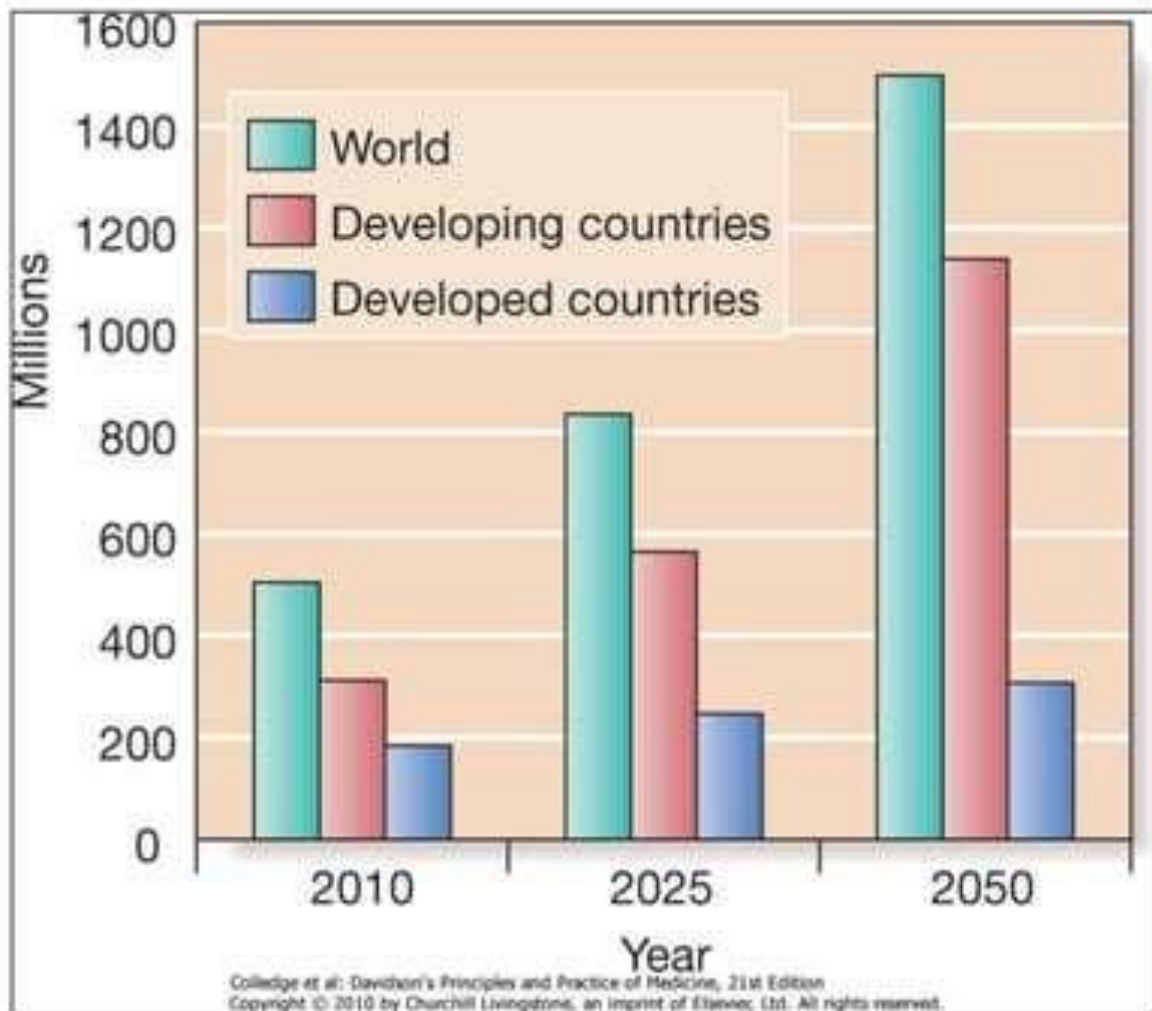


In UK **Dr. Marjorie** “Mother of geriatric”

# Demography

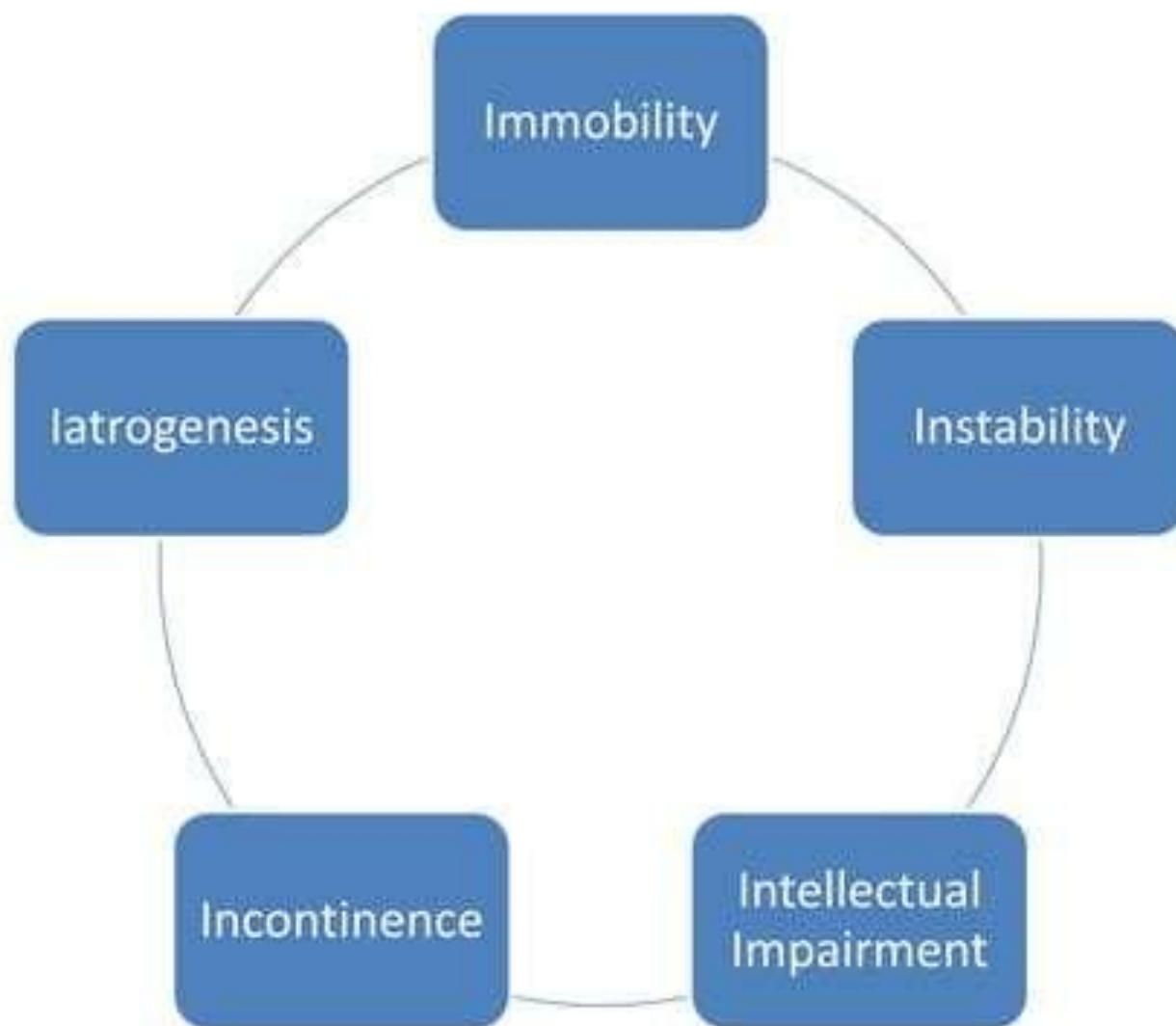


The rate of population ageing is much faster in developing country





# GIANTS OF GERIATRICS (Isaacs 1970)



# **Presenting problems in geriatric medicine**

# Characteristics of presenting problems in old age

## 1. Late presentation

Many people (of all ages) accept ill health as a consequence of ageing and may tolerate symptoms for lengthy periods before seeking medical advice.

## 2. Atypical presentation

- Infection may present with delirium and without clinical pointers to the organ system affected.
- Stroke may present with falls rather than symptoms of focal weakness.
- Myocardial infarction may present as weakness and fatigue, without the chest pain or dyspnoea.
- Cognitive impairment may limit the patient's ability to give a history of classical symptoms



### 3. Acute illness and changes in function

Atypical presentations in frail elderly patients include:

- 'failure to cope
- 'found on floor
- confusion' and
- off feet.

## 4. Multiple pathology

- Presentations in older patients have a more diverse differential diagnosis because multiple pathology is so common. There are frequently a number of causes for any single problem, and adverse effects from medication often contribute

# Approach to presenting problems in old age

**The approach to most presenting problems in old age can be summarised as follows:**

- *Obtain a collateral history.* Find out the patient's usual status (e.g. mobility, cognitive state) from a relative or carer.
- *Check all medication.* Have there been any recent changes?
- *Search for and treat any acute illness.*
- *Identify and reverse predisposing risk factors.* These depend on the presenting problem.

## History

- **Slow down** the pace.
- **Ensure the patient can hear.**
- Establish the **speed of onset** of the illness.

If the presentation is vague, carry out a **systematic enquiry**.

- Obtain full details of:
  - all drugs**, especially any recent prescription changes
  - past medical history**, even from many years previously
- **usual function**
  - Can the patient walk normally?
  - Has the patient noticed memory problems?
  - Can the patient perform all household tasks?
- **Obtain a collateral history:** confirm information with a relative or carer and the general practitioner, particularly if the patient is confused or communication is limited by deafness or speech disturbance.



# Examinations

- **Thorough** to identify all comorbidities.
- **Tailored to the patient's stamina** and ability to cooperate.
- Include **functional status**:
  - cognitive function
  - gait and balance
  - nutrition
  - hearing and vision

# Social assessment (Functional )

## Home circumstances

- Living alone, with another or in a care home.

## Activities of daily living (ADL)

- Activity of daily living:

**domestic ADL(DADL):** shopping, cooking, housework

**personal ADL(PADL):** bathing, dressing, walking.

- **Informal help:** relatives, friends, neighbours.
- **Formal social services:** home help, meals on wheels.



## 7.4 Screening investigations for acute illness

- Full blood count
- Urea and electrolytes, liver function tests, calcium and glucose
- Chest X-ray
- Electrocardiogram
- C-reactive protein: useful marker for occult infection or inflammatory disease
- Blood cultures if pyrexial

*Frailty*-Loss of an individual's ability to withstand minor stresses

Frailty scale:

- Unintentional weight loss
- Muscle weakness
- Exhaustion
- Low physical activity
- Slowed walking speed

*A healthy person scores 0; a very frail person scores 5*



# Falls

- Around 30% of those over 65 years of age fall each year, this figure rising to more than 40% in those aged over 80. Although only 10–15% of falls result in serious injury, they are the cause of more than 90% of hip fractures in this age group, compounded by the rising prevalence of osteoporosis



## 7.5 Risk factors for falls

- Muscle weakness
- History of falls
- Gait or balance abnormality
- Use of a walking aid
- Visual impairment
- Arthritis
- Impaired activities of daily living
- Depression
- Cognitive impairment
- Age over 80 years
- Psychotropic medication



## 7.6 Abnormal gaits and probable causes

Gait abnormality	Probable cause
Antalgic	Arthropathy
Waddling	Proximal myopathy
Stamping	Sensory neuropathy
Foot drop	Peripheral neuropathy or radiculopathy
Ataxic	Sensory neuropathy or cerebellar disease
Shuffling/festination	Parkinson's disease
Marche à petits pas	Small-vessel cerebrovascular disease
Hemiplegic	Cerebral hemisphere lesion
Apraxic	Bilateral hemisphere lesions

# Dizziness

- Dizziness is very common, affecting at least 30% of those aged over 65 years in community surveys. Dizziness can be disabling in its own right and is also a risk factor for falls. Acute dizziness is relatively straightforward and common causes include
  - hypotension due to arrhythmia, myocardial infarction, gastrointestinal bleed or pulmonary embolism
  - onset of posterior fossa stroke
  - vestibular neuronitis.



# Delirium

- Delirium is a syndrome of transient, reversible cognitive dysfunction. It is very common, affecting up to 30% of older hospital inpatients, either at admission or during their hospital stay.



## 7.8 Risk factors for delirium

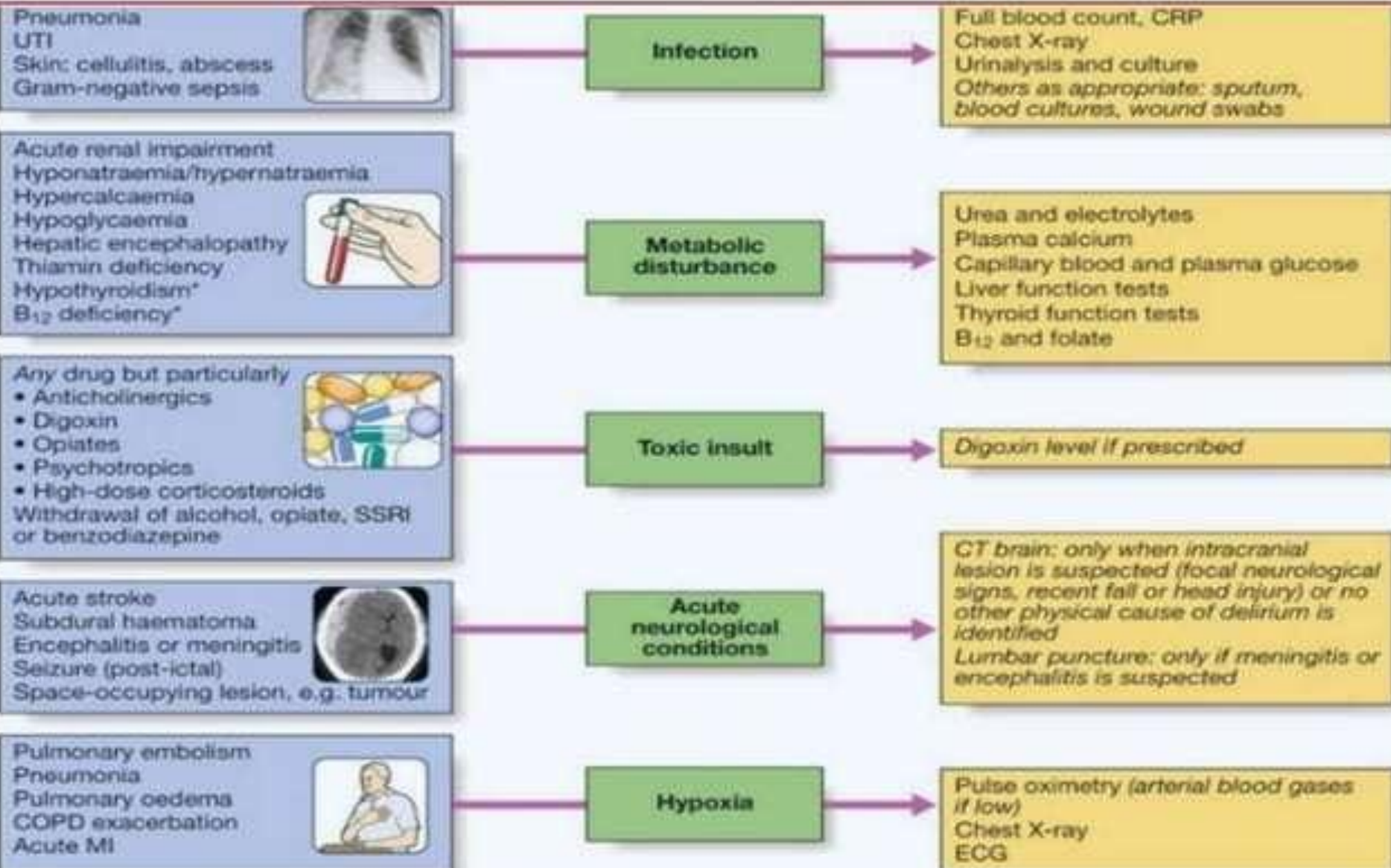
### Predisposing factors

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Old age</li><li>• Dementia</li><li>• Frailty</li></ul> | <ul style="list-style-type: none"><li>• Sensory impairment</li><li>• Polypharmacy</li><li>• Renal impairment</li></ul> |
|--|--|

### Precipitating factors

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Intercurrent illness</li><li>• Surgery</li><li>• Change of environment or ward</li><li>• Sensory deprivation (e.g. darkness) or overload (e.g. noise)</li><li>• Medications (e.g. opioids, psychotropics)</li></ul> | <ul style="list-style-type: none"><li>• Dehydration</li><li>• Pain</li><li>• Constipation</li><li>• Urinary catheterisation</li><li>• Acute urinary retention</li><li>• Hypoxia</li><li>• Fever</li><li>• Alcohol withdrawal</li></ul> |
|---|--|

# Common cause and investigations



# Urinary incontinence

- It occurs in all age groups but becomes more prevalent in old age, affecting about 15% of women and 10% of men aged over 65



## Urinary incontinence

### Address contributory factors:

- UTI
- Severe constipation
- Drugs, e.g. diuretics
- Hyperglycaemia
- Hypercalcaemia
- Restricted mobility
- Acute confusion

### If still incontinent:

- Establish the pattern of urinary loss (diary is helpful)
- Measure residual urine volume (by ultrasound)
- Assess for vaginal prolapse and atrophic vaginitis (women)
- Assess prostate by rectal examination (men)

### Urge

Bladder retraining  
Antimuscarinic drugs, e.g. solifenacin, tolterodine

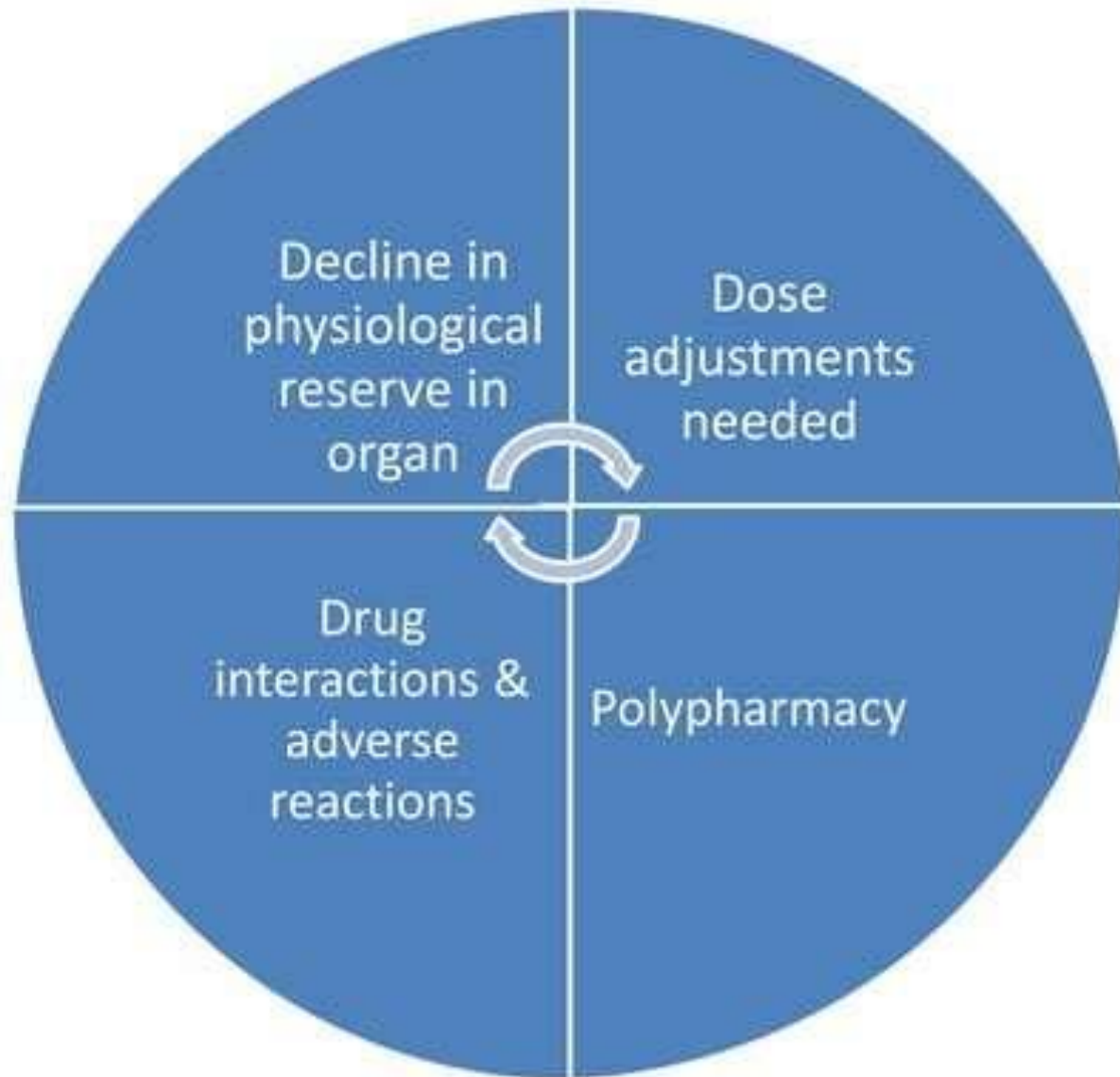
### Stress

Pelvic floor muscle training  
Surgical intervention if unsuccessful

### Overflow

(i.e. residual volume > 100 mL)  
Surgical relief of obstruction (e.g. prostatectomy)  
Intermittent catheterisation if no obstruction

# Drugs related Problems in geriatrics



# Adverse drug reactions



## 7.10 Common adverse drug reactions in old age

Drug class	Adverse reaction
<b>NSAIDs</b>	Gastrointestinal bleeding and peptic ulceration Renal impairment
<b>Diuretics</b>	Renal impairment, electrolyte disturbance Gout Hypotension, postural hypotension
<b>Warfarin</b>	Bleeding
<b>ACE inhibitors</b>	Renal impairment, electrolyte disturbance Hypotension, postural hypotension
<b><math>\beta</math>-blockers</b>	Bradycardia, heart block Hypotension, postural hypotension
<b>Opiates</b>	Constipation, vomiting Delirium Urinary retention
<b>Antidepressants</b>	Delirium Hyponatraemia (SSRIs) Hypotension, postural hypotension Falls
<b>Benzodiazepines</b>	Delirium Falls
<b>Anticholinergics</b>	Delirium Urinary retention Constipation

(ACE = angiotensin-converting enzyme; NSAID = non-steroidal anti-inflammatory drug; SSRI = selective serotonin re-uptake inhibitor)



## 7.11 Factors leading to polypharmacy in old age

- Multiple pathology
- Poor patient education (see Box 2.20 [\[2\]](#), p. 35 [\[2\]](#))
- Lack of routine review of all medications
- Patient expectations of prescribing
- Over-use of drug interventions by doctors
- Attendance at multiple specialist clinics
- Poor communication between specialists



# Comprehensive Geriatric Assessment



## CGA is defined as :

- Multidisciplinary diagnostic and treatment process
- Medical, psychological and functional limitations
- Coordinated plan to maximize health

*It differs from a standard medical evaluation by:*

- Focus on elderly individual
- Emphasize on functional status & quality of life
- Multidisciplinary approach

## Patient selection criteria for CGA:

- High risk elderly patient-frail or chronically ill
- Medical co-morbidities, heart failure or cancer
- Specific geriatric condition such as
  - dementia,
  - falls
  - functional disabilities
- Psychosocial disorders such as
  - depression or
  - isolation

*Major component of CGA*

Functional capacity

Fall risk

Cognition

Mood

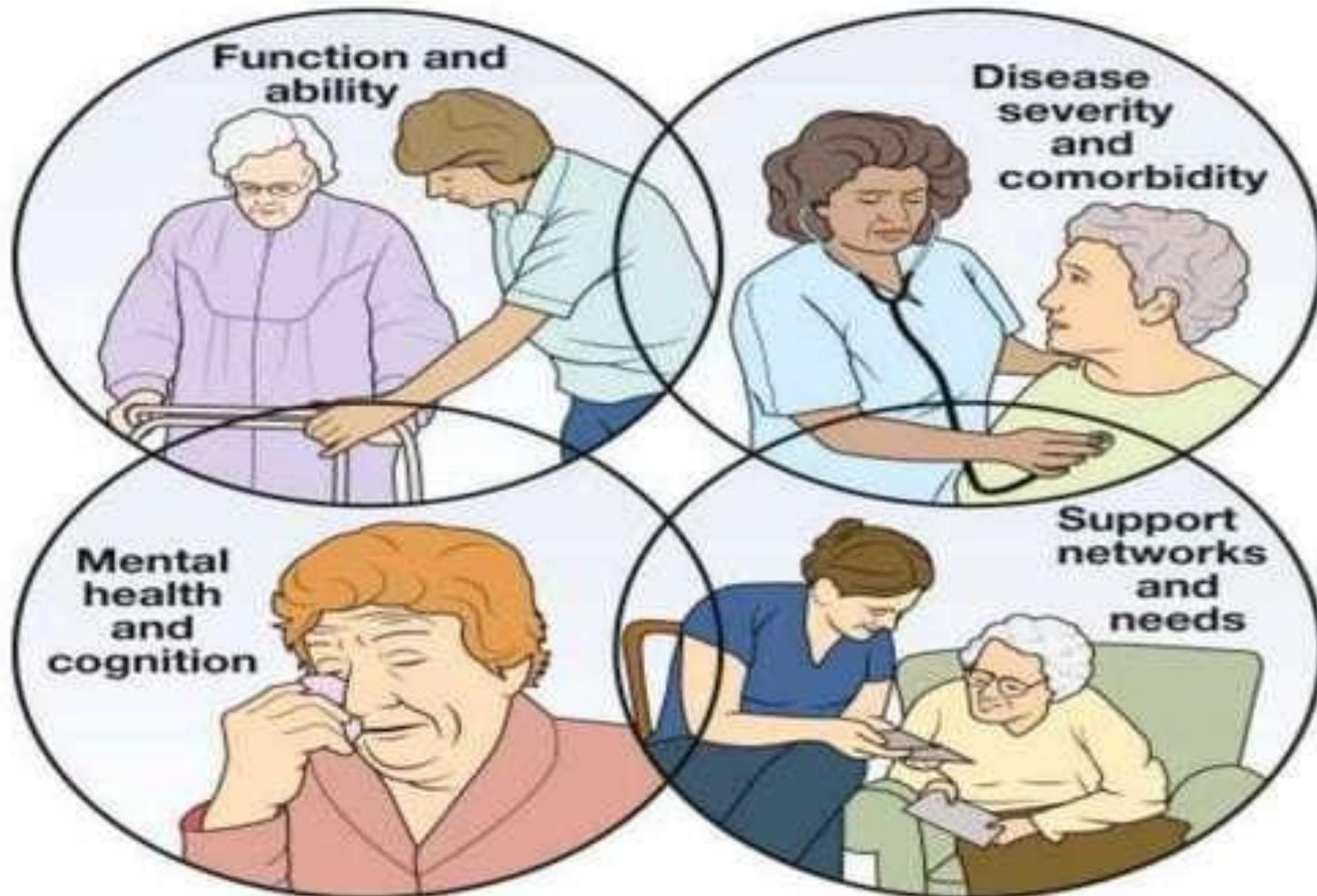
Polypharmacy

Social support

Financial concerns



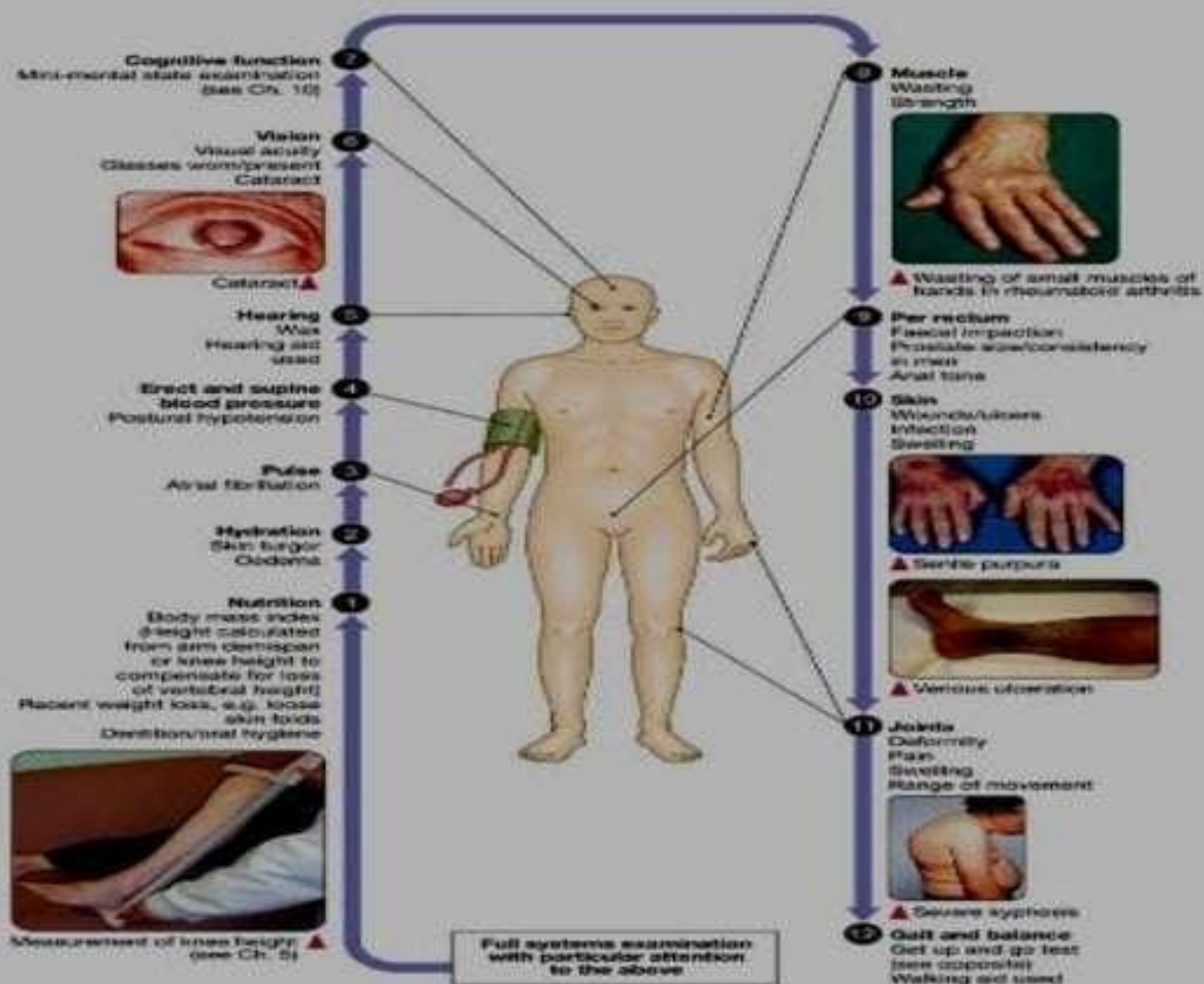
# DOMAINS OF Comprehensive Geriatric Assessment



## Additional components :

- Nutrition/weight change
- Urinary continence
- Sexual function
- Vision/hearing
- Dentition
- Living situation
- Spirituality

# Comprehensive geriatric assessment



Insets (Wasted hand, kyphosis) From Alzal Mir 2003; (Senile purpura) Forbes and Jackson 200...

# *Subspecialties*

## **Medicine**

- Cardiogeriatrics
- geriatric psychiatry
- geriatric rehabilitation
- geriatric rheumatology, etc.

## **Surgical**

- Orthogeriatric
- Geriatric Cardiothoracic Surgery
- Geriatric urology, etc.

## **Other**

- Geriatric intensive-care unit
- Geriatric nursing
- Geriatric nutrition, etc.



# Rehabilitation

Rehabilitation aims to improve the ability of people of all ages to perform day-to-day activities, and to restore their physical, mental and social capabilities as far as possible.

## The rehabilitation process

- *Assessment.*
- *Goal-setting.*
- *Intervention.*
- *Re-assessment.*

# I 7.13 International classification of functioning and disability

## 7.13 International classification of functioning and disability

Factor	Intervention required
Health condition	
Underlying disease, e.g. stroke, osteoarthritis	Medical or surgical treatment
Impairment	
Symptoms or signs of the condition, e.g. hemiparesis, visual loss	Medical or surgical treatment
Activity limitation	
Resultant loss of function, e.g. walking, dressing	Rehabilitation, assistance, aids
Participation restriction	
Resultant loss of social function, e.g. cooking, shopping	Adapted accommodation Social services

# Multidisciplinary team working



## Multidisciplinary team (MDT) roles

Team member	Activity assessed and promoted
<b>Physiotherapist</b>	Mobility, balance and upper limb function
<b>Occupational therapist</b>	ADL, e.g. dressing, cooking Home environment and care needs
<b>Dietitian</b>	Nutrition
<b>Speech and language therapist</b>	Communication and swallowing
<b>Social worker</b>	Care needs and discharge planning, including organisation of institutional care
<b>Nurse</b>	Motivation and initiation of activities; promotion of self-care Education Feeding, continence, skin care Communication with relatives and other professionals Assessment of care needs for discharge
<b>Doctor</b>	Diagnosis and management of medical problems Coordinator of assessment, management and rehabilitation programme



# Research

- The Hospital Elder Life Program(HELP)
  - Designed to prevent delirium and functional decline in the hospitalized patient setting
  - 40% incidence of delirium can be prevented
  - Replicated in over 63 hospitals across the world


# Acute Geriatrics-based Ward (AGW)

Geriatric-based versus general wards for older acute medical patients: a randomized comparison of outcomes and use of resources

- AGW shortened the length of hospital stay and
- May have cut down need for long-term institutional living



SYLHET- **No** specialized geriatric health care service



The JRRMCH may be the suitable site to introduce this field in SYLHET





ঐশ্বর্যদেবীর আনন্দ মনোরমোৎসব ও তালিকা প্রকাশনা (১৫/১২/২০)

**বার্ষিক সমাবেশ-২০১০ ইং**

আয়োজক: মনুসোপুত্র ঐশ্বর্যদেবীর সঙ্গীত সমুহের সদস্য/সদস্যগণ





## Biology and genetics of ageing

Ageing can be defined as a progressive accumulation through life of random molecular defects that build up within tissues and cells.

Scientists are trying to use CRISPR  
to create a synthetic cell



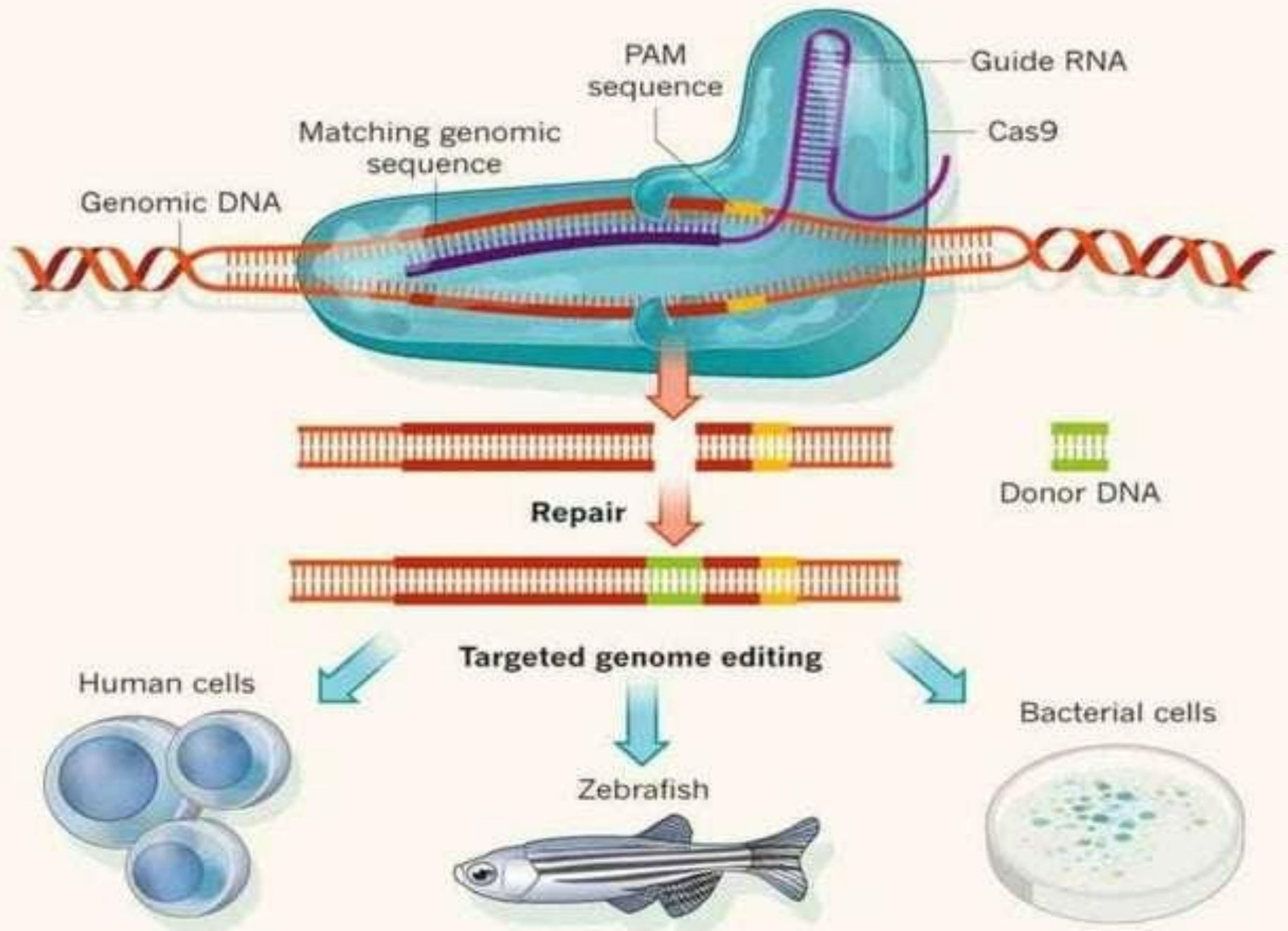


# Synthetic life

- CRISPR, an acronym for the unwieldy phrase “Clustered Regularly Interspaced Short Palindromic Repeats,”

The latest tool in genome editing – CRISPR/Cas9 – allows for specific genome disruption and replacement in a flexible and simple system resulting in high specificity and low cell toxicity.





# Can we end aging?

- Y/N
- **Biomedical gerontologists** are searching for ways to end aging. By understanding how we age, these researchers believe we can learn how to slow or stop the process

# Want to Live Forever? 6 Technologies That Could Stop Aging

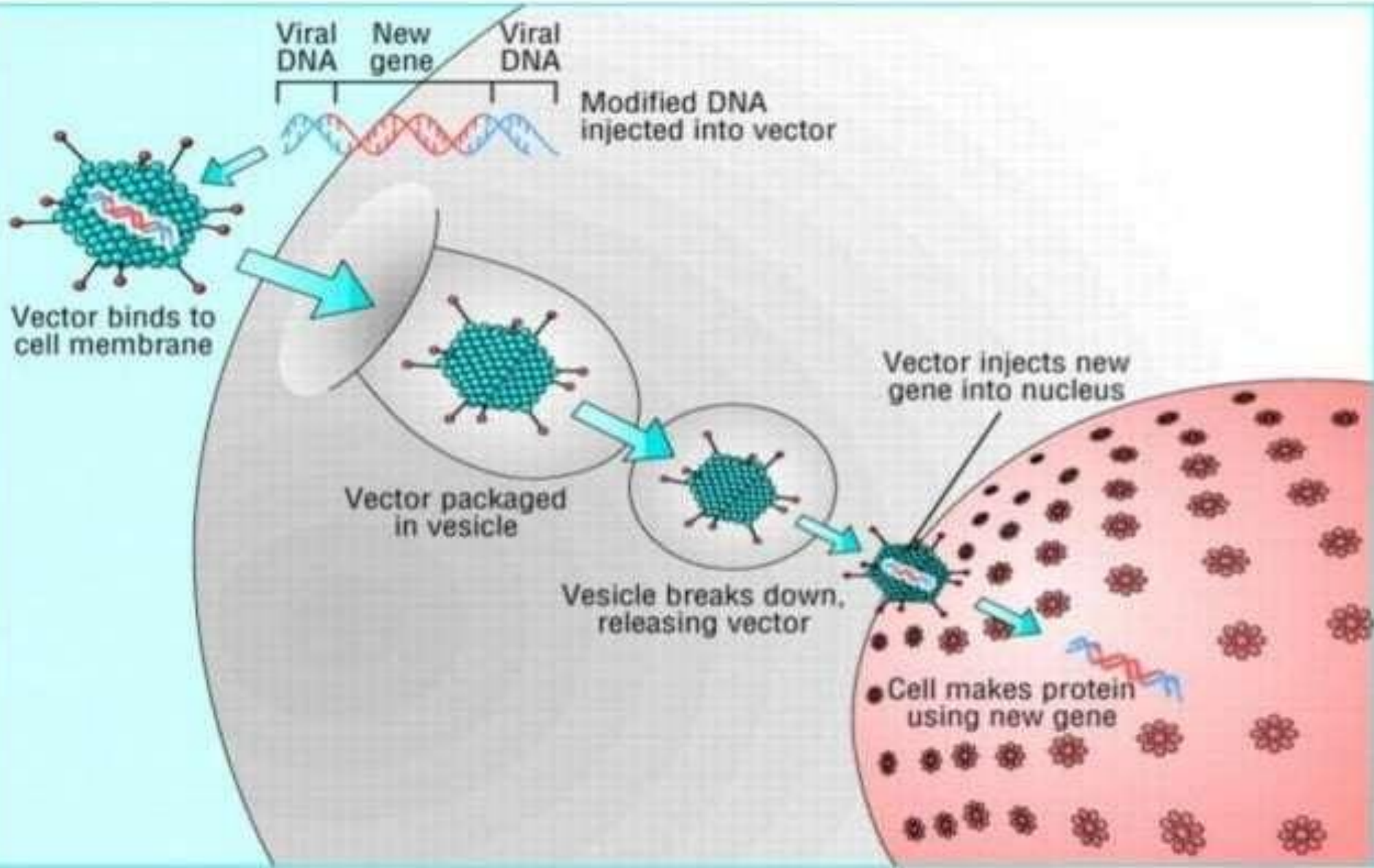
## 1. Young Blood Proteins



The blood of the young could stop — or even reverse — the aging process in those who are old.

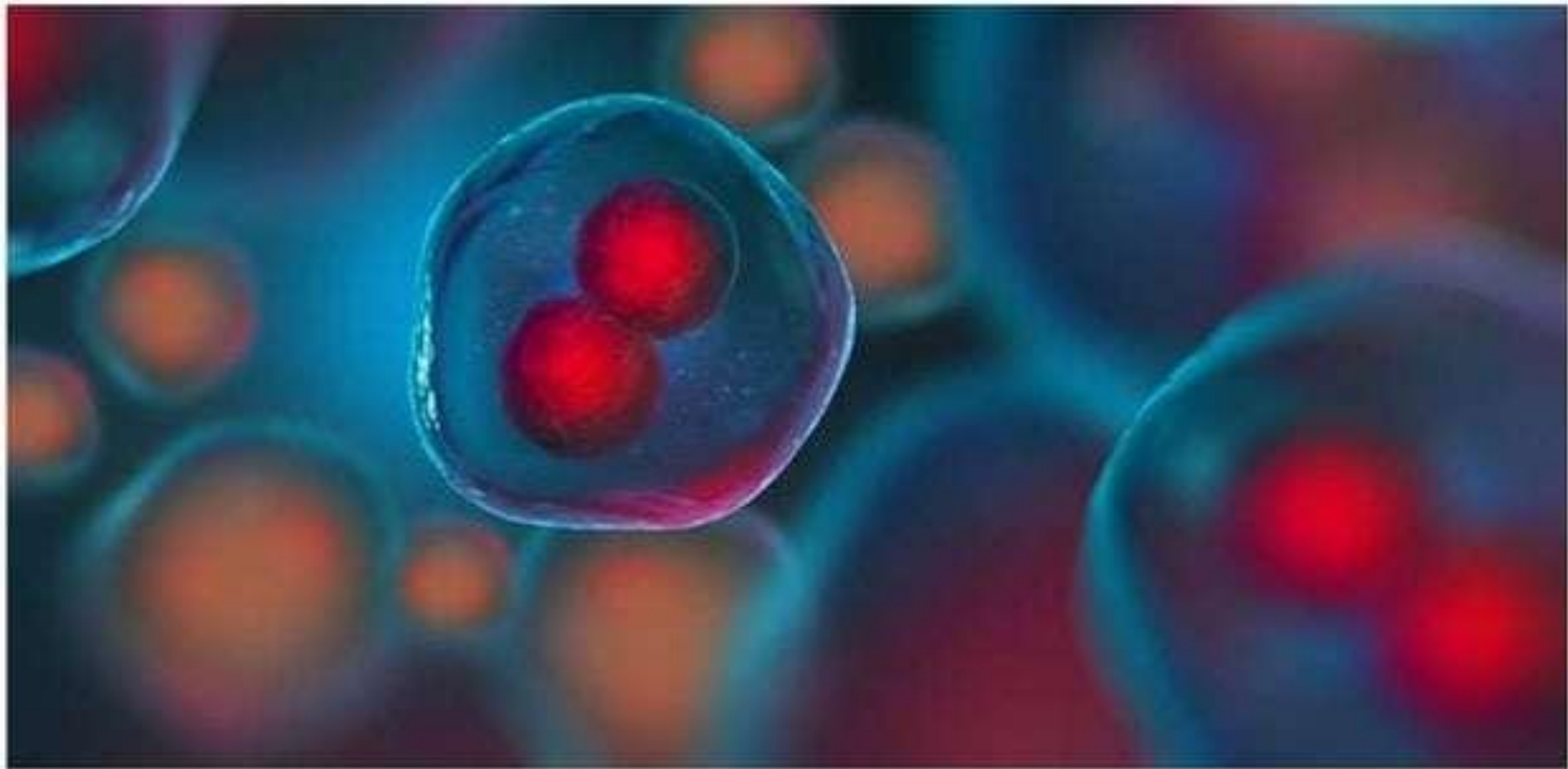


# 2. Gene Therapy





### 3. Telomere Repair



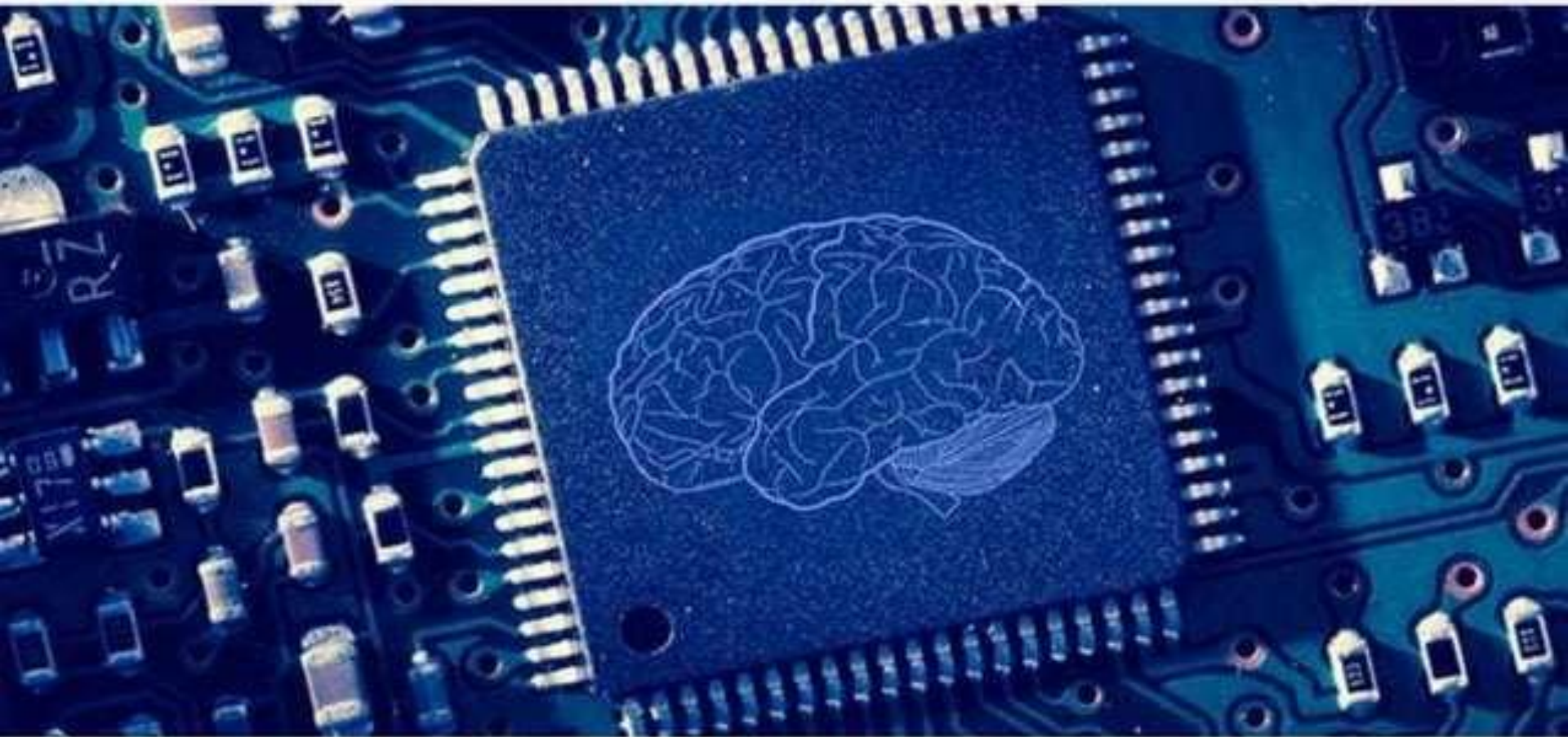
One major element of cellular aging is something called **telomere shortening**.

## 4. Anti-Aging Drug



One particular compound called **sirolimus**, sometimes called **rapamycin**, was originally used as an immunosuppressor (for things like organ transplants) but was later found to extend lifespans in yeasts, worms, and mice

## 5. Mind Transfer



**Mind transfer** is the notion of uploading your consciousness and memories from your brain to a computer.



## 6.3D-Printed Organs



Prosthetic limbs and lab-grown meat may be interesting, but 3D-printed live organs are something else altogether.



(Are) we (Are) able to slow or even stop the body's clock—at least for a little while ?





This frail elderly person needs your hands along with the stick

Please stand by him.....

**Thankyou all**

