Acromegaly
Summary

Acromegaly is a condition caused by an excess of growth hormone, which causes the overgrowth of bones in the face, hands and feet. A tumour on the pituitary gland is the most common cause of acromegaly.

Acromegaly is caused by an excess of growth hormone. The most obvious signs of acromegaly arise from the overgrowth of bones in the face, hands and feet causing facial disfigurement, large hands and feet. However, the changes occur so slowly that they go unnoticed for a long time.

Acromegaly develops after the person has reached adulthood. In children, the same condition causes extreme tall stature (gigantism). People aged between 30 and 50 years are most commonly affected. About 1,000 people in Australia are estimated to have acromegaly.

A non-cancerous (benign) tumour on the pituitary gland is the most common cause. The pituitary gland, located in the brain, produces a number of hormones including growth hormone. Growth hormone promotes growth in childhood and in an adult, it controls metabolism, muscle and bone mass.

Excessive amounts of growth hormone stimulate the growth of all body tissues. This effect is mediated by a growth factor called IGF-I, which is produced in the liver.

Symptoms of acromegaly

The symptoms and signs of acromegaly can include:

- swelling of soft tissue in the hands and feet (onset signs)
- enlarged bones in the skull, face, jaw, hands and feet
- joint pains
- pins and needles in the hands
- headaches
- gaps forming between the teeth, which may cause a ‘bad bite’
- barrel chest
- enlarged heart (cardiomegaly)
- thick and oily skin and strong body odour
- growth of skin ‘tags’
- overgrowth of hair
- husky voice
- enlarged tongue and lips
- snoring or drooling while asleep
- heavy sweating (hyperhidrosis)
- vision changes, such as loss of peripheral (side) vision.

Complications of acromegaly

Without medical treatment, acromegaly can cause a range of complications including:

- that the person regularly stops breathing or chokes while asleep (sleep apnoea)
- arthritis
- carpal tunnel syndrome
- diabetes
- high blood pressure (hypertension)
- heart disease
- premature death.

Causes of acromegaly

A pituitary tumour (adenoma) is the commonest cause of acromegaly. The adenoma secretes excessive amounts of growth hormone, which affects many tissues of the body, including the bones and skin. The hormone imbalance usually causes disturbances in other hormonal systems. For example, too much growth hormone can cause diabetes, which occurs in up to one quarter of people with the condition. Affected women can have menstrual cycle irregularities.

The adenoma slowly enlarges and may press against the surrounding tissue, causing headaches. If the nerves to the eyes are compressed, this can cause vision...
Certain tumours in other organs, such as the lungs or pancreas, can very rarely cause acromegaly. These tumours either make growth hormone or make a chemical called growth hormone-releasing hormone (GHRH) that prompts the pituitary gland to make growth hormone.

Progress of the condition depends on tumour size

The progression of acromegaly depends on the secretion activity and size of the tumour. In general, acromegaly progresses faster and more aggressively in people who develop a pituitary tumour early in adult life. The cause of pituitary tumours is unknown. Without a known cause, it is impossible to predict or prevent acromegaly.

Diagnosis of acromegaly

Acromegaly is difficult to diagnose in its early stages, because the physical changes occur over many years. Following a suspicion of acromegaly based on history and physical examination, blood tests are required for confirmation of diagnosis.

- An IGF-I (a growth factor produced in the liver) measurement is the most reliable diagnostic test.
- A measurement of growth hormone is of limited value as its concentration fluctuates in blood.
- Imaging of the pituitary gland by CT or MRI scans is performed to determine the size and location of the adenoma.

Treatment for acromegaly

Treatment reduces the swelling of the soft tissue in the face, hands and feet but cannot reverse the effects on the bones. Treatment is aimed at removing the pituitary tumour, or reducing its activity. Options may include:

- **Drugs** – somatostatin analogues (trade names Sandostatin and Lanreotide) are effective in inhibiting the growth hormone secretion from the tumour and can also reduce tumour size. They may be used as the first line of treatment or may be used to control residual disease after surgery. A new drug called pegvisomant is a valuable addition – it works by blocking the action of growth hormone.
- **Surgery** – offers the only chance of cure from complete removal of the tumour. Success is dependent on the size, location of the tumour and surgical skill.
- **Radiation therapy** – is usually offered to control residual disease after surgery.

The doctor may choose one or more treatments depending on the circumstances and indications.

Ongoing tests for acromegaly

A person with acromegaly should have regular medical tests to monitor the condition. Tests may include an annual medical check-up and blood tests to measure growth hormone status.

Where to get help

- Your doctor
- Endocrinologist
- Australian Pituitary Foundation Tel. 1300 331 807

Things to remember

- Acromegaly is a condition caused by an excess of growth hormone, which causes the overgrowth of bones in the face, hands and feet.
- A tumour on the pituitary gland is the most common cause of acromegaly.

References

- Acromegaly, Australian Pituitary Foundation Ltd. More information here.
- Acromegaly, Virtual Medical Centre. More information here.
- Pituitary Disorders, The Hormone Foundation, USA. More information here.

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**Bone muscle and joint basics**

- Bone marrow
  
  Bone marrow is the spongy tissue in the hollow centres of a person’s long bones and is the blood cell ‘factory’.

- Bones
  
  The adult skeleton is made up of 206 bones, which provide the structure for our bodies.

- Choosing the right shoe
  
  The right footwear can help keep your feet healthy, make your physical activity easier and help keep your body safe from injury.

- Growth hormone
  
  Some athletes and bodybuilders wrongly believe that taking synthetic growth hormone will help build up their muscles.

- Joints
  
  A joint is the part of the body where two or more bones meet to allow movement.

- Locomotor system
  
  The skeleton and skeletal muscles work together to allow movement.

- Muscles
  
  There are about 600 muscles in the human body.

**Healthy bones muscles and joints**

- 10 tips for getting enough vitamin D
  
  A balanced UV approach is required to ensure some sun exposure for vitamin D while minimising the risk of skin cancer.

- 10 tips for safe stretching
  
  Make stretching part of your life.

- 10 tips on how to eat more calcium
  
  Reduce your intake of coffee, alcohol and soft drinks.

- Ageing - muscles bones and joints
  
  Exercise can prevent age-related changes to muscles, bones and joints and can reverse these changes too.

- Bone density testing
  
  Most procedures that measure bone density are quick and pain-free.

- Calcium
  
  If you don't have enough calcium in your diet, your bones will eventually become weak and brittle.

- Choosing the right shoe
  
  The right footwear can help keep your feet healthy, make your physical activity easier and help keep your body safe from injury.

- Posture
  
  Bad habits such as slouching and inactivity cause muscle fatigue and tension that ultimately lead to poor posture.

- Vitamin D
  
  A balanced approach to sunlight exposure will help you get enough vitamin D while protecting against skin cancer.

- Vitamin D - maintaining levels in winter (video)
  
  Vitamin D is important for healthy bones, muscles and the nervous system.
Bone and bone marrow conditions

- **Acromegaly**
  Acromegaly is caused by an excess of growth hormone in adults, which causes the overgrowth of bones in the face, hands, feet and internal organs...

- **Amyloidosis**
  A person with amyloidosis produces aggregates of insoluble protein that cannot be eliminated from the body...

- **Bone cancer**
  Bone cancer is a rare form of cancer that is treated with chemotherapy, radiotherapy or hormone therapy...

- **Bone fractures**
  Common sites for bone fractures include the wrist, ankle and hip...

- **Fibrous dysplasia**
  Fibrous dysplasia causes abnormal growth or swelling of bone, but it is not a form of cancer...

- **Leukaemia**
  Most children and many adults with acute leukaemia can expect to be cured, while chronic leukaemia can be successfully managed...

- **McCune-Albright syndrome**
  The severity of symptoms or how a child with McCune-Albright syndrome will be affected throughout life is difficult to predict...

- **Multiple myeloma**
  Multiple myeloma is cancer of plasma cells in the bone marrow...

- **Osteomyelitis**
  Osteomyelitis means an infection of bone which can either be recent or longstanding...

- **Paget's disease of bone**
  Paget's disease of bone is a chronic condition that causes abnormal enlargement and weakening of bone...

- **Rickets**
  Rickets is a preventable childhood bone disease caused by a lack of vitamin D...

- **Scoliosis**
  Scoliosis is an abnormal sideways curve of the spine...

- **Shin splints**
  'Shin splints' refers to pain felt anywhere along the shinbone from knee to ankle...

- **Treacher Collins syndrome**
  Treacher Collins syndrome is a genetic disorder that affects growth and development of the head, causing facial defects and hearing loss...

Osteoporosis

- **Menopause and osteoporosis**
  Regular weight-bearing exercise and maintaining a diet rich in calcium from childhood will help reduce bone loss at menopause...

- **Osteoporosis**
  A healthy, calcium-rich diet and regular physical activity throughout life can help prevent osteoporosis...

- **Osteoporosis and exercise**
  Exercise can reduce the risk of fractures resulting from osteoporosis by both slowing the rate of bone loss, and reducing the person's risk of falling by building muscle strength and improving balance...

- **Osteoporosis in children**
  Osteoporosis in children is rare and usually caused by an underlying medical condition...

- **Osteoporosis in men**
  Up to 30 per cent of all fractures that occur in people with osteoporosis and osteopenia, occur in men...

Muscle conditions
Bell's palsy
The majority of people with Bell's palsy, around 90 per cent, will recover completely with time.

Helping a child with a disability with everyday activities
If you have a child with a disability you can help improve their communication and movement by encouraging them to take part in daily activities.

Multiple sclerosis (MS)
Multiple sclerosis is not contagious, but it is progressive and unpredictable.

Muscle cramp
A muscle cramp is an uncontrollable and painful spasm of a muscle.

Muscular dystrophy
People affected by muscular dystrophy have different degrees of independence, mobility and carer needs.

Myasthenia gravis
Myasthenia gravis is an autoimmune disease that causes muscle weakness.

Polymyositis
Polymyositis is hard to diagnose and may be mistaken for muscular dystrophy.

Spinal muscular atrophy (SMA)
A child with spinal muscular atrophy type 1 rarely lives beyond three years of age.

Sprains and strains
It is important to get the correct treatment for a sprain or strain as soon as possible after the injury to help you recover quickly.

Joint conditions

Ankle sprains
Ankle sprain is a common sports injury caused by overstretching and tearing the supporting ligaments.

Ankylosing spondylitis
Ankylosing spondylitis (AS) is a type of inflammatory arthritis that targets the joints of the spine.

Arthritis explained
People can manage their arthritis using medication, physiotherapy, exercise and self-management techniques.

Baker's cyst
Baker's cysts of the knee don't always require active treatment and sometimes will only require observation by the treating doctor.

Bursitis
Bursitis is often caused by overuse and the inflammation will continue unless the particular activity or movement is stopped.

Carpal tunnel syndrome
Carpal tunnel syndrome can be caused by repetitive hand movements, pregnancy and arthritis.

Developmental dysplasia of the hip (DDH)
Around 95 per cent of babies born with developmental dysplasia of the hip can be successfully treated.

Elbow pain
Elbow pain and can result from overuse in a range of sports or occupations.

Hip disorders
The hip joint is complicated to allow a wide range of motion while still supporting the weight of the body.

Knee injuries
Mild knee injuries may heal by themselves, but all injuries should be checked and diagnosed by a doctor or physiotherapist.

Osgood-Schlatter syndrome
Osgood-Schlatter syndrome is a painful knee condition that affects adolescents.
Perthes' disease
Most children with Perthes' disease eventually recover, but it can take anywhere from two to five years.

Reactive arthritis
Reactive arthritis is a form of arthritis that occurs as a result of some bacterial infections.

Hand and foot conditions

- Achilles tendonitis
  People who run regularly seem to be susceptible to Achilles tendonitis.

- Children's feet and shoes
  A child learning to walk receives important sensory information from the soles of their feet, and shoes can make walking more difficult.

- Choosing the right shoe
  The right footwear can help keep your feet healthy, make your physical activity easier and help keep your body safe from injury.

- Cysts - ganglion cysts
  A ganglion cyst is the most common lump on the hand, and tends to target women between the ages of 20 and 40 years of age.

- Diabetes - foot care
  Good foot care and regular check-ups can help people with diabetes avoid foot problems.

- Dupuytren's contracture
  Dupuytren's contracture gradually causes clawing of the fingers as they are pulled towards the palms.

- Feet - problems and treatments
  Correctly fitted shoes help you avoid foot and leg pain or injury.

- Foot care - podiatrists
  Podiatrists can advise about how to choose the right shoes for your feet.

- Foot odour - causes and cures
  Even the most fastidiously clean people can suffer from foot odour.

- Foot orthoses
  People who have chronic foot or leg problems that interfere with their health may be prescribed orthoses by their podiatrist.

- Foot problems - heel pain
  The heel protects the structures of the foot, but heel pain is a common foot complaint.

- Footwear for healthy feet
  Wearing shoes that fit properly and support your feet is vital to avoid sore feet and to prevent or alleviate many common foot problems.

- Left-handedness
  If your child is naturally left-handed, don't try to force them to use their right hand.

- Raynaud's phenomenon
  Raynaud's phenomenon can be a sign of a more serious underlying condition, so see your doctor if you experience it.

- Sever's disease
  Sever's disease is a common cause of heel pain, particularly in the young and physically active.

Back neck and spine conditions

- Back pain
  Back pain is common. Some people will develop back pain that is persistent (lasts more than three months). There are many things that you can do to live well with back pain.

- Back pain - disc problems
  Most disc problems resolve without specific treatment.

- Back pain in children

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Children with back pain may grow into adults with chronic bad backs, so it is important to encourage sensible back care.

- **Living with persistent pain**
  
Pain is our built-in alarm system. It makes us aware that something might be going wrong in our body. However, there are many things you can do to deal effectively with persistent pain.

- **Neck pain**
  
  Treatments like physiotherapy, osteopathy or remedial massage can generally help neck and shoulder pain.

- **Scoliosis**
  
  Scoliosis is an abnormal sideways curve of the spine.

- **Shoulder pain**
  
  Shoulder pain is common in our community. The good news is that with appropriate treatment pain will improve so you can get back to doing the things you enjoy.

- **Tendonitis**
  
  Most cases of tendonitis recover completely, but severe untreated tendonitis can lead to rupture of the tendon.

- **Treating persistent pain**
  
Pain is our built-in alarm system. It makes us aware that something might be going wrong in our body. However, there are many things you can do to deal effectively with persistent pain.

- **When do I need to see my doctor about persistent pain?**
  
  Living with persistent pain isn’t easy. Your doctor can help you balance your pain, your treatment and hurdles you encounter in life.

**Related Information**

- **Growth hormone**
  
  Some athletes and bodybuilders wrongly believe that taking synthetic growth hormone will help build up their muscles.

- **Paget's disease of bone**
  
  Paget's disease of bone is a chronic condition that causes abnormal enlargement and weakening of bone.

- **Fibrous dysplasia**
  
  Fibrous dysplasia causes abnormal growth or swelling of bone, but it is not a form of cancer.

- **Rib injuries**
  
  Rib injuries may include bruises, torn cartilage and bone fractures.

- **Rickets**
  
  Rickets is a preventable childhood bone disease caused by a lack of vitamin D.

**Home**

**Related information on other websites**

- The Pituitary Foundation, UK.
- The Pituitary Society, USA.
- Virtual Medical Centre.

**Support Groups**

- Australian Pituitary Foundation Ltd

**Content Partner**

This page has been produced in consultation with and approved by: Australian Pituitary Foundation and St Vincent's Hospital
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