

Tremor in adults and children

This is a general information document about tremor and is by no means comprehensive. It does, however, contain more specific details on the treatment of tremor at Paragon Health Industries.

Tremor is an involuntary, rhythmic muscle movement involving opposing muscle groups (the flexors and extensors of the body) in one or more parts of our system. This can include the arms, legs, face, head, trunk and voice apparatus.

Generally, tremor is a symptom of suboptimal functioning of the neurological system. The origin may or may not be in the nervous system, but the system itself is affected. The tremor itself is non-life threatening.

Tremor in adults and children can be due to:

Neurological disorders

- Multiple Sclerosis (MS)
- Parkinson's Disease
- Stroke
- Traumatic brain injury
- Migraines

Drugs

- Amphetamines
- Corticosteroids
- Antidepressants
- Alcohol
- Heavy metals
- Bronchodilators

Medical

- Hyperthyroidism (Graves disease)
- Liver conditions
- Genetic / familial tremors - parents with an essential tremor have a 50% chance of passing it on.
- Fever and infections
- Low blood sugar

Tremors are usually worse when you are tired, during times of stress or strong emotions or during particular postures and movements. It is not age dependent necessarily and can be permanent, temporary or intermittent depending on the conditions.

Tremor classification can overlap and can generally be defined as such:

• *Resting tremor* - when the muscles are relaxed or at rest• *Action tremor/kinetic tremor* - during any type of movement• *Postural tremor* - when maintaining posture or movement against gravity• *Intention tremor* - present during a specific task such as reaching or co-ordinated movements • *Task specific tremor* - such as during handwriting or speaking.

Tremor categories include:

- *Essential tremors* - the most common form of tremor. Previously thought to be tremors of unknown origin but now thought likely to have a cerebellar cause.
- *Parkinsonian tremor* - caused by damage to brain structures which control movement
- *Dystonia* - twisting and repetitive motions caused by sustained muscle contractions
- *Cerebellar tremor* - occurs in the extremities with co-ordinated, purposeful movement like pressing a button. It can be associated with speech, gait, postural and eye problems (rapid, involuntary movements).
- *Psychogenic tremor* - associate with stress, emotional or psychological disturbances.
- *Orthostatic tremor* - rhythmic contractions in the legs and trunk after standing
- *Physiologic tremor* - occurs normally with things like fatigue, caffeine, fever, hypoglycaemia etc.

Diagnosis

Certain parameters should be determined, for example:

- Does the tremor occur at rest or during activity?
- Is it symmetrical?
- Is there an associated sensory loss?
- Is there associated weakness? Muscle wasting? Or dampened reflexes?
- What is the family history?

Tests should or can include:

- Blood and Urine tests for thyroid malfunction, metabolic causes, heavy metals, drug interactions, alcoholism.
- Diagnostic imaging such as CT scans and MRI's which look for structural or degenerative defects.
- Neurological testing to assess nerve function, motor and sensory skills.
- Nerve conduction studies to test the viability of nerves.

Treatment

Medical Medically speaking, the options for treatment are limited. The normal course of events is situated around psychological intervention, drug therapy or surgery. Physiotherapy Treatment here is centred on positioning to lessen tremor, muscle strength, co-ordination drills and functional skills, balance exercises, weights, splints and other strategies.

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Ultimately, the direct cause of a tremor is within the neurological system. Given this, the first question I would ask is, “Is the neurological system the primary cause or is it secondary to something else within the body causing a domino effect?”

For example, anything that causes neurotoxicity in the body or gut can have a flow on affect, starting with the enteric nervous system (the nerves of the gut) that can then transfer via neurological pathways to the brain; or via certain ingested substances or their byproducts, which can pass the blood-brain barrier.

This can be one of the hardest causes to treat because it involves what is called oxidative stress in many different types of tissue in the body at a cellular level. This can lead to neuro-inflammation in the brain, as is suggested in such diseases like Alzheimer’s, but would also include dysfunction in the kidneys, liver or muscles, for example.

Heavy metals can contribute to this type of dysfunction. As can dietary issues which produce toxins, like coeliac disease. Both of these conditions can be found in a paediatric population.

Another example is the use of certain medications that have tremor as a side effect. In children, this may include drugs like bronchodilators (asthma medication).

The cause of tremor may also be due to a direct effect on the central nervous system (brain). In children, it may be related to birth trauma or in-utero position altering cranial shape. A head knock from a fall may also originate a force vector into the brain tissue, altering its function.

There are many brain circuits that could be involved in producing a tremor. Often these circuits overlap, so the specific cause can be ambiguous. These circuits include the movement systems (the brain cortex/grey matter or the basal ganglia); the emotional systems (any of the limbic structures); the balance and co-ordination systems (the cerebellum); or the autonomic nervous system (responsible for all the automatic functions of the body, like digestion, and includes your survival or ‘fright or flight’ reactions).

As complicated as all this sounds, the systems utilised at Paragon Health help to simplify the assessment, diagnosis and treatment. It is possible to assess whether the cause of tremor is structural (an anatomical derangement of the tissues), functional (a problem at a cellular/metabolic level) or even emotional.

All of these issues can be helped via gentle, manual treatment techniques that help to restore normal function the tissues that may be involved. The body has a remarkable tendency towards self-correction and healing if it is nudged in the right direction.

The combination of techniques is dependent on the presentation. In cases of tremor, typical modalities would include:

Brain therapy Visceral manipulation Neuro-meningeal therapy Craniosacral therapy Vascular Work
Lymphatic treatment

These topics and modalities are heavy on content and techniques. A more detailed description can be found by following the links or visiting www.paragonhealth.net.au

It may be relevant to include dietary or medical co-therapy. This is obtainable through a considered network of health professionals that have experience in this area.

