

Physiotherapy For DMD



Michelle Eagle Geraldine Bailey Anna Mayhew Michelle McCallum

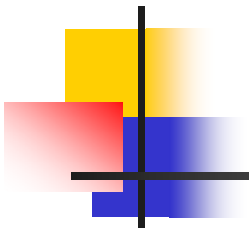
Physiotherapy Team

Newcastle Muscle Centre

What is physiotherapy?

Maintain and prevent

- Enabling a person through physical means to reach their potential and maintain function and ability
- Anticipate problems and be pro-active in managing them
- Assessment
 - Stretching
 - Exercises/hydro/sports
 - Postural advice/wheelchairs and seating
 - Chest physiotherapy

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- In DMD there is muscle weakness caused by lack of dystrophin in the muscle
 - The muscle is more fragile than normal
 - Hypertrophy and fibrosis occur leading to contractures

What about strengthening exercises?

- There is no evidence that strengthening exercises help BUT
- **Doing some exercise is very important –**
- **Doing no exercise leads to muscle wasting –atrophy**

- **Mouse research shows that**
 - Beneficial Exercise appears to be voluntary and endurance based e.g. swimming
 - Too much can hasten muscle breakdown

- **Mainly eccentric exercise is thought to be harmful –**
 - where the muscle has to contract as it lengthens for example when holding a weight in the arm and letting the arm straighten or when going down stairs or down hills
 - Or weight lifting

How much is enough or too much?



- Fun activities such as swimming or playing in water – stop when he is tired
- Cycling
- Beware of 'overdoing 'it' Don't push the extra mile
- Save energy for fun tasks
- No need to walk to the park if he is tired by the time he gets there and can't enjoy it

Exercise in water

Warm water

(like a leisure pool)

Most beneficial at any
stage

Ambulant or not

Make it fun, family
and friends

Do it regularly



- Weaker boys can do so much more in water than out

What about boys on steroids

- Boys on steroids can achieve much more in the way of functional activities and are less tired
- They can often join in with their peers playing cricket, football, etc
- They can often jump and run and ride a bike
- However the same restrictions apply
- Do not overdo it, avoid eccentric activities



Trampolining

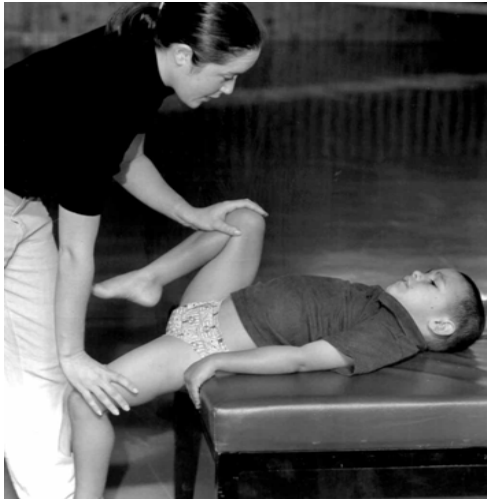
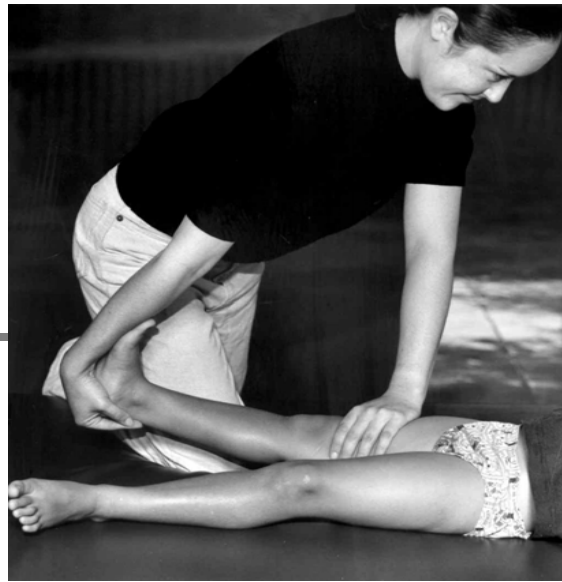
- Fun but not recommended
- Safety – fracture risk
- Eccentric activity
- Ok to sit and be bounced but not ok to stand and jump
- Risk of myoglobinuria caused by working the muscles too much which can lead to kidney damage
 - (coca cola/dark coloured wee)



Lower limb Contractures

- Contractures occur first in the ankle, then hip, sometimes knee,
- Boys walk on their toes to gain a mechanical advantage
- this is ok - they have to do it BUT
- This makes them more prone to tightness in the tendo achilles
- Tight TA's can lead to loss of ambulation and discomfort





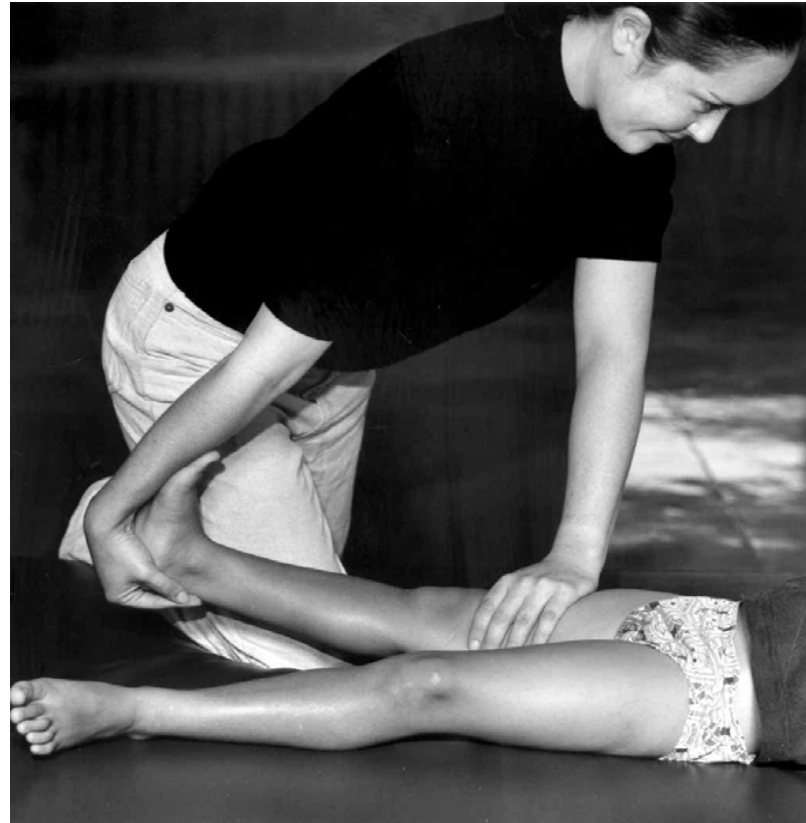


What you MUST DO if nothing else

- Appropriate stretches EVERY DAY
- You don't necessarily have to do them all
- some will be more relevant than others
- chances are at the beginning you may only have a couple to do
- SO NO EXCUSES
- Routine - like brushing teeth
- After a bath
- Bed time
- Story time

stretches

- Every day means
 - Less chance of tightening up
 - Easier to do
 - Less uncomfortable
 - Routine is established
- PLEASE DO NOT miss out stretches as a treat!!

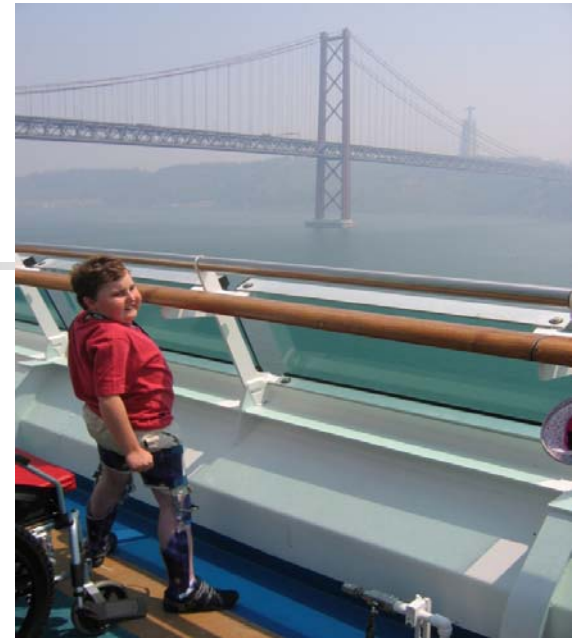




Why is stretching so important?

- Prevents/delays permanent contractures
- Maintains comfortable movement
- Enables continued walking
- Reduces asymmetry
- Asymmetry anywhere is to be avoided because it can lead to scoliosis and discomfort

Orthotics



- Orthotics are devices that enable an activity
- or prevent or enable a movement

Night Splints

- Night splints and stretches are the best way to prevent a contracture of the ankle
- Best supplied when there is loss of normal range of dorsiflexion (20 degrees is normal)
- All different types but best to have ones made from a cast of the legs, must be comfortable - if not take them back



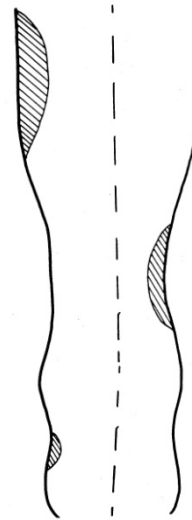
KAFOs/swivel walkers

- Knee-Ankle-Foot Orthoses
- Best supplied when walking is just about impossible
- 90 degrees at the ankle is needed
- Can prolong walking and standing for up to a couple of years but some boys on steroids may even be longer
- Not for everyone – some boys have had enough of walking and prefer to use a wheelchair
- Swivel walker can be used after KAFOS but are slower and really a therapy rather than a way of getting about or transferring



Day splints

- Must be supplied when a wheelchair is being used for most of the day
- They give stability
- Improve posture
- Prevent deformity
- Must be worn every day or contractures will develop that can be uncomfortable and normal shoes are difficult to fit



Contracture correction devices



Can be very helpful especially when;

- night splints are not tolerated
- or contractures are developing in an ambulant child despite stretches and night splints
- Worn for two hours a day
- Exert a constant stretch rather than simply holding the joint in a position
- Much more expensive than night splints to there needs to be commitment to using them
 - Expensive

(can re-cycle the expensive bits)



Wheelchairs and seating

- Power chairs should have tilt in space and recline
- Supportive Seating
- Provide head rest
- Contoured backrest to spine of scapular
Lateral supports (scoliosis pads)
- Lumbar support
- Supportive seat or pressure relieving cushion
- hip guides
- Arm rests that are adjustable

Standing wheelchairs

- Excellent but expensive and not available yet on NHS
- large
- Delay contractures
- Good for the spine
- Social/emotional benefits
- Also look at adjustable height chairs that may suit some children better



Chest physiotherapy

- Assessment
 - FVC/peak cough flow
- In non-ambulant boys
 - Learn how to do assisted coughing and chest physio once PCF is less than 270
 - Once FVC is less than about 1.5(ish) litres maintain chest compliance by passive inflation of the chest using ambubag/ cough assist machine/ positive pressure

Ambu bag



Cough assist/inexsufflator



Sport and fun



England wheelchair football team

Keep fit to have fun!!!



conclusions

- Get assessed by a knowledgeable physio regularly
- Learn how to do the stretches and do them every day
- Use orthotics as prescribed
- Do not omit stretches or orthotics as a treat
- Make it a special time, make it a habit