

“Lets get physical” in physiotherapy!

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*Welcome to this physiotherapy
workshop*



Physiotherapy in DMD:

- Maximise useful function
- It is different for each age and stage
- Reduce burden of care (physiotherapy should make life easier not harder)
 - Add quality to quantity

But before we can do any work we need to assess the problem

- To establish a baseline of physical ability and function
- Establish priorities of management
- To monitor change over time
- To evaluate intervention
- For research



What do we assess?

Objective measures

POWER

MRC grading/myometry

JOINT RANGE

FUNCTION

Using functional scales: North Star, Brook, MFM, Upper Limb

MOBILITY / GAIT / FATIGUE

(mobility is not just about walking!)

Timed tests

6MWT

But

Assessments only give us numbers. And numbers can be very misleading;

-this is particularly true of functional scores...where every activity no matter how hard or how "important" still scores the same 2

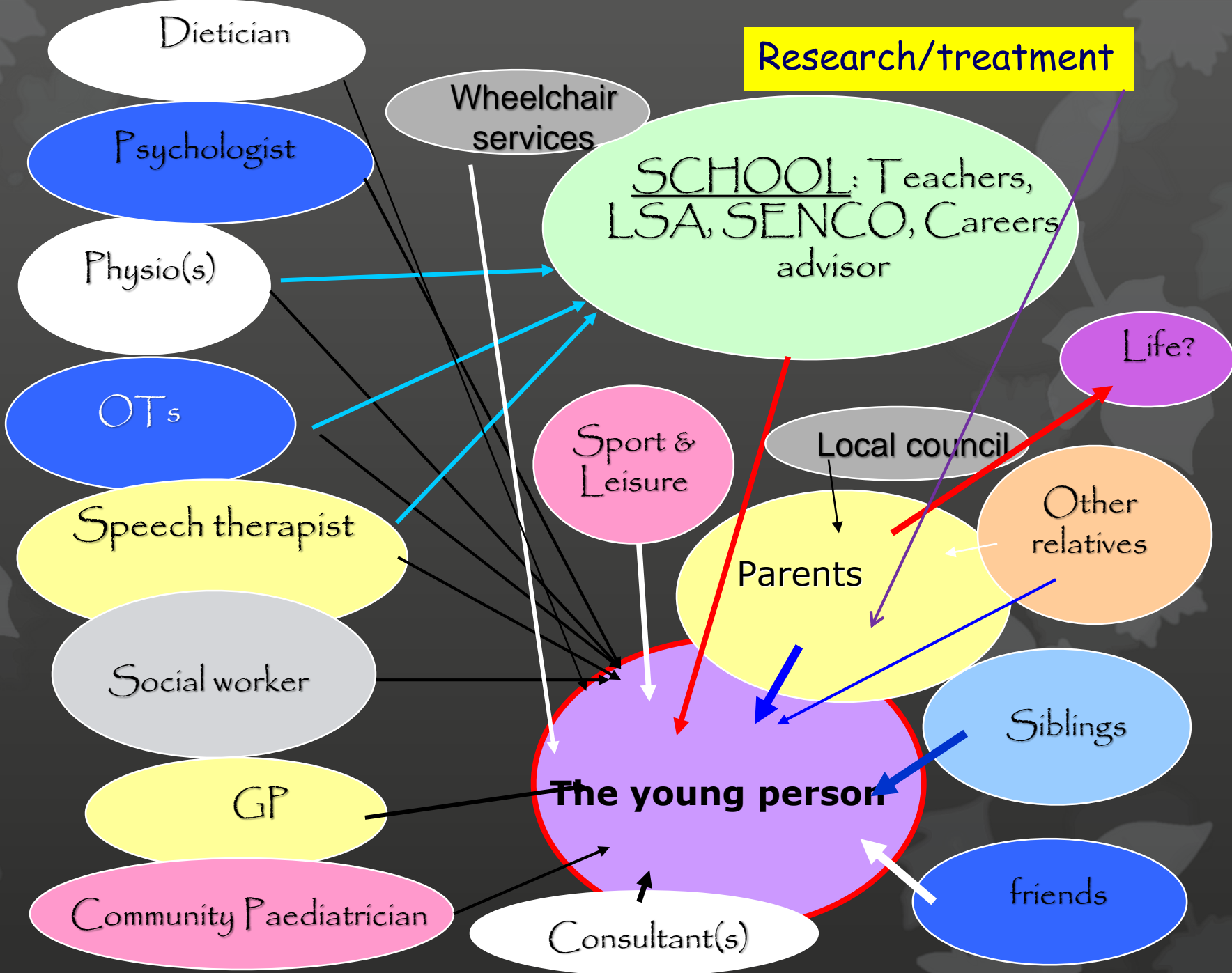
Is hopping really as important as getting up from the floor?

Other things to review

- *Spinal posture*
- *Pain*
- *Falls*
- *Home/school*
- *Seating and wheelchairs*
- *Manual handling*
- *Splints and orthotics*

Physiotherapy is only a small part of the team that children, parents and other carers will have to deal with on a regular basis





What do we need to think about?

Contractures and stretches

Weakness and exercise

Mobility and function

Spinal Posture

Pain prevention



Physiotherapy Management

TREATMENT THAT IS FUN, ENGAGES THE WHOLE FAMILY AND IS PART OF EVERYDAY LIFE – IS MORE LIKELY TO GET DONE – AND THEREFORE MORE EFFECTIVE



Contractures – what are they?

There are many causes but in DMD its usually because of-

Loss of muscle stretchiness

- Leads to tightness of the muscle as the bones grow

Joint tightness and loss of mobility due to lack of **full range** movement

- Caused by weakness and tight muscles

Deformity – caused by inability to achieve normal positions

And in some muscles, reliance on compensatory movements



Contractures

- They can appear at any age & stage
- Hips don't just get tight at loss of ambulation
- Long finger flexors can be tight from tiny – you have to know how to look for it
- They can occur in any joint
- They can appear on one side or both
- They can progress rapidly or slowly

And.....

THEY DON'T GET BETTER BY THEMSELVES!



Contractures can lead to
pain!

They interfere with sleep

Cause pain with sitting

Can be painful when
moved

Methods of maintaining muscle length and joint range

- Active – assisted stretch
- Self stretch
- (Passive stretch)
- Stretching through position
- Splinting
- Serial casting
- Surgery

Stretches

*can't really be separated from exercise
(if they are "active")*

**I DON'T REGRET
THE THINGS I HAVE
DONE.
I JUST REGRET
THE THINGS I DIDN'T
DO WHEN I
HAD THE CHANCE...**

What to stretch?

concentrate on those contractures that
cause loss of/reduction of function

TA's = ankles, (fingers?), elbows

cause asymmetry ITBs, hips

affect mobility or ambulation TAs, HIPS, knees

affect posture or sitting: ITBs, knees, hips

What else to stretch?

Supinators

Knees

Elbows

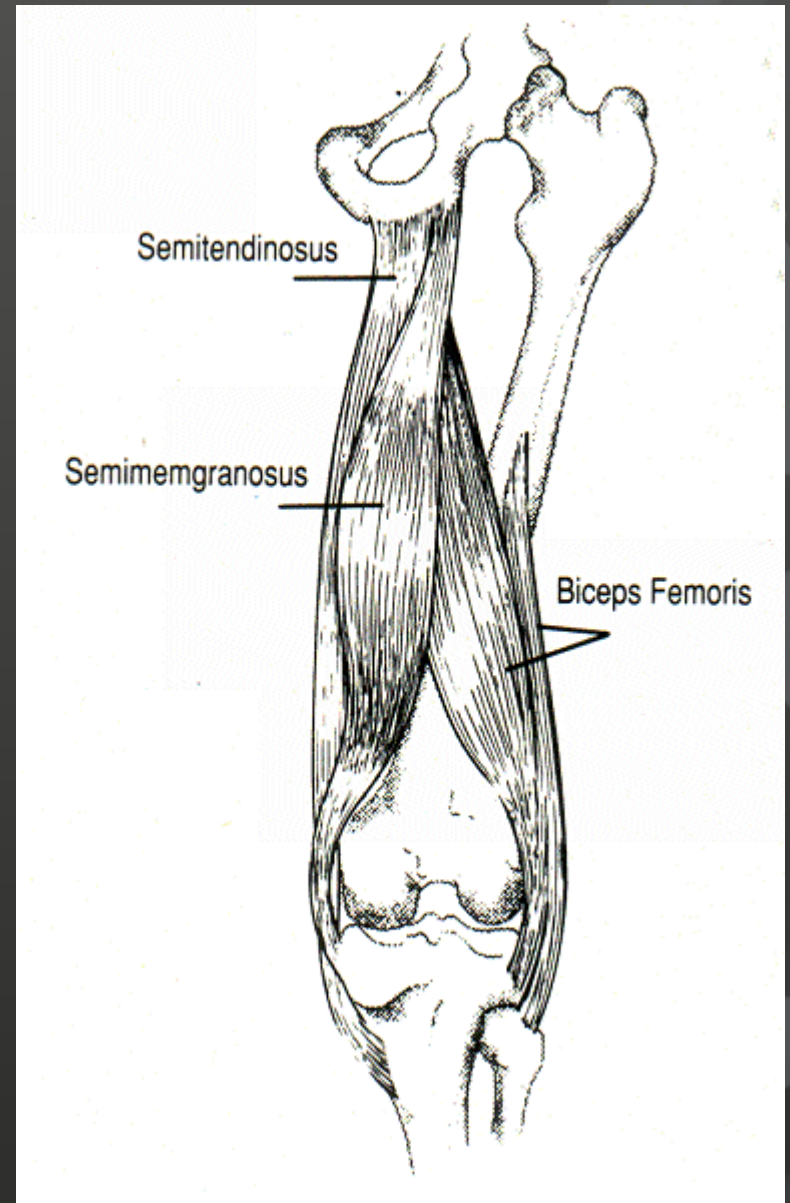
Neck

Spine

What NOT to stretch

- *Bendy joints*
- *Fixed joints*
- *Painful joints*
- *Hamstrings*

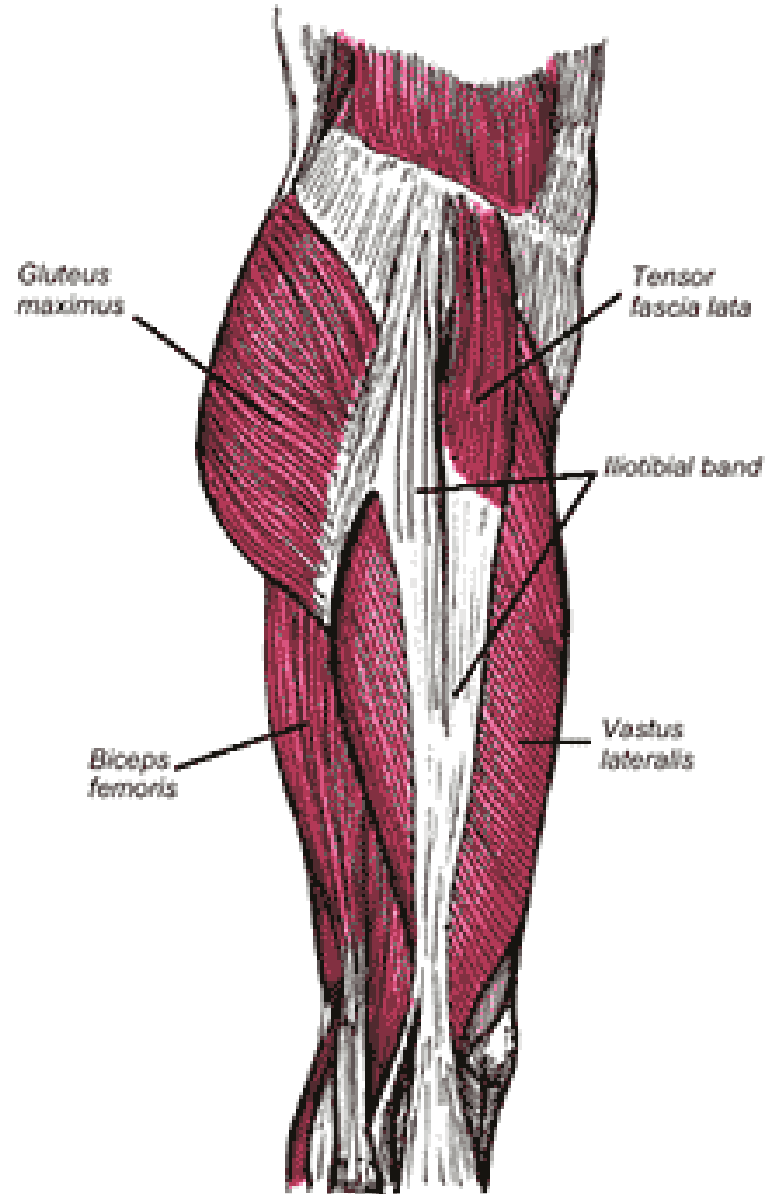
hamstrings



ITBs

ilio-tibial bands

Fig. 1
Lateral View of the Muscles of the Pelvis and Thigh



Stretches – how much “force”



*Feel the muscle – is there any stretch/give
Make sure you are stretching in the line of
muscle pull*

Stretch SLOWLY

*Think about the normal range – don't try and
get more!!*

Never cause pain

Pain causes more problems

How to stretch!

CAREFULLY!

Self stretches



Serial Casting



AFOs



CCD (Contracture Control Devices) - to use or not to use

- The evidence - ?? studies in DMD
- The problems
 - sitting for 2 hours!
 - bend your knee to stop the stretch of gastrocnemius
- The solutions
 - walk around in them!!!

Surgery

Despite all this, surgery
is still necessary in
some cases
particularly feet in
older boys -

but NOT for hamstrings

And there is nothing
more important than
getting
splints/orthoses and
positioning right after
surgery!



Stretches – ACTIVE ONES

How to do the stretches

Time to do some work.....

Muscle weakness



Exercise and activity, sport and play



At GOSH we believe that “exercise programmes” are boring and being able to change them as needed is hard for parents

Play is exercise



Play is often talked about as if it were a relief from serious learning. But for children play is serious learning. Play is really the work of childhood.

FRED ROGERS



BUT NOT THIS



The benefits:

- Heart, lungs, digestion
- Joints, muscles
- Fitness
- Self esteem

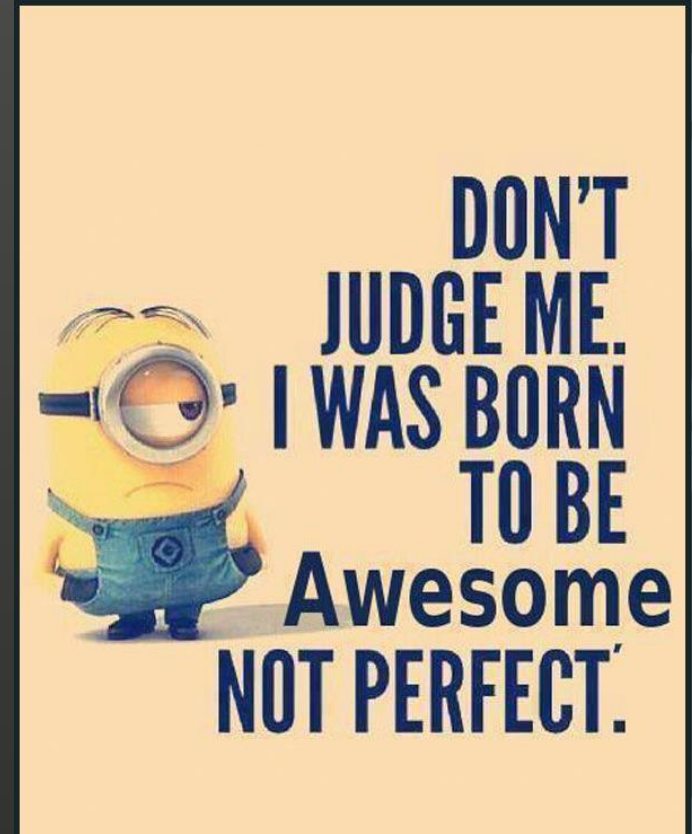
- long term effects:
Bone density



Barriers to exercise

Factors influencing Motivation

Self esteem/body image
Parental and other
influence (sibs, friends)
Teacher/mentor interest
Success/results
Feeling and looking good



Outdoors

The weather
Child safety

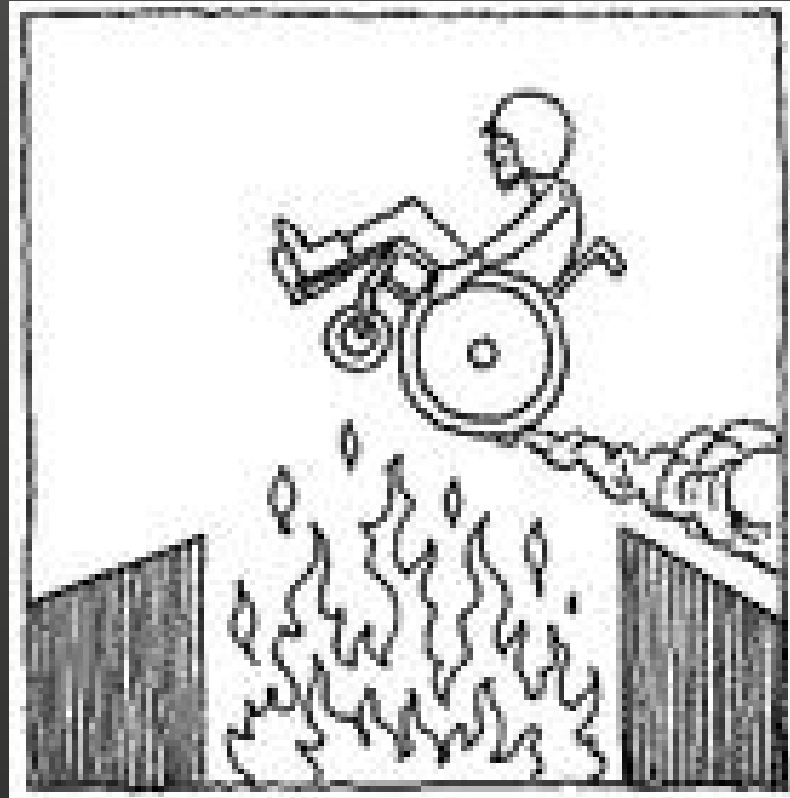
Being able to get there....keep up, and use
all the equipment



How much? How often?

**DON'T BE UPSET
BY THE RESULTS YOU
DIDN'T GET WITH THE
WORK YOU DIDN'T DO**

Sport and Leisure




Disuse Atrophy

- what is it?

-what does it do?



**DON'T MESS WITH ME:
I KNOW KARATE,
JUDO,
TAI KWON DO,
JUJITSU,
AND 28
OTHER
DANGEROUS
WORDS.**



px.com/MixieQuotes

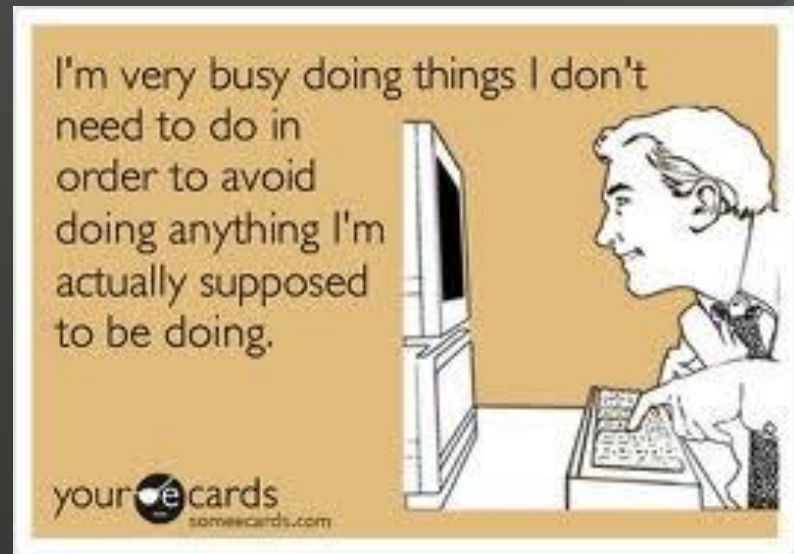
DESPICABLEMEMINIONS.ORG

Is there good and bad exercise?



The good

- Symmetrical exercise
- Concentric exercise
- Aerobic exercise
- Fun 😊



Good activities –

Swimming

Horse riding

Bicycle/tricycle

Boxing

Martial arts

Basketball

Preferably

.....Anything that uses both sides

I'm looking to buy
a new boomerang,
but how can I throw
the old one out?

Cool-Funny-Quotes.com



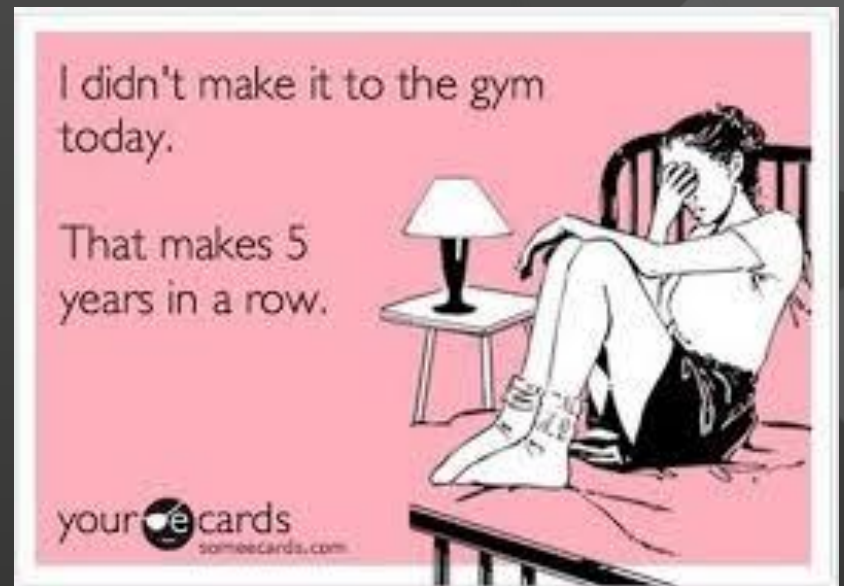
Exercise

The not so good

Asymmetrical exercise

Eccentric exercise

Exercising the wrong
muscle groups



Reduce or avoid

Asymmetrical

Weights

Rugby

Gymnastics

TRAMPOLINES

Scooters

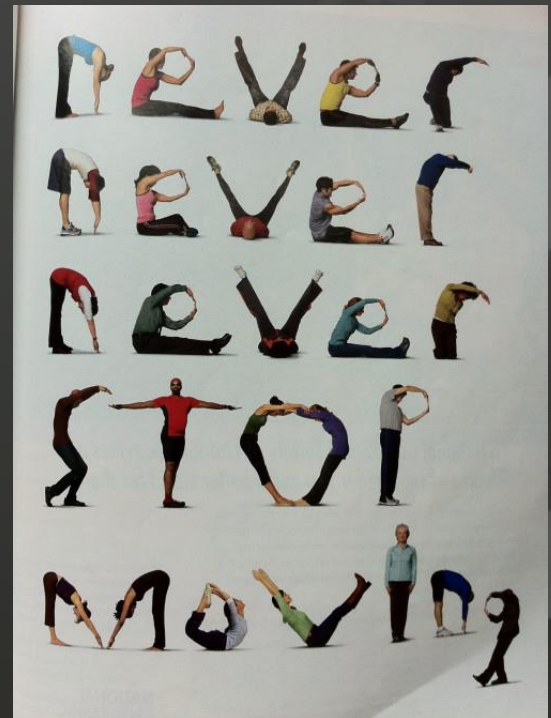
Running

MY FAVORITE EXERCISE IS A
CROSS BETWEEN A LUNGE
AND A CRUNCH...

I CALL IT LUNCH



Ideas for exercises, activity and play



EXERCISE – ACTIVITY & PLAY

TARGETING THE CORRECT
MUSCLES!

Resistance – theraband, body weight,
PNF

Mobility

Early development – not all children crawl!

Walking, running, stairs....

Trips and falls

Struggling

The buggy and the first wheelchair

Electric wheelchairs

ADL – Home and School

Activities of daily living

Home – Dressing, personal care,
feeding and eating

School – writing, inclusion,

Both – manual handling, risks, access

Fatigue, wellbeing, support



Spinal posture: INCLUDES THE NECK

Scoliosis

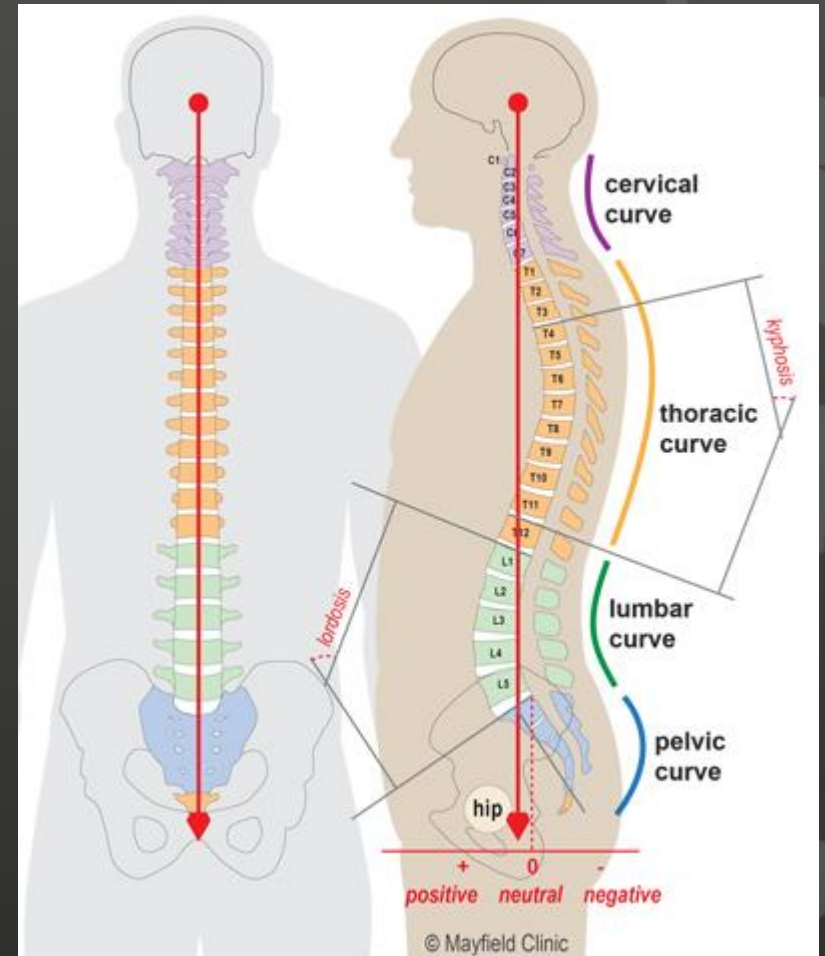
Kyphosis

Lordosis

Pelvis

Spinal Mobility/Rigidity

Shoulder levels and
scapulae



Good posture??

- POSTURE IN SITTING

- POSTURE IN STANDING

- POSTURE IN LYING



Promote mobility



Losing ambulation

The options:-

- Stop!
- Stand but no rehab
- Stand and rehab in KAFOs





Feet

Cavus feet



Flat feet



Pronated feet





In children *and* parents *and* carers

What causes pain?

Contractures

Back pain

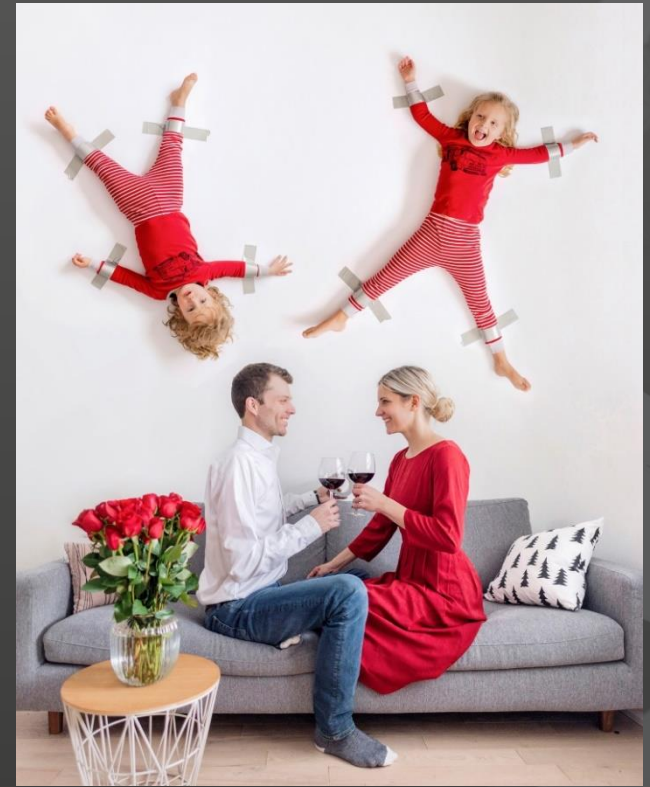
Cramps

Pressure Sores

Fractures and
injuries



Taping in DMD



Tape does **not** cure contractures,
control or maintain range

But it is useful for acute sprains and injuries, post fracture
muscle re-education and under serial casting.

Take home messages:

- *Physiotherapy is boring!*
- *Make it part of every day life*
- *Contractures don't get better by themselves*
- *Use splints and position to allow stretch for the longest possible time*



Start young

Stretches if needed
– Physio will look for them

Activity, sport, play
– swimming from young, tricycles, active play

– night splint – why wait until you have lost range?



Contractures

- The range gained can easily be lost again if you don't think about how to maintain it.

ANSWER \Rightarrow splinting and exercises

- Pain makes contractures worse / contractures make pain worse
- Poor posture needs correcting - habits cannot be changed easily. what looks normal to us may not feel normal to the child - *the "sit up straight trap"*

Make it fun



Through play, activity, games, PE.....
Don't over-do it – one activity a day is
PLENTY!

I'm not lazy. Someone just stole my motivation....I'm the victim here!

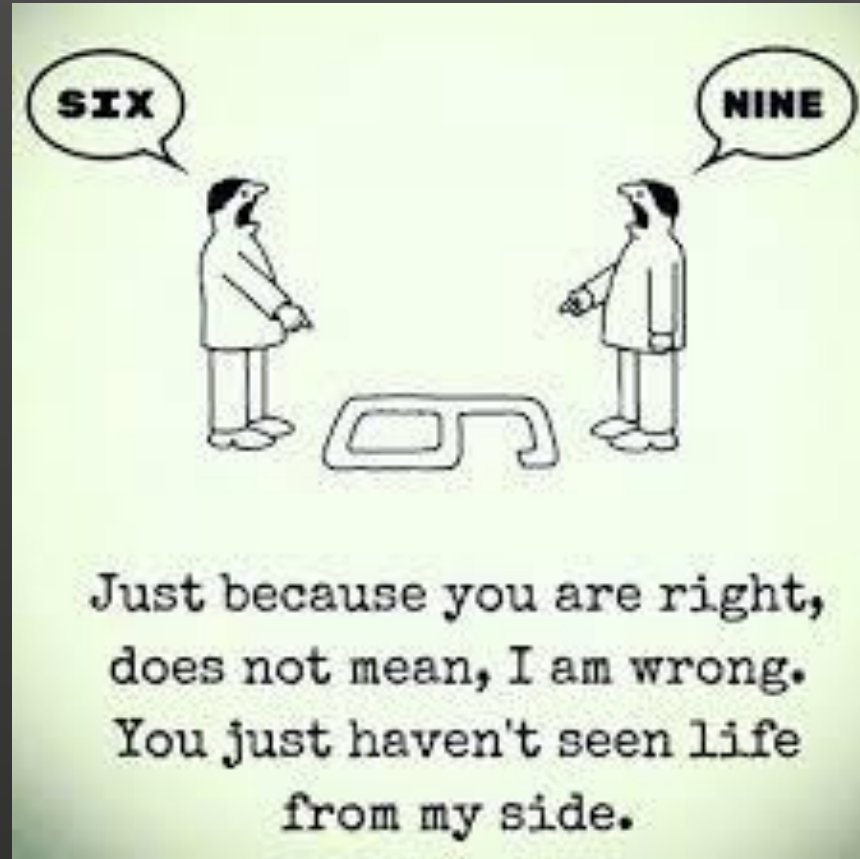


There is no such thing as a lazy child!

*No two children and families
are the same*



Conflicting advice



What we do now – is the result we will have for the future

Bone health, contractures, posture – **DONT WAIT** until its too late to correct them

Anticipate and prevent where possible

The better we can keep the children, the more effective treatments can and will be



Useful web site

DLF - Disabled Living Foundation

www.dlf.org.uk

The screenshot shows the DLF website interface. At the top, there is a blue header with the DLF logo, the text "DLF is part of Shaw Trust", and the tagline "independent advice knowledge empowering essential supporting choice impartial enabling innovative trustworthy providing opportunities". A search bar is located on the right side of the header. Below the header is a navigation menu with links: Home, About us, Our services (with a dropdown arrow), Support us, News and events, Training, Contact us, and Donate. The main content area features a sidebar on the left with a list of links: Home, About us, Our services (with sub-links: AskSARA, Business services, DLF Data, Factsheets, Forums, Helpline, Living made easy, Moving & Handling People, Services for parents), Support us, News and events, Training, Contact us, and Donate. The main content area has a large section titled "Our services" with a graphic of colorful arrows pointing in various directions. Below this, there are three smaller sections: "AskSARA" with a photo of a family and the text "Our award-winning online guided advice tool about daily living.", "Living made easy" with a photo of a family and the text "Our free advice and information website on daily living equipment.", and "Helpline" with a photo of an elderly woman on a phone and the text "We're just a phone call or email away if you need help." A search bar is partially visible at the bottom right of the page.

If you can't fly, then **run**.
If you can't run, then **walk**.
If you can't walk, then **crawl**,
but by all means, **keep moving**.

- Martin Luther King Jr.

*With thanks to all the wonderful
Physiotherapists I have worked with and the
amazing children and parents who have taught
(and are still teaching me) all I know*

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