

#JOURNALTUESDAY - by Abi Peck

The healing process at a cellular level: a review, Evans 1980, Physiotherapy
Paper attached [HERE](#)

1) **What are the four stages of cellular healing and what are their time frames?**

Injury/ bleeding – 0-1 days

Inflammation – 1-14 days

Proliferation/repair – 5 days - 6 weeks

Remodelling – 4 weeks – 6 months

2) **What are the main cellular processes after an initial soft tissue injury?**

Injury -> damage to blood vessel network (cells, platelets + plasma) -> loss of oxygenated blood flow -> cell death -> dead cells release lysosome (digestive enzyme) -> debris (waste products)

Dead platelets release thrombin which change fibrinogen to fibrin (long fibrous chains) -> form an irregular network -> blood cells get caught in the chain forming a blood clot.

3) **What is the difference between inflammatory exudate and normal tissue fluid?**

Inflammatory exudate = high protein count and inflammatory cells (fibrin)

Fibrin creates a mesh network which forms scar tissue and contracts – if fibrin mesh is created within a synovial joint the tissue can thicken and contract = restricted joint movement.

High protein levels -> increase the osmotic pressure within the tissues which causes more fluid to move towards an area of high concentration = increased swelling / pain

4) **What are the main cellular processes during the repair stage?**

New capillary formation -> tissues are enriched with plasma proteins, cells, fluid and oxygen. Fibroblasts create fibrils which multiple and polymerase (change structure) creating bundles of collagen fibres = new tissue created.

5) **Based on the stages of healing when would you load a muscle?**

Repair/proliferation stages which can happen from 3 weeks to 6 months – loading a muscle during this period allows natural tension in the healing tissue – encouraging an effective architectural line up of collagen fibres making tissues stronger

6) **What are the main factors that should be encouraged in tissue repair?**

Decreasing pain and tissue pressure caused by swelling and inflammatory exudate with icing, gentle massage, muscle contraction (isometrics) and elevation – which will encourage drainage and vasoconstriction of capillary networks surrounding injured tissue [0-4 days]

Avoiding aggravating factors and high loading to early on in tissue healing.

Key points from article:

- You cannot physically increase the rate of cellular activity for healing, but you can influence factors for healing to create a favourable environment: early self-management (elevation, cooling, exercise, and massage), healthy balance diet (vitamin C) and loading at the right time during collagen depositing.
- Skin tissue will regenerate, other tissues re muscles, ligaments/ joint capsules, nerve endings will heal with fibrous scar tissue

#WHATSNWEFRIDAY by Jess Miller

Tendinopathy – screening and action points with TendonQ by Tom Goom <http://www.running-physio.com/tendong/>

The TendonQ questionnaire is designed to help clinicians identify other conditions that may be contributing to tendinopathy or slowing down the rehabilitation.

It screens for:

-**Rheumatological conditions** e.g. spondyloarthropathy, RA, gout as tendinopathy can be a feature of these conditions

Action points: If you suspect an inflammatory disease, you should refer to a rheumatologist. You can also request blood tests e.g. ESR, CRP, HLA B27, liver function tests.

-Medications which may exacerbate tendinopathy e.g. fluoroquinolones anti-biotics. Long term use of steroids may increase the risk of rupture. Muscle pain is commonly reported when using statins, however, a recent review (Teichtahl et al, 2016) suggested that some statins may protect against the development of tendinopathy.

Action points: Be mindful of increased risk of rupture. May require slower, more careful loading.

-Capacity changers which influence the load capacity of the tendon e.g. age, peri-menopause, smoking, thyroid dysfunction, diabetes, hypertension, obesity and increased cholesterol

Action points: Consider more gradual progression of loading. Encourage weight loss and smoking cessation if required.

-Psychosocial factors such as stress can impact healing. Anxiety, depression and reduced sleep also have the potential to influence pain and coping strategies. Negative beliefs that can lead to fear avoidance should also be explored.

Action points: Some issues raised may require further exploration and discussion. Involve other members of the MDT as required.

For the next #CLINICALSKILLSFRIDAY- upper limb pulses.

Any pictures, suggestions or comments to Jessica.z.miller@ahpsuffolk-cic.nhs.uk.

#NEWSOFTHEWEEK by Liz Wright

1. Achilles tendinopathy infographic – management tips.

Great advice regarding the management of Achilles tendinopathy (patient friendly layout) – education from session one is key. Provision of this to suitable patients would certainly aid this!
<http://tendinopathyrehab.com/achilles-tendinopathy-management-infographic/>

2. Rotator cuff tears: is non-surgical management effective?

Paul Sealey and Jeremy Lewis narrative review is to present the current literature. It has been concluded a person-centred non-surgical management programme, appreciating the persons beliefs, expectations and goals should result in better outcomes than a non-specific shoulder rehabilitation programme, improving adherence, encouraging self-management. However, further studies need to address long term outcomes. Of the 3 RCTs reviewed only 1 reviewed outcomes > 12 months presenting suggestions of deteriorations in the non-surgically managed group from 2-5 years. The functional restrictions and implications for those patients presenting with atraumatic rotator cuff tears should be identified early (occupation/socially) – an initial course of physiotherapy is advocated in the first instance in the management.

<http://www.tandfonline.com/doi/pdf/10.1080/10833196.2016.1271504>

3. Dispute over the accuracy of the NHS screening plan for type 2 diabetes

A recent study published in the BMJ assessed the diagnostic accuracy of screening tests for pre-diabetes and efficacy of interventions (lifestyle or metformin) in preventing onset of type 2 diabetes in people with pre-diabetes. Conclusions drawn; HbA_{1c} is neither sensitive nor specific for detecting pre-diabetes; fasting glucose is specific but not sensitive. As screening is inaccurate, many will receive incorrect diagnosis and referred on for interventions while others will be falsely reassured

and not offered interventions. Suggesting “screen and treat” policies alone are unlikely to substantially impact the worsening epidemic. However, trial evidence supports the role of lifestyle interventions in reducing individual progression to diabetes, benefiting those high-risk individuals. <http://www.bmj.com/content/356/bmj.i6538> and http://www.bbc.co.uk/news/health-38506713?ocid=socialflow_twitter&ns_mchannel=social&ns_campaign=bbcnews&ns_source=twitter

4. Australia bans non-prescription codeine to fight opioid crisis

Australia has become the latest country to ban over-the-counter sales of medications containing the opioid painkiller codeine. A new regulation (beginning 1st February 2018), is hoped to halt the rise in codeine-related deaths. Codeine can currently be purchased in Australia and the UK without a prescription; low doses are found in some painkillers and cold and flu tablets. Even in small doses, codeine has the potential to become addictive. Inside the body, it is partially metabolised to morphine. Australia’s Therapeutic Goods Administration noted that codeine doesn’t provide effective pain relief at the low doses used in over-the-counter medications. No plans have been announced yet to make codeine prescription-only in the UK. <https://www.newscientist.com/article/2116813-australia-bans-non-prescription-codeine-to-fight-opioid-crisis/>

#MEDOFTHEWEEK – by Alex Courtney-Hatcher

GLUCOSAMINE

- Commonly sold forms are glucosamine sulfate, glucosamine hydrochloride, and *N*-acetylglucosamine
- Glucosamine is often sold in combination with other supplements such as chondroitin sulfate and methylsulfonylmethane
- A naturally occurring amino sugar produced and distributed in cartilage and other connective tissue, helping cartilage retain water
- Is thought to have a role in the synthesis of cartilage as well as delaying its breakdown
- Marketed towards people suffering from OA

- Dose – 1500mg daily needed to reach therapeutic effect

- Evidence –
 - Glucosamine/chondroitin arthritis intervention trial (GAIT) was the first large-scale, multi-centre clinical trial to test the effects of glucosamine and chondroitin on knee OA
 - For participants with moderate to severe pain, glucosamine combined with chondroitin sulfate provided statistically significant pain relief compared with placebo – however, due to a small sample size these findings should be considered preliminary and need to be confirmed in further studies
 - For participants with mild symptoms there was no statistically significant pain relief from taking glucosamine together or alone compared with placebo

- Cautions –
 - Shellfish allergy
 - Can increase blood sugar levels – caution if diabetic
 - Reports of possible interaction with chemotherapy drugs
 - Side-effects, usually mild and infrequent –
 - Diarrhoea
 - Headache
 - Rash

<https://nccih.nih.gov/research/results/gait>

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