

# Online HorseCollege



## **Student Workbook**

### **3.H.20 Therapies**

[www.OnlineHorseCollege.com](http://www.OnlineHorseCollege.com)

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## ***Therapies 3.H.20 Workbook***

Students are to complete Horse Care 3.H.13-16 online assessments prior to attempting Horse Care 3.H.17-20 and to follow all recommended safety considerations.

Practical assessments for Horse Care 3.H.17-20 are as follows:

- A) Ailments of the Digestive System
- B) Ailments of the Respiratory System
- C) Ailments of the Circulatory System
- D) Therapies

These assessments incorporate the following unit from the SIS30710 Sport Industry Training Package which include the listed elements

RGRPSH401A Relate anatomical and physiological features to the care and treatment of horses

- Identify basic anatomy and physiology of horses
- Relate anatomy and body systems to the performance of racehorses
- Follow illness and injury management plans

*Further information about this assessment is available at [www.training.gov.au](http://www.training.gov.au)*

## **Therapies Introduction**

Many therapies are available to treat all sorts of the injuries our horses are faced with. As a horse owner, trainer or coach it is important to be aware of how horse's bodies heal, the medications that can be used and therapy options available in order to be able to provide the best possible recovery and training program for horses in your care.

As a general rule in the event that a condition or injury does not improve or that the ailment cannot be identified veterinary attention and advice should be sought.

## Healing Process of Wounds

Many factors can be at play in the successful healing of wounds. Systematic disorders can interfere if there are vitamin A, C, zinc or protein deficiencies, as well as abnormalities in the heart, liver or kidneys, even age and hormones can contribute and slow the process of wounds healing.

When the initial wound occurs the first thing to happen in the healing process is that a blood clot occurs, this happens by the blood vessels in the wound contracting. Once bleeding has stopped the blood vessels then dilate to all nutrients and cells, this occurs as an oozing fluid. This activity of the body will be accompanied by signs of swelling, pain, heat and possibly lameness (depending upon the location and severity of the injury).

From here new tissue is built in the wound including new blood vessels. Healthy tissue should be uneven, granular, pink or red in colour and should not bleed easily. The condition and colour of this new tissue can help to indicate the how well the wound is healing with dark tissue tending to be a sign of infection.

In the final phase of healing the wound will close with cellular activity and blood vessels in the area decreasing as they are no longer needed to support the area.



## Healing Process of Bones

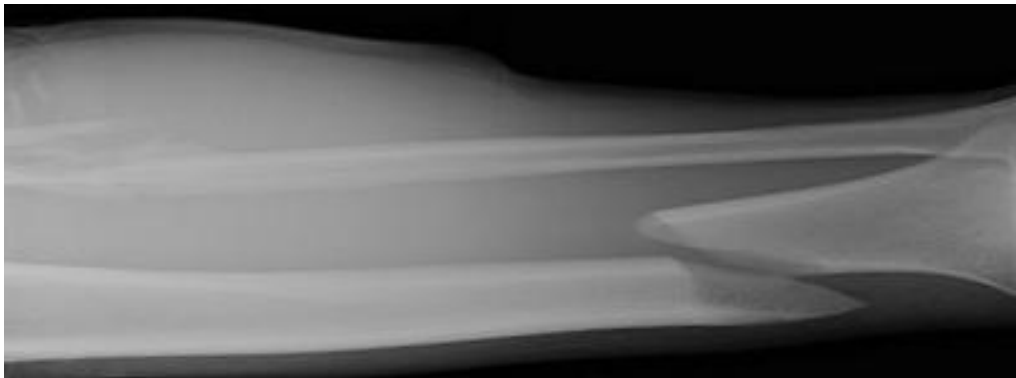
Bones are living tissue, important for many functions and in horses a broken bone is a serious set back.

Bones are light and inside have a honeycomb appearance, the channels in the honeycomb allow for the flow of blood which supports the activity within the bone. It is this activity (metabolic) that allows bone to re-heal itself when a break or fracture occurs because bone is constantly remodelling itself to in response to stress during exercise and activity.

When a bone first becomes broken inflammation will occur at the site, this means swelling, bruising, pain and lameness (drastic), a broken leg in a horse is most often not a pleasant sight. Damaged bone cells at the edge of the break will die back and release a chemical which begins the healing process however healing cannot begin until the broken bones are returned to their place and stabilised.

Upon stabilisation blood clots which formed around the broken ends will begin laying down tissue to repair the break. This tissue forms a soft callus which holds the bones together while cartilage is formed. From the stability provided by the soft callus new blood vessels form and it is during this stage that cells begin to lay down new bone.

The soft callus will become hard with the release of minerals such as calcium and phosphate into the cartilage tissue. Because the healing process of the body allows for a harder callus to be developed than is necessary over time the cells within the bone will remodel it depending upon the stresses the bone encounters.

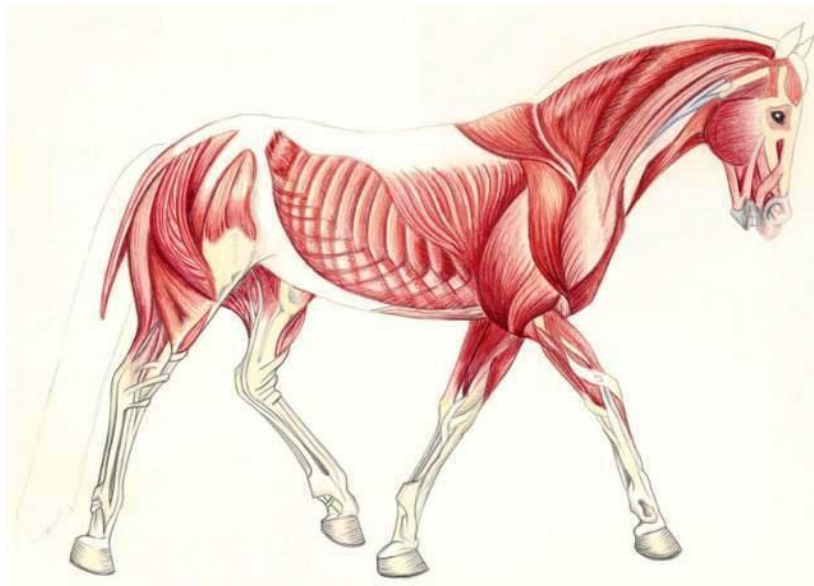


## Healing Process of Muscles

Injured muscles result in tissue dysfunction which can be caused by direct (sudden overload) or indirect (stress over a long period) trauma. Muscle injuries do not heal with muscle tissue instead other substances such as collagen is used.

As with other injuries the first phase of muscle healing is inflammation indicated by swelling, pain, heat and lameness. During this stage a blood clot forms in the area and special living cells within the area remove the dead cells and debris.

Next scar tissue is starts to form and damaged capillaries are repaired/reformed to bring nutrients into the area. Gradually collagen fibres form a strong, tight scar, however the muscle will not return to it original state of strength.



## Medications

There are a wide range of medicines used to treat the ailments of horses, most of which will only be available through the veterinarian. There are also various categories of veterinary medicines:-

- Prescription only medicine (POM): As the name implies this category can only be sold or supplied by a veterinary surgeon.
- General sales list: These are products which are available over the counter at saddleries and produce/feed stores such as antiseptic sprays, worming pastes and tetanus booster vaccines.
- Pharmacy: Medicines which are only sold by a veterinarian for animals under their care.

### Sedation drugs

Acetylpromazine:

This group of drugs are used for sedation or tranquillizer purposes. It is administered orally, intramuscularly or intravenously, these drugs also have an analgesic effect however as a side effect they do lower blood pressure and therefore are not used on horses in shock.

Chloral hydrate:

Less frequently used now that better sedatives are available.

### Steroid drugs

Anabolic steroids:

These drugs have effects on hormones and are often used to accelerate weight increase, muscle development, tissue regeneration, the efficiency of protein utilisation and to assist in recovery from infectious diseases. Common substances of this group are testosterone, trenbolone and nandrolone. Male type behaviour can be produced in female animals receiving this type of medication.

## Medications (cont.)

### Antibiotics

There is a large number of substances which fall into this category. Antibiotics destroy bacteria and disease causing organisms. The choice of the drug used is determined by the infecting organism and its susceptibility to the drug. The nature of the drug and of the infection will also determine how it is administered whether orally, topically or by injection. Some common groups of antibiotics include:-

- Penicillin (commonly used)
- Sulphonamides
- Tetracyclines
- Cephalosporins
- Aminoglycosides
- Macrolides

### Anti-inflammatory drugs

Flunixin meglumine:

Another anti-inflammatory drug used to treat musculo-skeletal disorders and sometimes colic. It reduces pain and inflammation and is administered orally or by intramuscular or intravenous injection.

Phenylbutazone:

This is one of the most frequently used drugs for horses. It is used to reduce pain and inflammation from lameness, infectious conditions, post-operative pain and swelling and musculo-skeletal disorders. It can be given orally as a powder mixed in feed or as a paste but also can be administered intravenously. Long term use can cause irritation of the stomach and intestine.

Aspirin:

Not frequently use but aids as a treatment for arthritis and muscle or joint injury. it too can cause gastric problems with long term use.

Mefenamic acid:

This drug is more powerful than phenylbutazone and has an analgesic action. Used for the treatment for musculo-skeletal disorders it is administered orally as granules mixed in feed.

## Medications (cont.)

Naproxen:

Used to treat soft tissue disorders.

### **Hormones**

Corticosteroids:

Cortisone is produced by the adrenal gland and influences metabolism, allergic reactions, kidney function, healing and electrolyte balance. Corticosteroids are mainly used to reduce inflammation associated with conditions of the skin, muscles and joints.

### **Muscle Relaxants**

Hyoscine:

This drug has muscle relaxant properties (an antispasmodic) and can be used to treat colic and diarrhoea.

### **Poultices**

These are used for cleansing wounds and can be applied to the hooves or legs with bandages.

Antiphlogistine:

Is available as a paste.

Kaolin:

Available as a powder or paste.

Animalintex:

This is a dressing which is impregnated with boric acid and requires wetting with warm or cool water before application.

## Medications (cont.)

### Bronchodilators

These drugs widen the air passages assisting to facilitate breathing and removal of mucous from the lungs.

Clenbuterol:

This drug relieves spasms of the small airways in relation to COPD.

### Vasodilators

These drugs relax the smooth muscle wall of arteries and blood vessels resulting in widening of these blood passages. Examples of vasodilators include nitroglycerin, nitroprusside, hydralazine and prazosin.



## Therapies

Many various therapies are available to treat horses nowadays. A therapy is a treatment which intends to relieve or heal disorders. Whilst the therapies we look at here all encourage improvement in the health of the horse the methods used and the body systems they utilise are different.

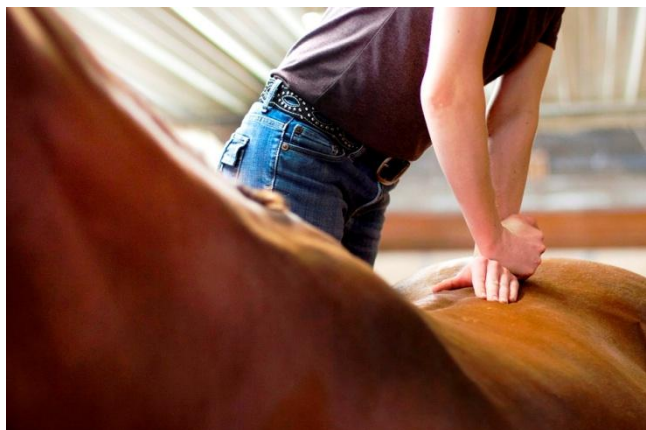
### Acupuncture

Acupuncture is an old therapy which dates back about 4,000 years. It involves the stimulation of points of the body, when these points are stimulated they have the potential to alter biochemical and physiological conditions of the body. It is used particularly in the horse industry for musculo-skeletal problems.



### Chiropractic

The aim of chiropractic work is to restore function and mobility through adjustments of anatomical structures. Nerves, muscles and the skeleton are intertwined systems; if the biomechanics of the spine becomes dysfunctional it can affect the nerves and muscles of the body. Chiropractors work to realign vertebrae to restore normal motion.



## Therapies (cont.)

### Ultrasound

Ultrasound therapy makes use of sound waves to treat joint conditions and soft tissue injuries (i.e., tendons and ligaments). It stimulates cellular activity and causes vasodilation (increases blood flow and circulation) this vasodilation helps to remove swelling and toxins in the injured area.



### Electromagnetic

Magnetic therapy has been around for more than 2000 years. A magnetic field is used to promote healing and treat ailments such as soreness (backs, stifles, shoulders), tendon and ligament injuries, laminitis and stone bruises. It has been shown to decrease inflammation, improve circulation and reduce pain.



### Hydrotherapy

The use of hydrotherapy (cold, sea water) or swimming horses is not only to promote healing of injuries but can also be a beneficial training tool. As a training tool hydrotherapy promotes conditioning of the muscular and cardio-vascular systems without the strain and stress on limbs from repetitive concussion. As a treatment for injury, salt water often promotes healing of wounds, the cold water often benefits injuries where inflammation is involved and it is also used as rehabilitation for horses returning to work from injury.



## Extension Lesson

Describe any experience you have had with the healing process of wounds, bones or muscles and describe the actions that were taken to promote, encourage or improve healing.

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Have you had any experience with any of the medications mentioned in this workbook?

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If you answered 'yes', which medications have you had experience with and what were they used to treat?

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## Recommended Reading

Publication:-

Veterinary notes for horse owners

The BHS veterinary manual

Author:-

Captain M. Horace Hayes

P. Stewart Hastie

## References

### Publication:-

Veterinary notes for horse owners  
The BHS veterinary manual  
Common Health Problems of Horses  
The Complete Horse Care manual

### Author:-

Captain M. Horace Hayes  
P. Stewart Hastie  
John Kohnke  
Colin Vogel

### Websites & Images:-

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