

# Factors of healing delay worksheet

12 Factors of Healing Delay (Knottenbelt 2003)	Y - Yes N - No ? - Maybe	Explanation	What investigations are needed to confirm / rule out factor?
<i>Movement</i>	Y N ?	Deep or superficial tissues moving at the wound site prevent adhesion of capillary buds and wound contraction. Granulation tissue may fail to adhere causing pocketing or may become exuberant around points of shearing eg. Hock/elbow.	Client compliance? Active patient? Wound location? Effective immobilisation?
<i>Foreign body</i>	Y N ?	The tissue response to a foreign body is similar to that of necrotic tissue. From small particles of grit to large articles inflammation will be extended until the source is removed.	X-ray? Ultrasound? CT scan?
<i>Necrotic tissue</i>	Y N ?	Dead tissue prolongs inflammation and delays proliferation. Debridement of layers of devitalised skin, muscle, tendon and bone may be required.	Tendon necrosis? Sequestrum? Non viable tissue?
<i>Local factors</i>	Y N ?	Tension, Tissue Deficit, Interference Excessive dead space, Moisture Management	
<i>Infection / infestation</i>	Y N ?	Healing is delayed as bacteria proliferate. Species vary in terms of their ability to rapidly proliferate and to detrimentally affect healing. Anaerobes within puncture and bite wounds are particularly detrimental.	Culture?
<i>Altered local pH</i>	Y N ?	Change in the pH of wound tissue either too highly acidic or too alkaline may retard healing rates. Physiological pH can be altered by the presence of bacteria, but may also be due to urine scald. Some products may also change pH.	Test wound exudate with urine dipstick? NB. Wound pH over 9 could be indicative of pseudomonas
<i>Paucity of blood/. oxygen supply</i>	Y N ?	Major vessel disruption, ischemia and profound anaemia will retard or prevent healing. Oxygen is required for cellular respiration in healing. Hypoxia and low levels will prolong the inflammatory response preventing efficient granulation.	
<i>Toxicity</i>	Y N ?	Cytotoxic products may affect the healing process and interrupt normal cellular activity. Antiseptics such as chlorhexidine may be a common offender inhibiting fibroplasia and wound contraction during the proliferative phase of healing.	
<i>Poor nutritional or health status</i>	Y N ?	Formation of granulation and ability to fight infection is significantly delayed in malnourished patients. Diseases such as Cushings will also delay healing. Steroids used for unrelated conditions will retard the inflammatory response and delay granulation as a result.	
<i>Iatrogenic factors</i>	Y N ?	User error, compliance. Dressings and bandage complications could be considered iatrogenic.	
<i>Genetic factors</i>	Y N ?	Skin type eg. Greyhound skin versus Sharpei. Build type: sub bandage pressures higher in animals with narrow legs.	
<i>Cell transformation</i>	Y N ?	Any wound that has a history of tumour or which fails to respond to treatment may require biopsy to rule out tumour transformation.	Biopsy?