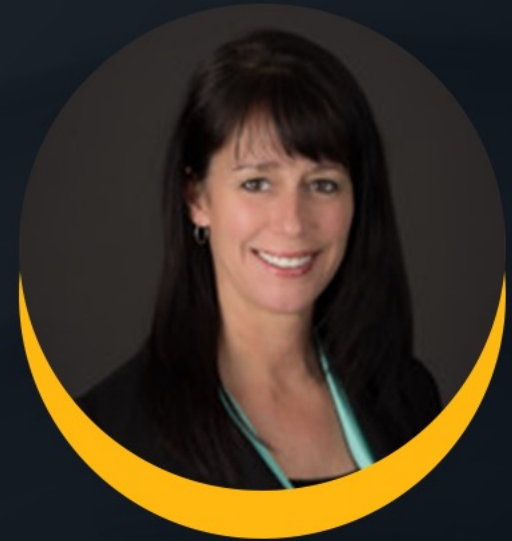


# RECOGNISING MASD

**10  
MAR**






**LUXMI DHOONMOON**  
UK



**MARY ANNE OBST**  
USA

# LEARNING OBJECTIVES

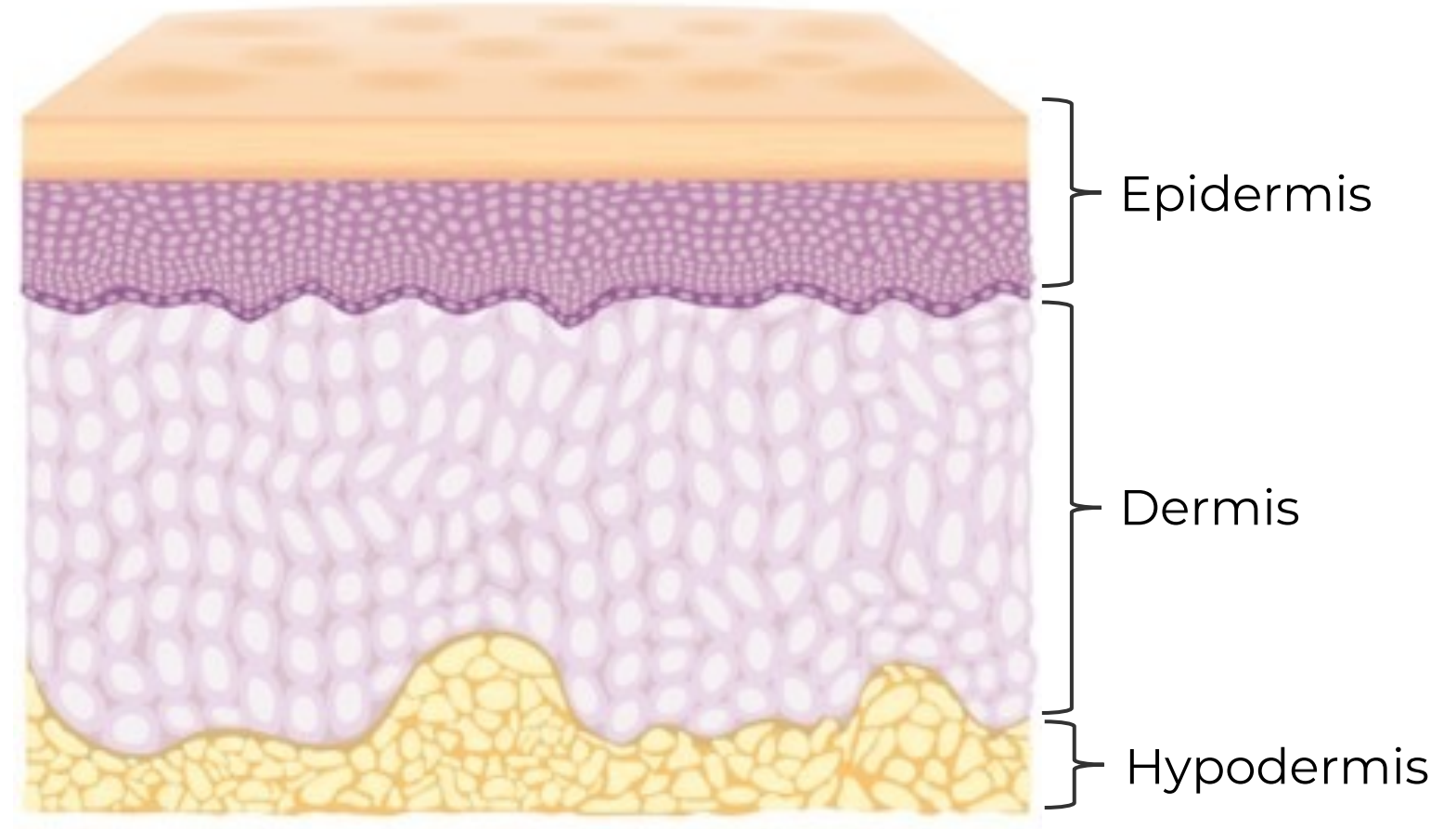
-  To understand the structure and functions of skin
-  To understand how moisture can disrupt the barrier function and damage the skin
-  To understand the four clinical manifestations that comprise moisture-associated skin damage.

# INTRODUCTION

- In order to understand how moisture can damage the skin, it is important to refresh our knowledge of the structure and function of the skin
- Largest organ in the body (Parnham et al, 2020)
- Performs a number of key functions that are vital to overall health and wellbeing (Wingfield, 2011).

- Skin consists of two layers, epidermis and dermis
- Divided by the basement membrane – nutrients and strength to epidermis
- Below the dermis is the subcutaneous layer or hypodermis which is made up of adipose tissue and connective tissue.

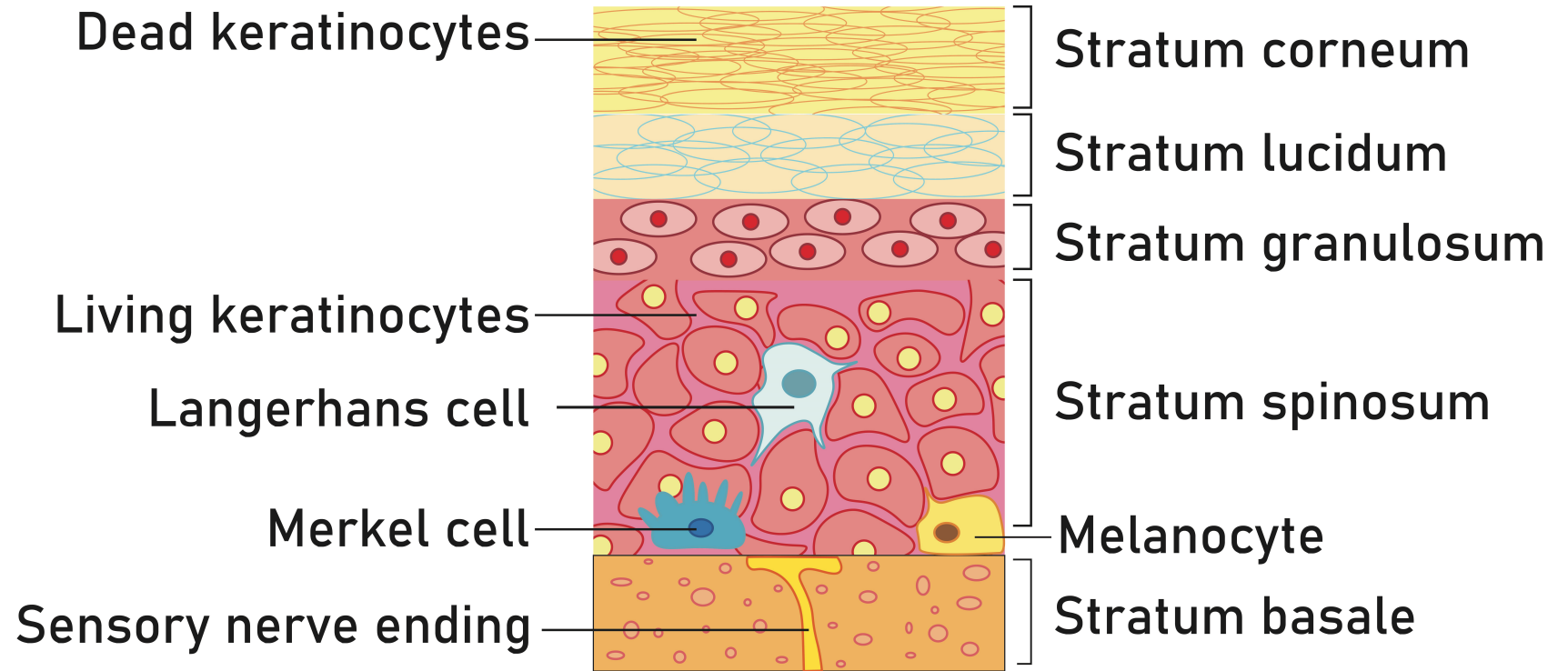
# THE SKIN





- Epidermis is avascular – entirely dependent on dermis below
- Made up of five layers – different maturity of keratinocyte.

# THE SKIN: EPIDERMIS



# EPIDERMIS: STRATUM CORNEUM

**Stratum corneum** (Beeckman et al, 2015; Boer et al, 2016):

- 15–20 layers of fully cornified keratinocytes – corneocytes
- Top part – layers arranged loosely and undergo scaling and shedding
- Bottom part – cells closely joined together with desmosomes
- Corneocytes embedded in intercellular lipids
- Corneocytes contain a natural moistening factor.

# DERMIS AND HYPODERMIS

## **Dermis:**

- Thicker, deeper layer
- Fibrous proteins, collagen and elastin – skin strength and elasticity
- Hair follicles, sebaceous glands, apocrine glands, eccrine glands, blood vessels and nerves.

## **Hypodermis:**

- Larger blood vessels and nerves
- Regulation of temperature and acts as a shock absorber.

# SKIN FUNCTION

- 1 Protection
- 2 Sensory perception
- 3 Temperature regulation
- 4 Production of vitamin D



# SKIN BARRIER FUNCTION

5

Main function of the skin is to provide a protective barrier. This depends on (Penzer, 2012; Boer et al, 2016; Wounds UK, 2018):

- Amount of sebum produced
- Epidermis hydration
- Transepidermal loss of water
- Maintaining a constant pH of between 4 and 6 – slightly acidic, known as the acid mantle.

# MOISTURE DAMAGE



- Moisture plays a key role in damaging the skin barrier
- Water from effluent, urine, faeces or wound exudate is pulled into and retained by corneocytes
- Causes swelling
- Disrupts structure of stratum corneum (Beeckman et al, 2015).



# MOISTURE- ASSOCIATED SKIN DAMAGE

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GLOBAL **FOCUS** | **MASD**

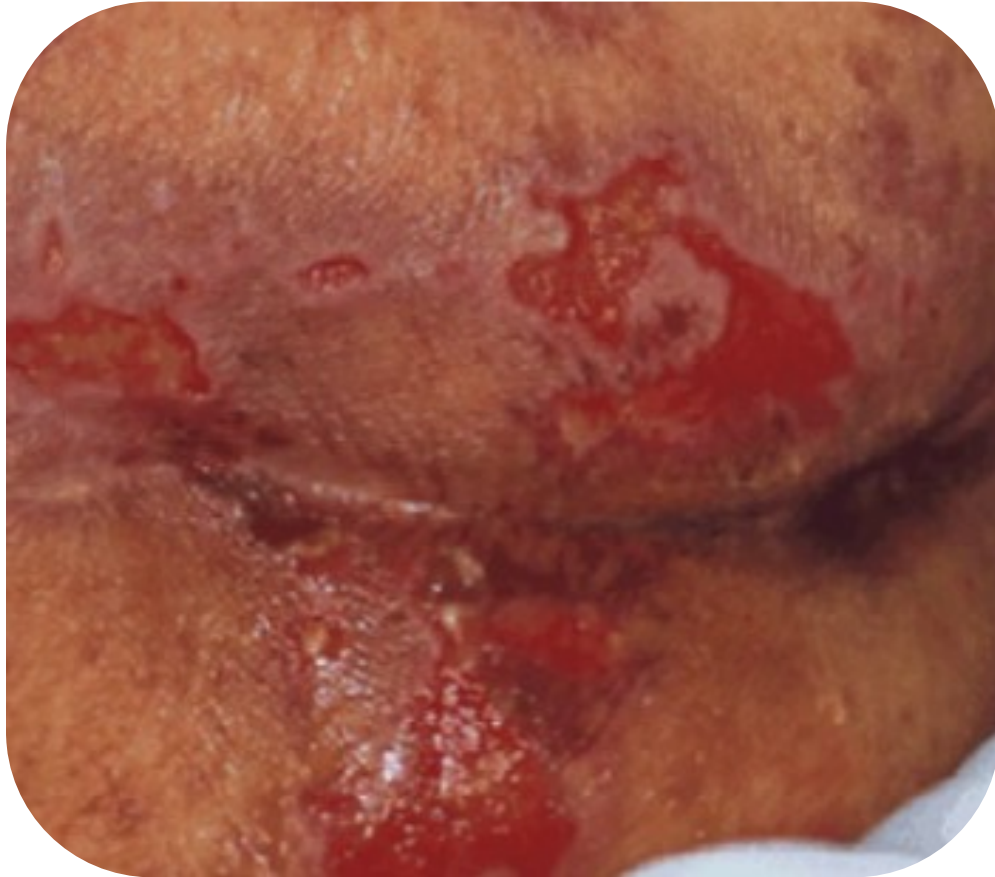
# FOUR CLINICAL MANIFESTATIONS

- 1 Incontinence-associated dermatitis
- 2 Intertriginous dermatitis
- 3 Periwound moisture-associated dermatitis
- 4 Peristomal moisture-associated dermatitis

# INCONTINENCE- ASSOCIATED DERMATITIS

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# INCONTINENCE-ASSOCIATED DERMATITIS



- Incontinence-associated dermatitis (IAD) describes the skin damage associated with exposure to urine, stool or a combination of these in adults
- IAD can affect quality of life, causing considerable pain and discomfort (Van den Bussche et al, 2018)
- Identifying those at risk and implementing prevention care is key (Fletcher et al, 2020).

# INCONTINENCE-ASSOCIATED DERMATITIS

- The distribution of affected skin is variable; genitalia, groins, inner thigh, perianal skin, gluteal fold, buttocks and thighs (Beeckman et al, 2015)
- Identify patients at increased risk
- Classification
- Accurate diagnosis should differentiate IAD from other potential conditions or causes (e.g. pressure injuries/ulcers)
- Manage incontinence.

# ANATOMICAL LOCATION OF IAD



*Location of IAD: perineum, peri-genital skin, inner thighs and skin under absorptive devices*

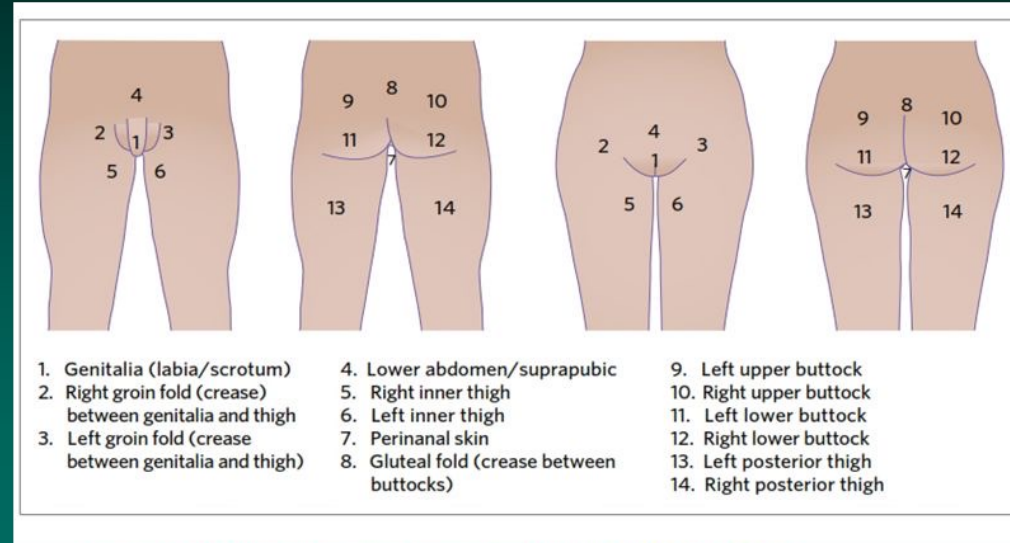


Figure: IAD: Moving Prevention Forward. [www.woundsinternational.com](http://www.woundsinternational.com)



# CAUSE AND INDIRECT RISK FACTORS

Examples of indirect:		Causal:
• Exposure time	• Malnutrition	Type of incontinence;
• Frequency and volume	• Medication	• Urine, faeces or both
• Poor skin condition	• Mechanical force	• Solid or liquid
• Increased age	• Washing	(liquid stool – greater risk)
• Critical illness	• Product use	
• Fever	• Compromised mobility	
• Low oxygen saturation	• Psychosocial factors	

(Fletcher et al, 2020; Yates, 2020)

# GHENT GLOBAL IAD CATEGORISATION TOOL

**1A**

Persistent  
redness  
without  
clinical signs  
of infection

**2A**

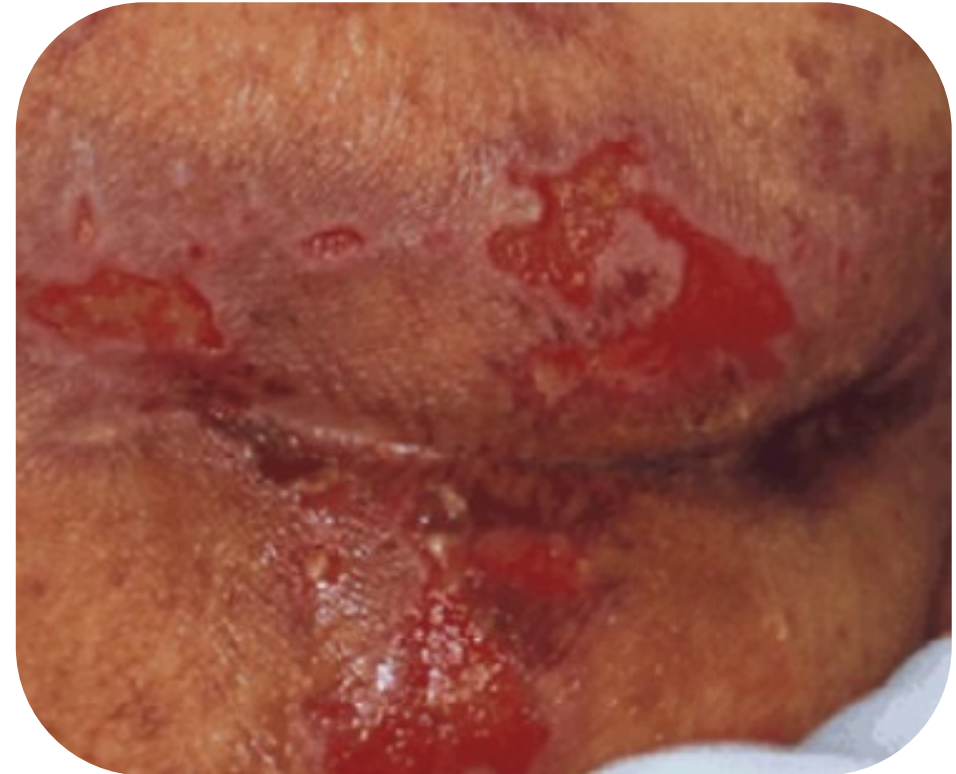
Skin loss  
without  
clinical signs  
of infection

**1B**

Persistent  
redness with  
clinical signs  
of infection

**2B**

Skin loss with  
clinical signs  
of infection



(Beeckman et al, 2018)

# WHAT CATEGORY OF IAD?





# WHAT CATEGORY OF IAD?



# INTERTRIGINOUS DERMATITIS

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# INTERTRIGINOUS DERMATITIS



- Also known as intertrigo
- Common inflammatory skin disorder that occurs with skin-to-skin friction in skin folds (or intertriginous regions)
- Moisture (normally perspiration) becomes trapped because of poor air circulation
- Increased friction leading to skin damage and inflammation
- Can be complicated by secondary infection (Voegeli, 2020).

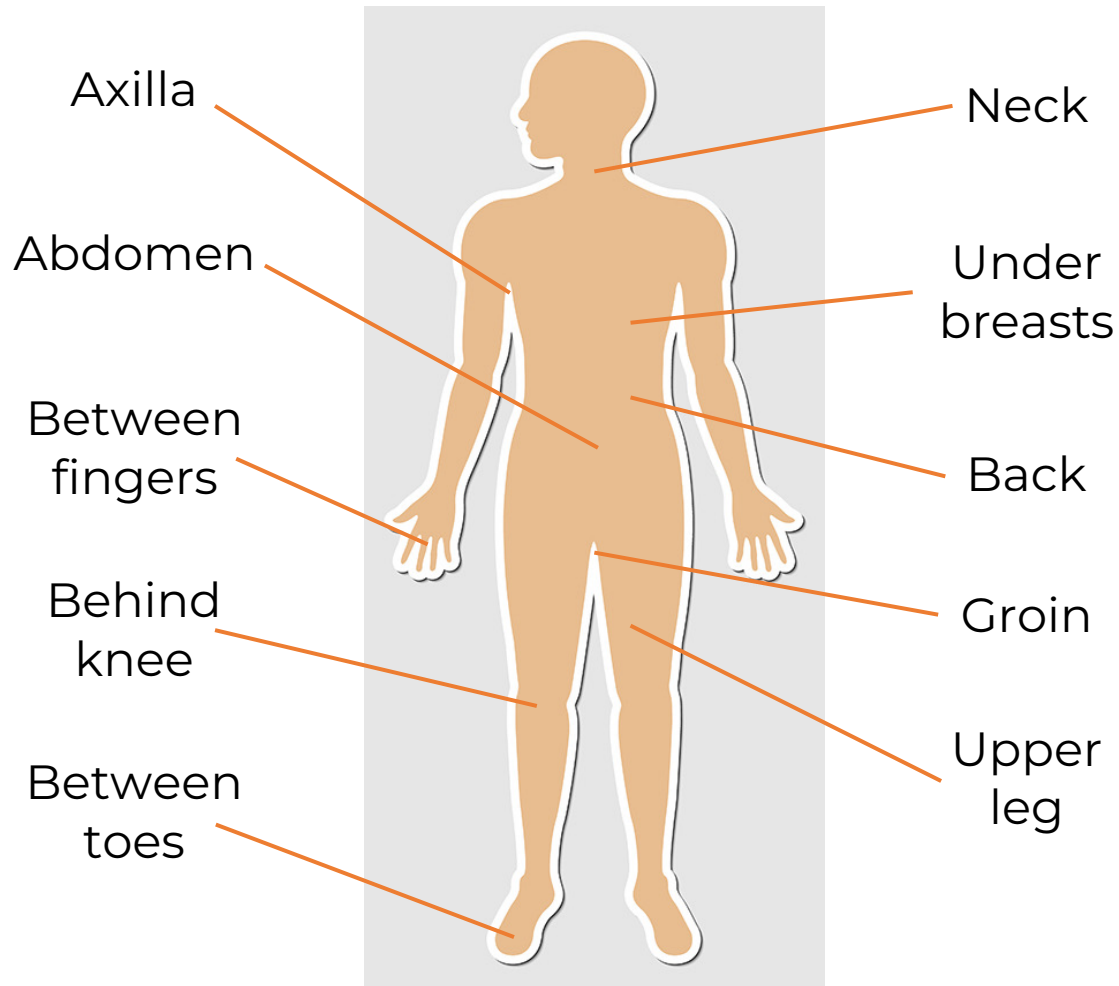


# COMMON BODY SITES

**Can occur in any area of the body where two skin surfaces are in close contact:**

- Interdigital regions – feet or hands
- Natural large skin folds – e.g. axillary, inframammary, umbilical, perianal and inguinal areas.

(Voegeli, 2020)



# IDENTIFICATION OF RISK IN ADULTS



- Strongly associated with obesity and skin care dependency
- Other risk factors include:
  - Hyperhidrosis (excessive sweating)
  - Immunodeficiency
  - Diabetes mellitus (skin pH higher)
  - Immobility
  - Obesity (Fletcher et al, 2020, Voegeli, 2020).

# IDENTIFICATION AND CLASSIFICATION

- Early detection and treatment is key
- No formal standardised risk assessment tool for Intertriginous dermatitis is currently in use (Fletcher et al, 2020)
- Diagnosis is dependant on the risk factors being present
- Starts with redness – inflammation – likely to develop infection
- Classic clinical signs include mirror image erythema in the skin folds, accompanied by sensations of itching, stinging and burning.

# PERIWOUND MOISTURE- ASSOCIATED DERMATITIS

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# PERIWOUND MOISTURE-ASSOCIATED DERMATITIS



- An important but sometimes overlooked area, despite impact on wound bed preparation and wound healing
- Confusion over definition – no clear definition exists
- Impossible to quantify area – related to underlying wound pathology, dressing, device, treatment and other factors.

**The periwound is the area around a wound that may be affected by wound-related factors and/or underlying pathology.**

(LeBlanc et al, 2021)

# PERIWOUND DAMAGE

Periwound damage can contribute to (Woo et al, 2017; Fletcher et al, 2020):

- Delayed healing
- Wound deterioration and increased wound size
- Increased infection risk
- Pain and discomfort
- Reduced quality of life
- Increased treatment time and associated costs.



# MECHANISM OF INJURY

- Acute wound exudate during normal wound healing is considered nurturing (Parnham et al, 2020)
- Chronic wound exudate can contain high levels of proteolytic enzymes that damage the stratum corneum – corrosive and destructive (Young, 2017).



# MECHANISM OF DAMAGE (CONT.)

- If the volume of exudate cannot be contained, it can leak out on to the periwound skin and become macerated and excoriated (Parnham et al, 2020)
- Exudate management is key to avoiding periwound damage (LeBlanc et al, 2021).

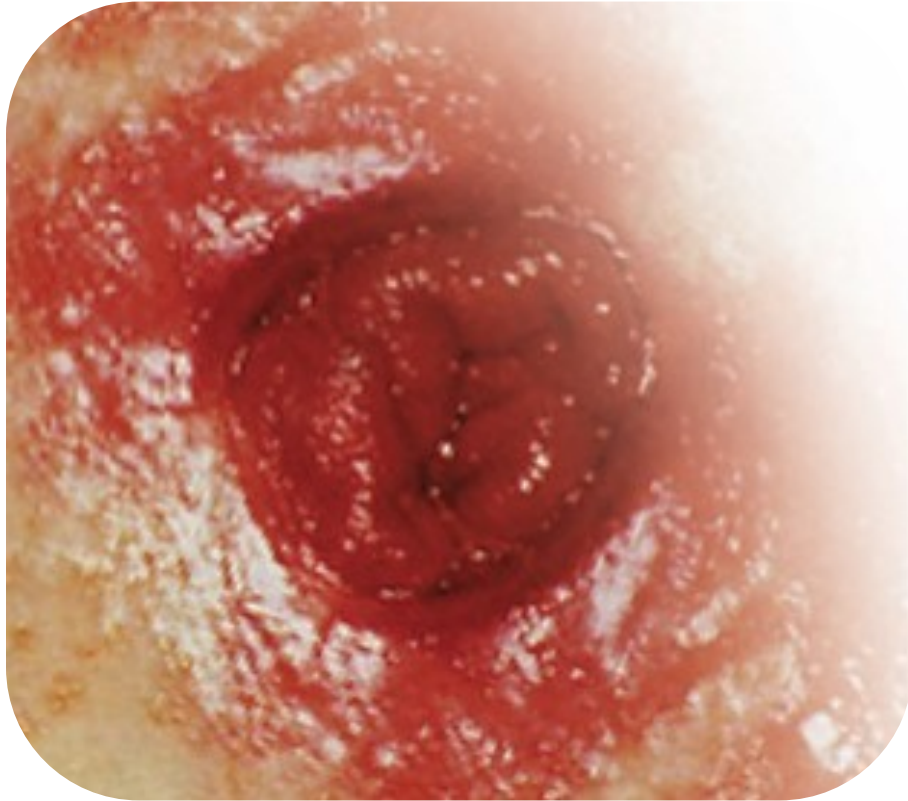


(Image © Clare Morris)

# PERISTOMAL MOISTURE- ASSOCIATED DERMATITIS

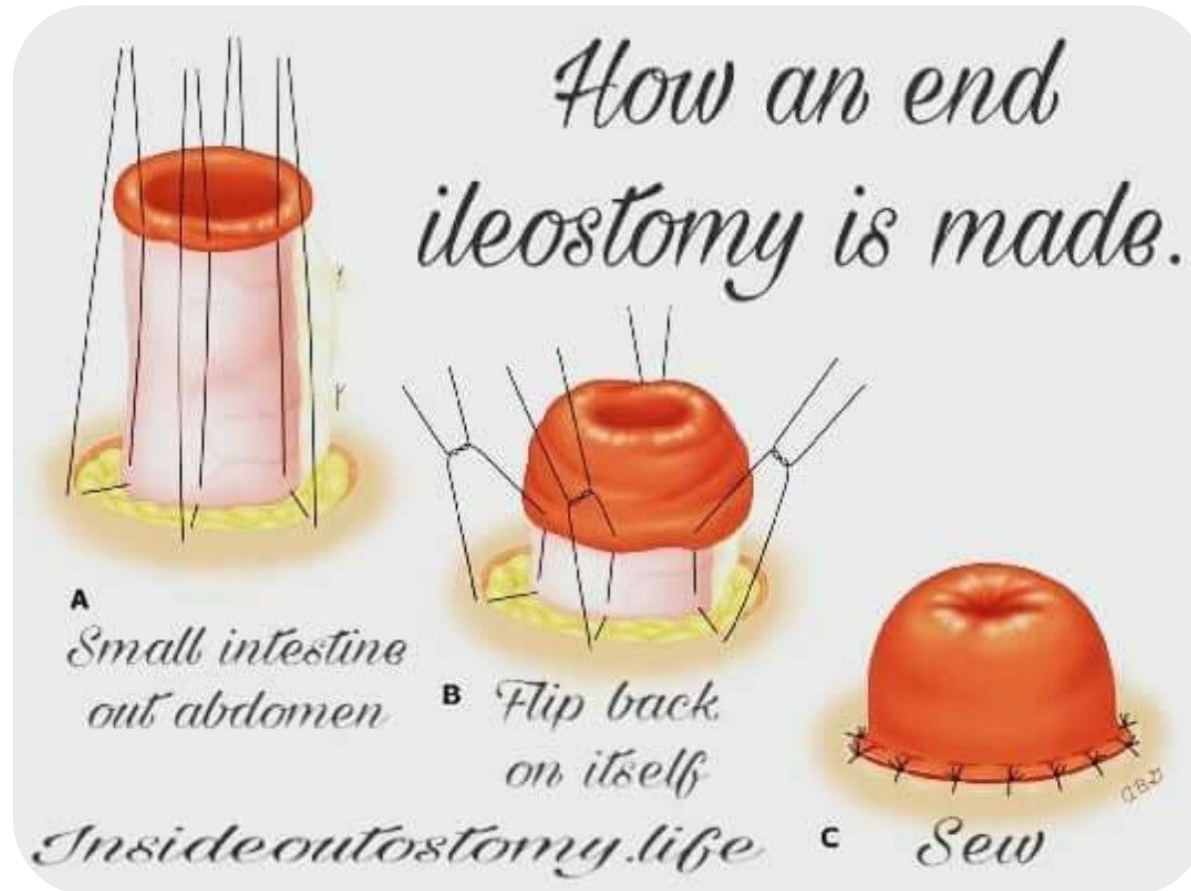
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# PERISTOMAL MOISTURE-ASSOCIATED DERMATITIS



- Peristomal skin refers to the skin around a stoma
- Nearly three-quarters of people with a stoma experience skin problems (Burch, 2011)
- Peristomal skin problems impair physical function, reduce quality of life and are associated with higher costs (LeBlanc et al, 2019).

# STOMA CREATION

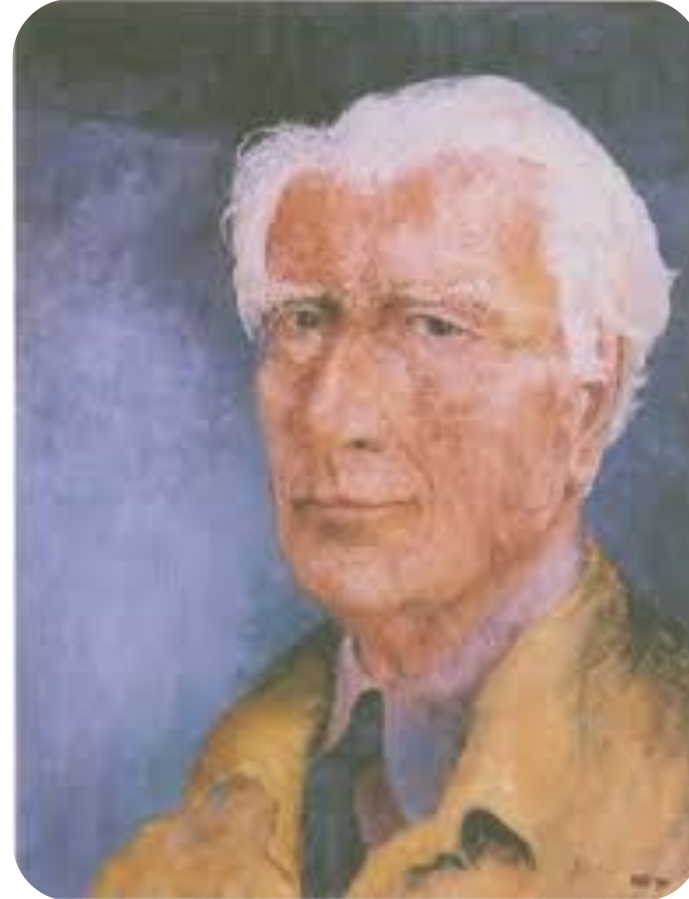




# PROFESSOR BRYAN BROOKE

- Pioneer of surgery
- Eversion technique

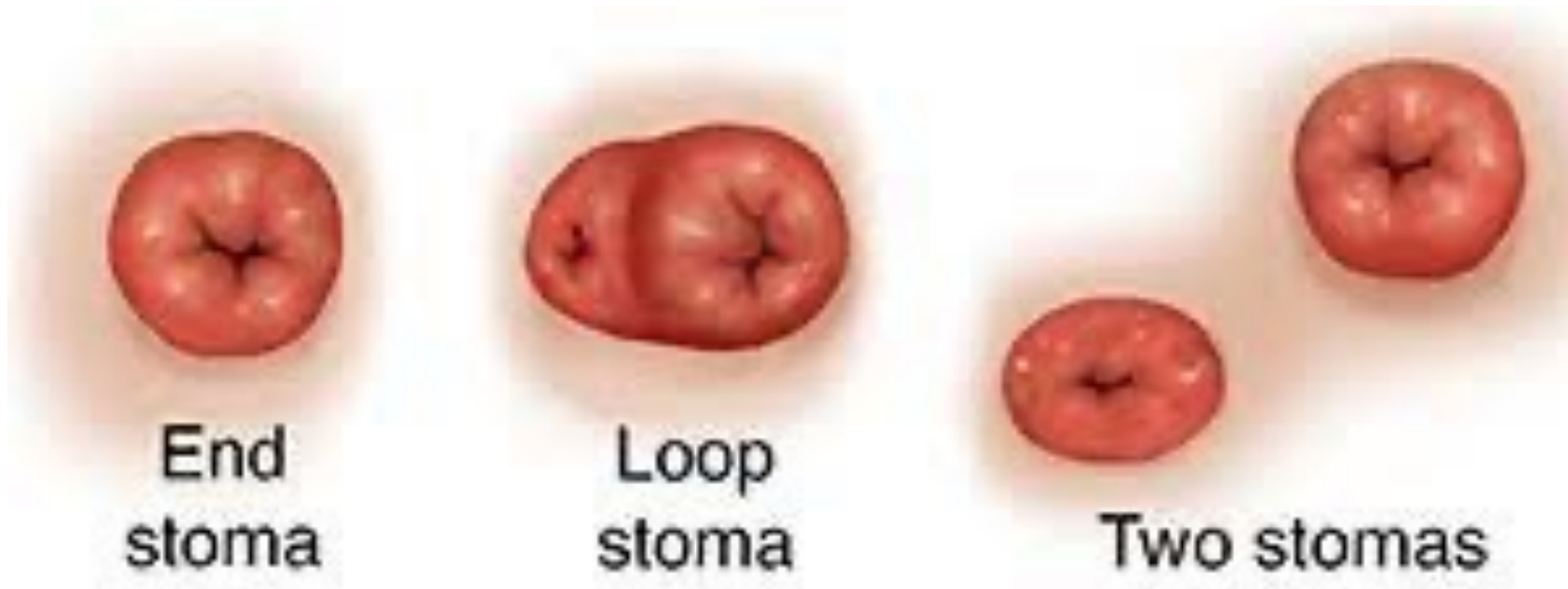
Gut, 1991, 32, 233 & Ann R Coll Surg Engl. 2007 Jan; 89(1): 78



# NEW ILEOSTOMY



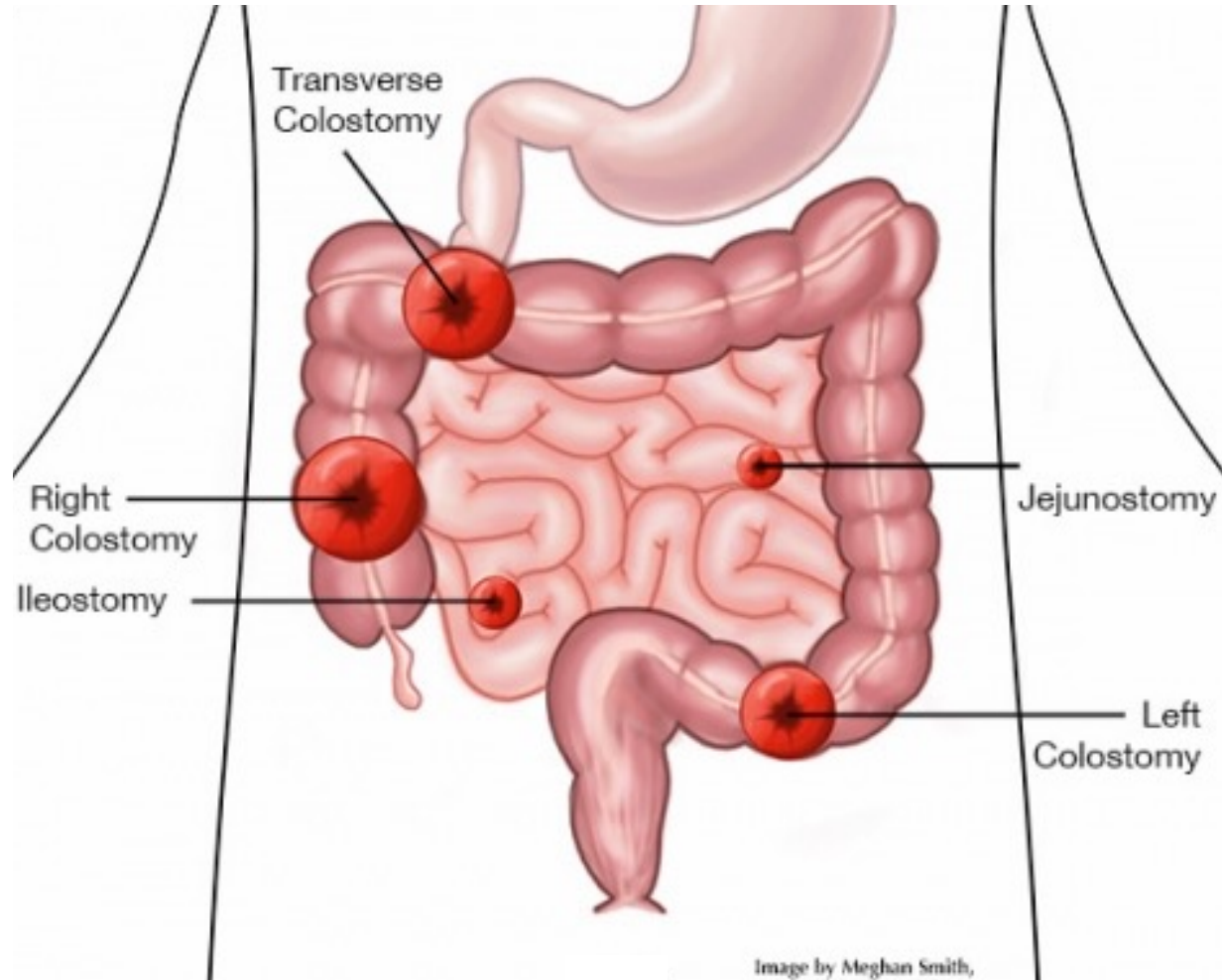
# STOMA TYPES





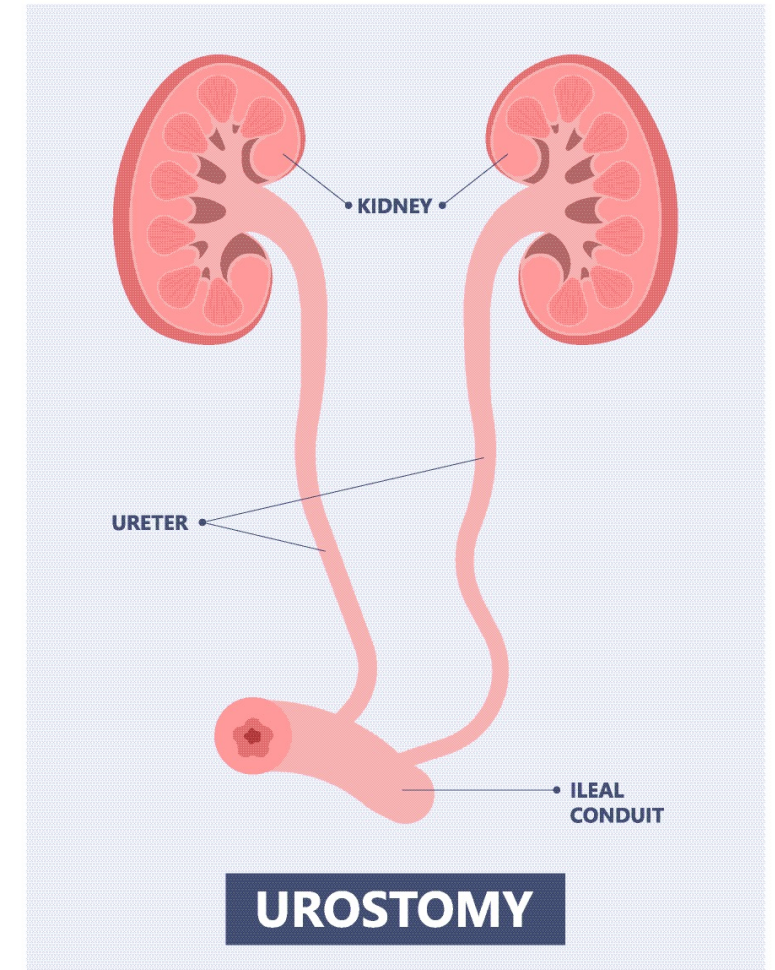
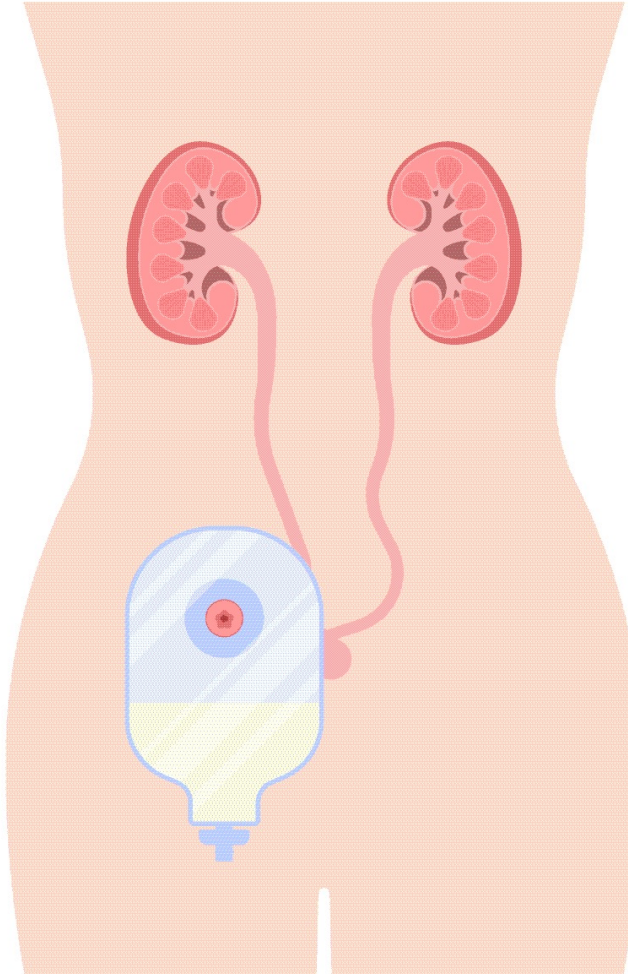
# GASTROINTESTINAL STOMA

Jejunostomy  
Ileostomy  
Colostomy

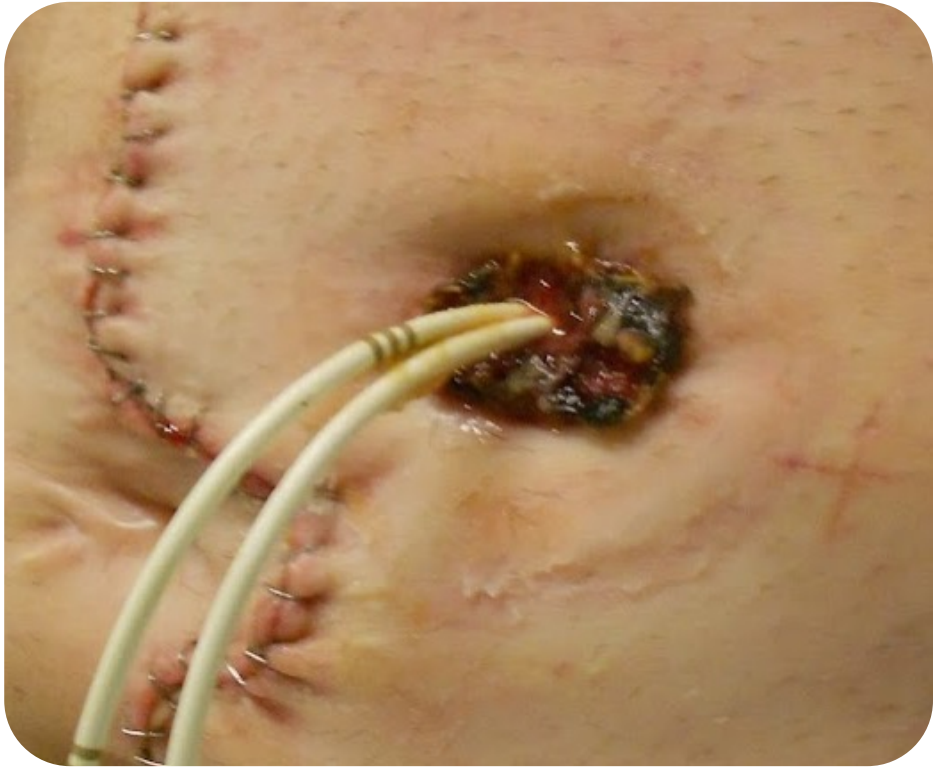


# URINARY DIVERSION

## Urostomy



# UROSTOMY WITH STENTS



# RECOGNITION OF PERISTOMAL MASD

- Discomfort
- Itching
- Soreness
- Pouch leaking
- Bleeding

# MECHANISM OF INJURY

- Liquid outputs rich in digestive enzymes become in contact with the skin (Voegeli, 2019)
- Inflammation or erosion of the skin beginning at the mucocutaneous junction (Fletcher et al, 2020)
- Leakage around the stoma leads to excoriation and skin breakdown (Voegeli, 2019)
- Repetitive pouch changes and skin exposure to succus

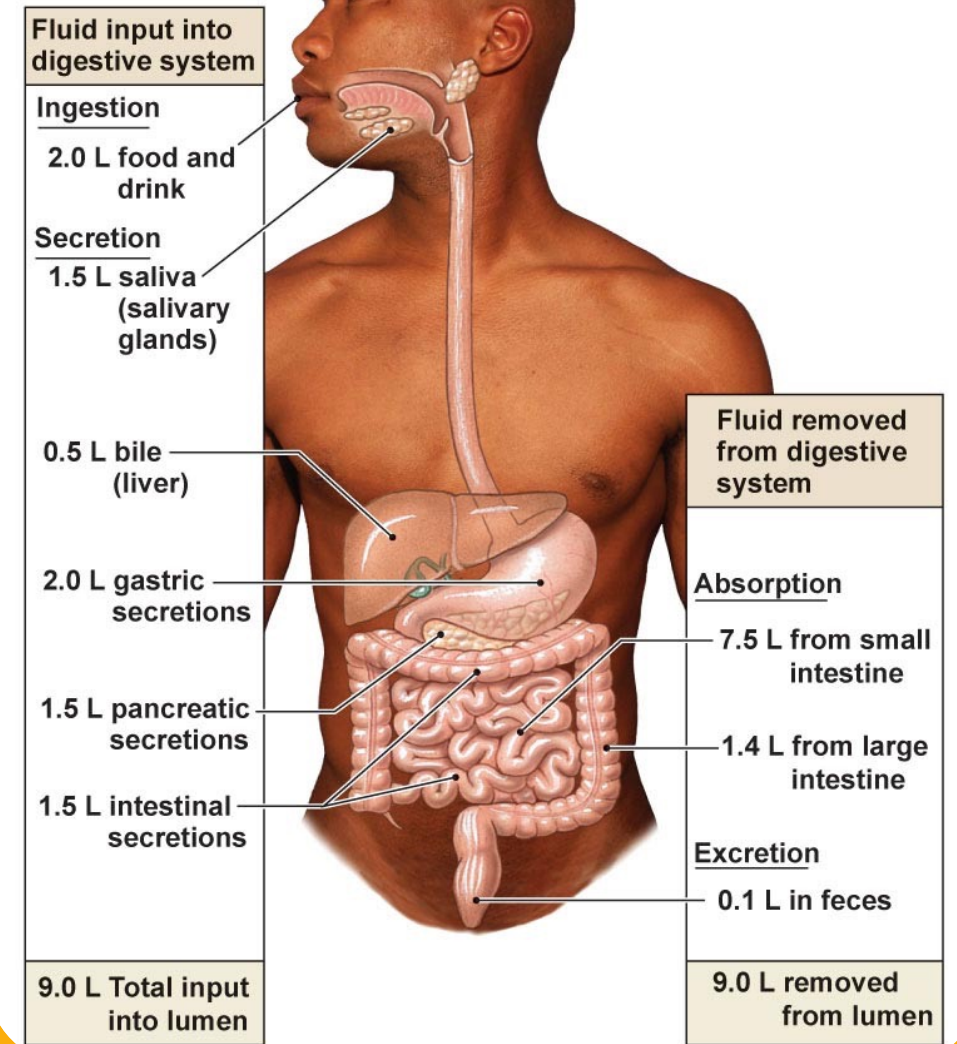


# OSTOMY AND FISTULA CARE....WHY IS IT SO HARD?

## EFFLUENT

## SUCCUS

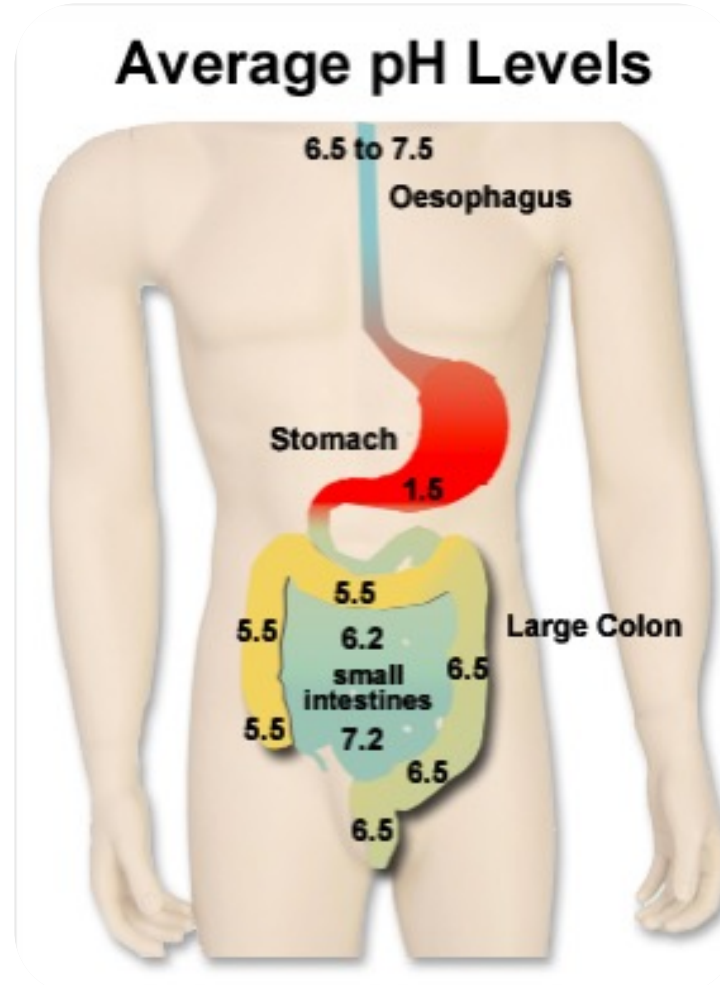
[https://www.google.com/search?rlz=1C5CHFA\\_enUS722US722&tbm=isch&q=anatomy+of+abdomen&chips=q:anatomy+of+abdomen,g\\_4:abdominal+viscera&sa=X&ved](https://www.google.com/search?rlz=1C5CHFA_enUS722US722&tbm=isch&q=anatomy+of+abdomen&chips=q:anatomy+of+abdomen,g_4:abdominal+viscera&sa=X&ved)





# PH LEVELS

ACID



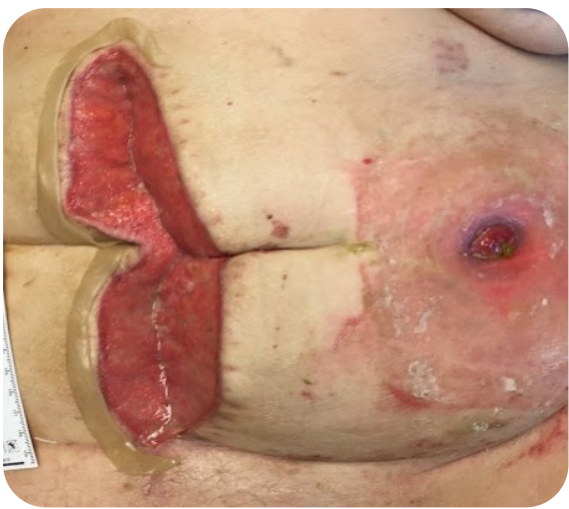
BASE

# RISK FACTORS

## Factors that increase the risk of developing peristomal skin problems:

- Abdominal skin anatomy such as creases or scars
- Location of the stoma on the gastrointestinal track
- Degree of protrusion
- Position of the lumen
- Incorrect ostomy device
- Changing technique and/or wear time
- Perspiration or exposure to external moisture
- High output stoma

(Fletcher et al, 2020)



**Moisture associated skin injury**



**Retracted**



**Adhesive/pouch injury**



**Pyoderma gangrenosum**



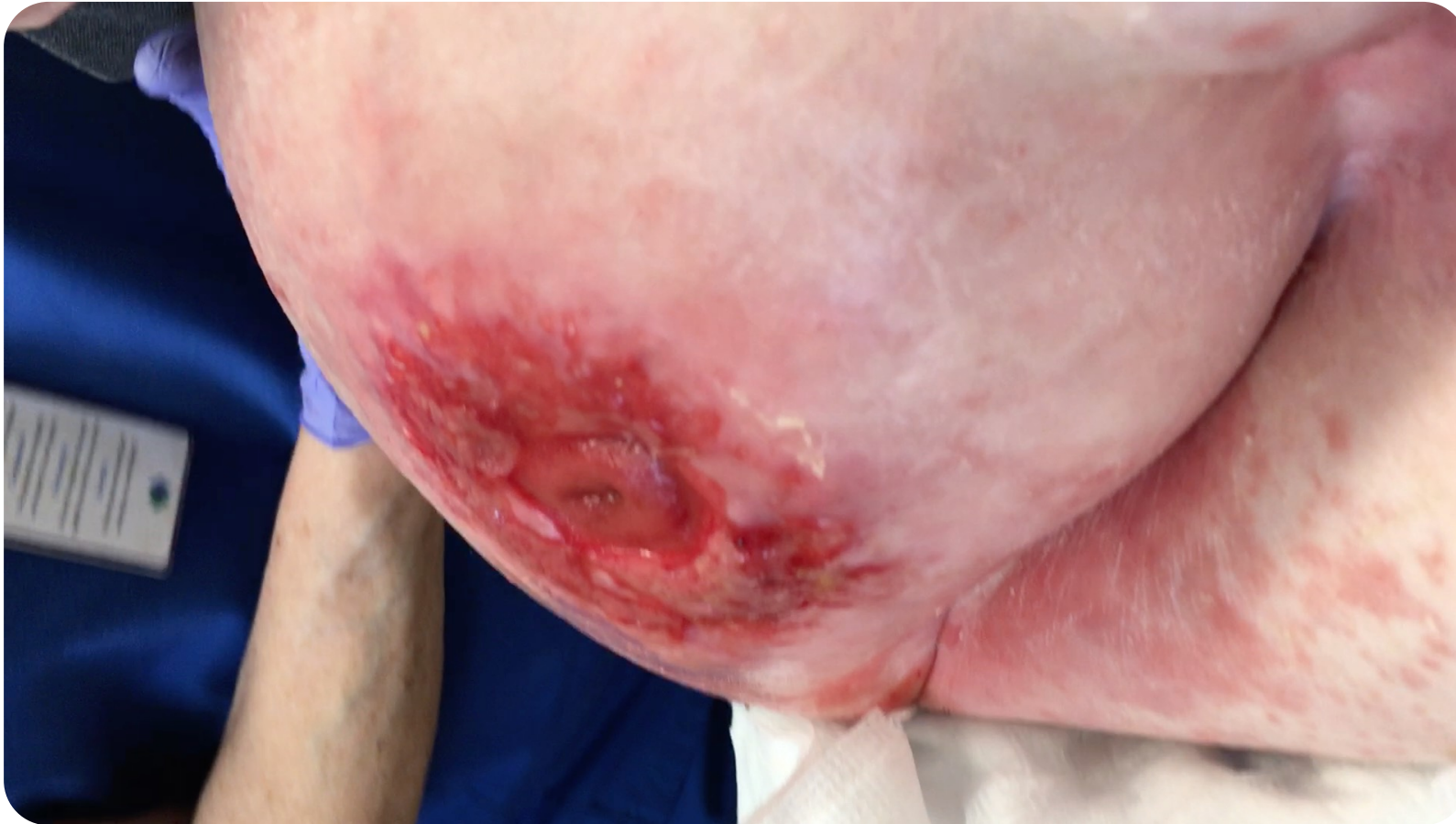
**MCJ separation**



**Prolapse**



# VIDEO OF PERISTOMAL MOISTURE-ASSOCIATED SKIN DAMAGE



- Painful
- Leakage anxiety
- Sleep loss
- Reduced social and physical activity
- Self-isolation
- Hospital readmission
- Extended hospital stays

# PERI-FISTULAR EXAMPLE



3 days therapy



# PERI-FISTULAR MOISTURE-ASSOCIATED DERMATITIS



- Peri-fistular skin refers to the skin around a enterocutaneous fistula, a fistula through the skin
- Skin loss prevention minimizes pain and social isolation
- “Enteric output, especially succus from proximal small intestine, will erode skin in less than 3 hours”, (Gribovskaja-Rupp 2016)



# VIDEO



# HOLISTIC ASSESSMENT

Holistic assessment (Gray et al, 2013):

- Conduct a full holistic assessment
- Physical examination of the stoma and peristomal skin
- Assess the patient's ostomy appliance and how the patient applies and removes it
- Educate the patient on diet, and generalized personal care

'Validated assessment tool for documentation - discolouration, erosion, tissue overgrowth (DET) score system (Jemec et al, 2013).

# CONCLUSIONS

- Moisture plays a key role in damaging the skin barrier by disrupting the structure of stratum corneum
- Moisture-associated skin damage comprises four clinical manifestations
- The difference between them is the type of moisture that induces damage
- Early assessment and detection is key to proactive prevention.

Moisture-associated skin damage  
part 2:  
prevention  
and treatment

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# CERTIFICATE

[www.wct-live.co.uk/global](http://www.wct-live.co.uk/global)

