



CRC

for

Premium

Quality

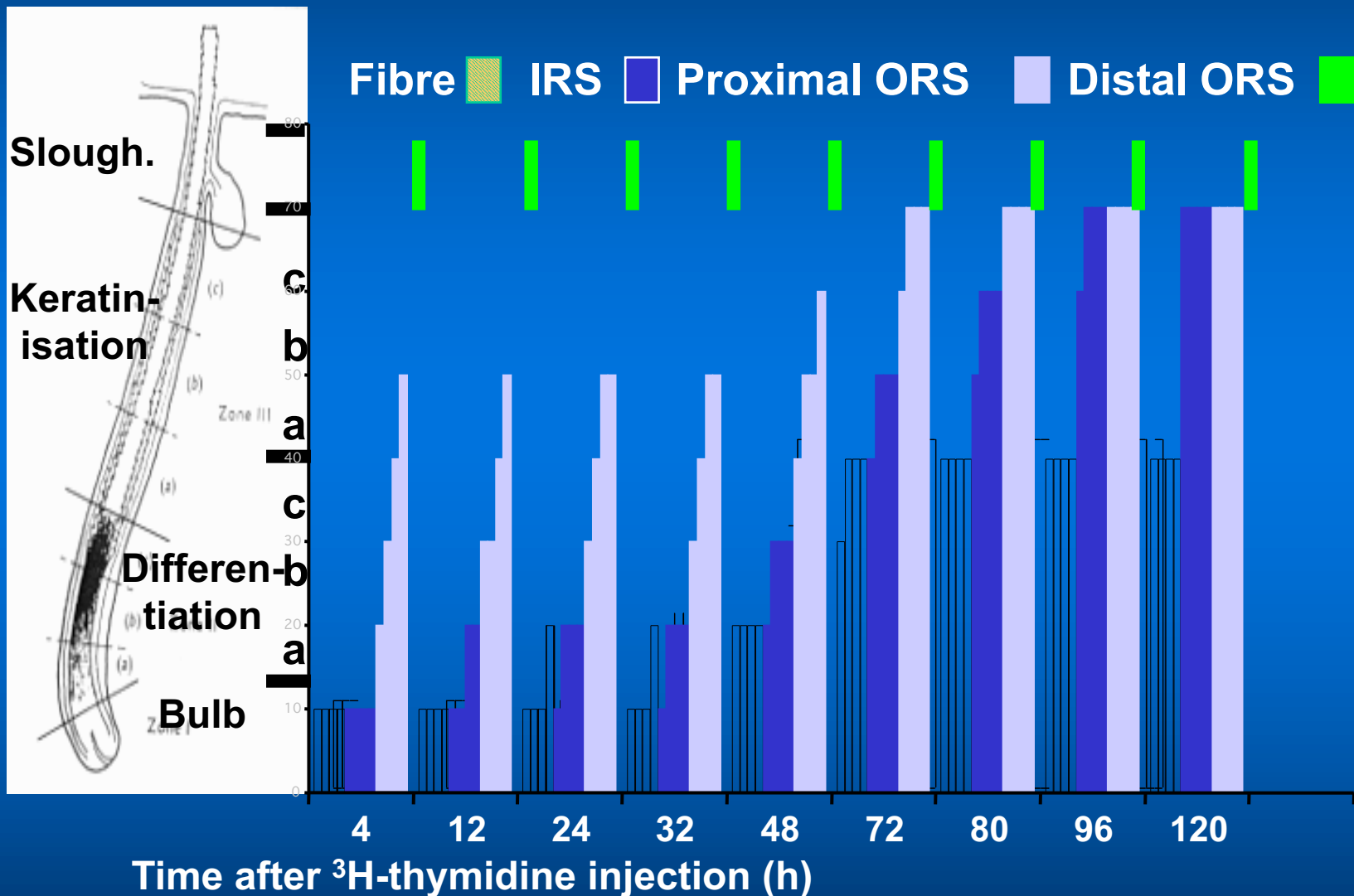
Wool

Cell Migration in the Follicle

Produced for the CRC for Premium Quality Wool undergraduate program by;
Dr. Janelle Hocking Edwards, The University of Western Australia.



Movement of cells in the fibre, IRS and ORS through the follicle



Janelle Hocking Edwards
Source: Chapman *et al* (1980)



Movement of cells in the fibre, IRS and ORS through the follicle

- IRS cells migrate out of the bulb ahead of the contemporaneously labelled bulb cells
- IRS cells remain ahead of the equivalent fibre cells until the IRS sloughs off.
- ORS cells divide along the length of the follicle and migrate in all directions

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Effect of feed intake on cell migration

- Small variation in the range of cell migration times between sheep
 - Bulb Zone: < 2 - 2.5 days for fibre and IRS cells
 - Differentiation Zone: 2 - 4 days for fibre and IRS cells
 - Keratinisation Zone: 3.5 - 6.5 days for fibre cells and 4 - 5 days for IRS cells.
- Small effect of feed intake
 - For sheep eating a constant diet a difference in feed intake affects the shorter times of cell migration rate of the fibre and IRS.
 - an increase in intake increases cell migration in all tissues but a decrease does not change migration rate.
 - » Chapman (1971)

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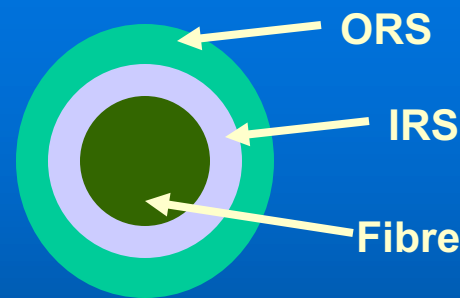
Changes (percentage) in the the proportion of bulb cells which enter the fibre (cellular efficiency) associated with improved nutrition

Fibre volume increase (%) with increased nutrition	Cellular efficiency	
	Low nutrition	High nutrition
CRC	15	18
109	15	13
33	31	32

Production ratio

an estimate of the proportion of bulb cells that enter the fibre

$$= \frac{\text{area of fibre}}{\text{area of fibre} + \text{IRS}}$$



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