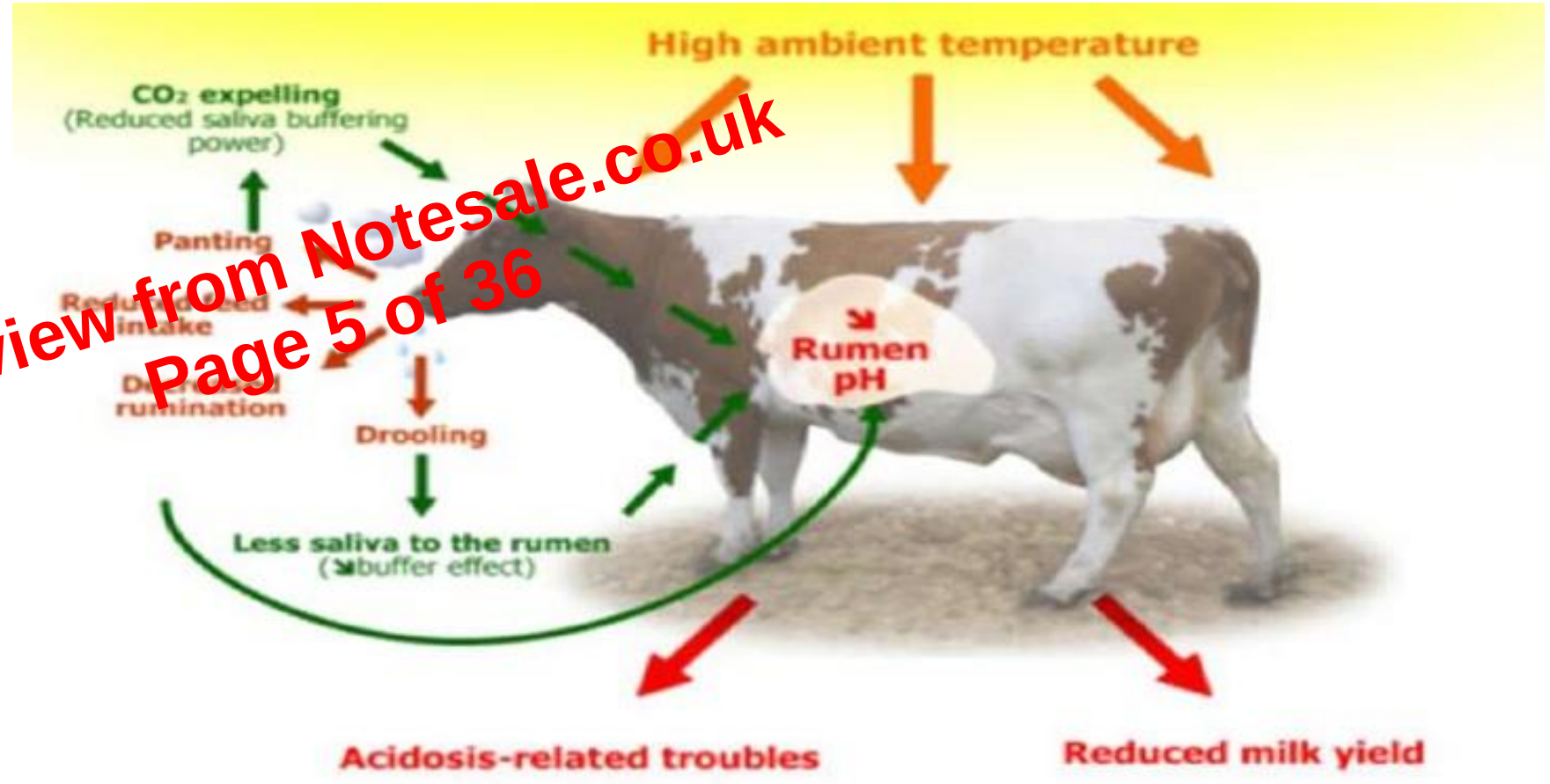
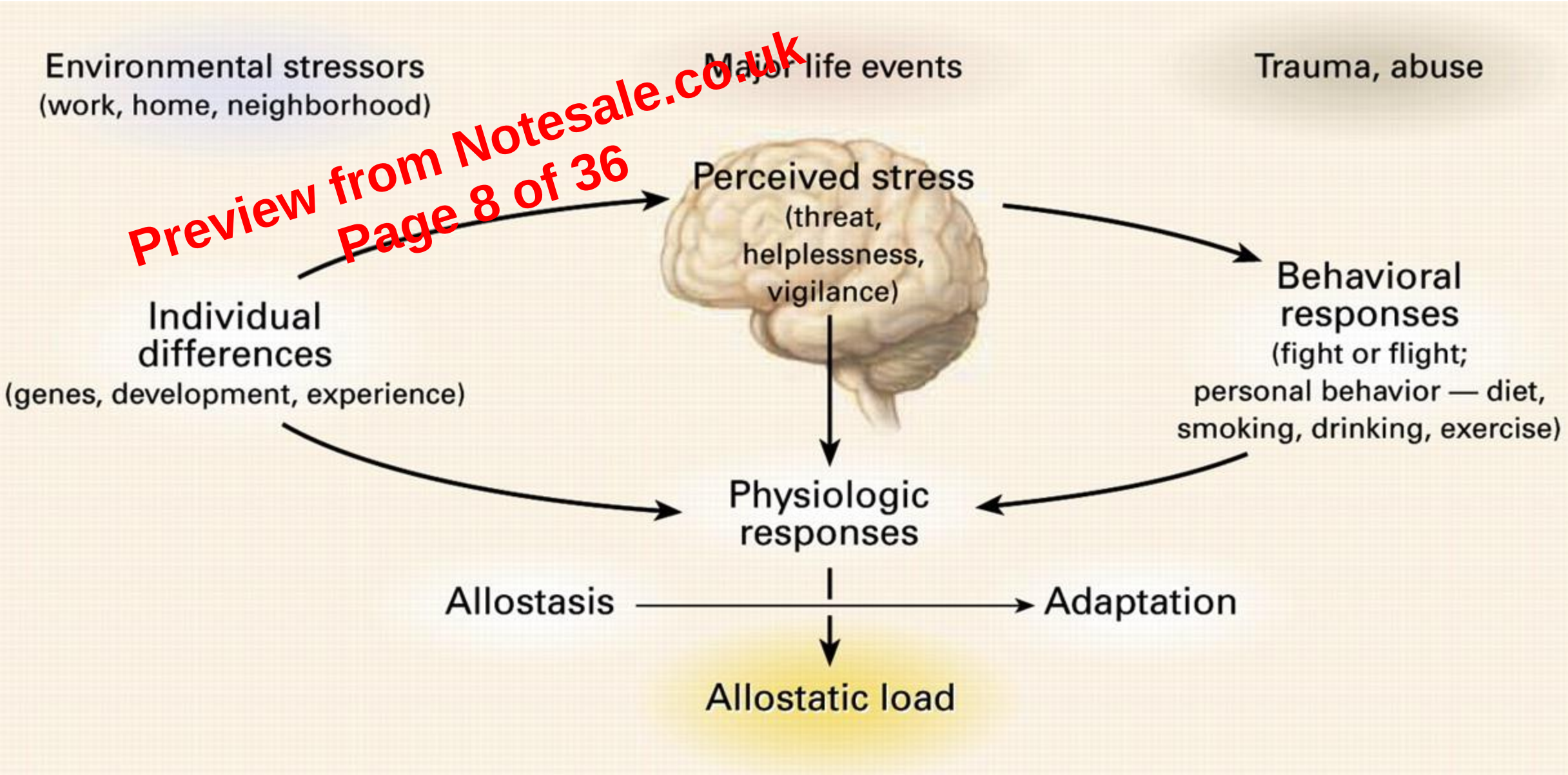


Heat stress, with its physiological and behavioral consequences, increases the risks of rumen acidosis.

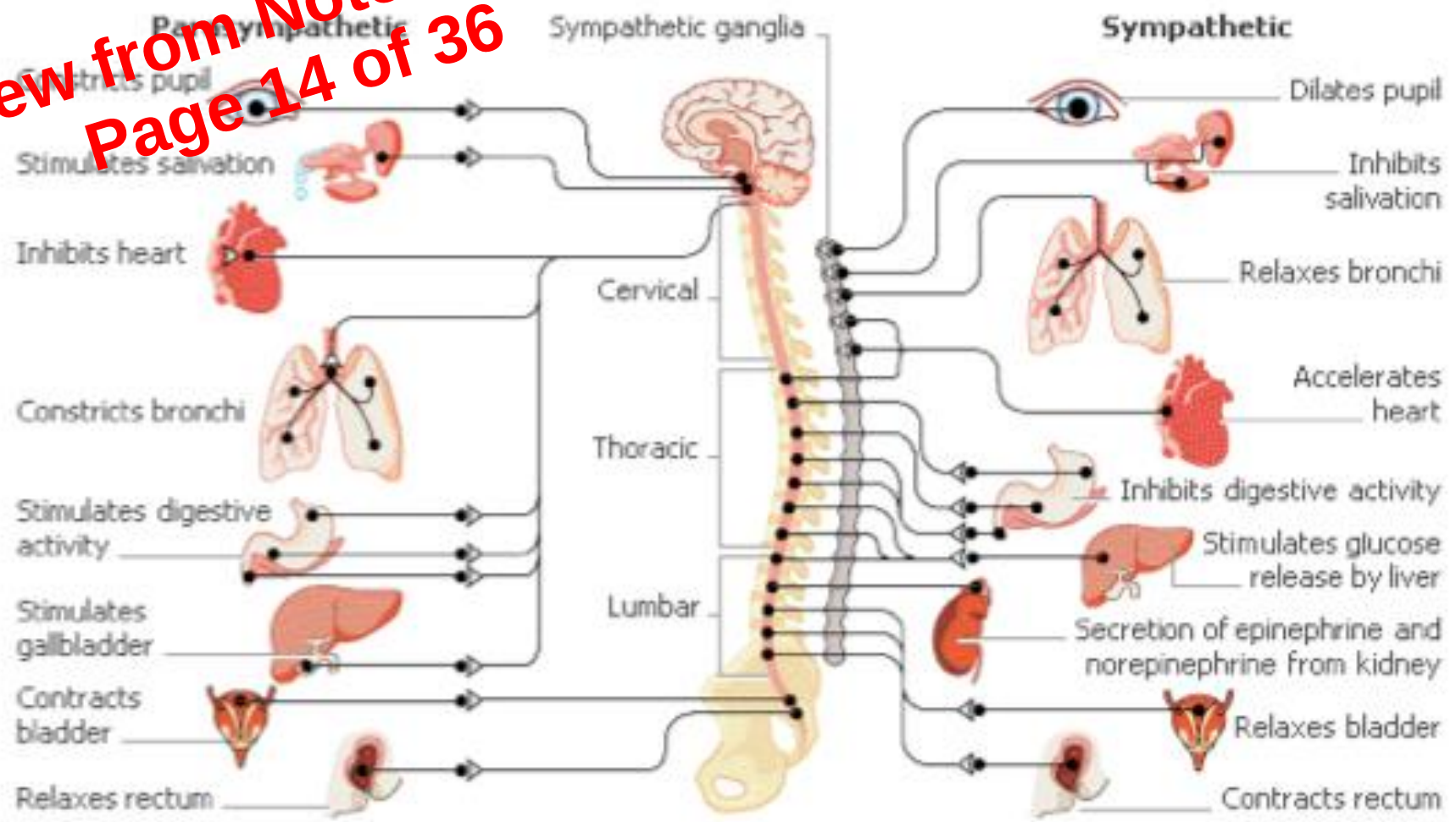
http://www.thecattlesite.com/articles/1053/heat-stress-in-dairy-cows-implications-and-nutritional-management



PHYSIOLOGY SYSTEMS - STRESS

- **Nervous system -** **Central nervous system** (Brain and Spinal cord)
  Peripheral nervous system (All neural pathways to extremities)
- **Endocrine system**
- **Immune system**

SYMPAHETIC AND PARASYMPATHETIC SYSTEM



ENDOCRINE RESPONSE TO STRESS

(B)ENDOCRINE RESPONSE TO STRESS

STRESS activates HPA AXIS

- CRH acts at the anterior pituitary to trigger release of adrenocorticotropic hormone (ACTH)which acts at the adrenal cortex to stimulate the synthesis and release of glucocorticoids.
- Glucocorticoids themselves have myriad effects within the body, but their actions can be summarized in the very short term as promoting energy use, increasing cardiovascular activity (in the service of the flight-or-fight response), and inhibiting functions such as growth, reproduction, and immunity.

Nucleus	Zone(s)	Region(s)	Functions
Paraventricular	Periventricular, Medial	Anterior,Tuberal	Fluid balance, milk let-down, parturition, autonomic & anterior pituitary control
Preoptic	Medial, Lateral	Anterior	Lateral anterior thermoregulation, sexual behavior
Anterior	Medial	Anterior	Lateral anterior thermoregulation, sexual behavior
Suprachiasmatic	Medial	Anterior	Biological rhythms
Supraoptic	Medial, Lateral	Anterior	Fluid balance, milk let-down, parturition
Dorsomedial	Medial	Tuberal	Emotion (rage)
Ventromedial	Medial	Tuberal	Appetite, body weight, insulin regulation
Arcuate	Periventricular, Medial	Tuberal	Control of anterior pituitary, feeding
Posterior	Medial	Posterior	Thermoregulation
Mammillary	Medial	Posterior	Emotion and short-term memory
Lateral Complex	Lateral	Tuberal	Appetite and body weight control