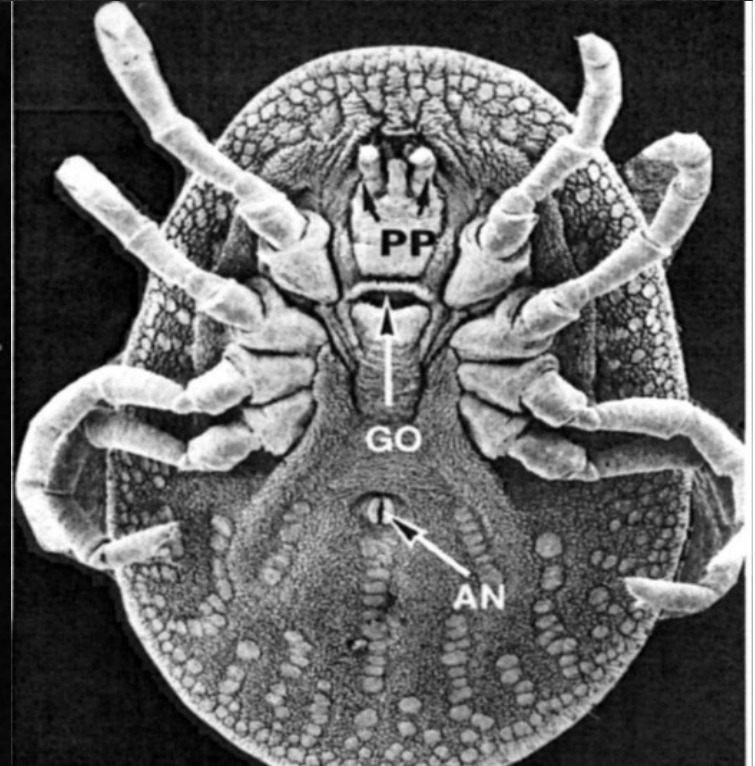
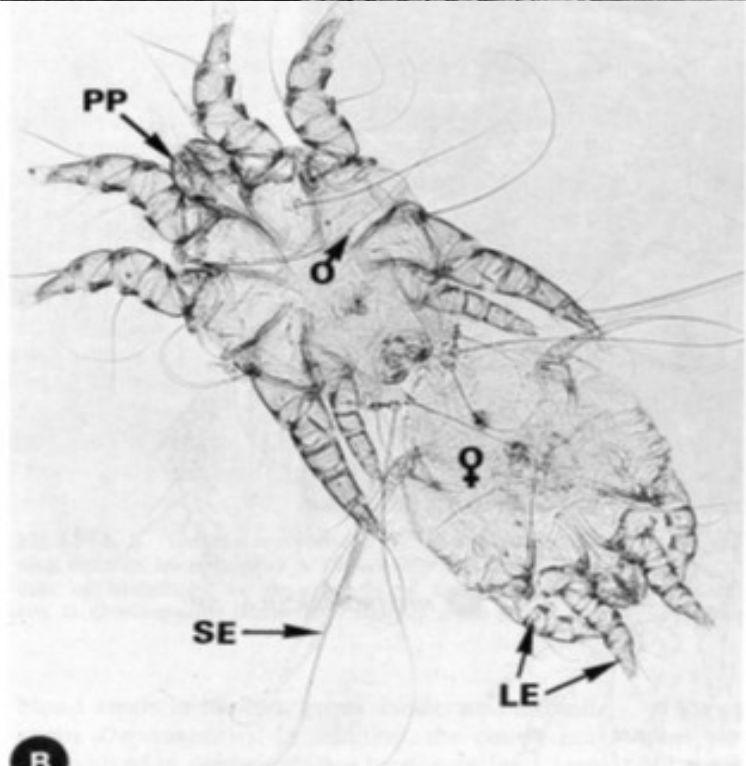
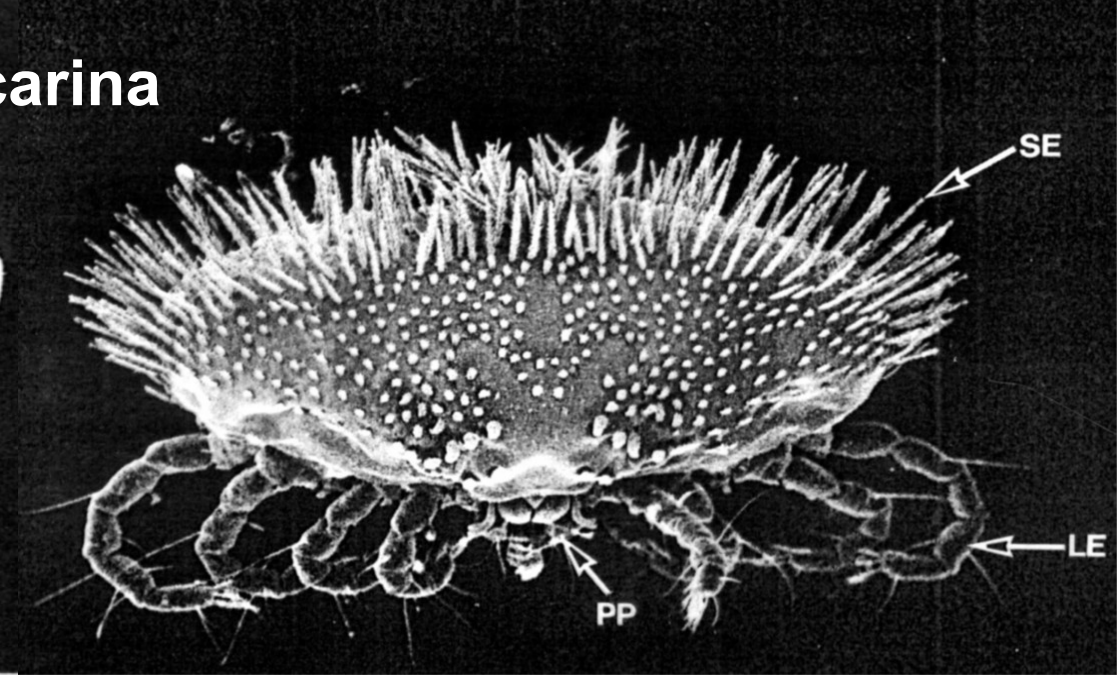
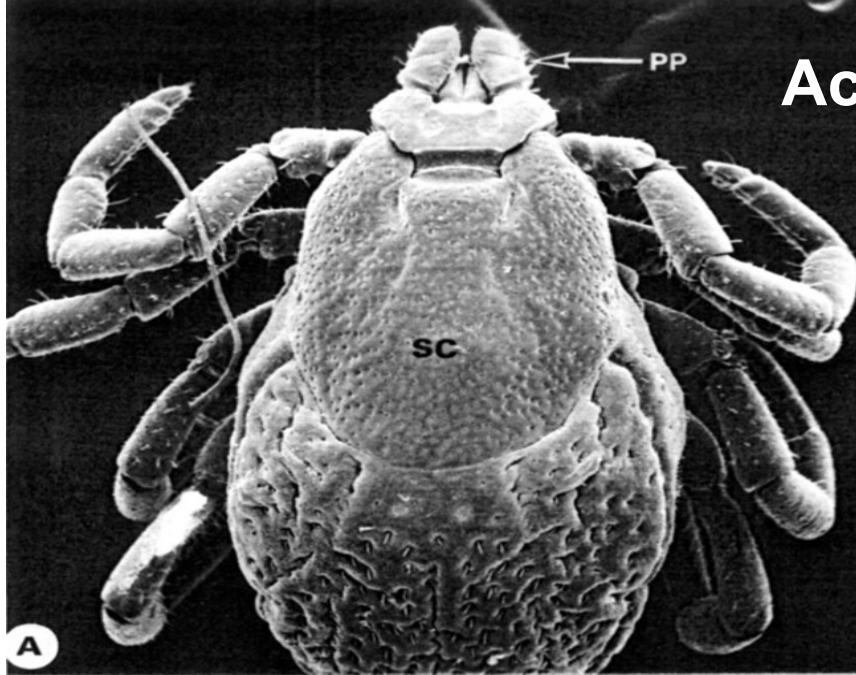


Acarina



Acarina - roztoči

- Volně žijící nebo parazitičtí, většinou velice malých rozměrů
- Tělo se skládá zue dvou částí: komplexu nesoucího ústní ústrojí (gnathosoma) a nečlánkovanou idiosomu obsahující střevo a reprodukční orgány
- Jeden pár spirakulí (mimo Notostigmata)
- Šestihohá larva, několik osminohých nymfálních stádií
- Parazitické formy jsou většinou ektoparaziti



Zástupci roztočů

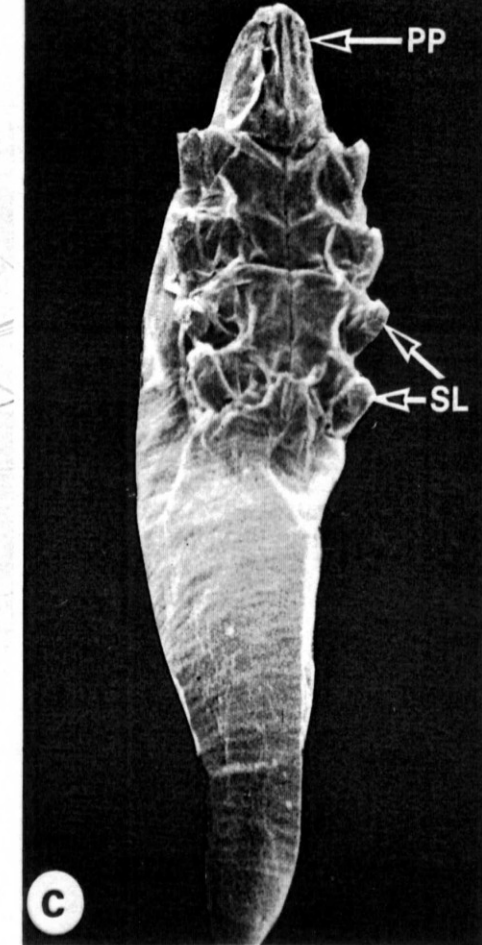
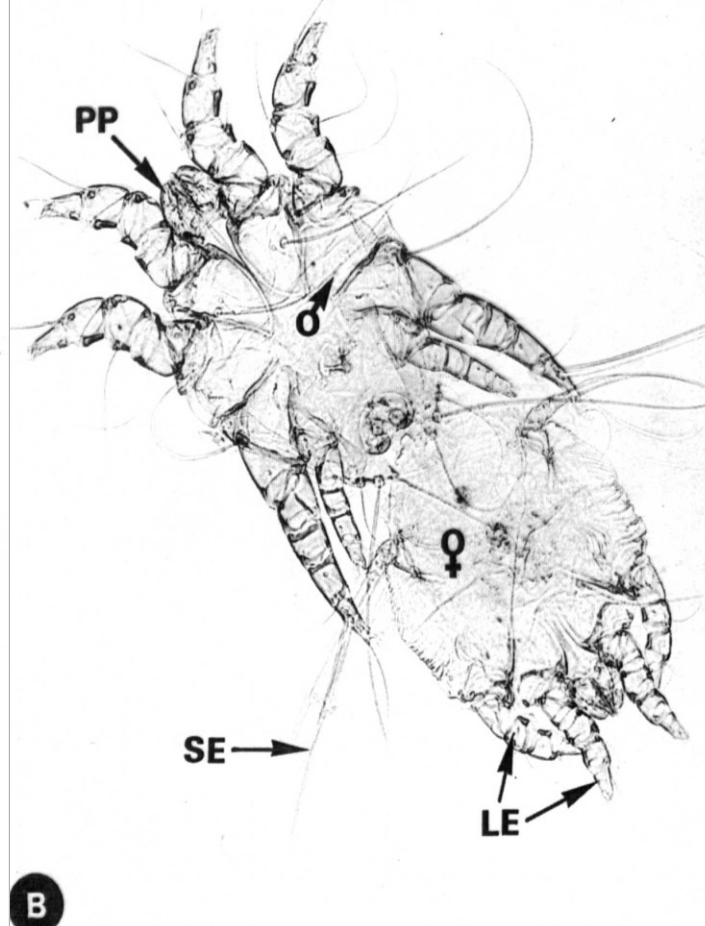
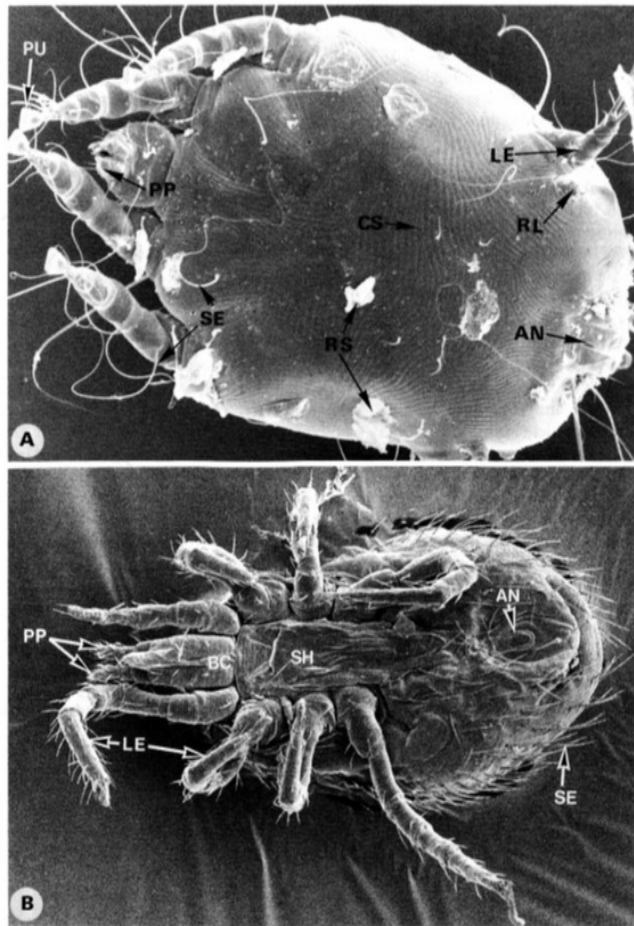


Fig. 3.53A-C. External morphology of mites A *Pterygosoma* sp. from skin of reptiles (SEM $\times 85$). B *Caparinia tripilis* from skin of hedgehog in copulation (light micrograph $\times$

90). C *Demodex folliculorum* from hair follicles of man (SEM $\times 600$). LE, Legs; PP, pedipalps; SE, setae; SL, stumpy legs

Rozmanitost medicínsky významných roztočů

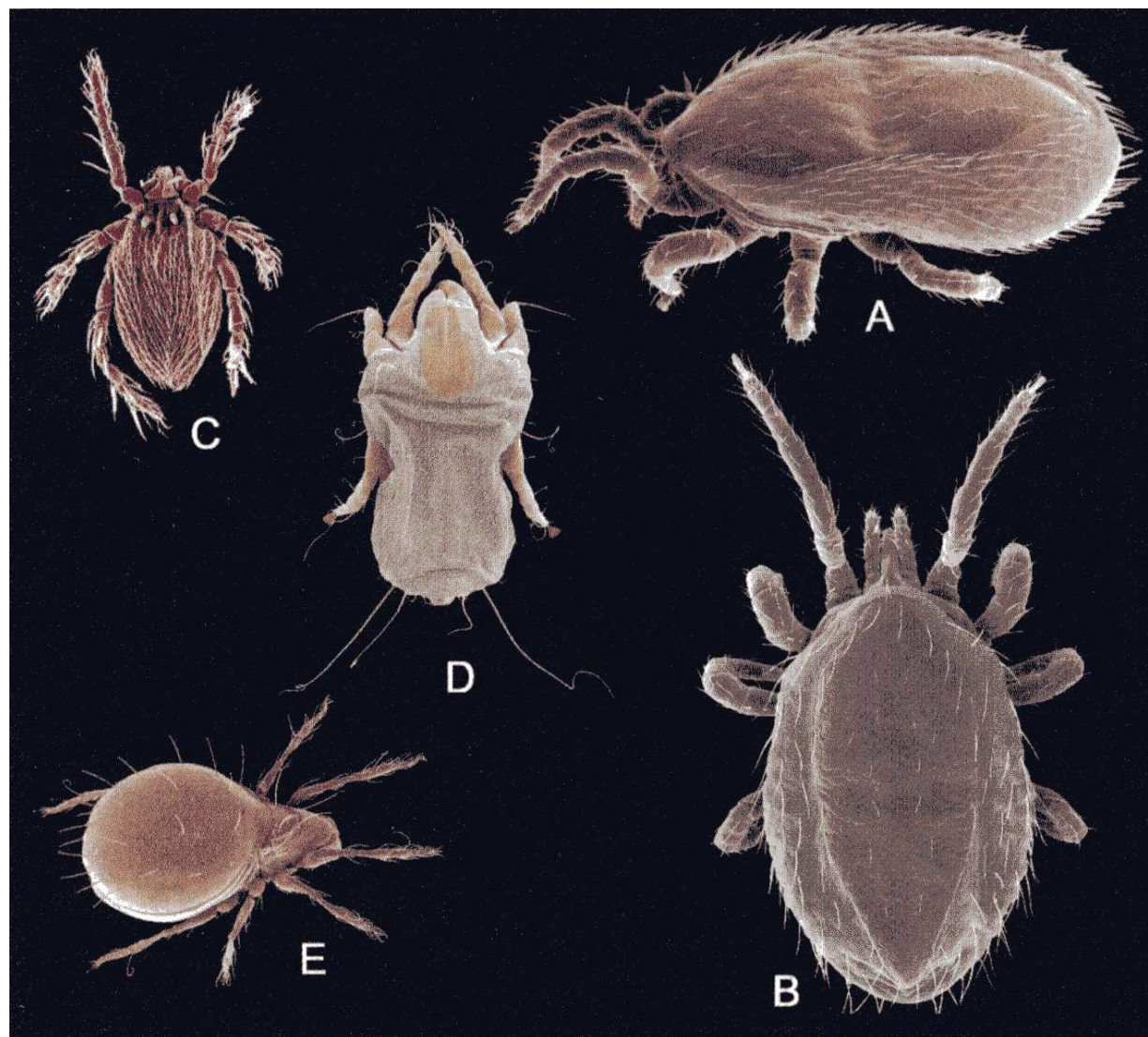
A – *Ornithonyssus bacoti*

B – *Ornithonyssus bursa*

C – *Gantheria* sp

D – *Dermatophagoides
farinea*

E - *Zygoribatula*

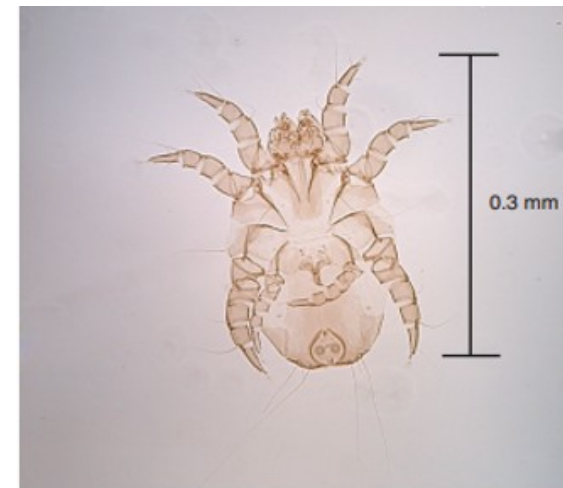


Acarina - roztoči

jména



jména



Dermatophagoides pteronyssinus

Mesostigmata (Parasitiformes)

- Většinou volně žijící, parazitické druhy na terestrických obratlovcích, některé žijí v zažívacím traktu
- Průduchy mezi kyčlí III a IV, u larev chybí
- Peritrema úzká, většinou vytažena kupředu
- Vývojová stádia: šestinohé larvy protonymfa, deutonymfa, adult

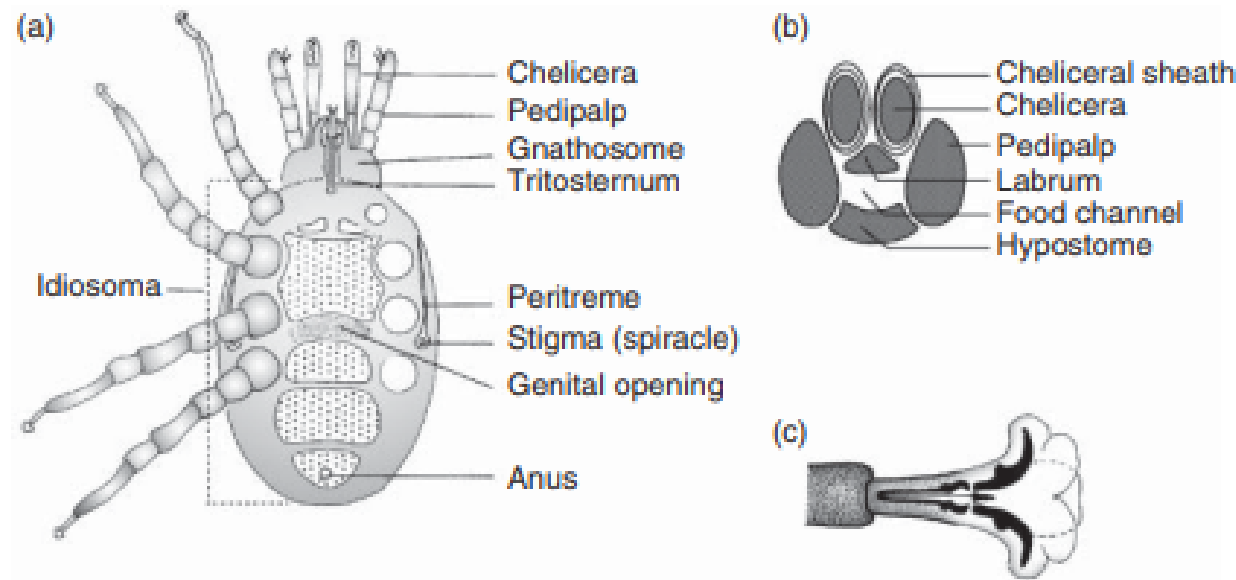
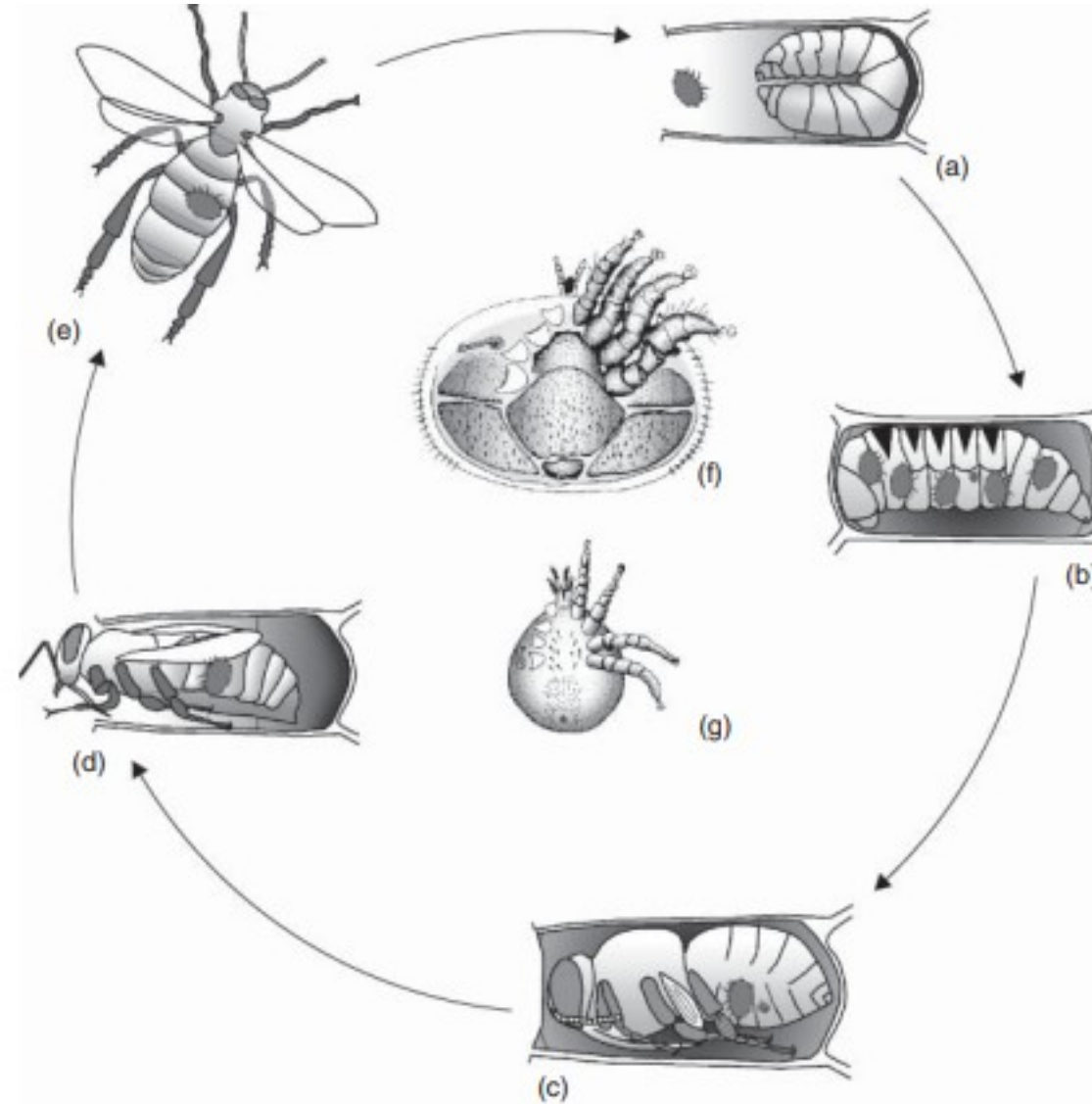


Figure 4.2 Acari: Mesostigmata. (a) Female (ventral aspect). (b) Gnathosoma in cross section. (c) Pretarsus.

Životní cyklus Varroa destructor



Metastigmata (Ixodidae)

- Patří mezi Anactinotrichida.
- Všechny stadia v životním cyklu jsou obligátně hematofágní ekoparaziti terestrických obratlovců,
- Stigmata za IV kyčlí, nejsou u larev.
- Peritrema oválná nebo kulatá, obklopující stigma.
- Hypostom se silným zpětným zubem.
- Hallerův orgán dorsálně na tarsu I.
- Stadia: šesti nohá larva, nymfy, adult.
- Vektoři mnoha nemocí.

Metastigmata - Ixodidae

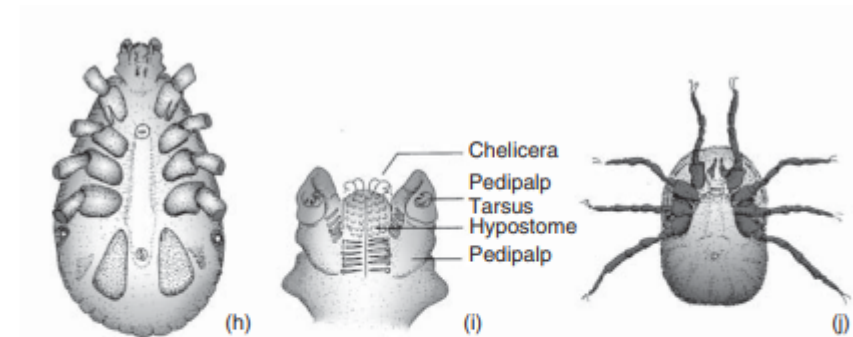
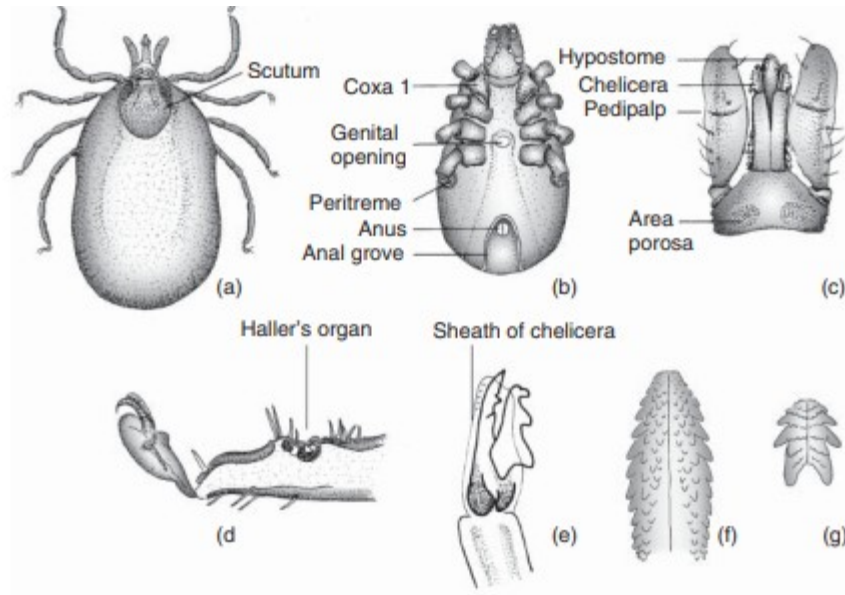
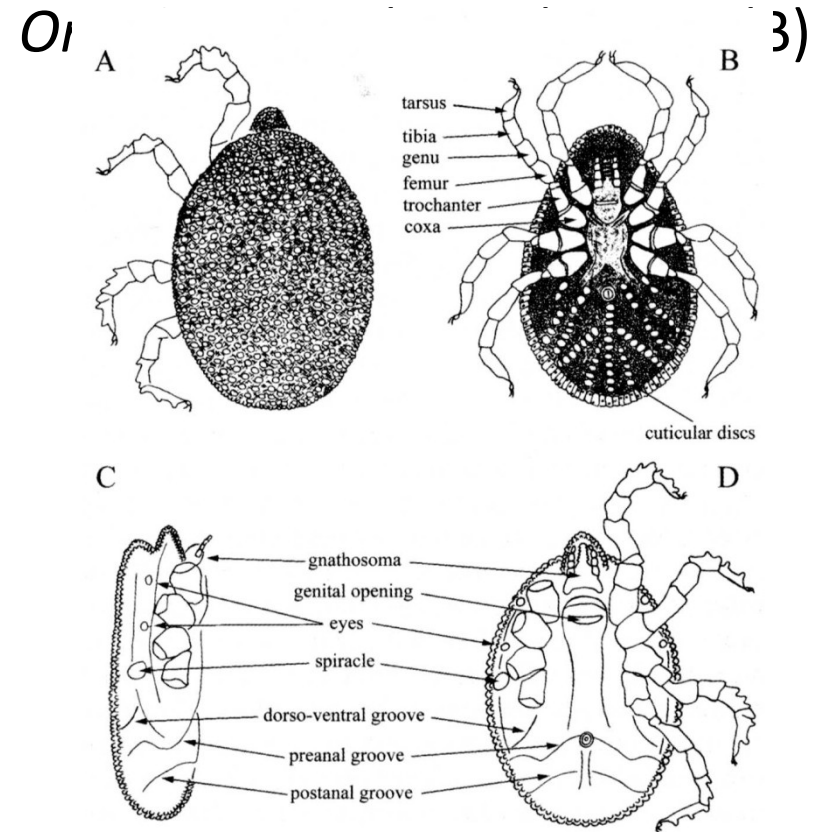
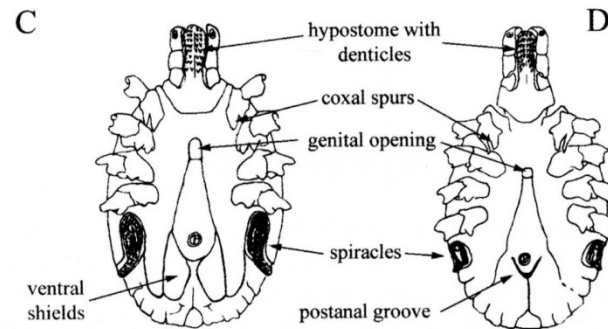
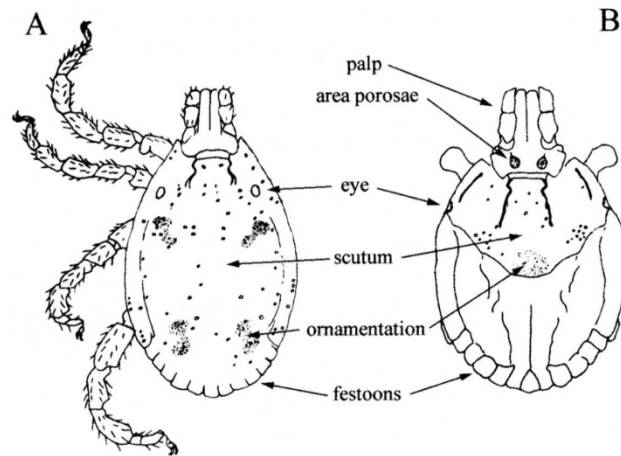


Figure 4.4 Metastigmata, ticks. (a) *Ixodes ricinus*, female, dorsal view. (b) *I. ricinus* female, ventral view. (c) Capitulum with mouthparts of *I. persulcatus*, dorsal view. (d) Tarsus of a tick with Haller's organ. (e) Tick chelicera. (f) Tick chelicera. (g) Hypostome of female *I. ricinus*. (h) Male of *Rhipicephalus sanguineus*, ventral view. (i) Capitulum of *R. sanguineus*, ventral view. (j) Female *Ornithodoros moubata*, ventral view.

Morfologie klíšťat *Ixodidae*



Ixodes ricinus – klíště obecné

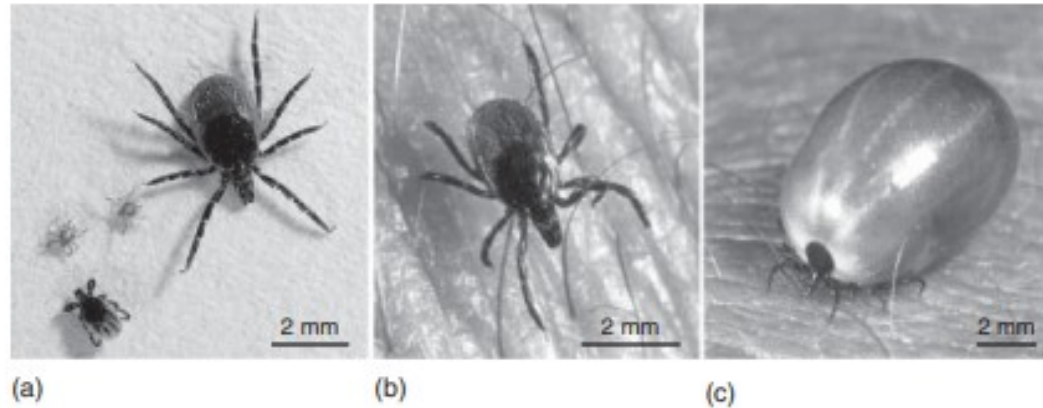


Figure 4.5 *Ixodes ricinus*. (a) Young female, nymph, and two six-legged larvae. (b) Young female questing for place of penetration. (c) Replete female. (Images: Courtesy of Heiko Bellmann.)

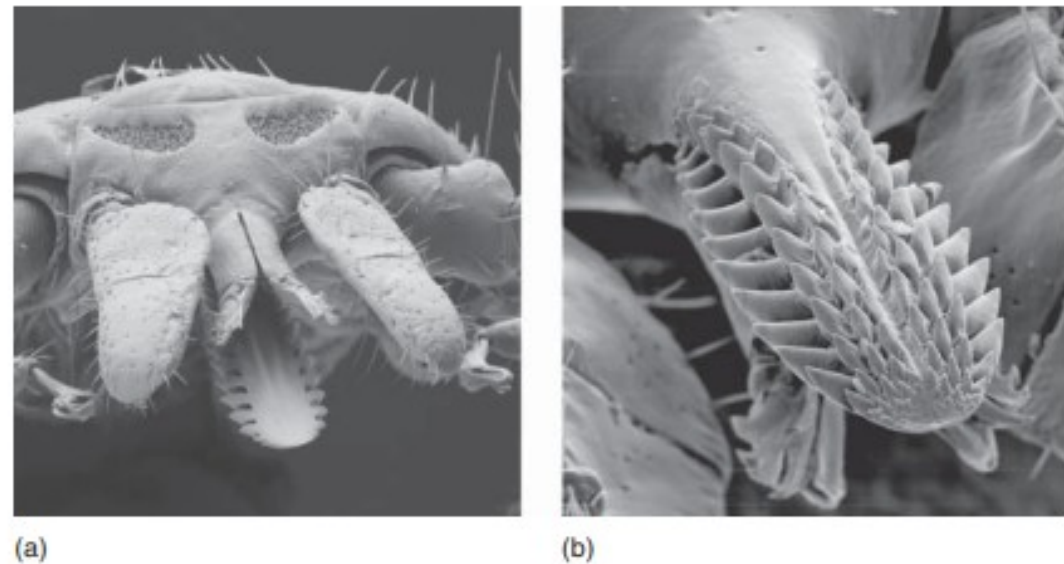
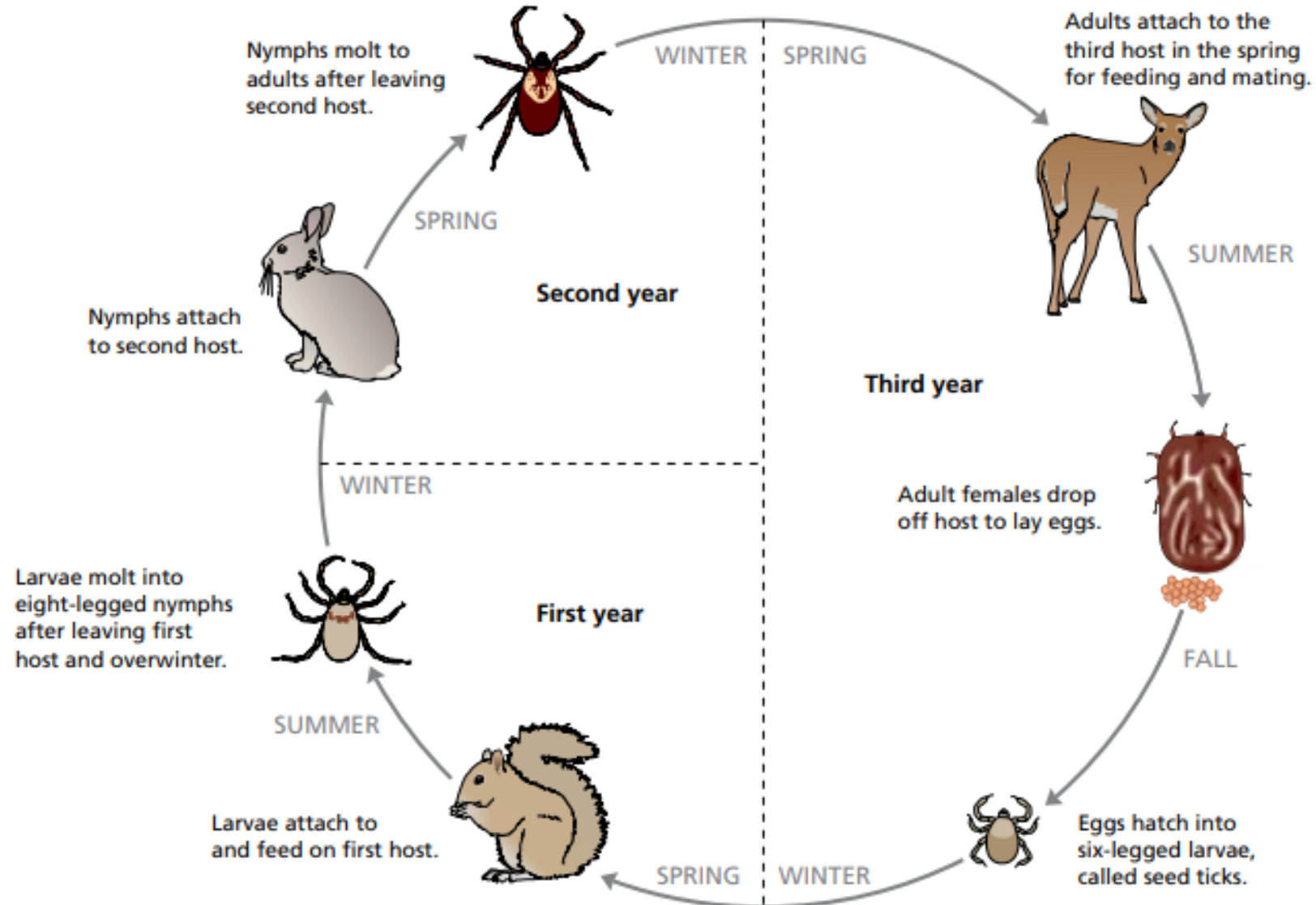
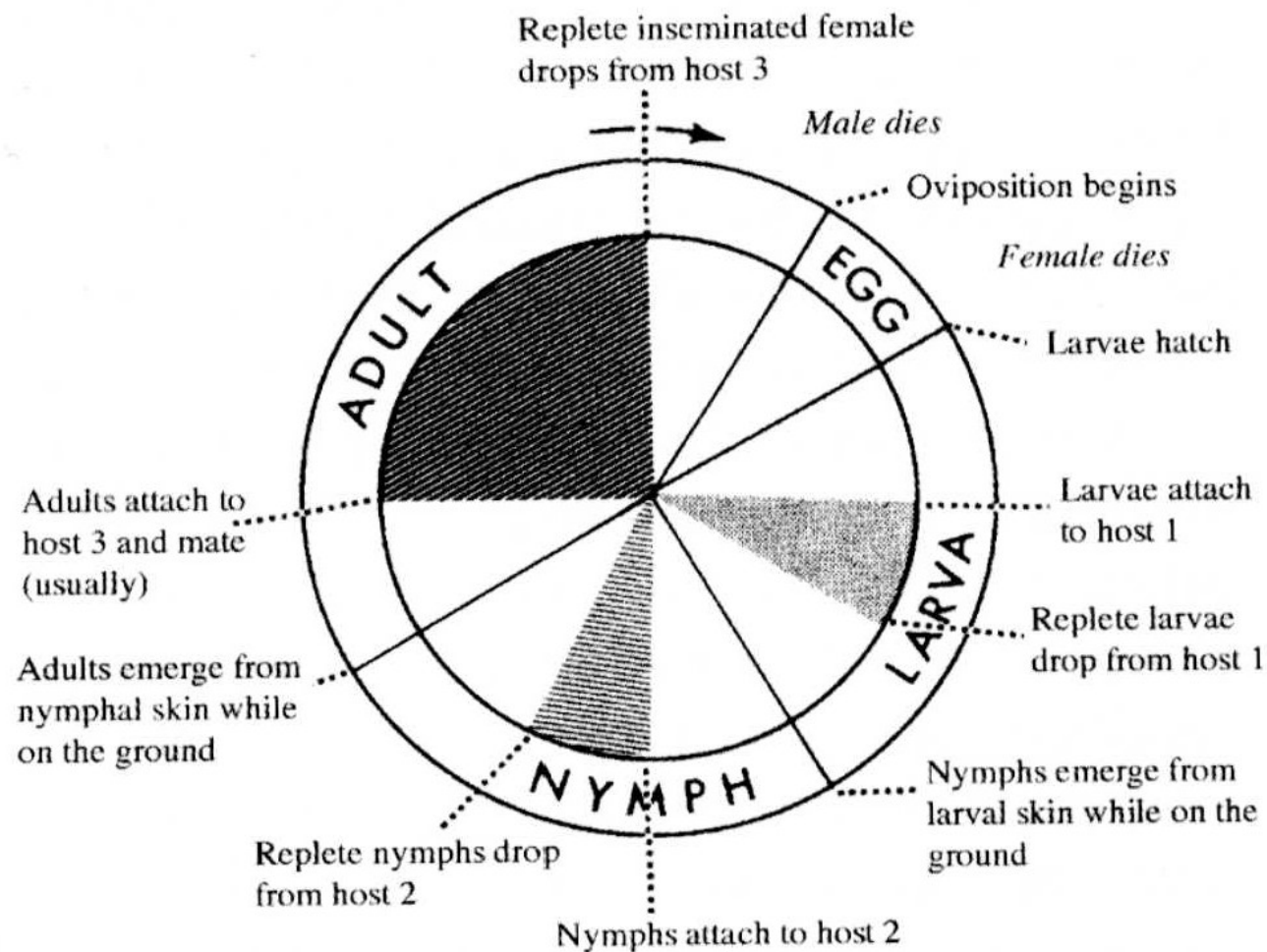


Figure 4.6 *Ixodes ricinus*. (a) Capitulum, frontal view, below: hypostome, above: chelicerae, right and left: pedipalps, on capitulum: the two areas porosae. (b) Hypostome, ventral view, tip of a chelicera underneath left-hand side. (EM Images: Courtesy of Eye of Science.)

Ixodes – životní cyklus



Troj-hostitelský životní cyklus



Vývojová stádia klíšťača rodu *Argas*

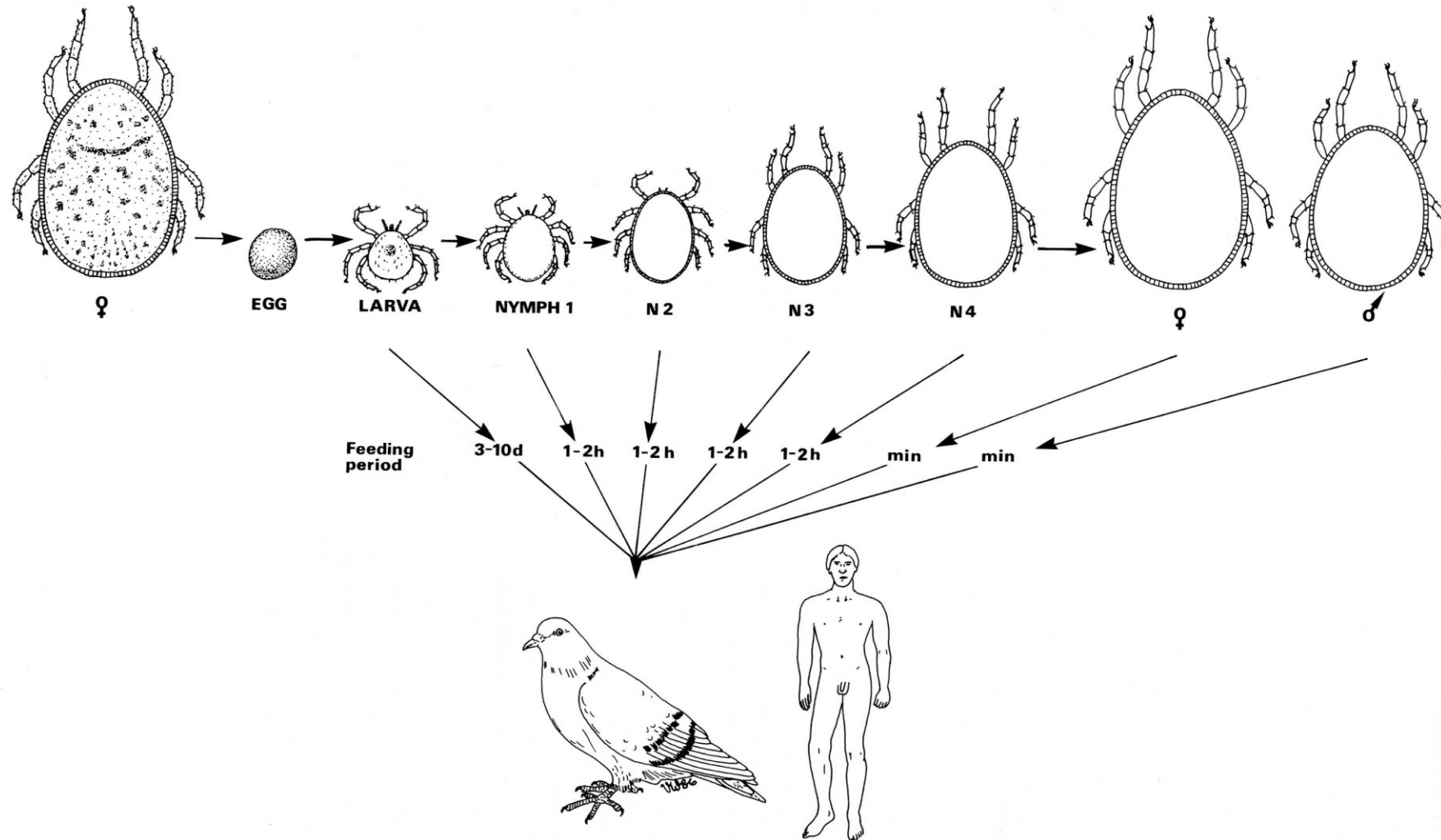
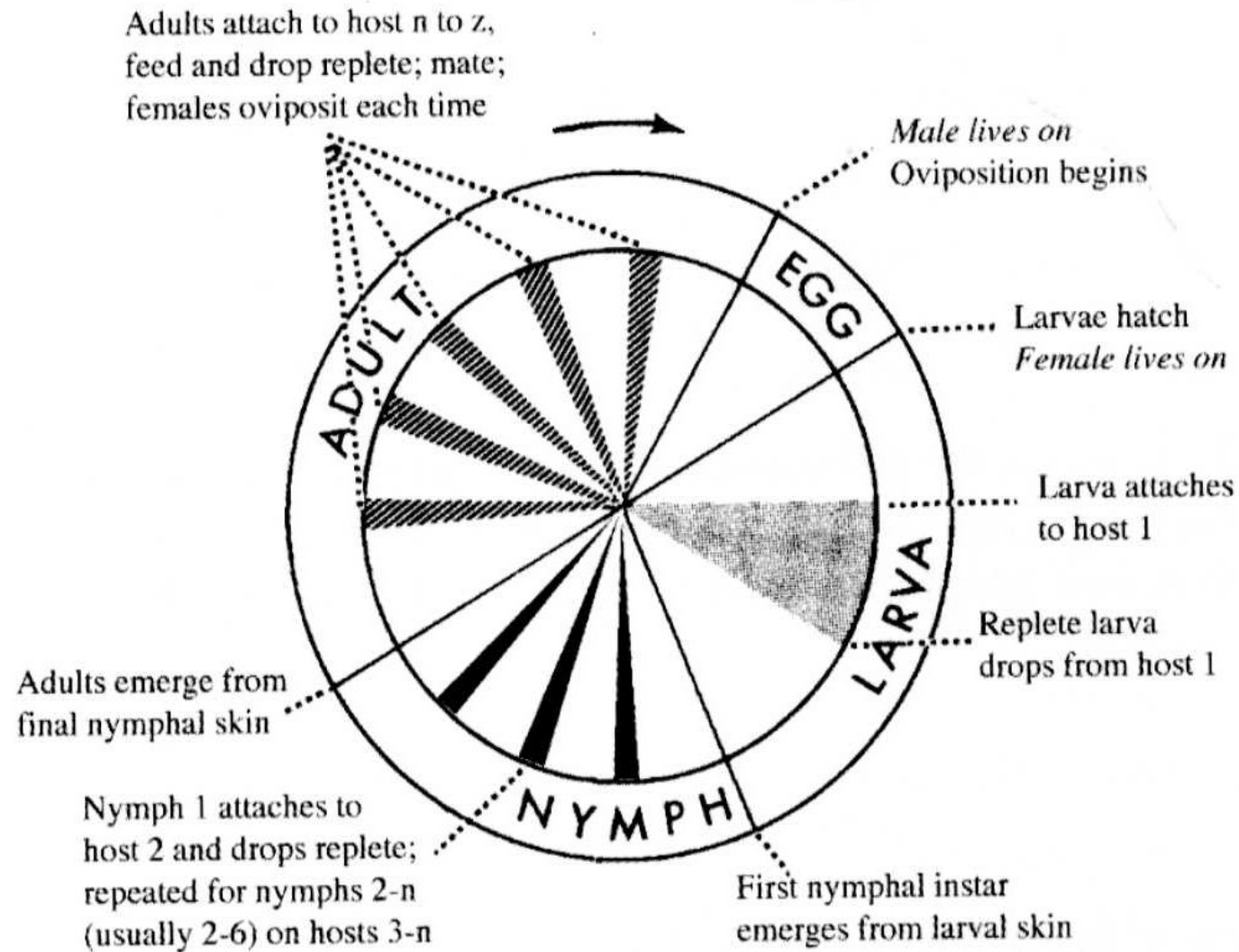


Fig. 1.79. Developmental stages in the life cycle of *Argas* spp. (see Table 1.28), which need about 3–36 months to mature (depending on the temperature). Except for larvae,

which suck blood for 3–10 days, all stages feed several times but only for a short period each time (e.g., adults for a few minutes)

Multi-hostitelský životní cyklus



Prostigmata - Trombidiformes

- Velice heterogenní, nemonofyletická skupina roztočů
- Většinou volně žijící
- Někteří jsou ektoparaziti, vzácně endoparaziti obratlovců
- a bezobratlých
- Vývojová stadia s šesti-nohou larvou, deuto- a tritonymfou a adultem.
- Životní cyklus často zkrácen.

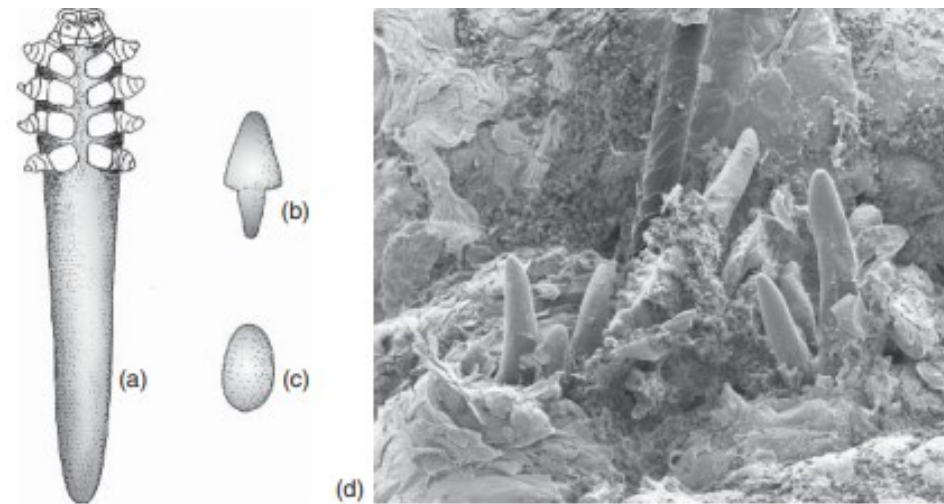


Figure 4.9 Acari, Prostigmata. (a) Female *Demodex folliculorum*, ventral view. (b) Egg of *D. folliculorum*. (c) Egg of *D. brevis*. (d) *D. canis* sticking head first within a hair follicle from the skin of a dog. (Image: Courtesy of Eye of Science.)

Demodex folliculorum

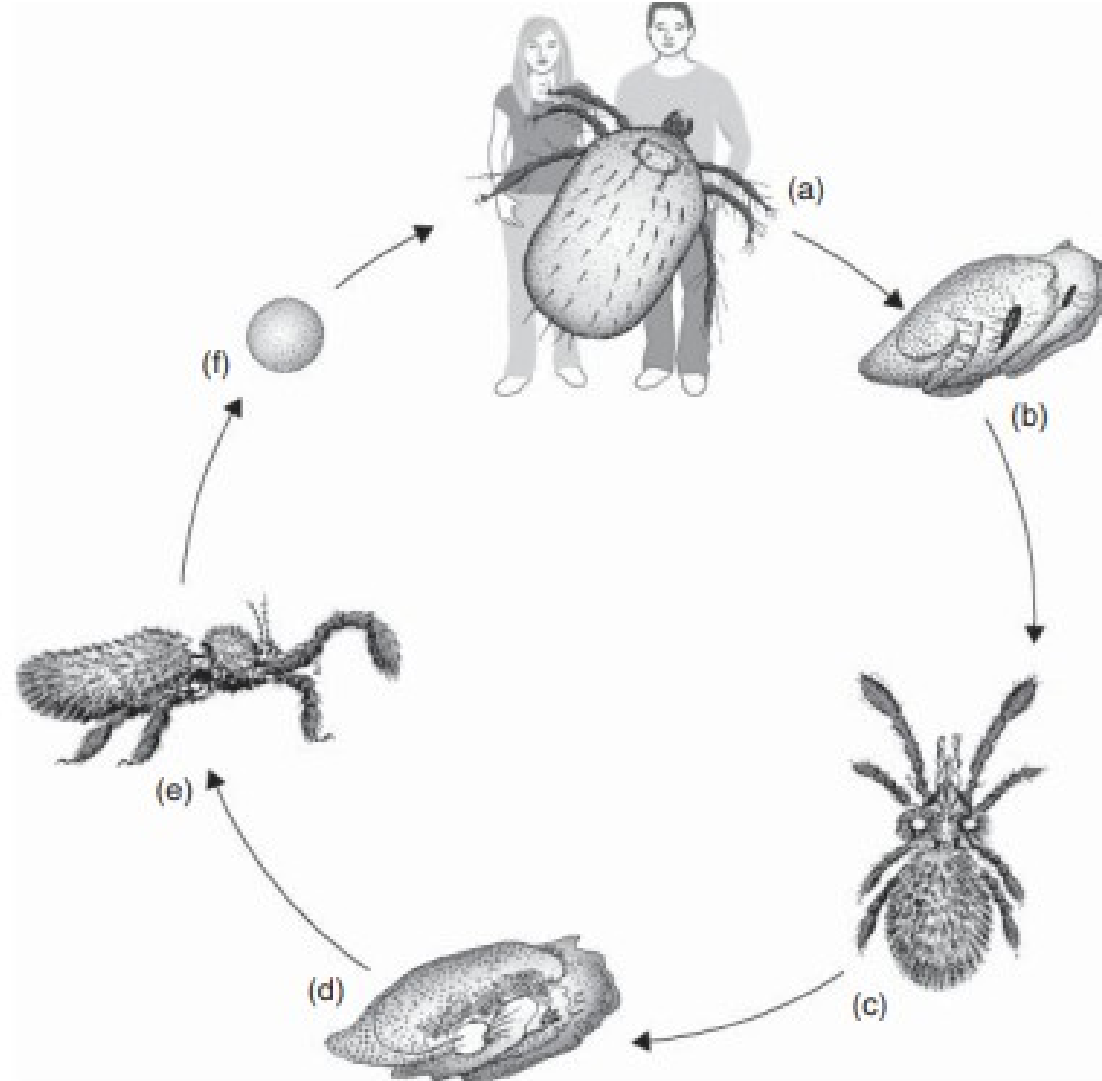


Fig. 5.16 Ventral view of *Demodex folliculorum*.

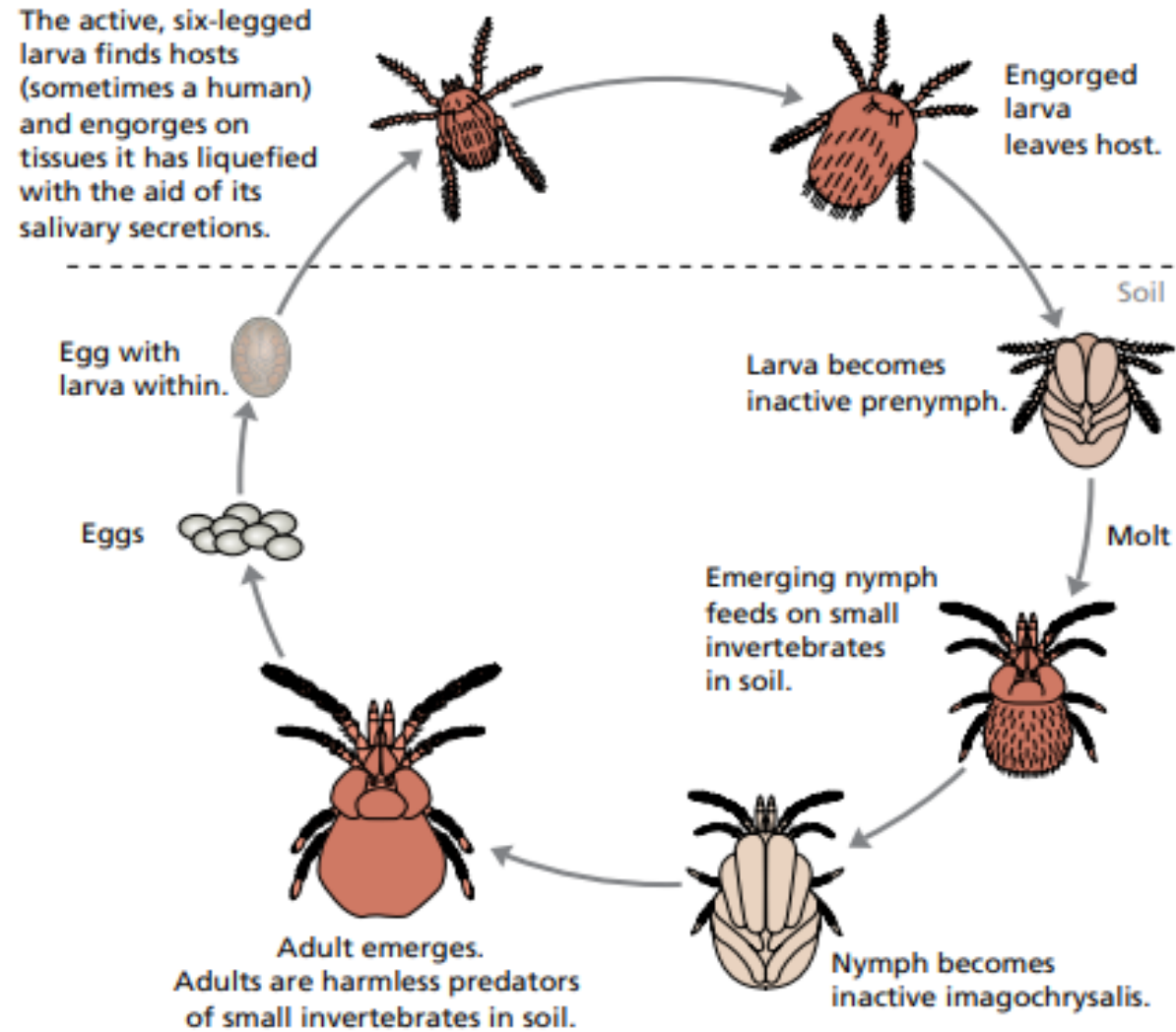
This species inhabits human hair follicles, especially on the head and ears. It is believed that the mites can be found if carefully looked for in most healthy adults, in whom they cause no pathological changes. The mites are especially common in sebaceous skins and have been associated with folliculitis, rosacea, inflammatory blepharitis and pityriasis folliculorum. In recent years a second species has been identified in human sebaceous glands, *Demodex brevis*. (Courtesy, Professor E. M. Grosshans.)



Neotrombicula autumnalis

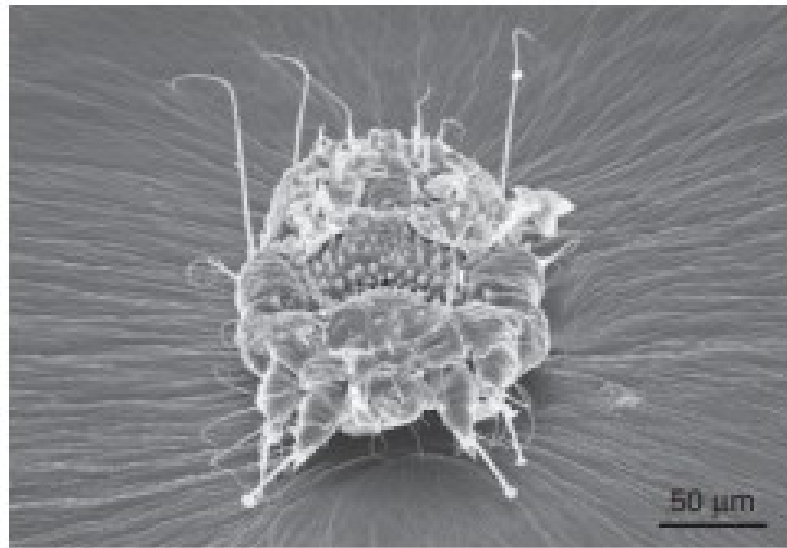


Acari

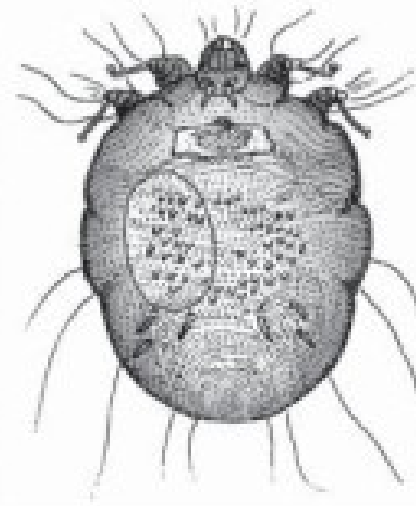


Astigmata - Sarcoptiformes

- Většinou volně žijící
- Nemají průduchy – stigmata
- Častý je sexuální dimorfismus
- Dvě skupiny:
 - Acaridida – volně žijící nebo spojeny s členovci
 - Psoroptida, ekroparaziti na ptácích a savcích



(a)



(b)

Sarcoptes scabiei - původce svrabu



Fig. 5.7 Female scabies mite.

The gravid female *Sarcoptes scabiei*, with short, stumpy legs and suckers on its forelegs, burrows into the epidermis, lays its eggs and dies at the end of the tunnel. It is cosmopolitan in distribution. (Courtesy, C. Whitehorn.)



Fig. 5.9 Scabies lesions.

Lesions are commonly found in interdigital spaces of the hand, flexor surfaces of wrists and elbows, axillae, groins, natal cleft, umbilicus and genitalia. In young children head and neck involvement and early formation of pustules are more commonly seen. (From Dirk M. Elston, Ectoparasites (Lice and Scabies), pages 1294-1298.e1, Figure 257.6. In: Principles and Practice of Pediatric Infectious Diseases 5th Edition. Copyright © 2018 by Elsevier, Inc.)



Fig. 5.8 Scabies burrows, papules and vesicopustules on the foot of an infant.

The foot is the second commonest site of early infection in infants, with the axillae and neck also being invaded in some cases. (From Burkhart, C.N., Burkhart, C.G., Morrell, D.S. Infestations. In: Dermatology. Pages 1423-1434, Figure 84.3B. Copyright © 2012 Elsevier.)

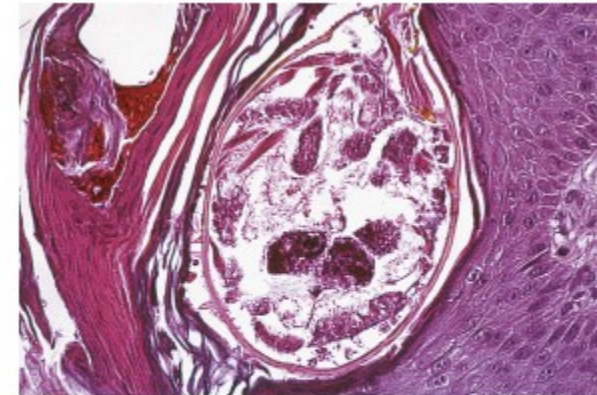


Fig. 5.14 Section of biopsy from patient with 'Norwegian' scabies.

This skin section shows some of the cuticular spines and internal organs of a female mite which lies within a subepidermal pocket under a thick layer of dead epidermis. In such patients the mites can be present in vast numbers.

Sarcoptes scabiei – původce svrabu



Fig. 5.10 Secondary erythema in scabies.
Secondary infection is common, and erythema may be associated with bacterial invasion of the sarcoptic tracks. In some populations, best described in Australian indigenous communities, there is a clear association between secondary bacterial infection of endemic scabies and outbreaks of acute post-streptococcal glomerulonephritis and rheumatic fever. (Courtesy, Professor H. Morgan.)



Fig. 5.11 Chronic eczematous scabies in a Gambian woman.
The backs of the hands and arms are heavily infested in this woman. Constant scratching due to the intense itching may result in lichenification of the dry skin. The condition would need to be differentiated from onchocerciasis in settings where both conditions are present. (Courtesy, Dr S. Lindsay.)

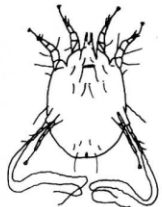
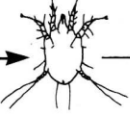
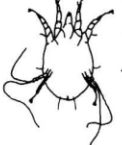
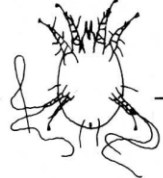
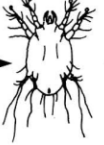
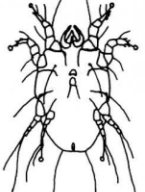
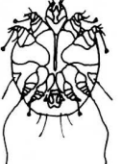


Fig. 5.13 'Norwegian' scabies in an elderly man.
This 91-year-old man had suffered pruritus with crusty skin lesions, some over 1 cm thick, for 6 months prior to admission to hospital. In addition to the discovery of a heavy scabies infection he was found to have carcinoma of the bladder. The skin condition improved rapidly following anti-mite treatment.



Fig. 5.12 Hyperkeratotic ('Norwegian') scabies in a patient who had suffered a 70% burn injury.
This condition is often associated with immunosuppression, including that due to HIV infection. Here the underlying cause was severe burns from which the hands were spared, but then subsequently severely affected by scabies. (Courtesy, Dr J. O'D. Alexander.)

Vývojová stádia zástupců Acarina

GENUS	FEMALES	EGGS	LARVAE	NYMPHS I	NYMPHS II	♀ ADULTS	♂
1 <i>Psoroptes</i>							
2 <i>Chorioptes</i>							
3 <i>Sarcoptes</i>							
4 <i>Demodex</i>	