

Calorie restriction

Young

Middle age

Old

Adaptive cellular responses

- ▲ neurotrophic factors - BDNF, bFGF
- ▲ protein chaperones - Hsp70, GRP78
- ▲ anti-oxidant proteins - HO-1
- ▲ anti-inflammatory cytokines - IL-10
- ▼ inflammatory cytokines - TNF, IL-6

Consequences relevant to stroke

- ▲ resistance of neurons to hypoxia, oxidative and metabolic stress and apoptosis
- ▲ neurogenesis
- ▼ leukocyte activation and infiltration
- ▼ activation of glia