zation of serial rib fractures is advantageous in patients with relevant traumatic brain injury[J]. Eur J Trauma Emerg Surg, 2022,48(4):3237-3242.

[11] Ko C, Yang M, Byun T, et al. Design factors of femur fracture fixation plates made of shape memory alloy based on the Taguchi method by finite element analysis[J]. Int J Numer Method Biomed Eng, 2018,34(5):e2967.

[12] Müller C W, Pfeifer R, El-Kashef T, et al. Electromagnetic induction heating of an orthopaedic nickel--titanium shape memory device[J]. J Orthop Res, 2010,28(12):1671-1676.

[13] Khodabakhsh Majd M, Bahrami M, Haghbin Nazarpak M, et al. Computational modeling of nickel-titanium orthopedic staples in the treatment of a fractured scaphoid: effects of staple bridge configuration[J]. J Mech Behav Biomed Mater, 2023,141:105777.

[14] Guo W, Yang Y, Liu C, et al. 3D printed TPMS structural PLA/GO scaffold: process parameter optimization, porous structure, mechanical and biological properties[J]. J Mech Behav Biomed Mater, 2023,142:105848.

[15] Amponsah G, Gorleku P N. Bony injuries in trauma patients diagnosed by radiological examination[J]. Ghana Med J, 2015,49(2):97-101.

[16] Yoon Y C, Kim J, Cho J W, et al. Simple guidelines for evaluating intraoperative alignment after the reduction of intertrochanteric fractures[J]. Asian J Surg, 2021,44(1):66-71.

[17] Zhou X, Zhang D, Xie Z, et al. Application of 3D printing and framework internal fixation technology for high complex rib fractures[J]. J Cardiothorac Surg, 2021,16(1):5.

[18] Xiong Y, Du Q, Wang Z, et al. Shape memory embracing fixator for Vancouver type B and type C periprosthetic femoral fractures[J]. Acta Orthop Belg, 2014,80(3):365-371.

[19] 王延祥，章云童，汤洋，等. 镍钛记忆合金弓齿钉辅助锁定钢板内固定治疗粉碎性胫骨平台骨折[J]. 中国骨伤,2013,26(7):601-604.
Wang Y X, Zhang Y T, Tang Y, et al. Treatment of comminuted fracture of tibial plateau with ni-ti shape memory alloy bow-teeth screws combined with locking plate internal fixation[J]. Chin J Orthopaed Traumatol, 2013,26(7):601-604.

[20] 吴贵佑，于前进，朱红伟，等. 股骨头置换与内固定治疗高龄不稳定转子间骨折的比较研究[J]. 中国骨伤,2021,34(10):895-900.
Wu G Y, Yu Q J, Zhu H W, et al. Comparative study of femoral head replacement and internal fixation in the treatment of unstable intertrochanteric fractures in the elderly[J]. Chin J Orthopaed Traumatol, 2021,34(10):895-900.

[21] Rogers F B, Larson N J, Rhone A, et al. Comprehensive review of current pain management in rib fractures with practical guidelines for clinicians[J]. J Intensive Care Med, 2023,38(4):327-339.

片语健康

饥饱

饥是驱动摄食的冲动。缺乏食物时，胃产生饥饿素（Ghrelin）。饥饿素经血流进入大脑，激活表达在下丘脑的饥饿素神经元上的饥饿素受体，诱导饥饿感。饥饿感激发觅食行为[1]。

饱是食物充足的感觉。进食后，白色脂肪组织分泌瘦素。瘦素经血流进入大脑，抑制下丘脑神经细胞释放神经肽 Y（Neuropeptide Y, NPY）和催吐相关肽（Agouti-related peptide, AgRP），同时促进 α-黑素细胞刺激激素（α-melanocyte-stimulating hormone, α-MSH）的合成。NPY 和 AgRP 均诱导摄食，α-MSH 抑制饥饿感。

饥饱调节进食相关的能量平衡（Energy homeostasis）[2]。人的体质量调节倾向于维持能量平衡。现代高热量饮食和锻炼缺乏倾向破坏这种平衡，使体质量设定点升高。设定点升高增强饥感，饥感持续增强的结果是情绪化进食和肥胖[3]。

参考文献

[1] Ayres J S. The biology of physiological health[J]. Cell, 2020,181(2):250-269.

[2] Lingvay I, Cohen R V, Roux C, et al. Obesity in adults[J]. Lancet, 2024,404(10456):972-987.

[3] Marks D F. Homeostasis theory of well-being[J]. J Health Psychol, 2024,29(7):721-733.

（作者：于永利）