

儿童青少年食物偏好的研究进展

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摘要: 食物偏好形成发展于儿童和青少年时期, 它会影响儿童青少年的饮食选择和营养摄入, 对其未来的健康起至关重要的作用。了解儿童青少年的食物偏好有助于施行有效的干预计划, 以促进其健康的饮食行为。本文根据国内外研究进展, 综述儿童青少年食物偏好的影响因素与干预策略, 为促进儿童青少年的健康饮食提供参考与意见。

关键词: 儿童; 青少年; 食物偏好

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Research progress on food preferences of children and adolescents

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Abstract: Food preferences is established and shaped during childhood and adolescence, influencing dietary choices and nutritional intake of young individuals, thus playing a critical role in their future health. Understanding their food preference can help implement effective interventions aimed at promoting healthy eating behaviors. This review summarizes the associated factors and effective interventions of food preferences in children and adolescents according to previous literature, providing suggestions for promoting a nutritious diet among this demographic.

Keywords: children; adolescents; food preference

食物偏好(food preference)指个体对食物喜欢或不喜欢的程度^[1], 它是促成饮食行为最重要的因素, 可反映个体饮食的健康程度及长期的生活习惯和态度^[2]。儿童和青少年时期是食物偏好形成与发展的关键期, 健康的食物偏好可帮助儿童和青少年摄入充足的营养, 满足其健康全面发育的需要^[3]。但研究发现饮食行为问题在儿童群体的发生率高达 64.6%^[4], 儿童和青少年在日常饮食中表现出对高糖、高热量以及低膳食纤维食物的偏好, 超过 50% 的中国学生喜欢汉堡、炸薯条、巧克力、蛋糕和冰淇淋等高能量低营养价值食物^[5]。而此类食物偏好会导致饮食质量的下降^[6], 进而致使儿童青少年超重、肥胖^[7]或产生代谢类疾病^[8], 研究还发现不良食物偏好的儿童青少年有较高风险抑郁或发展成抑郁症^[9-10]。由此可见, 若不及时预防或干预不良食物偏好, 将会对个体身心健康产生深远的负面影响。因此, 本研究综述国内外儿童青少年食物偏好的影响因素, 梳理改善不良食物偏好的干预策略, 为促进儿童青少年的健康饮食提供指导与意见。

1 儿童青少年食物偏好的影响因素

1.1 生物学因素

1.1.1 遗传因素 食物偏好被总结为可适度遗传的特征, 大约 50% 儿童的食物偏好差异可以解释为受遗传因素与环境影响^[11]。追本溯源, 儿童和青少年天生具有偏好高糖高热量食物的遗传倾向性, 表现为喜欢甜味与能量密集的食物, 不喜欢酸或苦食物^[3]。因此, 目前绝大多数关于食物偏好的研究都集中在识别与感官相关的特定基因上, 研究者们发现遗传基因中感觉器官等位基因的变异会影响儿童青少年对食物的感知、选择和消费^[12]。此外, Wilson 等^[13]还通过大规模全基因组关联分析(genome-wide association study, GWAS)方法, 进一步验证遗传基因对儿童青少年食物偏好的影响。总之, 在现有研究中, 食物偏好被证明是一种可遗传的特征^[14], 因为不仅食物偏好本身具有单核苷酸多态性(single nucleotide polymorphism, SNP)遗传力^[13], 而且基因中的单核苷酸多态性以及错义突变会改变编码蛋白的功能, 也会导致儿童青少年产生特定的

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食物偏好^[15]。

1.1.2 性别 研究认为儿童青少年的食物偏好与饮食模式会因为性别不同而表现出一定差异^[16]。如在现有研究中, Cooke 等^[17]发现男童更喜欢高脂肪含糖食物和肉类,对水果和蔬菜则不太喜欢; Al-ghadir 等^[18]发现在日常饮食中,至少有 67% 的男童快餐和含糖饮料的消费频率高于女童。值得注意的是,也有研究发现男生和女生对不健康食物的偏好差异并不显著,儿童青少年总体对高热量含糖食物的喜爱程度较高,普遍喜爱巧克力、蛋糕和冰淇淋等低营养价值食物,这意味着儿童青少年的食物偏好并不符合健康饮食的要求^[17]。

1.2 年龄 儿童和青少年处于不同的发展期,他们的食物偏好也呈现出一定的差异。虽然有研究认为随着年龄增长,个体食物偏好趋向健康类别^[19]。但更多研究认为青少年比儿童更喜欢高热量食物,随着年龄的增长,其饮食质量会趋于下降^[20]。如 Hackett 等^[21]发现 10 岁以上的儿童青少年比年幼的儿童摄入的水果和蔬菜更少; Lytle 等^[22]发现高年级学生的水果和蔬菜消费相对于低年级学生下降 25%~41%。儿童青少年随年龄的增长越来越喜欢高热量食物,部分原因是他们认为高热量食物的味道更好^[6,23-24],相较于儿童更多依赖家庭所提供的饮食^[25],青少年的认知发展与独立性在不断增强,在饮食消费上相对更主观,更关注自身对特定食物的喜好而非食物的可获得性^[26]。

1.3 感官 儿童青少年的食欲与偏好基于感官体验而发展^[3],味觉、嗅觉、视觉和质地感知等会影响其食物偏好,进而影响食物的选择与摄入^[27]。研究发现儿童青少年在日常饮食中比成年人更容易受到感官影响^[28-31],较多情况下,儿童青少年偏好甜味与咸味食品^[32],对酸、苦、涩等味道的食物喜爱程度较低,导致某些苦或涩味但具营养价值的蔬菜较少被选择食用^[33]。其次,儿童青少年感知到的食物气味会影响其进食的欲望,例如,面包的香味可能会促使其进食选择,而刺鼻不舒适的食物味道则会使其产生厌恶与抗拒^[34]。并且食物的颜色、形状、外观也会影响儿童青少年的食物偏好,色彩鲜艳、外观诱人的食物可能更容易引起其兴趣^[35]。此外,儿童青少年还会因食物质地而对不同食物的喜好产生差异,如与块状或颗粒状坚硬食物相比,儿童更喜欢柔软细腻的食物^[28-30,36]。综上所述,感官对儿童和青少年的食物偏好有着重要的影响。

1.4 家庭特征 家庭是决定儿童青少年各种饮食习惯的主要社会机制^[37],因此与家庭有关的诸多因

素也会影响儿童青少年的食物偏好。其中,较多研究揭示儿童的食物偏好与家庭社会经济地位相关,如高收入家庭的儿童青少年一致表现出对快餐的偏好^[38];居住在城市青少年对高糖高热量等不健康食物呈现出更显著的偏好,而处于农村的青少年更有可能属于健康饮食偏好类别,两者的差异可能来源于家庭居住地所决定的食物可获得性^[39]。此外,家庭结构也会影响儿童青少年的食物偏好,如 Deng^[40]发现相较于核心家庭,中国大家庭的儿童青少年表现出更喜欢快餐、咸味零食和含糖饮料,不太喜欢蔬菜和水果的倾向。除此之外,父母的受教育水平也会影响儿童青少年食物偏好^[41],如 Qiu 等^[19]发现父母受教育水平较低的儿童更喜欢零食,更多地表现出不健康的食物偏好,这可能是因为父母受教育程度有限,所以在喂养上缺乏健康饮食意识^[42]。

1.5 社会因素

1.5.1 同伴 同伴被认为与儿童青少年的食物决策和消费有关,是影响儿童青少年食物偏好的重要因素^[43-45]。研究发现儿童青少年的食物选择、口味偏好和实际饮食行为与同伴表现出相似之处^[46]。一方面,研究者们认为儿童青少年可能会在同伴影响下形成不健康的食物偏好,因为同伴与青少年的含糖饮料摄入量以及更多的低营养价值食品消耗有关^[47-48]。另一方面,研究者们认为观察同伴群体健康饮食行为可能会鼓励儿童青少年发展健康饮食偏好与行为^[49]。总之,现有研究表明,同龄人对儿童和青少年的食物偏好有显著影响,但这种影响多大程度上阻碍或促进儿童青少年的健康饮食还需要进一步的探讨^[50]。

1.5.2 媒介 在电视广告或网络社交媒体等媒介因素的影响下,特定的食物被展示为受欢迎和有吸引力的形象,从而影响儿童青少年食物偏好^[51]。大量研究揭示儿童青少年的食物偏好易受到电视食品广告的影响,例如, Gonçalves 等^[52]发现观看有健康饮食信息的动画片的儿童会更倾向选择健康食品; Masterson 等^[53]则通过血氧水平依赖功能磁共振成像(BOLD-fMRI)技术验证观看食品广告时儿童大脑在与奖励和食物偏好动机相关的区域如腹侧被盖区、尾状体、下丘脑等处会产生较大的反应。还有 Coates 等^[54]研究揭示,观看不良饮食网红视频儿童的不健康食物摄入量显著增加。对此,研究解释为个体对食物线索的反应受自身信息调节能力影响,当有影响力的媒介内容中嵌入食物线索,儿童青少年对食物营销的分辨能力较低,对食物线索反应的

调节能力也有限,因而其饮食态度与行为会受到影响^[55]。此外,儿童青少年对一个角色的喜爱会增加其模仿该角色行为的可能,因此儿童青少年观看喜爱博主的视频会影响其对食物的态度,进而影响自身食物偏好^[54]。

1.6 情绪 儿童青少年的食物偏好可能受到情绪的影响,国内外研究表明负面情绪是不良饮食的主要诱因之一。处于负面情绪如抑郁、焦虑和压力等状态下的儿童青少年会产生不良饮食偏好与选择^[10,56]。从心理奖赏机制来看,高糖高热量食物往往具有高适口性特征,摄入后会给人带来愉悦舒适的感受。因此,在面对消极情绪时,个体可能会增加对此类食物的渴望,进而产生情绪性进食行为。从情绪调节机制来看,消极情绪可能会削弱个体的抑制控制能力,造成进食的失控^[57]。研究普遍发现,人们在不良情绪下会更偏好甜食,增加零食的消费,并减少水果蔬菜的摄入选择^[58]。例如,侯方丽等^[59]研究发现,表现出抑郁症状的青少年对零食和高能量食物的摄入显著增加。Wu 等^[60]则通过长期比对研究发现,抑郁状态下的儿童青少年更偏好摄入含有过多盐分、糖分或脂肪的食物,其抑郁状态与不良饮食行为呈正相关。需要注意的是,虽然已有研究揭示了负面情绪时不良饮食表现与相关影响路径,如青少年的负面情绪可能通过自我控制进而影响情绪性进食行为^[61],但系统考察情绪对儿童青少年食物偏好的影响路径的研究尚不充分,未来还需进一步验证和完善两者之间的影响关系。

1.7 其他因素 研究发现具备相应营养知识或感知食物的益处会显著影响青少年的食物偏好^[6],如 Sun 等^[39]发现,当具备关于糖、肉制品和乳制品营养知识时,青少年的食物偏好会趋向健康类别。还有研究发现人格特征如对食物的恐新、对惩罚与奖励的敏感性和述情障碍也会影响儿童青少年的食物偏好^[62-63],例如 Shank 等^[64]发现述情障碍的儿童青少年会偏好摄入更多的碳水化合物。此外,在行为与生活方式上,进行日常运动的儿童青少年相较于久坐的儿童青少年更偏好摄入健康食物如蔬菜、水果等^[65];不良睡眠可能会引发儿童青少年对不健康食物的渴望与偏好^[66-67],如 Asarnow 等^[68]发现睡眠改善的青少年比睡眠未改善的青少年吃更少甜或咸的食物,即睡眠较好的青少年会更偏好健康的食物,进而降低超重与肥胖可能^[69]。

总而言之,食物偏好受到多种因素的影响,并且这些因素对食物偏好的影响并不是孤立存在的。因此,未来研究应该更广泛地探讨食物偏好的影响因

素及它们之间的相关作用机制。

2 儿童青少年食物偏好的干预研究

20 世纪以来,主流研究已经揭示食物偏好受个体遗传、食物接触和直接的社会互动等因素影响。在此基础上,从个体差异、食物暴露、家庭喂养和社会背景等角度对儿童青少年食物偏好进行的干预研究逐渐增多^[70]。

2.1 能量摄入的调节:训练正念饮食 研究认为儿童青少年通过能量摄入调节满足营养需求受个体差异与学习训练的影响^[70]。一方面,儿童青少年在不同程度上具有自发调节能量摄入的能力;另一方面,还可通过饮食训练发展健康的食物偏好与选择^[71]。然而,儿童青少年自发的能量摄入调节不仅存在最佳干预期的限制,同时也存在个体差异局限性^[70]。因此,通过有效培训来帮助儿童青少年学会能量摄入的调节,从而促进健康饮食是十分必要的。现有研究揭示,人们的正念特质与其能量摄入存在相关性,正念特质高的个体会更倾向于选择水果蔬菜等健康类食物^[72]。此外,正念也是有效的心理调节方式,可一定程度上缓解负面情绪,减少情绪性进食行为^[73]。因此,正念饮食可通过训练儿童青少年对饮食的自控力和调节能力来引导其形成健康的食物偏好和习惯,以改善其不良饮食行为。遵循正念饮食指导,在用餐时可鼓励儿童调动自身感官,关注食物的外观、气味、口感和味道等,引导儿童感知身体发出的饥饿信号,学会听从身体的需求来调节进食,还应要求儿童专注进食的行为,避免用餐时玩手机或进行其它干扰活动。总而言之,正念饮食训练的干预措施可操作性强,可有效帮助儿童青少年学会饮食摄入的控制与自我调节,减少过度进食行为及不健康食物偏好与选择,有益于其身心健康发展。

2.2 食物的重复暴露:结合感官特性 食物的重复暴露指特定食物多次出现或提供,意味着儿童青少年与食物之间熟悉度与可获得性的增强,通过食物的重复暴露以改善食物偏好是较为通用的干预策略^[74-76]。国外儿童饮食干预研究中,Maier 等^[77]将具有感官吸引力的蔬菜与较不受欢迎的蔬菜混合搭配多次提供,发现该操作会提高儿童对先前不喜爱蔬菜的喜爱程度;Fisher 等^[78]发现在饮食中为具有食物恐新和不愿品尝的儿童提供熟悉的味道会促进其品尝特定食物的意愿,且该策略对儿童食物偏好的影响具有持续性。由此可见,结合儿童青少年的感官特性进行食物的重复暴露来干预其食物偏好具有较强的可行性。因此,在日常饮食供应中,家庭和

学校应注重提供合理搭配的健康膳食供儿童选择。社会层面则应该致力于开发推广符合营养学且兼有丰富感官享受的食物产品,同时也应促进个性化营养饮食与特膳食品干预方案的试行,为不同群体儿童青少年做好健康饮食保障。此外,食物的重复暴露策略还可与感官相关的活动结合,如通过故事书或视频等进行健康食物的视觉接触,或通过触觉感官类游戏进行体验式学习等方式来发展儿童青少年健康食物偏好^[79]。

2.3 积极的家庭养育:树立饮食榜样 干预研究表明,在家庭喂养中,鼓励平衡且多样性的饮食会促进儿童水果和蔬菜的摄入,而限制或强迫性喂养方式则会使儿童对水果蔬菜的偏好下降,同时还会增加他们对甜和咸味食物的偏好^[80-81]。因此,进行科学的家庭养育对于预防或干预不良食物偏好至关重要。在这方面,回应式喂养(responsive feeding)是一种被研究者普遍应用于学龄前儿童食物偏好干预研究中积极主动的喂养方式,可有效改善儿童的情绪性进食与降低儿童肥胖风险^[82]。通过回应式喂养方式,家长在饮食中以儿童为主体,尊重其进食意愿,不强迫限制进食,并提供多样搭配的健康食物,从而培养儿童的健康饮食观念与食物偏好。此外,干预研究还发现,家长的科学饮食行为与塑造和发展儿童青少年的健康食物偏好相关^[83]。因此,家长可学习营养知识,为儿童树立饮食行为榜样,并在日常饮食中注重与儿童的互动,可通过营造愉悦的用餐氛围和鼓励儿童参与食物准备等方式,激发儿童的饮食兴趣和好奇心,帮助其发展健康的食物偏好。

2.4 正向的社会互动:引导健康饮食 在社会背景下,儿童青少年可通过奖惩、同伴及观察学习等方式模仿他人的饮食选择,改变饮食行为^[70]。研究发现,在社会互动情景下,当一种中性食物(既不是首选也不是非首选的)作为奖励给予儿童,儿童对这种食物的偏好会增加,而在非社会互动情境下儿童对此种食物的偏好则不显著,这意味着若儿童青少年将在社会互动中体会的积极情感与食物相联系,可增加其对特定食物的偏好^[84]。Issanchou 等^[85]也曾通过社会学习等策略来增加儿童青少年对蔬菜的接受度和喜爱程度,发现正向的社会互动对儿童青少年的食物偏好干预有效,且在儿童早期进行干预的效果更佳。此外,Marty 等^[86]发现在模拟的营养健康课程情景下,儿童青少年会在随后的进食中更多地选择水果等健康食物,这揭示儿童青少年在正向的社会互动中会表现出健康饮食行为。因此,学校层面可以通过开展健康饮食与生活类互动课程和活

动,从理论到实践帮助学生群体形成健康饮食观念与生活方式,助力学生培养健康食物偏好。社会层面则可以通过加强媒介平台对儿童青少年饮食的心理引导监管,减少广告营销与网红博主等对不健康食物的宣传,在正向的社会互动中潜移默化地干预儿童青少年的不良食物偏好。

总而言之,儿童青少年食物偏好的干预需要考虑个体差异和身心发展特点,并寻求家庭、学校和社会的共同助力。未来研究应该在考虑食物偏好相关风险因素的基础上,同时关注个体特征以及潜在作用机制,以探索个性化干预措施。这些措施需要满足和平衡不同社会地位人群的饮食教育需求,从而改善儿童青少年的饮食行为。此外,未来可以发展由家庭、学校、社区和卫生医疗机构共同协作的全方位营养干预的社会支持系统网络,以保障儿童青少年的健康饮食与身心发育^[87]。

综上所述,食物偏好与儿童青少年营养摄入和身心健康发展密切相关,本研究归纳总结了儿童青少年的食物偏好影响因素,并且通过梳理食物偏好的干预研究,提出有效且具有可行性的培养健康食物偏好的方法,为促进儿童青少年的健康饮食与身心全面发展提供指导与参考。

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