

# 趋近 - 回避冲突的研究进展及展望

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## 摘要

接近积极刺激, 避免消极刺激是人和动物在进化过程中所保留的行为倾向, 有利于个体的生存和发展。无法保持趋近与回避之间的动态平衡可能会引发包括焦虑、抑郁在内的多种精神障碍。趋近 - 回避既可以是一种个体的自动化倾向, 也可以通过实验范式对其进行测量。本文对目前有关趋近 - 回避冲突的研究进行了回顾和梳理, 整理了相应的实验范式, 讨论其可能的神经基础。目前已有的研究显示有关趋近 - 回避冲突的结果缺乏一致性。未来应丰富趋近 - 回避冲突研究, 尝试构建标准化范式, 注重对趋近 - 回避冲突神经机制的探索以及理论与临床应用的结合。

## 关键词

趋近 - 回避冲突, 趋近动机, 回避动机, 焦虑

# Research Progress and Prospects of Approach-Avoidance Conflict

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## Abstract

Approaching positive stimuli and avoiding negative stimuli are behavior tendencies that humans and animals have retained throughout the process of evolution, which are beneficial for the survival and development of individuals. The inability to maintain a dynamic balance between approach and avoidance may lead to various mental disorders, including anxiety and depression. Both approach and avoidance can manifest as an individual's automatic inclination and can be assessed through experimental paradigms. The present paper provides a comprehensive review and synthesis of current research on approach-avoidance conflicts, systematically categorizes corres-

ponding experimental paradigms, and explores the potential neural bases. Current research has shown inconsistent results regarding approach-avoidance conflicts. In the future, there should be efforts to enrich approach-avoidance conflict studies, attempt to establish standard paradigms, focus on exploring the neural mechanisms of approach-avoidance conflicts, and integrate theory with clinical applications.

## Keywords

Approach-Avoidance Conflict, Approach Motivation, Avoidance Motivation, Anxiety

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## 1. 引言

趋近行为和回避行为可以被视为个体适应环境的基本构件。Schneirla 将趋近行为描述为类似于“获得食物、寻求庇护或进行交配”的反应；将回避行为描述为类似于“防御、逃跑或其他保护性”的反应 (Schneirla, 1959)。接近积极刺激、避免消极刺激是人类和动物在进化过程中保留的行为倾向，反映了个体与环境之间的相互作用，是人类趋利避害适应环境的核心机能，有助于个体的生存和发展(刘惠军, 高磊, 2012; Kirlic et al., 2017)。

在日常生活中，个体经常会面临这样的情况：在一次决策中，既存在想要接近的积极方面，又同时存在想要回避的消极部分。比如，是否选择在夜晚走昏暗的小路回家；是否选择参加给分宽松但不感兴趣的课程。当在一次决策中同时出现两种互不相容的动机趋向时就会产生趋近 - 回避冲突(Gray & McNaughton, 2000)。趋近 - 回避冲突下的决策是一个独一无二的过程，这对个体比较已有选项的价值形成了独特的挑战。在面对趋近 - 回避冲突时，要求决策者同时考虑奖赏和惩罚的双重结果、结果出现的可能性以及不同结果对决策者本身的重要程度(Aupperle et al., 2015; Aupperle & Paulus, 2010; Chrysiou et al., 2017)，并最终达到成本与收益的平衡(Robin & Martin, 2010)。通常情况下，趋近 - 回避冲突情境中会产生选项之间的价值对比，如果潜在威胁的增长超过了最终能够获取的奖励价值则会导致个体作出由趋近倾向到回避倾向的转变(Kirlic et al., 2017)。目前关于趋近 - 回避冲突的研究取得了一些丰硕的成果。本文将简要阐述趋近 - 回避冲突发展过程中的重要成果，整理目前广泛应用的相关实验范式、探索可能的神经基础以及讨论未来可行的研究方向。

## 2. 趋近 - 回避冲突范式

大量动物研究应用趋近 - 回避冲突范式来模拟或诱发焦虑相关行为。将改良后的动物实验范式应用于人类研究之中可以帮助研究者提高实验结果的可推广性，开发更为有效的心理治疗方法。

### 2.1. 趋近 - 回避冲突的动物研究范式

惩罚诱发冲突范式、探索范式和社会互动冲突范式三种不同类型的冲突范式被广泛的应用于诱发动物的趋近 - 回避冲突。惩罚诱发冲突范式依赖于同时呈现无条件刺激(奖励/惩罚)来诱发冲突，如饮水冲突实验(Vogel Task)、进食实验(Geller-Seifter Task)等，被广泛的应用于焦虑相关的研究中(Basso et al., 2011; Chen et al., 2024)。探索性冲突范式在探索新环境的先天动力和对潜在未知威胁的恐惧之间制造了冲

突(Hilton et al., 2023; Sarkar, 2020), 如高架十字迷宫实验(Elevated Plus-maze Task)、孔板实验(Hole Board Tests)、觅食实验(Foraging Experiments)等。社会互动型范式, 在动物对社会归属感的渴望与新奇事物的潜在威胁之间制造了冲突(Hawley et al., 2011; Toth & Neumann, 2013), 如社会偏好回避测试(Social Preference-Avoidance Test)、改良版 Y 型迷宫实验(Modified Y-maze)等。

## 2.2. 趋近 - 回避冲突的人类研究范式

与动物研究相比, 人类研究多通过自我报告的方式来探究人格特质的差异。Carver 和 White 基于 Gray 提出的强化敏感性理论开发了行为抑制/行为激活(BIS/BAS)量表(Carver & White, 1994), 是目前应用广泛的特质趋近动机和回避动机的测量工具。国内学者李彦章等人对该量表进行了翻译和修订, 所得“行为抑制/激活系统量表中文版”能够较为可靠和有效的测试人格结构(李彦章等, 2008)。Cooper 等人于 2016 年基于修改后的强化敏感性理论编制了“强化敏感性理论的人格调查量表”(Corr & Cooper, 2016), 后续同样验证了其简易版也具有较高的有效性和稳定性(Vecchione & Corr, 2021)。

与动物研究范式类似, 趋近 - 回避冲突的人类研究范式也可以概括为基于金钱的冲突范式、基于情绪体验的冲突范式、基于探索性的冲突范式以及基于社会交往的冲突范式(Kirlic et al., 2017)。基于金钱冲突的范式构建了潜在高回报与潜在损失之间的冲突。Pittig 等人应用改良后的 IGT 任务研究具有蜘蛛恐惧症的个体在冲突情境下的决策(Pittig et al., 2014)。Aupperle 等人使用了基于情绪体验的冲突任务, 结果发现更高的奖励水平会增加个体的趋近行为(Aupperle et al., 2011)。Biedermann 等人通过虚拟现实技术打造了类似于高架迷宫的行为实验并证明了高焦虑的个体在冲突情境下会表现出更多的回避行为(Biedermann et al., 2017)。

进行动物研究的一个重要意义在于研究者希望动物实验的结果能够推进或支持人类研究, 并为未来研究提供方向性的指引(Schafer et al., 2017)。然而, 要将这些结果进行推广, 还需要进行更多的尝试与论证。

## 3. 趋近 - 回避冲突的神经基础

各种神经影像方法已被广泛应用于研究趋近 - 回避冲突以及与之相关的神经基础(Aupperle et al., 2015; Lacey & Gable, 2021)。先前的研究表明杏仁核、海马、脑岛、前额叶的部分区域在趋近 - 回避冲突中发挥着重要作用。

### 3.1. 杏仁核

杏仁核一直是处理恐惧、参与条件反射和消退相关研究的主要焦点(Gupta et al., 2011; Schlund & Cataldo, 2010)。杏仁核同样在不确定决策以及风险决策的过程中被激活(Brand et al., 2007)。有研究表明, 杏仁核 - 内侧前额叶皮层通路对涉及不确定性的决策至关重要(Jung et al., 2018)。Peters 等人的研究发现杏仁核和前扣带回之间的连通性与个体利用未来思维来增加延迟折扣相关(Peters & Büchel, 2010)。

### 3.2. 脑岛

脑岛被认为是感知状态潜在变化的关键脑区(Lovero et al., 2009)。脑岛同样被证明在学习、渴望与冲动过程中扮演重要角色(Naqvi & Bechara, 2015)。已有研究报告, 在涉及奖励和惩罚的试验中脑岛和眶额皮层(OFC)之间的功能连接与决策过程中的个体差异有关(Talmi et al., 2009)。

### 3.3. 海马

海马一直是趋近 - 回避冲突研究中关注的核心区域, 在趋近 - 回避冲突过程中发挥着重要作用

(Bannerman et al., 2014; Ito & Lee, 2016; Schumacher et al., 2018)。Gray 所提出的理论认为海马是与行为抑制系统相联系的关键脑区。该系统在个体遇到威胁的情况下被激活, 以抑制可能损害个体生存的行为(Gray, 1982)。腹侧海马损伤的小鼠表现出更多的社会互动行为(McHugh et al., 2004), 并在明暗盒实验中表现出更多对于光亮环境的探索(Bannerman et al., 2003)。Eleanor 通过实验证明了海马体在趋近 - 回避冲突情境下参与监测冲突和行为控制(Loh et al., 2017)。Bach 等人的研究表明在高趋近 - 回避冲突情境下海马前部激活增大(Bach et al., 2014)。Abivardi 的研究则表明当参与者避免威胁时, 海马前部的 BOLD 信号会增加(Abivardi et al., 2020)。

### 3.4. 前额叶

前额叶皮层是行为动机的基础, 并与特质趋近和回避动机相关(Berkman & Lieberman, 2010; Chrysi-kou et al., 2017; Spielberg et al., 2012; Zorowitz et al., 2019)。监测冲突是生物体适应环境的一种机制, 是动机、目标导向等行为的核心(Carter & Van Veen, 2007)。冲突监测系统主要由扣带皮层介导(Agam et al., 2011)。在处理高冲突情景时前扣带皮层激活增加(Braver et al., 2001)。冲突处理期间前扣带皮层的激活预测了个体的目标导向行为(Danielmeier & Ullsperger, 2011)。Rolle 通过使用经颅磁刺激(TMS)来阐明趋近 - 回避冲突背后的神经通路, 结果证明了右侧背外侧前额叶皮层在趋近 - 回避冲突中的重要作用(Rolle et al., 2022)。Amemori 和 Graybiel 的研究指出, 背侧前扣带回和背内侧前额叶皮层是与趋近 - 回避决策相关的区域, 并可能在趋近回避行为中发挥着核心作用(Amemori & Graybiel, 2012)。Aupperle 等人通过操纵积极和消极结果的概率制造不同程度的冲突选择, 发现冲突条件下双侧背侧前扣带回、前脑岛、纹状体和右侧背外侧前额叶皮层更加的活跃(Aupperle et al., 2015)。同样, Gable 等人的研究也表明趋近 - 回避冲突与更大的相对右侧额叶活动相关(Lacey & Gable, 2021)。

有趣的是, 这些大脑区域与各种精神障碍有关。因此, 趋近 - 回避研究可能为更好地了解心理疾病的发生和发展提供线索, 这对临床实践具有重要意义。

## 4. 趋近 - 回避冲突与心理疾病

在面对趋近 - 回避冲突时, 保持趋近和回避之间的平衡至关重要。异常的趋近 - 回避行为被认为是许多身心疾病的表现形式, 比如成瘾行为中过度接近与成瘾相关的刺激(McNaughton et al., 2016)。这种失衡也被视为焦虑症、抑郁症、双相情感障碍和饮食障碍的致病因素(Pedersen et al., 2021; Schafer et al., 2017)。

### 4.1. 焦虑

过度回避和减少的趋近行为被认为是焦虑症的典型特征(Mahoney et al., 2016)。理解趋近 - 回避冲突中的个体是如何进行决策的对于焦虑症的治疗有一定的积极意义(Dibbets & Fonteyne, 2015)。Aupperle 等人的实验证明个体的回避倾向与特质焦虑的增加有关(Aupperle et al., 2011)。Biedermann 应用虚拟现实技术模拟高架迷宫实验, 结果发现高度焦虑的个体在冲突条件下表现出更强的回避倾向(Biedermann et al., 2017)。Enter 发现焦虑症患者更强烈的回避倾向与更严重的社交焦虑相关(Enter et al., 2016)。

### 4.2. 抑郁

Szczepanik 发现重度抑郁的个体在选择环境机会方面存在消极的偏见(Szczepanik et al., 2017)。Uher 研究指出个体趋近行为的下降能够预测未来抑郁的可能性(Uher et al., 2012)。Ironside 同样认为高度回避与重度抑郁症的产生、持续和复发有关(Ironside et al., 2020)。Radke 的研究则表明抑郁个体在接近快乐面孔和回避愤怒面孔之间没有显著差异(Radke et al., 2014)。重度抑郁症的快感缺乏会降低个体接近积极刺

激的倾向使得抑郁症患者更缓慢的接近积极刺激(Bartoszek & Winer, 2015)。Vrijnsen 则发现诱导高抑郁得分个体的悲伤情绪会导致更强烈的回避行为(Vrijnsen et al., 2013)。

然而并不是所有的研究都支持回避行为与焦虑、抑郁之间的联系。一项大样本研究发现回避行为和焦虑抑郁之间没有显著关联,也不能够预测个体未来焦虑和抑郁的可能性(Struijs et al., 2018)。

### 4.3. 饮食障碍

趋近回避任务也被用于研究异常的饮食行为。研究表明神经性厌食症患者倾向于表现出对食物刺激较少的趋近(Paslakis et al., 2016; Veenstra & de Jong, 2011)。也有调查显示,神经性厌食症患者在趋近-回避任务中报告的症状和行为之间没有相关性(Neimeijer et al., 2015)。同样有研究表明,相比于不节食者,节食者对食物图片的趋近倾向更高(Veenstra & de Jong, 2010)。另外还有研究显示节食者对于与任务相关的食物图片刺激表现出回避倾向而对与任务无关的食物刺激表现出趋近倾向(Neimeijer et al., 2017)。Mehl 等人的研究则表示,与正常组相比,肥胖个体对食物图片表现出更强的接近倾向(Mehl et al., 2018),但 Kakoschke 和 Paslakis 研究则提出肥胖个体对食物刺激展现出更多地回避倾向(Kakoschke et al., 2017; Paslakis et al., 2017)。当然,需要明确的一点是个体的趋近-回避倾向和最终的食物消费之间可能并不是完全等价的。

## 5. 讨论

趋近-回避冲突从趋近动机与回避动机的角度对决策过程进行探讨,并对结果进行基于动机水平的阐释,这为我们理解个体的行为提供了新视角。综合已有研究,不同领域内关于趋近-回避冲突的结果缺乏一致性。其中一个可能的解释是不同研究所采用的实验范式无法准确模拟复杂的决策情境。无论是基于情感、社会交往、探索还是奖励的范式,每一种实验范式只能代表趋近-回避冲突情境中的一小部分。以 Biedermann 应用虚拟现实技术重现高架迷宫实验为例,高架迷宫实验被一些研究者称为“一次性耐受实验”。研究者认为在高架迷宫实验过程中,第一次探索开放臂与多次探索过后产生的动机冲突程度显然是不同的(Biedermann et al., 2017)。也就是说,个体感受到的动机冲突是动态变化的,其可能随着实验的进行不断减弱。事实上不只是高架迷宫实验,许多实验范式都存在着“练习效应”。此外,在 Aupperle 提出的基于情感的趋近回避冲突任务中,实验参与者通过观看能够诱发消极情感的图片作为惩罚,以制造决策过程中的冲突情境。尽管研究者预先表明实验材料能够诱发消极情绪和回避冲动,也明确提出了个体选择趋近消极刺激只是为获取奖励积分并且积分本身不与最终实验报酬挂钩,我们仍无法确定个体获得积分的驱动力与避免消极图片刺激的驱动力是否等价。参与者可能会为了获得更高的积分或代币而过分抑制自身的回避动机,或选择刻意忽视消极情感刺激。

趋近-回避冲突广泛地存在于社会活动中,是个体生存发展的重要基石。日常生活中我们每时每刻都可能经历着冲突,都需要在冲突中进行选择。本文通过归纳总结当前的研究,系统地论述了趋近-回避冲突的定义,实验范式,可能的神经基础以及其与心理疾病之间的联系。尽管目前该领域的实验范式仍不够成熟,这依然是基础研究领域向应用价值过渡的有意义的尝试。今后研究应重视研究范式的标准化,从更广泛的角度来探索趋近-回避冲突。

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