GOOD EVIDENCE MATTERS

GEMs of the Week

SPOTLIGHT

Let the Kids Play!

Turning Back the Clock

Evidence-Based Lifestyle Interventions to
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How SFBT Can be Used for Both
Mental and Physical Health

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The Effect of Sport Specialization on Injury Risk in NCAA Athletes: Results from the SAFE Consortium

Lutsic JJ, Lutsic SE, Ibrahim DS, et al. The Effect of Sport Specialization on Injury Risk in NCAA Athletes: Results From the SAFE Consortium. *Clin J Sport Med*. 2024;34(6):578-582. doi:10.1097/JSM.0000000000001225

KEY TAKEAWAY: High specialization athletes are more likely to report and sustain upper and lower extremity injuries compared to low specialization athletes.

STUDY DESIGN: Retrospective cohort study

LEVEL OF EVIDENCE: STEP 3

BRIEF BACKGROUND INFORMATION: Youth athletes are beginning to specialize in one sport more frequently. Previous studies have demonstrated a relationship between degree of specialization in sports and injury incidence. This study aimed to assess the effects of early specialization on injury risk through a multicenter framework while focusing on National Collegiate Athletic Association (NCAA) athletes.

PATIENTS: Athletes

INTERVENTION: High specialization

CONTROL: Moderate and low specialization

PRIMARY OUTCOME: Incidence of injury

Secondary Outcome: Time to return to play, likelihood of undergoing surgery

METHODS (BRIEF DESCRIPTION):

- NCAA Division I, II, and III athletes who were rostered in an NCAA sport during the 2022–2023 academic year were included in the study.
- Participants were 20 years old on average.
- Division I schools are the most competitive, offer full athletic scholarships and generally have large budgets for athletics. Division II schools offer smaller-scale scholarships, and their athletic programs are generally less well-funded than Division I. Division III schools do not offer athletic scholarships and emphasize balance between school and sport.
- Potential participants were recruited by investigators from the SAFE consortium, a multisite partnership between a group of colleges.
- Athletes were stratified by degree of specialization, which was determined by two methods:
  - Self-report via questionnaire
  - Classification based on validated scale that consisted of three questions to determine if athletes focused on a single sport, quit other sports to focus on one sport, and the amount of time throughout the year dedicated to sport participation.
- Low specialization athletes met one or less criteria on the three-part specialization scale. Moderate specialization athletes met 2/3 criteria. High specialization athletes met 3/3 criteria.
- Those who did not complete the questionnaire were excluded.
- Injury history, surgical history for injury treatment, and return-to-play time were determined by self-report.

INTERVENTION (# IN THE GROUP): 102

COMPARISON (# IN THE GROUP):

- Low: 40
- Moderate: 69

FOLLOW-UP PERIOD: Not available

RESULTS:

Primary Outcome –

- Highly specialized athletes were more likely to report an injury compared to low specialization athletes (n=142; x^2 19; P<.0001).
- Highly specialized athletes were at increased risk of upper and lower extremity injuries compared to low specialization athletes.
  - Upper extremity injuries: (n=142; x^2 7.2; P=.007)
  - Lower extremity injuries (n=142; x^2 4.1; P=.04)
- Moderately specialized athletes had increased incidence of lower extremity injury compared to low specialization athletes (n=109; x^2 4.7; P=.03).
- Moderately specialized athletes did not have increased incidence of upper extremity injury compared to low specialization athletes (n=109; x^2 3.8, P=.052).

Secondary Outcome –

- Highly specialized athletes were more likely to undergo surgery for treatment of injuries compared

to low specialization athletes (n=142; x^2 6.8; *P*=.009).

- Low specialization athletes had the shortest length of time to return to play, with an increase seen in each subsequent advancement in specialization level.

LIMITATIONS:

- The study had a small sample size and nonrepresentative sample.
- The recall bias questionnaire asked participants about injuries they sustained in the past and thus may have been subject to recall bias.

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Turning Back the Clock: Evidence-Based Lifestyle Interventions to Restore Normoglycemia in Prediabetes

Interventions for Reversing Prediabetes: A Systematic Review and Meta-Analysis

Galaviz KI, Weber MB, Suvada K BS, et al. Interventions for Reversing Prediabetes: A Systematic Review and Meta-Analysis. *Am J Prev Med*. 2022;62(4):614-625. doi:10.1016/j.amepre.2021.10.020

KEY TAKEAWAY: Lifestyle modifications improve normoglycemia achievement compared to Chinese medicine, supplements, vitamins and other medications in patients with prediabetes.

STUDY DESIGN: Systemic review and network meta-analysis of 47 randomized control trials (N=26,460)

LEVEL OF EVIDENCE: STEP 1

BRIEF BACKGROUND INFORMATION: Prediabetes is common in the United States, and providers often recommend lifestyle modifications and other non-pharmacologic interventions as the first step to initiating treatment. Lifestyle interventions are relatively safe and easy to implement for patients with clear instructions. Furthermore, many of the pharmacotherapies offered are not FDA approved for pre-diabetes specifically. This analysis aimed to assess the impact of lifestyle modifications, medications, Chinese/eastern medicine, and vitamins and supplements on the achievement of normoglycemia in patients with prediabetes.

PATIENTS: Adults with prediabetes

INTERVENTION: Lifestyle modifications, medications, Chinese/eastern medicine, and diet supplements

CONTROL: No intervention or placebo

PRIMARY OUTCOME: Achievement of normoglycemia

METHODS (BRIEF DESCRIPTION):

- Eligible studies included adults with prediabetes, tested any non-surgical interventions for at least three months, used a randomized control design with any comparison group and reported normoglycemia as an outcome.
- Studies that involved any surgical intervention, included individuals with gestational diabetes, type 1 diabetes, children or those with chronic diseases were excluded from the study.
- The study interventions included lifestyle modifications including exercise, physical activity and diet (27 studies), medications (25 studies), Chinese medicine (10 studies), and vitamin/supplements (5 studies).
- Medications included alpha-glucosidease inhibitors (AGIs), glucagon-like peptide 1 (GLP-1) agonists, insulin sensitizers, lipase inhibitors, dipeptidyl peptidase-4 (DPP-4) inhibitors, fenofibrates and insulin secretagogues.
- The control groups included participants who received usual care, placebo or minimal intervention.
- The primary outcome was the proportion of adults with prediabetes who achieved normoglycemia at the end of the intervention.
- The Strength of Evidence assessment was determined using the GRADE system.
- Each intervention started out as “strong” evidence and downgraded for presence of below characteristics:
  - Bias: Downgraded by one level for 20–39% of studies having a high risk of bias, presence of publication bias. Downgraded by two levels for at least ≥40% of studies having high risk of bias.
  - Imprecision: Downgraded by one level if heterogeneity was moderate. Downgraded by two levels if heterogeneity was high.
  - Confidence interval: Downgraded by two levels if 95% CI were wide.

INTERVENTION (# IN THE GROUP):

- Lifestyle management: 4,056
- Medications: 10,267
- Chinese medicine: 1,111
- Vitamins/supplements: 505

COMPARISON (# IN THE GROUP): 9,997

FOLLOW-UP PERIOD:

- Lifestyle management: 1.6 years
- Medication: 2.7 years
- Chinese medicine: 1.0 year
- Vitamins/supplements: 1.0 year

RESULTS:

Primary Outcome –

- Lifestyle modifications improved the likelihood of achieving normoglycemia compared to control (relative risk [RR] 1.8; 95% CI, 1.4–2.2; number needed to treat [NNT]=6).

- Several medications improved the likelihood of achieving normoglycemia compared to control:
  - AGIs (RR 2.0; 95% CI, 1.4–2.9; NNT=4)
  - GLP-1s (RR 3.5; 95% CI, 1.7–7.4; NNT=2)
  - Insulin sensitizers (RR 1.6; 95% CI, 1.2–2.1; NNT=4)
  - Lipase inhibitors (RR 2.6; 95% CI, 1.1–5.8; NNT=3)
- Chinese medicine improved the likelihood of achieving normoglycemia compared to control (RR 2.7; 95% CI, 1.93–3.7; NNT=3).
- Magnesium improved the likelihood of achieving normoglycemia compared to control (RR 7.3; 95% CI, 2.2–24; NNT=2)
- Other medications, vitamins, and supplements did not have a significant effect on achievement of normoglycemia.
  - DPP-4s (RR 2.0; 95% CI, 0.63–6.5)
  - Fenofibrate (RR 1.9; 95% CI, 0.82–4.2)
  - Insulin secretagogues (RR 1.4; 95% CI, 0.49–3.8)
  - L-arginine (RR 1.9; 95% CI, 0.79–4.7)
  - Vitamin D (RR 1.6; 95% CI, 0.90–2.7)

LIMITATIONS:

- There was heterogeneity between the studies regarding the definition of prediabetes, intervention intensity, duration and follow up periods.
- 12% of studies examined had high risk of bias. After excluding these studies, there was no impact to the conclusion of the meta-analysis.
- Few medication studies included follow up data after a washout period, making it unclear if effects of medication persist after withdrawal.
- Included only the English language in the systemic review, which possibly excluded other relevant data from other language studies.

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Brief Therapy Brings Big Gains: How SFBT Can be Used for Both Mental and Physical Health

Addressing Depression and Comorbid Health Conditions Through Solution-Focused Brief Therapy in an Integrated Care Setting: A Randomized Clinical Trial

Cooper ZW, Mowbray O, Ali MK, Johnson LCM. Addressing Depression and Comorbid Health Conditions Through Solution-focused Brief Therapy in an Integrated Care Setting: A Randomized Clinical Trial. *BMC Prim Care*. 2024;25(1):313. Published 2024 Aug 23. doi:10.1186/s12875-024-02561-8

KEY TAKEAWAY: Solution-focused brief therapy (SFBT) significantly improves depression and hemoglobin A1c (HbA1c) but does not improve systolic blood pressure (SBP), diastolic blood pressure (DBP), body mass index (BMI) compared to treatment as usual (TAU).

STUDY DESIGN: Double blinded, randomized controlled trial

LEVEL OF EVIDENCE: STEP 3 (downgraded due to small sample size and short duration)

BRIEF BACKGROUND INFORMATION: Multiple studies have suggested bidirectional relationships between mental health disorders, such as depression and anxiety, and physical health disorders, such as type 2 diabetes mellitus (T2DM) and hypertension (HTN). It is therefore thought to be possible to address both the mental and physical health concerns simultaneously using evidence-based interventions in primary care settings that utilize integrated care models. SFBT, therapy that focuses on a patient's strengths and how they can be used to accomplish the patient's goals, is one such intervention. The study aimed to analyze how effective SFBT is for treating depression and comorbid health conditions in primary care.

PATIENTS: Adults with depression concurrent with physical health disease

INTERVENTION: SFBT

CONTROL: TAU

PRIMARY OUTCOME: Depression and primary health outcomes

Secondary Outcome: Anxiety, well-being, SFBT attributes

METHODS (BRIEF DESCRIPTION):

- English-speaking patients were recruited from a large rural federally qualified health center (FQHC) in the southeast United States.
- Patients that were ≥18 years old and scored at least a 10 on the Patient Health Questionnaire (PHQ-9) with at least one of the following: HTN, obesity, or T2DM were included in the study.
- Patients with current suicidal ideation, prior participation in solution-focused treatment, and inability to comprehend the informed consent process were excluded from the study.
- Patients were block-randomized into groups of 20, then each patient was randomized into the SFBT or TAU groups.
- Patients receiving SFBT received TAU, a 20–30 minute initial SFBT visit, and two additional weekly SFBT visits; SFBT was generally separate from normal primary care provider (PCP) visits.
- Patients receiving TAU received three weekly visits with PCPs for assessment, medications for health conditions, and traditional problem-focused psychological assessment without behavioral intervention.
- Primary depression outcomes were measured using the PHQ-9 on a scale of 0–27, with higher scores indicating more severe depression.
- Primary health outcomes included SBP, DBP, BMI, and HbA1c extracted from chart review.
- The following were measured as the secondary outcomes:
  - Anxiety was assessed using the Generalized Anxiety Disorder 7 (GAD-7). Scores range from 0–21, with higher scores indicating more severe anxiety.
  - Well-being was assessed using the Human Flourishing Index (HFI). Scores range from 0–120, with higher scores indicating higher overall well-being.
  - SFBT attributes were assessed using a custom SFBT scale. Scores range from 0–50, with higher scores indicating improved solution-focused traits.

INTERVENTION (# IN THE GROUP): 35

COMPARISON (# IN THE GROUP): 35

FOLLOW-UP PERIOD: Three weeks

RESULTS:

Primary Outcome –

- SFBT reduced depression compared to TAU (between-group difference –9.4; 95% CI, –11 to –7.2).
- SFBT reduced HbA1c compared to TAU (between-group difference –1.9; 95% CI, –4.4 to –0.58).
- SFBT did not improve SBP compared to TAU (between-group difference –7.1; 95% CI, –16 to 6.2).
- SFBT did not improve DBP compared to TAU (between-group difference –2.2; 95% CI, –7.8 to 3.4).
- SFBT did not improve BMI compared to TAU (between-group difference 0.35; 95% CI, –5.5 to 6.2).

Secondary Outcome –

- SFBT reduced anxiety compared to TAU (between-group difference –7.6; 95% CI, –9.4 to –5.7).
- SFBT improved overall well-being compared to TAU (between-group difference 25; 95% CI, 16–34).
- SFBT improved SFBT attributes compared to TAU (between group difference 15; 95% CI, 11–19).

LIMITATIONS:

- The study had a short duration.
- There was a small number of patients in both intervention and control groups.
- Significant reductions in physical health outcomes may have been limited by the three-week study design and small sample size.
- Only subsets of the intervention and control groups had health outcomes data available for analysis.
- Measurement of mental health and well-being outcomes relied on patients' subjective self-reporting.
- SFBT scale is an unvalidated scale.

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