**S-3** Summary of themethods and intervention for the exercise studies.

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| Author, Year | Samples | Treatment | Intervention |
| Cancer type and stage | Age, Gender, sample size | Type and details | Intensity | Time duration | Frequency |
| AEROBIC TRAINING |
| Payne et. al, 2008 | Breast Ca | >55years20 (F)20: 10 (EX)+ 10 (UC) | Hormonal therapy | EX- Home-based walking programUC- gift card was given | Moderate | 20 min/ session | 4 times/ week for 14 weeks |
| Dodd et al., 2010 | breast, colorectal, or ovarian cancer | >18years119 (F)44 (EE) + 36 (CE) + 39 (CC) | During and after Chemotherapy | EEcardiovascular/aerobic exercise e.g., walking, jogging, orbicyclingCE- Same exercise after completion of treatmentCC: standard care/usual activities | moderate (training heart rate corresponding to 60–80%VO2peak) | 20–30 min/session | 3–5 times per week for 1 year |
| Tang et al., 2010 | Mixed | >18years (17M +54 F)37 (EG) + 35 (CG) | No treatment (50), Chemotherapy (10), Radiotherapy (7), Hormonal therapy (4) | EG: Home based brisk walking with recording of the duration of walk, the RPE,comments or difficulties. Every 2 weeks, diaries were returned to the researcher. CG: usual activities | moderateRPE- 11-13 | 30min/session | 3days/week for 8 weeks |
| Wang et al., 2011 | stage I or stage II breast cancer | 18 to 72 years, (0M+ 72F)35 (EG) + 37 (UG) | Surgery and Chemotherapy | EG: walking program based on Bandura’s Self-efficacy TheoryWeekly recording of exercise log, weekly phone meeting between participant and researcher.UG: Usual care | 40% to 60%heart rate maximum (HRmax) or the modified Borg Scale between 0.5 and 2 | at least 30 minutes per session or the accumulationof 10-minute sessions to reach 30 minutes | 3-5/week for 6 weeks |
| Courneya et al., 2012 | Hodgkin lymphoma(HL) or non–Hodgkin lymphoma (NHL), / no evidence of disease, stage I/II, and III/IV | >18yrs (69M + 48F)UC (60) + AET (57)  | Chemotherapy (53), No treatment (64) | AET: supervised cycle ergometer UC: asked not to increasetheir exercise from baseline | 60-75% of VO2peak(Increased from 60% to 5% every week) | 15-20min (1st week) to 40-45min (by 9th week)(Increase by 5min/week until 45min) | 3days/week for 12 weeks |
| Cho et al.,2012 | breast, colorectal, or ovarian cancer/ stage 1-3 | ≥ 18 years (0M + 119F)exercisers (52) + non exercisers (65) | Sequential chemotherapy then radiation therapy (59) | EE: received their exercise prescription throughout the study period (both during & after cancer treatment)CE: received exercise prescription afterhaving completed cancer treatmentCC: usual careExercises included- walking, jogging/ running, swimming, and cycling | moderate intensity | 20min/session | 3days/week for 1 year |
| Wenzel et al.,2013 | stage I–III solid malignanttumor | >21years (77M +49F)126: EX (68) + UC (58) | Chemotherapy (44) Radiotherapy (66), Both (9), Brachytherapy (7) | EX: Pedometer based unsupervised brisk walking program  UC: Instructedto maintain their usual physical activity | 50-70% of HRmax | 20-30min + 5min warm up + 5min cool down | 5days/week throughout the treatment course (ranged from 5-35 weeks) |
| Naraphong et al., 2015 | Breast Cancer Stage I–IIIa | 18-60 Yrs. (23F +0M)23 (11EG + 12CG) | adjuvant chemotherapy | EG: modified the exercise intervention to be culturally relevant Thai physical activities + walkingUG: usual care and weekly telephonecalls | low-intensity to moderate-intensityexercise <3-6METs and Borg scale (score 12–14 or 40–60% of the age-adjusted maximal heartrate. | each day for at least 20 min per session (or at least two 10-minsessions to reach a maximum of 20–30 min)walking- at least 20–30 min per session (notincluding the 5 min of warm-up and 5 min of cool-down) the accumulation of 10-min sessions that will reach amaximum of 20–30 min. | 3-5days/week for 12 weeks |
| Chen et al.,2016 | lung cancer/ all stages | >18 years/ 24M + 32 F111: EX (56) + UC (55) | Surgery (30), Chemotherapy (2), Radiotherapy (2), Target therapy (3), No treatment (19) | EX: home based walking programUC: The patients were asked to maintainnormal daily activity and not perform additional exercise. | moderate intensity | 40min/session | 3days/week for 12 weeks (6 months follow up) |
| Roveda et a., 2017 | breast cancer/ no stage specified | 35-70years/ 0M +40F40: IG (19) + CG (21) | Post-surgical and not on any treatment | IG: Brisk walkingCG: WCRF/AICR recommendation of 30-minute physical activity every day | HRmean - 58% to 73% | 1 hour session  | 2days/week for 3 months |
| Mercier et al., 2018 | all cancer and stages | 18-80years/ 9M+ 32F41: EX (20) + (21 CBT-I) | Post Cancer treatments: Surgery (16(, Radiotherapy (21), Chemotherapy (9), Brachytherapy (1), Current Hormone Therapy (1) | EX: Home-based Choice of brisk walking, jogging, swimming, or combination.CBT-I: self-administered treatment package of a 60 minute of video and six booklets. | moderate intensity | 20-30min/session(150min/week) | 3-5days/week for 6 weeks (follow up at 6 months) |
| Khoirrunnisa et al., 2019 | blood and solid cancers/ all stages | 8-18 years/ 36M +28 F64: IG (32) + CG (32) | Chemotherapy | IG: AeRop exercise consists of aerobic exercise and progressivemuscle relaxation (PMR).CG: standard care | NR | 15 min in 5 days | 4 weeks |
| RESISTANCE TRAINING |
| Steinndorf et. al, 2017 | Breast cancer/ stage I–III | >18years160(F)160(80 EG+ 80 RC) | Radiotherapy | EG- Supervised machine based progressive resistance exerciseRC- Jacobson progressive relaxation | 60–80% of 1RM8 exercises x 3sets x 8-12 reps | 1hour/ session | 2days/ week for 12 weeks (follow up 12 months) |
| COMBINED TRAINING STUDIES |
| Sprod et. al, 2010 | breast and prostate cancer | >18years (11M + 27F)38: 19 (EG) +19 (CG) | Radiotherapy | 1 instructional session, followed by home based progressive walking + resistance band exerciseCG- instructed to be active as they were prior to the study | Walking- moderate(RPE- 3-5)Resistance training- low to moderate | 1st session 45min/ day | 7days/ week for 4 weeks |
| Chivelle et. al, 2014 | Lung and Colorectal Ca, stage 4 | >18yrs (25M+41F)66 (33EX + 33) | Chemoradiotherapy | REST (5 resistance exercise routines\*2 sets) with instruction + pedometer-based walking. Followed bimonthly by telephone calls for reviewing and advancing the programsCG- Chemoradiotherapy | Moderate | 90-minute/ session | REST- At least 2 sessions/ week for 8 weeksWalking- at least 4 days/ week  |
| Kampshoff 2015 | Breast, colon, ovarian, cervix, testis cancer or lymphomas/ stage 1-4 | ≥18 years (77M + 402F)479 (HI-91, LMI-95, WLC- 91) | Post chemotherapy | Resistance exercises under supervision-HI and LMI- six resistance exercises with a frequency of 2 sets of 10 repetitions each, targeting large muscle groupsEndurance - static cyclingHI group-30 seconds at 65 % of MSEC and 60 seconds at 30 %LMI group-30 seconds at 45 % of the MSEC and 60 seconds at 30 %.After 4 weeks the duration of the latter block was reduced from 60 to 30 seconds in bothHI and LMI advised to be physically active at home WLC- Waitlist control | Resistance-HI- 70-85 % of 1RMLMI- 40-55% of 1RMEndurance-HI- ≥80 % of HRRLMI- 40–50 % of HRRModerate intensity | NR30min/ session | 2days/ week for 12 weeks3days/ week |
| Rogers et. al, 2015 | breast cancer/ ≤ Stage II | 30 to 70 years/ 42(F)42: 42 (20-intervention + 22 control) | >4 weeks post primary treatment but on anti-oestrogen agents | Aerobic- unsupervised walking + supervisedResistance- resistant bands exercises +6 discussions to improve adherenceControl- asked to avoid changing of exercise behaviour | aerobic- moderate intensityResistance- 8 exercises x 2 sets x 15 reps | Aerobic- 40min/ session | Aerobic- 4days/ week(2 supervised + 2 home based) for 3 monthsResistance- 2days/ week |
| Coleman 2012 | Multiple myeloma | 35-76 years95 (EG) + 92 (CG) | Chemotherapy | Aerobic walking + resistance exercises- (a) daily stretching exercises (b) strength and resistance training- biceps curls, triceps extensions (chair push-ups), chair stands and hamstring strengthening) + instructed to remain active and walkUC- instructed to remain active and walk 20min/day, 3 times/ week | Aerobic walking 65%−80% of HRmax (11-13 RPE)Strength resistance training-60%− 80% of 1RM (15-17 RPE) | Walking- 20min/day | 6days/ week with aerobic and resistance on alternate days for 15 weeks |
| Courneya et al.,2014 | breast cancer/ stage I–IIIc | >18years (0M +296 F)N = 296 (STAN- 95, HIGH- 99, COMB- 102) | Chemotherapy | STAN- vigorous aerobic exerciseHIGH- Vigorous aerobic exerciseCOMB- Vigorous aerobic + strength training- 9 exercises x 10-12 reps | STAN- VigorousHIGH- vigorousCOMB- vigorous aerobic + moderate strength (60–75 % of 1 RM) | STAN- 25–30 min/ sessionHIGH- 50–60 min/ sessionCOMB- 50–60 min/ session | STAN- 3 days/week for 3-4 weeks after chemotherapyHIGH- 3 days/weekCOMB- STAN- 3 days/week + strength 3 days/week |
| PHYSICAL ACTIVITY |
| Rogers et al., 2009 | breast cancer, stage I, II, or IIIA | 18 and 70 years.41: 20 (UC) + 21 (EX) | Hormonal therapy | EX: group and individual sessions consisting of 12 individual supervised exercise and 3 individual ‘‘face-to face’’ update counselling sessions with an exercise specialistthat tapered to a home-based program by the end of the intervention.UC: written materialsrelated to physical activity obtained from the AmericanCancer Society | moderate | 150mins/ week | For 12 weeks |
| Donnelly et al., 2011 | stage 1-3 of Ovarian,Endometrial,Uterine, Cervical | 18years.33(F).33: PA (16) + UC (17) | Post-surgical (33), Chemotherapy (13), Radiotherapy (7), Chemotherapy and Radiotherapy (13) | PA: home-based physical activity intervention including walking and strengtheningexercises. Initial consultation with a physiotherapist, followed by weekly telephone calls for 10 weeks and final consultation at 12th week and 2 monthly follow up call.UC: standard care | moderate intensity | 30 min of physical activity | at least 5 days of the week |
| Rogers et al., 2013 | Stage I, II, or IIIA Breast Cancer | 18 and 70 years; 28(F).28: PA (15) + UC (13) | No ongoing Chemotherapy or Radiotherapy; >8 weeks post-surgery | PA: exercise and resistance training (i.e., up to 20 repetitions of 8 different exercisesusing each of the major muscle groups). Participants were tapered from supervised exercisesessions with an exercise specialist to home-based, unsupervised exercise over the first sixweeks of the intervention and given heart rate monitors to achieve target exercise intensity.UC: written material from American Cancer Society. | moderate intensity | 150weekly minutes exercise and two sessions per week of resistance training | 6 weeks |
| Rogers 2017 | breast cancer/ stage I-IIIA | 18-70 years 222(F)222: BEAT Cancer (110) + UC (112) | No ongoing Chemotherapy or Radiotherapy; >8 weeks post-surgery | BEAT Cancer: physical activity included 12 supervised exercise sessions with exercise specialists during the first sixweeks that were tapered to entirely unsupervised exercise off-site (e.g., home-based)supported by update counselling sessions with exercise specialists every two weeks.UC: written material from American Cancer Society. | moderate-to-vigorous | ≥150 weekly minute | 3 months |
| Li 2022 | All/stage 1-3 | 15-39yrs143: 47 (PAG)+ 48 (BAG)+ 48 (CG) | Undergoing/completed surgery, radiotherapy or chemotherapy | PAG- intelligent sportsbracelet and an exercise instruction manual given+ group interactionBAG-received 120-180min online video seminar once a week in groups of 6-10 + group interaction.CG- usual treatment & follow up | moderate | 150min/ week | 8 weeks |
| YOGA |
| Cohen et al.,2004 | Lymphoma.all stages | >18years38: 19(TY) +19(WL) | Undergoing/completed chemotherapy | TY:1) controlled breathing & visualization2) mindfulness 3) postures from the Tsa lung4) preliminary set of postures (instructed and audiotape given)WC- no contact with research personnel |  | NR | 1 session/ week for 7 weeks |
| Raghavendra et al., 2009 | breast/ stage 2 and 3 | 30-70 years.88 (F).88: 44(yoga) + 44(supportive counselling) | Radiotherapy  | 1) set of asanas2) breathing exercises,3)pranayama4)meditation5) yogic relaxation techniques with imageryCG- received 3-4 counselling session |  | 60min/ session | 3 sessions perWeek for 6 weeks |
| Mustain et al., 2013 | mixed/all | 54 years (0.51). 393F+ 17M.410: 206(yoga)+ 204 (SC) | Post-surgery, post chemotherapy,and/or post-radiation therapy. | YOCAS:1)standard sitting and standing sequences2)transitions3)restorative yoga4) mudras5) pranayama6) mindfulness meditation7)visualizationCG- received standard follow-up care+ offered YOCAS after the study |  | 75min/ session | twice a week for 4 weeks |
| Chandwani et al.,2014 | breast/ stage 0 to 3 | 26-79years; 178F178: 53 (Yoga) + 56 (Stretch) + 54 (waitlist) | Radiotherapy | Yoga- 1) Asana3) deep relaxation4) pranayama5) meditationST-Standing, lying down, sitting positions and approximated the gross movements of the YG exercises. Participants learned all the material over the course of the first four classes taught by physiotherapists.WLC- Waitlist control |  | 60min | 3 sessions/ week for 6 weeks(Follow up- 6months) |
| Cramer et al., 2016 | non-metastatic colorectal cancer (stage I–III) | 40-87 years; 21 (F)33 (M)54: 27 (Yoga) + 27 (Control) | 2-48 months post-surgery | Yoga- traditional hatha yoga led by certified hatha yoga instructorsCG- Waitlist control |  | 90 mins | weekly for 10 weeks |
| Taylor et al., 2018 | breast/ no stage mentioned | 18- 65years.26 (F)26: 14 (yoga) + 12 (control) | Post treatment  | Restorative yoga:1) 10 min of Pranayama2) 5 min of meditation in cross-legged sitting3) 50 min of 13 restorative yoga postures of active relaxation4) 10 min of sav asanaCG- maintained daily activities and didn’t participate in yoga for 8 weeks |  | 75 min | 1 session/ week for 8 weeks |
| Chaoul et al.,2018 | breast/ 1 to 3 stages | >18years.227 (F)227: 74 (TYP) +68 (STP) + 85(UC) | Chemotherapy  | TY:1) mindfulness and focused attention through guided meditation with breathing & visualization2) Alternate nostril breathing practice & breath retention exercise3) Tsa Lung movements4) compassion-basedmeditation.STP:Included stretches in standing, lying down, and sitting positions and approximated the gross movements of the TYPCG- received no exercise/yoga |  | 75-90 min | 4 supervised sessions during chemotherapy, and 3 booster sessions over the subsequent 6 months + encouraged to practice athome 7days/week |
| Huberty et. al, 2019 | Myelo-proliferative neoplasm(Thrombo-cythemia, polycythemia vera, or myelofibrosis) | >18years.3(M) + 45 (F)48: 27 (yoga) + 21 (control) | Completed treatment | Yoga- home based, online streamed videos include warm-up and cool down, reminders for breathing with the movements/ poses, and a closing mindfulness activitywith a message from yoga instructor, brief meditation, and final relaxation. |  | Week 1–2brief introductory videos (5–20 min) Week 3–12(20–30 min) with slightly increased intensity | 5-30min/ session60min/week for 12 weeks (follow up till 16 weeks) |
| TAI-CHI |
| Larkey et. al, 2015 | breast cancer survivors/ Stage 0-III | 40–75 years.87 (F).87: 87 (SQG- 45 +QG/TCE- 42) | >6 months post treatment | QG/TCE-quigong/tai chi for 12 weeks by nurse. Followed up at 3 monthsSQG- quigong taught by exercise physiologist | Low  | 30min/sessionsupervised 60min/day | 5days/weeksupervised 2days/week |
| Irwin et. al, 2017 | breast cancer survivors/ Stage 0-III | 42 to 83 years 90(F)90 :(45 TCC + 45 CBT-I) | >6 months after completion of treatment | TCC- group of 7-10 over2 months +1 month of skill consolidation + adherence for 3 monthsCBT-I- group of 7-10 for 120min/ week | NR | 120min/ week | NR |
| McQuade 2017 | rectal, anal, prostate cancer/ 1-3 stages | >18years; 76(M)90: QGTC (26) + LE (26) + WLC (24) | Radiotherapy | QGTC: by trained master, in groups of 1- 2 patients. Included- preparation exercises + main exercises + ending exercises.Also, DVD and instruction material was given to practice daily.LE- given by exercise physiologist. effects. Had combination of 3 levels of resistance tubes and the focus was on lighter tension and more repetition (8–12 per set) + stretchingWLC-Waitlist control | NR | 40min/session | 3days/week supervised + 4days/ week unsupervised |
| Lu et. al., 2019 | Colorectal cancer/ stages 1-3 | >18yrs56 (M)87: 43 (BEG) + 44 (CG) | Undergoing chemotherapy, post surgery | BEG- given course videos and educated regarding the benefits. During hospitalisation, sessions led by nurse. During home stay, participants asked to perform and send picture of logs on Wechat app.CG- usual care |  | 20-40min/ session, 5days/week | 24 weeks |

*AET- Aerobic Exercise Training; BEAT Cancer- Better exercise adherence after treatment for cancer*;  *BEG-Baduanjin exercise GROUP ; BAG- Behavioral activity group, CBT-I- cognitive-behavioural therapy for insomnia intervention group; CC- received usual care throughout the treatment; CG- Control group; CE- received exercise prescription and regular follow-up after completing the cancer treatment- Control Group; COMB-combination exercise; HI- high intensity, HIGH- high intensity aerobic exercise; EE-received exercise prescription and follow-up throughout the study protocol; EG- Exercise Group;**EX- Exercise Intervention;**IG - Intervention Group; LE- light exercise; LMI- low moderate intensity; NR-Not Reported; PA: Physical Activity; PAG- Physical activity group; QGTC or TCC or* *QG/TCE- Quigong/ tai chi exercise; RC- Relaxation control group; SQG- sham quigong; STAN- Standard aerobic exercise; ST-Stretching; STP-stretching program; TY-Tibetian Yoga; TYP- tibetian yoga program; UC-Usual care; UG- Usual care Group; WLC- Waitlist control;* YOCAS-*yoga for cancer survivors; MFI-Movement & Fragmentation Index; PSQI- Pittsberg Sleep Quality Index; r24- 24 hours autocorrelation coefficient; SDS-Sleep Disturbance Scale; SE-Sleep Efficiency; SOL-Sleep Onset Latency; TST- Total Sleep time; WASO- Wake after sleep onset*