Supplemental Table 1. Search terms for Pubmed, EMBASE and PsychInfo.

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| **Pubmed**  (("CD3"[tiab] OR "CD4"[tiab] OR "CD8"[tiab] OR "CD11a"[tiab] OR "CD11b"[tiab] OR "CD16"[tiab] OR "CD14"[tiab] OR "CD19"[tiab] OR "CD20"[tiab] OR "CD54"[tiab] OR "CD56"[tiab] OR "CD16/56"[tiab] OR "CD56/16"[tiab] OR "CD62"[tiab] OR "CD62L"[tiab] OR "CD64"[tiab] OR "CD45"[tiab] OR "CD45RA"[tiab] OR "CD45RO"[tiab] OR "CD57"[tiab] OR "Antigens, CD"[Mesh] OR T cell\*[tiab] OR T-cell\*[tiab] OR Lymphocyt\*[tiab] OR "T-Lymphocytes"[Mesh] OR "T helper"[tiab] OR "Lymphocytes"[Mesh] OR "T-lymphocytes"[Mesh] OR "T-Lymphocytes, Helper-Inducer"[Mesh] OR cytotoxic cell\*[tiab] OR helper cell\*[tiab] OR B cell\*[tiab] OR B-cell\*[tiab] OR "B-Lymphocytes"[Mesh] OR "B-lymphocytes"[Mesh] OR plasma cell\*[tiab] OR Natural killer\*[tiab] OR NK cell\*[tiab] OR Treg\*[tiab] OR "Th1"[tiab] OR "Th2"[tiab] OR "Th1/Th2"[tiab] OR "Th17"[tiab] OR Monocyt\*[tiab] OR macrophag\*[tiab] OR Granulocyt\*[tiab] OR Neutrophil\*[tiab] OR "PMN"[tiab] OR "polymorphonuclear"[tiab] OR Basophil\*[tiab] OR eosinophil\*[tiab] OR mast cell\*[tiab] OR leukocyt\*[tiab] OR leucocyt\*[tiab] OR "ICAM-1"[tiab] OR "large granular"[tiab] OR suppressor cell\*[tiab] OR "L-selectin"[tiab] OR "E-selectin"[tiab] OR "Cell adhesion"[tiab] OR "plasma cells"[Mesh] OR "Killer Cells, Natural"[Mesh] OR "Monocytes"[Mesh] OR "macrophages"[Mesh] OR "Granulocytes"[Mesh] OR "Neutrophils"[Mesh] OR "Basophils"[Mesh] OR "eosinophils"[Mesh] OR "leukocytes"[Mesh] OR "mast cells"[Mesh] OR "immune"[tiab] OR "immune system"[Mesh] OR immunol\*[tiab]) AND ("vaccination"[Mesh] OR "vaccines"[Mesh] OR vaccin\*[tiab] OR "vaccin"[Supplementary Concept] OR "booster injections"[tiab] OR "antibody titers"[tiab] OR "antibody titres"[tiab] OR "antigen-specific"[tiab] OR "immunoglobulin"[tiab] OR "IgG"[tiab] OR "IgM"[tiab] OR "IgA"[tiab] OR "sIgA"[tiab] OR "s-IgA"[tiab] OR "wound healing"[tiab] OR "biopsy"[tiab] OR "wound repair"[tiab] OR "Wound healing"[Mesh] OR "blister"[tiab] OR "surgical wound"[tiab] OR "tape stripping"[tiab] OR "Blister/chemically induced"[Mesh] OR "Blister/immunology"[Mesh] OR "Hypersensitivity, Delayed"[Mesh] OR "mast cell"[tiab] OR "atopic"[tiab] OR allerg\*[tiab] OR "induced asthma"[tiab] OR "virus"[tiab] OR "common cold"[tiab] OR skin respons\*[tiab] OR "Rash"[tiab] OR skin lesion\*[tiab] OR Skin test\*[tiab] OR Intradermal Test\*[tiab] OR "Hypersensitivity"[tiab] OR "Allergens"[Mesh] OR "Hypersensitivity, immediate"[Mesh] OR "DTH"[tiab] OR "skin prick test"[tiab] OR "Capsaicin"[tiab] OR "Capsaicin/pharmacology"[Mesh] OR "immune tolerance"[Mesh] OR "immunosuppression"[Mesh] OR "IgE"[tiab] OR "endotoxemia"[tiab] OR myobact\*[tiab] OR "lipopolysaccharide injection"[tiab] OR "immunosuppression"[tiab] OR "neurogenic inflammation"[tiab] OR "Inflammation/psychology"[Mesh] OR "viral challenge"[tiab] OR "viral reactivation"[tiab] OR "EBV"[tiab] OR "Epstein-Barr"[tiab] OR "HSV"[tiab] OR "herpes simplex"[tiab] OR "herpes zoster"[tiab] OR "CMV"[tiab] OR "cytomegalovirus"[tiab] OR "VZV"[tiab] OR "Varicella-Zoster"[tiab] OR aphthous ulcer\*[tiab] OR aphthous lesion\*[tiab] OR genital lesion\*[tiab] OR "Herpes Zoster"[Mesh] OR Shingle\*[tiab] OR herpes lesion\*[tiab] OR "reactivation"[tiab] OR "apoptosis"[tiab] OR "lysis"[tiab] OR "killer activity"[tiab] OR "cytotoxicity"[tiab] OR "CD107"[tiab] OR adhesion molecule\*[tiab] OR "PHA"[tiab] OR "phytohemagglutinin"[tiab] OR "PMA"[tiab] OR "phorbol myristate-acetate"[tiab] OR "PWM"[tiab] OR pokeweed mitogen\*[tiab] OR "ConA"[tiab] OR "concanavalin A"[tiab] OR "SEB"[tiab] OR "Staphylococcal enterotoxin B"[tiab] OR "cell migration"[tiab] OR "Mitogens"[Mesh] OR mitogen\*[tiab] OR "cell proliferation"[Mesh] OR "Proliferation"[tiab] OR chemota\*[tiab] OR chemokin\*[tiab] OR Lipopolysaccharide\*[tiab] OR "Lipopolysaccharides"[Mesh] OR "LPS"[tiab] OR "gene expression"[tiab] OR "DNA-repair"[tiab] OR "histamine"[tiab] OR "complement"[tiab] OR "degranulation"[tiab] OR phagocyt\*[tiab] OR pinocyt\*[tiab] OR "antigen"[tiab] OR " IL-2"[tiab] OR "IL-4"[tiab] OR "IL-17"[tiab] OR "inflammation"[Mesh] OR inflamm\*[tiab] OR cytokin\*[tiab] OR interleukin\*[tiab] OR "interleukins"[Mesh] OR "IL-1β"[tiab] OR "IL-1 Beta"[tiab] OR "IL-6"[tiab] OR "IL-10"[tiab] OR "IL-12"[tiab] OR "IL-8"[tiab] OR "sIL6R"[tiab] OR "IL-18"[tiab] OR "soluble receptor"[tiab] OR "TNF-alpha"[tiab] OR TNFalpha\*[tiab] OR "Tumor necrosis factor alpha"[tiab] OR "MIF"[tiab] OR "Macrophage inhibitory factor"[tiab] OR "CRP"[tiab] OR "C-reactive protein"[tiab] OR "beta-microglobulin"[tiab] OR "interferon"[tiab] OR IFN\*[tiab] OR "acute phase response"[tiab] OR "acute phase proteins"[tiab] OR "acute phase protein"[tiab] OR "serum amyloid A"[tiab] OR "SAA"[tiab] OR complement factor\*[tiab] OR "complement activation"[tiab] OR "immune challenge"[tiab] OR "L-selectin"[tiab] OR "E-selectin"[tiab] OR "sCD62L"[tiab] OR "sCD62E"[tiab] OR "Psychological Stress"[tiab] OR "Trier Social Stress Test"[tiab] OR "TSST"[tiab] OR "perceived stress"[tiab] OR "examination stress"[tiab] OR "arithmetic task"[tiab] OR "arithmetic test"[tiab] OR "mental arithmetic"[tiab] OR "cold pressor"[tiab] OR "mirror tracing"[tiab] OR "mock job interview"[tiab] OR "PASAT"[tiab] OR "anger recall task"[tiab] OR "anger recall test"[tiab] OR "public speaking"[tiab] OR "oral presentation"[tiab] OR "Auditory serial addition task"[tiab] OR "Auditory serial addition test"[tiab] OR "stroop task"[tiab] OR "stroop test"[tiab] OR laboratory stress\*[tiab] OR laboratory challenge\*[tiab] OR acute stress\*[tiab] OR "speech task"[tiab] OR "speech test"[tiab] OR "public speech task"[tiab] OR "public speech test"[tiab] OR speech stress\*[tiab] OR cognitive stress\*[tiab] OR "cognitive challenge"[tiab] OR mental stress\*[tiab] OR "stress induced"[tiab] OR "Stress, psychological"[Mesh] OR "Stress, physiological"[Mesh] OR "stress-evoked cortisol response"[tiab] OR "combat training"[tiab] OR bungee jump\*[tiab] OR parachute jump\*[tiab]) AND ("Hypnosis"[tiab] OR "Hypnosis"[Mesh] OR "Self Disclosure"[Mesh] OR Psychotherap\*[tiab] OR "psychotherapy"[Mesh] OR "Writing"[tiab] OR "Relaxation Therapy"[tiab] OR "Meditation"[Mesh] OR "Conditioning"[tiab] OR "Conditioning Psychology"[Mesh] OR "stress management"[tiab] OR "disclosure"[tiab] OR "mindfulness practice"[tiab] OR "Expressive writing"[tiab] OR "Cognitive behavioral therapy"[tiab] OR "cognitive-behaviour therapy"[tiab] OR "cognitive-behavior therapy"[tiab] OR "cognitive-behavioural therapy"[tiab] OR "cognitive-behavioral therapy"[tiab] OR "relaxation"[tiab] OR "Guided imagery"[tiab] OR "CBT"[tiab] OR "Behavior Therapy"[Mesh] OR "psychoeducational"[tiab] OR "psychoeducation"[tiab] OR "psycho-educational"[tiab] OR "psycho-education"[tiab] OR "Counseling"[Mesh] OR "counselling"[tiab] OR "counseling"[tiab] OR (("therapy"[tiab] OR "therapies"[tiab] OR treatment\*[tiab]) AND ("cognitive"[tiab] OR "behavior"[tiab] OR "behavioral"[tiab] OR "behaviour"[tiab] OR "behavioural"[tiab] OR "conditioning"[tiab] OR "cognition"[tiab])) OR "behavior modification"[tiab] OR "behaviour modification"[tiab] OR conditioning therap\*[tiab] OR "conditioning treatment"[tiab] OR cognition therap\*[tiab] OR "cognitive treatment"[tiab])) AND (english[la] OR dutch[la]) NOT ("Animals"[mesh] NOT "Humans"[mesh]) |

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| **EMBASE**  (("CD3".ti,ab OR "CD4".ti,ab OR "CD8".ti,ab OR "CD11a".ti,ab OR "CD11b".ti,ab OR "CD16".ti,ab OR "CD14".ti,ab OR "CD19".ti,ab OR "CD20".ti,ab OR "CD54".ti,ab OR "CD56".ti,ab OR "CD16/56".ti,ab OR "CD56/16".ti,ab OR "CD62".ti,ab OR "CD62L".ti,ab OR "CD64".ti,ab OR "CD45".ti,ab OR "CD45RA".ti,ab OR "CD45RO".ti,ab OR "CD57".ti,ab OR exp \*"leukocyte antigen"/ OR T cell\*.ti,ab OR T-cell\*.ti,ab OR Lymphocyt\*.ti,ab OR exp \*"T Lymphocyte"/ OR "T helper".ti,ab OR exp \*"Lymphocyte"/ OR cytotoxic cell\*.ti,ab OR helper cell\*.ti,ab OR B cell\*.ti,ab OR B-cell\*.ti,ab OR exp \*"B Lymphocyte"/ OR plasma cell\*.ti,ab OR Natural killer\*.ti,ab OR NK cell\*.ti,ab OR Treg\*.ti,ab OR "Th1".ti,ab OR "Th2".ti,ab OR "Th1/Th2".ti,ab OR "Th17".ti,ab OR Monocyt\*.ti,ab OR macrophag\*.ti,ab OR Granulocyt\*.ti,ab OR Neutrophil\*.ti,ab OR "PMN".ti,ab OR "polymorphonuclear".ti,ab OR Basophil\*.ti,ab OR eosinophil\*.ti,ab OR mast cell\*.ti,ab OR leukocyt\*.ti,ab OR leucocyt\*.ti,ab OR "ICAM-1".ti,ab OR "large granular".ti,ab OR suppressor cell\*.ti,ab OR "L-selectin".ti,ab OR "E-selectin".ti,ab OR "Cell adhesion".ti,ab OR exp \*"plasma cell"/ OR "Natural Killer Cell"/ OR exp \*"Monocyte"/ OR exp \*"macrophage"/ OR exp \*"Granulocyte"/ OR exp \*"Neutrophil"/ OR exp \*"Basophil"/ OR exp \*"eosinophil"/ OR exp \*"leukocyte"/ OR exp \*"mast cell"/ OR "immune".ti,ab OR exp \*"immune system"/ OR immunol\*.ti,ab) AND (exp \*"vaccination"/ OR exp \*"vaccine"/ OR vaccin\*.ti,ab OR "booster injections".ti,ab OR "antibody titers".ti,ab OR "antibody titres".ti,ab OR "antigen-specific".ti,ab OR "immunoglobulin".ti,ab OR "IgG".ti,ab OR "IgM".ti,ab OR "IgA".ti,ab OR "sIgA".ti,ab OR "s-IgA".ti,ab OR "wound healing".ti,ab OR "biopsy".ti,ab OR "wound repair".ti,ab OR exp \*"Wound healing"/ OR "blister".ti,ab OR "surgical wound".ti,ab OR "tape stripping".ti,ab OR exp \*"Delayed Hypersensitivity"/ OR "mast cell".ti,ab OR "atopic".ti,ab OR allerg\*.ti,ab OR "induced asthma".ti,ab OR "virus".ti,ab OR "common cold".ti,ab OR skin respons\*.ti,ab OR "Rash".ti,ab OR skin lesion\*.ti,ab OR Skin test\*.ti,ab OR Intradermal Test\*.ti,ab OR "Hypersensitivity".ti,ab OR exp \*"Allergen"/ OR exp \*"immediate type hypersensitivity"/ OR "DTH".ti,ab OR "skin prick test".ti,ab OR "Capsaicin".ti,ab OR "capsaicin"/pd OR exp \*"immunological tolerance"/ OR \*"immunosuppressive treatment"/ OR "IgE".ti,ab OR "endotoxemia".ti,ab OR myobact\*.ti,ab OR "lipopolysaccharide injection".ti,ab OR "immunosuppression".ti,ab OR "neurogenic inflammation".ti,ab OR "viral challenge".ti,ab OR "viral reactivation".ti,ab OR "EBV".ti,ab OR "Epstein-Barr".ti,ab OR "HSV".ti,ab OR "herpes simplex".ti,ab OR "herpes zoster".ti,ab OR "CMV".ti,ab OR "cytomegalovirus".ti,ab OR "VZV".ti,ab OR "Varicella-Zoster".ti,ab OR aphthous ulcer\*.ti,ab OR aphthous lesion\*.ti,ab OR genital lesion\*.ti,ab OR exp \*"Herpes Zoster"/ OR Shingle\*.ti,ab OR herpes lesion\*.ti,ab OR "reactivation".ti,ab OR "apoptosis".ti,ab OR "lysis".ti,ab OR "killer activity".ti,ab OR "cytotoxicity".ti,ab OR "CD107".ti,ab OR adhesion molecule\*.ti,ab OR "PHA".ti,ab OR "phytohemagglutinin".ti,ab OR "PMA".ti,ab OR "phorbol myristate-acetate".ti,ab OR "PWM".ti,ab OR pokeweed mitogen\*.ti,ab OR "ConA".ti,ab OR "concanavalin A".ti,ab OR "SEB".ti,ab OR "Staphylococcal enterotoxin B".ti,ab OR "cell migration".ti,ab OR \*"mitogenic agent"/ OR \*"pokeweed mitogen"/ OR mitogen\*.ti,ab OR \*"cell proliferation"/ OR "Proliferation".ti,ab OR chemota\*.ti,ab OR chemokin\*.ti,ab OR Lipopolysaccharide\*.ti,ab OR exp \*"Lipopolysaccharide"/ OR "LPS".ti,ab OR "gene expression".ti,ab OR "DNA-repair".ti,ab OR "histamine".ti,ab OR "complement".ti,ab OR "degranulation".ti,ab OR phagocyt\*.ti,ab OR pinocyt\*.ti,ab OR "antigen".ti,ab OR " IL-2".ti,ab OR "IL-4".ti,ab OR "IL-17".ti,ab OR exp \*"inflammation"/ OR inflamm\*.ti,ab OR cytokin\*.ti,ab OR interleukin\*.ti,ab OR exp \*"cytokine"/ OR "IL-1β".ti,ab OR "IL-1 Beta".ti,ab OR "IL-6".ti,ab OR "IL-10".ti,ab OR "IL-12".ti,ab OR "IL-8".ti,ab OR "sIL6R".ti,ab OR "IL-18".ti,ab OR "soluble receptor".ti,ab OR "TNF-alpha".ti,ab OR TNFalpha\*.ti,ab OR "Tumor necrosis factor alpha".ti,ab OR "MIF".ti,ab OR "Macrophage inhibitory factor".ti,ab OR "CRP".ti,ab OR "C-reactive protein".ti,ab OR "beta-microglobulin".ti,ab OR "interferon".ti,ab OR IFN\*.ti,ab OR "acute phase response".ti,ab OR "acute phase proteins".ti,ab OR "acute phase protein".ti,ab OR "serum amyloid A".ti,ab OR "SAA".ti,ab OR complement factor\*.ti,ab OR "complement activation".ti,ab OR "immune challenge".ti,ab OR "L-selectin".ti,ab OR "E-selectin".ti,ab OR "sCD62L".ti,ab OR "sCD62E".ti,ab OR "Psychological Stress".ti,ab OR "Trier Social Stress Test".ti,ab OR "TSST".ti,ab OR "perceived stress".ti,ab OR "examination stress".ti,ab OR "arithmetic task".ti,ab OR "arithmetic test".ti,ab OR "mental arithmetic".ti,ab OR "cold pressor".ti,ab OR "mirror tracing".ti,ab OR "mock job interview".ti,ab OR "PASAT".ti,ab OR "anger recall task".ti,ab OR "anger recall test".ti,ab OR "public speaking".ti,ab OR "oral presentation".ti,ab OR "Auditory serial addition task".ti,ab OR "Auditory serial addition test".ti,ab OR "stroop task".ti,ab OR "stroop test".ti,ab OR laboratory stress\*.ti,ab OR laboratory challenge\*.ti,ab OR acute stress\*.ti,ab OR "speech task".ti,ab OR "speech test".ti,ab OR "public speech task".ti,ab OR "public speech test".ti,ab OR speech stress\*.ti,ab OR cognitive stress\*.ti,ab OR "cognitive challenge".ti,ab OR mental stress\*.ti,ab OR "stress induced".ti,ab OR \*"physiological stress"/ OR \*"Mental Stress"/ OR \*"acute stress"/ OR "behavioral stress"/ OR "stress-evoked cortisol response".ti,ab OR "combat training".ti,ab OR bungee jump\*.ti,ab OR parachute jump\*.ti,ab) AND ("Hypnosis".ti,ab OR \*"Hypnosis"/ OR "Self Disclosure"/ OR Psychotherap\*.ti,ab OR exp \*"psychotherapy"/ OR "Writing".ti,ab OR "Relaxation Therapy".ti,ab OR \*"Meditation"/ OR "Conditioning".ti,ab OR exp \*"Conditioning"/ OR "stress management".ti,ab OR "disclosure".ti,ab OR "mindfulness practice".ti,ab OR "Expressive writing".ti,ab OR "Cognitive behavioral therapy".ti,ab OR "cognitive-behaviour therapy".ti,ab OR "cognitive-behavior therapy".ti,ab OR "cognitive-behavioural therapy".ti,ab OR "cognitive-behavioral therapy".ti,ab OR "relaxation".ti,ab OR "Guided imagery".ti,ab OR "CBT".ti,ab OR exp \*"Behavior Therapy"/ OR "psychoeducational".ti,ab OR "psychoeducation".ti,ab OR "psycho-educational".ti,ab OR "psycho-education".ti,ab OR ((exp \*"Counseling"/ OR "counselling".ti,ab OR "counseling".ti,ab) NOT ("genetic counseling"/ OR "genetic counselling".ti,ab OR "genetic counseling".ti,ab)) OR (("therapy".ti,ab OR "therapies".ti,ab OR treatment\*.ti,ab) ADJ3 ("cognitive".ti,ab OR "behavior".ti,ab OR "behavioral".ti,ab OR "behaviour".ti,ab OR "behavioural".ti,ab OR "conditioning".ti,ab OR "cognition".ti,ab)) OR "behavior modification".ti,ab OR "behaviour modification".ti,ab OR conditioning therap\*.ti,ab OR "conditioning treatment".ti,ab OR cognition therap\*.ti,ab OR "cognitive treatment".ti,ab)) AND (english OR dutch).la AND exp "Humans"/ NOT (conference review OR conference abstract).pt |

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| **PsychInfo**  (TI CD3 OR AB CD3 OR TI CD4 OR AB CD4 OR TI CD8 OR AB CD8 OR TI CD11a OR AB CD11a OR TI CD11b OR AB CD11b OR TI CD16 OR AB CD16 OR TI CD14 OR AB CD14 OR TI CD19 OR AB CD19 OR TI CD20 OR AB CD20 OR TI CD54 OR AB CD54 OR TI CD56 OR AB CD56 OR TI CD16/56 OR AB CD16/56 OR TI CD56/16 OR AB CD56/16 OR TI CD62 OR AB CD62 OR TI CD62L OR AB CD62L OR TI CD64 OR AB CD64 OR TI CD45 OR AB CD45 OR TI CD45RA OR AB CD45RA OR TI CD45RO OR AB CD45RO OR TI CD57 OR AB CD57 OR DE "Antigens" OR DE "Immunologic Factors" OR DE "Antibodies" OR DE "Antigens" OR DE "Cytokines" OR DE "Immunodepression" OR DE "Gamma Globulin" OR DE "Immunotoxin" OR DE "Psychoneuroimmunology" OR DE "Immunization" OR DE "Immunotoxin" OR DE "Immune System" OR DE "Bone Marrow" OR DE "Gamma Globulin" OR TI T-cell\* OR AB T-cell\* OR TI T cell\* OR AB T cell\* OR TI Lymphocyt\* OR AB Lymphocyt\* OR TI T-helper OR AB T-helper OR DE "Leucocytes" OR DE "Lymphocytes" OR DE "Natural Killer Cells" OR TI cytotoxic cell\* OR AB cytotoxic cell\* OR TI helper cell\* OR AB helper cell\* OR TI B cell\* OR AB B cell\* OR TI B-cell\* OR AB B-cell\* OR TI plasma cell\* OR AB plasma cell\* OR TI Natural killer\* OR AB Natural killer\* OR TI NK cell\* OR AB NK cell\* OR TI Treg\* OR AB Treg\* OR TI Th1 OR AB Th1 OR TI Th2 OR AB Th2 OR Th1/Th2 OR AB Th1/Th2 OR TI Th17 OR AB Th17 OR TI Monocyt\* OR AB Monocyt\* OR TI macrophag\* OR AB macrophag\* OR TI Granulocyt\* OR AB Granulocyt\* OR TI Neutrophil\* OR AB Neutrophil\* OR TI PMN OR AB PMN OR TI polymorphonuclear OR AB polymorphonuclear OR TI Basophil\* OR AB Basophil\* OR TI eosinophil\* OR AB eosinophil\* OR TI mast cell\* OR AB mast cell\* OR TI leukocyt\* OR AB leukocyt\* OR TI leucocyt\* OR AB leucocyt\* OR TI ICAM-1 OR AB ICAM-1 OR TI large granular OR AB large granular OR TI suppressor cell\* OR AB suppressor cell\* OR TI L-selectin OR AB L-selectin OR TI E-selectin OR AB E-selectin OR TI Cell adhesion OR AB Cell adhesion OR DE "Mast Cells" OR TI immune OR AB immune OR TI immunol\* OR AB immunol\* OR DE "Immune System" OR DE "Immunology") AND (DE "immunization" OR TI vaccin\* OR AB vaccin\* OR TI booster injections OR AB booster injections OR TI antibody titers OR AB antibody titers OR TI antibody titres OR AB antibody titres OR TI antigen-specific OR AB antigen-specific OR TI immunoglobulin OR AB immunoglobulin OR TI IgG OR AB IgG OR TI IgM OR AB IgM OR TI IgA OR AB IgA OR TI sIgA OR AB sIgA OR TI s-IgA OR AB s-IgA OR TI wound healing OR AB wound healing OR TI biopsy OR AB biopsy OR TI wound repair OR AB wound repair OR TI blister OR AB blister OR TI surgical wound OR AB surgical wound OR TI tape stripping OR AB tape stripping OR TI mast cell OR AB mast cell OR DE "Mast Cells" OR TI atopic OR AB atopic OR TI allerg\* OR AB allerg\* OR TI induced asthma OR AB induced asthma OR TI virus OR AB virus OR TI common cold OR AB common cold OR TI skin respons\* OR AB skin respons\* OR TI rash OR AB rash OR TI skin lesion\* OR AB skin lesion\* OR TI skin test\* OR AB skin test\* OR TI intradermal test\* OR AB intradermal test\* OR TI hypersensitivity OR AB hypersensitivity OR DE "Antibodies" OR DE "Antigens" OR DE "Immunoglobulins" OR DE "Immunotoxin" OR TI DTH OR AB DTH OR TI skin prick test OR AB skin prick test OR TI capsaicin OR AB capsaicin OR TI capsaicin cream OR AB capsaicin cream OR DE "Capsaicin" OR DE "Immunodepression" OR TI immunosuppression OR AB immunosuppression OR TI IgE OR AB IgE OR TI endotoxemia OR AB endotoxemia OR TI myobact\* OR AB myobact\* OR TI lipopolysaccharide injection OR AB lipopolysaccharide injection OR TI immunosuppression OR AB immunosuppression ORTI neurogenic inflammation OR AB neurogenic inflammation OR DE "Inflammation" OR DE "Meningoradiculitis" OR DE "Neuroinflammation" OR DE "Inflammation" OR TI viral challenge OR AB viral challenge OR TI viral reactivation OR AB viral reactivation OR TI EBV OR AB EBV OR TI Epstein-Barr OR AB Epstein-Barr OR TI HSV OR AB HSV OR TI herpes simplex OR AB herpes simplex OR TI herpes zoster OR AB herpes zoster OR TI CMV OR AB CMV OR TI cytomegalovirus OR AB cytomegalovirus OR TI VZV OR AB VZV OR TI varicella-zoster OR AB varicella-zoster OR TI aphthous ulcer OR AB aphthous ulcer OR TI aphthous lesion\* OR AB aphthous lesion\* OR TI genital lesion\* OR AB genital lesion\* OR TI herpes zoster OR AB herpes zoster OR TI shingle\* OR AB shingle\* OR TI herpes lesion\* OR AB herpes lesion\* OR TI reactivation OR AB reactivation OR TI apoptosis OR AB apoptosis OR TI lysis OR AB lysis OR TI killer activity OR AB killer activity OR TI cytotoxicity OR AB cytotoxicity OR TI CD107 OR AB CD107 OR TI adhesion molecule OR AB adhesion molecule OR TI PHA OR AB PHA OR TI phytomegagglutinin OR AB phytomegagglutinin OR TI PMA OR AB PMA OR TI phorbol myristate-acetate OR AB phorbol myristate-acetate OR TI PWM OR AB PWM OR TI pokeweed mitogen\* OR AB pokeweed mitogen\* OR TI ConA OR AB ConA OR TI concanavalin A OR AB concanavalin A OR TI SEB OR AB SEB OR TI Staphylococcal enterotoxin B OR AB Staphylococcal enterotoxin B OR TI cell migration OR AB cell migration OR DE "Cell Migration" OR DE "Mitogen Activated Protein Kinase" OR TI mitogen\* OR AB mitogen\* OR DE "Cell Proliferation" OR TI proliferation OR AB proliferation OR TI chemota\* OR AB chemota\* OR TI chemokin\* OR AB chemokin\* OR TI Lipopolysaccharide\* OR DE "Lipopolysaccharide" OR AB Lipopolysaccharide\* OR TI LPS OR AB LPS OR TI gene expression OR AB gene expression OR DE "Gene Expression" OR TI DNA-repair OR AB DNA-repair OR TI histamine OR AB histamine OR DE "Histamine" OR TI complement OR AB complement OR TI degranulation OR AB degranulation OR TI phagocyt\* OR AB phagocyt\* OR TI pinocyt\* OR AB pinocyt\* OR TI antigen OR AB antigen OR DE "Antigens" OR DE "Inflammation" OR TI IL-2 OR AB IL-2 OR TI IL-4 OR AB IL-4 OR TI IL-17 OR AB IL-17 OR TI inflamm\* OR AB inflamm\* OR TI cytokin\* OR AB cytokin\* OR TI interleukin\* OR AB interleukin\* OR DE "Interleukins" OR TI IL-1ß OR AB IL-1ß OR TI IL-1 Beta OR AB IL-1 Beta OR TI IL-6 OR AB IL-6 OR TI IL-10 OR AB IL-10 OR TI IL-12 OR AB IL-12 OR TI IL-8 OR AB IL-8 OR TI sIL6R OR AB sIL6R OR TI IL-18 OR AB IL-18 OR TI soluble receptor OR AB soluble receptor OR TI TNF-alpha OR AB TNF-alpha OR TI TNFalpha\* OR AB TNFalpha OR TI tumor necrosis factor alpha OR AB tumor necrosis factor alpha OR DE "Tumor Necrosis Factor" OR TI MIF OR AB MIF OR TI macrophage inhibitory factor OR AB macrophage inhibitory factor OR TI CRP OR AB CRP OR TI C-reactive protein OR AB C-reactive protein OR TI beta-microglobulin OR AB beta-microglobulin OR TI interferon OR AB interferon OR TI IFN\* OR AB IFN\* OR TI acute phase respons\* OR AB acute phase respons\* OR TI acute phase protein\* OR AB acute phase protein\* OR TI serum amyloid A OR AB serum amyloid A OR TI SAA OR AB SAA OR TI complement factor\* OR AB complement factor\* OR TI complement activation OR AB complement activation OR TI immune challenge OR AB immune challenge OR TI L-selectin OR AB L-selectin OR TI E-selectin OR AB E-selectin OR TI sCD62L OR AB sCD62L OR TI sCD62E OR AB sCD62E OR TI Psychological stress OR AB Psychological stress OR DE "Stress Reactions" OR TI Trier Social Stress Test OR AB Trier Social Stress Test OR TI TSST OR AB TSST OR TI perceived stress OR AB perceived stress OR TI examination stress OR AB examination stress OR TI arithmetic task OR AB arithmetic task OR TI arithmetic test OR AB arithmetic test OR TI mental arithmetic OR AB mental arithmetic OR TI cold pressor OR AB cold pressor OR TI mirror tracing OR AB mirror tracing OR TI mock job interview OR AB mock job interview OR TI PASAT OR AB PASAT OR TI anger recall task OR AB anger recall task OR TI anger recall test OR AB anger recall test OR TI public speaking OR AB public speaking OR TI oral presentation OR AB oral presentation OR TI Auditory serial addition task OR AB Auditory serial addition task OR TI Auditory serial addition test OR AB Auditory serial addition test OR TI Stroop task OR AB Stroop task OR TI Stroop test OR AB Stroop test OR TI laboratory stress\* OR AB laboratory stress\* OR TI laboratory challenge OR AB laboratory challenge OR TI acute stress\* OR AB acute stress\* OR TI speech task OR AB speech task OR TI speech test OR AB speech test OR TI public speech task OR AB public speech task OR TI public speech test OR AB public speech test OR TI speech stress\* OR AB speech stress\* OR TI cognitive stress\* OR AB cognitive stress\* OR TI cognitive challenge OR AB cognitive challenge OR TI mental stress\* OR AB mental stress\* OR TI stress induced OR AB stress induced OR DE "Stress" OR DE "Academic Stress" OR DE "Environmental Stress" OR DE "Occupational Stress" OR DE "Physiological Stress" OR DE "Psychological Stress" OR DE "Social Stress" OR DE "Stress Reactions" OR TI stress-evoked cortisol response OR AB stress-evoked cortisol response OR TI combat training OR AB combat training OR TI bungeejump OR AB bungeejump OR TI parachute jump\* OR AB parachute jump\*) AND ((TI \*Hypnosis OR AB \*Hypnosis OR DE "Hypnosis" OR DE "Hypnotherapy" OR DE "Self-Disclosure" OR TI Psychotherap\* OR AB Psychotherap\* OR DE "Psychotherapy" OR TI \*Writing OR AB \*Writing OR TI \*Relaxation therapy OR AB \*Relaxation therapy OR DE "Relaxation Therapy" OR DE "Progressive Relaxation Therapy" OR DE "Meditation" OR TI Conditioning OR AB Conditioning OR DE "Conditioning" OR DE "Classical Conditioning" OR DE "Operant Conditioning" OR TI stress management OR AB stress management OR DE "Stress Management" OR TI disclosure OR AB disclosure OR TI mindfulness practice OR AB mindfulness practice OR DE "Mindfulness" OR TI Expressive writing OR AB Expressive writing OR TI Cognitive behavioral therapy OR AB Cognitive behavioral therapy OR TI cognitive-behavi\* therap\* OR AB cognitive-behavi\* therap\* OR TI relaxation OR AB relaxation OR TI Guided imagery OR AB Guided imagery OR TI CBT OR AB CBT OR DE "Behavior Therapy" OR DE "Conversion Therapy" OR DE "Dialectical Behavior Therapy" OR DE "Exposure Therapy" OR DE "Implosive Therapy" OR DE "Reciprocal Inhibition Therapy" OR DE "Systematic Desensitization Therapy" OR DE "Cognitive Behavior Therapy" OR TI psychoeducational OR AB psychoeducational OR TI psychoeducation OR AB psychoeducation OR DE "Psychoeducation" OR TI psycho-educational OR AB psycho-educational OR TI psycho-education OR AB psycho-education OR DE "Counseling" OR DE "Educational Counseling" OR DE "Group Counseling" OR DE "Occupational Guidance" OR DE "Psychotherapeutic Counseling" OR DE "Rehabilitation Counseling" OR TI counselling OR AB counselling OR TI counseling OR AB counseling OR ((TI therapy OR AB therapy OR TI therapies OR AB therapies OR TI treatment\* OR AB treatment\*) AND (TI cognitive OR AB cognitive OR TI behavior OR AB behavior OR TI behavioral OR AB behavioral OR TI behaviour OR AB behaviour OR TI behavioural OR AB behavioural OR TI conditioning OR AB conditioning OR TI cognition OR AB cognition OR Behavior Therapy OR TI behaviour modification OR AB behaviour modification OR TI behavior modification OR AB behavior modification OR TI conditioning therap\*)) OR DE "Conditioning" OR AB conditioning therap\* OR TI conditioning treatment OR AB conditioning treatment OR TI cognition therap\* OR AB cognition therap\* OR TI cognitive treatment OR AB cognitive treatment)) |

Supplemental Table 2.

*Study characteristics and details concerning the intervention*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Study | **Sample** | **Sample size (N) and age (M, SD)** | **Intervention type** | **Length** | **Intensity** | **Way of guidance** |
| Andersen, et al. (2004). [65] | Women surgically treated for regional breast cancer | *N* = 227  *M* age = 50.8, *SD* = 10.8 | Multicomponent cognitive behavioral intervention  (Control = AO) | 4 months | Appointments: 18 group sessions of 1.5 hrs | Psychologist |
| Andersen, et al. (2007). [64] | See Andersen, B. L., et al. (2004) | See Andersen, B. L., et al. (2004) | Multicomponent cognitive behavioral intervention  (Control = AO) | 12 months | Appointments: 26 group sessions of 1.5 hrs | Psychologist |
| Andersen, et al. (2010). [66] | Women with recurrent breast cancer | *N* = 62  *M* age = 53.7, *SD* = 11.3 | See Andersen, B. L., et al. (2007 | See Andersen, B. L., et al. (2007) | See Andersen, B. L., et al. (2007) | See Andersen, B. L., et al. (2007) |
| Antoni, et al. (1991). [37] | Healthy gay men | *N* = 47  *M* age = 30.5 | Stress management  (Control = AO) | 2.5 months | Appointments: biweekly group sessions (weekly 1 session of 45 min and 1 session of 1.5 hrs)  Self-practice: daily relaxation exercises | Psychologist |
| Antoni, et al. (2009). [67] | Women who underwent breast cancer treatment | *N* = 128  *M* age = 49.7, *SD* = 7.9 | Stress management  (Control = Condensed educational version of the intervention during a seminar lasting 5-6 hrs at the midpoint of the 10-week period) | 2.5 months | Appointments: weekly group sessions  Self-practice: daily relaxation exercises | Guided by intervention facilitators who were supervised by psychologists |
| Arefnasab, et al. (2016). [106] | Male veterans with pulmonary injury | *N* = 40  *M* age = 49.4, range = 42-59 | MBSR  (Control = WLC) | 2 months | Appointments: weekly group sessions of 2 hrs  Self-practice: daily home practice | Clinician specialist |
| Beem, et al. (1999). [99] | Widows | *N* = 18  *M* age = 58.6, *SD* = 4.9 | Counseling  (Control = AO) | 4 months | Appointments: 13 group sessions (2 sessions of 5 hrs and 11 sessions of 2.5 hrs) | Trained counselors who were supervised |
| Bower, et al. (2003). [100] | Women who lost a close relative to breast cancer | *N* = 43  *M* age = 42.1, *SD* = 8.3 | Emotional disclosure  (Control = writing about various non-emotional topics) | 1 month | Self-practice: weekly 20 min sessions | Unguided appointments; instructions were mailed by a research assistant |
| Broadbent, et al. (2012). [107] | Patients who underwent surgery  (Male: 25%; Female: 75%) | *N* = 60  *M* age = 51.3, *SD* = 16.8 | Stress management  (Control = CAU) | ± 10 days | Appointments: 1 individual session of 45 min  Self-practice: daily 20 min with a CD at least 3 days before surgery and 7 days after surgery | Psychologist |
| de Brouwer, et al. (2013). [27] | Patients with RA  (Male: 41.9%; Female: 58.1%) | *N* = 74  *M* age = 58.8, *SD* = 10.6 | Stress management  (Control = CAU) | 2 weeks + 7 weeks relapse prevention | Appointments: biweekly individual sessions of 1 hr  Self-practice: relapse prevention checklist for 9 weeks | Psychologist |
| Christensen, et al. (1996). [38] | Male college undergraduates | *N* = 43  Age not specified | Emotional disclosure  (Control = Reading about a hypothetical situation that described a student’s experience with failing a course) | 1 session | Appointment: 1 individual session of ± 35 min | Structured session; way of guidance not further specified |
| Coates, et al. (1989). [84] | Men with HIV infection | *N* = 64  *M* age = 34.9 | Stress management  (Control = WLC) | 2 months | Appointments: weekly group sessions of 2 hrs and one-day retreat after 1 month | Structured sessions; way of guidance not further specified |
| Cohen, et al. (2011). [68] | Men with prostate cancer undergoing  radical prostatectomy | *N* = 159  *M* age = 60.5, *SD* = 6.7 | Stress management  (Control = CAU)  Counseling  (Control = CAU) | 2 sessions  2 sessions | Appointments: 2 individual sessions of 1-1.5 hrs and 2 brief booster sessions  Self-practice: relaxation by audiotapes  Appointments: 2 individual sessions of 1-1.5 hrs and 2 brief booster sessions | Psychologist  Psychologist |
| Davidson, et al. (2003). [39] | Healthy participants  (Male: 29.3%; Female: 70.7%) | *N* = 41  *M* age = 36; Range = 23-56 | MBSR/meditation  (Control = WLC) | 2 months | Appointments: weekly group sessions of 2.5-3 hrs and 1 silent retreat of 7 hrs at week 6 Self-practice: 1 hr daily during 6 days per week | Psychologist |
| Doering, et al. (2007). [103] | Women with a clinical depression after CABG | *N* = 15  *M* age = 59.8, *SD* = 8.6 | Multicomponent cognitive behavioral intervention  (Control = CAU) | 2 months | Appointments: weekly individual sessions of 1 hr  Self-practice: homework assignments | Trained nurse therapist |
| Elsenbruch, et al. (2005). [101] | Patients with UC  (Male: 33.3%, Female: 66.7%) | *N* = 30  *M* age = 42.7, *SD* = 10 | Multicomponent cognitive behavioral intervention  (Control = WLC) | 2.5 months | Appointments: weekly sessions of 6 hr | Structured sessions; way of guidance not further specified |
| Eremin, et al. (2009). [69] | Women with locally advanced breast cancer undergoing multimodality therapy | *N* = 80  *M* age = 49.9, *SD* = 11.5 | Relaxation  (Control = CAU) | Not specified | Appointments: 5 individual sessions  Self-practice: regular home practice through audiotapes | Structured sessions; way of guidance not further specified |
| Esterling, et al. (1992). [85] | HIV-1-infected and at risk gay men | *N* = 65  *M* age = 30.5 | Stress management  (Control = AO) | 2.5 months | Appointments: weekly 1 session of 1.5 hrs and 1 session of 45 min  Self-practice: take-home imagery tape from week 8 to 10 | Psychologist |
| Fawzy, et al. (1990). [70] | Cancer patients  (Male: 45.9%; Female: 54.1%) | *N* = 61  *M* age = 42, range = 19-70 | Multicomponent cognitive behavioral intervention  (Control = CAU) | 1.5 months | Appointments: weekly group sessions of 1.5 hrs | Structured sessions; way of guidance not further specified |
| Fry, et al. (1964). [98] | Persons with asthma or hay-fever  (Gender not specified) | *N* = 47  Age not specified | Hypnosis  (Control = AO) | 2 weeks | Appointments: 3 group meetings | Structured sessions; way of guidance not further specified |
| Germond, et al. (1993). [89] | Women with RA | *N* = 14  *M* age = 49, *SD* = 9.4 | Multicomponent cognitive behavioral intervention  (Control = AO) | 2 months | Appointments: biweekly group sessions of 2 hrs | Structured sessions; way of guidance not further specified |
| Goodin, et al. (2012). [40] | Healthy participants  (Male: 50%; Female: 50%) | *N* = 24  *M* age = 19.8, *SD* = 3.0 | Hypnosis  (Control = AO) | 2 weeks | Appointments: weekly sessions | Research assistants who were supervised by a psychologist |
| Green, et al. (1988). [41] | Students and college employees  (Gender not specified) | *N* = 40  Age not specified | Relaxation  (Control = WLC) | 3 weeks | Appointments: 2 group sessions of 20 min  Self-practice: daily 20 min home sessions | Structured sessions; way of guidance not further specified |
| Gruber, et al. (1993). [71] | Women with breast cancer | *N* = 13  *M* age = 44.6, range = 34-50 | Multicomponent cognitive behavioral intervention  (Control = WLC) | 9 weeks | Appointments: 4 weekly group sessions followed by biweekly biofeedback sessions  Self-practice: twice daily relaxation and guided imagery practices | Structured sessions; way of guidance not further specified |
| Gruzelier, et al. (2001a). [42] | Students (Male: 60.7%; Female: 39.3%) | *N* = 28  *M* age = 20.1 | Hypnosis  (Control = AO) | 3 weeks | Appointments: 1 group session  Self-practice: 9 tape recorded hypnosis sessions | Structured sessions; way of guidance not further specified |
| Gruzelier, et al. (2001b). [43] | Students  (Male: 61.3%; Female: 38.7%) | *N* = 31  *M* age = 19.1 | Hypnosis  (Control = AO)  Relaxation  (Control = AO) | 3 weeks  3 weeks | Appointments: weekly group sessions of 20 min  Self-practice: home practice of hypnosis through audio cassettes with a minimum of 3 sessions a week  Appointments: weekly group sessions of 20 min  Self-practice: home practice of hypnosis through audio cassettes with a minimum of 3 sessions a week | Researchers  Researchers |
| Hayney, et al. (2014). [44] | Healthy individuals  (Male: 18.6%; Female: 81.4%) | *N* = 102  *M* age = 59.4; *SD* = 6.7 | MBSR/meditation  (Control = WLC) | 2 months | Appointments: weekly group sessions of 2.5 hrs  Self-practice: daily 45 min | Senior exercise physiology staff |
| Hosaka, et al. (2002). [105] | Japanese infertile women | *N* = 74  *M* age = 34.8 | Multicomponent cognitive behavioral intervention  (Control = CAU) | 5 weeks | Appointments: weekly group sessions of 1.5 hrs | Nurses / psychiatrists |
| Irwin, et al. (2015). [104] | Patients with late life insomnia (Male: 24%; Female: 76%) | *N* = 75  *M* age = 65.1, *SD* = 6.6 | Multicomponent cognitive behavioral intervention  (Control = sleep seminar) | 4 months | Appointments: weekly group sessions of 2 hrs | Structured sessions; way of guidance not further specified |
| Johnson, et al. (1996). [45] | Healthy volunteers  (Gender not specified) | *N* = 24  Age not specified | Stress management  (Control = AO with hypnotic induction at baseline) | 3 weeks | Appointments: 1 session at the start and at the end for 12.5 minutes  Self-practice: daily home practice with audiotapes of relaxation | Structured sessions; way of guidance not further specified |
| Kaliman, et al. (2014). [46] | Expert meditators  (Male: 42.5%; Female: 57.5%) | *N* = 40  *M* age = 50.1, *SD* = 10.0 | Mindfulness meditation  (Control = intentional activities such as reading, watching documentaries, etc., without unique components of mindfulness) | 1 session | Appointments: 1 group session of 8 hrs | Structured session; way of guidance not further specified |
| Kern-Buell, et al. (2000). [96] | Nonsmoking patients with asthma  (Male: 37.5%; Female: 62.5%) | *N* = 16  *M* age = 20.5, *SD* = 5.9 | Relaxation  (Control = WLC) | 2 months | Appointments: 8 sessions of unspecified duration  Self-practice: twice a day for 15 min with audiotapes of autogenic relaxation | Structured sessions; way of guidance not further specified |
| Kiecolt-Glaser, et al. (1985). [92] | Geriatric population  (Male: 20%; Female: 80%) | *N* = 45  *M* age = 74, range = 60-88 | Relaxation  (Control = WLC) | 1 month | Appointments: 3 weekly individual sessions of 45 min | Trained psychology students |
| Kiecolt-Glaser, et al. (1986). [47] | Healthy participants  (Male: 64.7%; Female: 35.3%) | *N* = 34  *M* age = 23.5 | Stress management  (Control = WLC) | 2.5 weeks | Appointments: 5-10 possible group sessions in 2.5 week of 35-45 min in length  Self-practice: encouraged to practice relaxation outside the group sessions | Psychologist |
| Kiecolt-Glaser, et al. (2001). [48] | Medical and dental students (Male: 42.4%; Female: 57.6%) | *N* = 33  *M* age = 23.5, *SD* = 2.0 | Hypnosis  (Control = WLC) | 8 days | Appointments: 5 group sessions of 25-40 min  Self-practice: daily practice of relaxation-self-hypnosis | Psychologists |
| Koh, et al. (2008). [49] | Medical students  (Male: 66.7%; Female: 33.3%) | *N* = 36  *M* age = 23.7, *SD* = 1.9 | Relaxation  (Control = WLC) | 1 month | Appointments: 2 sessions of 1 hr  Self-practice: twice a day for 15 min | Psychiatrist |
| Koschwanez, et al. (2013). [93] | Older adults  (Male: 42.9%; Female: 57.1%) | *N* = 49  *M* age = 78.8, *SD* = 7.2 | Emotional disclosure  (Control = writing about their daily activities) | 3 days | Appointments: daily individual sessions of 20 min | Researchers |
| Larson, et al. (2000). [72] | Women with breast cancer | *N* = 41  *M* age = 56, *SD* = 13 | Multicomponent cognitive behavioral intervention  (Control = CAU) | 2 sessions | Appointments: 2 sessions of 1.5 hrs  Self-practice: twice daily relaxation practice through audiotapes | Psychologist |
| Lekander, et al. (1997). [73] | Women with ovarian cancer | *N* = 22  *M* age = 56.8, *SD* = 10.5 | Relaxation  (Control = CAU) | 2 months | Appointments: 3 individual sessions of 20-45 min  Self-practice: relaxation practice on a regular basis through audiotapes | Psychologist |
| Lengacher, et al. (2008). [74] | Women with breast cancer | *N* = 28  *M* age = 52.6, range 25-75 | Stress management  (Control = CAU) | 1 month | Appointments: 1 individual session of 0.5 hrs  Self-practice: listening to guided imagery tapes for three times a week | Psychologist |
| Lengacher, et al. (2013). [75] | Women with breast cancer | *N* = 82  *M* age = 58, *SD* = 9 | MBSR/meditation  (Control = CAU) | 1.5 months | Appointments: weekly 2 hrs sessions  Self-practice: daily meditation and yoga practice, and other homework assignments | Psychologist |
| Locke, et al. (1987). [50] | Healthy volunteers  (Male: 42.9%; Female: 57.1%) | *N* = 42  *M* age = 26, *SD* = 4 | Hypnosis  (Control = AO) | 3 days | Appointments: 6 sessions of unspecified duration  Self-practice: 5 audiotaped reinforcement practice sessions | Structured sessions; way of guidance not further specified |
| Mawdsley, et al. (2008). [102] | Patients with active UC  (Male: 60%; Female: 40%) | *N* = 25  *M* age = 41.0, range = 23-63 | Hypnosis  (Control = listening to relaxing music of their own choice for 50 min) | 1 session | Appointments: 1 session of 50 min | Hypnotherapist |
| McCain, et al. (2003). [86] | Persons with HIV infection  (Male: 80%; Female: 20%) | *N* = 148  *M* age = 39.4, median = 39.0 | Stress management  (Control = WLC)  Counseling  (Control = WLC) | 2 months  2 months | Appointments: weekly group sessions of 1.5 hrs  Self-practice: daily practice of the learned skill for 1 week through audiotapes  Appointments: weekly group sessions of 1.5 hrs weekly | Structured sessions; way of guidance not further specified  Mental health nurse |
| McCain, et al. (2008). [36] | Persons with HIV infection  (Male: 60.3%; Female: 39.7%) | *N* = 252  *M* age = 42.2 | Relaxation  (Control = WLC) | 2.5 months | Appointments: weekly group sessions of 1.5 hrs  Self-practice: routinely practice with relaxation | Experienced and licensed investigator in stress management |
| McGrady, et al. (1992). [51] | Healthy adults  (Male: 56.3%; Female: 43.7%) | *N* = 32  *M* age = 24.9 | Relaxation  (Control = AO) | 1 month | Appointments: weekly group sessions of 0.5 hrs and weekly individual sessions of 0.5 hrs  Self-practice: by an autogenic relaxation tape twice a day | Structured sessions; way of guidance not further specified |
| McGregor, et al. (2004). [76] | Women with early-stage breast cancer | *N* = 29  *M* age = 47.5, *SD* = 6.3 | Stress management  (Control = AO with 1-day stress management education seminar after 10 weeks) | 2.5 months | Appointments: weekly group sessions of 2 hrs  Self-practice: weekly homework assignments | Structured sessions; way of guidance not further specified |
| Moynihan, et al. (2013). [94] | Older adults  (Male: 38%; Female: 62%) | *N* = 200  *M* age = 73.5, *SD* = 6.7 | MBSR/meditation  (Control = WLC) | 2 months | Appointments: weekly group sessions of 2 hrs and 1 session of 7 hrs | Licensed MBSR trainer |
| Mulder, et al. (1995). [87] | Men with asymptomatic HIV-infection | *N* = 165  *M* age = 38.7, range = 21-61 | Multicomponent cognitive behavioral intervention  (Control = WLC) | 15 weeks | Appointments: weekly sessions of 2.5 hrs | Structured sessions; way of guidance not further specified |
| Naito, et al. (2003). [52] | Healthy students  (Male: 45.8%; Female: 54.2%) | *N* = 48  Range age = 19-37 | Hypnosis  (Control = 8 mock neurofeedback sessions over 1 month) | 1 month | Appointments: weekly sessions  Self-practice: three times a day self-hypnosis for two weeks, thereafter once a day | Hypnotherapist |
| Nelson, et al. (2008). [77] | Women who survived cervical cancer | *N* = 36  *M* age = 47.9, *SD* = 2.9 | Counseling  (Control = CAU) | ± 3 months | Appointments: 5 weekly individual sessions of 45-50 min and a booster session | Psychologist |
| Nunes, et al. (2007). [78] | Women with breast cancer undergoing radiotherapy | *N* = 34  *M* age = 52.5, *SD* = 1.8 | Relaxation  (Control = CAU) | 3.5 weeks | Appointments: daily group sessions of 0.5 hrs  Self-practice: twice daily at home | Psychologist |
| O'Leary, et al. (1988). [90] | Women with RA | *N* = 30  *M* age = 49.3, range = 22-75 | Multicomponent cognitive behavioral intervention  (Control = reading a help book which was also provided to the intervention group) | 5 weeks | Appointments: weekly group sessions of 2 hrs | Researchers |
| Pace, et al. (2009). [53] | Healthy adults  (Male: 47.5%; Female: 52.5%) | *N* = 61  *M* age = 18.5, *SD* = 0.7 | Compassion meditation  (Control = attending health discussion groups with a requirement of at least 12 hrs participation) | 1.5 months | Appointments: biweekly group sessions of 50 min  Self-practice: through audiotapes with meditation practice | Researchers |
| Pennebaker, et al. (1988). [54] | Healthy undergraduates  (Male: 28%; Female: 72%) | *N* = 50  Age not specified | Emotional disclosure  (Control = writing on an assigned topic without discussing their own thoughts / feelings) | 4 days | Appointments: daily individual writing sessions of 20 min | Researchers |
| Petrie, et al. (1995). [55] | Medical students  (Male: 52.5%; Female: 47.5%) | *N* = 40  *M* age = 21.5, *SD* = 2.4 | Emotional disclosure  (Control = writing on different aspects of their use of time objectively with minimum use of emotions) | 4 days | Appointments: daily individual writing sessions | Structured sessions; way of guidance not further specified |
| van der Pompe, et al. (1997). [82] | Women with breast cancer | *N* = 31  *M* age = 58.8, *SD* = 8.0 | Multicomponent cognitive behavioral intervention  (Control = WLC) | 13 weeks | Appointments: weekly group sessions of 2.5 hrs | Psychologist |
| van der Pompe, et al. (2001). [81] | See van der Pompe, G., et al. (1997) | See van der Pompe, G., et al. (1997) | See van der Pompe, G., et al. (1997) | See van der Pompe, G., et al. (1997) | See van der Pompe, G., et al. (1997) | See van der Pompe, G., et al. (1997) |
| Richardson, et al. (1997). [79] | Women with breast cancer | *N* = 47  *M* age = 46, *SD* = 8.7 | Counseling  (Control = CAU)  Hypnosis  (Control = CAU) | 1.5 months  1.5 months | Appointments: weekly group sessions    Appointments: weekly group sessions  Self-practice: twice daily 20 min relaxation and imagery practice | Social workers  Hypnotherapist |
| Robinson, et al. (2003). [28] | Individuals with HIV infection  (Male: 94.1%; Female: 5.9%) | *N* = 34  *M* age = 41.0, *SD* = 6.6 | Mindfulness/meditation  (Control = AO) | 2 months | Appointments: weekly group sessions of 2.5 hrs and 1 session of 8 hrs  Self-practice: daily practice for at least 45 min | Psychologist |
| Rosenkranz, et al. (2013). [56] | Healthy volunteers  (Male: 20.4%; Female: 79.6%) | *N* = 49  *M* age = 45.9, *SD* = 10.9 | MBSR/meditation  (Control = health enhancement program without the unique components of mindfulness) | 2 months | Appointments: weekly sessions of 2.5 hrs and 1 full day session  Self-practice: daily at home practice for 45-60 min | Licensed MBSR trainer |
| Savard, et al. (2005). [80] | Women with breast cancer and chronic insomnia | *N* = 57  *M* age = 54.1, *SD* = 7.4 | Multicomponent cognitive behavioral intervention  (Control = WLC) | 2 months | Appointments: weekly group sessions of 1.5 hrs with 1 optional booster session 1 month after the treatment | Structured sessions; way of guidance not further specified |
| Smith, et al. (1992). [57] | Healthy volunteers  (Gender not specified) | *N* = 29  *M* age = 45, range = 28-60 | Mindfulness/meditation  (Control = AO) | 1 week | Appointments: daily 2 sessions of 1hr  Self-practice: 10 min 6 times daily using the learned techniques and listening to relaxation audiotapes 0.5 hrs upon arising and bedtime for the following week | Researchers |
| Solberg, et al. (1995). [35] | Male runners | *N* = 12  Median age = 42.5, range = 27-49 | Mindfulness meditation  (Control = AO) | 7 weeks | Self-practice: regular 30 min sequences at home | Structured sessions; way of guidance not further specified |
| Stetler, et al. (2006). [58] | Participants from University campus  (Male: 10.4%; Female: 89.6%) | *N* = 47  *M* age = 27.5, *SD* = 10.3 | Emotional disclosure  (Control = writing about their schedule for the upcoming week) | 11-15 days | Appointments: 3 individual sessions of 20 min | Researchers |
| Vedhara, et al. (2003). [23] | Elderly  (Male: 44.2%; Female: 55.8%) | *N* = 43  *M* age = 75, *SD* = 7 | Stress management  (Control = AO) | 2 months | Appointments: weekly group sessions of 1 hr | Psychologist |
| Weinman, et al. (2008). [59] | Male students and university staff | *N* = 36  *M* age = 22.2, *SD* = 4.1 | Emotional disclosure  (Control = writing about time management) | 3 days | Appointments: daily individual writing sessions of 20 min | Structured sessions; way of guidance not further specified |
| Whitehouse, et al. (1996). [60] | Students  (Male: 40%; Female: 60%) | *N* = 35  *M* age = 24.8 | Hypnosis  (Control = WLC) | 3.5 months | Appointments: weekly group sessions of 1.5 hrs  Self-practice: daily diaries and 15 min self-hypnosis practice | Psychiatrist |
| Witek-Janusek, et al. (2008). [83] | Women with breast cancer | *N* = 66  *M* age = 54.6, *SD* = 9.2 | MBSR/meditation  (Control = CAU) | 2 months | Appointments: weekly group sessions of 2.5 hrs and 1 full day session  Self-practice: homework assignments by a program workbook and audiotapes | Psychologist |
| Witt (2003). [97] | Humans with birch pollen allergy  (Gender not specified) | *N* = 72  *M* age = 42, range = 18-66 | Multicomponent cognitive behavioral intervention  (Control = AO) | 1 month | Appointments: biweekly group sessions of 2.5 hrs | Structured sessions; way of guidance not further specified |
| Zachariae, et al. (1989). [63] | Highly hypnotic susceptible subjects  (Male: 72.2%; Female: 27.8%) | *N* = 18  Age not specified | Hypnosis  (Control = AO) | 4 days | Appointments: 1 session  Self-practice: twice daily 20 min sessions using audiotapes of hypnosis and imagery during 3 days | Structured session; way of guidance not further specified |
| Zachariae, et al. (1990). [62] | Healthy subjects  (Gender not specified) | *N* = 14  Age not specified | Stress management  (Control = AO) | 10 days | Appointments: 1 individual session of 45 min and 1 individual session of 60 min | Structured sessions; way of guidance not further specified |
| Zachariae, et al. (1994). [61] | Study 1:  Healthy subjects  (Male: 30%; Female: 70%)  Study 2:  Healthy subjects  (Male: 30%; Female: 70%) | Study 1:  *N* = 30  *M* age = 30.5, *SD* = 8.9  Study 2:  *N* = 30  *M* age = 27.7, *SD* = 6.2 | Study 1:  Stress management  (Control = AO)  Relaxation  (Control = AO)  Study 2:  Stress management  (Control = AO)  Relaxation  (Control = AO) | Study 1:  3 weeks  3 weeks  Study 2:  3 weeks  3 weeks | Study 1:  Appointments: weekly individual sessions of 1 hr  Self-practice: 5 times a week through an audio cassette tape  Appointments: weekly individual sessions of 1 hr  Self-practice: 5 times a week through an audiocassette tape  Study 2:  Appointments: weekly individual sessions of 1 hr  Self-practice: 5 times a week through an audio cassette tape  Appointments: weekly individual sessions of 1 hr  Self-practice: 5 times a week through an audiocassette tape | Study 1:  Structured sessions; way of guidance not further specified  Structured sessions; way of guidance not further specified  Study 2:  Structured sessions; way of guidance not further specified  Structured sessions; way of guidance not further specified |
| Zautra, et al. (2008). [91] | Patients with RA  (Male: 31.9%; Female: 68.1%) | *N* = 144  *M* age = 54.2, *SD* = 13.6 | Mindfulness meditation  (Control = general education concerning RA and other health-related topics)  Multicomponent cognitive behavioral intervention  (Control = general education concerning RA and other health-related topics) | 2 months  2 months | Appointments: weekly group sessions  Self-practice: weekly homework practices  Appointments: weekly group sessions  Self-practice: weekly homework practices | Psychologist  Psychologist |

*Note.* AO = assessment-only; CABG = Coronary Artery Bypass Grafting; CAU = care as usual; CBSM = Cognitive Behavioral Stress Management; CBT = Cognitive Behavioral Therapy; HIV = Human Immunodeficiency Virus; hrs = hours; M = Mean; MBSR = Mindfulness Based Stress Reduction; min = minutes; N = Number; RA = Rheumatoid Arthritis; SD = Standard Deviation; UC = Ulcerative Colitis; WLC = waiting-list control.

*Note 2.* The reported *N* is based on the total study population for which age and gender were reported. This *N* could deviate from the study population for which the intervention outcomes were measured due to possible drop out during follow up measurements.

Supplemental Table 3.

*Challenges and outcomes*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | **Challenges**  ***In vivo* *In vitro* Psycho-**  **stimulus 🡪 target physiological** | | | | **Timing specifications Other immune assays**  **Measuring time points Outcome**  **parameters** | | **Effects**  **Present Absent** | |
| Andersen, et al. (2004). [65] | - | In PBL:  PHA 🡪 LPR  Con A 🡪 LPR  K562 🡪 NKCC | - | | Baseline and after intervention | CD3, CD4, CD8, CD56 | ↑ LPR to Con A\*\*, ↑ LPR to PHA\* | CD3, CD4, CD8, CD56, NKCC |
| Andersen, et al. (2007). [64] | - | In PBL:  PHA 🡪 LPR  Con A 🡪 LPR  K562 🡪 NKCC | - | | Before intervention, 8 months after intervention | - | ↑ LPR to PHA\* | LPR to Con A, NKCC |
| Andersen, et al. (2010). [66] | - | In PBL:  PHA 🡪 LPR  Con A 🡪 LPR  K562 🡪 NKCC | - | | Date of breast cancer recurrence, 4, 8 and 12 months later | - | From 4 to 12 months: ↑ NKCC\*  At 12 months: ↑ NKCC\*, ↑ LPR to PHA\*, ↑ LPR to Con A\* | At 4 & 8 months: NKCC, LPR to Con A and PHA |
| Antoni, et al. (1991). [37] | - | In whole blood:  PHA 🡪 LPR  PWM 🡪 LPR  N/A 🡪 NKCC | Serostatus notification | | 3 days before serostatus notification (after intervention) and one week after serostatus notification | CD4, CD56 | In seropositives: ↑ CD4\*\*; ↑ LPR to PHA\*; ↑ NKCC\*\*, ↑ CD56\* | LPR to PWM |
| Antoni, et al. (2009). [67] | - | In PBMC:  Anti-CD3 🡪 IL-2, IL-4, and IFN- γ production | - | | Before intervention, 3 months and 9 months after intervention | CD4, CD8, CD56, CD56+CD3+, CD19 | 3 months after intervention: ↑ IL-2 production\*, ↑ IFN-γ production\*\*, ↑ IL-2:IL-4 ratio\* | At 9 months: IL-2, IFN- γ  Overall: IL-4, CD4, CD8, CD56, CD56+CD3+, CD19 |
| Arefnasab, et al. (2016). [106] | - | In PBMC:  PHA 🡪 LPR  CON A 🡪 LPR | - | | Before and after intervention | IL-17, CD4+, CD8+, CD56 | ↑ LPR to Con A\*\*, ↑ LPR to PHA\*\*, ↑ IL-17\*\* | CD4+, CD8+, CD56 |
| Beem, et al. (1999). [99] | - | In PBMC:  PHA 🡪 LPR  anti-CD3 🡪 LPR  PWM 🡪 LPR  K562 🡪 NKCC | - | | Before and after intervention | CD19+, CD20+, CD3+, CD4+, CD8+, CD5+, CD16+, CD56+, CD3- |  | LPR to PHA / anti-CD3 / PWM, NKCC, CD19+, CD20+, CD3+, CD4+, CD8+, CD5+, CD16+, CD56+, CD3- |
| Bower, et al. (2003). [100] | - | In PBMC:  K562 🡪 NKCC | - | | Before and after intervention | CD3-, CD16+, CD56+ |  | NKCC, CD3-, CD16+, CD56+ |
| Broadbent, et al. (2012). [107] | Wound 🡪 hydroxyproline deposition | - | - | | 7 days after intervention | - | ↑ Hydroxyproline deposition\* |  |
| de Brouwer, et al. (2013). [27] | - | - | TSST | | 1 week after intervention before TSST, and 0, 20, 60 min after TSST and after 7-weeks relapse prevention before TSST, and 0, 20, 60 min after TSST | IL-1β, IL-2, IL-4, IL-5, IL-6, IL-7, IL-8, IL-10, IFN-γ, TNFα | After 7 weeks relapse prevention: ↓ stress-induced IL-8\* | 1 week after intervention: IL-8.  Overall: IL-1β, IL-2, IL-4, IL-5, IL-6, IL-7, IL-10, IFN-γ, TNFα |
| Christensen, et al. (1996). [38] | - | In PBL:  K562 🡪 NKCC | - | | Before and after intervention |  |  | Overall: NKCC |
| Coates, et al. (1989). [84] | - | In N/A:  N/A 🡪 NKCC  Con A 🡪 LPR  Candida antigen 🡪 LPR  CMV 🡪 LPR | - | | Before and after intervention | IgA, CD4, CD8 |  | NKCC, LPR to Con A / candida antigen / CMV, IgA, CD4, CD8 |
| Cohen, L., (2011). [68] | - | In PBMC:  K562 🡪 NKCC | - | | After intervention and 2 days after surgery | IL-1β, IL-12p70, IFN-γ, IL-6, IL-8, IL-10, TNF-α, CD3, CD19, CD16, CD56, CD4, CD25high/CD4+ | Stress management group: ↑ NKCC\*, ↑ IL-12p70\*, ↑ IL-1ß\*, ↑ TNF-α\* | IL-6, IL-8, IL-10, IFN-γ, CD3, CD19, CD16, CD56, CD4, CD25high/CD4+ |
| Davidson, et al. (2003). [39] | Influenza vaccine 🡪 Influenza vaccine antibody titers | - | - | | 3-5 weeks after vaccination, 8-9 weeks after vaccination | - | ↑ Antibody titers\* |  |
| Doering, et al. (2007). [103] | - | In PBMC:  K562 🡪 NKCC | - | | Baseline, 3 months and 6 months after surgery | IL-6, CRP |  | NKCC, IL-6, CRP |
| Elsenbruch, et al. (2005). [101] | - | In whole blood:  LPS 🡪 TNF-α production | - | | Before and after intervention | CD3, CD3+CD4+, CD3+CD8+, CD3-CD16+CD56+, CD3-CD20+, CD14+ |  | TNF-α production, CD3, CD3+CD4+, CD3+CD8+, CD3-CD16+CD56+, CD3-CD20+,CD14+ |
| Eremin, et al. (2009). [69] | - | In PBMC:  K562 🡪 NKCC  Daudi 🡪 LAK cell activity | - | | 3 days before start of chemotherapy, during chemotherapy before the 1st, 2nd, 4th and 6th cycle of chemotherapy, the day before surgery, 2 or 3 days after surgery, before radiotherapy, 4 and 12 weeks after radiotherapy | IL-1β, IL-2, IL-4, IL-6, TNF-α, CD2+, CD3+, CD4+, CD8+, CD19+, CD25+, CD16+, CD56+, CD14+ | After chemotherapy and 4 weeks after radiotherapy: ↑ CD3+\*  4 weeks after radiotherapy: ↑ CD25+\*\*  12 weeks after radiotherapy: ↑ LAK cell activity\* | Other time points: CD3+, CD25+, LAK cell activity  Overall: CD2+, CD4+, CD8+, CD19+, CD16+, CD56+, CD14+, IL-1β, IL-2, IL-4, IL-6, TNF-α, NKCC |
| Esterling, et al. (1992). [85] | - | - | Serostatus notification | | Before intervention, at week 5, 6 (after serostatus notification), 7, 8, 10 during the intervention | IgG  Functional assays: EBV-VCA antibody titers, HHV-6 antibody titers, EBV-EA antibody titers | Week 6, 7, and 10 in HIV-infected participants: ↓ EBV-VCA antibody titers\*  Week 8 and 10 in HIV-infected participants: ↓ HHV-6 antibody titers\*\* | Overall: IgG.  Other time points: EBV-VCA and HHV-6 |
| Fawzy, et al. (1990). [70] | - | In PBL:  IFN-augmented NKCC | - | | 1 week before intervention, immediately before the 5th or 6th intervention meeting, 6 months after intervention | CD4, CD8, CD16, CD56, CD57, CD38 | At 6 weeks: ↑ CD57 LGL’s\*, ↑ CD8 T cell%\*, ↑ CD57CD16\*\*  At 6 months: ↑ CD57 LGL’s\*, ↑ CD56\*\*, ↑ CD57CD16\*, ↑ CD16\*, ↑ CD56\*\*, ↓ CD4\*, ↑ IFN-augmented NKCC\* | At 6 weeks: CD4, CD56, CD38, IFN-augmented NKCC  At 6 months: CD8, CD38 |
| Fry, et al. (1964). [98] | Skin prick test 🡪 wheal and flare size | - | - | | Before and after hypnosis | - | ↑ Decrease in wheal size\*\* | Flare size |
| Germond, et al. (1993). [89] | - | In N/A:  PWM 🡪 LPR  Con A 🡪 LPR  PHA 🡪 LPR | - | | Before intervention, during the 4th week and after the 8th week of intervention | - |  | LPR to PWM / Con A / PHA |
| Goodin, et al. (2012). [40] | - | - | CPT | | Before intervention, immediately following termination of CPT and at 15, 20, 25, 30, 40 min after CPT | sTNFαRII |  | sTNFαRII |
| Green, et al. (1988). [41] | Candida injection 🡪 TDH cell activity | - | - | | Before and after intervention | sIgA, IgA, IgG and IgM | ↓ TDH cell activity\*,  ↑ sIgA\*\* | IgA, IgG, IgM |
| Gruber, et al. (1993). [71] | - | In N/A:  Con A 🡪 LPR  N/A 🡪 MLR  N/A 🡪 NKCC | - | | Three samples before intervention, weekly during intervention, three monthly after intervention until week 12. | IgG, IgA, IgM, total white cell counts, peripheral blood lymphocytes | Overall: ↓ White blood cell count\*, ↑ LPR to Con A\*\*, ↑ MLR\*\*, ↑ peripheral blood lymphocytes\*\*, IgG (direction not specified)\*\*, ↑ NKCC\* | IgA, IgM, IL-2 production |
| Gruzelier, et al. (2001a). [42] | - | - | Exams (academic stress) | | Before and after intervention | Total white blood count, CD3, CD4, CD8, CD19, CD56 | ↑ CD56\*\* | Total white blood count, CD3, CD4, CD8, CD19. |
| Gruzelier, et al. (2001b). [43] | - | - | Exams (academic stress) | | Before intervention and after exams | CD3, CD4, CD8, CD19, CD56 | ↑ CD8\* | CD3, CD4, CD19, CD56 |
| Hayney, et al. (2014). [44] | Influenza vaccine 🡪 influenza antibody concentrations | - | - | | Before immunization, 3 weeks and 3 months after immunization | Nasal IgA  Functional assays: IFN- γ, and IL-10 production in PBMC |  | Influenza antibody concentrations, nasal IgA, production of IFN-γ / IL-10 |
| Hosaka, et al. (2002). [105] | - | In PBMC:  K562 🡪 NKCC | - | | Before and after intervention | - | After intervention: ↓ NKCC\*\* |  |
| Irwin, et al. (2015). [104] | - | In PBMC:  LPS 🡪 TNF, IL-6 | - | | CRP: before intervention, after intervention, 12 months after intervention  TNF, IL-6 production: before intervention, 2 months after start of intervention, after intervention, 3 months after intervention, 12 months after intervention | CRP levels | Overall: ↓ CRP\*.  At 2 months after the start of the intervention: ↓ TNF production\* | Overall: IL-6 production  Directly after the intervention, at 3 and 12 months after completion of the intervention: TNF production |
| Johnson, et al. (1996). [45] | - | In N/A:  PHA 🡪 LPR  K562 🡪 NKCC | Doctor-patient role-play | | Before intervention, after intervention (directly after the psychological stressor), 1 day or 2 days later | IL-1, IFN-γ, IgA |  | LPR to PHA, NKCC, IL-1, IFN- γ, IgA |
| Kaliman, et al. (2014). [46] | - | - | TSST | | Before and after intervention | RIPK2, COX2, CCR7, CXCR1, IL-6, TNF-α | ↓ RIPK2\*\*, ↓ COX-2\* | CCR7, CXCR1, TNF-α, IL-6 |
| Kern-Buell, et al. (2000). [96] | DTH skin test 🡪 mumps induration size | - | - | | Before and after intervention | White blood cell count, neutrophils, lymphocytes, monocytes, eosinophils, basophils, CD4, CD8, CD56  Functional assays: candida and tetanus antigen response | ↓ neutrophils\*, ↑ basophils\*, ↑ mumps induration size\* | Candida and tetanus antigen response, white blood cell counts, lymphocytes, monocytes, eosinophils, CD4, CD8, CD56 |
| Kiecolt-Glaser, et al. (1985). [92] | - | In PBMC:  PWM 🡪 LPR  PHA 🡪 LPR  K562 🡪 NKCC | - | | Before intervention, at the end of the intervention, 1 month after the intervention | Functional assays:  HSV antibody titers | Overall: ↑ NKCC\*, ↓ HSV antibody titers | LPR to PWM / PHA |
| Kiecolt-Glaser, et al. (1986). [47] | - | In PBMC:  K562 🡪 NKCC | Exams (acute stress) | | 1 month after the first examination series, final day of 3-day examination series during examinations | CD4, CD8 |  | NKCC, CD4, CD8 |
| Kiecolt-Glaser, et al. (2001). [48] | - | In PBL:  PHA 🡪 LPR  Con A 🡪 LPR  LPS 🡪 IL-1ß  K562 🡪 NKCC | Exams (academic stress) | | Before intervention, 3 days before academic examination | CD3+, CD4+,CD8+, CD14, CD45 | ↑ LPR to PHA\*, ↑ LPR to Con A\*, ↑ CD3+\*, ↑ CD4+\* | IL-1ß production,  NKCC, CD8+, CD14, CD45 |
| Koh, et al. (2008). [49] | - | In PBMC:  PHA 🡪 IL-6, IL-10, and TNF-α production | Exams (academic stress) | | Before stress period and after stress period | - | After stress period: ↓ IL-6 production\*\*, ↓ TNF-α production\*\*, ↑ IL-10 production\*\* |  |
| Koschwanez, et al. (2013). [93] | Wound 🡪 wound re-epithelialization | In whole blood:  LPS 🡪 TNF-α, IL-1ß, and IL-6 production | - | | Blood assays:  Before intervention, immediately before the wound procedure (2 weeks after intervention)  Wound assays:  7, 11, 14, 17 and 21 days after punch biopsy | - | At day 11 after punch biopsy: ↑ fully re-epithelialized wound\* | At day 7, 14, 17 and 21: wound re-epithelialization  Overall: TNF-α, IL-1ß, and IL-6 production |
| Larson, et al. (2000). [72] | - | In PBMC:  Anti-CD3 antibody 🡪 IFN-γ production  K562 🡪 NKCC | - | | Before intervention, after intervention / pre-surgery, post-surgery | - | ↑ IFN-γ production\*\* | NKCC |
| Lekander, et al. (1997). [73] | - | In PBMC:  Con A 🡪 LPR  K562 🡪 NKCC | - | | Before and after intervention | Lymphocytes, granulocytes, monocytes, white blood cell count | ↑ Lymphocytes\*\* | White blood cell count, monocytes, LPR to Con A, granulocytes, NKCC |
| Lengacher, et al. (2008). [74] | - | In PBMC:  IL-2 🡪 LAK  K562 🡪 NKCC | - | | Before and after intervention | - | ↑ NKCC\*, ↑ LAK\* |  |
| Lengacher, et al. (2013). [75] | - | In whole blood:  PHA 🡪 CD3+CD69+, IL-4, IFN- γ | - | | Before intervention and after intervention | CD4+, CD8+, CD19+, CD16+56+, CD3+CD69+ | ↑ CD3+CD69+ stimulation\*\*, ↑ LPR to PHA for Th1/Th2 ratio\* | IFN- γ and IL-4 stimulation, CD4+, CD8+, CD19+, CD16+56+ |
| Locke, et al. (1987). [50] | Skin testing with antigens 🡪 DTH response | - | - | | After 24 hrs and after 48 hrs after intervention | - |  | DTH response |
| Mawdsley, et al. (2008). [102] | - | In whole blood:  LPS 🡪 IL-6 and TNF- α production | - | | Before intervention, after intervention, 0.5 hrs after intervention | Serum IL-6, serum IL-13, CD16/CD56, platelet activation, leukocyte count, mucosal ROM production, rectal mucosal release of IL-13 and TNF-α | ↓ Serum IL-6\*\*, ↓ rectal mucosal fluid concentration of IL-13\*\*, ↓ rectal mucosal blood flow\*\* | Serum IL-13, TNF-α production, IL-6 production, CD16/CD56, platelet activation, leukocyte count, mucosal ROM production |
| McCain, et al. (2003). [86] | - | In PBMC:  K562 🡪 NKCC  PHA 🡪 cytokine production | - | | Before intervention, after intervention, 6 months after intervention | CD3+/CD4+, CD3+/CD8+/CD57+, CD3-/CD57+ lymphocytes, NKCC, IL-2, IFN-γ, IL-4, IL-10  Functional assay:  Host viral load | Social support group immediately post intervention: ↓ IL-4\* | Overall: CD3+/CD4+, CD3+/CD8+, CD8+/CD57+, CD3-/CD57+ lymphocytes, NKCC, IL-2, IFN-γ, IL-10, host viral load  After 6 months: IL-4 |
| McCain, et al. (2008). [36] | - | In PBMC:  PHA 🡪 LPR | - | | Before intervention, after intervention, 6 months after intervention | - | Overall: ↑ LPR to PHA\* |  |
| McGrady, et al. (1992). [51] | - | In PBMC:  PHA 🡪 LPR  Con A 🡪 LPR | - | | Before and after intervention | Total white blood cell counts, differential counts | ↑ LPR to PHA\*, ↓ total white blood cell count\*, ↓ neutrophil counts\* | LPR to Con A |
| McGregor, et al. (2004). [76] | - | In PBMC:  anti-CD3 🡪 LPR | - | | Before intervention, 3 months after intervention | CD3, CD4, CD8, CD19, CD3-CD56+ | ↑ LPR to anti-CD3\* | CD3, CD4, CD8, CD19, CD3-CD56+ |
| Moynihan, et al. (2013). [94] | Injection with KLH 🡪 anti-KLH antibody levels | - | - | | Immediately after intervention (before injection), 3 weeks after intervention, 24 weeks after intervention | - | At 24 weeks follow up after antigen challenge: ↓ anti-KLH antibody levels\* | At 3 weeks: anti-KLH antibody levels |
| Mulder, et al. (1995). [87] | - | In whole blood:  anti-CD3 🡪 LPR | - | | Before intervention, after every 3 months up to 24 months after intervention | CD4 |  | LPR to anti-CD3, CD4 |
| Naito, et al. (2003). [52] | - | In PBMC:  K562 🡪 NKCC | Exams (acute stress) | | Before intervention, during exams | CD4+%, CD8+%, CD56+% | ↑ CD8+%\* | CD56+%, CD4+%, NKCC |
| Nelson, et al. (2008). [77] | - | In PBMC:  Anti-CD3 / anti-CD28 🡪 IFN- γ and IL-5 | - | | Before intervention and 2 weeks after intervention | IL-10, CD3, CD4, CD8, CD14, CD16, CD56 |  | IL-10, IFN-γ production, IL-5 production, CD3, CD4, CD8, CD14, CD16, CD56 |
| Nunes, et al. (2007). [78] | - | In PBMC:  PHA with dexamethasone and corticosteron 🡪 LPR | - | | Before and after intervention | - |  | LPR to PHA |
| O'Leary, et al. (1988). [90] | - | In PBMC:  PHA 🡪 LPR  Con A 🡪 LPR  PWM 🡪 LPR | - | | Before and after intervention | CD4, CD8 |  | CD4, CD8, LPR to PHA / Con A / PWM |
| Pace, et al. (2009). [53] | - | - | TSST | | After intervention (before the TSST), and 30, 60, 75 and 90 min after TSST | IL-6 |  | IL-6 |
| Pennebaker, et al. (1988). [54] | - | In PBMC:  PHA 🡪 LPR  Con A 🡪 LPR | - | | LPR to PHA:  Before intervention, after intervention, 6 weeks after intervention  LPR to Con A:  Before intervention, after intervention | - | Overall: ↑ LPR to PHA\* | LPR to Con A |
| Petrie, et al. (1995). [55] | Hepatitis B vaccine 🡪 anti-hepatitis B antibody levels | In PBMC:  K562 🡪 NKCC | - | | After intervention (before the 1st vaccination), 1 month after intervention (before the 1st booster vaccination), 4 months after intervention (before the 2nd booster vaccination), at 6 months after the intervention | CD4, CD8, CD56, basophils | At 4 and 6 months after intervention: ↑ Hepatitis B antibody levels\*  Directly after intervention: ↓ CD4 counts\*, ↓ basophils\*\* | 1 month after intervention: Hepatitis B antibody levels.  At 4 months and 6 months after intervention: CD4, basophils.  Overall: CD8, CD56, NKCC |
| van der Pompe, et al. (1997). [82] | - | In whole blood:  K562 🡪 NKCC  PWM 🡪 LPR  PHA 🡪 LPR | - | | Before and after intervention | CD4, CD8, CD3, CD16/56 | Post treatment: ↓ CD8 cell percentages\*\*, ↓ LPR to PWM\*\*, ↓ CD4 cell percentages\*\*, ↓ CD16/56 cell percentages\*\* | CD3, NKCC, LPR to PHA |
| van der Pompe, et al. (2001). [81] | - | In whole blood:  K562 🡪 NKCC  PWM 🡪 LPR  PHA 🡪 LPR | Speech task | | Before intervention (2 times before task onset, 5 min after task onset and 9 min and 37 min after task onset) and after intervention (2 times before task onset, 5 min after task onset and 9 min and 37 min after task onset) | CD3, CD4, CD8, CD16/56, CD19 | After intervention (during stress induction): ↓ CD16/56\*, ↓ NKCC\* | LPR to PHA / PWM, CD3, CD4, CD8, CD19 |
| Richardson, et al. (1997). [79] | - | In PBMC:  K562 🡪 NKCC | - | | Before and after intervention | IL-1α, IL-1ß, IL-2, IFN-γ, β-endorphins |  | NKCC, IL-1α, IL-1ß, IL-2, IFN-γ, β-endorphins |
| Robinson, et al. (2003). [28] | - | In whole blood:  K562 🡪 NKCC | - | | Before and after intervention | RANTES, SDF-1, CD16/CD56 | After intervention: ↑ CD16/CD56\*\*, ↑ NKCC\* | SDF-1, RANTES |
| Rosenkranz, et al. (2013). [56] | Suction blisters on the volar forearm 🡪 capsaicin-induced flare size | - | TSST | | IL-8 and TNF-α in blister fluid:  4 weeks before intervention, within 4 weeks after the intervention, 4 months after the intervention  Capsaicin-induced flare size:  4 weeks before intervention, within 4 weeks after the intervention | Functional assays: IL-8 and TNF-α in blister fluid | ↓ capsaicin-induced flare size\*\* | TNF-α and IL-8 in blister fluid |
| Savard, et al. (2005). [80] | - | In PBL:  K562 🡪 NKCC  In whole blood:  LPS 🡪 IL-1ß, IFN- γ | - | | Before intervention, after intervention, 3, 6 and 12 months after intervention | Whole blood cell count, CD3+, CD4+, CD8+, CD16+/CD56+, lymphocyte count | After intervention: ↑ IFN-γ production\*\*, ↓ lymphocyte count\*, ↑ IL-1β production\*  Follow-up: ↑ whole blood cell counts\*\*, ↑ lymphocytes\*\*, ↓↑ IFN- γ production\*\* | Overall: NKCC, CD3+, CD4+, CD8+, CD16+/CD56+.  After intervention: whole blood cell counts  Follow-up: IL-1ß production |
| Smith, et al. (1992). [57] | Varicella Zoster skin test 🡪 induration size, varicella zoster antigen response | In PBMC:  PHA 🡪 LPR | - | | Before intervention (before and after skin testing), after intervention at 24 hrs and 48 hrs | - | After 24-hrs: ↑ induration size\* | Overall: LPR to PHA, varicella zoster antigen response  After 48 hrs: induration size |
| Solberg, et al. (1995). [35] | - | - | Treadmill exercise test | | Before and after physical stress test | CD2+, CD4+, CD8+ cell counts | ↓ CD8+ cell count\* | CD2+, CD4+ cell counts |
| Stetler, et al. (2006). [58] | Influenza vaccine 🡪 antibody response to vaccine | - | - | | Before intervention, 1 and 3 months after vaccination | - | ↓ Antibody response to vaccine\* |  |
| Vedhara, et al. (2003). [23] | Influenza vaccine 🡪 Response to vaccine | - |  | | Before vaccination, after vaccination | - | ↑ Clinically appropriate response to vaccination\*\* |  |
| Weinman, et al. (2008). [59] | Skin biopsy at the inner aspect of the upper non-dominant arm 🡪 wound diameter | - | - | | 7, 14, and 21 days after skin biopsy | - | 14 and 21 days after skin biopsy: ↓ Wound diameter\* | 7 days after skin biopsy: wound diameter |
| Whitehouse, et al. (1996). [60] | - | In PBMC:  Con A 🡪 LPR  PHA 🡪 LPR  PWM 🡪 LPR  K562 🡪 NKCC | Exams (acute stress) | | Before intervention, after intervention, 3 weeks after intervention (during final exams), 6 weeks after intervention (3 weeks after exams) | Activated T-cells, B-lymphocyte counts, white blood cells, granulocytes, NK cell count | After intervention: ↓ Activated T –cells\*\* | Overall: B-lymphocyte counts, white blood cells, granulocytes, CD56, LPR to Con A / PHA / PWM, NKCC.  At follow-up: activated T-cells |
| Witek-Janusek, et al. (2008). [83] | - | In PBMC:  PHA / PMA 🡪 IFN- γ, IL-4, IL-6 production  K562 🡪 NKCC | - | | Before intervention, 1 month after the start of the intervention, after intervention, 1 month after intervention | CD3, CD16, CD19, CD56, CD4, CD8, CD16/CD56 | Overall: ↑ NKCC\*, ↑ IFN-γ production\*, ↓ IL-4 production\*, ↓ IL-6 production\*  After intervention and 1 month after intervention: ↓ IL-10 production\*. | Overall: CD3, CD16, CD19, CD56, CD4, CD8, CD16/CD56  1 month after start of the intervention: IL-10 production |
| Witt (2003). [97] | Histamine provocation, skin prick testing 🡪 wheal area | - | - | | Before intervention (before start of birch pollen season), after intervention (at start of birch pollen season), 14 weeks after intervention (at end of birch pollen season) | - | Overall: ↓ Wheal area\* |  |
| Zachariae, et al. (1989). [63] | Skin prick in the upper dermal layer on the ventral side of both forearms 🡪 wheal area, flare size, palpable induration | - | - | | Before and after intervention | - | Type I reaction: ↓ flare size\*  Type IV reaction: ↓ palpable induration\*\*, ↓ flare size\* | Type I reaction: wheal area |
| Zachariae, et al. (1990). [62] | - | In whole blood:  K562 🡪 NKCC | | - | Before intervention, 7 days after the 1st intervention session; 10 days after the 1st intervention session | Leukocyte differential count, leukocyte count | ↑ NKCC\* | Leukocyte differential count, leukocyte count |
| Zachariae, et al. (1994). [61] | -  - | Study 1:  In PBMC:  PHA 🡪 LPR  Con A 🡪 LPR  PWM 🡪 LPR  FMLP 🡪 Monocyte chemotaxis  Study 2:  In PBMC:  K562 🡪 NKCC | | -  - | Study 1:  At the start and end of the 1st, 8th, and 15th day, and 36 days after the start of the intervention | Study 1:  Monocyte chemo taxis, lymphocyte production  Study 2:  - | Study 1:  Imagery group: ↑ monocyte chemo taxis at day 8\*, ↑ LPR to PHA at day 8\*, ↓ LPR to PWM at day 8 and 15\*\*  Relaxation group over time: ↑ monocyte chemotaxis at day 8\*, ↓ LPR to PWM at day 8\*  Study 2:  - | Study 1:  Imagery group: LPR to Con A  Relaxation group: LPR to PHA / Con A  Study 2:  NKCC |
| Zautra, et al. (2008). [91] | - | In PBMC:  LPS 🡪 IL-6 | | - | Before and after intervention | - | CBT group: ↓ IL-6 production\* | Mindfulness meditation and emotion regulation group: IL-6 production |

*Note.*PBL = Peripheral Blood Leukocytes; CBT = Cognitive Behavioral Therapy; CCR = C-C Chemokine Receptor; CD = Classification Determinant; CMV = Cytomegalovirus; Con A = Concanavalin A; COX = Cyclooxygenase; CPT = Cold Pressor Test; CRP = C-reactive Protein; CXCR = CXC Chemokine Receptor; DTH = Delayed Type Hypersensitivity; EBV-VCA = Epstein-Barr Virus Viral Capsid Antigen; EBV-EA = Epstein-Barr Virus Early Antigen; FMLP = Formyl-Methyl-Leucinc Peptide; HHV = Human Herpes Virus; HIV = Human Immunodeficiency Virus; hrs = hours; HSV = Herpes Simplex Virus; Ig = Immunoglobulin; IL = Interleukin; IFN = Interferon; KLH = Keyhole Limpet Hemocyanin; LAK = Lymphokine Activated Killer Cell; LGL = Large Granular Lymphocyte; LPR = Lymphocyte Proliferative Response; LPS = Lipopolysaccharide; min = minutes; MLR = Mixed Lymphocyte Responsiveness; N/A = Not Available; NKCC = Natural Killer Cell Cytotoxicity; PBMC = Peripheral Blood Mononuclear Cells; PHA = Phytohemagglutinin; PMA = Phorbol Myristate Acetate; PWM = Pokeweed Mitogen; RIPK = Receptor-interacting Protein Kinase; RANTES = regulated upon activation, normal T-cell expressed and presumably secreted; ROM = Reactive Oxygen Metabolite; SDF = stromal derived factor; TDH cells = T Delayed Hypersensitivity cells; Th = T helper; TNF = Tumor Necrosis Factor; TSST = Trier Social Stress Test; \* = p ≤ .05; \*\* = p ≤ .01.

*Note 2.* At the left side, information on the included the challenges and how the challenges were measured is specified. In the middle, the incorporated immune outcome parameters are presented and at the right, the results are incorporated. In the last two columns, an effect is specified as present when the intervention condition significantly differed from the control condition after the intervention. When more than two time points (i.e., before and after intervention) were taken into account, the time point on which an effect was found is specified. The direction of the effects is specified by using arrows and represent the outcomes for the intervention condition in perspective to the control condition. When no significant differences between the intervention and control condition were found, theoutcome parameters are described in the column “absent”.

Supplemental Figure 1

Records identified through database searching  
(n = 19780)

Records after duplicates removed  
(n = 14800)

Number of articles excluded  
(n = 73)

* No immune or psychological challenge (n = 24)
* No psychological intervention (n =18)
* No appropriate control condition (n = 17)
* No full text available (n = 6)
* Lacking essential details (n = 4)
* No immunological outcome measures (n = 2)
* No new data (n = 1)
* No experimental study (n = 1)

Number of relevant papers  
(n = 138)

Number of articles included  
(n = 65)

New studies based on screening reference list (n = 9)

Total number of included articles (n =74)

Flowchart of the study design showing the selection process, including reasons for exclusion. Study selection was done by two independent reviewers.

Supplemental Figure 2****

Figure 2. Risk of bias graph. Judgements of the independent review authors about the separate risk of bias items presented as percentages across all included studies.

Supplemental Figure 3

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Supplemental Figure 3. Risk of bias summary. Judgments of the independent review authors about the separate risk of bias items for each of the included study presented as low, high or unclear.

Supplemental Figure 4. ****

Supplemental Figure 4. Forest plot of the random-effects meta-analysis on the studies incorporating *in vitro* immune-related stimulations. Positive values for g indicate more optimal immune responses in the intervention condition than in the control condition.

Supplemental Figure 5.

****

Supplemental Figure 5. Forest plot of the random-effects meta-analysis on the studies incorporating *in vivo* immune-related challenges. Positive values for g indicate more optimal immune responses in the intervention condition than in the control condition.

Supplemental Figure 6.

****

Supplemental Figure 6. Forest plot of the random-effects meta-analysis on the studies incorporating psychophysiological challenges. Positive values for g indicate more optimal immune responses in the intervention condition than in the control condition.

Supplemental Figure 7.

****

Supplemental Figure 7. Funnel plot of standardized differences in mean by Hedges *g*.

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| --- | --- | --- | --- |
| **Section/topic** | **#** | **Checklist item** | **Reported on page #** |
| **TITLE** | | |  |
| Title | 1 | Identify the report as a systematic review, meta-analysis, or both. | 2, title page |
| **ABSTRACT** | | |  |
| Structured summary | 2 | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | 1 |
| **INTRODUCTION** | | |  |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 2-4 |
| Objectives | 4 | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | 4 |
| **METHODS** | | |  |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | 4 |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | 4-5 |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | 5 |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | 5 |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | 5-6 |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | 5-6 |
| Data items | 11 | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made. | 4-6 |
| Risk of bias in individual studies | 12 | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis. | 6 |
| Summary measures | 13 | State the principal summary measures (e.g., risk ratio, difference in means). | 6-8 |
| Synthesis of results | 14 | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis. | 6-8 |

Page 1 of 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Section/topic** | **#** | **Checklist item** | **Reported on page #** |
| Risk of bias across studies | 15 | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies). | 9 |
| Additional analyses | 16 | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified. | n.a. |
| **RESULTS** | | |  |
| Study selection | 17 | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram. | 8-9 |
| Study characteristics | 18 | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations. | 9-10 |
| Risk of bias within studies | 19 | Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12). | 9 |
| Results of individual studies | 20 | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot. | 9-14 |
| Synthesis of results | 21 | Present results of each meta-analysis done, including confidence intervals and measures of consistency. | 11-14 |
| Risk of bias across studies | 22 | Present results of any assessment of risk of bias across studies (see Item 15). | 9, 13 |
| Additional analysis | 23 | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]). | n.a. |
| **DISCUSSION** | | |  |
| Summary of evidence | 24 | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers). | 14-20 |
| Limitations | 25 | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). | 14-20 |
| Conclusions | 26 | Provide a general interpretation of the results in the context of other evidence, and implications for future research. | 19-20 |
| **FUNDING** | | |  |
| Funding | 27 | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. | title page |

*From:*  Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

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